City of Berkeley

2211 Harold Way Mixed-Use Project

Draft

Environmental Impact Report

SCH# 2014052063

October 2014

Environmental Scientists Planners Engineers

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Draft Environmental Impact Report

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October 2014

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EXECUTIVE SUMMARY

This section summarizes the characteristics of the proposed project and the significant environmental impacts, mitigation measures, and residual impacts associated with the proposed project.

PROJECT SYNOPSIS

Project Applicant

Joseph Penner
HSR Berkeley Investments, LLC

c/o Rhoades Planning Group
1611 Telegraph Avenue, Suite 200
Oakland, California 94612

Project Description

Project Location. The project site is a portion of an irregularly shaped but generally square 1.63-acre larger property forming one city block in Downtown Berkeley, bounded by and fronting Shattuck Avenue to the east, Kittredge Street to the south, Harold Way to the west, and Allston Way to the north. The assessor's parcel numbers for the larger property are 057-2027-00600, -00700, -00800, and -00900. The project site itself – the primary area of proposed new development – is a 34,800 square-foot (0.8-acre), generally "L" shaped portion of the larger property, with frontage on Allston Way, Harold Way and Kittredge Street, and also includes a portion of the basement level of the adjacent Hotel Shattuck Plaza building. The General Plan designation for the site is Downtown (DT); Downtown Area Plan, Core Area and the site is zoned Downtown Mixed Use District (C-DMU), Core Area.

Existing Conditions. The larger property is a fully urbanized city block that is generally level, sloping slightly downward towards the west and south. The project site – the area where existing buildings would be altered or demolished and new buildings constructed – is currently occupied by two structures. The first structure is a small office building with an area of US Post Office boxes on the corner of Alston Way and Harold way, which is also known as the Postal Annex building or 1959 Hink's Building, and was constructed in the 1950s. The second structure, known as the Hink's Addition/Shattuck Cinemas, was the 1926 Hink's addition to the Shattuck Hotel building. This structure has frontage on Kittredge Street and Harold Way, and houses the Shattuck Cinema's movie theaters, part of the Habitot Children's Museum, and office space. Both buildings are two stories in height with a partial third story and a basement level (although the theater rooms occupy the equivalent of two stories of vertical space in what is essentially one level of useable space). The structural area affected by the project also extends to a portion of the basement level sitting below the street retail and Shattuck Hotel building.

Directly adjacent to the project site and on the same block is the Shattuck Hotel, a City of Berkeley Landmark, whose main lobby and entrance are on Allston Way but which also occupies the airspace above the ground floor retail along the entire block's frontage on Shattuck Avenue.

Project Description. The 2211 Harold Way Mixed Use Project is a proposed residential and commercial mixed-use development in Downtown Berkeley. The project's primary street frontage would be along Harold Way, although it would also front on portions of Allston Way and Kittredge Street. The existing onsite 1959 Hink's Building would be demolished, and a portion of the Shattuck Hotel (primarily the 1926 addition and interior portions of the 1913 addition) building would be removed or altered to prepare the site for construction of the proposed project, including some alteration of the underground areas.

The proposed project would have components of various heights, the highest portion reaching 180 feet in 18 stories. The project would maintain a generally continuous street wall at the edge of the abutting streets up to where the building would step back toward the interior of the site. The proposed building would step down to 54 feet (five stories) along the street fronts, and at the street fronts would be about 10 feet shorter than the adjacent Shattuck Hotel, but would be about three feet taller than the heights of the public library across Kittredge Street and Armstrong College across Harold Way. Building step backs would occur primarily just above the fifth and 13th floors.

The ground floor is proposed to accommodate retail and/or restaurant uses, in addition to residential lobby and amenity areas. A six-theater cinema complex would be located on the ground floor and below-ground levels. Parking would be provided in a three-level subterranean garage. The following table summarizes the basic project components.

Project Summary

Use	Gross Floor Area (Square Feet)	Units
Residential	278,185 (includes 57,893 square feet for residential circulation)*	302
Retail or Restaurant	10,535	n/a
Cinema	21,641	665 seats
Parking	79,109	171 auto 100 bike
Max. Building Height: 180 feet/18 stories		

Sources: Rhoades Planning Group and MVE Institutional, Inc., Jan. 2014
** Residential circulation (includes residential core, circulation, amenities, storage, and ancillary spaces at ground floor such as the lobby, leasing office, fire command and bike storage)*

Requested Approvals. The proposed project is subject to approvals by both the City of Berkeley's Zoning Adjustments Board and the City's Landmarks Preservation Commission. Per the Berkeley Municipal Code, it is anticipated that the proposed project would require the following discretionary approvals:

- *Use Permit for a Mixed Use Development in the C-DMU Zoning District*
- *Use Permit to allow the service of beer, wine and distilled spirits incidental to food service*
- *Administrative Use Permit to allow more than 2,000 square feet of Full Service Restaurant space*

- *Administrative Use Permit to allow amplified live entertainment incidental to food service*
- *Use Permit to construct more than 10,000 square feet of floor area*
- *Use Permit to exceed a building height of 75 feet*
- *Administrative Use Permit to allow mechanical penthouse to exceed maximum building height*
- *Use Permit to demolish a non-residential building (1959 Hink's Building)*
- *Structural Alteration Permit for the alteration of the Shattuck Hotel Landmark structure and site (1926 Hink's Department Store addition and portions of 1913 addition to be removed), and for demolition of the 1959 Hink's Building at Allston and Harold Ways.*

Streamlined CEQA Processing for Infill Projects. The project qualifies for streamlined review under CEQA Guidelines Section 15183.3, due to its mixed-use nature and proximity to a major transit stop, among other site- and project-specific factors. The purpose of Guidelines section 15183.3 is to allow lead agencies to limit the topics subject to CEQA review at the project level "where the effects of infill development have been addressed in a planning level decision or by uniformly applicable development policies." The primary planning level decision is the adopted Downtown Area Plan, and the referenced environmental documentation is the 2009 Downtown Area Plan Final EIR.

AREAS OF CONTROVERSY KNOWN TO THE LEAD AGENCY

Areas of controversy known to the City of Berkeley include aesthetics and historic resources. Interest groups and members of the public at large have expressed concerns regarding the scale and design of the proposed project and regarding the proposed project's potential impacts related to aesthetics and to historic resources. In addition, nearby property owners have expressed concerns about potential construction-related impacts such as noise and loss of parking. Please see Section 1.0, *Introduction*, for a summary of comments received in response to the Notice of Preparation, and Appendix A to this EIR for the written comments received and transcripts of the public scoping meetings.

ALTERNATIVES

As required by Section 15126.6 of the CEQA *Guidelines*, this EIR examines a reasonable range of alternatives to the proposed project, and identifies the Environmentally Superior Alternative as also required by the CEQA *Guidelines*. As discussed in Section 1.0, *Introduction*, pursuant to CEQA *Guidelines* Section 15183.3, which states the requirements for Infill EIRs, this EIR does not address alternative locations, densities, or building intensities.

The following alternatives are evaluated in this EIR:

- *Alternative 1: No Project (no change to existing conditions)*
- *Alternative 2: Preservation Alternative*
- *Alternative 3: Contextual Design Alternative*

Of the development alternatives being considered, the Preservation Alternative would provide the most reductions in environmental impacts. It would involve retaining the historic structures onsite, which would avoid the project's significant and unavoidable impact related to demolition of historic resources. Therefore, this alternative is considered the Environmentally Superior Alternative of the development alternatives.

SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES

Table ES-1 includes a brief description of the environmental issues relative to the Project, the identified significant environmental impacts, proposed mitigation measures, and residual impacts. Impacts are categorized by classes. Class I impacts are defined as significant, unavoidable adverse impacts which require a statement of overriding considerations to be issued pursuant to the *State CEQA Guidelines* §15093 if the Project is approved. Class II impacts are significant adverse impacts that can be feasibly mitigated to less than significant levels and which require findings to be made under Section 15091 of the *State CEQA Guidelines.* Class III impacts are considered less than significant impacts.

Potential impacts that were analyzed in the Infill Environmental Checklist and found to be less than significant are not included in this table. The Infill Environmental Checklist is included in this EIR as Appendix A. It should be noted that additional mitigation measures from the Downtown Area Plan EIR may also apply to the proposed project; these are not listed here but will be listed in the Mitigation Monitoring and Reporting Program prepared for consideration at the time the Final EIR is considered for certification.

Table ES-1 Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Impact	Mitigation Measures	Residual Impact
CULTURAL RESOURCES		
Impact CR-1 The proposed project would involve demolition of the 1926 addition to the Shattuck Hotel and partial removal of the 1913 addition to the Hotel. Both of these additions contribute to the hotel's historical significance and are included in the property's local landmark designation. Impacts would be Class I, significant and unavoidable.	**CR-1(a) Documentation**. In consultation with the City of Berkeley Planning and Development Department, the project applicant shall complete Historic American Building Survey (HABS) Level II documentation of the Shattuck Hotel and its setting. This documentation shall include drawings, photographs and a historical narrative. • Drawings: Existing historic drawings of the Shattuck Hotel (including the original 1910 building and the 1912, 1913 and 1926 additions), if available, shall be photographed with large-format negatives or photographically reproduced on Mylar. In the absence of existing drawings, full-measured drawings of the complex's plan, exterior elevations, and courtyard elevations should be prepared. • Photographs: Photo-documentation of the Shattuck Hotel (including the original 1910 building and the 1912, 1913 and 1926	*Significant and Unavoidable*

Table ES-1 Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Impact	Mitigation Measures	Residual Impact
	additions) shall be prepared to HABS standards for archival photography. HABS standards require large-format black-and-white photography, with the original negatives having a minimum size of 4 x 5 inches. Digital photography, roll film, film packs, and electronic manipulation of images are not acceptable. All film prints, a minimum of 4 x 5 inches, must be hand-processed according to the manufacturer's specifications and printed on fiber base single weight paper and dried to a full gloss finish. A minimum of 12 photographs must be taken, detailing the site, building exteriors, and building interiors. Photographs must be identified and labeled using HABS standards. Color 35mm non-archival photographs of the historical building and grounds shall be taken to supplement the limited number of archival photographs required under the HABS standards described above. Photographs should include overall views of the site; individual views of important building features; exterior elevations of each façade of the complex; views of interior courtyard spaces; and detail views of specific materials or elements. • Historical Overview: In consultation with the City of Berkeley Planning and Development Department, a qualified historian or architectural historian shall assemble historical background information relevant to the Shattuck Hotel and its setting. Much of this information may be drawn from the Historic Context Report that architecture + history LLC has prepared for the property. The project applicant shall submit three hard copies and six electronic copies of the drawings and historical overview, along with two sets of photographic negatives, to the City of Berkeley. To ensure its public accessibility, the City of Berkeley will distribute the documentation to the Berkeley Public Library, UC Berkeley's Environmental Design Archives, Berkeley Architectural Heritage Association, the Berkeley Historical Society, and the Northwest Information Center of the California Historical Resources Information System (CHRIS). CR-1(b) Salvage. The project applicant shall give local historical societies the opportunity to salvage materials from the 1913 and 1926 additions to the Shattuck Hotel for public information or reuse in other locations. This effort is expected to focus on the additions' multi-pane, metal-sash windows (currently painted over) as well as the ceiling plasterwork	

Table ES-1 Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Impact	Mitigation Measures	Residual Impact
	in the entry arcade. If, after 30 days, none of the societies is able and willing to salvage the materials, the materials shall be offered to local architectural salvage companies by placing an advertisement in a website and newspaper of general circulation for at least 30 days. Demolition may proceed only after any significant historic features or materials have been identified (at the applicant's cost) and their removal completed, unless none of the above organizations are interested in salvaging the materials. **CR-1(c) Onsite Interpretation.** The project applicant shall incorporate a wall display featuring historic photos of the Shattuck Hotel property and a description of its historical significance into the publicly accessible portion of any subsequent development on the site. This display shall be developed by professionals meeting the Secretary of the Interior's Professional Qualifications (as verified by City of Berkeley planning staff) and experienced in creating such historical exhibits, with the assistance of City of Berkeley planning staff. **CR-1(d) Contribution to the Historic Preservation Fund.** The project applicant shall contribute funds to the City to be applied to future historic preservation activities within Downtown Berkeley, including survey work; property research; and evaluation in accordance with the Secretary of the Interior's Standards. Contribution to the preservation fund shall be made only after Mitigation Measures CR-1(a), CR-1(b) and CR-1(c) have been completed.	
Impact CR-2 The proposed project would alter the setting of historic landmarks adjacent to and facing the project, including the Shattuck Hotel, the Public Library, and the former Elks Lodge and Armstrong College buildings because the project's design elements would be partially inconsistent with the Secretary of the Interior's Standards and the Downtown Berkeley Design Guidelines. Impacts would be Class II, significant but mitigable.	**CR-2(a) Allston Way Elevation**. New construction on the Allston Way elevation shall incorporate horizontal façade elements that reference the roofline of the adjacent 1912 restaurant addition to the Shattuck Hotel. Specifically, new construction shall incorporate a horizontal belt course along its Allston Way façade that corresponds to the cornice and parapet of the 1912 addition. This belt course shall include a cornice element or other horizontal embellishment that projects from the face of the building. (This element could consist of a simple projecting molding, for example, that is stylistically in keeping with the contemporary design of the proposed project.) By incorporating this belt course, the proposed project, despite being considerably taller than the Shattuck Hotel, would better maintain the scale and feel of the historic building frontage along Allston Way.	*Less than significant*

Table ES-1 Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Impact	Mitigation Measures	Residual Impact
	CR-2(b) Kittredge Street Elevation. At the Kittredge Street elevation, the proposed project includes a two-story "hyphen" that separates the Shattuck Hotel from the 12- and 18-story portions of the project to the west. Project drawings show the Kittredge Street façade of this portion of the project as a blank wall, potentially covered in vegetation. Such wall treatment is incompatible with the historic setting. Perforations (such as a door or windows) or other architectural elements shall be incorporated into the design of this wall so as to maintain an active street frontage that is more in keeping with the ground floors of the nearby historical resources and the larger Shattuck Avenue Commercial Corridor. **CR-2(c) Glazed Aluminum Window Wall Systems.** While the glazed aluminum window wall systems proposed for much of the project would clearly differentiate the proposed project from nearby historical resources, the design of these wall systems needs to be modified to make them more compatible with those resources. The proportion and pattern of void to wall in the wall treatments of the proposed project shall be modified to more closely match that exhibited in the Shattuck Hotel, the Public Library, the former Elks Lodge and the former Armstrong College building. Potential ways to achieve this include replacing the window wall systems with punched curtain wall systems similar to those used elsewhere in the project, or breaking up the window wall systems with windowless bays. **CR-2(d) Recessed Entry Plaza.** The recessed entry plaza at the corner of Harold Way and Kittredge Street shall be replaced with an entry design that maintains the zero lot- line setback characteristic of the nearby historical resources and the larger Shattuck Avenue Commercial Corridor.	
Impact CR-3 The project would partially obscure views of the San Francisco Bay, Alcatraz Island, and the Golden Gate from the base of UC Berkeley's Campanile and Campanile Way. The westerly views from Campanile Way are not historical resources in their own right; however, they are a character-defining feature of a landscape element (Campanile Way) that has been identified as a contributor to a cultural landscape (the Classical Core of the UC Berkeley campus). The project would not involve	None Required	*Less than significant*

Table ES-1 Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Impact	Mitigation Measures	Residual Impact
physical alteration of Campanile Way or its immediate surroundings. Further, the project would not entirely block existing views of the Golden Gate and would only block a minor portion of the existing view from the middle of the top stair immediately west of the Campanile, which is identified as a formal viewpoint in UC Berkeley's Landscape Heritage Plan. As such, view impacts related to historic resources would be Class III, less than significant.		
Impact CR-4 Construction activities associated with demolition of the 1959 Hink's building and the 1926 addition to the Shattuck Hotel, and partial removal of the 1913 addition to the Shattuck Hotel, could produce ground vibration or soil movement under the existing foundation of nearby historic resources, compromising the historic building's structural stability. Impacts would be Class II, significant but mitigable.	**CR-4(a) Foundations Investigation.** A registered structural engineer with a minimum of 5 years of experience in the rehabilitation and restoration of historic buildings, meeting the Secretary of the Interior's Professional Qualifications, shall investigate the existing relationship of the foundations of the various portions of the Shattuck Hotel property. Any required test excavations shall be performed only in the presence of the structural engineer. The structural engineer shall prepare a report of findings that specifies modifications to the project design and/or associated construction activities that are necessary to retain the structural integrity of the Shattuck Hotel (including the original 1910 building, the 1912 addition, and the portion of the 1913 addition proposed for retention). In consultation with a historic preservation architect meeting the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, Professional Qualifications Standards, the structural engineer (with geotechnical consultation as necessary) shall determine whether, due to the nature of the excavations, soils, method of soil removal and the existing foundations of the Shattuck Hotel, the potential for settlement would require underpinning and/or shoring. If underpinning and/or shoring is determined to be necessary, appropriate designs shall be prepared and submitted for review and approval. Foundation and shoring shall not use driven or vibration piles. Only cast-in-place or auger piles or micropiles shall be used for shoring, underpinning, and/or new foundations. The existing structure shall be shored at each side of the location where the western portion of the hotel is to be demolished. After the existing structure is shored, an air gap shall be cut between the building to remain and the portion	*Less than significant*

Table ES-1 Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Impact	Mitigation Measures	Residual Impact
	of the building to be demolished at the roof, floor levels and through the above grade walls prior to the demolition of the western portion of the building. The air gap shall be a minimum of 12 inches wide and also be wide enough that no debris can lodge in the gap and transfer vibrations into the portion of the building to remain. The contractor may elect to demolish an entire bay of the existing structure between two column lines so that additional shoring may be minimized or eliminated. This will prevent the transmission of vibrations from the demolition through the existing structural members and, therefore, limit the potential for structural damage due to the vibrations from the demolition. Any debris that becomes lodged in the gap shall be removed as soon as is safely possible. All documents prepared in accordance with this Measure shall be submitted to the City of Berkeley Planning and Development Department for approval, and all work required by this Measure shall be at the project sponsor's expense. **CR-4(b) Construction Monitoring**. Prior to demolition, the historic preservation architect and structural engineer referenced in Mitigation Measures CR-4(a) shall undertake an existing condition study of the Shattuck Hotel, including the location and extent of any visible cracks or spalls. Any existing damage to the hollow clay tile that could cause structural damage due to construction vibrations shall be noted. This initial survey will serve as a baseline to determine if any damage would occur during demolition or construction of the new building. The documentation shall take the form of written descriptions and photographs, and shall include those physical characteristics of the resource that conveys its historic significance and that justify its inclusion on the local register. The documentation shall be reviewed and approved by the City of Berkeley Planning and Development Department. The historical architect and structural engineer shall monitor the Shattuck Hotel during construction and report any changes to existing conditions, including, but not limited to, expansion of existing cracks, new spalls, or other exterior deterioration. Any new cracks, new spalls, or other exterior deterioration shall be repaired to the pre-existing condition as indicated at the end of this section. Monitoring reports shall be submitted to the City of Berkeley Planning and Development	

Table ES-1 Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Impact	Mitigation Measures	Residual Impact
	Department on a periodic basis. The structural engineer shall consult with the historic preservation architect, especially if any problems with character-defining features of a historic resource are discovered. If in the opinion of the structural engineer, in consultation with the historic preservation architect, substantial adverse impacts to historic resources related to construction activities are found during construction, the historical architect and structural engineer shall so inform the project sponsor or sponsor's designated representative responsible for construction activities. Vibrations shall be limited during demolition of the existing below grade wall and foundation concrete so as not to transmit significant vibrations to the remaining structures. The use of jackhammers and smaller hoe-rams with lower impact force shall be used wherever possible to limit vibrations. Larger hoe-rams (rated at greater than 2,000 foot-pounds) shall not be used without a written determination by a qualified testing agency that such rams will not cause vibrations greater than 0.2 inches per second of vertical movement at the existing hotel. Measurements for vibrations shall be taken at the same distance to the vibration source as the Shattuck Hotel building will be from the source during use for construction or demolition. The testing agency used for measuring vibrations shall be experienced in measuring vibrations, as determined by the City of Berkeley Planning and Development Department. The areas where the demolition will be closest to the existing building and therefore most likely to propagate vibrations to the remaining structures are: demolition of the eastern end of the existing cinema building along Kittredge Street; demolition for the new construction below the hotel at the corner of Shattuck Avenue and Kittredge Street; and demolition of the eastern portion of the former Hink's Department Store addition at Allston Way and Harold Way. At these areas where demolition of below grade concrete will be close to the remaining structures, the concrete shall be demolished using methods that limit vibrations, such as the use of jackhammers and small hoe-rams with lower impact force, even if it is determined that larger hoe-rams can be used elsewhere on the site. The structural engineer shall consult with the historic preservation architect, especially if any	

Table ES-1 Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Impact	Mitigation Measures	Residual Impact
	problems with character- defining features of a historic resource are discovered. Because of the inherent unpredictability of large-scale excavation and construction, there is an unlikely but possible chance that unforeseen damage would occur. If substantial adverse impacts to historic resources related to construction activities are found during construction, and if in the opinion of the structural engineer, in consultation with the historic preservation architect, the historical architect and the structural engineer (monitoring team) shall so inform the project sponsor or sponsor's designated representative responsible for construction activities. The historical architect and the structural engineer shall make specific recommendations to the project sponsor, including whether work should stop and whether construction activities should be modified. Once the historic architect and the structural engineer inform the project sponsor, the project sponsor shall adhere to the monitoring team's recommendations for corrective measures, including halting construction or using methods which cause less vibration, in situations where construction activities would imminently endanger historic resources. The City of Berkeley Planning and Development Department shall establish the frequency of monitoring and reporting. The project sponsor shall respond to any claims of damage by inspecting the affected property promptly, but in no case more than 5 working days after the claim was filed and received by the project sponsor. A sign shall be posted in a visible place onsite and a letter shall be sent to the hotel owner or manager specifying the monitoring team's contact information prior to the start of construction activities. Any new cracks or other changes in the Shattuck Hotel shall be compared to pre-construction conditions and a determination made as to whether the proposed project could have caused such damage. In the event that the project is demonstrated to have caused any damage, such damage shall be repaired to the pre-existing condition. Site visit reports and documents associated with claims processing shall be provided to the City of Berkeley Planning and Development Department. All work required by this Measure shall be at the project sponsor's expense.	

Table ES-1 Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Impact	Mitigation Measures	Residual Impact
	CR-4(c) Training Program. The historic preservation architect referenced in Mitigation Measures CR-4(a) shall establish a training program for construction workers involved in the project that emphasizes the importance of protecting historic resources. This program shall include information on recognizing historic fabric and materials, and directions on how to exercise care when working around and operating equipment near the Shattuck Hotel, including storage of materials away from the historic building. It shall also include information on means to reduce vibrations from demolition and construction, and monitoring and reporting any potential problems that could affect the historic resource. A provision for establishing this training program shall be incorporated into the general contractor's contract with the project applicant regarding construction of the project, and the contract provisions shall be reviewed and approved by the City of Berkeley Planning and Development Department. All work required by this Measure shall be at the project sponsor's expense.	
TRANSPORTATION/TRAFFIC		
Impact T-1 Development facilitated by the proposed project would increase existing traffic levels on the local circulation system under the Existing Year (2013) scenario. However, all 10 intersections are forecast to operate at acceptable levels of service (LOS C or better) under this scenario. Therefore, impacts on the local circulation system under the Existing Year (2013) scenario would be Class III, less than significant.	None Required	*Less than significant*
Impact T-2 Development facilitated by the proposed project would increase future (years 2020 and 2035) traffic levels on the local circulation system. One of the 10 studied intersections would operate at levels of service that exceed its performance standards under the Year 2035 scenario. However, feasible mitigation would improve traffic conditions to acceptable levels. Therefore, impacts on future traffic levels in the 2020 and 2035 scenarios would be Class II, significant, but mitigable.	**T-2 Dedicated Right-Turn Pocket at Shattuck Avenue/Durant Avenue Intersection.** The northbound outside lane at the intersection of Shattuck Avenue and Durant Avenue shall be restriped to provide a dedicated right-turn pocket. The timing of this improvement will be dependent on traffic volume growth at the intersection, as determined through monitoring by the City.	*Less than significant*

Table ES-1 Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Impact	Mitigation Measures	Residual Impact
Impact T-3 The proposed project would generate approximately 90 net new trips during the P.M. peak hour, which is below the Alameda County Transportation Commission's threshold of 100 vehicle trips. Impacts related to the CMP network would be Class III, less than significant.	None Required	*Less than significant*

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1.0 INTRODUCTION

This document is an Infill Environmental Impact Report (EIR) for the proposed 2211 Harold Way Mixed-Use Project (the "project"). The project site is located in the City of Berkeley within Alameda County. The project site is regionally accessible via Interstate 80, and locally accessible via Shattuck Avenue, several AC Transit bus lines and the Downtown Berkeley Bay Area Rapid Transit (BART) station. The proposed project would involve residential and commercial mixed-use development, including 302 apartment/condominium units, 10,535 square feet of retail or restaurant uses, a 21,641-square foot cinema, and the construction of 171 auto parking spaces and 100 bicycle parking spaces. The project is described in greater detail in Section 2.0, *Project Description*. This section discusses:

(1) the environmental impact report background;
(2) the legal basis for preparing an EIR;
(3) the scope and content of the EIR;
(4) lead, responsible, and trustee agencies; and
(5) the environmental review process required under the California Environmental Quality Act (CEQA).

1.1 ENVIRONMENTAL IMPACT REPORT BACKGROUND

A Notice of Preparation (NOP) of an environmental impact report was prepared for the project and distributed for agency and public review for a 30-day review period that began on May 19, 2014. The NOP and responses are presented in Appendix A to the EIR, along with the Infill Environmental Checklist that was prepared for the project pursuant to Section 15183.3 and Appendix N of the CEQA *Guidelines*. The City received five comment letters responding to the NOP. The letters are listed and their content summarized in Table 1-1 below.

Table 1-1
Scoping Comments Received

Responder	Comments Summary and Where Comments Addressed in EIR
1. State of California Department of Transportation	Caltrans provided comments regarding traffic during construction and operation that may affect nearby State highway facilities and may require a Traffic Impact Study. Comments encouraging the project applicant to locate housing, jobs, and neighborhood services near facilities that encourage people to use transit, walk, and bike to reduce regional vehicle miles traveled. Comments encouraging the project applicant to develop Travel Demand Management policies and to identify traffic impact fees for project mitigation. Impacts related to Transportation and Traffic are addressed in Section 4.2, *Transportation/Traffic*.
2. Berkeley Architectural Heritage Association	Commenter states concerns regarding height and scale of the proposed project, and requests that historic resources be preserved. Requests that the EIR assess the project's historic impacts at the site and on surrounding historic resources, including viewsheds. Requests that the EIR clearly describe the full scope of the project and the seismic condition of the buildings onsite. The project scope is described in detail in Section 2.0, *Project Description*. The project's impacts on historic resources including views are discussed in Section 4.1, *Cultural Resources*.

Table 1-1
Scoping Comments Received

Responder	Comments Summary and Where Comments Addressed in EIR
3. East Bay Municipal Utility District (EBMUD)	EBMUD comments that offsite pipeline improvements may be required to meet water and fire flow demands and that the applicant should contact EBMUD to request a water service estimate. Comments that EBMUD will not inspect, install, or maintain pipeline in contaminated soil or groundwater and that the applicant should remediate any onsite contamination. Comments that the project must meet the current EBMUD Wastewater Control Ordinance. Encourages the project applicant to use water-efficiency measures. Water and wastewater impacts are discussed in Section IX, *Hydrology and Water Quality*, and Section XVII, *Utilities and Service Systems*, of the Infill Environmental Checklist (Appendix A). The project applicant will be required to meet all required City Ordinances and standard EBMUD requirements.
4. Alameda County Transportation Commission	ACTC comments that the project requires a transportation impact analysis using the Alameda Countywide Travel Demand Model. Comments that the EIR should address the project's impacts on the Metropolitan Transportation System roadway network, the Countywide Bicycle Network, and Countywide Pedestrian Plan Areas of Countywide Significance. Comments that noise impacts should be analyzed. Transportation and traffic impacts are discussed in Section 4.2, *Transportation/Traffic*. Noise impacts are discussed in Section XII, *Noise*, of the Infill Environmental Checklist (Appendix A to the EIR).
5. Steve Finacom	Commenter requests to review the Infill Environmental Checklist. Comments that the EIR should address public services impacts. Commenter suggests addressing potential impacts on historic resources, including scenic vistas and views from Campanile Way on the UC Berkeley campus. Requests an analysis of alternatives that reduce parking spaces onsite, that the project retain the 1959 Hink's Building, and that the project reduce view impacts from the Campanile. The commenter requests that the EIR fully analyze project impacts on the views from the Campanile. Public services impacts are discussed in Section XVII, *Utilities and Service Systems*, of the Infill Environmental Checklist (Appendix A). Impacts to cultural resources, including a discussion of scenic vistas and views from the Campanile, are discussed in Section 4.1, *Cultural Resources*. Alternatives are discussed in Section 5.0, *Alternatives*. As the commenter suggests, two alternatives that would reduce the project's historic impacts are discussed in Section 5.0. Historic resources impacts including those related to views from the Campanile are discussed in Section 4.1, *Cultural Resources*.

The City held two public meetings to discuss the proposed project: one before the Landmarks Preservation Commission and one before the Zoning Adjustments Board. The comments from the Commission and the Board are summarized in Table 1-2. The verbal comments from the public at these meetings are presented in the meeting transcripts that are included in Appendix A to this EIR; the comments therein that were relevant to the CEQA analysis and process are generally similar in scope and content to those in the comments summarized here.

Table 1-2
Comments From Landmarks Preservation Commission and Zoning Adjustments Board

Agency	Comments Summary and Where Comments Addressed in EIR
1. Landmarks Preservation Commission	Commissioners suggested addressing potential impacts on historic and scenic vistas and views, particularly on Campanile Way from the UC Berkeley campus, as well as impacts to on site and nearby historic structures. Commissioners shared concern about the height and massing of the project. Commissioners suggested retrofitting the Shattuck Hotel and restoring the balconies on the Shattuck Hotel.

Table 1-2
Comments From Landmarks Preservation Commission and Zoning Adjustments Board

Agency	Comments Summary and Where Comments Addressed in EIR
	Commissioners were concerned about subterranean parking and impacts from pile driving onsite. Commissioners asked about the relationship of the Infill EIR to the Downtown Area Plan. Impacts to cultural resources, including a discussion of scenic vistas and views from the Campanile and impacts of pile driving, are discussed in Section 4.1, *Cultural Resources*. Design of the project and subterranean parking are discussed in Section 2.0, *Project Description*. An explanation of the CEQA Guidelines in relation to Infill EIRs is included in this section (1.0, *Introduction)*.
2. Zoning Adjustments Board	Board members inquired about aesthetic impacts, including building massing, and requested shadow analysis of the project. Board members stated concern about the height of the proposed building and impacts on historic structures. Specifically, members raised concern about the view of the project from the Campanile and other viewsheds, such as view north along Shattuck. Board members asked about impacts associated with demolition onsite, including impacts to the Shattuck Hotel. Board members also asked about the number of parking spaces that would be onsite, the parking proposed within the downtown core, traffic impacts of the project on area intersections, and impacts on pedestrians due to increased traffic. Members inquired about the relationship of the project EIR to the DAP EIR. The Board members were concerned about the economic impact on the hotel during construction and businesses in the vicinity of the project site. The Board members asked about open space in the Downtown Area Plan boundaries based on the state's requirements of particular open space per resident. Aesthetic impacts, including impacts associated with the project's height, are discussed in Section I, *Aesthetics*, of the Environmental Checklist (Appendix A). Impacts on historic structures, including demolition impacts and viewshed impacts, are discussed in Section 4.1, *Cultural Resources*. Parking and traffic impacts are discussed in Section 4.2, *Transportation/Traffic*. The relationship of the Infill EIR to the DAP EIR is discussed in Section 2.0, *Project Description*. The economic impact on the hotel during construction and operation is not considered an environmental impact and is therefore not discussed in this Infill EIR. Open space in the downtown area is discussed in the DAP EIR, and the project conforms to the open space requirements established pursuant to the DAP.

1.2 PURPOSE AND LEGAL AUTHORITY

The project requires the discretionary approval of the City of Berkeley's Zoning Adjustments Board and Landmarks Preservation Commission. Therefore, it is subject to the requirements of the California Environmental Quality Act (CEQA). In accordance with Section 15121 of the *State of California Environmental Quality Act (CEQA) Guidelines,* the purpose of this EIR is to serve as an informational document that:

> *...will inform public agency decision-makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project.*

This EIR has been prepared as a Project EIR pursuant to Section 15161 and an Infill EIR pursuant to Section 15183.3 of the *CEQA Guidelines.* A Project EIR is appropriate for a specific development project. As stated in the *CEQA Guidelines:*

> *This type of EIR should focus primarily on the changes in the environment that would result from the development project. The EIR shall examine all phases of the project, including planning, construction, and operation.*

The nature of an Infill EIR is discussed below.

This EIR is to serve as an informational document for the public and City of Berkeley decision-makers. The process will culminate with Zoning Adjustments Board and Landmarks Preservation Commission hearings to consider certification of a Final EIR and approval of the project.

1.3 SCOPE AND CONTENT

The 2014 *CEQA Guidelines* introduced Section 15183.3, Infill Streamlining updates, which were developed pursuant to SB 226 (Simitian, 2011). These purpose of Section 15183.3 is to streamline the environmental review process for eligible infill projects by limiting the topics subject to review at the project level where the effects of infill development have been addressed in a planning level decision or by uniformly applicable development policies. The Streamlining updates contain performance standards that can be used to determine an infill project's eligibility for streamlined review. Pursuant to *CEQA Guidelines* Section 15183.3(b), to be eligible for streamlined review, an infill project must:

> *(1) Be located in an urban area on a site that either has been previously developed or that adjoins existing qualified urban uses on at least seventy-five percent of the site's perimeter. For the purpose of this subdivision "adjoin" means the infill project is immediately adjacent to qualified urban uses, or is only separated from such uses by an improved public right-of-way;*
>
> *(2) Satisfy the performance standards provided in Appendix M; and*
>
> *(3) Be consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in either a sustainable communities strategy or an alternative planning strategy...*

As discussed in the Infill Environmental Checklist (Appendix A to this EIR), the proposed project qualifies as an infill project under *CEQA Guidelines* Section 15183.3. It is located in an urban area on a site that has been previously developed. In order to be eligible for streamlined review under Section 15183.3, a project must meet performance standards contained in Appendix M of the *CEQA Guidelines*. Examples of performance standards include remediation onsite, protection of public health, and proximity to an existing major transit stop/transit corridor. The information demonstrating that the infill project satisfies the Appendix M performance standards is provided in the Infill Enviromental Checklist in a section titled "Satisfaction of Appendix M Performance Standards."

The project is consistent with the general use designation, density, building intensity and applicable policies specified for the project area in the City's Downtown Area Plan (DAP) EIR. As documented in the Infill Environmental Checklist, potential development on the project site was within the DAP vision and is included in all aspects of the DAP EIR.

For eligible infill projects, CEQA does not apply to the effects of the project in the following ways, pursuant to *CEQA Guidelines* Section 15183.3(c):

- If a significant environmental effect was analyzed in a prior EIR for a planning level decision, then, with some exceptions, that effect need not be analyzed again for an individual infill project even when that effect was not reduced to a less than significant level in the prior EIR.

- An effect need not be analyzed, even if it was not analyzed in a prior EIR or is more significant than previously analyzed, if the lead agency makes a finding that uniformly applicable development policies or standards, adopted by the lead agency or a city or county, apply to the infill project and would substantially mitigate that effect.

If the infill project would result in new project-specific effects or more significant effects, and uniformly applicable development policies or standards would not substantially mitigate such effects, those effects are subject to CEQA pursuant to *Guidelines* Section 15183.3(d)(2)(C). With respect to those effects that are subject to CEQA, the lead agency must prepare an infill EIR if the written checklist shows that the effects of the infill project would be potentially significant. An infill EIR need not analyze growth inducing impacts.

This EIR addresses the issues determined to be potentially significant by the City of Berkeley in the context of the streamlining provisions discussed above. To identify potentially significant environmental issues, the City conducted a review of the project through an Infill Environmental Checklist (Appendix A to this EIR), pursuant to CEQA *Guidelines* Section 15183.3. The Infill Environmental Checklist determined that the proposed project would have potentially significant impacts related to cultural resources and transportation/traffic. Therefore, this Infill EIR addresses these two potentially significant impacts. The cultural resources section of the EIR includes a discussion of view impacts related to historic resources on the UC Berkeley campus; all other view impacts are discussed in the Aesthetics section of the Infill Environmental Checklist. For the reasons documented in the Infill Environmental Checklist, impacts in all other environmental areas would either be less than significant; were analyzed in the DAP EIR; or would be substantially mitigated by uniformly applicable development policies.

For the issue areas of cultural resources and transportation/traffic, the EIR identifies the potentially significant environmental impacts, including site-specific and cumulative effects of the project. In addition, the EIR recommends feasible mitigation measures, where possible, that would eliminate or reduce adverse environmental effects.

The EIR references pertinent City policies and guidelines, certified EIRs and adopted CEQA documents, and background documents prepared or relied upon by the City in preparing this CEQA analysis. A full reference list is contained in Section 6.0, *References and Report Preparers*.

The *Alternatives* section of the EIR (Section 5.0) was prepared in accordance with Section 15126.6 of the *CEQA Guidelines.* The alternatives discussion evaluates the CEQA-required "no project" alternative and two alternative development scenarios for the site. It also identifies the environmentally superior alternative among the alternatives assessed. It should be noted that, pursuant to *CEQA Guidelines* Section 15183.3(e), the analysis of alternatives in an infill EIR need not address alternative locations, densities, or building intensities.

The level of detail contained throughout this EIR is consistent with the requirements of CEQA and applicable legal precedent. The *CEQA Guidelines* provide the standard of adequacy on which this document is based. The *Guidelines* state:

> *An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of the proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good faith effort at full disclosure. (Section 15151)*

While the CEQA review in this EIR has been streamlined to some extent pursuant to *CEQA Guidelines* Section 15183.3, project-specific analysis was required for transportation/traffic and cultural resources to meet the intent of Section 15183 and to provide the public and decision-makers with up to date and accurate environmental review for the project.

1.4 LEAD, RESPONSIBLE, AND TRUSTEE AGENCIES

The *CEQA Guidelines* define lead, responsible, and trustee agencies. The City of Berkeley is the lead agency for the project because it holds principal responsibility for approving the project.

A responsible agency refers to a public agency other than the lead agency that has discretionary approval over the project, and a trustee agency refers to a state agency having jurisdiction by law over natural resources affected by a project. There are no responsible or trustee agencies for the project.

1.5 ENVIRONMENTAL REVIEW PROCESS

The major steps in the environmental review process, as required under CEQA, are outlined below. The steps are presented in sequential order.

1. **Notice of Preparation (NOP).** After deciding that an EIR is required, the lead agency must send an NOP soliciting input on the EIR scope to the State Clearinghouse, other concerned agencies, and parties previously requesting notice in writing *(CEQA Guidelines* Section 15082; Public Resources Code Section 21092.2). The NOP must be posted in the County Clerk's office for 30 days. The NOP may be accompanied by an Initial Study or Infill Environmental Checklist that identifies the issue areas for which the proposed project could create significant environmental impacts.

2. Preparation of **Draft Environmental Impact Report (DEIR).** The DEIR must contain:

    a) table of contents or index;
    b) summary;
    c) project description;
    d) environmental setting;
    e) discussion of significant impacts (direct, indirect, cumulative, and unavoidable impacts);
    f) a discussion of alternatives; and
    g) mitigation measures.

3. **Notice of Completion/Notice of Availability of Draft EIR.** A lead agency must file a Notice of Completion with the State Clearinghouse when it completes a Draft EIR and prepare a Public Notice of Availability of Draft EIR. The lead agency must place the Notice in the County Clerk's office for 30 days (Public Resources Code Section 21092) and send a copy of the Notice to anyone requesting it *(CEQA Guidelines* Section 15087). Additionally, public notice of DEIR availability must be given through at least one of the following procedures: a) publication in a newspaper of general circulation; b) posting on and off the project site; and c) direct mailing to owners and occupants of contiguous properties. The lead agency must solicit input from other agencies and the public, and respond in writing to all comments received (Public Resources Code Sections 21104 and 21253). The minimum public review period for a DEIR is 30 days. When a Draft EIR is sent to the State Clearinghouse for review, the public review period must be 45 days unless the Clearinghouse (Public Resources Code 21091) approves a shorter period.

4. **Final EIR (FEIR).** A FEIR must include: a) the Draft EIR; b) copies of comments received during public review; c) list of persons and entities commenting; and d) responses to comments.

5. **Certification of FEIR.** Prior to making a decision on a project, the lead agency must in its independent judgment certify that: a) the FEIR has been completed in compliance with CEQA; b) the FEIR was presented to the decision-making body of the lead agency; and c) the decision-making body reviewed and considered the information in the FEIR prior to approving a project *(CEQA Guidelines* Section 15090).

6. **Lead Agency Project Decision.** A lead agency may: a) disapprove a project because of its significant environmental effects; b) require changes to a project to reduce or avoid significant environmental effects; or c) approve a project despite its significant environmental effects, if the proper findings and statement of overriding considerations are adopted *(CEQA Guidelines* Sections 15042 and 15043).

7. **Findings/Statement of Overriding Considerations.** For each significant impact of the project identified in the EIR, the lead or responsible agency must find, based on substantial evidence, that either: a) the project has been changed to avoid or substantially reduce the magnitude of the impact; b) changes to the project are within another agency's jurisdiction and such changes have or should be adopted; or c) specific economic, social, or other considerations make the mitigation measures or project alternatives infeasible *(CEQA Guidelines* Section 15091). If an agency approves a project with unavoidable significant

environmental effects, it must prepare a written Statement of Overriding Considerations that sets forth the specific social, economic, or other reasons supporting the agency's decision.

8. **Mitigation Monitoring Reporting Program.** When an agency makes findings on significant effects identified in the EIR, it must adopt a reporting or monitoring program for mitigation measures that were adopted or made conditions of project approval to mitigate significant effects.

9. **Notice of Determination.** An agency must file a Notice of Determination after deciding to approve a project for which an EIR is prepared *(CEQA Guidelines* Section 15094). A local agency must file the Notice with the County Clerk. The Notice must be posted for 30 days and sent to anyone previously requesting notice. Posting of the Notice starts a 35-day statute of limitations on CEQA legal challenges (Public Resources Code Section 21167[c]).

2.0 PROJECT DESCRIPTION

This section describes the project location, characteristics of the site and the proposed development, project objectives, and the approvals needed to implement the 2211 Harold Way Mixed-Use Project.

2.1 PROJECT APPLICANT

Joseph Penner
HSR Berkeley Investments, LLC

c/o Rhoades Planning Group
1611 Telegraph Avenue, Suite 200
Oakland, California 94612

2.2 PROJECT LOCATION

The project site is a portion of an irregularly shaped but generally square 1.63-acre larger property forming one city block in Downtown Berkeley, bounded by and fronting Shattuck Avenue to the east, Kittredge Street to the south, Harold Way to the west, and Allston Way to the north. The assessor's parcel numbers for the larger property are 057-2027-00600, -00700, -00800, and -00900. The larger property has multiple addresses; the primary address in the assessor's records and in the City's parcel database is 2060 Allston Way. The project site itself – the primary area of proposed new development – is a 34,800 square-foot (0.8-acre), generally "L" shaped portion of the larger property, with frontage on Allston Way, Harold Way and Kittredge Street, and also includes a portion of the basement level of the adjacent Hotel Shattuck Plaza (commonly referred to as the Shattuck Hotel) building beneath its existing retail space and movie theater entrance. The address for the project site is 2211 Harold Way.

Figure 2-1 shows the location of the project site within a regional context. The project site is regionally accessible from Interstate 580 and Shattuck Avenue. Figure 2-2 shows the immediate vicinity of the project site in Downtown Berkeley from an aerial perspective. Figure 2-3 shows the general configuration of existing development on the larger property.

2.3 CURRENT LAND USE AND REGULATORY SETTING

2.3.1 Current Land Use

The larger property where the project site is located consists of a fully urbanized city block that is generally level, sloping slightly downward towards the west and south. The project site – the area where existing buildings would be altered or demolished and new buildings constructed – is currently occupied by two structures, as shown on Figure 2-3. The first structure, known variously as the Postal Annex building and the 1959 Hink's building, is a small office building with an area of US Post Office boxes on the corner of Allston Way and Harold Way, and was constructed in the 1950s. The second structure, known as the Hink's Addition/Shattuck Cinemas, was the 1926 Hink's Department Store addition to the Shattuck Hotel building. This

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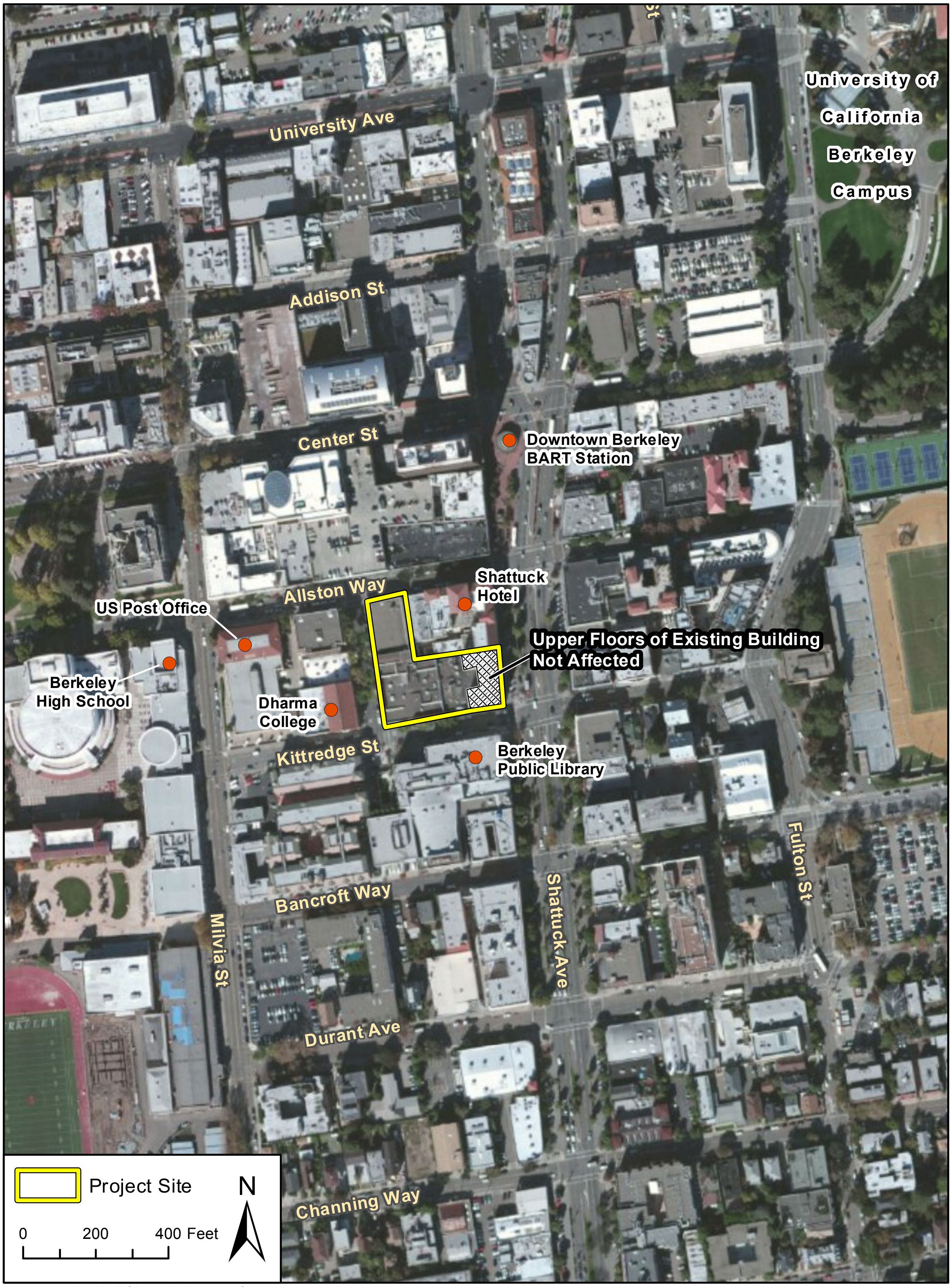
Regional Location Map

Figure 2-1



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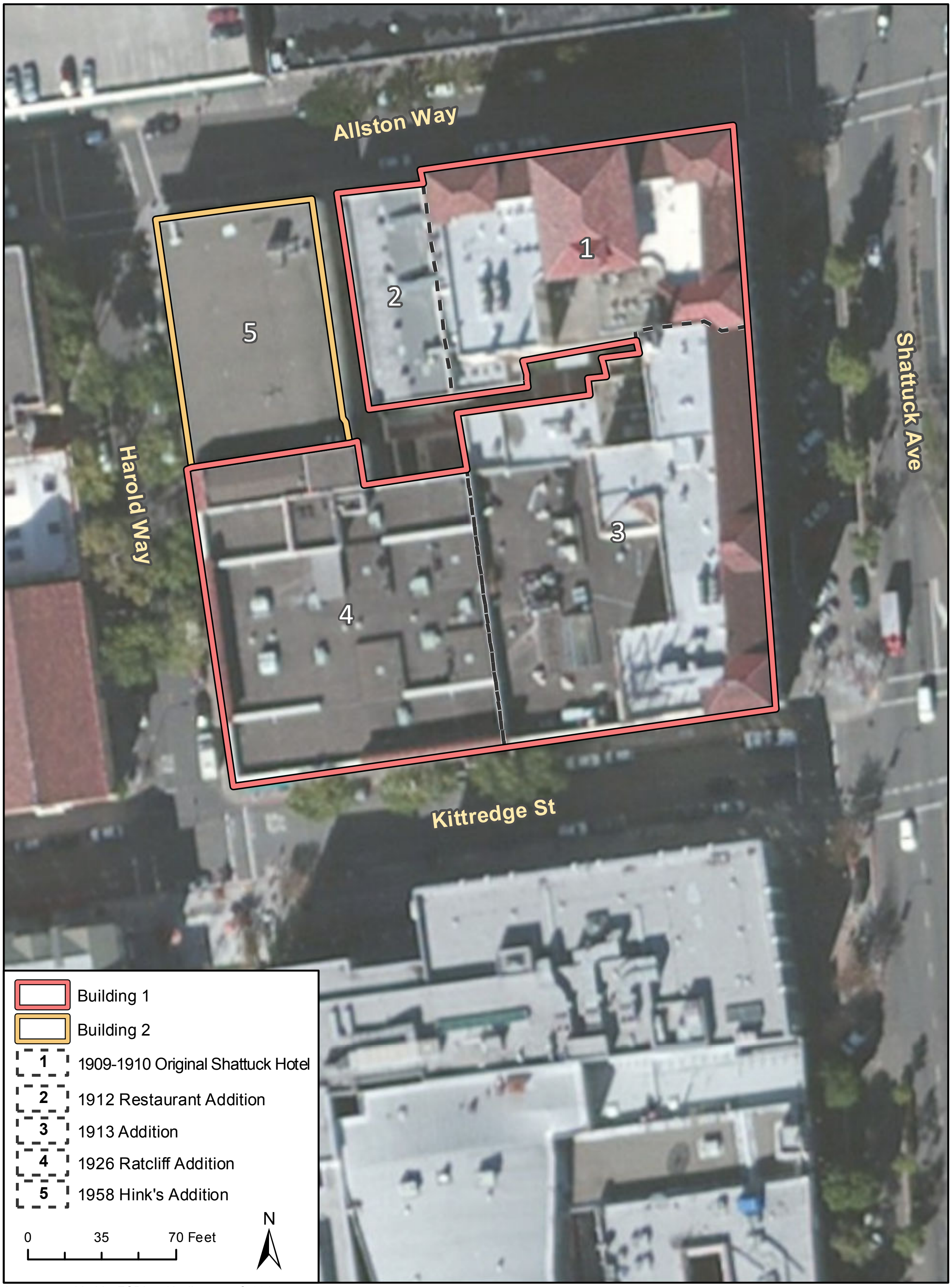
Project Location Map

Figure 2-2



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Existing Project Site Development

Figure 2-3

structure has frontage on Kittredge Street and Harold Way, and houses the Shattuck Cinema's movie theaters, part of the Habitot Children's Museum, and office space. Both buildings are two stories in height with a partial third story and a basement level (although the theater rooms occupy the equivalent of two stories of vertical space in what is essentially one level of useable space). Existing uses in the areas to be altered or demolished on the project site are summarized in Table 2-1.

Table 2-1
Existing Site Development

USE	NET SQUARE FEET
Office (combination of professional, institutional and medical)	41,170
Shattuck Cinemas	23,474
Children's Museum	7,056

Source: Rhoades Planning Group, January 2014

The structural area affected by the project also extends to a portion of the basement level sitting below the street retail and Shattuck Hotel building, as discussed below under Project Characteristics. Table 2-2 summarizes the existing characteristics of the project site and surroundings.

Table 2-2
Existing Site Characteristics

Address:	Multiple, including 2211 Harold Way
Assessor's Parcel Numbers:	057-2027-00600, -00700, -00800, and -0090
Site Size:	38,400 square feet (0.88-acre)
General Plan Land Use Designation:	Downtown (DT); Downtown Area Plan "Core Area"
Zoning Designation:	Downtown Mixed Use District (C-DMU), Core Area
Current Use and Development:	Commercial and Institutional
Surrounding General Plan Land Use Designations:	North: DT; Downtown Area Plan "Core Area" South: DT; Downtown Area Plan "Corridor" East: DT; Downtown Area Plan "Core Area" West: DT; Downtown Area Plan "Outer Core"
Surrounding Zoning Designations:	North: C-DMU – Core Area South: C-DMU – Corridor Area East: C-DMU – Core Area West: C-DMU – Outer Core Area
Regional Access: Local Access:	Interstate 80/580, State Route 24, SR 123, SR 13 Shattuck Ave, Allston Way, Harold Way, Kittredge St

Table 2-2
Existing Site Characteristics

Public Services:	Water: East Bay Municipal Utility District Wastewater: East Bay Municipal Utility District Fire Protection: Berkeley Fire Department Police Protection: Berkeley Police Department School District: Berkeley Unified, Central Zone

The project site is located in the "Core Area" zoning sub-area of the Commercial-Downtown Mixed-Use (C-DMU) zone within Downtown Berkeley, and is immediately surrounded by commercial, public and institutional land uses, as shown in Figure 2-2 above. The Downtown Core, as described in the Downtown Area Plan, is known for "its exceptional access to transit, shops amenities, and the UC campus. The Core Area contains BART, the convergence of over thirty bus lines, unique cultural resources, and the highest volume of foot traffic in the East Bay."

2.3.2 Surrounding Land Uses

As noted above, directly adjacent to the project site and on the same block is the Shattuck Hotel, a City of Berkeley Landmark, whose main lobby and entrance are on Allston Way but which also occupies the airspace above the ground floor retail along the entire block's frontage on Shattuck Avenue. Below the hotel rooms along Shattuck Avenue is a row of commercial storefronts that are part of the project site, as well as the entrance to the Shattuck Cinemas, a 10-screen movie theater. The hotel currently has 199 guest rooms, a restaurant, a bar and meeting rooms.

Commercial uses are located along Shattuck Avenue north of and across from the project site. One block north, around the intersection of Center Street and Shattuck Avenue, are several AC Transit and UC Berkeley Shuttle bus stops serving a number of bus lines, as well as the Downtown Berkeley BART Station on Shattuck Avenue between Allston Way and Addison Street. South of the project site on Shattuck and across Kittredge Street is the Berkeley Central Library, a City of Berkeley and National historic landmark. West of the project site across Harold Way are the Dharma College and the Mangalam Center, both City of Berkeley Landmarks. Commercial land uses and a public parking structure are located north of the project site across Allston Way.

Building heights in the vicinity range from two to three-stories (portions of the Dharma College complex on Harold Way and U.S. Post Office along Kittredge Street) to the 12-story 2140–2144 Shattuck Avenue Chamber of Commerce Building (173 feet) and 14-story 2150 Shattuck Avenue First Savings/Great Western Building (180 feet). The adjacent Shattuck Hotel is five stories in height, not including the basement. Most buildings around the project site are in the two- to five-story range.

Photographs of the project site and surroundings are shown in figures 2-4 through 2-9.

Photo 1 - View of the Allston Street frontage of the existing "Postal Annex" building, also known as the 1958 Hink's Building, at the corner of Harold Way and Allston Way, looking southwest from across Allston Way. The adjacent one-story 1912 Restaurant Addition portion of the Shattuck Hotel is visible to the left of the frame, and the Dharma College building across Harold Way from the site is visible in the right of the frame.

Photo 2 - View of the corner of and the Allston Way and Harold Way frontages of the 1958 Hink's Building looking southeast from across Allston Way.

Existing Project Site Development

Figure 2-4

Photo 3 - View of the Harold Way frontage of the Shattuck Cinemas building, also known as the 1926 Hink's addition to the Shattuck Hotel, looking north from across Kittredge Street.

Photo 4 - View of the Kittredge Street-fronting portion of the 1926 Hink's Addition/Shattuck Cinemas building looking northeast from across Kittredge Street.

Existing Project Site Development

Figure 2-5

Photo 5 - View of the Kittredge Street-fronting portion of the 1926 Hink's Addition/Shattuck Cinemas building looking west from Kittredge Street.

Photo 6 - View of the Kittredge Street-fronting portion of the 1926 Hink's Addition/Shattuck Cinemas building looking west from Kittredge Street. A portion of the 1913 Shattuck Hotel addition is in the right of the frame.

Existing Project Site Development

Figure 2-6

Photo 7 - View of the Shattuck Hotel building, immediately adjacent to the project site, looking northwest from across Shattuck Avenue.

Photo 8 - View of the Shattuck Hotel building, immediately adjacent to the project site, looking south from Shattuck Avenue at Center Street. The adjacent BART station plaza and commercial development are in the right of the frame.

Surrounding Development

Figure 2-7

Photo 9 - The south side of Shattuck Avenue, looking northwest from Shattuck Avenue at Allston Way across from the Shattuck Hotel.

Photo 10 - The public library building across Kittredge Street from the project site, looking southwest from across Shattuck Avenue. A portion of the Shattuck Hotel is visible in the rightside of the frame.

Surrounding Development

Figure 2-8

Photo 11 - Development on Shattuck Avenue and Allston Way east of the project site, viewed looking east from across Shattuck Avenue.

Photo 12 - The adjacent Shattuck Hotel, and development to the east beyond, viewed from Allston Way looking east. A portion of the project site is visible at the right of the frame.

Surrounding Development

Figure 2-9

2.3.3 Land Use Regulatory Overview

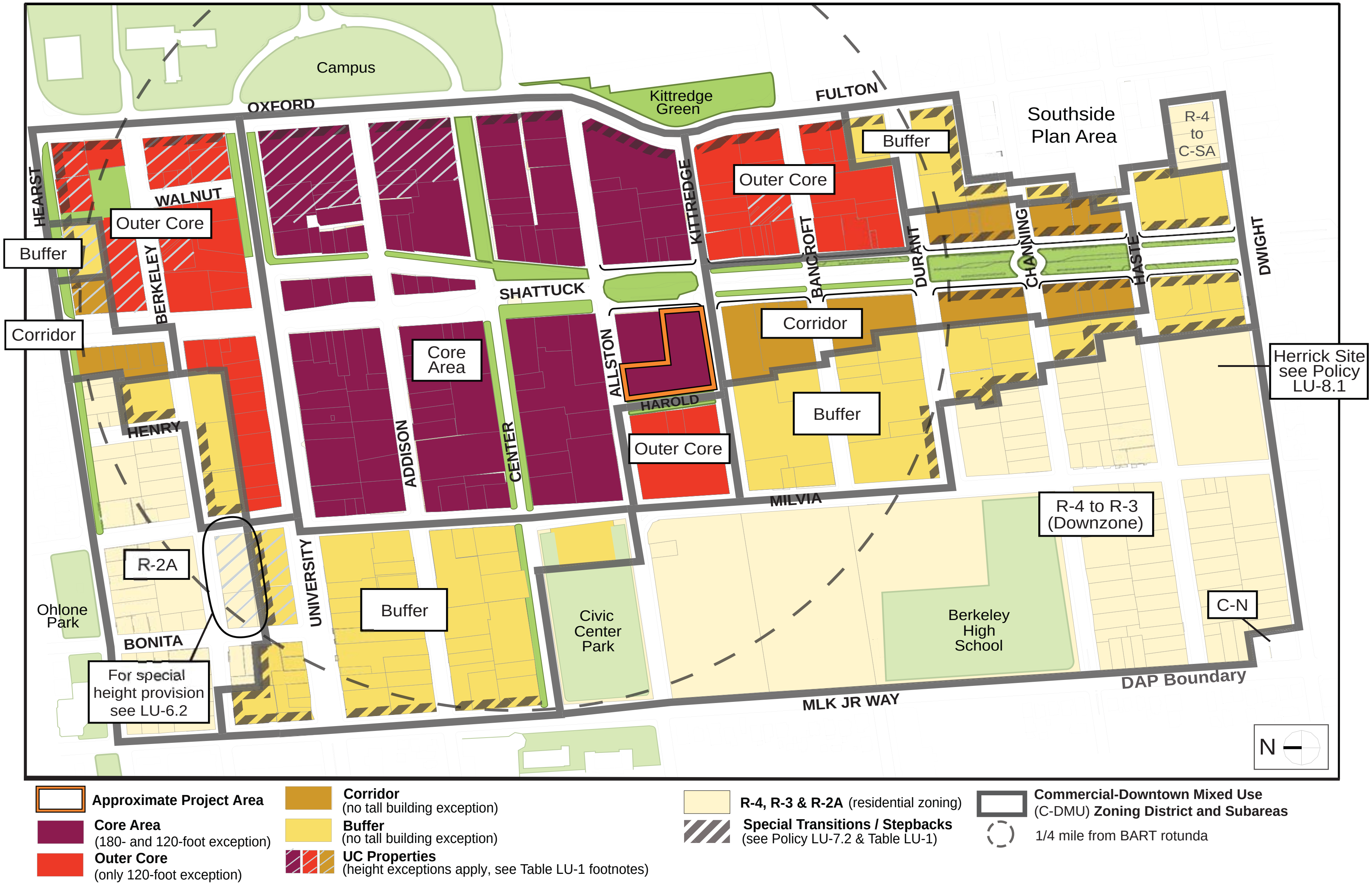
City of Berkeley General Plan. The project site's General Plan Land Use classification is Downtown. The Downtown classification is intended to "encourage, promote, and enhance development that will increase the residential population in the Downtown, provide new high density, transit-oriented housing opportunities, and support a vital city center. Uses appropriate for this area include: medium- and high-density housing, regional- and local-serving arts, entertainment, retail, office, cultural, open space, civic uses, and institutional uses and facilities. It is General Plan policy to increase the residential population in the Downtown."

(The General Plan also states that building intensity will generally range from a Floor Area Ratio up to 6:1 and that population density will generally range from 88 to 220 persons per net acre; however, the City's Downtown Area Plan vision for development in the Core Area, discussed further below, supersedes the General Plan's specific standards for Downtown development intensity. As discussed in the DAP EIR, the DAP was developed to provide specific policy guidance for future development in the Downtown Area; the DAP amended the General Plan, eliminating any conflict with General Plan Policies.)

Downtown Area Plan. The Downtown Area Plan (DAP) provides additional, specific land use guidance within the Downtown area. The DAP classifies the project site as Core Area. (Site and surrounding DAP land use classifications are shown in Figure 2-10.) The DAP includes the following discussion of development potential in the Core Area: "Because of immediate access to BART, multiple bus lines, and walk-to conveniences, provisions for the Core Area allow the tallest buildings, including three buildings up to 180 feet." The DAP identifies commercial uses, including retail and cinema, and multi-family residential uses, as allowed uses in the Core Area (DAP Policy LU-1.1).

Berkeley Municipal Code. The project site is located in the "Core Area" zoning sub-area of the Commercial-Downtown Mixed-Use (C-DMU) zone within Downtown Berkeley. (Site and surrounding zoning classifications are shown in Figure 2-11.) Specific allowed uses and development standards for the project site are thus contained in the Municipal Code in Chapter 23E.68, C-DMU Downtown Mixed Use District Provisions. Pursuant to Table 23E.68.030 in that section, retail, restaurant and mixed commercial and residential uses may be permitted in the C-DMU District. Pursuant to Section 23E.68.070, Development Standards, up to two residential buildings with ground-level commercial uses are allowed to reach heights up to 180 feet in the Core Area subarea of the C-DMU District.

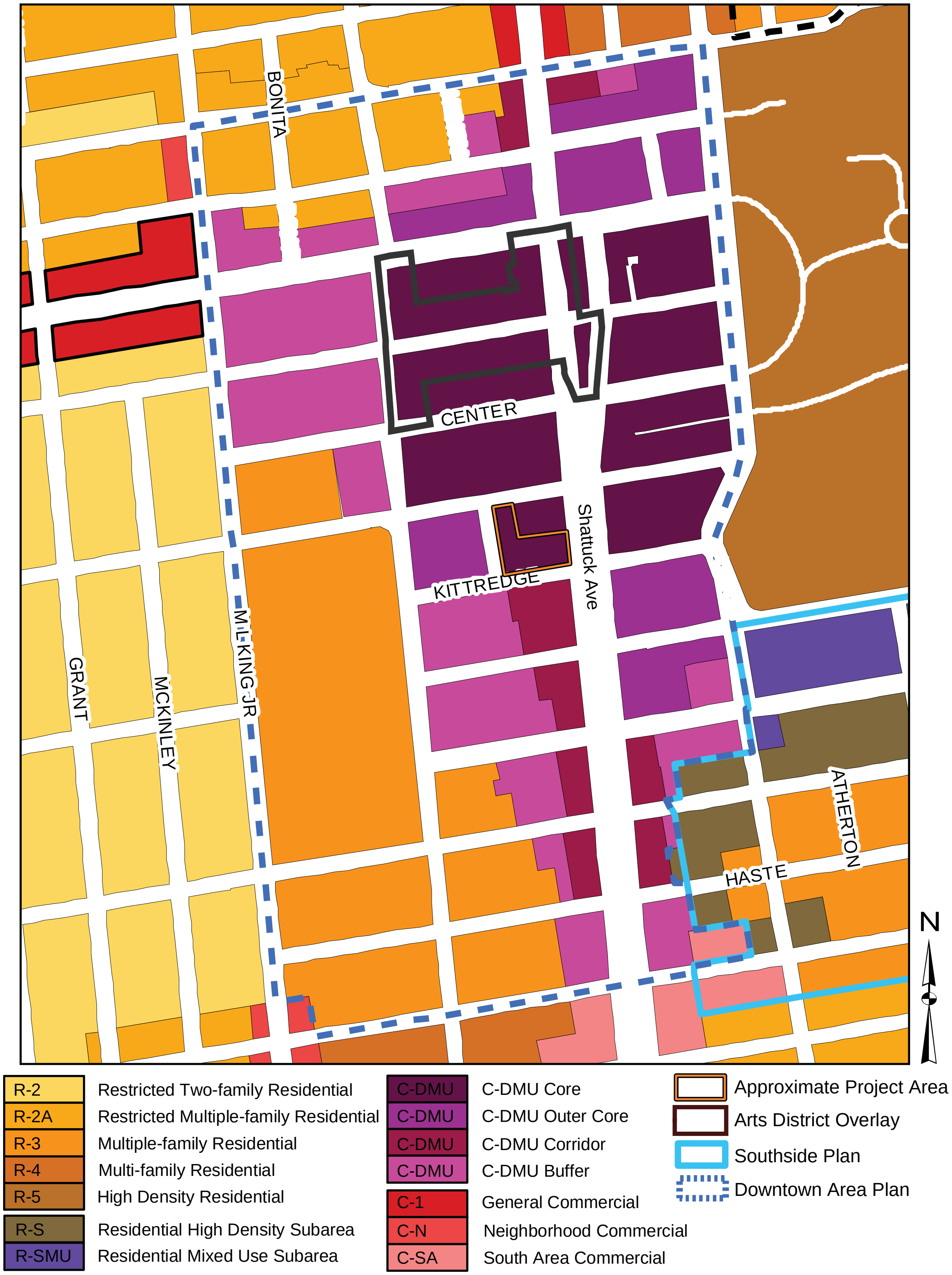
Section 23E.68.080 of the Municipal Code prescribes standards for automotive and bicycle parking spaces in the C-DMU District. The minimum parking space requirements relevant to the proposed project are one and a half spaces per each 1,000 square feet of gross floor area and one space per three dwelling units. Parking spaces must be provided on-site, or offsite within 800 feet subject to securing an Administrate Use Permit and in compliance with the off-street parking requirements in Section 23E.28.030. Bicycle parking spaces must be provided for new construction at the ratio of one space per 2,000 square feet of gross floor area of commercial space. In accordance with Section 23E.28.070, bicycle parking must be located in either a locker,



Source: City of Berkley, 2012

Site and Surrounding Downtown Area Plan Land Use Classifications

Figure 2-10



Source: City of Berkley, 2014

Site and Surrounding Zoning Classifications

Figure 2-11

or in a rack suitable for secure locks, upon the approval of the City Traffic Engineer and Zoning Officer.

Section 23E.68.080 requires that for new structures or additions over 20,000 square feet, the property owner provide a pass for unlimited local bus transit service or functionally equivalent transit benefit. Section 23E.68.085, Green Building Provisions, requires that new buildings in the C-DMU District attain a LEED Gold rating or higher, or its equivalent. Section 23E.68.065 affirms that projects that may create potentially significant environmental impacts, such as the proposed project, are subject to the adopted Mitigation Monitoring Program for the DAP EIR.

Finally, among the several findings required for approval of a Use Permit for a new building in the C-DMU District, the Zoning Adjustments Board must find that the project is compatible with the visual character and form of the District; that no designated landmark structure, structure of merit, or historic district in the vicinity would be adversely affected by the appearance or design of the project, and that the project will provide significant community benefits, either directly or by providing funding for such benefits to the satisfaction of the City, beyond what would otherwise be required.

Downtown Design Guidelines. The DAP also called for updates to the City's Downtown Design Guidelines to update the design vision as appropriate and to address the potential changes envisioned by the DAP. Among the key site design guidelines for new construction applicable to the project include the following frontage, setback, and height guidelines:

1. *Maintain a continuous zero-setback "build-to line" at the ground floor at the edge of all Downtown streets where commercial and higher levels of activity is anticipated, as has been indicated in the map "Public Serving Frontages" (see Figure 43). The only exceptions to this may be to: provide suitably defined, usable open space; create a special corner feature; provide recessed storefront entrances; create an arcade; to provide a narrow band of landscaping (see Figure 37); or to give emphasis to a civic building.*

2. *On Downtown streets without commercial or higher levels of activity, bring buildings close to the street-facing property line while also providing landscaping.*

3. *Continue the rhythm of 15-30 foot spacing of structural bays and/or enframed storefronts at ground level, in order to establish visual continuity with existing buildings and create pedestrian scale.*

4. *Design recessed storefront entrances so they do not exceed 50% of the width of the storefront, nor ten feet in depth.*

5. *Consider massing alternatives that would reduce shadow impacts on streets and relate new construction to the scale of nearby buildings, such as use of upper-story setbacks. Consider ways that buildings with upper-story setbacks can avoid the "wedding cake effect," such as by setting street-level entrances back to the same vertical plane as upper floors and/or by incorporating features that tie the building together visually (see Figure 38).*

6. *For new construction projects located on narrow east-to-west streets and over 75 feet in height, prepare an analysis of shade impacts on public open spaces and pedestrian sidewalks across the street. East of Shattuck, analyze visual impacts of ridgeline views to the east. Based on such analysis/ analyses, consider upper floor setbacks, setbacks at street corners or other techniques to mitigate negative impacts. (see #12 for Wind Impacts.)*

7. *Place entrances to storefronts and other ground floor uses so that they are accessible directly from the public sidewalk, not internal lobbies.*

8. *Design entrances of individual buildings to contribute positively to the street. Main entries should be clearly identifiable and inviting, and located to encourage interaction between open space and pedestrians.*

9. *New curb cuts in the Downtown core area are discouraged. Existing driveways may be relocated or replaced.*

10. *Maintain and reinforce Downtown's historic streetwall at the property line. Upper floor setbacks are desirable above 60 feet (usually the fifth floor for residential construction), and should be used above 75 feet.*

11. *Along Oxford Street, consider ways to link Downtown to the University campus, such as with usable open space, public art and other features.*

12. *For buildings over 85 feet in height, prepare an analysis of potential wind impacts. Protect sidewalks and public open spaces by deflecting downward wind drafts ("wind shear") by using building setbacks, recesses, projections, and other devices (see Figure 40). For projects with potentially significant wind impacts, evaluate massing options with a wind tunnel or other simulation, such as are available at UC Berkeley's College of Environmental Design.*

13. *Consider how the building's form and orientation can take advantage of sun and shade to appropriately heat and cool the building.*

2.4 PROJECT CHARACTERISTICS

Project Overview and Design.

The 2211 Harold Way Mixed Use Project is a proposed residential and commercial mixed-use development in Downtown Berkeley. The project's primary street frontage would be along Harold Way, although it would also front on portions of Allston Way and Kittredge Street. The existing structures on the project site would be altered or demolished to accommodate the project, as detailed further below under Site Preparation and Construction. (Please see figures 2-25 through 2-28 for the location and extent of proposed alteration and demolition of existing structures.)

The proposed project would have components of various heights, the highest portion reaching 180 feet in 18 stories. The project would maintain a generally continuous street wall at the edge of the abutting streets up to where the building would step back toward the interior of the site. The proposed building would step down to 54 feet (5 stories) along the street fronts, and at the street fronts would be about 10 feet shorter than the adjacent Shattuck Hotel, but would be about three feet taller than the heights of the public library across Kittredge Street and Armstrong College across Harold Way. Building step backs would occur primarily just above the fifth and 13th floors. Proposed materials are predominantly brick veneer panels, pre-cast concrete panels, glass, and glass spandrels.

The ground floor is proposed to accommodate retail and/or restaurant uses, in addition to residential lobby and amenity areas. A six-theater cinema complex would be located on the ground floor and below-ground levels. Parking would be provided in a three-level subterranean garage. The proposed project includes the following components:

- 302 apartment/condominium units (including 28 affordable units) with an average unit size of 729 square feet
- 1,499 square feet of lobby area
- A 1,403 square-foot community room available to be reserved by the residents for parties and other social events (not be available to the general public)
- Residential open space, consisting of 14,535 square feet of shared rooftop terraces and 11,045 square feet of private balconies and decks
- An AC Transit pass for each apartment/condominium unit and every employee for a duration defined during the City's Approval process
- Six new movie theaters to replace the existing Shattuck cinemas, totaling 21,641 square feet
- 10,535 square feet of retail and/or restaurant commercial floor area fronting Allston and Harold Ways and Kittredge Street
- 1,872 square feet of privately owned, publicly accessible open space at the corner of Kittredge Street and Harold Way with improvements including special paving and amenities, and street improvements along Harold and Allston ways including a speed table (please see the discussion below under Offsite Public Improvements for further details)
- 171 parking spaces in a three–level, subterranean parking structure accessed from Kittredge Street, including 11 electric vehicle charging stations and 6 spaces reserved for carsharing vehicles
- 100 secured bicycle storage spaces within the building, including spaces on the first level as well as in the parking garage
- Seismic reinforcement of the basement and ground levels of the existing Shattuck Avenue retail spaces (no exterior modifications). These areas are located below the Shattuck Hotel
- Roof-top solar energy and hot water production
- LEED Gold or equivalent environmental performance

Table 2-3 summarizes the basic project components.

Table 2-3
Project Summary

Use	Gross Floor Area (Square Feet)	Units
Residential	278,185 (includes 57,893 square feet for residential circulation)*	302
Retail or Restaurant	10,535	n/a
Cinema	21,641	665 seats
Parking	79,109	171 auto 100 bike
Max. Building Height: 180 feet/18 stories		

Sources: Rhoades Planning Group and MVE Institutional, Inc., Jan. 2014
** Residential circulation (includes residential core, circulation, amenities, storage, and ancillary spaces at ground floor such as the lobby, leasing office, fire command and bike storage)*

The proposed site plan, selected floor plans and conceptual elevations are shown on Figures 2-12 through 2-24.

Vesting Tentative Tract Map. The project applicant proposes two subdivision map requests as a part of the project. The first subdivision map request would adjust the lot lines on the existing condominium parcel map that currently divides the land and air space between the hotel, retail, and the theaters. The second map request would create individual condominium units equal to the number of proposed residential units plus a number of additional condominium spaces (for example, common areas, commercial spaces, parking areas) consistent with the approved project and floor plans at the discretion of the owner. Residential units, whether rented or sold as condominiums, would be subject to the City's affordability requirements (i.e., mitigation or in-lieu fees, and/or on-site below-market-rate units).

Residential Component. The residential component is proposed to be accommodated on floors 2 through 18 of the proposed project. Residential units would be accessed from a residential lobby on Harold Way or from the below-grade parking garage. The unit count and size range are shown in Table 2-4.

Table 2-4
Residential Unit Summary

Unit Type	Count	Size Range (square feet)
Studio	76	474 - 774
1 Bedroom	145	583 –979
2 Bedroom	75	752 – 1,085
3 Bedroom	6	1,103
TOTAL	302	n/a

Source: MVE Institutional, Inc., January 2014

If the project's residential units are rented, ten percent of the market rate units, or 28 units, are proposed to be designated as below-market-rate units affordable to households earning 50% or less of Area Median Income.

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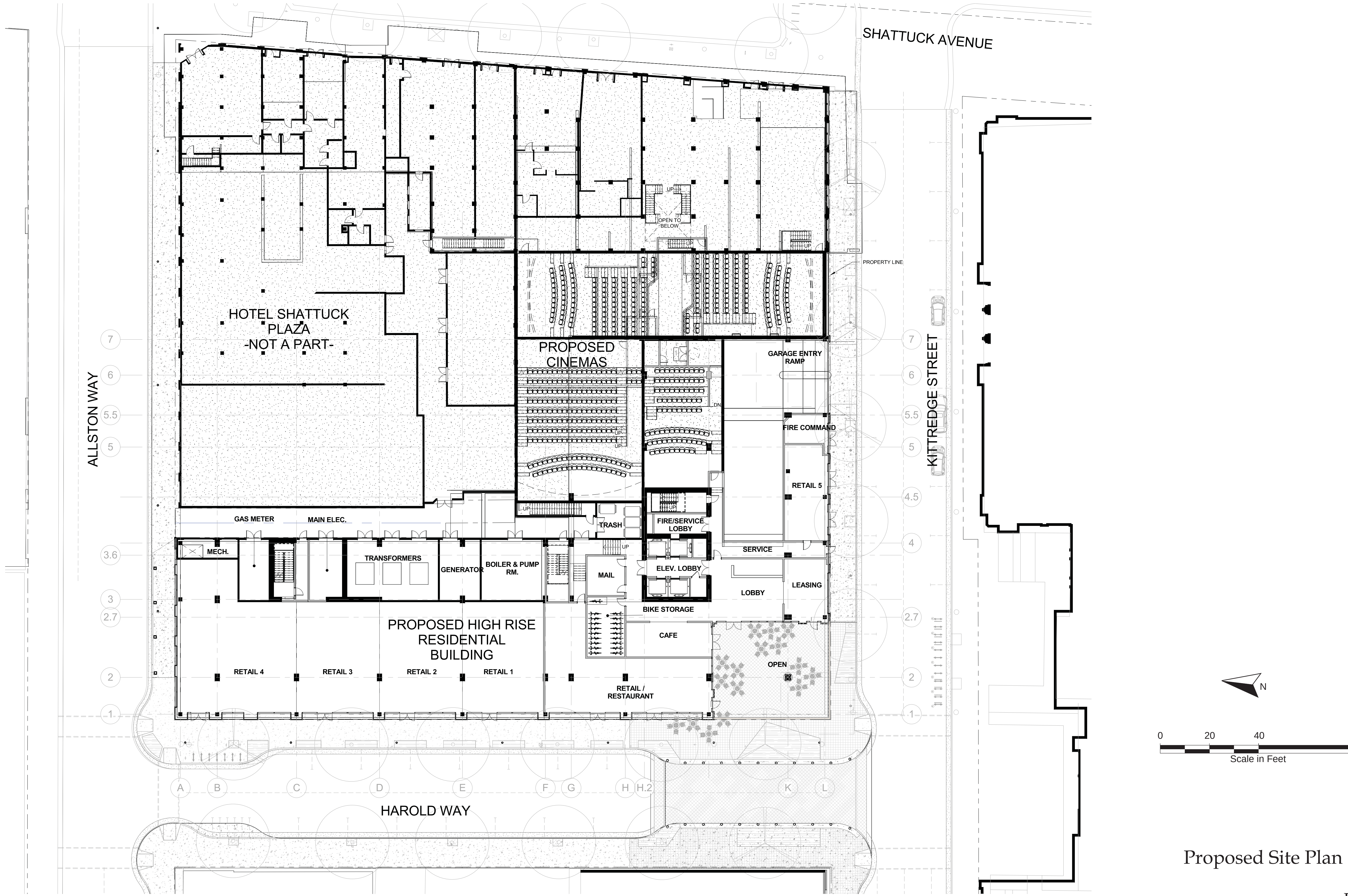


Proposed Site Plan

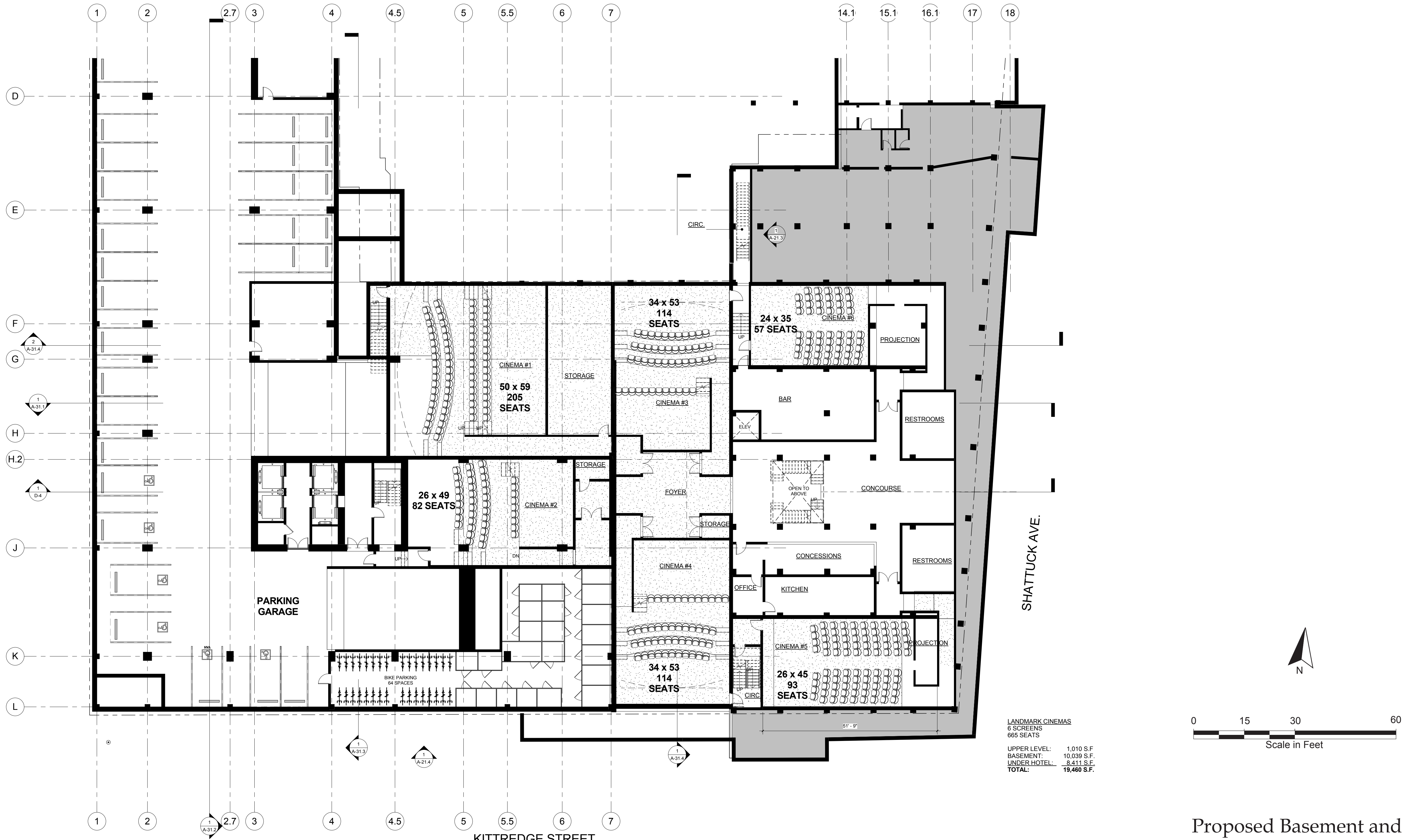
Source: MVEI Institutional, Inc., July 2014

Figure 2-12

Proposed First Basement Level Floor Plan

Source: MVEI Institutional, Inc., January 2014

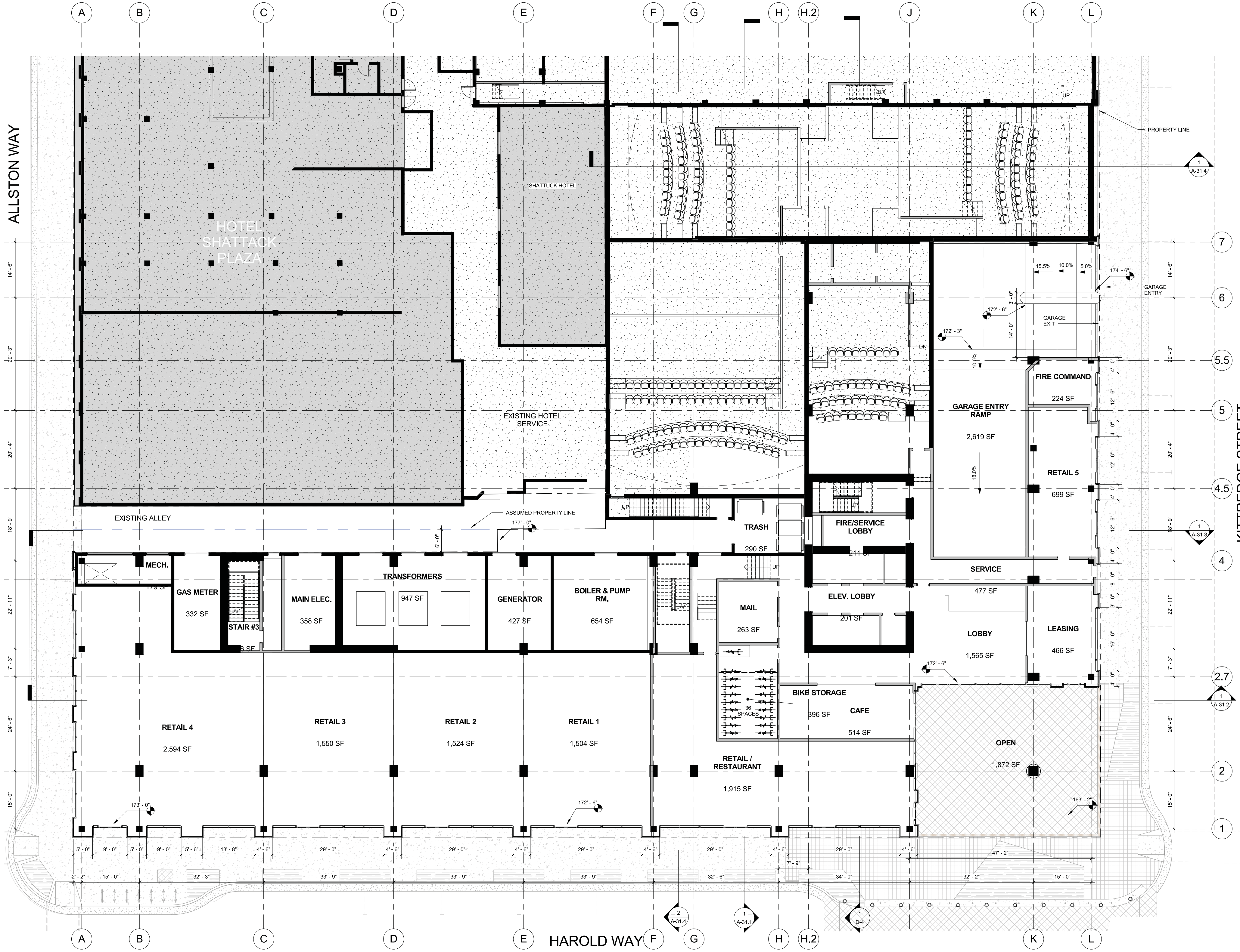
Figure 2-13

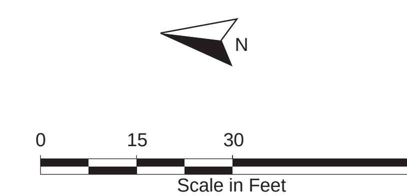


Proposed Basement and Cinema Level Floor Plan

Source: MVEI Institutional, Inc., January 2014

Figure 2-14





Proposed Ground Floor Plan

Source: MVEI Institutional, Inc., July 2014

Figure 2-15

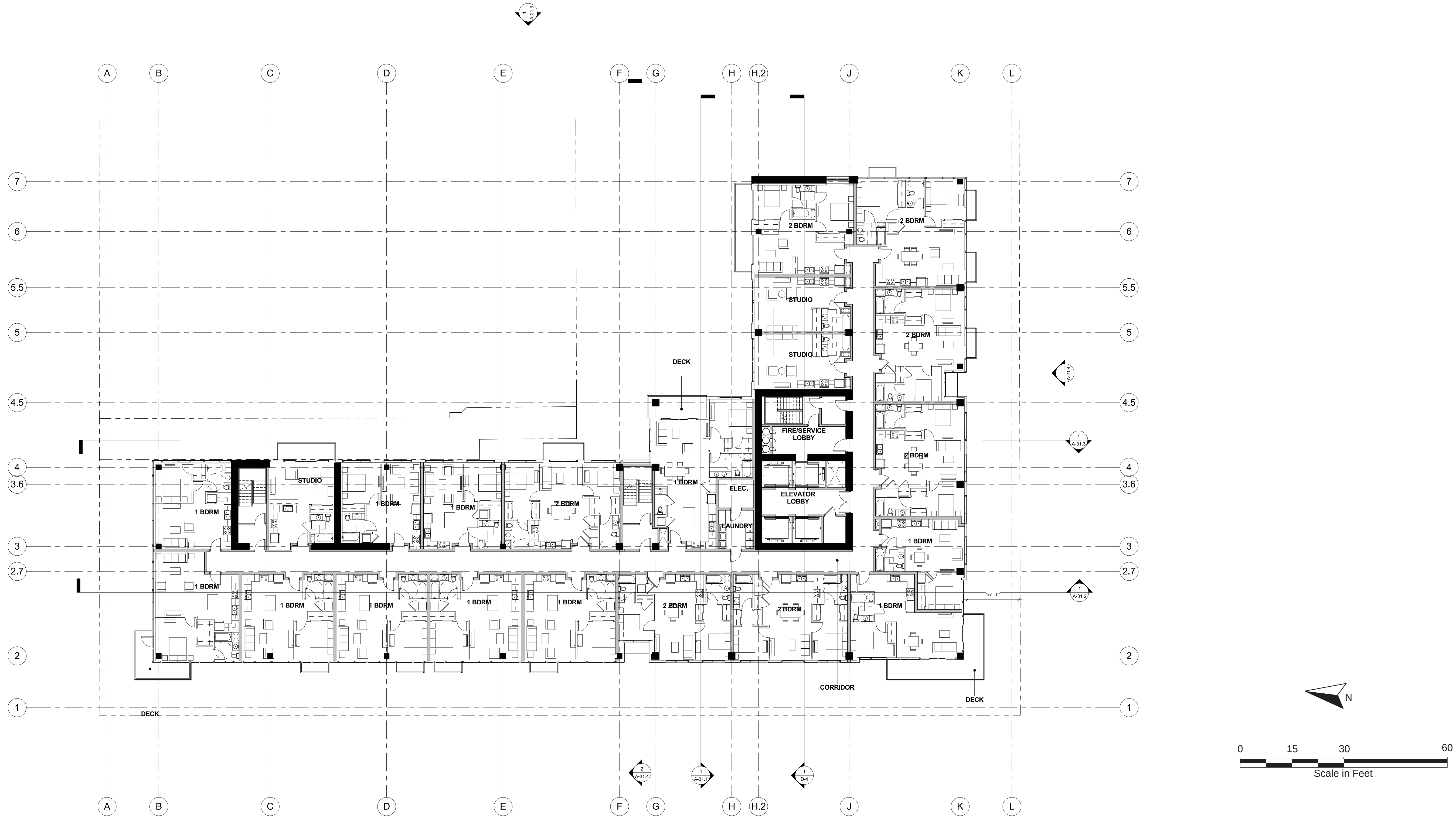
Proposed Level 2 Floor Plan

Source: MVEI Institutional, Inc., July 2014

Proposed Level 3 Floor Plan

Source: MVEI Institutional, Inc., July 2014

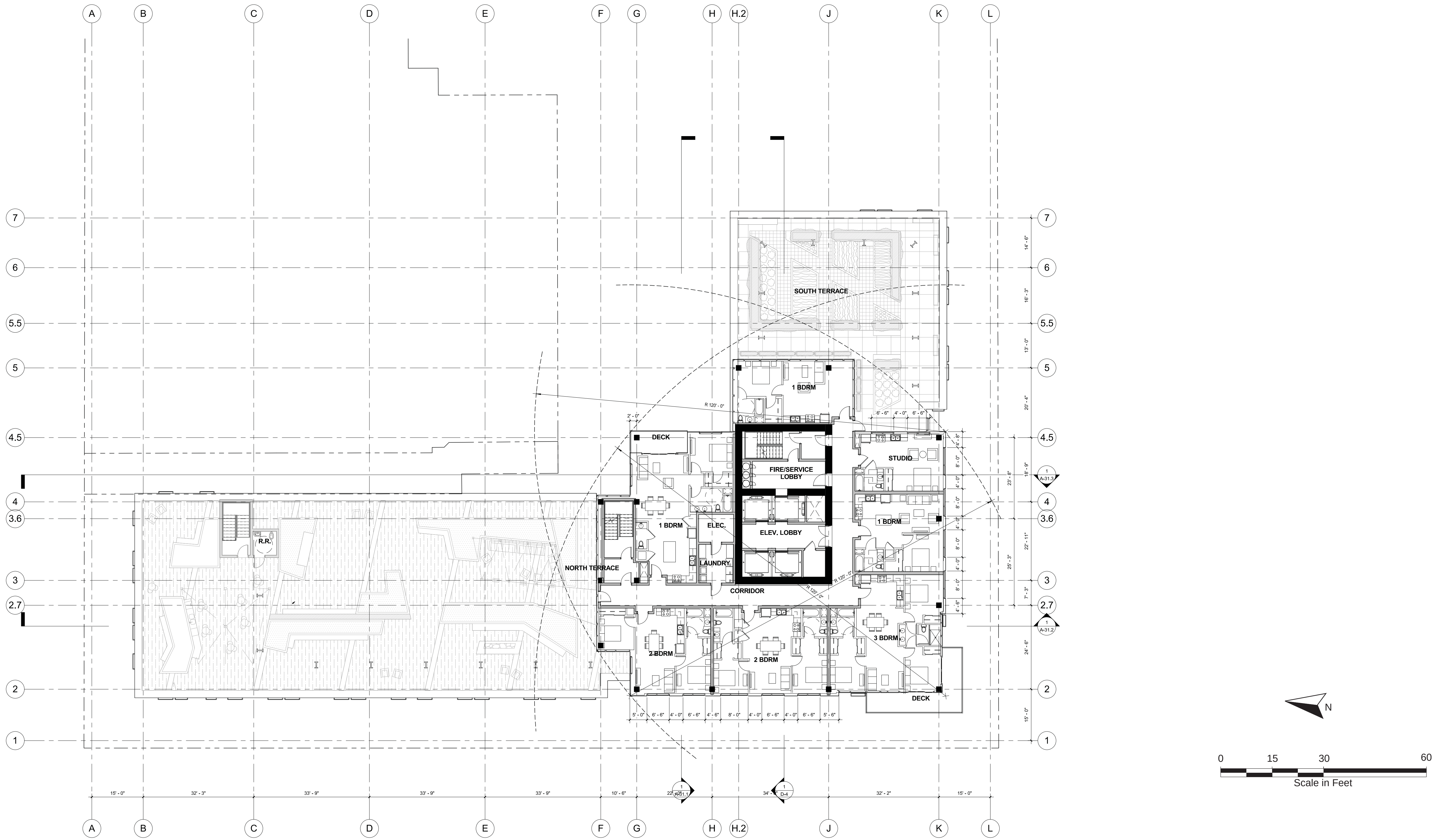
Figure 2-17



Proposed Levels
9-12 Floor Plan

Source: MVEI Institutional, Inc., July 2014

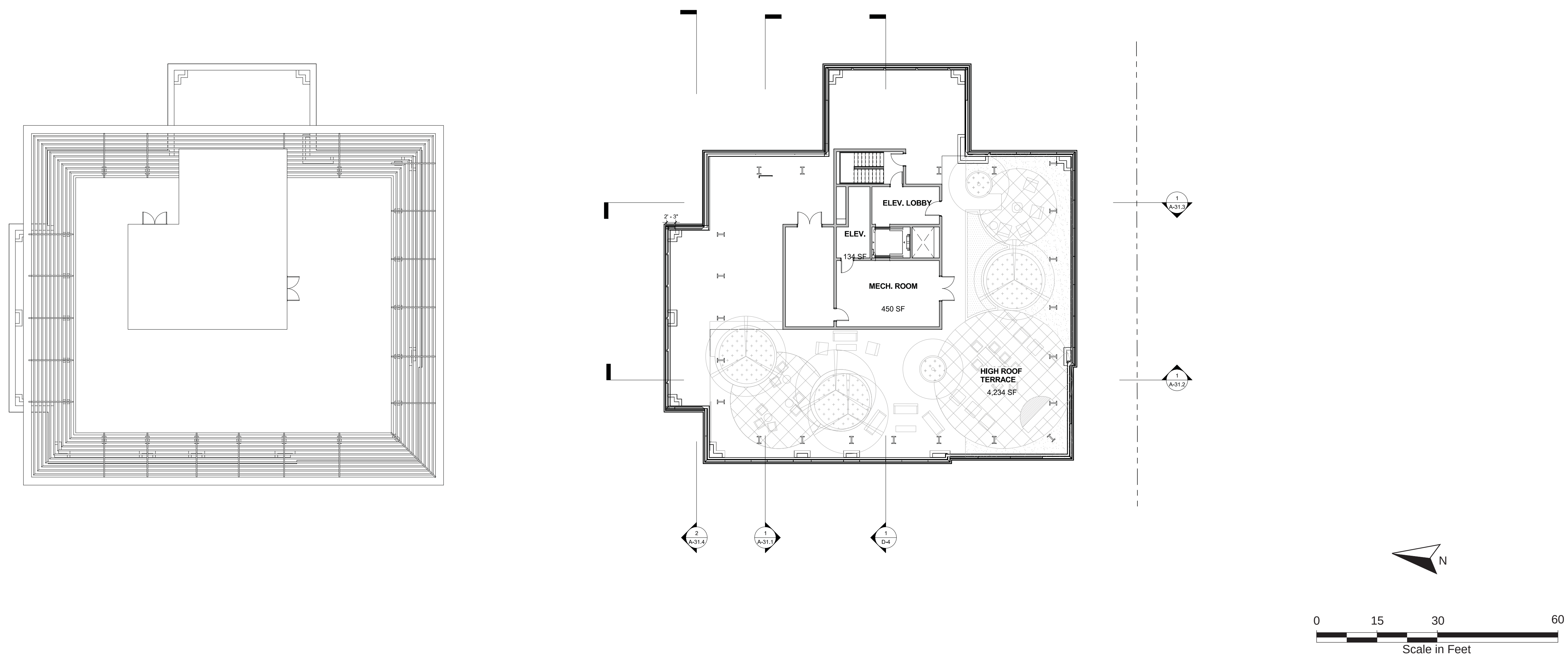
Figure 2-18



Proposed Level 13 Floor Plan

Source: MVEI Institutional, Inc., July 2014

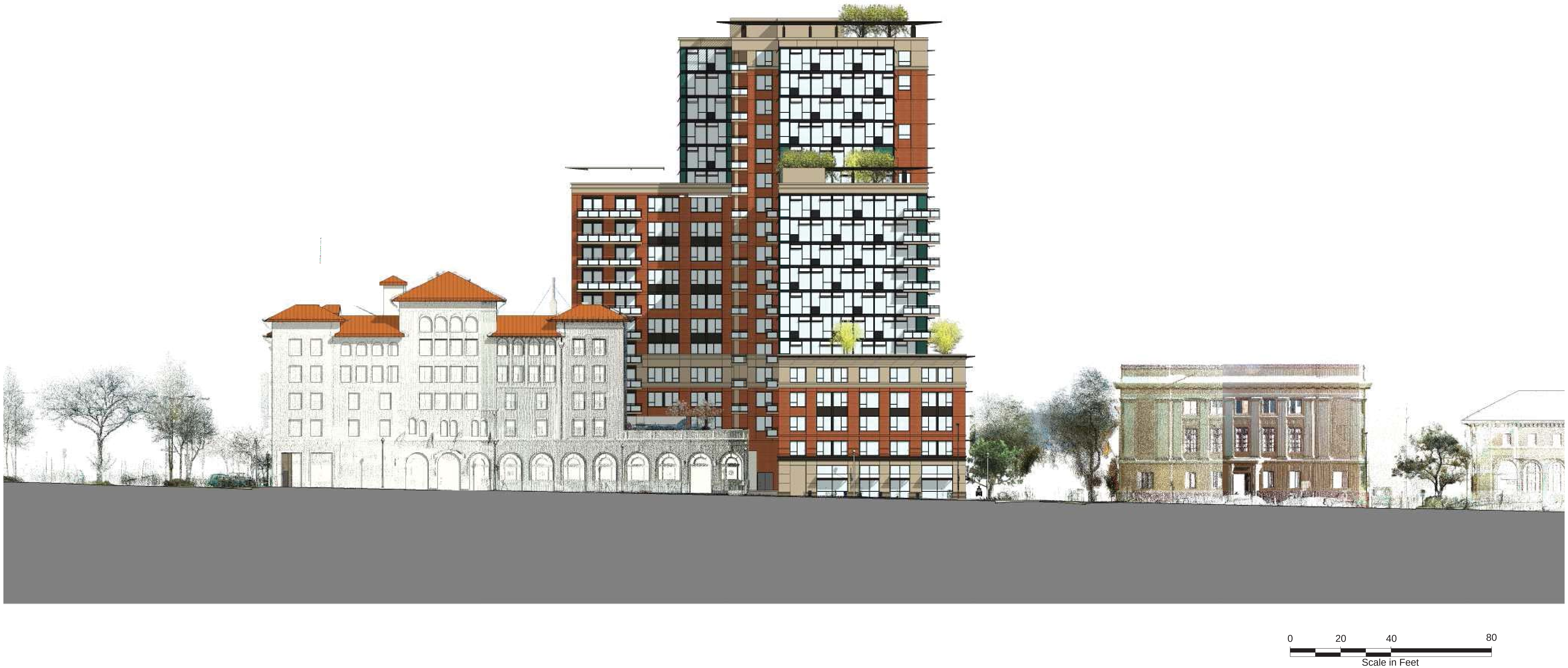
Figure 2-19



Proposed Roof Plans

Source: MVEI Institutional, Inc., July 2014

Figure 2-20



Proposed Allston Way Elevation

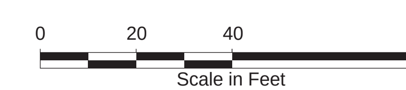
Source: MVEI Institutional, Inc., July 2014

Figure 2-21

Proposed Kittredge Street Elevation

Source: MVEI Institutional, Inc., July 2014

Figure 2-22



Proposed Shattuck Avenue Elevation

Source: MVEI Institutional, Inc., July 2014

Figure 2-23

Proposed Harold Way Elevation

Source: MVEI Institutional, Inc., July 2014

Figure 2-24

Proposed private open space for project residents would consist of:

- 10,268 square feet of 13th floor terrace space with outdoor cooking and entertaining facilities, community gardens, and fireplace area, and
- 11,045 square feet of usable balconies and terraces for selected units.

Additionally, the project would include a 1,872-square-foot privately owned public open space plaza.

Theater/Cinema Component. The proposed project includes a six-screen, 665-seat movie theater that would be accessed from Shattuck Avenue via the same entry location as the existing Shattuck Cinemas access. Theater-goers would access theater rooms from a concourse and concession area at the basement level, after descending from street level. The basement level would be lowered by six feet from its current level to provide adequate space for the theater. Three of the theater rooms would have stadium-style seating and would extend vertically from the basement level to the third floor of the project, and slightly above the second floor of the Hotel Shattuck. A fourth theater room would extend from the basement level to the second floor of the project, and the remaining theater rooms would be entirely within the basement below the ground floor retail strip. The floor area devoted to cinema and related uses would be approximately 21,641 square feet, which would extend under the southern portion of the existing ground floor retail area.

Retail and Restaurant Component. Proposed retail and/or restaurant commercial space would all be on the first (ground floor) level and would be located primarily along Harold Way. One retail space would wrap onto Allston Way at the southeast corner of Harold and Allston ways. A portion of the building on Kittredge Street, between Harold Way and a proposed driveway (described below), would be occupied by retail or restaurant storefronts, as well as the project leasing office. Proposed retail/restaurant space would total approximately 10,535 square feet, which could be divided between several tenants.

Access, Parking, Circulation and Transportation Demand Management. Vehicular access to the project's proposed parking garage would be provided via a two-way driveway from Kittredge Street down to a proposed three-level subterranean parking garage accommodating 171 parking spaces. Of these, 26 would be "small car" spaces and six would be car-sharing spaces. The residential parking spaces would be leased separately from the residential units, and AC Transit passes would be provided, consistent with Section 23E.68.080 of the Berkeley Municipal Code. Of the 171 parking spaces, 11 electric vehicle charging stations would be provided within the garage. Also 100 secure bicycle parking spaces would be provided (36 on the ground level, 64 in the first parking level). The project may make up to 39 parking spaces (equal to the number of spaces on the first basement parking level) available to the public and/or the Shattuck Hotel.

Pedestrian access would be incorporated from all four fronting street sidewalks. The main entrance to the proposed movie theater would be from Shattuck Avenue; the primary residential access would be through the lobby on Harold Way; and retail access would be to each storefront along Harold Way and Kittredge Street. The existing private alley from Allston Way would remain as a service entrance for the hotel and the proposed project.

Offsite Public Improvements. A number of offsite, public streetscape and mobility improvements are proposed. Bulb-outs on both sides of Harold Way would be constructed at its intersections with Allston Way and Kittredge Street. One of these would accommodate public bicycle racks. Approximately 11 new street trees along Harold Way and Kittredge Street would be installed to replace the seven that would be removed. Selected tall street lights would be replaced with shorter pedestrian-scaled lights, and additional pedestrian scaled lights would be installed on Harold Way.

At the corner of the site at Harold Way and Kittredge Street, a 1,872 square-foot exterior plaza area would include a formal entry for the proposed new building and a public space at the northeast corner of Harold and Kittredge (see Figure 2-14 above). The plaza could provide seating for customers of the proposed restaurant and café spaces. Construction materials would include stone and hardwoods, and planters with steel, cast stone and concrete. The Harold Way crossing area adjacent to Kittredge Street would include an enhanced treatment with textured or colored paving, landscape pockets, and bollards. Surrounding sidewalks and crossings would be treated with decorative paving. Other improvements would include installation of a speed table to calm traffic and to enhance the public right-of-way providing access to the Berkeley Central Library, the Armstrong College Property, the Library Gardens and the project, and installation of street furniture such as benches, planters with seat walls, and additional bike racks. These improvements would be refined and finalized in coordination with City staff, in accordance with applicable City standards.

Sustainable Building Features. The proposed project is designed to achieve a LEED Gold (or equivalent) rating, as required under Section 23E.68.085.A of the Berkeley Municipal Code. The project's sustainability features include:

- *Compliance with Title 24 of California's Building Standards Code*
- *Roof gardens with flow through planters to reduce heat island effect and capture water*
- *Solar shading for residential units*
- *Rooftop solar panels for hot water and electric power generation*
- *Reuse of captured rainwater for landscape irrigation*
- *Installation of drought-tolerant plants and materials*
- *Transportation Demand Management features as listed above, including unbundled parking (parking that is leased separately from dwelling units), AC Transit passes for each residential household and every commercial employee, six car share and 11 dedicated electric vehicle charging spaces equipped with chargers, and secure bicycle parking.*

Site Preparation and Construction. The existing 1959 Hink's Building would be demolished, and a portion of the Shattuck Hotel (primarily the 1926 addition and interior portions of the 1913 addition) building (refer to Figure 2-3 for the location of these buildings on the site) would be removed or altered to prepare the site for construction of the proposed project, including some alteration of the underground areas. Figures 2-25 through 2-28 illustrate the proposed limits of alteration and demolition. Approximately 36,000 cubic yards of grading would be required for site preparation and excavation for the subterranean parking garage. The maximum depth to the bottom of the lowest proposed foundation would be approximately 34 feet below the existing street-level grade. Pile driving would not be required; rather, a mat foundation (a type of continuous thick-slab foundation supporting the entire structure) varying from approximately three to six feet in thickness is proposed. Demolition and construction would require approximately 18-24 months.

Proposed changes to the retail strip and basement under the Shattuck Hotel (which is not owned by the project proponent), include the creation of a new cinema lobby on the ground floor and adding two theaters in the basement. There would be three major components to the associated structural work:

1. Frame out a new 20′ by 20′ opening in the ground floor to create a two story lobby. This would require new steel beams and girders.
2. Lower the basement floor by six feet to create the head-room necessary for the two new theaters. This would require the removal of the basement slab, soil excavation, and construction of new footings, retaining walls, and floor in the areas where the new theaters will be located.
3. Seismically strengthen the area affected by the new construction and the retail strip under the Shattuck Hotel. This would require the addition of four concrete shear walls that would extend from the basement to the underside of the second floor. This work would not seismically strengthen the entire building, but only the area directly affected by the new construction. This structural work would not be visible from the exterior of the building. It should be noted that the proposed new building's foundation system would be integrated with and would complement the existing Shattuck Hotel foundation system where it may come in contact.

No other changes are proposed to the Shattuck Hotel building.

Utilities and Services. The proposed project would include utility connections in accordance with requirements of the applicable utility providers for water, wastewater, storm water drainage, power, and telecommunications services. These utilities would connect to existing infrastructure in the vicinity of the site. Pacific Gas & Electric would provide electrical and natural gas services, East Bay Municipal Utility District would provide water and sewer service, and the City of Berkeley would provide storm water services and solid waste services. The project would rely on existing public services, including but not limited to, City of Berkeley police and fire protection, Berkeley Unified School District for schools, and parks and open spaces provided by the City of Berkeley, East Bay Regional Parks District, the County of Alameda and the state of California.

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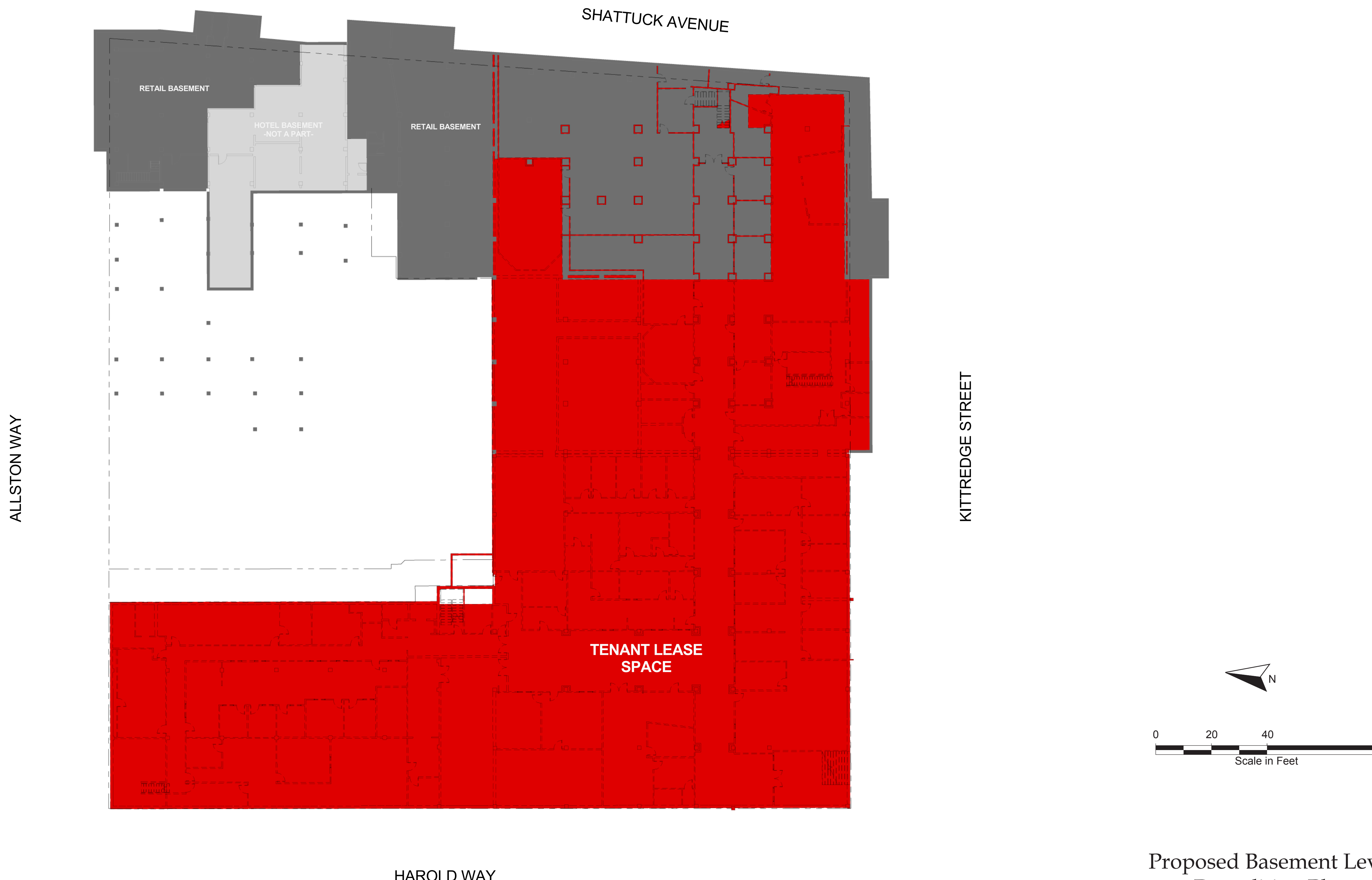


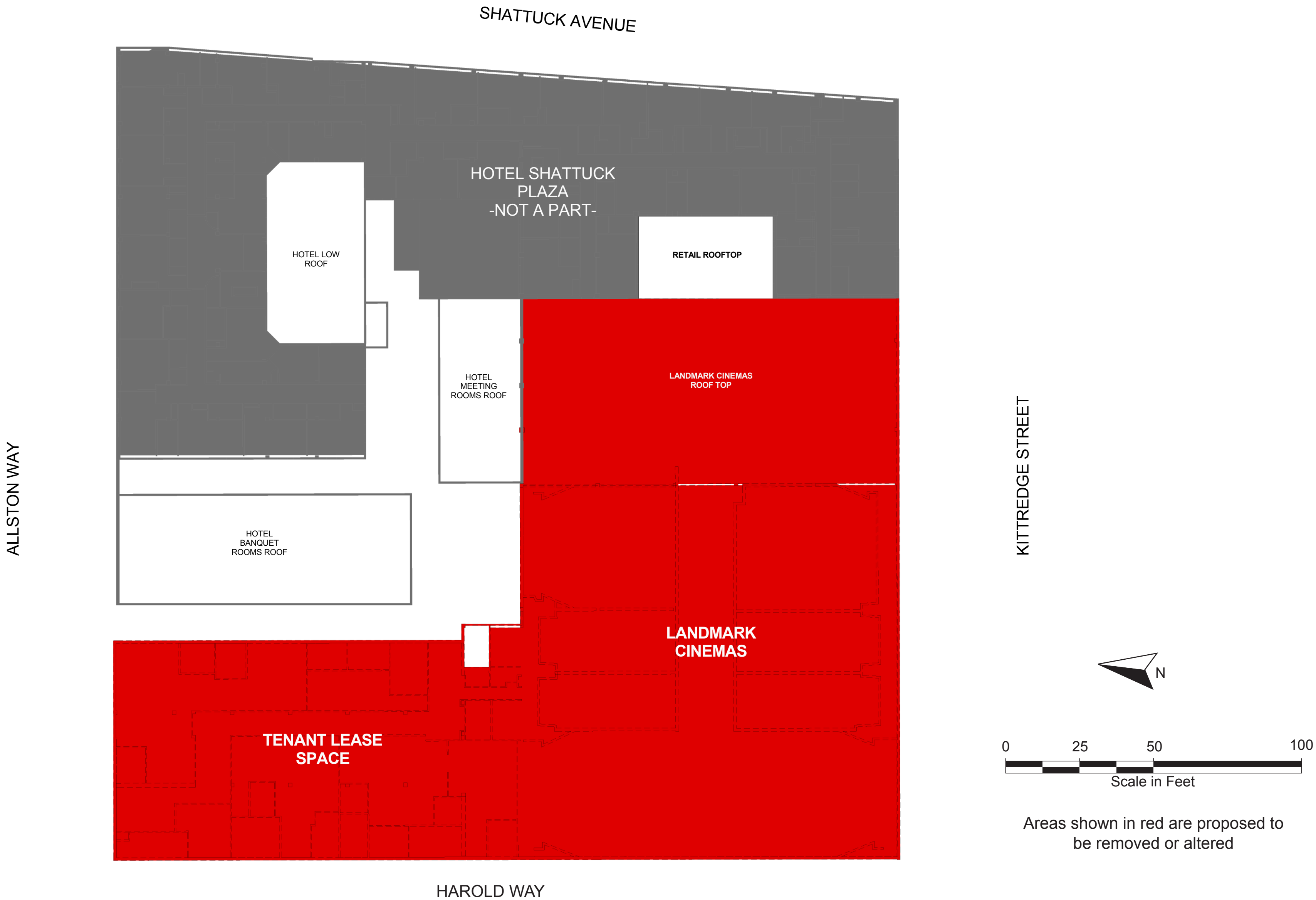
Proposed Basement Level Demolition Plan

Source: MVEI Institutional, Inc., January 2014

Source: MVEI Institutional, Inc., January 2014

Proposed Ground Level Alteration and Demolition Plan

Figure 2-26



Source: MVEI Institutional, Inc., January 2014

Proposed Upper Level Alteration and Demolition Plan

Figure 2-27

0 15 30 60
Scale in Feet

Areas shown in red are proposed to be removed or altered

Proposed Section-View
Alteration and Demolition Plan

Source: MVEI Institutional, Inc., January 2014

Figure 2-28

2.5 PROJECT OBJECTIVES

The objectives of the applicant for the proposed 2211 Harold Way Mixed-Use Project are to:

1. *Implement the Downtown Area Plan and Street & Open Space Improvement Plan by leveraging the full development potential under Zoning Ordinance standards in order to generate the revenue necessary to provide all of the community benefits envisioned in the Downtown Area Plan, plus additional community and public benefits proposed in the project application, and maintaining project financial feasibility.*
2. *Generate much-needed high-quality, transit-oriented, and sustainable market rate housing to support and contribute substantial affordable housing (and/or in-lieu fees) as required by Section 22.20.065 of the Berkeley Municipal Code.*
3. *Establish an attractive and environmentally sustainable residential neighborhood that maximizes transit-oriented density and contributes to a vibrant urban character with 500-600 new residents.*
4. *Activate the pedestrian environment along Kittredge Street and Harold Way by replacing the existing structure that does not respect the public commons or pedestrian environment, with vibrant, walkable retail and pedestrian amenities.*
5. *Secure Downtown as a major cinema destination by replacing aging deficient theater boxes with state-of-the-art cinemas.*
6. *Complement Downtown's traditional character by maintaining a continuous street wall, including the tower portions of the project (similar to the historic Wells Fargo Building) except to create a corner civic space to enhance the historic Library plaza across the street, and stepping the building down at the street to be deferential to the project's historic neighbors.*
7. *Transform an important urban block in Downtown Berkeley to a vital, walkable, retail-centered, transit-friendly, residential block with pedestrian amenities consistent with the Downtown Area Plan and the Streets and Open Space Improvement Plan, while maintaining and enhancing the key historic resource on the block.*
8. *Provide a superior green building using environmentally sustainable siting, development, and construction practices.*
9. *Use ecologically beneficial landscaping that promotes watershed health and creates safe, comfortable, and inviting open spaces.*
10. *Help preserve the historic Hotel Shattuck with certain seismic improvements to the underlying retail and basement made possible by the project as part of reuse of the basement.*
11. *Encourage alternative modes of transportation for residents, employees, and retail customers. Prioritize the safety and attractiveness of the pedestrian experience. Reduce car use by providing residents and employees with a range of Transportation Demand Management measures that are made possible by the income generated by the project's size and scale.*
12. *Generate significant new revenue streams for the City of Berkeley through increased property tax bases, retail revenue, jobs creation, gross receipts taxes, and new residential population that support Downtown businesses.*

2.6 REQUIRED APPROVALS

The proposed project is subject to approvals by both the City of Berkeley's Zoning Adjustments Board and the City's Landmarks Preservation Commission. The project would require the following discretionary entitlements from the City of Berkeley:

- *Use Permit for a Mixed Use Development in the C-DMU Zoning District*
- *Use Permit to allow the service of beer, wine and distilled spirits incidental to food service*
- *Administrative Use Permit to allow more than 2,000 square feet of Full Service Restaurant space*
- *Administrative Use Permit to allow amplified live entertainment incidental to food service*
- *Use Permit to construct more than 10,000 square feet of floor area*
- *Use Permit to exceed a building height of 75 feet*
- *Administrative Use Permit to allow mechanical penthouse to exceed maximum building height*
- *Use Permit to demolish a non-residential building (1959 Hink's Building)*
- *Structural Alteration Permit for the alteration of the Shattuck Hotel Landmark structure and site (1926 Hink's Department Store addition and interior portions of 1913 addition to be altered), and demolition of the 1959 Hink's Building at Allston and Harold Ways.*

3.0 ENVIRONMENTAL SETTING

This section provides a general overview of the environmental setting for the project. A detailed description of the environmental settings germane to the main issue areas studied in this EIR can be found in Section 4.1, *Cultural Resources*, and Section 4.2, *Transportation/Traffic*.

3.1 REGIONAL SETTING

The project site is located in the City of Berkeley, Alameda County, within the greater San Francisco Bay Area (refer to Figure 2-1, *Regional Location*, and Figure 2-2, *Project Location,* in Section 2.0, *Project Description*). Berkeley is located approximately 6.5 miles northeast of downtown San Francisco. The City is bounded to the north by the City of Albany, to the east by Contra Costa County and the City of Oakland, to the south by the cities of Oakland and Emeryville, and to the west by the San Francisco Bay. Berkeley has a Mediterranean climate with dry summers and wet winters. Summers in Berkeley are cooler than typical Mediterranean climates due to upwelling ocean currents along the California coast. The average rainfall is 24 inches a year. The region is subject to various natural hazards, including earthquakes, landslides, and wildfires.

3.2 PROJECT SITE SETTING

The project site is fully developed with existing structures and is generally level, sloping gently downward towards the west and south. The site is immediately surrounded by commercial, public and institutional land uses in the Downtown Area of Berkeley. The Shattuck Hotel, a City of Berkeley Landmark, is located adjacent and to the northeast of the project site and on the same city block. Commercial uses are located along Shattuck Avenue north of and across from the project site. One block north, around the intersection of Center Street and Shattuck Avenue, are several Alameda County Transit and University of California Berkeley Shuttle bus stops serving a number of bus lines, as well as the Downtown Berkeley BART Station on Shattuck Avenue between Allston Way and Addison Street.

South of the project site on Shattuck and across Kittredge Street is the Berkeley Central Library, a City of Berkeley and National historic landmark. West of the project site across Harold Way are the Dharma College and the Mangalam Center, both City of Berkeley Landmarks. Commercial land uses and a public parking structure are located north of the project site across Allston Way.

Building heights in the vicinity of the project site range from two to three stories (portions of the Dharma College complex on Harold Way and U.S. Post Office along Kittredge Street) to the 12-story 2140–2144 Shattuck Avenue Chamber of Commerce Building (173 feet) and 14-story 2150 Shattuck Avenue First Savings/Great Western Building (180 feet). The adjacent Shattuck Hotel is five stories in height, not including the basement. Most buildings around the project site are in the two- to five-story range.

3.3 CUMULATIVE PROJECTS SETTING

CEQA defines cumulative impacts as two or more individual actions that, when considered together, are considerable or will compound other environmental impacts. Cumulative impacts are the changes in the environment that result from the incremental impact of development of the proposed Project and other nearby projects. For example, the traffic impacts of two nearby projects may be insignificant when analyzed separately, but could have a significant impact when analyzed together. Cumulative impact analysis allows the EIR to provide a reasonable forecast of future environmental conditions and can more accurately gauge the effects of a series of projects.

CEQA states that a discussion of cumulative impacts should include either: 1) a list of past, present and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or 2) a summary of projections contained in an adopted general plan or related planning document which described or evaluated regional or area wide conditions contributing to the other cumulative impact.

Table 3-1 lists current planned and pending projects in Berkeley's Downtown Area Plan study area. These projects are considered in the cumulative analyses in Section 4.0, *Environmental Impact Analysis.* These projects are consistent with the overall buildout of the Downtown Area as envisioned in the Downtown Area Plan, and are within the development potential under the Plan that was analyzed in the Downtown Area Plan EIR.

Table 3-1
Cumulative Projects in Berkeley's Downtown Area Plan Study Area

Location	Commercial Floor Area (Net Square Feet))	Dwelling Units	Description
1935 Addison	-4,276	69	Demolition of commercial buildings and construction of mixed-use project
2024 Durant	0	97	Demolition of church and construction of residential units
2107 Dwight	-15,507	99	Demolition of commercial buildings and construction of mixed-use project
2201 Dwight	-21,511	77	Demolition of commercial building and construction of residential project
2489 Martin Luther King	1,725	21	Mixed-use project on vacant site
1951 Shattuck	-7,306	79	Demolition of commercial buildings and construction of mixed-use project
2129 Shattuck	89,500	293 hotel rooms	Demolition of bank and construction of

Table 3-1
Cumulative Projects in Berkeley's Downtown Area Plan Study Area

Location	Commercial Floor Area (Net Square Feet))	Dwelling Units	Description
			hotel/commercial project
2323 Shattuck	2,609	15	Mixed-use project on existing parking lot
1974 University	2,548	102	Demolition of auto repair building and construction of mixed-use project
2133 University	-23,778	205	Mixed-use project
Approximate Cumulative Total	**21,395**	**1,057**	

Source: City of Berkeley, 2014

All totals are approximate based on standard uncertainties related to specific project information.
A negative value indicates the loss of a quantity relative to existing development at a location.

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4.0 ENVIRONMENTAL IMPACT ANALYSIS

This section discusses the possible environmental effects of the proposed project for the specific issue areas that were identified through the Infill Environmental Checklist process as having the potential to experience significant impacts. "Significant effect" is defined by the *State CEQA Guidelines* Section 15382 as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment, but may be considered in determining whether the physical change is significant."

The assessment of each issue area includes the setting and impact analysis. Within the impact analysis, the first subsection identifies the methodologies used and the "significance thresholds," which are those criteria adopted by the City, other agencies, universally recognized, or developed specifically for this analysis to determine whether potential effects are significant. The next subsection describes each impact of the proposed project, mitigation measures for significant impacts, and the level of significance after mitigation. Each effect under consideration for an issue area is separately listed in bold text, with the discussion of the effect and its significance following. Each bolded effect listing also contains a statement of the significance determination for the environmental effect as follows:

> ***Class I, Significant and Unavoidable:*** *An impact that cannot be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires a Statement of Overriding Considerations to be issued if the project is approved per Section 15093 of the State CEQA Guidelines.*
>
> ***Class II, Significant but Mitigable:*** *An impact that can be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires findings to be made under Section 15091 of the State CEQA Guidelines.*
>
> ***Class III, Not Significant:*** *An impact that may be adverse, but does not exceed the threshold levels and does not require mitigation measures. However, mitigation measures that could further lessen the environmental effect may be suggested if readily available and easily achievable.*
>
> ***Class IV, Beneficial:*** *An effect that would reduce existing environmental problems or hazards.*

Following each environmental effect discussion is a listing of recommended mitigation measures (if required) and the residual effects or level of significance remaining after implementation of the measures. In those cases where the mitigation measure for an impact could have a significant environmental impact in another issue area, this impact is discussed as a residual effect. The impact analysis concludes with a discussion of cumulative effects, which evaluates the impacts associated with the proposed project in conjunction with other future development in the area.

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4.1 CULTURAL RESOURCES

This section analyzes potential impacts to cultural resources. The discussion of historic resources summarizes information from a historic resources technical report prepared for the project by Architectural Resources Group, Inc. in September of 2014**.** The historic resources report is included in its entirety in Appendix B to this EIR.

4.1.1 Setting

a. Downtown Berkeley. Berkeley's development into a thriving town is largely credited to the extension of transportation routes in the East Bay and the establishment of UC Berkeley in 1868. Francis Kittredge Shattuck, a notable business and civic leader, played a prominent role in extending a Central Pacific (later Southern Pacific) spur line from Oakland to Berkeley in 1876. The line ran along present-day Shattuck Avenue. The increased transportation brought commercial growth and a thriving downtown area began to develop. At the time of Berkeley's incorporation in 1878, Shattuck Avenue was already established as the town's principal commercial area.

According to the 2007 Downtown Berkeley Historic Resources Survey, the bulk of construction in Berkeley's downtown area occurred between the late 1870s, when the construction of the area commenced, and the 1930s, when the pace of building construction diminished due to the Great Depression and other economic pressures. Many of the nineteenth-century, wood-frame buildings in the Downtown were replaced in the early twentieth century by more substantial masonry buildings. When the Shattuck Hotel was completed in 1910, it was one of the first reinforced concrete structures constructed in the downtown area, and it remains one of the few historic buildings in Downtown Berkeley designed in the Mission Revival style.

b. Site History and Context. The Shattuck Hotel (2200-20 Shattuck Avenue/2060-80 Allston Way) is located in Downtown Berkeley on the block bounded by Allston Way to the north, Kittredge Street to the south, Shattuck Avenue to the east, and Harold Way to the west. The building sits along the Shattuck Avenue Commercial Corridor, which extends along Shattuck Avenue from Durant to University Avenue and includes a cluster of commercial buildings built during the first half of the twentieth century that share similar historic contexts, physical attributes, and characteristics. As discussed below, Hink's Department Store served as a principal commercial tenant at the Shattuck Hotel.

Shattuck Hotel. Prominent civic leader and local developer Francis Shattuck began to develop his Berkeley estate in the late 1860s, constructing his first house – a wood-framed, French Second Empire style structure – on land between Allston and Bancroft Ways in 1868. In 1891, he built a large Queen Anne-style home on the property, and rented out the older residence. Francis died in 1898 and his widow Rosa remained in the Queen Anne-style estate. She continued to rent the older residence to the Delta Kappa Epsilon fraternity. When the fraternity moved south of campus, Rosa started to consider constructing a hotel or resort cottages on the property – an idea that did not come to fruition until after the 1906 earthquake and fire.

In the wake of the 1906 earthquake and fire, many San Francisco residents seeking to escape the city moved to the East Bay. As a result, Berkeley's population increased by over 25,000 people from 1900 to 1910. During the post-earthquake years, the area surrounding the Shattuck estate became increasingly commercialized. In 1907, seeing her opportunity to build a hotel, Rosa formed the Shattuck Hotel Association with William E. Woolsey, her niece's husband, acting as president. The original plans for the hotel called for a grand building, containing 400 guestrooms and costing nearly $500,000; the plans, however, were scaled down and completed in two phases.

The corner of Shattuck Avenue and Allston Way was selected as the site for the new hotel, but Rosa Shattuck died on September 12, 1908 before plans for the hotel were completed. Following her death, the Shattuck Hotel Association continued with plans for a hotel and held a competition for the best design. The winner was Benjamin Geer McDougall, who proposed a Mission Revival style design constructed of reinforced concrete. The firm of Kidder & McCullough was awarded the construction contract. McDougall was an early proponent of reinforced concrete, which became an increasingly popular construction method after the 1906 earthquake.

Construction on the 115-room, $125,000 hotel building began around April 1909 and was completed in December 1910, with a large addition designed by McDougall already planned for the future. Issuance of the Shattuck Hotel building permit was the first act of the City of Berkeley's building department in 1909. A one-story restaurant along Allston Way was added in 1912. The second phase of McDougall's design was completed in 1913 and consisted of an addition that almost tripled the size of the hotel. The expansion also included retail space – most notably occupied by the dry-goods merchant J.F. Hink and Sons – on the ground floor along Shattuck Avenue.

In 1920, Woolsey sold the hotel to William W. Whitecotton of Los Angeles, who changed the hotel's name to the Whitecotton Hotel. The following year, Whitecotton commissioned architect James Placheck to build an office building at 2060-2074 Allston Way behind the hotel; this building was replaced by the Hink's addition in 1959 and is no longer extant. Whitecotton continued to operate the hotel through the 1930s, selling the building around 1941 to the Levi Strauss Realty Company. Under the Company's ownership, Wallace and Joan Miller leased the hotel beginning in 1947. At that time, the couple made improvements to the building, most notably to the ground floor. A major component of these improvements was the relocation of the hotel lobby entrance from Shattuck Avenue to Allston Way. A modern, glass lobby entrance designed by Raymond Loewy Associates was installed at the new entrance, and the redesigned lobby featured "highly polished Italian travertine…growing plants and special lighting effects." In 1968, the Shattuck Hotel Management Company purchased the hotel and operated it until 1980.7 Firmateer, Inc. remodeled the hotel in the early 1980s and it became a tourist hotel once again. An independent hotel company purchased the hotel in 1999 and instituted a two-year renovation. The current owners, BPR Properties, purchased the hotel in 2007. At that time, the building was separated into two sections, "with one entity (BPR Properties) owning the Shattuck Hotel (lobby, restaurant, courtyard, and hotel rooms)"… and [earlier] owner Roy Nee "retaining ownership of the basement, retail shops along Shattuck, the Kittredge wing (to Harold Way), and the building at the corner of Allston Way and Harold Way."

Hink's Department Store. Originally established in 1904, J.F. Hink and Sons (Hink's) was located at the corner of Shattuck Avenue and Kittredge Street across the street from the Shattuck Estate. Hink's was a "spacious and modern dry goods store" founded by J.F. Hink, a

German immigrant, who, according to a contemporary newspaper, was considered one of the "best business men of the Pacific Coast, being one of the founders and a large stock holder in the Emporium in San Francisco, and the proprietor of a large store in Eureka." Lester Hink, J.F.'s son, assumed control of the business in 1912 and negotiated with the Shattuck Hotel to become the building's first floor tenant. Hink's prominent new location with larger retail space was included in McDougall's designs for the 1913 hotel expansion. By 1916, Hink's was the "largest exclusive dry goods store west of Chicago," and the store expanded again in 1926. Walter H. Ratcliff, Jr. (who had recently completed the building across Harold Way for the Armstrong School of Business) designed the $100,000 project, which included improvements to the existing store and an addition. His design included a Tudor-style oak interior, a front arcade with ornamental plaster ceiling, a free-standing display case, a decorative marquee on the Shattuck Avenue façade, and a mezzanine for more shopping area. A few years later, Ratcliff also designed a rooftop garden space (with interior and exterior components) where Hink's employees could congregate during their breaks; it contained restrooms on the interior, and a fountain and several areas for seating on the exterior. The roof garden is no longer extant, and the interior arcade was significantly altered in 1988 to accommodate movie theaters. The small rooftop structure containing the restroom still remains.

At the end of World War II, Hink considered another expansion, but waited until building conditions normalized to proceed. Expansion finally occurred in 1959, and included demolition of Whitecotton's 1921 office building designed by James Placheck at the corner of Allston Way and Harold Way. For the new construction, Schubart and Friedman designed a modern addition, which housed the boys' and men's departments on the main floor and a beauty salon on the second that was finished in a pink and black motif. The basement of the new wing contained storage. Hink's celebrated its grand re-opening on April 30, 1959.

By the 1970s, Hink's was struggling to maintain a successful retail presence in Downtown Berkeley. Lester Hink stepped down in 1975 and his son Robert took over the business for a short time. Hink's was sold to the Modesto-based department store Dunlap Company in 1977 and went out of business in 1985.

c. Property Description. The Shattuck Hotel is a five-story, reinforced concrete, Mission Revival style hotel building in Downtown Berkeley. The hotel comprises four stories of hotel rooms over ground floor retail and commercial spaces, with the principal retail frontage facing Shattuck Avenue and the hotel lobby entrance facing Allston Way. Built in several stages, the first iteration of the Shattuck Hotel was completed in December 1910 at the northeast corner of Shattuck Avenue and Allston Way; a one-story restaurant addition was constructed along Allston Way in 1912. A major expansion in 1913 extended the hotel and commercial spaces south along Shattuck Avenue to Kittredge Street, with Hink's Department Store as the principal commercial tenant. Hink's later expanded in two major building campaigns in 1926 and 1959. These additions filled in the rear portions of the block with the 1926 addition extending along Kittredge Street to the west, and the 1959 building replacing an earlier structure at the northwest corner of the block. Figure 2-3 in Section 2.0, *Project Description,* shows the general configuration of existing buildings on the block that includes the project site. Photographs of the structures discussed in this section are provided in Figure 4.1-1 and Figure 4.1-2.

Photo 1: Shattuck Hotel (North Elevation) and 1959 Hink's Building (North Elevation).

Photo 2: Shattuck Hotel (South Elevation) and later additions extending west down Kittredge Street.

Existing Buildings on and
Directly Adjacent to the Project Site

Source: ARG, June 2014

Figure 4.1-1

Photo 1: 1959 Hink's Building

Photo 2: Shattuck Hotel (East Elevation)

Existing Buildings on and
Directly Adjacent to the Project Site

Source: ARG, June 2014

Figure 4.1-2

Shattuck Hotel (East Elevation). The 1910 and 1913 portions of the Shattuck Hotel together extend the full length of Shattuck Avenue between Allston Way and Kittredge Street. Rising five stories and approximately 60 feet in height, this 260-foot-wide façade is distinguished by four square towers topped by pyramidal hipped roofs. Six windows separate the towers at both the north and south ends of the building; 13 windows separate the two inner towers. As with other elevations, red clay tiles clad the roof and parapet surfaces. The towers rise a half story above the sloping parapets, their eaves decorated by exposed rafters. A relief frieze elaborates the wall surface below the eave line of each tower.

The fifth-floor windows are arched and extend to the underside of the overhanging eave. These windows are connected vertically to the fourth-floor windows by molded frames and recessed spandrel panels, creating a two-story arcade. The windows on the lower floors are not arched, and all of the hotel level windows on this elevation have been replaced with vinyl sash. Additionally, the original balconies, set at both the fourth-floor windows of the towers and the intervening hotel windows on this elevation, were removed sometime in the 1960s.

The original 1910 building included five small retail spaces facing Shattuck Avenue at the ground level. These spaces were reconfigured as part of the 1913 expansion to include two small stores at the north end, and the remainder of the retail space was developed to accommodate Hink’s Department Store. All storefront spaces along Shattuck Avenue have been altered, including the storefront configuration, windows, doors, transoms, and signage. The original retail storefronts comprised a series of bays with plate glass showcase windows, recessed entries, and multi-pane prism glass transoms.

In 1988, following the closure of Hink’s Department Store, the ground-floor retail space, including the areas within the 1926 addition, was reconfigured to accommodate a new movie theater and other retail space. Storefront improvements were completed at this time to unify the storefronts using common base materials. A decorative frieze stretches along the elevation above the transom windows, and the letter “S” appears at the cap of each major pilaster (these elements appear to be original, but may have been restored over time). In 2009, the movie theaters were upgraded again with new lighting, carpet, theater seating, and a new lobby and concession area.

Shattuck Hotel (North Elevation). The original 1910 hotel, the 1912 restaurant addition, and the 1959 Hink’s addition compose the Allston Way side of the block. The north elevation of the original hotel has three squared towers, with the central tower rising higher than the other two. This central tower marks the current hotel lobby entrance at the ground floor, although historically this entry was secondary to the main entry on Shattuck Avenue. Just west of the tower bay, a rusticated wall treatment elaborates the remainder of the hotel wall surface and extends through to the 1912 restaurant addition, which matches the original design.

The corner and end tower on this elevation both have two windows, while the central tower has four windows. Like the Shattuck elevation, the fifth-floor windows are arched and the fourth-and fifth-floor windows of the three central bays are connected vertically by molded frames and recessed spandrel panels. At the two end towers, the (non-arched) fifth-floor windows are joined by a decorative swag ornament, and a relief frieze elaborates the wall surface below the eave line of each tower. Balconies also originally were located at this elevation, including one set over the entrance. Decorative tile and plaster work, arched windows, and a shallow overhang now adorn the second-story wall face above this entrance (the tile, plasterwork, and arched window openings are original). This entrance was altered in 1947, including insertion of a modern, all glass lobby entrance along Allston Way designed by Raymond Loewy Associates of New York. The entry awning and other features were reintroduced in 1997 based on their historic appearance.

Courtyard and Mid-Block Elements. Although not visible from the street, a small courtyard is located behind the restaurant and lobby area. Hotel guests now use the former boiler room space as a small conference facility. Hotel room windows overlook the mid-block space, and some original windows remain in this area.

Shattuck Hotel (South Elevation). The eastern half of this elevation is part of the 1913 hotel addition, and the easternmost bays rise to the full five-story height of the original hotel. A tower marks the corner of the hotel building at Kittredge Street and Shattuck Avenue, and three hotel bays extend west from the tower, after which the building steps down to a one-story height. This one-story height is continued by the 1926 addition, which extends westward to Harold Way.

1926 Hink's Department Store Addition. To accommodate Hink's growth during the 1920s, the company commissioned Walter H. Ratcliff Jr. to design a one-story addition with a mezzanine level and basement. Like the hotel, the addition is reinforced concrete clad in a stucco finish. This simple addition was designed for compatibility with both the existing hotel building and with the Armstrong College (now Dharma Institute) building across Harold Way, which was also designed by Ratcliff and completed in 1923. The 1926 addition's most prominent features are the large double and tripartite industrial sash windows that dominate both street-facing elevations. Spanish clay tiles cap the raised parapet walls, which are finished at either end with decorative volutes and wrought iron grilles.

The 1926 addition attached to the 1913 hotel addition about halfway between Shattuck Avenue and Harold Way.1 The exterior location of the addition is evidenced by the shift from double to triple sash industrial windows that occurs at roughly the midpoint of the Kittredge Street elevation, and by a crack in the exterior stucco running the full height of the building in this location. An original secondary store entrance is located near this mid-block location and is sheltered by a fixed overhanging awning. The entry facing Kittredge Street at Harold Way is a later alteration. A pedestrian entry, also with a fixed awning, and a service vehicle entrance with a rollup metal door punctuate the Harold Way elevation.

1959 Hink's Department Store Addition. The 1959 Hink's addition sits at the northwest corner of the subject block and is a two-story concrete box with street frontages at both Allston Way and Harold Way. Topped by a flat roof, the building is rectangular in plan and its concrete exterior walls are clad in a smooth stucco finish. The principal entrance faces Allston Way and is set at the northwest corner. This building is separated from the 1912 hotel addition by a 10-foot-wide alley, and abuts the 1926 Ratcliff addition along Harold Way. Built to house the new men's department, this addition was designed in a simplified modern style and does not relate to the other buildings on the subject block in design or aesthetic.

The building has two rectangular storefront windows on the Allston Way elevation. A flat awning, which is still intact, shelters the corner entrance, though the distinctive "Hink's of

Berkeley" signage lettering was removed in 1987. Four small windows punctuate the second story of this elevation; only three windows existed in this location originally. All original window sashes and storefront assemblies have been replaced, though the openings remain in their same location.

A series of small, rectangular, multi-pane windows line the first and second stories of the Harold Way wall of the 1959 addition. Only five window openings at the second level existed originally, the rest are later additions. An original storefront window at the south end of the ground level has been infilled at this elevation, though the storefront opening at the north end remains. All original windows have been replaced.

d. Architects.

Benjamin G. McDougall. Benjamin G. McDougall was born in San Francisco on January 10, 1865. His father was architect/builder Barnett McDougall. After studying architecture at the California School of Design in the early 1880s, Benjamin began working with his father and brothers at B. McDougall & Sons. Benjamin and his brothers, Charles (1857-1930) and George (1868-1957), later formed the firm McDougall Bros. Benjamin moved to Bakersfield in 1896 and operated one of the firm's two offices there; the other was located in San Francisco. While in Bakersfield, McDougall was responsible for many municipal buildings, schools, banks, business blocks, hotels, and homes in the area. A few years later, he moved the office to Fresno where the firm designed the Kings County Jail (1898), the Hanford Carnegie Library (1905), the Merced Security Savings Bank (1905), the Visalia First National Bank (1905), and many residences. Following the 1906 earthquake, McDougall Bros. closed their Fresno office and Benjamin left the firm to work for himself, focusing on work in the San Francisco Bay Area. He designed the first phase of the Shattuck Hotel in 1909-1910, and a large extension in 1913. *The Architect and Engineer* praised the design as "[a]nother Berkeley building of a freer and more picturesque type…, originally designed in the garden city spirit but finally assuming a more urban aspect, as though Berkeley aspired to be something more than just a university town."

Benjamin G. McDougall died on June 11, 1937. In addition to the Shattuck Hotel, some of his most important commissions include: the Carnegie Library (Hanford, 1905); the Security Savings Bank (Merced, 1905); the Sheldon Building (San Francisco, 1907); the YMCA Building (Berkeley, 1910); St. Luke's Episcopal Church (San Francisco, 1910); the Federal Realty Building (the Cathedral Building, Oakland, 1913); St. Paul's Church (Oakland, 1917); and the Standard Oil Building (San Francisco, 1922).

Walter H. Ratcliff, Jr. Walter Harris Ratcliff, Jr. was born February 2, 1881 outside of London, England. In 1894, Ratcliff and his family moved to Southern California, first to San Diego and then Pasadena, to seek a more amenable climate for his sickly mother. The family eventually settled in Berkeley so Ratcliff's older sisters could attend UC Berkeley. Ratcliff attended Berkeley High and then studied chemistry at UC Berkeley, where he graduated in 1903.

His interest in architecture began during his time at UC Berkeley, where he built houses with his friend and business partner Charles Louis McFarland. After graduation, he apprenticed with John Galen Howard, the University Architect. Wishing to pursue the study of architecture further, Ratcliff embarked on a tour of Europe, studying at the British School in Rome and traveling through Italy, France, Germany, and England. Ratcliff returned to Berkeley in 1908 and opened an office in San Francisco, which he relocated to Berkeley by the end of that year. By 1913, Ratcliff was named the City Architect for Berkeley; this position existed for only eight years (1913-1921) and Ratcliff was the sole occupant. Ratcliff designed the 1926 addition to the Shattuck Hotel as part of the Hink's Department store expansion.

Over the course of his lengthy career, which spanned almost 50 years, Ratcliff became one of Berkeley's most prolific architects, designing nearly 100 buildings. He is most well known for his civic, ecclesiastical, and educational buildings, though he also designed residential, institutional, and commercial buildings, including auto showrooms, industrial shops and banks. Although most of his work was within Berkeley, he did produce the Master Plan for Mills College campus in Oakland. One of his greatest achievements is the Chamber of Commerce building (1925), perhaps "Berkeley's most visible commercial architectural landmark."

<u>Schubart and Friedman.</u> One half of the firm Schubart and Friedman Architects, Henry Schubart was born in New York City on August 15, 1916. Schubart spent his teenage years in France and studied art in Paris, taking classes at the Ecole des Beaux-Arts. He earned an apprenticeship with Frank Lloyd Wright at his studio in Taliesin, Wisconsin and the experience would have a profound impact on his future career and architectural style. Schubart's obituary stated, "Wright's influence was evident in the style that became Mr. Schubart's own – in which natural light and the building's siting in its environment were of prime importance."

After his year at Taliesin, Schubart became an artist for archaeological expeditions in Iraq. During the 1930s, he worked for the Works Progress Administration teaching art to children and was an exhibition designer for the 1939 World's Fair held at San Francisco's Treasure Island. As an engineer for the U.S. Marine Service, Schubart designed cable systems for degaussing ships during World War II.

Schubart settled in the Bay Area in 1948 and began his career as an architect with the firm of Wurster, Bernardi and Emmons. While there, Schubert "earned a reputation as a talented designer of churches (St. Louis Bertrand in Oakland, Holy Names in San Francisco), schools (Santa Catalina School in Monterey) and master plans --especially the master plan and buildings for the Dominican College in San Rafael (including library, dining room and residence halls)."

In 1953, Schubart formed a firm with Howard Friedman. Their partnership lasted until 1968, when Schubart and his family immigrated to Salt Spring Island, British Columbia. While there Schubart was "the only architect in the area and quickly made his mark on the island. He introduced a unique style of architecture, and his influence is seen in many of the island's most striking homes." Schubart died on Salt Spring Island on February 8, 1998.
Schubart's partner, Howard Friedman, was born in New York City on June 26, 1919. He attended Saunders Technical High School in Yonkers and after graduation he worked as a junior drafter in an architecture office in Manhattan.

Like Schubart, Friedman served in World War II, joining the U.S. Navy Seabees in 1942. Following the war, Friedman studied at UC Berkeley, graduating in 1949 with an A.B. degree in Architecture. Friedman worked in San Francisco at different architecture firms, and eventually began a partnership with Schubart. After Schubart left for Canada, the firm became Howard A.

Friedman and Associates. Friedman continued to work as an architect and planner until 1982 and retired from private practice in 1984. In addition to being a practicing architect, Friedman was a Lecturer in the UC Berkeley Department of Architecture beginning in 1966. He earned the title Professor in 1980 and became department chair in 1987. Friedman died suddenly on October 28, 1988.

Schubart and Friedman's major commissions included:

- The Master Plan and buildings for San Domenico School, San Anselmo c. 1965
- Several commissions at San Rafael's Dominican College including the Library, which won numerous architectural awards (late 1950s-early 1960s)
- Mt. Zion Medical Center Outpatient Building, San Francisco, c. 1965
- Jewish Home for the Aged, San Francisco c. 1962
- Many residences in Marin, San Francisco and Lake Tahoe
- Friedman's own house in Hillsborough
- The I. Magnin Store, San Rafael

e. Regulatory Setting. A property may be designated as historic by national, state, or local authorities. In order for a building to qualify for listing in the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), or as a locally significant property in the City of Berkley, it must meet one or more identified criteria of significance. The property must also retain sufficient architectural integrity to continue to evoke the sense of place and time with which it is historically associated. An explanation of these designations follows.

<u>National Register of Historic Places</u>. The NRHP, which is administered by the National Park Service, is the nation's official list of cultural resources worthy of preservation. Authorized under the National Historic Preservation Act of 1966, the NRHP is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect historic and archeological resources. The NRHP assists in the preservation of historic properties through the following actions: recognition that a property is of significance to the nation, the state, or the community; consideration in planning for federal or federally assisted projects; eligibility for federal tax benefits; consideration in the decision to issue a federal permit; and qualification for Federal assistance for historic preservation grants when funds are available.

Properties may qualify for NRHP listing if they:

A. *Are associated with events that have made a significant contribution to the broad patterns of our history;*
B. *Are associated with the lives of persons significant in our past;*
C. *Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
D. *Have yielded, or may be likely to yield, information important in prehistory or history.* (National Park Service, 2002)

According to the NRHP guidelines, the essential physical features of a property must be present for it to convey its significance. Further, in order to qualify for the NRHP, a resource must retain its integrity, or the "ability to convey its significance." The seven aspects of integrity are:

1. ***Location*** *(the place where the historic property was constructed or the place where the historic event occurred);*
2. ***Design*** *(the combination of elements that create the form, plan, space, structure, and style of a property);*
3. ***Setting*** *(the physical environment of a historic property);*
4. ***Materials*** *(the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property);*
5. ***Workmanship*** *(the physical evidence of the crafts of a particular culture or people during any given period of history or prehistory);*
6. ***Feeling*** *(a property's expression of the aesthetic or historic sense of a particular period of time); and,*
7. ***Association*** *(the direct link between an important historic event or person and a historic property).* (National Park Service, 2002)

The relevant aspects of integrity depend upon the NRHP criteria applied to the property. For example, a property nominated under Criterion A (events) would be likely to convey its significance primarily through integrity of location, setting, and association. A property nominated solely under Criterion C (design) would usually rely primarily on integrity of design, materials, and workmanship. The California Register procedures include similar language with regard to integrity.

California Register of Historic Resources. The California Environmental Quality Act (CEQA) requires evaluation of project impacts on historic resources, including properties "listed in, or determined eligible for listing in, the California Register of Historic Resources [or] included in a local register of historical resources." The CRHR is an authoritative guide in California used by State and local agencies, private groups, and citizens to identify the State's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change. A resource is eligible for listing on the CRHR if it meets any of the following criteria for listing:

1. *Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;*
2. *Is associated with the lives of persons important in our past;*
3. *Embodies the distinctive work of an important creative individual, or possesses high artistic values; or*
4. *Has yielded, or may be likely to yield, information important in prehistory or history.*

The CRHR may also include properties listed in "local registers" of historic properties. A "local register of historic resources" is broadly defined in Section 5020.1(k) as "a list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution." Local registers of historic properties come in two forms: (1) surveys of historic resources conducted by a local agency in accordance with Office of Historic Preservation procedures and standards, adopted by the local agency and maintained as current;

and, (2) landmarks designated under local ordinances or resolutions (PRC Sections 5024.1, 21804.1, 15064.5).

By definition, the CRHR also includes all "properties formally determined eligible for, or listed in, the National Register of Historic Places," and certain specified State Historical Landmarks. The majority of formal determinations of NRHP eligibility occur when properties are evaluated by the State Office of Historic Preservation in connection with federal environmental review procedures (Historic Preservation Act of 1966, Section 106). Formal determinations of eligibility also occur when properties are nominated to the NRHP, but are not listed due to owner objection.

The minimum age criterion for the NRHP and the CRHR is 50 years. Properties less than 50 years old may be eligible for listing on the NRHP if they can be regarded as "exceptional," as defined by the NRHP procedures, or in terms of the CRHR, if "it can be demonstrated that sufficient time has passed to understand its historical importance" [Chapter 11, Title 14, §4842(d)(2)].

City of Berkeley. Berkeley's Landmarks Preservation Ordinance (LPO) was enacted in 1974 and is set forth in Chapter 3.24 of the Berkeley Municipal Code. The LPO authorized the creation of a Landmark Preservation Commission (LPC) to implement the ordinance, which sought to protect historically and/or architecturally significant sites, structures, or areas. The ordinance authorizes the LPC to designate properties as Landmarks, Structures of Merit, or Historic Districts and gives it regulatory power over designated properties. The criteria for designation are as follows:

A. *Landmarks and historic districts. General criteria which the commission shall use when considering structures, sites and areas for landmark or historic district designation are as follows:*
   1. *Architectural merit:*
      a. *Property that is the first, last, only or most significant architectural property of its type in the region;*
      b. *Properties that are prototypes of or outstanding examples of periods, styles, architectural movements or construction, or examples of the more notable works of the best surviving work in a region of an architect, designer or master builder; or*
      c. *Architectural examples worth preserving for the exceptional values they add as part of the neighborhood fabric.*
         i. *Cultural value: Structures, sites and areas associated with the movement or evolution of religious, cultural, governmental, social and economic developments of the City; Educational value: Structures worth preserving for their usefulness as an educational force;*
         ii. *Historic value: Preservation and enhancement of structures, sites and areas that embody and express the history of Berkeley/Alameda County/California/United States. History may be social, cultural, economic, political, religious or military;*
         iii. *Any property which is listed on the National Register described in Section 470A of Title 16 of the United States Code.*

B. *Structures of merit. Criteria which the commission shall use when considering structure for structure of merit designation are as follows:*
    1. *General criteria shall be architectural merit and/or cultural, educational, or historic interest or value. If upon assessment of a structure, the commission finds that the structure does not currently meet the criteria as set out for a landmark, but it is worthy of preservation as part of a neighborhood, a block or a street frontage, or as part of a group of buildings which includes landmarks, that structure may be designated a structure of merit.*
    2. *Specific criteria include, but are not limited to one or more of the following:*
        a. *The age of the structure is contemporary with (1) a designated landmark within its neighborhood, block, street frontage, or group of buildings, or (2) an historic period or event of significance to the City, or to the structure's neighborhood, block, street frontage, or group of buildings.*
        b. *The structure is compatible in size, scale, style, materials or design with a designated landmark structure within its neighborhood, block, street frontage, or group of buildings.*
        c. *The structure is a good example of architectural design.*
        d. *The structure has historical significance to the City and/or to the structure's neighborhood, block, street frontage, or group of buildings. (Ord. 5686-NS § 1 (part), 1985: Ord. 4694-NS § 3.1, 1974)*

Prior to issuing a permit for construction on the project site, the LPC would need to make two findings:

1. For construction, alteration and repair work: the proposed work shall not adversely affect the exterior architectural features of the landmark and, where specified in the designation for a publicly owned landmark, its major interior architectural features; nor shall the proposed work adversely affect the special character or special historical, architectural or aesthetic interest or value of the landmark and its site, as viewed both in themselves and in their setting (Section 3.24.260(C)(1)(a)).
2. For demolition work: the commission shall find that the designated landmark or portion thereof is in such condition that it is not feasible to preserve or restore it, taking into consideration the economic feasibility of alternatives to the proposal, and balancing the interest of the public in preserving the designated landmark or portion thereof and the interest of the owner of the landmark site in its utilization (Section 3.24.260(C)(2)).

The Downtown Area Plan (DAP) and the Downtown Berkeley Design Guidelines provide guidelines for new development in the downtown area. The Historic Preservation and Urban Design chapter of the DAP establishes the importance of design review with Berkeley's historic Downtown. Policies of the Downtown Area Plan seek to harmonize and balance the twin goals of preserving and enhancing historic resources, and encouraging new and complementary development. It is fundamental to this Plan that, with appropriate design guidelines and regulations, both goals can be achieved and complement each other. According to the DAP, the character of new development must be considered through the lens of good urban design and consideration for Downtown's historic settings. Context – geographic and cultural – presents critical design considerations that help lead to projects that fit the place. In addition, through continued care and investment, historic buildings and good urban design will continue to contribute continuity and character to Downtown's changing yet principled cityscape.

The Downtown Berkeley Design Guidelines are based on the *Secretary of the Interior's Standards* for the Treatment of Historic Properties and were developed in conjunction with the DAP. Specifically, the Design Guidelines were identified in the DAP Environmental Impact Report (EIR) as a mitigation measure for Impact CUL-2.

Downtown Berkeley Design Guidelines relevant to the proposed project include the following:

- Reflect and reinforce the scale, massing, proportions, rhythm and attention to detailing which are established by the facades of Landmark and Significant buildings. (Design Guideline 1, page 27)
- Incorporate elements which break up façade planes and create a visual play of light and shadow. Avoid long, uninterrupted horizontal surfaces. Consider the use of bay windows, balconies and architectural projections. (Design Guideline 31, page 27)
- Vertical divisions of ground and upper floors should be consistent. Generally maintain a cornice that projects horizontally between the ground floor (and its mezzanines) and upper stories. Align the cornice and other horizontal ground floor elements (like awnings and sign bands) with similar features on neighboring buildings and storefronts, if feasible. (Design Guideline 4, page 27)
- Articulate side and rear facades in a manner compatible with the design of the front façade. Avoid large blank wall surfaces on side and rear facades which are visible from public areas. In these locations, display windows, store entrances, and upper windows are encouraged. When this is not feasible, consider the use of ornament, murals, or landscaping along large blank walls. (Design Guideline 8, page 28)
- The facades of Downtown's historic buildings are comprised of load-bearing walls and frames, the limits of which give similar scale and expression. Maintain the typical rhythm of structural bays and enframed storefronts of 15-30 feet spacing at ground level, in order to enhance visual continuity with existing buildings and pedestrian scale. Curtain walls, if used, should be designed with rhythm, patterns and modulation to be visually interesting. (Design Guideline 7, page 28)
- Windows should comprise 25-50% of upper facades visible from public areas, and should reflect the rhythm, scale, proportion, and detailing of upper windows of Landmark and Significant buildings. (Design Guideline 13, page 29)
- Frame windows and use light shelves and other articulation to emulate the rhythm, scale, and reveal (shadow) of traditional buildings. (Design Guideline 20, page 30)
- Buildings should frame and define the street as an active public space. Throughout Downtown, buildings are typically built to street-facing property line(s). This historic 'streetwall' of facades should be preserved, and extended through new construction. (Section Introduction, page 57)
- Maintain a continuous zero-setback 'build-to line' at the ground floor at the edge of all Downtown streets where commercial and higher levels of activity is anticipated….The only exceptions to this may be to: provide suitably defined, usable open space; create a special corner feature; provide recessed storefront entrances; create an arcade; to provide a narrow band of landscaping…; or to give emphasis to a civic building. (Design Guideline 1, page 57)

The Downtown Berkeley Design Guidelines explicitly allow for supplemental guidelines through other planning documents to provide more specific guidance for geographic subareas, such as the area encompassed by the DAP. The Design Guidelines reference the DAP EIR for additional discussion on "character-defining features" in the Downtown Area. Therefore, in addition to the Guidelines listed above, the DAP EIR included the following Design Guidelines in Mitigation Measure CUL-2 to supplement the Design Guidelines and to ensure that new construction respects the authentic character, significance and integrity of the existing building stock in areas that may have the potential for designation as historic districts:

- Consider the difference in character of individual blocks. The scale of buildings change within the potential historic district(s) and new construction should reflect the appropriate scale per block.
- Priorities for new construction and additions include: build-to-the-street, particularly at corners; construct infill buildings at vacant or underutilized sites along major streets; and modify non-historic buildings so that they contribute visual interest and quality.
- Construct new buildings of compatible design with the surrounding neighborhood.
- Encourage creative and innovative contemporary designs for new buildings Downtown.
- Streetscape plays an important role in drawing individuals to a particular area of the city. Use signage, lighting, and paving to improve the pedestrian experience.
- Build consistently with the street wall, particularly at corner sites. Continue dominant rhythms for structural bays, bay windows, large pilasters, and other repeating vertical elements. Also, continue dominant cornice lines, such as between ground floors and upper stories, and at the top of facades that meet a street.
- Design new buildings to respond to the existing building context within a block, and provide continuity to the overall streetscape. Frequently, a new building will be inserted on a site between two existing buildings of disparate scale and design.
- Set back upper floors where taller buildings are permitted, so that dominant roof and cornice lines remain generally consistent in Downtown, as seen from the street.
- Explore options for multi-use buildings, combining residential, commercial, and other compatible uses where appropriate.
- Provide multi-tenant retail space and other active publically-accessible uses at the street level. These should be accessible directly from the sidewalk, rather than through common interior lobbies.
- Provide easy-to-locate building entrances on all street-facing facades. Where a building extends through an entire block or is located at a corner, connect its entrances with a suitably scaled public lobby. Highlight entrances with signage and lighting to distinguish them from storefronts.
- Use vertically-proportioned windows. Group such windows in sets where a horizontally proportioned window opening is desired, especially for the expression of structural bays.

As a result of the DAP EIR Mitigation CUL-2, the Downtown Design Guidelines were updated to include a section addressing "Subareas Where Historic Resources Are Concentrated", consistent with the above guidelines.

Secretary of the Interior's Rehabilitation Standard 9 explains that new construction must be distinct from, yet consistent with, the design of adjacent historic resources:

9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

Policy LU-4.2 in the DAP, which addresses development compatibility, stipulates that "[t]he size and placement of new buildings should: reduce street level shadow, view, and wind impacts to acceptable levels; and maintain compatible relationships with historic resources (such as streetwall continuity in commercial areas).
Berkeley's General Plan contains policies related to blocking important views in the City. Policy UD-31 of Berkeley's General Plan states that:

> *Construction should avoid blocking significant views, especially ones toward the Bay, the hills, and significant landmarks such as the Campanile, Golden Gate Bridge, and Alcatraz Island. Whenever possible, new buildings should enhance a vista or punctuate or clarify the urban pattern.*

f. Views from the University of California. As discussed in Section 1.0, *Introduction*, community members have raised concerns regarding potential impacts to views from the UC Berkeley campus. Although view impacts are normally considered in the Aesthetics section of an EIR, pursuant to Senate Bill 743, the aesthetic impacts of this project may not be considered significant impacts on the environment. Therefore, this Section addresses view impacts only to the extent that they relate to potentially significant impacts to historic resources on the UC Berkeley campus, and all other view impacts are discussed in the Aesthetics section of the Infill Environmental Checklist.

The Aesthetics section of the DAP EIR includes discussion of scenic vistas within and through Downtown Berkeley. According to the DAP EIR, in addition to the scenic vistas identified in the 1994 Downtown Design Guidelines, "some more distant scenic vistas have iconic status in the history of Berkeley, such as views from the campus over Downtown to the Golden Gate Bridge and Bay, or views from the Campanile on campus through Downtown towards the Bay."

In 2004, the University of California, Berkeley completed a *Landscape Heritage Plan*, which "examines the key characteristics of the [Campus's] historic Classical Core and provides guidance for its continued development in a manner that respects and builds upon its unique landscape legacy." The main body of the Plan is divided into three chapters: Historical Significance (a summary of the historical development and significance of the campus), Implementation Concepts (a summary of the cultural landscape assessment process), and Landscape Guidelines (guidelines for site planning and landscape design within the Classical Core).

According to the *Landscape Heritage Plan*, the Classical Core of the UC Berkeley campus is a "cultural landscape." The Landscape Heritage Plan includes assessment of nine study areas within the Classical Core that include significant and iconic landscape elements on campus:

- Campanile Esplanade
- Campanile Way

- Central Glade Interface
- Creek Bridges
- Faculty Glade
- Harmon Way
- Mining Circle/Oppenheimer Way
- Sather Gate
- Sather Road

Campanile Way, one of the study areas, is the pathway that extends approximately ¼-mile west from the Campanile, through a cluster of beaux-arts, neoclassical era buildings, many of which are designated historical resources. Campanile Way is a contributing element to the cultural landscape. As explained in Section 3 of the *Landscape Heritage Plan* ("Implementation Concepts"), Campanile Way is a historically significant component of the campus:

> *Developed during the picturesque period, [Campanile Way] was the first centrally located, campus street (from Sather Road eastward). Campanile Way's strength is its important role as a major pedestrian access in the heart of the Classical Core and its strong visual axis and view, connecting the tower with the Golden Gate. A remnant of an earlier functional era, Campanile Way was re-confirmed by [John Galen] Howard as a design element of the Classical Core.*

According to the analysis included in the *Landscape Heritage Plan*, "Campanile Way's axial power and historic views to the Campanile and the Golden Gate retain a high level of integrity." East-west views along Campanile Way are identified in the *Landscape Heritage Plan* as one of six primary character-defining features "for the Campanile Way and Sather Road environs." Note, however, that, unlike Sather Tower itself, Campanile Way is not a designated Berkeley Landmark. The six character-defining features for the Campanile Way and Sather Road environs include:

1. East-West views along Campanile Way
2. Pollarded London Plane Trees along Campanile Way
3. Brick gutter along Campanile Way
4. Major cross-axis of the central campus
5. Thomas Church plaza
6. Thomas Church sitting area

Within this context, it should be noted that the views along Campanile Way are not a fixed character-defining feature, but have instead changed over time. The *Landscape Heritage Plan* divides the history of the development of the UC Berkeley campus into three eras: the Picturesque Era (1866-1900), the Beaux-Arts Era (1900-WWII), and the Modern Era (WWII-mid-1970s). Not surprisingly, the setting of Campanile Way has changed within and across each of these three eras, with consequent changes to the Way's associated views.

Frederick Law Olmsted's 1865 Plan for the College of California (UC Berkeley's predecessor) did not include an east-west corridor corresponding to today's Campanile Way. Instead, Olmsted's picturesque plan was organized around a central east-west axis that was located further north and passed through the campus' Central Glade. That said, a Center Street axial path, the predecessor to Campanile Way, had been established as a secondary east-west axis by the late 1800s. The eastern terminus of this axis was a central flagpole and formal landscape framed by North Hall, South Hall and Bacon Hall.

In the first years of the twentieth century, campus architect John Galen Howard implemented a bold Beaux-Arts plan for the new UC Berkeley campus. This plan reinforced the Central Glade axis, which terminated at the 1902 Hearst Mining Building, and significantly increased the prominence of the former Central Street axis, which became Campanile Way with completion of the Campanile (Sather Tower) in 1914. The westerly views from Campanile Way to San Francisco Bay were soon framed by Wheeler Hall and Doe Memorial Library, which were both completed in 1917. The Valley Life Sciences Building was added west of the Library in 1930. Other notable developments from the Beaux-Arts Era include the completion of the Golden Gate Bridge in 1937, and extensive construction in downtown Berkeley, a portion of which was visible from Campanile Way (e.g., the Berkeley Community Theater located on the Berkeley High School campus).

Changes to Campanile Way views during the Modern Era derived from two sources: the addition of new campus buildings, most notably the Doe Library Annex (1950) and Dwinelle Hall (1952); and substantial growth of the trees and associated vegetation that lines the Way. Together these elements have given the westerly views from Campanile Way their current, somewhat confined, configuration.

g. Eligibility of Historic Resources.

National and California Registers: Significance, Eligibility and Integrity. The Shattuck Hotel and former Hink’s Department Store (built in stages between 1910 and 1926) satisfy Criterion A/1 of the NRHP/CRHR at the local level of significance for their association with Berkeley’s early commercial development. The property also satisfies NRHP/CRHR Criterion C/3 at the local level of significance as a distinctive example of the Mission Revival style in Berkeley’s downtown, and for its association with master architect Benjamin Geer McDougall. The 1959 Hink’s addition does not contribute to the historical or architectural significance of the property.

NRHP Criterion A/CRHR Criterion 1 [Association with Significant Events]
The Shattuck Hotel and former Hink’s Department Store appear to qualify for listing under Criterion A/1 for their association with the early commercial development of Downtown Berkeley. Built on the site of the former Shattuck estate, the Hotel was one of the first reinforced concrete buildings in Downtown Berkeley, and, upon completion, was immediately recognized as the City’s finest hotel. Hink’s Department Store, a prominent commercial presence in Downtown Berkeley for over 70 years, was housed in the Shattuck Hotel building from 1913 to 1985. The Downtown Berkeley Historic Resources Reconnaissance Survey notes that the bulk of construction in Berkeley’s downtown area occurred between the late 1870s and the 1930s, establishing the early twentieth century character of Berkeley’s existing commercial core. The Shattuck Hotel and its early additions (1910-1926) were completed during this period and are strong visual and historical contributors to this pattern of development.

Though connected to the 1926 Hink’s addition through an interior passage, the 1959 Hink’s addition at the corner of Allston and Harold Ways is structurally and aesthetically separate from the original Shattuck Hotel building and its early additions. It does not relate to the early twentieth-century character established by the Shattuck Hotel and its early additions and does not contribute to the historical significance of the property as related to the early commercial development of Downtown Berkeley and the Shattuck Avenue commercial cluster.

NRHP Criterion B/CRHR Criterion 2 [Association with Significant Persons]
The Shattuck Hotel does not appear to qualify for listing under Criterion B/2 for association with persons significant to local, state or national history. While the building was built on former Shattuck estate lands with funding from the family's estate, this criterion usually applies to properties associated with the productive life of a significant person. Both Francis and Rosa Shattuck were deceased when the hotel was constructed, so the property does not qualify for listing as a property significantly associated with Rosa or Francis Shattuck under this Criterion. Because the Hink family is associated with the commercial history of Berkeley as well as other cities in northern California, the Shattuck Hotel's association with the Hink family in relation to the early commercial development of Berkeley's downtown is more properly addressed under Criterion A/1 above.

NRHP Criterion C/CRHR Criterion 3 [Architectural Significance]
The original Shattuck Hotel and 1912-1913 additions appear to qualify for listing under Criterion C/3 for their architectural significance and association with prominent architect Benjamin Geer McDougall. McDougall was a regionally notable architect with significant buildings constructed throughout the Bay Area. Following the 1906 earthquake, McDougall focused his efforts on commissions in the San Francisco Bay Area, and he was one of the first architects to use reinforced concrete in his work.

The hotel is a unique example of the Mission Revival style in the Downtown area and exhibits many representative features of the style, including stuccoed walls, decorative tilework, wall surface ornamentation, squared towers, hipped roof forms, arched or arcaded wall openings, varied roof heights, red clay tile roof cladding, and broad eave overhangs with exposed rafter tails. The 1926 addition, which was designed in the Spanish Revival style by Berkeley architect Walter Ratcliff, Jr., does not appear to be eligible under this criterion. The addition is modest in design and detail, is profoundly subordinate to the pre-existing Shattuck Hotel buildings, and does not appear to be significant as a notable example of Ratcliff's work. The 1926 addition, however, is significant for its association with Hink's Department Store and as a portion of the Shattuck Hotel complex that was completed during Berkeley's early Downtown development period. It is therefore included in the significance discussion under Criterion A/1 above.

The 1959 Hink's addition departed stylistically from its predecessors on the block, and reflected the more streamlined aesthetics of the post World War II period. While it has the simple form and flat, cantilevered overhang associated with the Midcentury Modern style, it does not display many of the other features that characterize the style. These features include projecting eaves and exposed rafters, stacked Roman brick or stone accents, expressed post and beam construction, projecting vertical elements, large steel or wood framed windows, canted windows, or atrium or courtyard entryways. As such, the building does not represent a strong example of the Midcentury Modern style. Further, alterations completed in recent decades have removed or covered original materials and added new elements to the building exterior, reducing the building's material integrity. Research does not indicate that the building is a major commission of architects Schubart and Friedman, who were better known for their campus planning and residential commissions; therefore, it is not significant as the representative work of a master architect. For these reasons, the 1959 addition does not appear to qualify for listing under this criterion.

NRHP Criterion D/CRHR Criterion 4 [Potential to Yield Information]
Criterion D/4 is generally applied to archeological resources and evaluation of the Shattuck Hotel for eligibility under this criterion is not warranted.

Significance Summary
Because it appears to satisfy NRHP and CRHR significance criteria, Architectural Resources Group has assigned the Shattuck Hotel (built 1910-1926) a California Historical Resource Status Code of 3S, which indicates that the property was found eligible for both the National and California Registers through survey evaluation. As discussed above, the 1959 Hink's addition does not contribute to the historical significance of the Shattuck Hotel Property.

Though not expressly stated in the City of Berkeley Landmark nomination, the Shattuck Hotel appears to be significant under the following City criteria for Landmark eligibility: (1) Architectural Merit (sub criteria a-c), and (4) Historic Value.

Period of Significance
The identified period of significance for the Shattuck Hotel under NRHP/CRHR Criterion A/1 extends from 1910, the date of the original hotel's completion, until the Hink's addition was completed in 1926. This time span encompasses the building's association with the early commercial development of Downtown Berkeley. The identified period of significance for the Shattuck Hotel under NRHP/CRHR Criterion C/3 extends from 1910 to 1913, corresponding to the building's association with prominent architect Benjamin Geer McDougall.

<u>Integrity.</u>

The Shattuck Hotel appears to retain sufficient integrity to convey its significance. Since it has not been moved, the complex retains integrity of location. While Berkeley's downtown has changed over time, the property's overall setting within an early twentieth century commercial corridor has been well preserved. The overall design of the complex, including the building massing, proportions, fenestration patterns, and architectural style and details are generally intact, and thus the Shattuck Hotel retains integrity of design and workmanship. Integrity of materials has been partially reduced by (1) replacement of original wood sash windows with steel and later vinyl sash; (2) removal and alteration of original storefront features and configurations; and (3) removal of balconies. However, the stucco cladding, Allston Way tilework, decorative friezes, clay roof tiles, parapet detailing, and raised surface ornament of the 1910-1913 hotel and 1926 addition remain intact, as do the multi-pane steel sash windows of the 1926 addition. Finally, though Hink's Department store is no longer a commercial tenant, the building retains integrity of feeling and association as a functioning retail property related to the early development of Berkeley's downtown commercial corridor.

<u>Local Significance and Eligibility.</u> As discussed above, the Berkeley Municipal Code establishes criteria for listing properties within the city as landmarks. The Shattuck Hotel was

listed as a City of Berkeley Landmark in 1987 and the following significance statement is provided in the application:

> *The flagship building of Downtown Berkeley, the Shattuck Hotel is the largest and grandest of a number of urban hotels built in Berkeley during the post-earthquake/pre-PPIE[1] building boom. It is connected with Berkeley's founding Shattuck family in more than just name, being developed by Shattuck heirs on the Shattuck home site. It was designed in 1909/1912 by regionally prominent architect Benjamin Geer McDougall, and expanded in 1926 by Walter H. Ratcliff Jr., Berkeley's premier architect of the 1920s. Its style and its massive reinforced concrete construction make it a fine example of California's Mission/Mediterranean grand hotel genre. Two of its current business occupants, the Shattuck Hotel and Huston's Shoes, have been there from the beginning, as had Hink's department store which closed in 1985; the Hink family in particular were prominent Downtown merchants, and as the leading Downtown hotel the Shattuck has been the site of major civic, cultural, and commercial functions.*

According to the Notice of Decision, the designation boundary includes the 1926 addition and the 1959 building; however, separate statements in the Landmark Designation itself appear to exclude the 1959 building from the property's significance. According to the Landmark nomination form:

> *Owners contemplate closing off the interior connection of the [1959] building from the rest of the store and selling it as a separate parcel sometime in the future: they would like it understood that in that case it would not become an independent landmark or remain included within a landmark designation.*

Section 11 of the nomination form states:

> *In style and structure the [1959] wing is virtually a separate building, as its predecessor on the site was, and is not contributory of the early 20th century character of the Shattuck Hotel; owners contemplate closing off the interior wall and selling it as a separate property.*

The Shattuck Hotel and former Hink's Department Store (built in stages between 1910 and 1926) satisfy Criterion A/1 of the NRHP/CRHR at the local level of significance for their association with Berkeley's early commercial development. The property also satisfies NRHP/CRHR Criterion C/3 at the local level of significance as a distinctive example of the Mission Revival style in Berkeley's downtown, and for its association with master architect Benjamin Geer McDougall. The 1959 Hink's building does not contribute to the historical or architectural significance of the property.

<u>Project Vicinity.</u> The one-block radius project vicinity established for archival research is bounded by Center Street on the north, Milvia Street on the east, Bancroft Way on the south, and on the east by a line generally running mid-block between Shattuck Avenue and Oxford Street/Fulton Street. Historical resources outside this boundary are considered to be too far from the project site to conceivably be affected by the proposed project. The project vicinity includes a wide array of designated and potential historic resources, including 14 City of Berkeley landmarks and portions of two landmark districts:

[1] The Panama-Pacific International Exhibition (PPIE) was held in San Francisco in 1915.

- 2000 Allston Way, Berkeley Post Office (1914/1931)
- 2001 Allston Way, Berkeley YMCA (1910) [designed by Benjamin G. McDougall]
- 2016 Allston Way, Elks Lodge (1913)
- 2105 Bancroft Way, Masonic Temple (1905)
- 2124 Center Street, Mikkelsen & Berry Building (1902)
- 2128 Center Street (1923)
- 2222 Harold Way, Armstrong College (1923) [designed by Walter H. Ratcliff, Jr.]
- 2065 Kittredge Street/2200 Shattuck Avenue, Shattuck Hotel (1910-1926)
- 2090 Kittredge Street, Berkeley Public Library (1930)
- 2151 Shattuck Avenue, Wright Block (1906)
- 2231 Shattuck Avenue, Brooks Apartment Building (1906) [designed by Walter H.
- Ratcliff, Jr.]
- 2271 Shattuck Avenue, Tupper & Reed Building (1925)
- 2276 Shattuck Avenue, Morse Block (1906)
- 2277 Shattuck Avenue, Hezlett's Silk Store (1925)
- Civic Center Historic District
- Berkeley High School Historic District

Please see Appendix B1 to the Historic Resources Technical Report (Appendix B to this EIR) for photographs of several of these buildings.

Six of the properties listed above, including the Berkeley Post Office, the Berkeley YMCA, the Masonic Temple, the Berkeley Public Library, the Tupper & Reed Building and the Morse Block, as well as the two historic districts, are also listed on both the National and California Registers. In addition, the A.H. Broad House (1895) at 2117 Kittredge Street is a City of Berkeley Structure of Merit.

The following 10 properties that are not City Landmarks have been found through previous survey evaluation to be eligible for individual listing on the National Register:

- 2132 Center Street, Thomas Black Building (1904)
- 2113 Kittredge Street, Fox Theatre (1914)
- 2124 Kittredge Street, Robert Elder House (1895)
- 2138 Kittredge Street, John C. Fitzpatrick House (1904)
- 2150 Shattuck Avenue, First Savings Bank (1969)
- 2177 Shattuck Avenue (1895)
- 2201 Shattuck Avenue, Hinkel Block (1895)
- 2225 Shattuck Avenue (1913)
- 2270 Shattuck Avenue, Homestead Loan Association Building (1905)
- 2274 Shattuck Avenue (1932)

Four additional properties not addressed above were identified by the Landmarks Preservation Commission (LPC) in 1993 as eligible for landmark designation:

- 2121 Allston Way (1938)
- 2168 Shattuck Avenue, Constitution Square (1906)

- 2255 Shattuck Avenue, Wanger Block (1903)
- 2281 Shattuck Avenue (1904)

Finally, the 1990 Downtown Plan and Downtown Plan EIR identified historic properties as "Landmark," "Significant" or "Contributing." The 1938 building at 2210 Harold Way was deemed "contributing" in the 1990 Downtown Plan and Downtown Plan EIR. The 1940 building at 2219 Shattuck Avenue was deemed "significant" in the 1990 Downtown Plan and Downtown Plan EIR. The 1955 building at 2190 Shattuck Avenue was deemed "significant" in the Downtown Plan and "contributing" in the Downtown Plan EIR.
The properties listed in Table 4-1.1 are the historic structures within 200 feet of the project area. These structures could potentially be affected by vibration during construction of the project.

Table 4-1.1
Historic Structures Within 200 Feet of Project Area

Name of Historic Structure/Address	Date of Construction	Distance from Project Site (feet)
Post Office 2000 Allston Way	1914/1931	190
Elks Lodge	1913	55
2210 Harold Way	1938	55
Armstrong College 2222 Harold Way	1922	55
Public Library 2090 Kittredge Street	1930	60
Shattuck Hotel 2065 Kittredge Avenue/2200 Shattuck Avenue	1910-1926	0
2190 Shattuck Avenue	1955	60
Homestead Loan Association Building	1905	160
2274 Shattuck Avenue	1932	190

Source: Architectural Resources Group, 2014

h. Downtown Area Plan EIR Summary.

The DAP EIR discusses cultural resources impacts on pages 4-93 through 4-124. The DAP EIR identified the following impacts and mitigation measures for historic resources:

- *Impact CUL-l:* Demolition of Historic Resources. Despite the substantial protections in place in City policy and the proposed DAP, it is possible that development anticipated under the DAP could result in the demolition of historic resources located within the Downtown Area. Were demolition of historic resources to occur, this would represent a *significant and unavoidable* impact associated with DAP implementation.
  - Demolition of any historic resources within the Downtown Area would represent a *significant and unavoidable* environmental impact, which could not be mitigated to a level of less than significant. However, should demolition be

proposed, a separate, site-specific environmental review would be required, requiring an analysis of alternatives and potential project-specific mitigation measures.

- *Impact CUL-2:* Substantial Adverse Changes in Character-Defining Features in Portions of the Downtown Area that may have the Potential for Future Designation as Historic Districts. Implementation of the DAP may cause substantial adverse changes in the character-defining features of structures in areas within the Downtown Area that may have the potential for future designation as historic districts. Because implementation of the DAP could result in a cumulative impact on the existing character-defining features in those portions of the Downtown Area that may be formally designated as historic districts at some point in the future, any significant adverse change to those features would represent a *potentially significant* impact.

  - *Mitigation CUL-2:* Establish Parameters for Compatible Infill Development in the Downtown Area within Updated Design Guidelines. Using the Secretary of the Interior's "Standards" as a starting point (in compliance with DAP Policy HD-l-la), the Design Guidelines for future development in the Downtown Area should be updated to ensure that new construction respects the authentic character, significance and integrity of the existing building stock in areas that may have the potential for designation as historic districts. Specific guidelines identified to be added for this purpose include, but are not limited to, the following:

    - Consider the difference in character of individual blocks. The scale of buildings change within the potential historic district(s) and new construction should reflect the appropriate scale per block.
    - Priorities for new construction and additions include: build-to-the-street, particularly at corners; construct infill buildings at vacant or underutilized sites along major streets; and modify non-historic buildings so that they contribute visual interest and quality.
    - Construct new buildings, of compatible design with the surrounding neighborhood.
    - Encourage creative and innovative contemporary designs for new buildings in the downtown.
    - Streetscape plays an important role in drawing individuals to a particular area of the city. Use signage, lighting, and paving to improve the pedestrian experience.
    - Build consistently with the street wall, particularly at corner sites. Continue dominant rhythms for structural bays, bay windows, large pilasters, and other repeating vertical elements. Also, continue dominant cornice lines, such as between ground floors and upper stories, and at the top of facades that meet a street.
    - Design new buildings to respond to the existing building context within a block, and provide continuity to the overall streetscape. Frequently, a new building will be inserted on a site between two existing buildings of disparate scale and design.

- Set back upper floors where taller buildings are permitted, so that dominant roof and cornice lines remain generally consistent in the Downtown, as seen from the street.
- Explore options for multi-use buildings, combining residential, commercial, and other compatible uses where appropriate.
- Provide multi-tenant retail space and other active publicly accessible uses at the street level. These should be accessible directly from the sidewalk, rather than through common interior lobbies.
- Provide easy-to-locate building entrances on all street-facing facades. Where a building extends through an entire block or is located at a comer, connect its entrances with a suitably scaled public lobby. Highlight entrances with signage and lighting to distinguish them from storefronts.
- Use vertically-proportioned windows. Group such windows in sets where a horizontally proportioned window opening is desired, especially for the expression of structural bays.

As a result of the DAP EIR Mitigation CUL-2, the Downtown Design Guidelines were updated to include a Section addressing Subareas Where Historic Resources Are Concentrated.

The DAP EIR discussion under Impact CUL-2 goes on to explain that as individual development projects are proposed in the Downtown Area, those which may have potential adverse effects on historic resources will be evaluated under the Landmark Preservation Ordinance. Project compliance with the provisions of the LPO, conformance with the Secretary of the Interiors Standards (consistent with DAP Policy HD l-la), and consistency with updated Design Guidelines intended to protect the character-defining features of those portions of the Downtown Area which may have the potential for designation as historic districts (as called for in Mitigation CUL-2, above) would reduce potential impacts associated with development that might jeopardize existing character defining features in those areas.

Consistent with the DAP's conclusion that "should demolition be proposed, a separate, site-specific environmental review would be required, requiring an analysis of alternatives and potential project-specific mitigation measures," and because the impacts of the project as proposed on the on-site and adjacent historic resources were not specifically studied in the DAP EIR, specific analysis of the proposed project's impacts on historic resources is warranted in this EIR.

4.1.2 Impact Analysis

a. Methodology and Significance Thresholds. According to the Public Resources Code, "a project that may cause a substantial change in the significance of an historical resource is a project that may have a significant effect on the environment." The Public Resources Code broadly defines a threshold for determining if the impacts of a project on an historic property will be significant and adverse. By definition, a substantial adverse change means, "demolition, destruction, relocation, or alterations," such that the significance of an historical resource would be impaired. For purposes of NRHP eligibility, reductions in a property's integrity (the ability of the property to convey its significance) should be regarded as potentially adverse impacts.

According to the CEQA Guidelines:

> *An historical resource is materially impaired when a project…[d]emolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources [or] that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant.*

The lead agency is responsible for the identification of "potentially feasible measures to mitigate significant adverse changes in the significance of an historical resource." The specified methodology for determining if impacts are mitigated to less than significant levels are the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings and the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995), publications of the National Park Service.

With respect to cultural resources, the proposed project would have a significant effect if it would:

- *Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5*
- *Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5*
- *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature*
- *Disturb any human remains, including those interred outside of formal cemeteries*

The Initial Study (Appendix A) determined that the project would not have adverse effects regarding archaeological resources, paleontological resources, or human remains that were not already adequately addressed in the DAP EIR. As such, impacts to historic resources alone are discussed in this section.

b. Project Impacts and Mitigation Measures.

Impact CR-1 The proposed project would involve demolition of the 1926 addition to the Shattuck Hotel and partial removal of the 1913 addition to the Hotel. Both of these additions contribute to the hotel's historical significance and are included in the property's local landmark designation. Impacts would be Class I, *significant and unavoidable*.

The proposed project would involve demolition of the 1959 Hink's Building; demolition of the 1926 addition to the Shattuck Hotel; partial removal of the 1913 addition to the Hotel; and remodeling of the retail spaces at the northwest corner of Kittredge Street and Shattuck Avenue. As discussed above, the 1959 Hink's building does not appear to contribute significantly to the property's historic and architectural significance, and is not considered a historic resource under CEQA. Impacts related to demolition of the 1959 Hink's building would be less than significant. In addition, remodeling of the retail spaces at the northwest corner of Kittredge Street and Shattuck Avenue would not affect the building's exterior and, because these interior spaces have been altered before, and they are not considered contributory to the property's historic significance, impacts related to these interior alterations would also be less than significant.

As discussed in the *Setting* section, the Shattuck Hotel is a local landmark. The local landmark designation includes the original building, immediate additions designed by Benjamin Geer McDougall, and the 1926 Ratcliff addition. As a result, the 1913 and 1926 additions are considered historical resources under CEQA. Demolition of the 1926 addition would result in a significant impact to historical resources. The partial removal of the 1913 addition would also constitute a significant impact to historical resources. Though the eastern portion of the 1913 addition would remain, the addition would be substantially altered. Impacts from demolition of the Shattuck Hotel are potentially significant.

Because the proposed project entails alteration and partial demolition of a designated landmark, the 2211 Harold Way project is subject to the historic resources permit process as specified in Sections 200-290 of Chapter 3.24 of Berkeley's Municipal Code. As part of this process, the LPC would review the project. Prior to issuing a permit, the LPC would need to make two findings for construction and demolition on the project site. Nonetheless, impacts related to alteration and demolition of the 1913 and 1926 Shattuck Hotel additions would remain potentially significant.

Mitigation Measures. The following measures are required to reduce the significance of impacts related to alteration and demolition of the 1913 and 1926 Shattuck Hotel additions.

CR-1(a) **Documentation.** In consultation with the City of Berkeley Planning and Development Department, the project applicant shall complete Historic American Building Survey (HABS) Level II documentation of the Shattuck Hotel and its setting. This documentation shall include drawings, photographs and a historical narrative.

- Drawings: Existing historic drawings of the Shattuck Hotel (including the original 1910 building and the 1912, 1913 and 1926 additions), if available, shall be photographed with large-format negatives or photographically reproduced on Mylar. In the absence of existing drawings, full-measured drawings of the complex's plan, exterior elevations, and courtyard elevations should be prepared.

- Photographs: Photo-documentation of the Shattuck Hotel (including the original 1910 building and the 1912, 1913 and 1926 additions) shall be prepared to HABS standards for archival photography. HABS standards require large-format black-and-white photography, with the original negatives having a minimum size of 4 x 5 inches. Digital photography, roll film, film packs, and electronic manipulation of images are not acceptable. All film prints, a minimum of 4 x 5 inches, must be hand-processed according to the manufacturer's specifications and printed on fiber base single weight paper and dried to a full gloss finish. A minimum of 12 photographs must be taken, detailing the site, building exteriors, and building interiors. Photographs must be identified and labeled using HABS standards. Color 35mm non-archival photographs of the historical building and grounds shall be taken to supplement the limited number of archival photographs required under the HABS standards described above. Photographs should include overall views of the site; individual views of important building features; exterior elevations of each façade of the complex; views of interior courtyard spaces; and detail views of specific materials or elements.

- Historical Overview: In consultation with the City of Berkeley Planning and Development Department, a qualified historian or architectural historian shall assemble historical background information relevant to the Shattuck Hotel and its setting. Much of this information may be drawn from the Historic Context Report that architecture + history LLC has prepared for the property. The project applicant shall submit three hard copies and six electronic copies of the drawings and historical overview, along with two sets of photographic negatives, to the City of Berkeley. To ensure its public accessibility, the City of Berkeley will distribute the documentation to the Berkeley Public Library, UC Berkeley's Environmental Design Archives, Berkeley Architectural Heritage Association, the Berkeley Historical Society, and the Northwest Information Center of the California Historical Resources Information System (CHRIS).

CR-1(b) **Salvage.** The project applicant shall give local historical societies the opportunity to salvage materials from the 1913 and 1926 additions to the Shattuck Hotel for public information or reuse in other locations. This effort is expected to focus on the additions' multi-pane, metal-sash windows (currently painted over) as well as the ceiling plasterwork in the entry arcade. If, after 30 days, none of the societies is able and willing to salvage the materials, the materials shall be offered to local architectural salvage companies by placing an advertisement in a website and newspaper of general circulation for at least 30 days. Demolition may proceed only after any significant historic features or materials have been identified (at the applicant's cost) and their removal completed, unless none of the above organizations are interested in salvaging the materials.

CR-1(c) **Onsite Interpretation.** The project applicant shall incorporate a wall display featuring historic photos of the Shattuck Hotel property and a description of its historical significance into the publicly accessible portion of any subsequent development on the site. This display shall be developed by professionals meeting the Secretary of the Interior's Professional Qualifications (as verified by City of Berkeley planning staff) and experienced in creating such historical exhibits, with the assistance of City of Berkeley planning staff.

CR-1(d) **Contribution to the Historic Preservation Fund.** The project applicant shall contribute funds to the City to be applied to future historic preservation activities within Downtown Berkeley, including survey work; property research; and evaluation in accordance with the *Secretary of the Interior's Standards*. Contribution to the preservation fund shall be made only after Mitigation Measures CR-1(a), CR-1(b) and CR-1(c) have been completed.

Significance After Mitigation. Implementation of the mitigation measures above would reduce the project's impacts related to demolition or alteration of historic resources; however, impacts would remain significant and unavoidable.

Impact CR-2 **The proposed project would alter the setting of historic landmarks adjacent to and facing the project, including the Shattuck Hotel, the Public Library, and the former Elks Lodge and Armstrong College buildings because the project's design elements would be partially inconsistent with the Secretary of the Interior's Standards and the Downtown Berkeley Design Guidelines. Impacts would be Class II, *significant but mitigable*.**

The proposed project incorporates several design elements that are consistent with the *Secretary of the Interior's Standards* and the Downtown Berkeley Design Guidelines and that serve to enhance the compatibility of the proposed project with the Shattuck Hotel and other nearby historical resources. For example, the new construction would be kept visually and physically separate from the Shattuck Hotel. On the Allston Way elevation, the existing alley would be retained and would separate new construction from the 1912 restaurant addition to the hotel. On the Kittredge Street elevation, a two-story "hyphen" (corresponding to one of the new movie theater spaces) would separate the Shattuck Hotel from the 12-story portion of the new construction. These separations would reduce the extent of direct contact between the new construction and the adjacent hotel, and would serve to distinguish the new construction from the historic building.

On the Allston Way, Harold Way, and Kittredge Street elevations, floors six and higher would be set back approximately 15 feet from floors below. The height of this setback directly references the existing roof line of the former Elks Lodge (2016 Allston Way) across Harold Way and establishes a five-story base for the proposed construction that is in keeping with the massing and scale of other historical resources facing the project, including the Public Library (2090 Kittredge Street). In particular, the setback would help prevent the new construction from overwhelming the adjacent Shattuck Hotel. This setback is directly in keeping with the Downtown Berkeley Design Guidelines pertaining to building height, including:

- *Respect the height of neighboring buildings, and provide a sense of continuity and enclosure which avoids abrupt changes in height.*
- *New buildings should step down to respect the height of existing residential buildings where they are on parcels with a residential zoning designation.*

Further, the proposed massing is broken up by varied rooflines and materials, which prevents the new construction from presenting a monolithic appearance. A large portion of the proposed exterior elevations consist of brick veneer walls with punched windows. The size and location of these windows, and the overall relationship of void to wall in this portion of the new construction, is similar to the walls and windows of nearby historic buildings. Although the project would introduce buildings that would be substantially taller than adjacent historic resources, the difference in height alone would not result in a significant impact to their historic significance or value. (The 2140–2144 Shattuck Avenue Chamber of Commerce Building and the 2150 Shattuck Avenue First Savings/Great Western Building are both within three blocks of the project site; these are approximately the same height (173 and 180 feet, respectively) as the proposed project. The Chamber of Commerce Building is a designated historic landmark.)

While the project incorporates several design elements that are consistent with the *Secretary of the Interior's Standards* and the Downtown Berkeley Design Guidelines, it lacks design elements that would reflect full compliance with these guidelines. The proposed Allston Way elevation would not comply with the following Downtown Berkeley Design Guidelines because the detailing of the Allston Way elevation would not adequately reference the historic detailing of the Shattuck Hotel:

- "Reflect and reinforce the scale, massing, proportions, rhythm and attention to detailing which are established by the facades of Landmark and Significant buildings" (Design Guideline 1, page 27).
- "Incorporate elements which break up façade planes and create a visual play of light and shadow. Avoid long, uninterrupted horizontal surfaces. Consider the use of bay windows, balconies and architectural projections" (Design Guideline 31, page 27).
- "Vertical divisions of ground and upper floors should be consistent. Generally maintain a cornice that projects horizontally between the ground floor (and its mezzanines) and upper stories. Align the cornice and other horizontal ground floor elements (like awnings and sign bands) with similar features on neighboring buildings and storefronts, if feasible" (Design Guideline 4, page 27).

The Kittredge Street elevation is not fully consistent with the following Downtown Berkeley Design Guideline because the proposed blank wall "hyphen" along the Kittredge Street elevation would not be articulated in a manner compatible with the building's historic setting:

- "Articulate side and rear facades in a manner compatible with the design of the front façade. Avoid large blank wall surfaces on side and rear facades which are visible from public areas. In these locations, display windows, store entrances, and upper windows are encouraged. When this is not feasible, consider the use of ornament, murals, or landscaping along large blank walls" (Design Guideline 8, page 28).

While the glazed aluminum window wall systems proposed for much of the project would differentiate the proposed project from nearby historical resources, the design of these wall systems would not comply with the *Secretary of the Interior's Standards*. In addition, the glazed aluminum windows proposed would be inconsistent with the following Downtown Berkeley Design Guidelines because they would not display an adequate level of rhythm and detailing for compatibility with the historic setting:

- "The facades of Downtown's historic buildings are comprised of load-bearing walls and frames, the limits of which give similar scale and expression. Maintain the typical rhythm of structural bays and enframed storefronts of 15-30 feet spacing at ground level, in order to enhance visual continuity with existing buildings and pedestrian scale. Curtain walls, if used, should be designed with rhythm, patterns and modulation to be visually interesting" (Design Guideline 7, page 28).
- "Windows should comprise 25-50% of upper facades visible from public areas, and should reflect the rhythm, scale, proportion, and detailing of upper windows of Landmark and Significant buildings" (Design Guideline 13, page 29).
- "Frame windows and use light shelves and other articulation to emulate the rhythm, scale, and reveal (shadow) of traditional buildings" (Design Guideline 20, page 30).

The proposed recessed entry plaza at the corner of Harold Way and Kittredge Street would be inconsistent with the following Downtown Berkeley Design Guidelines because the entry plaza would not maintain the continuous zero-setback of the historic street wall:

- "Buildings should frame and define the street as an active public space. Throughout Downtown, buildings are typically built to street-facing property line(s). This historic 'streetwall' of facades should be preserved, and extended through new construction" (Section Introduction, page 57).
- "Maintain a continuous zero-setback 'build-to line' at the ground floor at the edge of all Downtown streets where commercial and higher levels of activity is anticipated….The only exceptions to this may be to: provide suitably defined, usable open space; create a special corner feature; provide recessed storefront entrances; create an arcade; to provide a narrow band of landscaping…; or to give emphasis to a civic building" (Design Guideline 1, page 57).

In addition, Policy LU-4.2 in the Downtown Area Plan, which addresses development compatibility, stipulates that "[t]he size and placement of new buildings should… maintain compatible relationships with historic resources (such as streetwall continuity in commercial areas)."

Because particular design elements of the proposed project would not meet the *Secretary of the Interior's Standards* and do not comply with elements of the Downtown Area Plan Guidelines, impacts are potentially significant.

Mitigation Measures. Implementation of Mitigation Measures CR-2(a) through CR-2(d) would reduce the project's design impacts to a less than significant level.

CR-2(a) **Allston Way Elevation.** New construction on the Allston Way elevation shall incorporate horizontal façade elements that reference the roofline of the adjacent 1912 restaurant addition to the Shattuck Hotel. Specifically, new construction shall incorporate a horizontal belt course along its Allston Way façade that corresponds to the cornice and parapet of the 1912 addition. This belt course shall include a cornice element or other horizontal embellishment that projects from the face of the building. (This element could consist of a simple projecting molding, for example, that is stylistically in keeping with the contemporary design of the proposed project.) By incorporating this belt course, the proposed project, despite being considerably taller than the Shattuck Hotel, would better maintain the scale and feel of the historic building frontage along Allston Way.

CR-2(b) **Kittredge Street Elevation.** At the Kittredge Street elevation, the proposed project includes a two-story "hyphen" that separates the Shattuck Hotel from the 12- and 18-story portions of the project to the west. Project drawings show the Kittredge Street façade of this portion of the project as a blank wall, potentially covered in vegetation. Such wall treatment is incompatible with the historic setting. Perforations (such as a door or windows) or other architectural elements shall be incorporated into the design of this wall so as to maintain an active street frontage that is more in keeping with the ground floors of the nearby historical resources and the larger Shattuck Avenue Commercial Corridor.

CR-2(c) **Glazed Aluminum Window Wall Systems.** While the glazed aluminum window wall systems proposed for much of the project would clearly differentiate the proposed project from nearby historical resources, the design of these wall systems needs to be modified to make them more compatible with those resources. The proportion and pattern of void to wall in the wall treatments of the proposed project shall be modified to more closely match that exhibited in the Shattuck Hotel, the Public Library, the former Elks Lodge and the former Armstrong College building. Potential ways to achieve this include replacing the window wall systems with punched curtain wall systems similar to those used elsewhere in the project, or breaking up the window wall systems with windowless bays.

CR-2(d) **Recessed Entry Plaza.** The recessed entry plaza at the corner of Harold Way and Kittredge Street shall be replaced with an entry design that maintains the zero lot-line setback characteristic of the nearby historical resources and the larger Shattuck Avenue Commercial Corridor.

Significance After Mitigation. Implementation of the mitigation measures above would reduce the project's impacts on historic resources to a less than significant level.

Impact CR-3 The project would partially obscure views of the San Francisco Bay, Alcatraz Island, and the Golden Gate from the base of UC Berkeley's Campanile and Campanile Way. The westerly views from Campanile Way are not historical resources in their own right; however, they are a character-defining feature of a landscape element (Campanile Way) that has been identified as a contributor to a cultural landscape (the Classical Core of the UC Berkeley campus). The project would not involve physical alteration of Campanile Way or its immediate surroundings. Further, the project would not entirely block existing views of the Golden Gate and would only block a minor portion of the existing view from the middle of the top stair immediately west of the Campanile, which is identified as a formal viewpoint in UC Berkeley's *Landscape Heritage Plan*. As such, view impacts related to historic resources would be Class III, *less than significant*.

The proposed project would partially obscure views of Alcatraz Island and the San Francisco Bay, as seen from the base of UC Berkeley's Sather Tower (the Campanile), and from Campanile Way, the pathway that extends approximately ¼-mile west from the Campanile. As discussed above in the *Setting*, in 2004, the University of California, Berkeley completed a *Landscape Heritage Plan*, which identifies Campanile Way as a historically significant component of the campus. According to the analysis included in the *Landscape Heritage Plan*, "Campanile Way's axial power and historic views to the Campanile and the Golden Gate retain a high level of integrity." East-west views along Campanile Way are identified in the *Landscape Heritage Plan* as one of six primary character-defining features "for the Campanile Way and Sather Road environs."

In order to assess the project's potential impacts on westward views from the base of the Campanile and Campanile Way, visual simulations were completed by Environmental Vision to show the view from the following locations (see Figure 4.1-3): (1) the north side of the top stair immediately west of the Campanile, adjacent to the stone balustrade (shown in Figure 4.1-4); (2) the middle of the same top stair (shown in Figure 4.1-5); and (3) Campanile Way near the south entrance to Doe Library, approximately 300 feet west of the Campanile (shown in Figure 4.1-7). The project would not be visible from the south side of the top stair immediately west of the Campanile; a photo of the existing view from this location is provided for reference in Figure 4.1-6.

The view shown in Figure 4.1-4 would be more substantially affected by the proposed project than would the view shown in Figure 4.1-5. From the vantage point shown in Figure 4.1-4 (the north side of the top stair immediately west of the Campanile), the proposed project would partially obscure Alcatraz Island and would block approximately one quarter of the San Francisco Bay appearing below (i.e. to the east of) Alcatraz Island. The project would not block the Golden Gate (i.e. the strait that connects San Francisco Bay to the Pacific Ocean) or the

Golden Gate Bridge from this location. It should be noted that the photo simulations are based on an earlier project design which included additional trees at the north end of the rooftop; because these trees have been removed from the proposed project on this portion of the building (see Figure 2-24 in Section 2.0, *Project Description* for the current proposed rooftop treatment), view impacts on Alcatraz Island from this location would be less than shown in the simulations.

From the vantage point shown in Figure 4.1-5 (the middle of the top stair west of the Campanile), which is a "formal" viewpoint in the *Landscape Heritage Plan*, the portion of the Bay blocked by the project would constitute a relatively small portion of the currently visible portion of the Bay.[2] Alcatraz Island is shown as partially obstructed by rooftop trees in Figure 4.1-5; however, these trees have been removed from the project description and would not block Alcatraz Island from this location.

Due to its lower elevation and narrower view corridor, the view shown in Figure 4.1-7 (from Campanile Way) would be incrementally more affected by the project than would the views in Figures 4.1-4 and 4.1-5. This view point is more constrained by trees to the west and the project appears taller in relation to Alcatraz Island and the Golden Gate Bridge from this location. The project would extend vertically to the deck of the Golden Gate Bridge (not including the rooftop trees shown in the simulation but removed from the project description) and horizontally it would extend northward across about two thirds of the visible portion of Alcatraz Island. From this vantage point, the project would obscure approximately three quarters of the visible portion of Alcatraz Island, and almost half of the visible portion of the deck of the Golden Gate Bridge. However, the south tower of the Golden Gate Bridge and the north portion of Alcatraz Island would remain visible. Approximately one third of the visible portion of the Bay would be blocked at this location.

The westerly views from Campanile Way (shown in Figure 4.1-7) are not historical resources in their own right. Instead, they are a character-defining feature of a landscape element (Campanile Way) that has been identified as a contributor to a cultural landscape (the Classical Core of the UC Berkeley campus). As such, the view impacts associated with the proposed project constitute a change to a character-defining feature of a contributing landscape element. Because this change would not materially impair Campanile Way or the Classical Core of the UC Berkeley campus such that they would no longer be eligible for listing as historic resources, the impact would be less than significant.

The project would not involve physical demolition, destruction, relocation, or alteration of Campanile Way or its immediate surroundings (the project site is located about 700 feet from the western boundary of the campus and over 0.5 miles from the upland portions of Campanile Way shown in the simulations). Therefore, it would not cause a substantial adverse change to a historical resource. While the proposed project would change the existing view of the Golden Gate Bridge from Campanile Way, it would not materially impair the significance of Campanile Way or the Classical Core. The existing skyline is such that the view down Campanile Way and

[2] *Landscape Heritage Plan, University of California, Berkeley*. 60-61. The *Plan* differentiates between formal views (which "orient the viewer from a specific vantage point to discreet objects in the landscape") and dynamic views (which "are experienced as one moves through the landscape"). The viewpoint at the middle of the top stair west of the Campanile is identified as a "formal" viewpoint.

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Viewpoint Key Map

Figure 4.1-3

Existing view from UC Berkeley Campanile base at north side of stairs looking west (Viewpoint 1)

Visual simulation of Proposed Project.

Source: Environmental Vision, June 2014

Visual Simulations

Figure 4.1-4

Existing view from UC Berkeley Campanile base at middle of stairs looking west (Viewpoint 2).

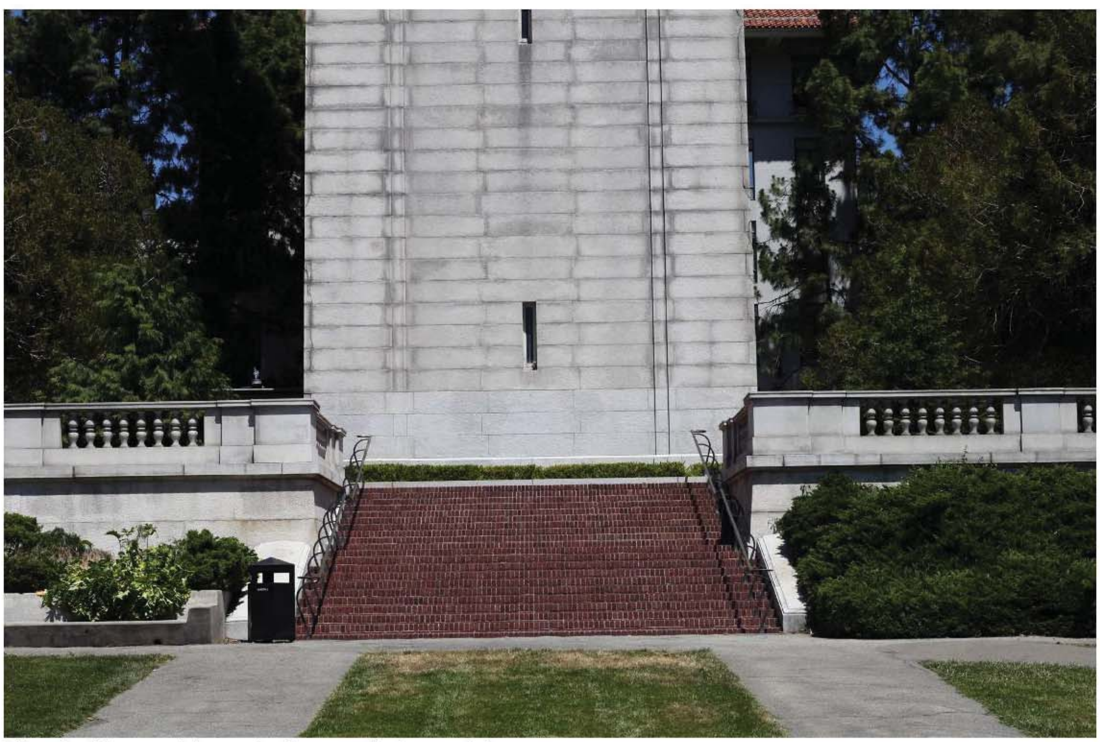
Visual Simulation of proposed project.

Source: Environmental Vision, June 2014

Visual Simulations

Figure 4.1-5

Existing view from UC Berkeley Campanile base at south side of stairs looking west - (Viewpoint 4)
Proposed project would not be visible.



View looking east towards Campanile base stairs.

Source: Environmental Vision, June 2014

Visual Simulations

Figure 4.1-6

View from Campanile Way Near the South Entrance to Doe Library, Approximately 300 Feet West of the Campanile (Viewpoint 3).

Visual Simulation of proposed project.

Source: Environmental Vision, June 2014

Visual Simulations

Figure 4.1-7

through downtown Berkeley's urban skyline has already changed substantially over time due to development and landscape growth both on campus and in downtown Berkeley. Further, enough of the view of the Golden Gate Bridge would remain to convey Campanile Way's significance. Specifically, the project would not entirely block the existing view of the Golden Gate Bridge and the project would block only a minor portion of the existing view from the middle of the top stair immediately west of the Campanile, which is identified as a formal viewpoint in the Landscape Heritage Plan. As such, the project would not result in a substantial adverse change and impacts would be less than significant.

Mitigation Measures. As impacts would be less than significant, no mitigation is required.

Impact CR-4 Construction activities associated with demolition of the 1959 Hink's building and the 1926 addition to the Shattuck Hotel, and partial removal of the 1913 addition to the Shattuck Hotel, could produce ground vibration or soil movement under the existing foundation of nearby historic resources, compromising the historic building's structural stability. Impacts would be Class II, *significant but mitigable*.

Construction activities, including demolition and excavation onsite, may result in substantial ground vibration and/or soil movement under or adjacent to the existing foundation of nearby historic resources, including the Shattuck Hotel. Onsite vibration could cause a substantial adverse change in the significance of the historical resources in the immediate vicinity of a given project area. In some cases, resources may be physically damaged by inadvertent contact with materials or machinery associated with demolition. Table 4-1.1 above shows the historic structures within 200 feet of the project's construction area that could be affected by construction of the project.

The project involves demolition of the 1959 Hink's building, total removal of the 1926 addition to the Shattuck Hotel, partial removal of the 1913 addition, and excavation under most of the proposed project area to a depth of approximately 30 feet. The buildings that would be demolished are located away from Shattuck Avenue and do not directly abut the original Shattuck Hotel 1910 building. A portion of the demolition abuts the 1913 addition to the Shattuck Hotel. Excavation-related soil movement and ground vibration is a possibility given the scale of removal; however, demolitions would not likely endanger the character-defining features of the remaining portions of the Shattuck Hotel due to the distance from the Hotel. Nonetheless, because vibration and soil movement could affect historic structures in the vicinity of the project site, impacts would be potentially significant.

The foundation of the proposed project would consist of mat slab construction. This approach would not require pile driving and is not anticipated to generate substantial ground vibration. Therefore, the project would not be anticipated to have any impacts to historic resources related to construction of the buildings other than the demolition/excavation impacts identified above.

Mitigation Measures. Implementation of Mitigation Measures CR-4(a) through CR-4(c) would reduce the project's impact to historic structures in the vicinity of the project site to a less than significant level.

CR-4(a) **Foundations Investigation.** A registered structural engineer with a minimum of 5 years of experience in the rehabilitation and restoration of historic buildings, meeting the Secretary of the Interior's Professional Qualifications, shall investigate the existing relationship of the foundations of the various portions of the Shattuck Hotel property. Any required test excavations shall be performed only in the presence of the structural engineer. The structural engineer shall prepare a report of findings that specifies modifications to the project design and/or associated construction activities that are necessary to retain the structural integrity of the Shattuck Hotel (including the original 1910 building, the 1912 addition, and the portion of the 1913 addition proposed for retention).

In consultation with a historic preservation architect meeting the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, Professional Qualifications Standards*, the structural engineer (with geotechnical consultation as necessary) shall determine whether, due to the nature of the excavations, soils, method of soil removal and the existing foundations of the Shattuck Hotel, the potential for settlement would require underpinning and/or shoring. If underpinning and/or shoring is determined to be necessary, appropriate designs shall be prepared and submitted for review and approval.

Foundation and shoring shall not use driven or vibration piles. Only cast-in-place or auger piles or micropiles shall be used for shoring, underpinning, and/or new foundations. The existing structure shall be shored at each side of the location where the western portion of the hotel is to be demolished. After the existing structure is shored, an air gap shall be cut between the building to remain and the portion of the building to be demolished at the roof, floor levels and through the above grade walls prior to the demolition of the western portion of the building. The air gap shall be a minimum of 12 inches wide and also be wide enough that no debris can lodge in the gap and transfer vibrations into the portion of the building to remain. The contractor may elect to demolish an entire bay of the existing structure between two column lines so that additional shoring may be minimized or eliminated. This will prevent the transmission of vibrations from the demolition through the existing structural members and, therefore, limit the potential for structural damage due to the vibrations from the demolition. Any debris that becomes lodged in the gap shall be removed as soon as is safely possible.

All documents prepared in accordance with this Measure shall be submitted to the City of Berkeley Planning and Development

Department for approval, and all work required by this Measure shall be at the project sponsor's expense.

CR-4(b) **Construction Monitoring.** Prior to demolition, the historic preservation architect and structural engineer referenced in Mitigation Measures CR-4(a) shall undertake an existing condition study of the Shattuck Hotel, including the location and extent of any visible cracks or spalls. Any existing damage to the hollow clay tile that could cause structural damage due to construction vibrations shall be noted. This initial survey will serve as a baseline to determine if any damage would occur during demolition or construction of the new building. The documentation shall take the form of written descriptions and photographs, and shall include those physical characteristics of the resource that conveys its historic significance and that justify its inclusion on the local register. The documentation shall be reviewed and approved by the City of Berkeley Planning and Development Department.

The historical architect and structural engineer shall monitor the Shattuck Hotel during construction and report any changes to existing conditions, including, but not limited to, expansion of existing cracks, new spalls, or other exterior deterioration. Any new cracks, new spalls, or other exterior deterioration shall be repaired to the pre-existing condition as indicated at the end of this section. Monitoring reports shall be submitted to the City of Berkeley Planning and Development Department on a periodic basis. The structural engineer shall consult with the historic preservation architect, especially if any problems with character-defining features of a historic resource are discovered. If in the opinion of the structural engineer, in consultation with the historic preservation architect, substantial adverse impacts to historic resources related to construction activities are found during construction, the historical architect and structural engineer shall so inform the project sponsor or sponsor's designated representative responsible for construction activities.

Vibrations shall be limited during demolition of the existing below grade wall and foundation concrete so as not to transmit significant vibrations to the remaining structures. The use of jackhammers and smaller hoe-rams with lower impact force shall be used wherever possible to limit vibrations. Larger hoe-rams (rated at greater than 2,000 foot-pounds) shall not be used without a written determination by a qualified testing agency that such rams will not cause vibrations greater than 0.2 inches per second of vertical movement at the existing hotel. Measurements for vibrations shall be taken at the same distance to the vibration source as the Shattuck Hotel building will be from the source during use for construction or demolition. The testing agency used for measuring vibrations shall be experienced in measuring vibrations, as determined by the City of Berkeley Planning and Development Department.

The areas where the demolition will be closest to the existing building and therefore most likely to propagate vibrations to the remaining structures are: demolition of the eastern end of the existing cinema building along Kittredge Street; demolition for the new construction below the hotel at the corner of Shattuck Avenue and Kittredge Street; and demolition of the eastern portion of the former Hink's Department Store addition at Allston Way and Harold Way. At these areas where demolition of below grade concrete will be close to the remaining structures, the concrete shall be demolished using methods that limit vibrations, such as the use of jackhammers and small hoe-rams with lower impact force, even if it is determined that larger hoe-rams can be used elsewhere on the site.

The structural engineer shall consult with the historic preservation architect, especially if any problems with character-defining features of a historic resource are discovered. Because of the inherent unpredictability of large-scale excavation and construction, there is an unlikely but possible chance that unforeseen damage would occur. If substantial adverse impacts to historic resources related to construction activities are found during construction, and if in the opinion of the structural engineer, in consultation with the historic preservation architect, the historical architect and the structural engineer (monitoring team) shall so inform the project sponsor or sponsor's designated representative responsible for construction activities. The historical architect and the structural engineer shall make specific recommendations to the project sponsor, including whether work should stop and whether construction activities should be modified.

Once the historic architect and the structural engineer inform the project sponsor, the project sponsor shall adhere to the monitoring team's recommendations for corrective measures, including halting construction or using methods which cause less vibration, in situations where construction activities would imminently endanger historic resources. The City of Berkeley Planning and Development Department shall establish the frequency of monitoring and reporting. The project sponsor shall respond to any claims of damage by inspecting the affected property promptly, but in no case more than 5 working days after the claim was filed and received by the project sponsor. A sign shall be posted in a visible place onsite and a letter shall be sent to the hotel owner or manager specifying the monitoring team's contact information prior to the start of construction activities.

Any new cracks or other changes in the Shattuck Hotel shall be compared to pre-construction conditions and a determination made as to whether the proposed project could have caused such damage. In the event that the project is demonstrated to have caused any damage, such damage shall be repaired to the pre-existing condition. Site visit reports and documents associated with claims processing shall be provided to the City of Berkeley Planning and Development Department.

All work required by this Measure shall be at the project sponsor's expense.

CR-4(c) **Training Program.** The historic preservation architect referenced in Mitigation Measures CR-4(a) shall establish a training program for construction workers involved in the project that emphasizes the importance of protecting historic resources. This program shall include information on recognizing historic fabric and materials, and directions on how to exercise care when working around and operating equipment near the Shattuck Hotel, including storage of materials away from the historic building. It shall also include information on means to reduce vibrations from demolition and construction, and monitoring and reporting any potential problems that could affect the historic resource. A provision for establishing this training program shall be incorporated into the general contractor's contract with the project applicant regarding construction of the project, and the contract provisions shall be reviewed and approved by the City of Berkeley Planning and Development Department. All work required by this Measure shall be at the project sponsor's expense.

Significance After Mitigation. Implementation of the mitigation measures above would reduce the project's construction impacts to historic resources to a less than significant level.

c. Cumulative Impacts. Planned, pending, and future development in the Downtown area of the City of Berkeley would add about 21,395 square feet of development and 1,057 units to the project area. As concluded in the DAP EIR, demolition of historic resources within the Downtown Area is considered a significant and unavoidable cumulative environmental impact. Because the proposed project would include demolition and alteration of historic structures, the project's contribution to this impact would be cumulatively considerable for future projects.

4.2 TRANSPORTATION/TRAFFIC

This section evaluates the impacts of the proposed project on the local circulation system. The information herein has been summarized from the traffic study prepared for the project by IBI Group, dated July 7, 2014. The traffic study is included in its entirety in Appendix C.

4.2.1 Setting

a. Existing Street Network. The roadway network in the study area is laid out in a grid formation. The main roadways that serve the study area in the north-south direction are Martin Luther King Jr. Way, Shattuck Avenue, and Oxford Street. In the east-west direction, there is one main arterial roadway, University Avenue, which provides a connection from the study area to Interstate 80 (I-80). There are several smaller secondary east-west local and collector streets in the study area, such as Center Street, Allston Way, Bancroft Way and Durant Avenue. Other streets complement the lists presented above, but primarily serve as local access streets. The existing configuration of selected arterial roadways and streets that serve or cross the study area are described here.

Shattuck Avenue is a four-lane divided major street that runs north and south in the project area. Between University Avenue and Center Street, Shattuck Avenue branches into two separate one-way streets. The west branch has three southbound lanes, and the east branch has three northbound lanes. Shattuck Avenue has retail and commercial property along the east and west sides. On-street parking is available, and is separated from through traffic lanes by parking bays with landscaped buffers along some segments.

Oxford/Fulton Street is a north-south divided major street that runs along the west side of the University of California at Berkeley (UCB) campus. The four-lane roadway is named Oxford Street north of Kittredge Street, and becomes Fulton Street south of Kittredge. South of Durant Avenue, Fulton transitions into a one-way street with two southbound lanes. Metered on-street parking is available on both sides of the street.

Martin Luther King Jr. Way is a four-lane undivided major street that runs north and south in the project area. Parking is permitted on both sides of the street. Land uses to the west of MLK Jr. Way are primarily residential. Land uses on the east side of the street include residential, commercial, institutional and open space.

Center Street is an east-west local street with one lane in each direction. Ground floor retail and restaurants line the street, and there is high pedestrian activity between UC Berkeley and Shattuck Avenue. Center Street is a heavily-used bicycle route with a Class II bike lane from Milvia to Shattuck.

Allston Way is an east-west local street with one lane in each direction. Metered on-street parking is provided on both sides of the street. Adjacent land uses include commercial, hotel, institutional and open space.

Kittredge Street is an east-west local street with one lane in each direction that extends from Milvia Street to Oxford Street. Metered on-street parking is provided on both sides of the street.

Land uses with frontage on Kittredge Street include public (post office, library), institutional, commercial and residential.

Bancroft Way is a two-lane, east-west Collector Street with one lane in each direction west of Shattuck Avenue. East of Shattuck Avenue, Bancroft is one-way street with two westbound lanes. Metered on-street parking is provided on both sides of the street.

Durant Avenue is a two-lane, east-west Collector Street with one lane in each direction west of Shattuck Avenue. East of Shattuck Avenue, Durant is a one-way street with two eastbound lanes. Metered on-street parking is provided on both sides of the street.

Harold Way is a north-south local street that extends between Allston Way and Kittredge Street. It has one lane in each direction. Metered on-street parking stalls are located along both sides of the street and parking is limited to 90 minutes between the hours of 9:00 A.M. and 6:00 P.M. There are sidewalks with street trees planted along the curb on both sides of the street. There are bike racks along the west side of the street, and a designated motorcycle parking space at the north end.

Milvia Street is a north-south collector street with one lane in each direction, and is designated as Alameda County Bicycle Route 35. South of Allston Way, there is a bike lane in each direction outboard of on-street parking. North of Allston Way, Milvia Street is a Bicycle Boulevard. Metered on-street parking stalls are located on both sides of the street, except along the west side of the street between Allston Way and Bancroft Way, which is a loading zone area adjacent to Berkeley High School. There are sidewalks with street trees planted along the curb on both sides of the street.

4.2.2 Impact Analysis and Mitigation Measures

a. Methodology and Significance Thresholds.

Downtown Area Plan EIR. The DAP EIR discusses transportation-related impacts on pages 4-238 through 4-325. Traffic modeling conducted for the DAP EIR assumes overall levels of growth in population and employment across the Downtown Area, consistent with regional growth projections and existing zoning and development regulations, for the year 2030. Because the DAP EIR does not specifically study the impacts of the project as proposed on transportation, an analysis of the proposed project's specific impacts on transportation within the Downtown Core Area is warranted in this EIR.

Intersections Studied. The traffic study prepared by IBI Group analyzed impacts at the following 10 intersections in the Downtown Core Area:

1) Martin Luther King Jr. Way & Allston Way;
2) Milvia Street & Center Street;
3) Milvia Street & Allston Way;
4) Milvia Street & Kittredge Street;
5) Shattuck Avenue & Center Street;
6) Shattuck Avenue & Allston Way;

7) Shattuck Avenue & Kittredge Street;
8) Shattuck Avenue & Bancroft Way;
9) Shattuck Avenue & Durant Avenue; and
10) Oxford Street & Allston Way.

Traffic Scenarios. Traffic conditions at these intersections were evaluated both with and without the addition of traffic generated by the proposed project under three scenarios:

- "Existing" Year (2013) conditions
- Future Year 2020 conditions, and
- Future Year 2035 conditions.

For the existing conditions scenario, traffic volumes were estimated based on counts of turning movements at the above intersections during peak traffic hours, from 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. on Tuesday, December 3, 2013. The traffic volumes for the future years were forecast using the latest available version of the ACCMA travel demand model. The ACCMA model is a regional travel demand model that is based on and consistent with the larger Metropolitan Transportation Commission (MTC) regional model. The ACCMA model is focused on Alameda County and is intended for use by the ACCMA and local agencies in Alameda County to forecast future travel demand for automobile, transit, and non-motorized transportation modes.

An analysis of the ACCMA model plots for peak traffic hours during the years 2020 and 2035 revealed that traffic volumes are forecast to grow in the study area at a cumulative rate of approximately 1% per year. All planned improvements and cumulative projects have been incorporated in the ACCMA model. A growth factor of 1.0721 was applied to the year 2013 turning movement counts to derive the year 2020 future without project volumes, and a growth factor of 1.2447 was applied to the year 2013 turning movement counts to derive the year 2035 future without project volumes. The year 2020 and 2035 scenarios were assumed to include the approved plan to convert the west leg of Shattuck Avenue between University Avenue and Center Street from one-way to two-way traffic.

Trip Generation. For the proposed project's contribution to traffic levels, the number of vehicle trips that the project would generate was estimated using a two-step process. First, the total number of peak hour trips generated by the existing and proposed site uses was estimated using rates published in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 9th Edition. The ITE rates for each land use type used in this study are compiled in Table 4.2-1.

Table 4.2-1
ITE Trip Generation Rates for Existing and Proposed Uses

Land Use	ITE Code	Units	Daily	A.M.	P.M.
Apartment	220	DU	6.65	0.51	0.62
Movie Theater	444	SEATS	2.24	N/A	0.07
Community Center	495	TSF	33.82	2.05	2.74

Table 4.2-1
ITE Trip Generation Rates for Existing and Proposed Uses

Land Use	ITE Code	Units	Daily	A.M.	P.M.
General Office	710	TSF	11.03	1.56	1.49
Medical Office	720	TSF	36.13	2.39	3.57
Retail	820	TSF	42.70	0.96	3.71
Quality Restaurant	931	TSF	89.95	0.81	7.49

Source: ITE Trip Generation Manual, 9th Edition.
DU – dwelling units; TSF – thousand square feet
Source: IBI Group, 2211 Harold Way Traffic and Parking Study, City of Berkeley. July 7, 2014.

The ITE rates represent the estimated number of peak hour automobile trips that would be generated by a specific land use in a suburban non-transit-oriented environment. Due to the availability of BART, AC Transit and Bear Transit service as well as pedestrian and bicycle facilities, Downtown Berkeley has a lower auto mode share than the areas represented by the ITE trip rates.

The second step in the trip generation process is to apply mode split percentages to the ITE trip generation values. Based on US Census data for Downtown Berkeley, it is estimated that 33% of trips generated by residential uses and 58% of non-residential trips utilize an automobile. To be conservative, an Auto Mode Factor of 0.58 has been applied to all existing and proposed (residential and non-residential) land uses. This mode split factor is based on mode split information obtained from the 2000 Census and the Alameda County Transportation Analysis Model. The net project generated trips is the number of proposed new trips minus the number of trips generated by existing uses at the site that will be removed.

Table 4.2-2 shows the number of trips generated by existing uses that would be removed from the project site (based on ITE trip rates), including the Shattuck Cinemas, the Habitot children's museum, a medical office, and 40,907 square feet of leasable office space.

Table 4.2-2
Trip Generation for Existing Uses to be Removed

Land Use	Unadjusted Trip Generation			Auto Mode Factor	Adjusted Trip Generation		
	Daily	A.M. Peak Hour	P.M. Peak Hour		Daily	A.M. Peak Hour	P.M. Peak Hour
Shattuck Cinemas	1,915	0	60	0.580	1,111	0	35
Habitot Museum	239	15	19	0.580	138	9	11
General Office	360	51	48	0.580	209	30	28
Medical Office	10	0	1	0.580	6	0	0
Vacant	0	0	0	0.580	0	0	0
TOTAL	**2,524**	**66**	**128**		**1,464**	**39**	**74**

The mode split reduction factor is based on data from the Alameda County Regional Model for Zone 733 and 2000 US Census data.
Source: IBI Group, 2211 Harold Way Traffic and Parking Study, City of Berkeley. July 7, 2014.

Table 4.2-3 shows the number of trips that would be generated by proposed uses on-site, including 302 rental dwelling units, a 6-theater cinema, 8,081 square feet of commercial retail floor area, and 2,454 square feet of full service restaurant space.

Table 4.2-3
Trip Generation for Proposed Uses

Land Use	Unadjusted Trip Generation			Auto Mode Factor	Adjusted Trip Generation		
	Daily	A.M. Peak Hour	P.M. Peak Hour		Daily	A.M. Peak Hour	P.M. Peak Hour
Apartment	2,008	154	188	0.580	1,165	89	109
Cinema	1,490	0	46	0.580	864	0	27
Retail	345	8	30	0.580	200	5	17
Quality Restaurant	221	2	18	0.580	128	2	11
TOTAL	**4,064**	**164**	**282**		**2,357**	**96**	**164**

The mode split reduction factor is based on data from the Alameda County Regional Model for Zone 733 and 2000 US Census data.
Source: IBI Group, 2211 Harold Way Traffic and Parking Study, City of Berkeley. July 7, 2014.

The net number of vehicle trips generated by the project site is equal to the number of trips generated by the proposed new uses minus the number of trips generated by the existing uses to be removed. The net adjusted project trip generation is calculated in Table 4.2-4.

Table 4.2-4
Net Adjusted Project Trip Generation

Condition	Daily	A.M. Peak Hour	P.M. Peak Hour
Proposed Uses	2,357	96	164
Existing Uses	1,464	39	74
Net	**893**	**57**	**90**

Source: IBI Group, 2211 Harold Way Traffic and Parking Study, City of Berkeley. July 7, 2014.

Thresholds. The analysis of traffic impacts was performed in accordance with City of Berkeley Guidelines for Development of Traffic Impact Reports, using Level of Service (LOS) criteria. LOS is a qualitative measure used to describe the condition of traffic flow, ranging from excellent conditions at LOS A to overloaded conditions at LOS F. Intersection Level of Service criteria are shown in Table 4.2-5. Level of service calculation worksheets and a brief discussion of the procedures used to calculate intersection levels of service are contained in IBI Group's traffic study (see Appendix C).

Table 4.2-5
Level of Service for Signalized Intersections

Level of Service	Description of Traffic Conditions	Controlled Delay (sec/veh)
A	Insignificant delays: no approach phase is fully utilized and no vehicle waits longer than one red indication.	≤ 10
B	Minimal delays: an occasional approach phase is fully utilized. Drivers begin to feel restricted.	> 10 – 20
C	Acceptable delays: major approach phase may become fully utilized. Most drivers feel somewhat restricted.	> 20 – 35
D	Tolerable delays: drivers may wait through more than one red indication. Queues may develop but dissipate rapidly, without excessive delays.	> 35 – 55
E	Significant delays: volumes approaching capacity. Vehicles may wait through several cycles and long vehicle queues form upstream.	> 55 – 80
F	Excessive delays: represents conditions at capacity, with extremely long delays. Queues may block upstream intersections.	> 80

Source: Highway Capacity Manual, Transportation Research Board, 2000.

The City of Berkeley defines LOS D or better as acceptable, while LOS E and F are considered unacceptable or deficient. Traffic conditions at signalized intersections were evaluated using the 2000 Highway Capacity Manual (HCM) operations methodology for signalized intersections, which evaluates capacity in terms of the volume-to-capacity (v/c) ratio and evaluates LOS based on controlled delay per vehicle. Conditions at unsignalized intersections were evaluated using the methodology described in Chapter 17 of the HCM. The criteria for unsignalized intersections have different threshold values than do those for signalized intersections because drivers expect signalized intersections to carry higher traffic volumes, so higher levels of control delay are acceptable. The relationship between controlled delay per vehicle and LOS for unsignalized intersections is summarized in Table 4.2-6.

In addition to impacts on traffic at intersections, this section evaluates the project's consistency with Alameda County Congestion Management Program (CMP), which the Infill Environmental Checklist identified as a potentially significant impact. This section does not discuss the following traffic-related impacts that the Infill Environmental Checklist (Appendix A to this EIR) identified as less than significant: changes in air traffic patterns; traffic hazards; emergency access; and conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities. The traffic report in Appendix C includes a quantitative analysis of the project's impacts on the pedestrian and bicycling environments in the Downtown Core Area, which finds that the proposed project would improve the performance and safety of these environments.

Table 4.2-6
Level of Service for Unsignalized Intersections

Level of Service	Control Delay (seconds/vehicle)
A	≤ 10
B	> 10 – 15
C	> 15 – 25
D	> 25 – 35
E	> 35 – 50
F	> 50

Source: Highway Capacity Manual, Transportation Research Board, 2000. Exhibit 17-22.

b. Project and Cumulative Impacts and Mitigation Measures.

Impact T-1 **Development facilitated by the proposed project would increase existing traffic levels on the local circulation system under the Existing Year (2013) scenario. However, all 10 intersections are forecast to operate at acceptable levels of service (LOS C or better) under this scenario. Therefore, impacts on the local circulation system under the Existing Year (2013) scenario would be Class III, *less than significant.***

As discussed above, the specific traffic impacts of the proposed project were modeled because they were not fully evaluated as part of the overall impacts identified in the DAP EIR. The project's traffic impacts were modeled at intersections within the study area for the Existing Year 2013 scenario. Tables 4.2-7 and 4.2-8 show modeled traffic delay and LOS at peak traffic hours under the existing scenario, both without and with project-generated traffic.

Table 4.2-7
Level of Service Results – Existing (Year 2013) Conditions – A.M. Peak Hour

			No Project		With Project		
No.	Intersection	Control	Delay (sec)	LOS	Delay (sec)	LOS	Project Impact?
1	MLK Jr. Wy & Allston Wy	S	10.2	B	10.5	B	No
2	Milvia St & Center St	S	11.0	B	11.0	B	No
3	Milvia St & Allston Wy	S	12.0	B	12.1	B	No
4	Milvia St & Kittredge St	U	9.2	A	9.4	A	No
5a	Shattuck Ave & Center St	S	12.5	B	12.6	B	No
5b	Shattuck Ave (East Leg) & Center St	S	5.2	A	5.3	A	No
6	Shattuck Ave & Allston Wy	S	10.8	B	10.6	B	No
7	Shattuck Ave & Kittredge St	S	6.2	A	6.5	A	No

Table 4.2-7
Level of Service Results – Existing (Year 2013) Conditions – A.M. Peak Hour

			No Project		With Project		
No.	**Intersection**	**Control**	**Delay (sec)**	**LOS**	**Delay (sec)**	**LOS**	**Project Impact?**
8	Shattuck Ave & Bancroft Wy	S	6.9	A	6.8	A	No
9	Shattuck Ave & Durant Ave	S	24.8	C	25.1	C	No
10	Oxford St & Allston Wy	U	1.3	A	1.4	A	No
11	Project Dwy & Kittredge St	U	0.0	A	2.3	A	No

Control: S – signalized intersection; U – stop control or driveway yield
Significant impact occurs if: the With Project LOS is "D" and the change in delay is 2 seconds or more; OR the With Project LOS is "E" and the change in delay is 3 seconds or more; OR the With Project LOS is "F" and the change in V/C is 0.01 or more.
Intersections 5a and 5b are labeled as intersections 51 and 52 in the traffic data attached to IBI Group's traffic study in Appendix C.
Source: IBI Group, 2211 Harold Way Traffic and Parking Study, City of Berkeley. July 7, 2014.

Table 4.2-8
Level of Service Results – Existing Conditions – P.M. Peak Hour

			No Project		With Project		
No.	**Intersection**	**Control**	**Delay (sec)**	**LOS**	**Delay (sec)**	**LOS**	**Project Impact?**
1	MLK Jr. Wy & Allston Wy	S	11.5	B	11.5	B	No
2	Milvia St & Center St	S	13.0	B	12.9	B	No
3	Milvia St & Allston Wy	S	13.6	B	13.6	B	No
4	Milvia St & Kittredge St	U	11.2	B	11.8	B	No
5a	Shattuck Ave & Center St	S	16.5	B	16.5	B	No
5b	Shattuck Ave (East Leg) & Center St	S	6.5	A	6.5	A	No
6	Shattuck Ave & Allston Wy	S	9.4	A	9.3	A	No
7	Shattuck Ave & Kittredge St	S	5.4	A	5.7	A	No
8	Shattuck Ave & Bancroft Wy	S	8.7	A	8.6	A	No
9	Shattuck Ave & Durant Ave	S	25.9	C	26.3	C	No
10	Oxford St & Allston Wy	U	2.5	A	2.6	A	No
11	Project Dwy & Kittredge St	U	0.0	A	2.9	A	No

Control: S – signalized intersection; U – stop control or driveway yield
Significant impact occurs if: the With Project LOS is "D" and the change in delay is 2 seconds or more; OR the With Project LOS is "E" and the change in delay is 3 seconds or more; OR the With Project LOS is "F" and the change in V/C is 0.01 or more.
Source: IBI Group, 2211 Harold Way Traffic and Parking Study, City of Berkeley. July 7, 2014.

As shown in Tables 4.2-7 and 4.2-8, under existing traffic conditions, all 10 intersections are forecast to operate at acceptable levels of service (LOS C or better) both without and with project-generated traffic. Therefore, the proposed project would have less than significant impacts on existing traffic conditions at intersections in the study area.

Mitigation Measures. Impacts would be less than significant; therefore, mitigation is not necessary.

Impact T-2 **Development facilitated by the proposed project would increase future (years 2020 and 2035) traffic levels on the local circulation system. One of the 10 studied intersections would operate at levels of service that exceed its performance standards under the**

Year 2035 scenario. However, feasible mitigation would improve traffic conditions to acceptable levels. Therefore, impacts on future traffic levels in the 2020 and 2035 scenarios would be Class II, *significant, but mitigable*.

As discussed above, the specific traffic impacts of the proposed project were modeled because they were not fully evaluated as part of the overall impacts identified in the DAP EIR. The project's traffic impacts were modeled at intersections within the study area for two future scenarios: Year 2020 and Year 2035. In both future scenarios, traffic modeling incorporated all planned improvements and cumulative projects.

For the Future Year 2020 scenario, Tables 4.2-9 and 4.2-10 show modeled traffic delay and LOS at peak traffic hours, both without and with project-generated traffic.

Table 4.2-9
Level of Service Results – Future Year (2020) – A.M. Peak Hour

			No Project		With Project		
No.	**Intersection**	**Control**	**Delay (sec)**	**LOS**	**Delay (sec)**	**LOS**	**Project Impact?**
1	MLK Jr. Wy & Allston Wy	S	10.7	B	11.0	B	No
2	Milvia St & Center St	S	12.3	B	12.2	B	No
3	Milvia St & Allston Wy	S	12.3	B	12.5	B	No
4	Milvia St & Kittredge St	U	9.5	A	9.7	A	No
5a	Shattuck Ave & Center St	S	12.9	B	12.9	B	No
5b	Shattuck Ave (East Leg) & Center St	S	12.2	B	12.2	B	No
6	Shattuck Ave & Allston Wy	S	15.4	B	15.1	B	No
7	Shattuck Ave & Kittredge St	S	6.2	A	6.4	A	No
8	Shattuck Ave & Bancroft Wy	S	8.6	A	8.9	A	No
9	Shattuck Ave & Durant Ave	S	30.0	C	30.0	C	No
10	Oxford St & Allston Wy	U	1.4	A	1.5	A	No
11	Project Dwy & Kittredge St	U	0.0	A	2.2	A	No

Control: S – signalized intersection; U – stop control or driveway yield
Significant impact occurs if: the With Project LOS is "D" and the change in delay is 2 seconds or more; OR the With Project LOS is "E" and the change in delay is 3 seconds or more; OR the With Project LOS is "F" and the change in V/C is 0.01 or more.
Source: IBI Group, 2211 Harold Way Traffic and Parking Study, City of Berkeley. July 7, 2014.

Table 4.2-10
Level of Service Results – Future Year (2020) – P.M. Peak Hour

			No Project		With Project		
No.	**Intersection**	**Control**	**Delay (sec)**	**LOS**	**Delay (sec)**	**LOS**	**Project Impact ?**
1	MLK Jr. Wy & Allston Wy	S	12.0	B	12.0	B	No
2	Milvia St & Center St	S	13.4	B	13.3	B	No
3	Milvia St & Allston Wy	S	14.0	B	14.0	B	No

Table 4.2-10
Level of Service Results – Future Year (2020) – P.M. Peak Hour

No.	Intersection	Control	No Project		With Project		Project Impact ?
			Delay (sec)	LOS	Delay (sec)	LOS	
4	Milvia St & Kittredge St	U	11.9	B	12.7	B	No
5a	Shattuck Ave & Center St	S	12.4	B	12.5	B	No
5b	Shattuck Ave (East Leg) & Center St	S	11.7	B	11.8	B	No
6	Shattuck Ave & Allston Wy	S	12.0	B	12.1	B	No
7	Shattuck Ave & Kittredge St	S	5.7	A	5.9	A	No
8	Shattuck Ave & Bancroft Wy	S	11.8	B	11.9	B	No
9	Shattuck Ave & Durant Ave	S	37.2	D	39.0	D	No
10	Oxford St & Allston Wy	U	3.1	A	3.1	A	No
11	Project Dwy & Kittredge St	U	0.0	A	2.8	A	No

Control: S – signalized intersection; U – stop control or driveway yield
Significant impact occurs if: the With Project LOS is "D" and the change in delay is 2 seconds or more; OR the With Project LOS is "E" and the change in delay is 3 seconds or more; OR the With Project LOS is "F" and the change in V/C is 0.01 or more.
Source: IBI Group, 2211 Harold Way Traffic and Parking Study, City of Berkeley. July 7, 2014.

Based on the LOS results displayed above, all studied intersections are forecast to operate at acceptable levels of service (LOS D or better).

For Future Year 2035 scenario, Tables 4.2-11 and 4.2-12 show modeled traffic delay and LOS at peak traffic hours, both without and with project-generated traffic.

Table 4.2-11
Level of Service Results – Future Year (2035) – A.M. Peak Hour

No.	Intersection	Control	No Project		With Project		Project Impact ?
			Delay (sec)	LOS	Delay (sec)	LOS	
1	MLK Jr. Wy & Allston Wy	S	12.7	B	12.9	B	No
2	Milvia St & Center St	S	13.3	B	13.4	B	No
3	Milvia St & Allston Wy	S	13.6	B	13.9	B	No
4	Milvia St & Kittredge St	U	10.3	B	10.6	B	No
5a	Shattuck Ave & Center St	S	14.7	B	14.7	B	No
5b	Shattuck Ave (East Leg) & Center St	S	13.2	B	13.2	B	No
6	Shattuck Ave & Allston Wy	S	27.1	C	25.6	C	No
7	Shattuck Ave & Kittredge St	S	7.2	A	7.4	A	No
8	Shattuck Ave & Bancroft Wy	S	9.8	A	10.2	B	No
9	Shattuck Ave & Durant Ave	S	51.2	D	50.8	D	No
10	Oxford St & Allston Wy	U	2.0	A	2.0	A	No
11	Project Dwy & Kittredge St	U	0.0	A	2.1	A	No

Source: IBI Group, 2211 Harold Way Traffic and Parking Study, City of Berkeley. July 7, 2014.

Table 4.2-12
Level of Service Results – Future Year (2035) – P.M. Peak Hour

No.	Intersection	Control	No Project		With Project		Project Impact ?
			Delay (sec)	LOS	Delay (sec)	LOS	
1	MLK Jr. Wy & Allston Wy	S	13.7	B	13.9	B	No
2	Milvia St & Center St	S	14.7	B	14.7	B	No
3	Milvia St & Allston Wy	S	15.7	B	15.7	B	No
4	Milvia St & Kittredge St	U	14.4	B	15.7	C	No
5a	Shattuck Ave & Center St	S	15.4	B	15.6	B	No
5b	Shattuck Ave (East Leg) & Center St	S	11.8	B	11.8	B	No
6	Shattuck Ave & Allston Wy	S	13.9	B	13.9	B	No
7	Shattuck Ave & Kittredge St	S	7.3	A	7.7	A	No
8	Shattuck Ave & Bancroft Wy	S	14.2	B	14.6	B	No
9	Shattuck Ave & Durant Ave	S	68.2	E	71.4	E	Yes
10	Oxford St & Allston Wy	U	6.2	A	6.2	A	No
11	Project Dwy & Kittredge St	U	0.0	A	2.6	A	No

Source: IBI Group, 2211 Harold Way Traffic and Parking Study, City of Berkeley. July 7, 2014.

By the Year 2035, the intersection of Shattuck Avenue and Durant Avenue (#9) is expected to operate at LOS E during the P.M. peak hour, both without and with project-generated traffic. The project is forecast to generate 19 northbound trips through this intersection during the P.M. peak hour, increasing the traffic delay by more than three seconds, which meets the criteria for significant impact established in the City of Berkeley Guidelines for the Development of Traffic Impact Reports. Therefore, the proposed project would have a potentially significant long-term impact on traffic at the intersection of Shattuck Avenue and Durant Avenue for the Future Year 2035 scenario. In order to mitigate the impact at this location, improvements must be made to reduce the project-related increase in P.M. peak hour average delay from 3.2 seconds to less than 3 seconds.

Mitigation Measures. The following mitigation measure would be required to improve traffic conditions at the intersection of Shattuck Avenue and Durant Avenue to acceptable levels:

T-2 Dedicated Right-Turn Pocket at Shattuck Avenue/Durant Avenue Intersection. The northbound outside lane at the intersection of Shattuck Avenue and Durant Avenue shall be restriped to provide a dedicated right-turn pocket. The timing of this improvement will be dependent on traffic volume growth at the intersection, as determined through monitoring by the City.

Significance after Mitigation. Table 4.2-13 shows how implementation of Mitigation Measure T-2 would affect traffic conditions at the Shattuck Avenue/Durant Avenue intersection.

Table 4.2-13
Level of Service Results – Shattuck Avenue/Durant Avenue Intersection with Implementation of Mitigation Measure T-2

Peak Hour	No Project		With Project and Mitigation		Change in Delay (sec)
	Delay (sec)	LOS	Delay (sec)	LOS	
A.M.	51.2	D	24.9	C	-26.3
P.M.	68.2	E	28.4	C	-39.8

Source: IBI Group, 2211 Harold Way Traffic and Parking Study, City of Berkeley. July 7, 2014.

Implementation of a dedicated right-turn pocket in the northbound direction would improve traffic conditions at this intersection from LOS D to LOS C during A.M. peak hours and from LOS E to LOS C during P.M. peak hours. Thus, by implementing Mitigation Measure T-2 would, traffic would operate at acceptable levels at all intersections in the study area, and impacts would be reduced to a less than significant level.

Impact T-3 The proposed project would generate approximately 90 net new trips during the P.M. peak hour, which is below the Alameda County Transportation Commission's threshold of 100 vehicle trips. Impacts related to the CMP network would be Class III, *less than significant*.

The Alameda County Congestion Management Program roadway network (CMP-network) is used to monitor performance in relation to established level of service (LOS) standards. It is a subset of the broader Metropolitan Transportation System (MTS), which is used in the Alameda County Transportation Commission's (ACTC's) Land Use Analysis Program. The CMP-network includes state highways and principal arterials that meet all minimum criteria (carry 30,000 vehicles per day; have four or more lanes; is a major cross-town connector; and connects at both ends to another CMP route or major activity center). No Caltrans facilities pass directly through the project study area. The following roadways in the study area are part of the CMP and/or MTS networks:

<u>CMP Network Tier 1 Roadways</u>

- Shattuck Avenue – between University Avenue and Haste Street
- University Avenue – between Interstate 80 and Shattuck Avenue
- Martin Luther King Jr. Way – between north city limits and Adeline Street

<u>CMP Network Tier 2 Roadways</u>

- Bancroft Way – between College Avenue and Shattuck Avenue

<u>MTS Routes</u>

- Dwight Way – between 6th Street and Telegraph Avenue

Per the requirements of the ACTC 2013 Congestion Management Program Guidelines, new development projects are required to conduct an analysis of the effect of project trips on the MTS roadway network when a project is forecast to generate more than 100 automobile trips in the P.M. peak hour. As shown above in Table 4.2-6, the anticipated net automobile trip generation for this project during the P.M. peak hour is 90 trips. Therefore, the analysis of MTS roadways consistent with the CMP Land Use Analysis Program is not required within this traffic study, and the proposed project would not conflict with the Alameda County CMP. Impacts would be less than significant.

Mitigation Measures. Impacts would be less than significant; therefore, mitigation is not necessary.

Significance after Mitigation. Impacts would be less than significant without mitigation.

c. Cumulative Impacts. Cumulative traffic level increases are considered in the project impact analysis under Impacts T-1 and T-2. As discussed therein, impacts on existing traffic conditions would be less than significant, and impacts to the intersection of Shattuck Avenue and Durant Avenue would be significant but mitigable for the Year 2035 scenario, which includes cumulative development. With implementation of Mitigation Measure T-2 for a right-turn pocket in the northbound direction at this intersection, cumulative impacts would be reduced to a less than significant level.

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5.0 ALTERNATIVES

As required by Section 15126.6 of the CEQA *Guidelines*, this section examines a reasonable range of alternatives to the proposed project. This section also identifies the Environmentally Superior Alternative as required by the CEQA *Guidelines*. As discussed in Section 1.0, *Introduction*, pursuant to CEQA *Guidelines* Section 15183.3, which states the requirements for Infill EIRs, this section does not address alternative locations, densities, or building intensities.

The following alternatives are evaluated in this section:

- *Alternative 1: No Project (no change to existing conditions)*
- *Alternative 2: Preservation Alternative*
- *Alternative 3: Contextual Design Alternative*

Table 5-1 provides a summary comparison of the development characteristics of the project and the alternatives. A more detailed description of the alternatives is included in the impact analysis for each alternative.

Table 5-1
Comparison of Project Alternatives' Buildout Characteristics

Characteristic	Alternatives			
	Proposed Project	No Project Alternative	Preservation Alternative	Contextual Design Alternative
Residential Units/ Square Footage*	278,185 Residential; (302 units); 8,081 Retail; 2,454 Restaurant; 21,641 Cinema (310,361 total)	41,170 Office; 23,474 Cinema; 7,056 Museum (71,700 total)	228,188 Residential (220-244 units); 9,101 Retail; 3,034 Restaurant 21,641 Cinema (261,964 total)	261,064 Residential (269-297 units); 11,217 Retail; 3,739 Restaurant 13,690 Cinema (289,707 total)
Maximum Building Height	18 stories/180 feet	2 stories with partial third story	18 stories/180 feet	18 stories/180 feet
Alteration of Onsite Structures	Demolition and partial removal of Shattuck Hotel additions	No change	Retain portions of Shattuck Hotel additions, façade improvements to portions of Shattuck Hotel additions, setback from historic facades, and revised building materials	Demolition and partial removal of Shattuck Hotel additions; massing directed southwest and revised building materials

** For the alternatives, residential unit counts are presented as approximate ranges to account for flexibility in possible configuration and size of units which could affect total numbers. The square footages listed above are conceptual and were developed to give a reasonable maximum impact scenario with the understanding that they may be adjusted to accommodate the space ultimately available for each alternative if they were to be more specifically designed in the future.*

5.1 NO PROJECT ALTERNATIVE

This alternative assumes that the project would not be implemented and that the site would remain in its current condition. It should be noted that implementation of the No Project alternative would not preclude future proposals for site development.

The No Project alternative would eliminate the project's significant and unavoidable cultural resources impact from demolition of additions to the Shattuck Hotel, would eliminate the project's significant but mitigable cultural resources design impact, and would eliminate the project's significant but mitigable traffic impacts. In addition, this alternative would avoid the less than significant impacts in all other issue areas studied in the Infill Environmental Checklist (Appendix A). However, the No Project Alternative would not meet any of the applicant's objectives for the project.

5.2 PRESERVATION ALTERNATIVE

The Preservation Alternative is designed to be consistent with Policy HD-1.1 of the Downtown Area Plan:

> ***Policy HD-1.1: Historic Buildings & Sites.*** *Preserve historic buildings and sites of Downtown, and provide where appropriate for their adaptive reuse and/or intensification.*

Section (b) of Policy HD-1.1 includes the following elaboration (emphasis added):

> *When evaluating potential modifications, adaptive reuse or intensification of designated or sufficiently documented historic resources, in addition to applying the Landmarks Preservation Ordinance, the proposed work must also be evaluated for conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings. Where applicable, the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes, must also be applied. <u>At a minimum, historic facades should be maintained and/or rehabilitated and the scale and character of additions must be compatible with the historic building.</u>*

The maximum building height under the Preservation Alternative would be 18 stories and new construction would cover approximately 261,964 gross square feet. The uses would include 228,188 square feet of residential (220-244 units), 3,034 square feet of restaurant, 9,101 square feet of retail, and 21,641 square feet of cinema. Under this alternative, movie theaters would be located at the basement and first floor levels and concentrated in the eastern half of the new development, like the proposed project. The building height would be ten stories at the corner of Harold Way and Allston Way, rather than 12 stories as proposed under the project.

The Preservation Alternative would involve substantial retention of the existing buildings onsite, including the 1912 restaurant addition along Allston Way and the alley west of the 1912 restaurant addition. This alternative would retain the front portions of the 1913 and 1926 Shattuck Hotel additions that front Kittredge Street and Harold Way, but may involve façade improvements to activate these frontages. The walls of the 1913 and 1926 additions along

Kittredge Street and Harold Way currently feature high windows and single, mid-block entrances. To create more active street frontages, some window openings in these walls could be expanded downward toward the street in a manner that is in keeping with the Secretary of the Interior's Standards or new storefront openings could be installed along Kittredge Street and Harold Way. Because the existing first floor level of the 1926 addition is considerably above the sidewalk level, opening new storefronts in the historic walls along Harold Way and Kittredge Street is possible but would require installation of new, at-grade storefront entries. These entries would require the existing floor level to be lowered several feet. New entries that direct pedestrians either up a half level to retail uses or down a half level to the theaters is one potential approach to configuring the access program in this area.

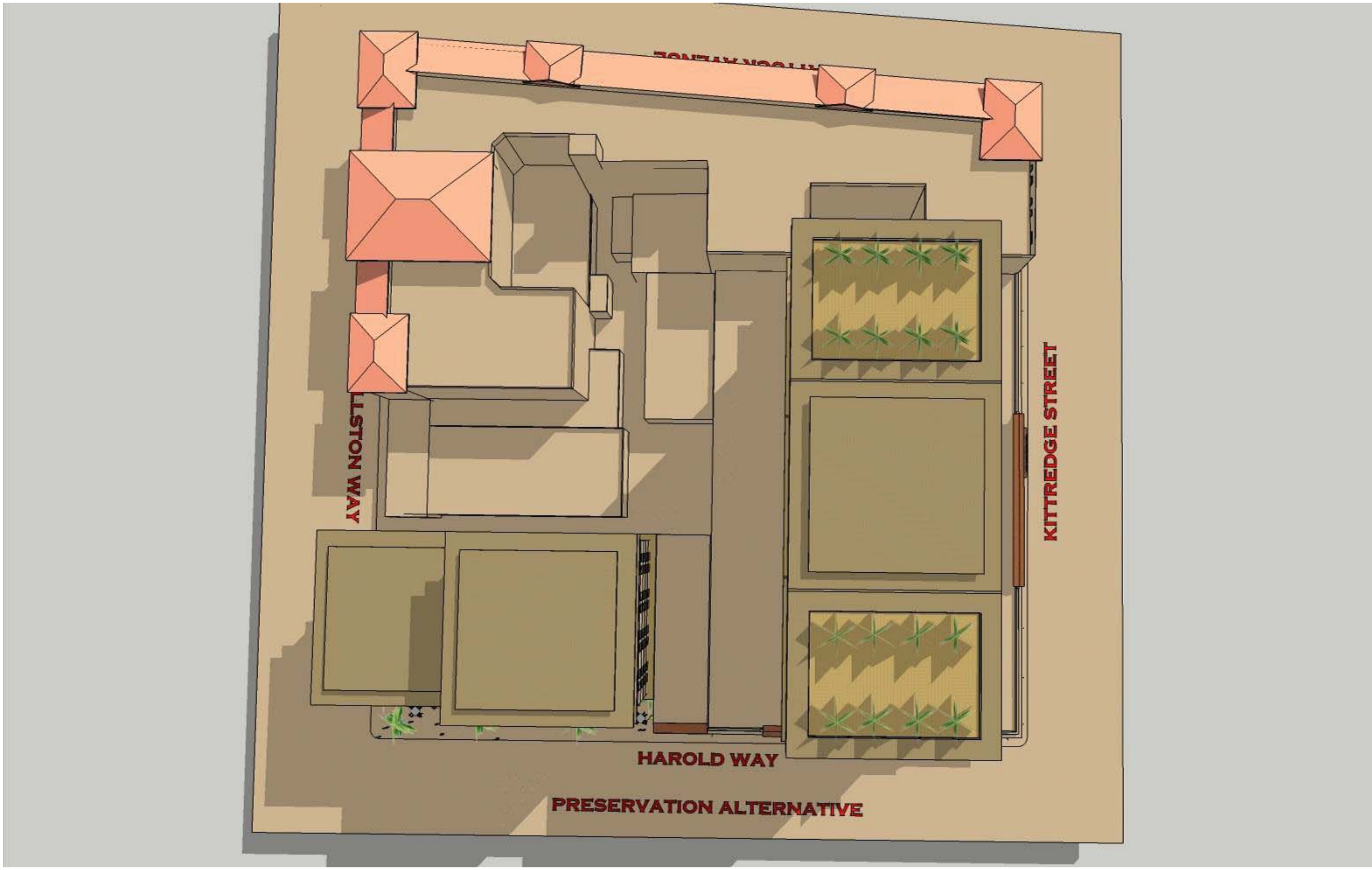
The Preservation Alternative would involve demolition of the non-historic 1959 Hink's building. New construction would occur in the interior of the block and within the footprint of the 1959 building under this alternative. New construction under the Preservation Alternative would occupy as large a footprint as possible while still being sufficiently setback from the 1913 and 1926 additions such that those historic buildings could be preserved in a meaningful way. The intent of the Preservation Alternative is to represent a preservation-based project approach that preserves more than just the façades of these historic additions. The Preservation Alternative would be consistent with the scale, massing and materials of the Shattuck Hotel and other historical resources in the vicinity of the project site. A site plan and renderings of the Preservation Alternative are shown in figures 5-1 through 5-12.

This alternative would involve rehabilitation of the existing canopied entries along Harold Way and Kittredge Street to accommodate project entry and exit and conversion of the existing service entry along Harold Way for a new parking garage. Subterranean parking may be reduced compared to the proposed project due to retention of historic buildings onsite. Depending on the precise reduction that would be identified if this alternative was selected and formal plans were prepared, this alternative may require approval of a waiver pursuant to BMC Section 23E.68.080.D

The Preservation Alternative would include a rectangular plaza along the west half of the Harold Way frontage rather than a corner entry plaza as proposed for the project. New construction would feature punched windows throughout, which relates to the historic buildings in the area and is reflective of early twentieth-century construction methodologies. Cladding would be stucco, with use of different colors to distinguish base, middle and upper floors of the new construction. Cladding along the base at the new Harold Way plaza would be precast stone.

The Preservation Alternative would require the following Use Permits under the C-DMU zoning provisions in addition to permits that are required for the proposed project:

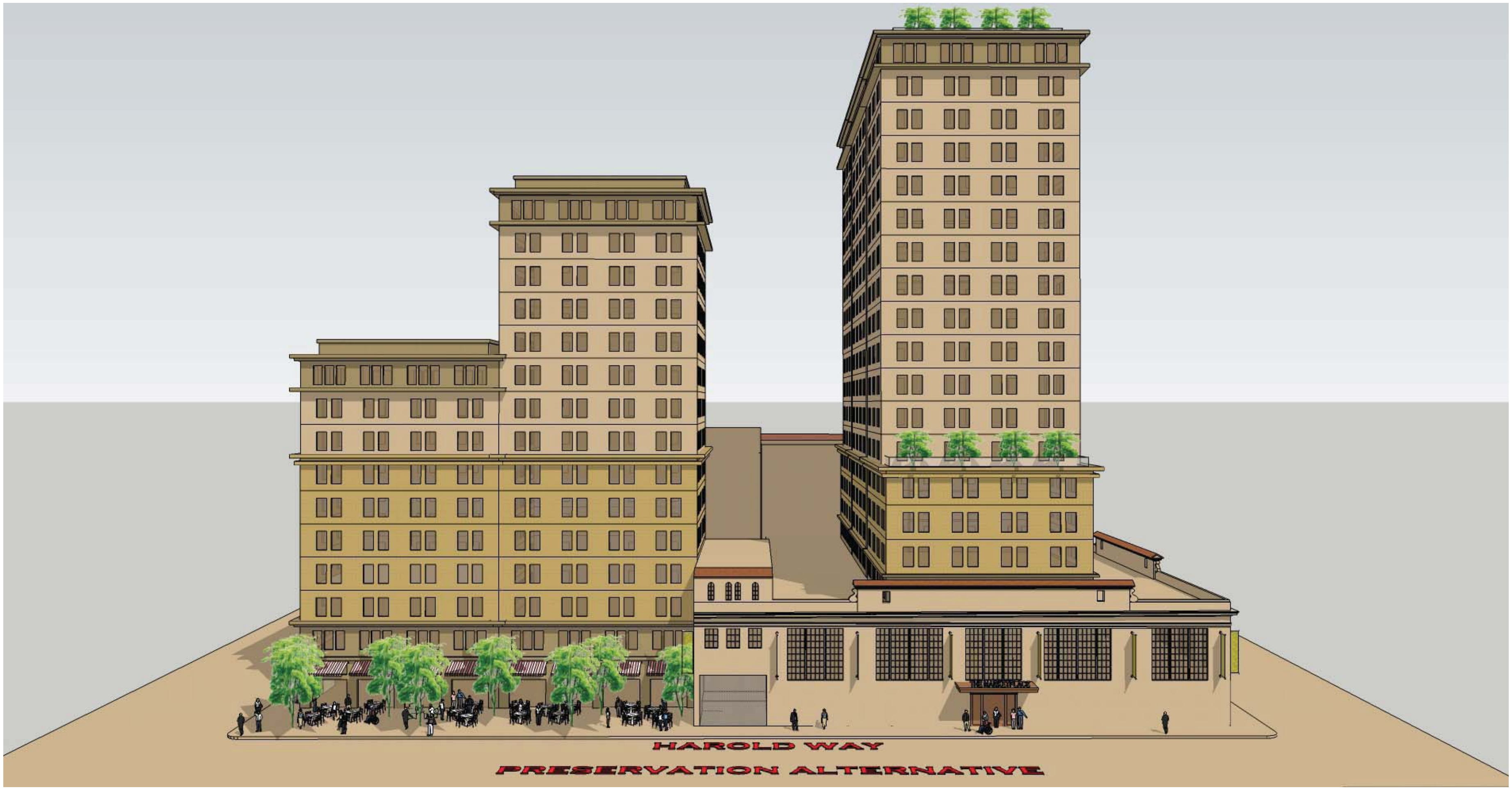
- For the 10- and 15-story portions of the new construction at the corner along Harold Way and Allston Way, a Use Permit under BMC Section 23E.68.070.C would be required to permit a zero setback along Allston and Harold Way above 75 feet (i.e., above the 6th story). By code, a 15-foot setback is required above 75 feet.
- A Use Permit would be required under BMC Section 23E.68.070.C for the portion of development exceeding 120 feet in width. By code, the portion of a building over 120 feet in height must be less than 120 feet in width when measured at the widest point on the diagonal in plain view.



Source: Architectural Resources Group, June 2014

Preservation Alternative Site Plan

Figure 5-1



Note: Potential modifications to 1926 facades to accommodate ground floor uses not shown. See discussion on pages 5-2 and 5-3.

Source: Architectural Resources Group, June 2014

Preservation Alternative Harold Way Elevation

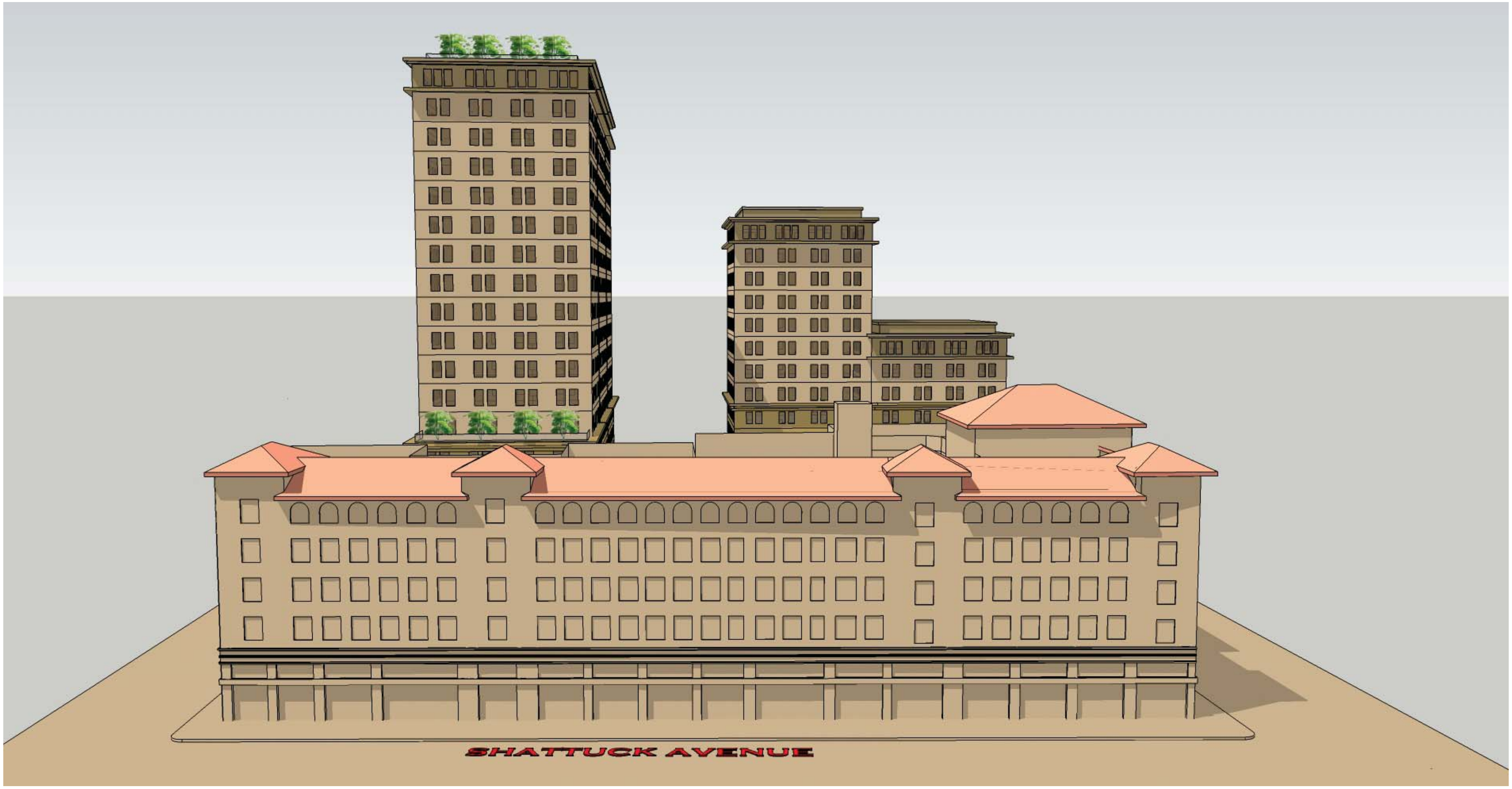
Figure 5-2

Note: Potential modifications to 1926 facades to accommodate ground floor uses not shown. See discussion on pages 5-2 and 5-3.

Source: Architectural Resources Group, June 2014

Preservation Alternative Kittredge Street Elevation

Figure 5-3



Source: Architectural Resources Group, June 2014

Preservation Alternative Shattuck Avenue Elevation

Figure 5-4

Source: Architectural Resources Group, June 2014

Preservation Alternative Allston Way Elevation

Figure 5-5

Note: Potential modifications to 1926 facades to accommodate ground floor uses not shown. See discussion on pages 5-2 and 5-3.

Source: Architectural Resources Group, June 2014

Preservation Alternative View Southeast

Figure 5-6

Note: Potential modifications to 1926 facades to accommodate ground floor uses not shown. See discussion on pages 5-2 and 5-3.

Source: Architectural Resources Group, June 2014

Preservation Alternative View Northeast

Figure 5-7

Note: Potential modifications to 1926 facades to accommodate ground floor uses not shown. See discussion on pages 5-2 and 5-3.

Source: Architectural Resources Group, June 2014

Preservation Alternative View Northwest

Figure 5-8

Source: Architectural Resources Group, June 2014

Preservation Alternative View Southwest

Figure 5-9

Note: Potential modifications to 1926 facades to accommodate ground floor uses not shown. See discussion on pages 5-2 and 5-3.

Source: Architectural Resources Group, June 2014

Preservation Alternative Plaza Detail

Figure 5-10

Note: Potential modifications to 1926 facades to accommodate ground floor uses not shown. See discussion on pages 5-2 and 5-3.

Source: Architectural Resources Group, June 2014

Preservation Alternative Entryway Detail

Figure 5-11

Note: Potential modifications to 1926 facades to accommodate ground floor uses not shown. See discussion on pages 5-2 and 5-3.

Source: Architectural Resources Group, June 2014

Preservation Alternative Entryway Detail

Figure 5-12

The Preservation Alternative would meet most of the project objectives, but would not meet all of the project objectives to the extent that the proposed project does. As discussed in Section 2.0, *Project Description*, one of the objectives of the project is to implement the DAP and Street and Open Space Improvement Plan by leveraging the full development potential under Zoning Ordinance standards to generate the revenue necessary to provide all of the community benefits envisioned in the DAP, plus additional community and public benefits, and maintain financial feasibility. The Preservation Alternative would involve substantial retention of the existing buildings onsite, including the 1912 restaurant addition along Allston Way and the alley west of the 1912 restaurant addition. This alternative would retain the front portions of the 1913 and 1926 Shattuck Hotel additions that front Kittredge Street and Harold Way, but would involve façade improvements such as expanding some existing window openings downward toward the street in a manner that is in keeping with the Secretary of the Interior's Standards or opening new storefronts in the historic walls along Harold Way and Kittredge Street. The Preservation Alternative would involve demolition of the non-historic 1959 Hink's building. New construction would occur in the interior of the block and within the footprint of the 1959 building. New construction would be considerably set back from the existing historic street façades to preserve the historic buildings.

The Preservation Alternative would reduce total building square footage onsite by approximately 15% compared to the proposed project because it would involve retention of existing buildings (total building square footage would be 261,964 square feet for the Preservation Alternative compared to 310,361 square feet for the proposed project). While the Preservation Alternative would include slightly more square footage for non-residential uses, the number of onsite residential units would be reduced from 302 to between approximately 220 and 244 units. This would generally allow the project applicant to leverage the full development potential onsite, although the development potential would be slightly less than the development potential that would be realized by the proposed project.

Another project objective is to generate high-quality market rate housing to support and contribute substantial affordable housing as required by Section 22.20.065 of the Berkeley Municipal Code and to contribute to a vibrant urban character with 500-600 new residents. The project would include 302 apartment/condominium units (including 28 affordable units). The Preservation Alternative would include fewer housing units (220-244 units) than the project. Therefore, it would meet the intent of the project objective to provide housing opportunities in the City and would contribute to the vibrant urban character of Downtown by providing new residents Downtown. However, the Preservation Alternative would not accommodate quite as many new Downtown residents as the proposed project due to the reduction in units.

One of the project objectives is to activate the pedestrian environment along Kittredge Street and Harold Way by replacing the existing structure with walkable retail and pedestrian amenities. The Preservation Alternative would create more active street frontages by improving the retained façade along Kittredge Street and Harold Way. For example, the existing window openings may be expanded downward toward the street in a manner that is in keeping with the Secretary of the Interior's Standards or new storefronts may be opened in the historic walls along Harold Way and Kittredge Street. Therefore, it would meet the project objective to activate the pedestrian environment along most of these street frontages, but would not meet the objective to the same extent as the proposed project because the Preservation Alternative would involve retention of at least a portion of the existing mid-block frontages along Kittredge Street and Harold Way. In addition, opening new storefronts in the historic walls along Harold Way and Kittredge Street, which would meet this project objective best, is possible but might require installation of new, at-grade storefront entries. Therefore, this alternative would meet this project objective but not to the same extent as the project.

Similarly, the Preservation Alternative would not meet the following project objectives to quite the same extent as the project: to transform an important urban block in Downtown Berkeley to a vital, walkable, retail-centered, transit-friendly, residential block with pedestrian amenities and to provide a superior green building using environmentally sustainable siting, development, and construction practices. The Preservation Alternative would retain the front portions of the 1913 and 1926 Shattuck Hotel additions, but would involve façade improvements such as expanding some existing window openings downward toward the street in a manner that is in keeping with the Secretary of the Interior's Standards or by opening new storefronts in the historic walls along Harold Way and Kittredge Street. As shown on Figure 2-22 in Section 2.0, *Project Description*, the project would provide pedestrian-friendly frontages on both Kittredge Street and Harold Way. The Preservation Alternative would provide pedestrian-friendly frontages; however, the frontages would not meet the project objective as well as the proposed project. Further, the Preservation Alternative would provide a slightly reduced green building design compared the proposed project because the design and siting of onsite features would be limited by retention of the front portions of the 1913 and 1926 Shattuck Hotel additions. However, the Preservation Alternative would still incorporate green building design components and would use environmentally sustainable siting, development and construction practices on the majority of the site. Therefore, it would meet the intent of this project objective, even though the green building design would be slightly less than the project. While the green building design would be slightly inferior to the project, the Preservation Alternative would require less demolition than the proposed project due to retention of portions of onsite buildings. The reduction in demolition would reduce demolition and construction debris diversion, and reduce onsite energy use temporarily during project construction as well as the amount of material needed for the new project.

This alternative would meet the following project objectives: encourage alternative modes of transportation and prioritize the safety and attractiveness of the pedestrian experience; generate significant new revenue streams for the City of Berkeley through increased property tax bases, retail revenue, jobs creation, gross receipts taxes, and new residential population that support Downtown businesses; use ecologically beneficial landscaping that promoted watershed health and creates safe, comfortable, and inviting open spaces; help preserve the historic Hotel Shattuck with certain seismic improvements; and secure Downtown as a major cinema destination by replacing aging deficient theater boxes with state-of-the-art cinemas. Additionally, the Preservation Alternative would comply with the following project objective better than the proposed project: complement Downtown's traditional character by maintaining a continuous street wall and stepping the building down at the street.

In summary, while this alternative would not be fully consistent with all of the project objectives, or realize all of them to the same extent as the proposed project, it would meet most of the project objectives.

5.2.1 Cultural Resources

As discussed in Section 4.1, *Cultural Resources*, demolition of the 1926 addition to the Shattuck Hotel and partial removal of the 1913 addition to the Hotel would cause significant and unavoidable impacts because both of these additions contribute to the hotel's historical significance and are included in the property's local landmark designation (Impact CR-1). Project impacts would remain significant and unavoidable after mitigation is incorporated. In contrast, the Preservation Alternative would retain the portions of the 1913 and 1926 Shattuck Hotel additions that front Kittredge Street and Harold Way, but would involve façade improvements to these additions. As such, this alternative would reduce demolition-related impacts to these historic additions to a less than significant level. Mitigation measures CR-1(a-d) would not be required to avoid significant impacts under this alternative.

The proposed project's design elements are partially inconsistent with the Secretary of the Interior's Standards and the Downtown Berkeley Design Guidelines and would alter the historic setting of landmarks in the City, including the Shattuck Hotel, the Public Library, and the former Elks Lodge and Armstrong College buildings (Impact CR-2). The project's design impacts would be significant but mitigable. Under the Preservation Alternative, new construction would be considerably set back from the existing historic street façades and would be consistent with the scale, massing and materials of the Shattuck Hotel and other historical resources in the vicinity. As a result, design-related impacts to historical resources would be less than significant under this alternative. Mitigation measures CR-2(a-d) would not be required.

The proposed project would partially obscure views of the San Francisco Bay, Alcatraz Island, and the Golden Gate Bridge from the base of UC Berkeley's Campanile and Campanile Way. However, the project would not involve physical alteration of the Campanile, Campanile Way or their immediate surroundings. Further, the project would not entirely block existing views of the Golden Gate and would only block a minor portion of the existing view from the middle of the top stair immediately west of the Campanile, which is identified as a formal viewpoint in the *Landscape Heritage Plan*. As such, view impacts related to historic resources would be less than significant (Impact CR-3). The Preservation Alternative would have a partially reduced footprint compared to the proposed project since this Alternative would involve retaining additional portions of the Shattuck Hotel building, resulting in a reduced square footage compared to the project. The project would be 18 stories in height on the southern half of the site and 12 stories on the northern half of the site at the intersection of Allston Way and Harold Way. For 15 feet on the northernmost portion of the site, the proposed project would step down to five stories. The 12 story portion is the portion that would be visible from the Campanile and upper Campanile Way; however, view impacts related to historic resources would be less than significant, as discussed in Section 4.1, *Cultural Resources*.

While the Preservation Alternative would retain the project's height of 18 stories on the southern half of the site, the height would step down on the northern portion of the site to 15 stories and then to 10 stories near the intersection of Allston Way and Harold Way on the northernmost portion of the site. The portion of the Preservation Alternative that would be visible from the Campanile and Campanile Way would be the 10 story portion closest to Allston Way, because existing trees on the campus would block the taller portions of the building. Therefore, the Preservation Alternative would result in a decreased view impact from the Campanile and Campanile Way compared to the project because it would reduce the building by two stories on the northernmost portion of the project site. As a result, this alternative would preserve the majority of the character-defining views of the San Francisco Bay, Alcatraz Island, and the Golden Gate from the Campanile and Campanile Way.

Further, the massing onsite would be slightly reduced under the Preservation Alternative compared to the project because the northern portion of the site would include more varied heights onsite with a gap between buildings along Harold Way. However, this portion of the site would not likely be visible from the Campanile or Campanile Way due to existing trees on the campus. Under both the proposed project and the Preservation Alternative, the primary massing onsite would be in the southern half of the site, which would not be visible from the Campanile or Campanile Way. View impacts related to historic resources would be less than the proposed project and would remain less than significant.

During construction of the proposed project, activities associated with demolition of the 1959 Hink's building, total removal of the 1926 addition to the Shattuck Hotel, and partial removal of the 1913 addition could produce ground vibration or soil movement under the existing foundation of nearby historic resources, compromising the historic building's structural stability (Impact CR-4). Project impacts would be significant but mitigable. Under the Preservation Alternative, construction-related impacts would be similar to the proposed project and, as with the proposed project, Impact CR-4 would remain less than significant with incorporation of mitigation measures CR-4(a-c).

5.2.2 Transportation/Traffic

As shown in Table 5-1, the project would total 310,361 square feet while the Preservation Alternative would total 261,964 square feet, almost 50,000 square feet less than the project. The Preservation Alternative would involve a decrease in residential uses onsite from 302 units under the proposed project to between 220 and 244 units under the Preservation Alternative (decrease of at least 58 units) and a slight increase in non-residential uses onsite. The trip generation rates and estimated trips associated with this alternative are shown in Table 5-2 below.

As shown in Table 5-2, the Preservation Alternative would generate 3,631 daily trips and 240 P.M. peak hour trips. The proposed project would generate 2,190 daily adjusted trips and 148 total adjusted P.M. peak hour trips. As such, the Preservation Alternative would generate fewer daily and peak hour trips compared to the project.

Development facilitated by the proposed project would increase existing traffic levels on the local circulation system. Under the Year 2013 scenario, all 10 intersections are forecast to operate at acceptable levels of service (Impact T-1); however, traffic from the proposed project would exceed performance standards at one study intersection under the Year 2035 scenario (Impact T-2). The Preservation Alternative would retain portions of the Shattuck Hotel and would incrementally reduce the square footage of onsite structures compared to the proposed project. As onsite uses would be reduced, traffic generated by the project would be incrementally reduced compared to the project. However, traffic impacts under the Year 2035 scenario would remain under this alternative and Mitigation Measure T-2 would be required. With mitigation, impacts would remain less than significant.

Table 5-2
Estimated Trips for Preservation Alternative

Land Use	Daily Rate	Estimated Trips	P.M. Rate	Estimated P.M. Trips
Apartment (DU) [1]	6.65	1,623	0.62	151
Retail (TSF)	42.70	389	3.71	34
Quality Restaurant (TSF)	89.95	273	7.49	23
Cinema (Seats) [2]	2.24	1,490	0.07	47
Unadjusted Total Trips	3,775		255	
Auto Mode Factor	0.580		0.580	
Adjusted Total Trips	2,190		148	

Source: ITE Trip Generation Manual, 9th Edition.
DU – dwelling units; TSF – thousand square feet
[1] For purposes of this analysis, it was assumed that the maximum number of units in the potential range of units under the Preservation Alternative would be developed.
[2] For purposes of this analysis, it was assumed that the cinema under this alternative would be a 6 theater cinema with 21,641 sf and 665 seats, which is the same size as the project's cinema.

The proposed project would generate approximately 90 net new trips during the P.M. peak hour, which is below the Alameda County Transportation Commission's threshold of 100 vehicle trips (Impact T-3). As discussed above, the Preservation Alternative would reduce daily and P.M. peak hour project traffic incrementally. As such, impacts related to the Congestion Management Program (CMP) network would remain less than significant.

5.3 CONTEXTUAL DESIGN ALTERNATIVE

The Contextual Design Alternative is designed to be consistent with the Downtown Design Guidelines and to support Downtown Area Plan Policy HD-3.1:

> ***Policy HD-3.1: Contextual Design.*** *To promote continuity between old and new, new construction and building alterations should meet streets and public spaces in contextual ways that line streets with building streetwalls and support a pedestrian-oriented public realm.*

The Contextual Design Alternative would retain essentially the same demolition and construction impacts as the project, while reducing impacts to historical resources to a less than significant level. This alternative would involve demolishing the 1926 addition and the 1959 Hink's building and partially demolishing the 1913 addition. It would retain the 1912 restaurant addition along Allston Way. The footprint of new construction and subterranean parking would be similar to the proposed project. Car garage access would be provided in the middle of the block along Kittredge Way. New construction would include a 15-foot setback above the fifth floor and zero lot-line setbacks.

The massing, scale and materials of new construction onsite would be complementary with the design of the adjacent Shattuck Hotel and the surrounding historical resources. The maximum building height of this alternative would be 18 stories. Improvements onsite would encompass approximately 289,707 gross square feet and the massing onsite would be directed toward the southwest corner of the block at Kittredge Street and Harold Way. The Contextual Design

Alternative would include 261,064 square feet of residential (269-297 units), 3,739 square feet of restaurant, 11,217 square feet of retail, and 13,690 square feet of cinema uses. Under this alternative, movie theaters would be located at the basement and first floor levels and concentrated in the eastern half of the new development, like the proposed project.

The cladding on the middle and upper floors would be stucco, with different colors to distinguish the middle and upper floors of the new construction. Cladding along the base would be precast stone. New construction would feature punched windows throughout. The mid-block, two-level open space would be accessible primarily via the rehabilitated alley south of the 1912 restaurant addition along Allston Way, as well as through the new building itself via passageways from surrounding sidewalks and via an alleyway on Kittredge Street between the back of the Shattuck Hotel and the new construction. To accommodate the double-height theater spaces below, the southernmost portion of the open space would correspond to the second floor of the new development. The proposed corner entry plaza at Harold Way and Kittredge Street would instead include zero lot-line treatment at this façade. In addition to required setbacks, horizontal band elements and vertical, fully glazed light shafts would break up building massing and reinforce the complementarity of the new construction to the Shattuck Hotel and other neighboring historic buildings.
Like the proposed project, the Contextual Design Alternative would require a Use Permit for the portion of development above 120 feet. By code, the portion of a building over 120 feet must be less than 120 feet in width when measured at the widest point on the diagonal in plan view. A plan and renderings for this alternative are shown in figures 5-13 through 5-25.

While this alternative would be similar to the proposed project and would meet most project objectives, it would not incorporate all design components of the project. Therefore, this alternative would not accomplish all of the project applicant's objectives for the site to the same extent as the project.

One of the project objectives is to complement Downtown's traditional character by maintaining a continuous street wall except to create a corner civic space to enhance the historic Library plaza across the street. The Contextual Design Alternative would eliminate the proposed corner civic space and therefore would not meet the project objective to create a corner civic space.

One of the objectives of the project is to leverage the full development potential under Zoning Ordinance standards to generate the revenue necessary to provide all of the community benefits envisioned in the DAP, plus additional community and public benefits, and maintain financial feasibility. The Contextual Design Alternative would slightly reduce the financial benefits of the project because it would slightly reduce the square footage of onsite uses. The Contextual Design Alternative would include 261,064 square feet of residential uses (269-297 units) and 28,646 square feet of retail and cinema uses compared to the project, which would include 278,185 square feet of residential uses (302 units), 10,535 square feet of retail/restaurant, and 21,641 square feet of cinema. This alternative would generally allow the project applicant to leverage the full development potential onsite, although the development potential would be slightly less than the development potential that would be realized by the proposed project due to the slight decrease in units. Because this alternative is similar to the project regarding square footage and uses, it would meet the intent of this project objective.

Another project objective is to generate high-quality market rate housing to support and contribute substantial affordable housing as required by Section 22.20.065 of the Berkeley Municipal Code and to contribute to a vibrant urban character with 500-600 new residents. The project would include 302 apartment/condominium units (including 28 affordable units). The Contextual Design Alternative would include fewer housing units (269-297 units). Therefore, it would meet this project objective because it would provide housing opportunities Downtown, although it would not quire meet the objective to the extent of the proposed project due to the slight decrease in the number of units onsite.

While this alternative would not fully achieve all of the project objectives, it would be consistent with most of the project objectives, particularly because it is similar to the proposed project with the exception of design details and a slightly reduced square footage overall. One key project objective is to maintain and enhance the key historic resource on the block and to enhance the adjacent historic Library plaza. The Contextual Design Alternative includes horizontal band elements and vertical, fully glazed light shafts to break up the project massing and reinforce the complementarity of the new construction to the Shattuck Hotel and other neighboring historic buildings. Further, this alternative would meet the following project objectives: encourage alternative modes of transportation and prioritize the safety and attractiveness of the pedestrian experience; generate significant new revenue streams for the City of Berkeley through increased property tax bases, retail revenue, jobs creation, gross receipts taxes, and new residential population that support Downtown businesses; use ecologically beneficial landscaping that promoted watershed health and creates safe, comfortable, and inviting open spaces; help preserve the historic Hotel Shattuck with certain seismic improvements; and secure Downtown as a major cinema destination by replacing aging deficient theater boxes with state-of-the-art cinemas.

Additionally, the Contextual Design Alternative would meet the project objectives to activate the pedestrian environment along Kittredge Street and Harold Way by replacing the existing structure that does not respect the public commons or pedestrian environment with vibrant, walkable retail and pedestrian amenities. The Contextual Design Alternative would include a zero lot-line treatment at Kittredge Street and Harold Way rather than a corner entry plaza as proposed for the project. However, the zero lot-line treatment at this intersection would comply with the project objective above as well as the proposed project would because it would create a vibrant, walkable pedestrian environment. Similarly, the project objective to transform an important urban block in Downtown Berkeley to a vital, walkable, retail-centered, transit-friendly, residential block with pedestrian amenities would be met under this alternative because of the zero lot-line treatment at Kittredge Street and Harold Way.

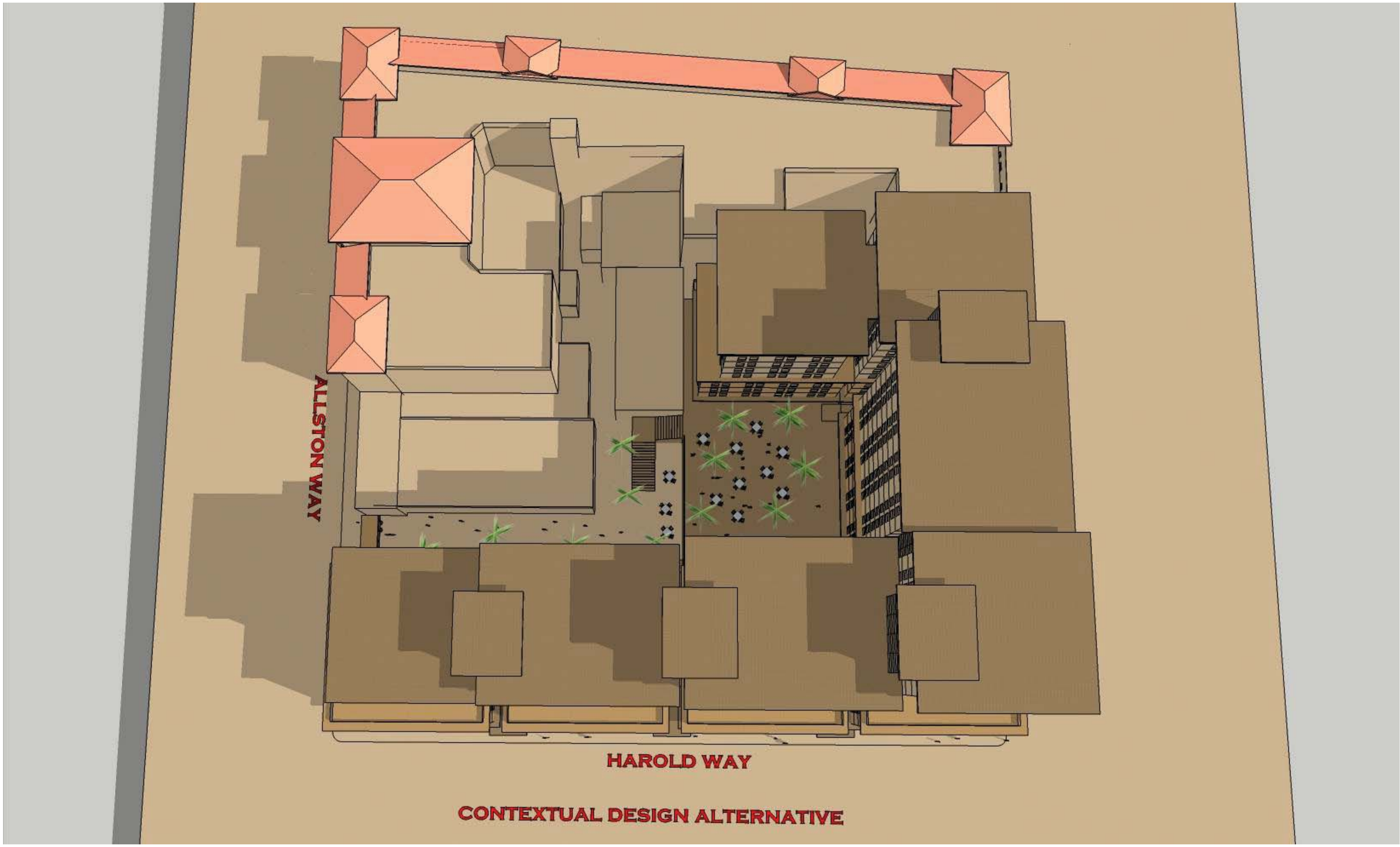
5.3.1 Cultural Resources

As discussed in Section 4.1, *Cultural Resources*, demolition of the 1926 addition to the Shattuck Hotel and partial removal of the 1913 addition to the Hotel would cause significant and unavoidable impacts because both of these additions contribute to the hotel's historical significance and are included in the property's local landmark designation (Impact CR-1). Project impacts would be significant and unavoidable after mitigation is incorporated. The Contextual Design Alternative would also involve demolition of the 1926 addition and partial removal of the 1913 addition. As such, this alternative would have the same significant and unavoidable impacts as the proposed project. Mitigation measures CR-1(a-d) would be required under this alternative and impacts would remain significant and unavoidable.

The proposed project's design elements are partially inconsistent with the Secretary of the Interior's Standards and the Downtown Berkeley Design Guidelines and would alter the historic setting of landmarks in the City, including the Shattuck Hotel, the Public Library, and the former Elks Lodge and Armstrong College buildings (Impact CR-2). The project's design impacts would be significant but mitigable. The Contextual Design Alternative was designed to avoid design impacts associated with the proposed project. The design of this alternative would reduce project impacts to a less than significant level. Mitigation measures CR-2(a-d) would not be required.

The proposed project would partially obscure views of the San Francisco Bay, Alcatraz Island, and the Golden Gate Bridge from the base of UC Berkeley's Campanile and Campanile Way. However, the project would not involve physical alteration of the Campanile, Campanile Way, or their immediate surroundings. Further, the project would not entirely block existing views of the Golden Gate and would only block a minor portion of the existing view from the middle of the top stair immediately west of the Campanile, which is identified as a formal viewpoint in the Landscape Heritage Plan. As such, view impacts related to historic resources would be less than significant (Impact CR-3). The northernmost quarter of the site is the portion of the site visible from the Campanile and Campanile Way. The project would be 18 stories in height on the southern half of the site and 12 stories on the northern half of the site at the intersection of Allston Way and Harold Way. For 15 feet on the northernmost portion of the site, the proposed project would step down to five stories. Under the project, the northern half of the site would be primarily 12 stories in height. While the Contextual Design Alternative would retain the project's height of 12 stories on part of the northern half of the site, it would include a step down to 11 stories near the intersection of Allston Way and Harold Way on the northernmost portion of the site. Half of the northern half of the site would be 12 stories in height and half would be 11 stories in height, which would be a slight reduction in height overall on the northern portion of the site compared to the project. Further, the massing onsite would be slightly reduced compared to the project because the northern portion of the site would include more varied heights onsite with gaps between buildings along Harold Way. Under both the proposed project and the Contextual Design Alternative, the primary massing onsite would be in the southern half of the site, which would not be visible from the Campanile or Campanile Way. Because the Contextual Design Alternative would involve a reduction from 12 to 11 stories on the northernmost portion of the site, view impacts related to historic resources would be slightly reduced compared to the project. Therefore, impacts would remain less than significant.

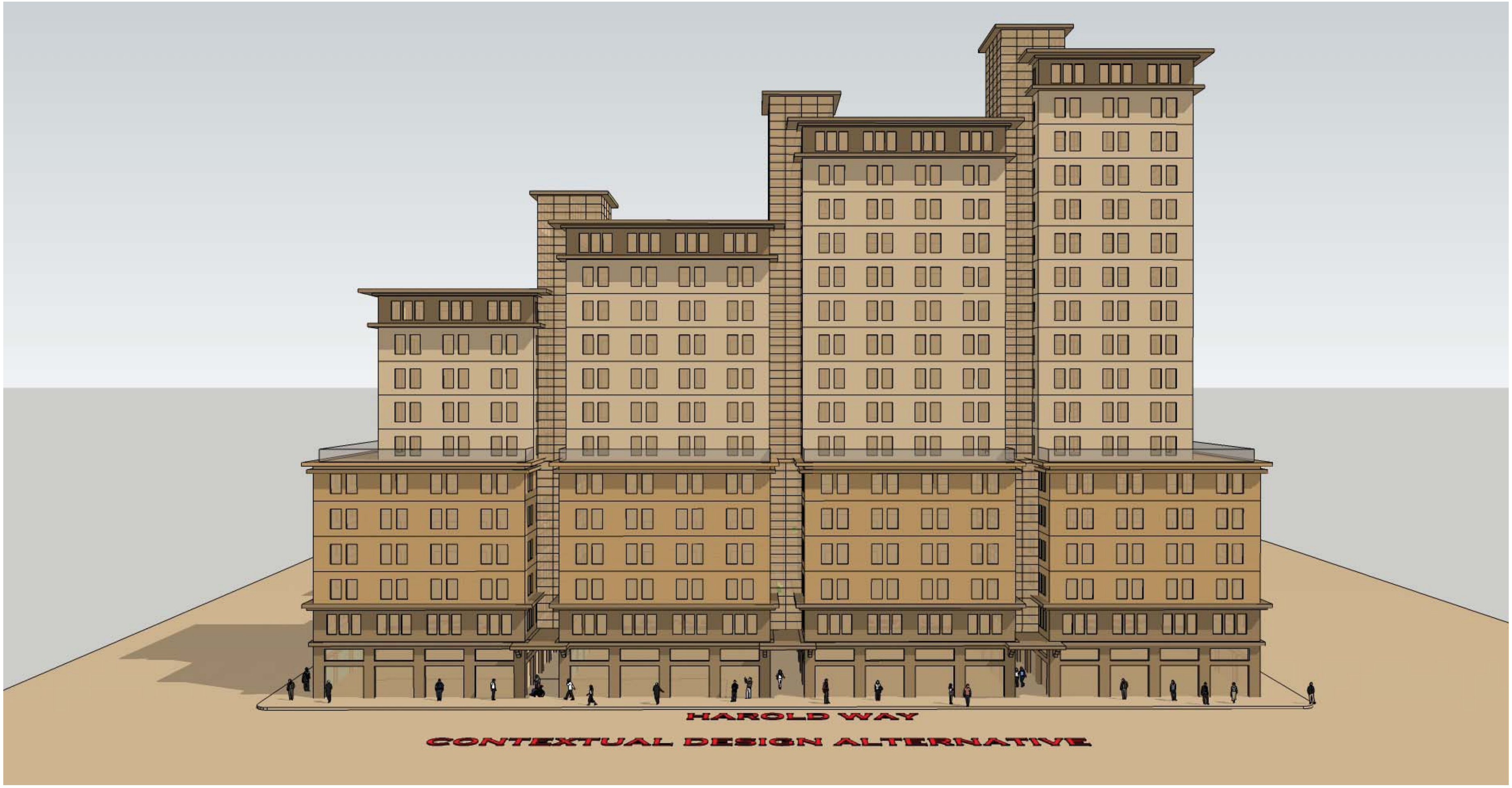
During construction of the proposed project, activities associated with demolition of the 1959 Hink's building, total removal of the 1926 addition to the Shattuck Hotel, and partial removal of the 1913 addition could produce ground vibration or soil movement under the existing foundation of nearby historic resources, compromising the historic building's structural stability (Impact CR-4). Project impacts would be significant but mitigable. Under the Contextual Design Alternative, construction-related impacts would be similar to the proposed project because this alternative would involve demolition of the Hink's building and partial removal of the Shattuck Hotel. As with the proposed project, Impact CR-4 would remain less than significant with incorporation of mitigation measures CR-4(a-c).



Source: Architectural Resources Group, September 2014

Contextual Design Alternative Site Plan

Figure 5-13



Source: Architectural Resources Group, September 2014

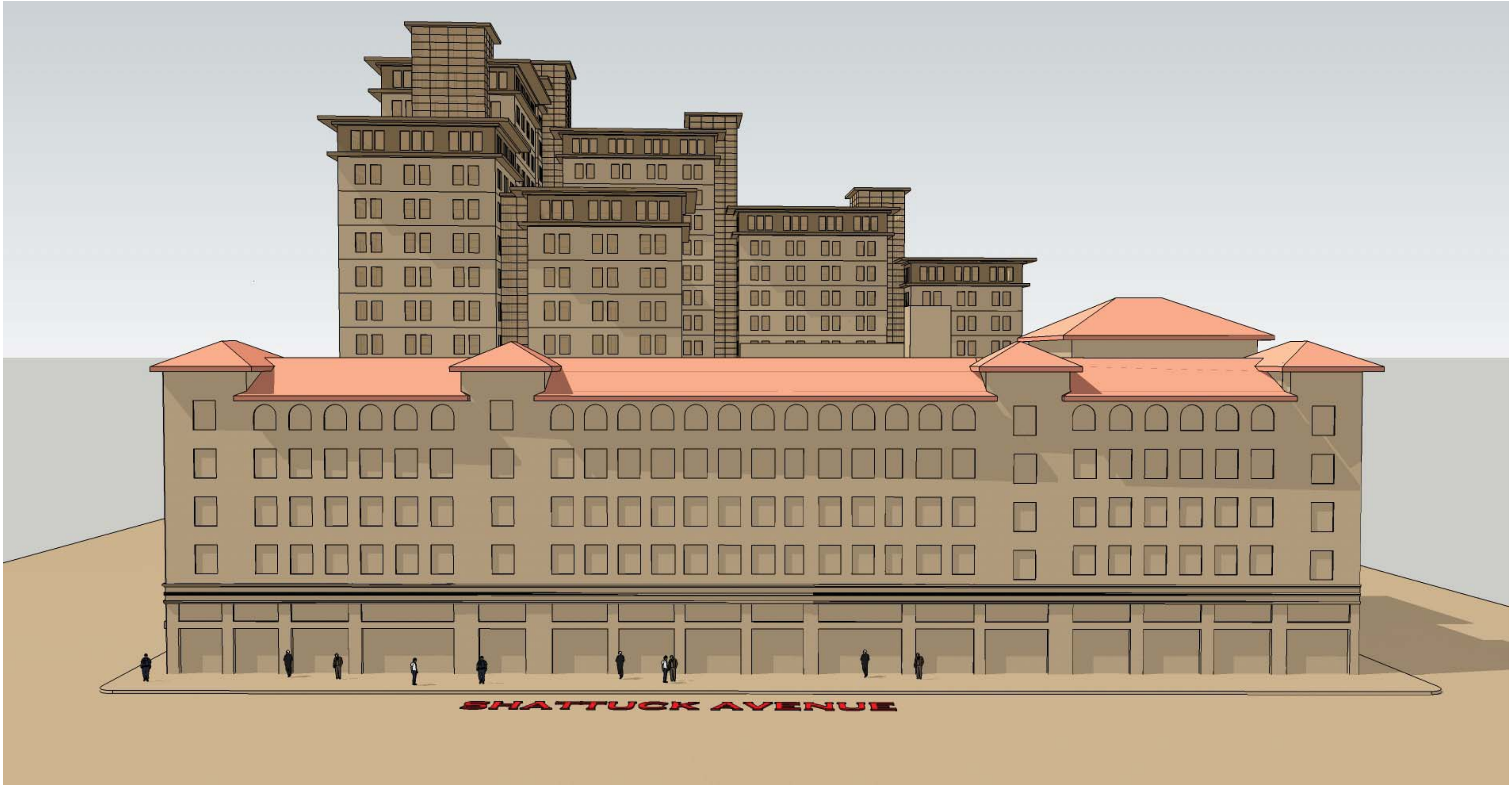
Contextual Design Alternative
Harold Way Elevation

Figure 5-14

Source: Architectural Resources Group, September 2014

Contextual Design Alternative
Kittredge Street Elevation

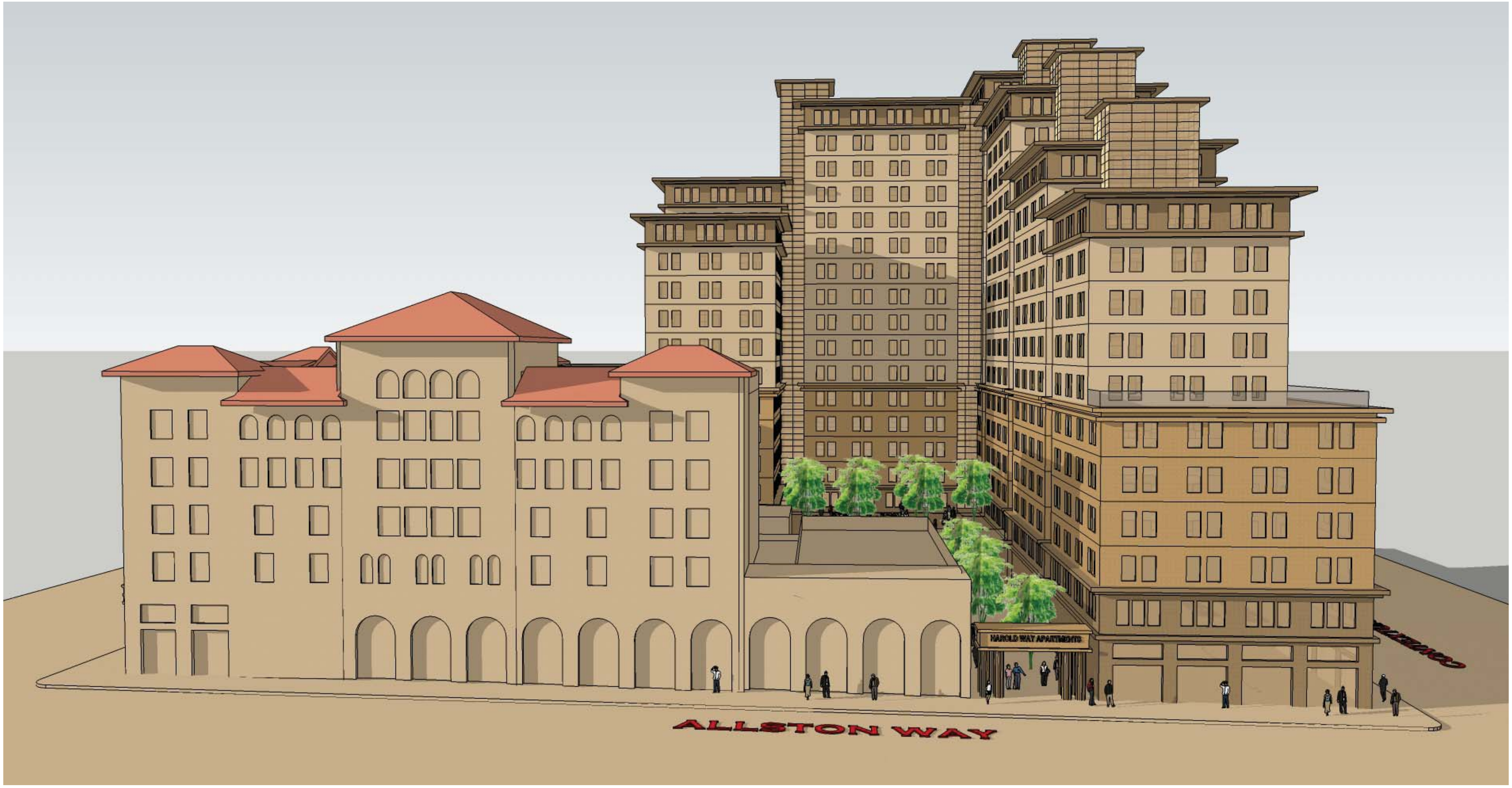
Figure 5-15



Source: Architectural Resources Group, September 2014

Contextual Design Alternative
Shattuck Avenue Elevation

Figure 5-16



Source: Architectural Resources Group, September 2014

Contextual Design Alternative
Allston Way Elevation

Figure 5-17

Source: Architectural Resources Group, September 2014

Contextual Design Alternative View Southeast

Figure 5-18

Source: Architectural Resources Group, September 2014

Contextual Design Alternative View Northeast

Figure 5-19

Source: Architectural Resources Group, September 2014

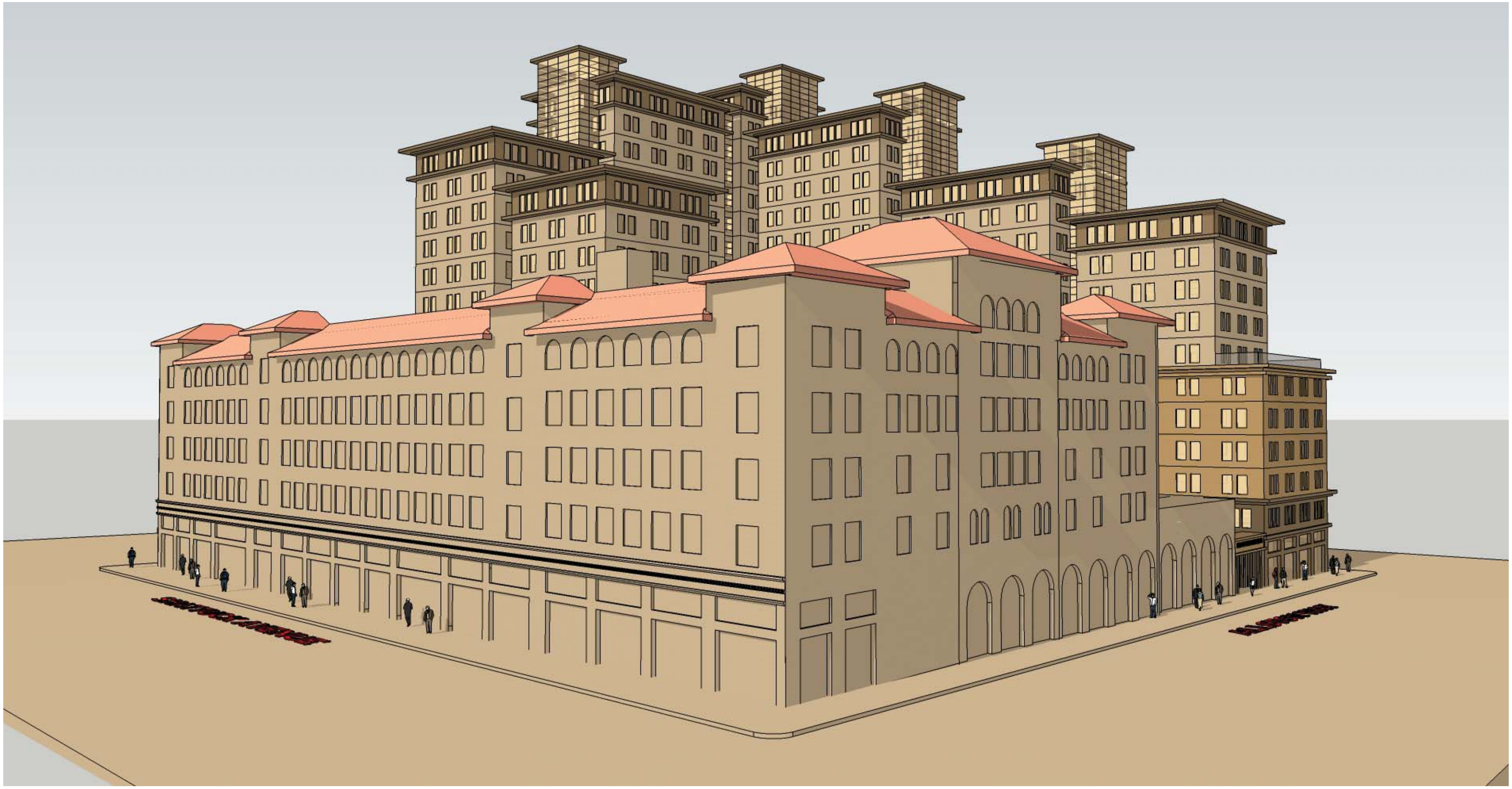
Contextual Design Alternative View Northwest

Figure 5-20

Source: Architectural Resources Group, September 2014

Contextual Design Alternative
Detail of Parking Garage Entry

Figure 5-21



Source: Architectural Resources Group, September 2014

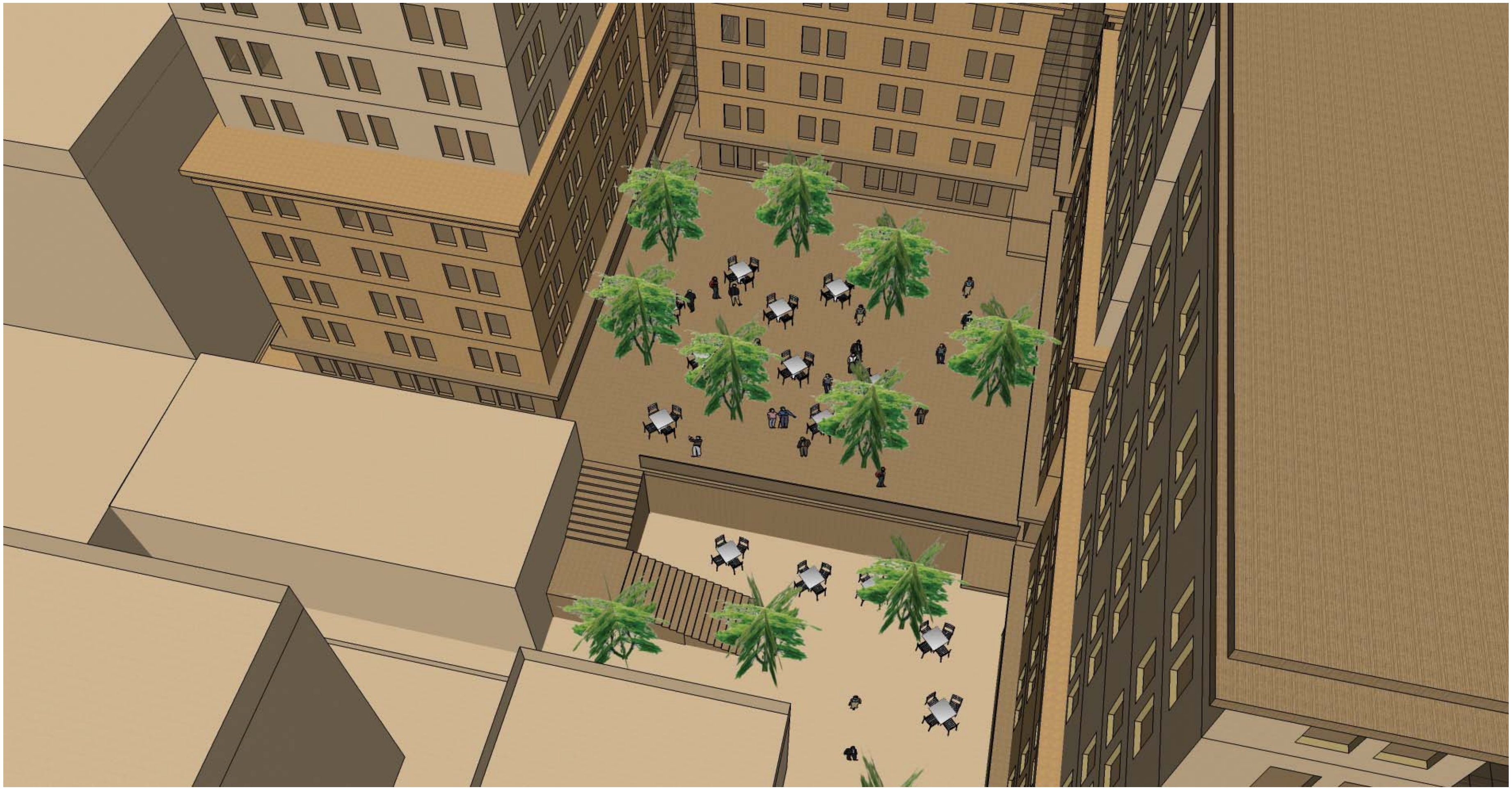
Contextual Design Alternative View Southwest

Figure 5-22

Source: Architectural Resources Group, September 2014

Contextual Design Alternative Plaza Detail

Figure 5-23



Source: Architectural Resources Group, September 2014

Contextual Design Alternative Plaza Detail

Figure 5-24

Source: Architectural Resources Group, September 2014

Contextual Design Alternative Plaza Detail

Figure 5-25

5.3.2 Transportation/Traffic

As shown in Table 5-1, the project would total 310,361 square feet while the Contextual Design Alternative would total 289,707 square feet, more than 20,000 square feet less than the project. The Contextual Design Alternative would involve a decrease in residential uses onsite from 302 units under the proposed project to between 269 and 297 units (decrease of at least five units) and a decrease in retail/cinema uses onsite. The trip generation rates and estimated trips associated with this alternative are shown in Table 5-3 below.

As shown in Table 5-3, the Contextual Design Alternative would generate 2,194 daily trips and 165 adjusted P.M. peak hour trips. The proposed project would generate 2,357 daily adjusted trips and 164 total adjusted P.M. peak hour trips. As such, the Contextual Design Alternative would generate fewer daily and peak hour trips compared to the project.

Development facilitated by the proposed project would increase existing traffic levels on the local circulation system. Under the Year 2013 scenario, all 10 intersections are forecast to operate at acceptable levels of service (Impact T-1); however, traffic from the proposed project would exceed performance standards at one study intersection under the Year 2035 scenario (Impact T-2). The Contextual Design Alternative would slightly reduce the square footage of onsite structures compared to the proposed project. As onsite uses would be reduced, traffic generated by the project would be incrementally reduced compared to the project. However, impacts under the Year 2035 scenario would remain under this alternative and Mitigation Measure T-2 would be required. Impacts would be less than significant with mitigation incorporated.

Table 5-3
Estimated Trips for Contextual Design Alternative

Land Use	Daily Rate	Estimated Trips	P.M. Rate	Estimated P.M. Trips
Apartment (DU)	6.65	1,975	0.62	184
Retail (TSF)	42.70	479	3.71	42
Quality Restaurant (TSF)	89.95	336	7.49	28
Cinema (Seats) [1]	2.24	993	0.07	30
Unadjusted Total Trips	3,783		284	
Auto Mode Factor	0.580		0.580	
Adjusted Total Trips	2,194		165	

Source: ITE Trip Generation Manual, 9th Edition.
DU – dwelling units; TSF – thousand square feet
[1] For purposes of this analysis, the project cinema square footage was reduced by one third to accommodate the reduced cinema square footage of this alternative.

The proposed project would generate approximately 90 net new trips during the P.M. peak hour, which is below the Alameda County Transportation Commission's threshold of 100 vehicle trips (Impact T-3). As discussed above, the Contextual Design Alternative would reduce project traffic incrementally daily and during the P.M. peak hour. As such, impacts related to the CMP network would remain less than significant.

5.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The No Project alternative would avoid the project's significant and unavoidable cultural resources impacts. Further, it would avoid the project's significant but mitigable impacts on cultural resources and transportation/traffic and the project's less than significant impacts on the other issue areas identified in the Infill Environmental Checklist prepared for the project (Appendix A). Consequently, the No Project alternative would be the environmentally superior alternative. However, the No Project alternative would not fulfill the basic objectives of the project stated in Section 2.0, *Project Description*. Furthermore, the No Project alternative would not include any potential benefits associated with redevelopment of the site. CEQA Guidelines §15126.6(a) states that an "EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." Therefore, the environmentally superior alternative among the development alternatives is identified below.

The Preservation Alternative would reduce the project's significant and unavoidable impact associated with demolition of historic resources as well as the project's historic resources design impacts, and would also reduce the project's less than significant impact on views from the Campanile. However, the Preservation Alternative would retain the project's significant but mitigable impact related to construction in the vicinity of historic structures (Impact CR-4). Mitigation measures CR-4(a-c) would be required under this alternative. The Contextual Design Alternative would reduce the project's historic resources design impacts and would not require mitigation measures CR-2(a-d); however, all other impacts associated with the project, including the project's significant and unavoidable impact associated with demolition of a historic resource, would remain under the Contextual Design Alternative.

Of the development alternatives being considered, the Preservation Alternative would provide the most reductions in environmental impacts. It would involve retaining the historic structures onsite, which would avoid the project's significant and unavoidable impact related to demolition of historic resources. Further, it would meet most of the project objectives. Therefore, this alternative is considered the Environmentally Superior Alternative of the development alternatives. Table 5-4 indicates whether each alternative's environmental impact is greater, lesser, or similar to that of the project for each of the issue areas studied in this Infill EIR.

Table 5-4
Comparison of Environmental Impacts of Alternatives

Issue	Alternative			
	Proposed Project Impact Class	No Project Alternative	Preservation Alternative	Contextual Design Alternative
Cultural Resources	I	+	+	=/+
Transportation/Traffic	II	+	=/+	=/+

I – Class I, significant and unavoidable impact
II – Class II, significant but mitigable impact
III – Class III, less than significant impact

+ Superior to the project
- Inferior to the project
= Similar impact to the project

6.0 REFERENCES AND REPORT PREPARERS

6.1 REFERENCES

Alameda County Assessor's Office. Property Assessment Information. 2012. Available online at: http://www.acgov.org/assessor/resources/assessment-information.htm.

Architectural Resources Group, Inc. *Historic Resources Technical Report, 2211 Harold Way Berkeley, California*. 2014.

Berkeley, City of. *Berkeley Downtown Area Plan Final Environmental Impact Report.* 2012.

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IBI Group, *2211 Harold Way Traffic and Parking Study, City of Berkeley.* May 30, 2014.

Institute of Transportation Engineers (ITE). *Trip Generation Manual*, 9th Edition. 2012.

Transportation Research Board, *Highway Capacity Manual.* 2000.

Note: please see also the references at the end of the Infill Environmental Checklist (Appendix A to this EIR).

6.2 REPORT PREPARERS

This EIR was prepared by Rincon Consultants, Inc., under contract to the City of Berkeley. Consultants involved in the preparation of the EIR are listed below.

<u>Rincon Consultants, Inc.</u>
Stephen Svete, AICP, LEED AP ND, Principal
Abe Leider, AICP CEP, Project Manager
Jonathan Berlin, Environmental Planner
Chris Bersbach, Environmental Planner
Greg Martin, Senior Planner
Morgan Wazlaw, Environmental Planner
Wade Sherman, Graphics Technician
Emily Smith, Production Coordinator

Architectural Resources Group
Charles Edwin Chase, AIA, Principal
Matthew Davis, AICP, Associate
Sarah Hahn, Architectural Historian and Preservation Planner

IBI Group
William Delo AICP, Associate
Colleen Hsieh, Transportation Engineer

Tuan and Robinson, Structural Engineers
Alan Robinson

Environmental Vision
Chuck Cornwall

Donald Ballanti, Consulting Meteorologist

Appendix A

Notice of Preparation, Responses to Notice of Preparation, Draft Infill Environmental Checklist

Planning and Development Department
Land Use Planning Division

NOTICE OF PREPARATION (NOP) OF A DRAFT ENVIRONMENTAL IMPACT REPORT AND SCOPING SESSION FOR THE PROPOSED 2211 HAROLD WAY MIXED-USE PROJECT

The City of Berkeley is preparing a Draft Environmental Impact Report (EIR) for the project identified below, pursuant to CEQA *Guidelines* Section 15183.3 ("Streamlining for Infill Projects"). An Infill Environmental Checklist is also being prepared and will be released with the Draft EIR. Project plans and other information are available at the City of Berkeley Planning and Development Department, Land Use Planning Division, 2120 Milvia Street, Berkeley, California or online at:

http://www.ci.berkeley.ca.us/Planning_and_Development/Zoning_Adjustment_Board/2211_Harold.aspx

The City of Berkeley, as Lead Agency for the project, invites you to comment on the proposed scope of the Draft EIR. This notice is being sent to the State Clearinghouse, adjacent cities, the University of California, and other interested parties. Please direct comments on this NOP to: *Aaron Sage, Senior Planner, Planning and Development Department, Land Use Planning Division, 2120 Milvia Street, Berkeley, California 94704; or asage@cityofberkeley.info (e-mail)*. Comments on the NOP must be received **on or before June 19, 2014**. In addition, comments may be provided at the EIR Scoping Meeting (see below). Comments should focus on discussing possible impacts on the physical environment, ways in which potential adverse effects might be minimized, and alternatives to the project in light of the EIR's purpose to provide useful and accurate information about such factors.

EIR PUBLIC SCOPING HEARING
The City of Berkeley will conduct a public scoping session on
June 5, 2014, 7 p.m.
North Berkeley Senior Center
1901 Hearst Avenue, Berkeley, CA

PROJECT TITLE: 2211 Harold Way Mixed-Use Project

PROJECT LOCATION: The project site is a portion of an irregularly shaped but generally square 1.63-acre larger property forming one city block in Downtown Berkeley, bounded by and fronting Shattuck Avenue to the east, Kittredge Street to the south, Harold Way to the west, and Allston Way to the north. The assessor's parcel numbers for the larger property are 057-2027-00600, -00700, -00800, and -00900. The project site itself – the primary area of proposed new development – is a 34,800 square-foot (0.8-acre), generally "L" shaped portion of the larger property, with frontage on Allston Way, Harold Way and Kittredge Street, and also includes a portion of the basement level of the adjacent Hotel Shattuck Plaza building. Figure 1 depicts the site's local context within Downtown Berkeley.

The General Plan designation for the site is Downtown (DT); Downtown Area Plan, Core Area and the site is zoned Downtown Mixed Use District (C-DMU), Core Area.

EXISTING CONDITIONS: The larger property is a fully urbanized city block that is generally level, sloping slightly downward towards the west and south. The project site – the area where existing buildings would be altered or demolished and new buildings constructed – is currently occupied by two structures, as shown on Figure 3. The first structure is a small office building with an area of US Post Office boxes on the corner of Alston Way and Harold way, which is also known as the Postal Annex building or 1959 Hink's Building, and was constructed in the 1950s. The second structure, known as the Hink's Addition/ Shattuck Cinemas, was the 1926 Hink's addition to the Shattuck Hotel building. This structure has frontage on Kittredge Street and Harold Way, and houses the Shattuck Cinema's movie theaters, part of the Habitot Children's Museum, and office space. Both buildings are two stories in height with a partial third story and a basement level (although the theater rooms occupy the equivalent of two stories of vertical space in what is essentially one level of useable space). The structural area affected by the project also extends to a portion of the basement level sitting below the street retail and Shattuck Hotel building.

Directly adjacent to the project site and on the same block is the Shattuck Hotel, a City of Berkeley Landmark, whose main lobby and entrance are on Allston Way but which also occupies the airspace above the ground floor retail along the entire block's frontage on Shattuck Avenue. Commercial uses are located along Shattuck Avenue north of and across from the project site. One block north, around the intersection of Center Street and Shattuck Avenue, are several AC Transit and UC Berkeley Shuttle bus stops serving a number of bus lines, as well as the Downtown Berkeley BART Station on Shattuck Avenue between Allston Way and Addison Street. South of the project site on Shattuck and across Kittredge Street is the Berkeley Central Library, a City of Berkeley and National historic landmark. West of the project site across Harold Way are the Dharma College and the Mangalam Center, both City of Berkeley Landmarks. Commercial land uses and a public parking structure are located north of the project site across Allston Way.

Building heights in the vicinity range from two to three-stories (portions of the Dharma College complex on Harold Way and U.S. Post Office along Kittredge Street) to the 12-story 2140–2144 Shattuck Avenue Chamber of Commerce Building (173 feet) and 14-story 2150 Shattuck Avenue First Savings/Great Western Building (180 feet). The adjacent Shattuck Hotel is five stories in height, not including the basement. Most buildings around the project site are in the two- to five-story range.

PROJECT SPONSOR: Joseph Penner, HSR Berkeley Investments, LLC, c/o Rhoades Planning Group, 1611 Telegraph Avenue, Suite 200, Oakland, California 94612.

PROJECT DESCRIPTION: The 2211 Harold Way Mixed Use Project is a proposed residential and commercial mixed-use development in Downtown Berkeley. The project's primary street frontage would be along Harold Way, although it would also front on portions of Allston Way and Kittredge Street. The existing onsite 1959 Hink's Building would be demolished, and a portion of the Shattuck Hotel (primarily the 1926 addition and interior portions of the 1913 addition) building would be removed or altered to prepare the site for construction of the proposed project, including some alteration of the underground areas.

The proposed project would have components of various heights, the highest portion reaching 180 feet in 18 stories. The project would maintain a generally continuous street wall at the edge of the abutting streets up to where the building would step back toward the interior of the site. The proposed building would step down to 54 feet (5 stories) along the street fronts, and at the street fronts would be about 10 feet shorter than the adjacent Shattuck Hotel, but would be about three feet taller than the heights of the public library across Kittredge Street and Armstrong College across Harold Way. Building step backs would occur primarily just above the fifth and 13th floors. Proposed materials are predominantly brick veneer panels, pre-cast concrete panels, glass, and glass spandrels.

The ground floor is proposed to accommodate retail and/or restaurant uses, in addition to residential lobby and amenity areas. A six-theater cinema complex would be located on the ground floor and below-ground levels. Parking would be provided in a three-level subterranean garage. The following table summarizes the basic project components.

Project Summary

Use	Gross Floor Area (Square Feet)	Units
Residential	278,185 (includes 57,893 square feet for residential circulation)*	302
Retail or Restaurant	10,535	n/a
Cinema	21,641	665 seats
Parking	79,109	171 auto 100 bike
Max. Building Height: 180 feet/18 stories		

Sources: Rhoades Planning Group and MVE Institutional, Inc., Jan. 2014
** Residential circulation (includes residential core, circulation, amenities, storage, and ancillary spaces at ground floor such as the lobby, leasing office, fire command and bike storage)*

The proposed project site plan is depicted in Figure 2 and Figure 3 shows the proposed building elevation on the west (Harold Way).

REQUESTED APPROVALS: The proposed project is subject to approvals by both the City of Berkeley's Zoning Adjustments Board and the City's Landmarks Preservation Commission. Per the Berkeley Municipal Code, it is anticipated that the proposed project would require the following discretionary approvals:

- *Use Permit for a Mixed Use Development in the C-DMU Zoning District*
- *Use Permit to allow the service of beer, wine and distilled spirits incidental to food service*

- *Administrative Use Permit to allow more than 2,000 square feet of Full Service Restaurant space*
- *Administrative Use Permit to allow amplified live entertainment incidental to food service*
- *Use Permit to construct more than 10,000 square feet of floor area*
- *Use Permit to exceed a building height of 75 feet*
- *Administrative Use Permit to allow mechanical penthouse to exceed maximum building height*
- *Use Permit to demolish a non-residential building (1959 Hink's Building)*
- *Structural Alteration Permit for the alteration of the Shattuck Hotel Landmark structure and site (1926 Hink's Department Store addition and portions of 1913 addition to be removed), and for demolition of the 1959 Hink's Building at Allston and Harold Ways.*

STREAMLINED CEQA PROCESSING FOR INFILL PROJECTS: The project qualifies for streamlined review under CEQA Guidelines Section 15183.3, due to its mixed-use nature and proximity to a major transit stop, among other site- and project-specific factors. The purpose of Guidelines section 15183.3 is to allow lead agencies to limit the topics subject to CEQA review at the project level "where the effects of infill development have been addressed in a planning level decision or by uniformly applicable development policies." The primary planning level decision is the adopted Downtown Area Plan, and the referenced environmental documentation is the 2009 Downtown Area Plan Final EIR.

PROBABLE ENVIRONMENTAL EFFECTS: City staff is completing an Infill Environmental Checklist (CEQA *Guidelines* Appendix N) for the proposed project. Based on preliminary analysis, it appears that the significant effects of the proposed project would be limited to historical resources and traffic/circulation. All other issue topics will be examined in the Infill Environmental Checklist and the preliminary determination is that potential impacts in these other issue areas could be reduced to a less-than-significant level. The Infill Environmental Checklist will be released with the Draft EIR.

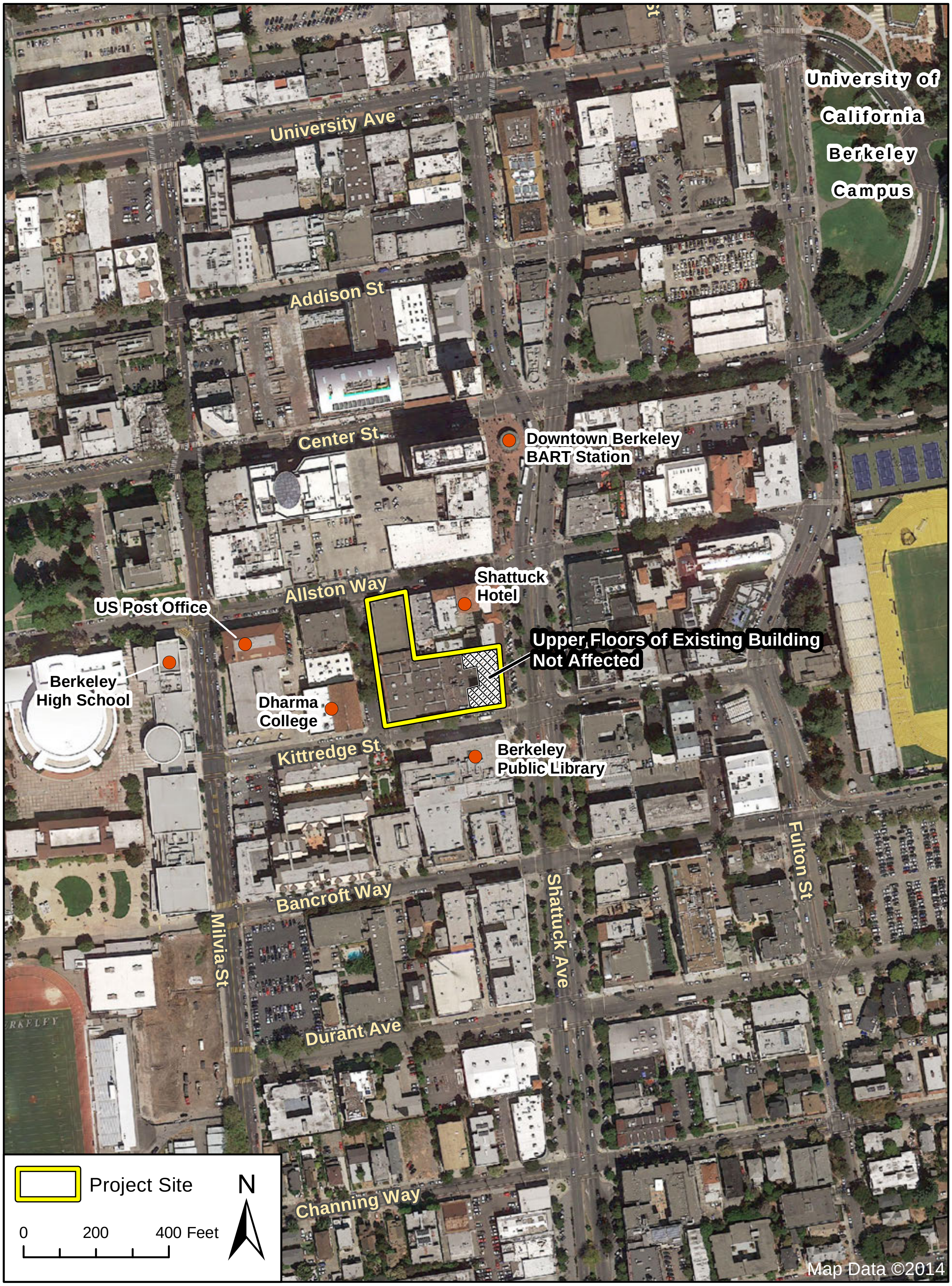
The Draft EIR will also examine a reasonable range of alternatives to the project, including the CEQA-mandated No Project Alternative and other potential alternatives that may be capable of reducing or avoiding potential environmental effects.

Aaron Sage

Aaron Sage, AICP Senior Planner

Date of Distribution: May 19, 2014

Attachments: Figure 1: Project Vicinity and Location Map
Figure 2: Proposed Site Plan
Figure 3: Proposed Building Elevations



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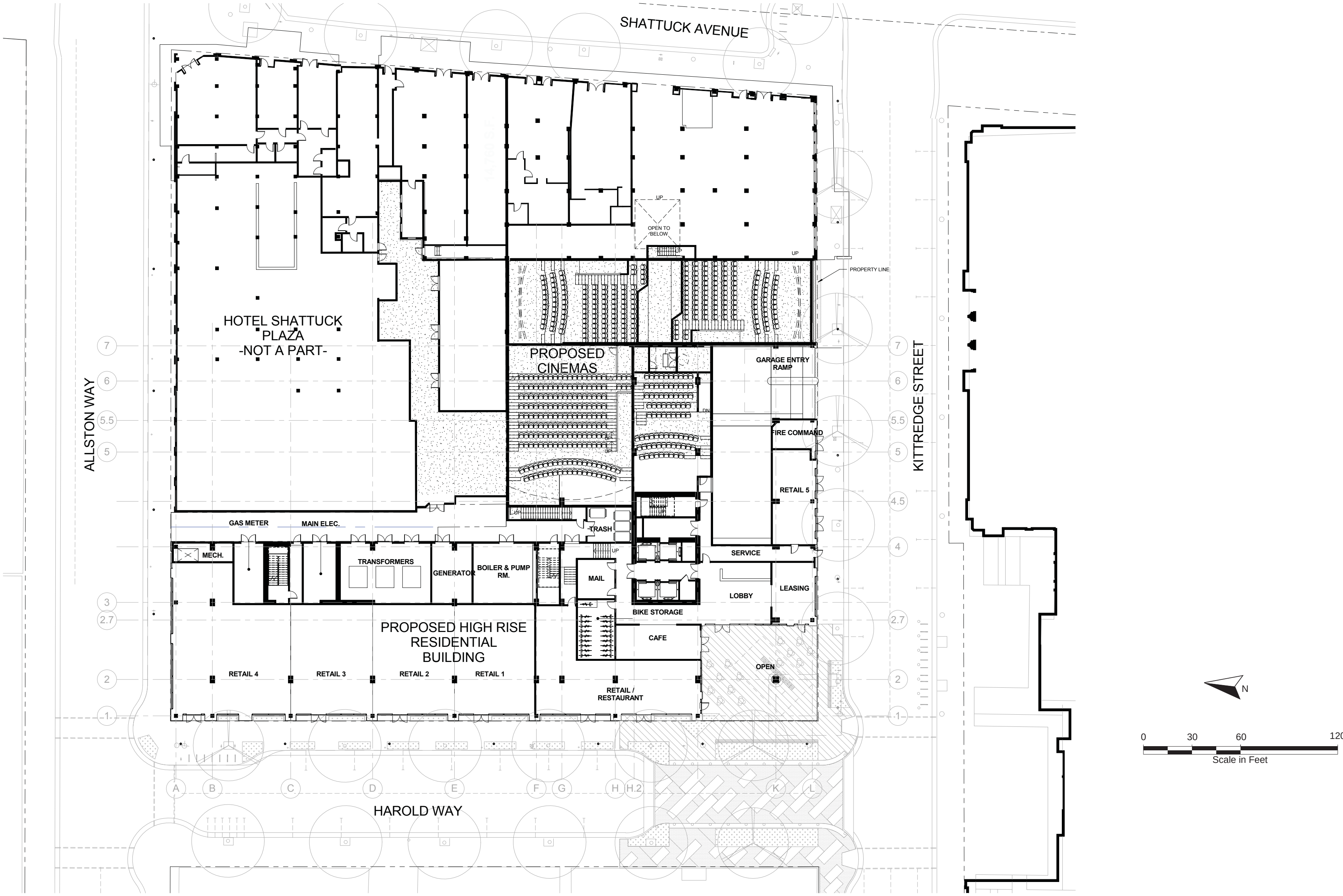
Project Location Map

Figure 1



Source: MVEI Institutional, Inc., January 2014

Proposed Site Plan

Figure 2

Source: MVEI Institutional, Inc., January 2014

Proposed Harold Way Elevation

Figure 3

Print Form

Appendix C

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: 2211 Harold Way Mixed-Use Project

Lead Agency: City of Berkeley Contact Person: Aaron Sage, AICP, Sr. Planner
Mailing Address: 2120 Milvia Street Phone: 510-981-7425
City: Berkeley Zip: 94704 County: Alameda

Project Location: County: Alameda City/Nearest Community: Berkeley
Cross Streets: Harold Way/Allston Way/Kittredge Street Zip Code: 94704
Longitude/Latitude (degrees, minutes and seconds): 37 ° 52 ′ 07 ″ N / 122 ° 16 ′ 07 ″ W Total Acres: 0.8
Assessor's Parcel No.: 057-2027-00600, -700, -800, & 900 Section: ____ Twp.: ____ Range: ____ Base: ____
Within 2 Miles: State Hwy #: 80 Waterways: SF Bay; Strawberry, Schoolhouse, Derby, Lincoln creeks
Airports: none Railways: UPRR Schools: Berkeley HS, + multiple

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Document Type:

CEQA: ☒ NOP ☐ Early Cons ☐ Neg Dec ☐ Mit Neg Dec ☐ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) ____ Other: ____
NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI
Other: ☐ Joint Document ☐ Final Document ☐ Other: ____

Local Action Type:

☐ General Plan Update
☐ General Plan Amendment
☐ General Plan Element
☐ Community Plan
☐ Specific Plan
☐ Master Plan
☐ Planned Unit Development
☒ Site Plan
☐ Rezone
☐ Prezone
☒ Use Permit
☒ Land Division (Subdivision, etc.)
☐ Annexation
☐ Redevelopment
☐ Coastal Permit
☐ Other: ____

Development Type:

☒ Residential: Units 302 Acres ____
☐ Office: Sq.ft. ____ Acres ____ Employees ____
☒ Commercial: Sq.ft. 30,000 Acres ____ Employees ____
☐ Industrial: Sq.ft. ____ Acres ____ Employees ____
☐ Educational: ____
☐ Recreational: ____
☐ Water Facilities: Type ____ MGD ____
☐ Transportation: Type ____
☐ Mining: Mineral ____
☐ Power: Type ____ MW ____
☐ Waste Treatment: Type ____ MGD ____
☐ Hazardous Waste: Type ____
☐ Other: ____

Project Issues Discussed in Document:

☒ Aesthetic/Visual
☒ Agricultural Land
☒ Air Quality
☒ Archeological/Historical
☒ Biological Resources
☐ Coastal Zone
☒ Drainage/Absorption
☐ Economic/Jobs
☐ Fiscal
☒ Flood Plain/Flooding
☒ Forest Land/Fire Hazard
☒ Geologic/Seismic
☒ Minerals
☒ Noise
☒ Population/Housing Balance
☒ Public Services/Facilities
☒ Recreation/Parks
☒ Schools/Universities
☒ Septic Systems
☒ Sewer Capacity
☒ Soil Erosion/Compaction/Grading
☒ Solid Waste
☒ Toxic/Hazardous
☒ Traffic/Circulation
☒ Vegetation
☒ Water Quality
☒ Water Supply/Groundwater
☒ Wetland/Riparian
☒ Growth Inducement
☒ Land Use
☒ Cumulative Effects
☐ Other: ____

Present Land Use/Zoning/General Plan Designation:

Land Use: commercial (office, cinema, children's museum). Zoning: Downtown Mixed Use, Core Area. GP: Downtown Area Plan

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Project Description: *(please use a separate page if necessary)*

Demolition of one structure and removal of portions of another, including eligible historic resources, and additional site preparation including excavation and soil export. Construction of a mixed use project including 302 apartment/condominium units (including 28 affordable units); six new movie theaters to replace the existing Shattuck cinemas that would be removed; 10,535 square feet of ground floor retail and/or restaurant uses; 171 parking spaces in a three-level, subterranean parking structure accessed from Kittredge Street; and seismic reinforcement of the basement and ground levels of portions of the adjacent Hotel Shattuck Plaza, a historic landmark. The proposed new building would be 18 stories/180 feet in height.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "**X**".
If you have already sent your document to the agency please denote that with an "**S**".

____	Air Resources Board	X	Office of Historic Preservation
____	Boating & Waterways, Department of	____	Office of Public School Construction
____	California Emergency Management Agency	____	Parks & Recreation, Department of
____	California Highway Patrol	____	Pesticide Regulation, Department of
X	Caltrans District #4	____	Public Utilities Commission
____	Caltrans Division of Aeronautics	X	Regional WQCB #2
____	Caltrans Planning	____	Resources Agency
____	Central Valley Flood Protection Board	____	Resources Recycling and Recovery, Department of
____	Coachella Valley Mtns. Conservancy	____	S.F. Bay Conservation & Development Comm.
____	Coastal Commission	____	San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
____	Colorado River Board	____	San Joaquin River Conservancy
____	Conservation, Department of	____	Santa Monica Mtns. Conservancy
____	Corrections, Department of	____	State Lands Commission
____	Delta Protection Commission	____	SWRCB: Clean Water Grants
____	Education, Department of	____	SWRCB: Water Quality
____	Energy Commission	____	SWRCB: Water Rights
X	Fish & Game Region #3	____	Tahoe Regional Planning Agency
____	Food & Agriculture, Department of	X	Toxic Substances Control, Department of
____	Forestry and Fire Protection, Department of	____	Water Resources, Department of
____	General Services, Department of		
____	Health Services, Department of	____	Other: ____
____	Housing & Community Development	____	Other: ____
____	Native American Heritage Commission		

Local Public Review Period (to be filled in by lead agency)

Starting Date May 19, 2014 Ending Date June 19, 2014

Lead Agency (Complete if applicable):

Consulting Firm: Rincon Consultants, Inc.
Address: 180 Grand Avenue, Suite 400
City/State/Zip: Oakland, CA 94612
Contact: Abe Leider, AICP CEP
Phone: 510-834-4455

Applicant: Joseph Penner, HSR Berkeley Investments, LLC
Address: c/o M. Rhoades, 1611 Telegraph Avenue, Suite 200
City/State/Zip: Oakland, California 94612
Phone: 510-545-4341

Signature of Lead Agency Representative: [signature] **Date:** 5/16/14

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 4
P.O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 286-6053
FAX (510) 286-5559
TTY 711
www.dot.ca.gov

Serious Drought.
Help save water!

June 18, 2014

CCVAR024
SCH# 2014052063

Mr. Aaron Sage
City of Berkeley
2120 Milvia Street
Berkeley, CA 94704

Dear Mr. Sage:

2211 Harold Way Mixed-Use Project – Notice of Preparation (NOP)

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the project referenced above. We have reviewed the NOP and have the following comments to offer.

Traffic Impact Study

During construction or starting "opening day," this project may generate traffic at volumes sufficient to impact the operations of nearby State highway facilities, and it may be necessary to prepare a Traffic Impact Study (TIS). If it is found that a TIS is not required, please provide a verifiable explanation for this finding. The following criteria are among those that may be used to determine whether a TIS is warranted:

1. The project will generate over 100 peak hour trips assigned to a State highway facility.

2. The project will generate between 50 and 100 peak hour trips assigned to a State highway facility, and the affected highway facilities are experiencing noticeable delay; approaching unstable traffic flow level of service (LOS) "C" or "D") conditions.

3. The project will generate between one to 49 peak hour trips assigned to a State highway facility, and the affected highway facilities are experiencing significant delay; unstable or forced traffic flow (LOS "E" or "F") conditions.

We recommend using the Caltrans *Guide for the Preparation of Traffic Impact Studies* for determining which scenarios and methodologies to use in the analysis. It is available at the following website address: http://dot.ca.gov/hq/tpp/offices/ocp/igr_ceqa_files/tisguide.pdf.

Lead Agency
As the lead agency, the City of Berkeley (City) is responsible for all project mitigation, including any needed improvements to State highways. The project's fair share contribution, financing, scheduling, implementation responsibilities and lead agency monitoring should be fully discussed for all proposed mitigation measures.

Vehicle Trip Reduction
Caltrans encourages you to locate any needed housing, jobs and neighborhood services near major mass transit centers, with connecting streets configured to facilitate walking and biking, as a means of promoting mass transit use and reducing regional vehicle miles traveled and traffic impacts on the State highways.

We also encourage you to develop Travel Demand Management (TDM) policies to encourage usage of nearby public transit lines and reduce vehicle trips on the State Highway System. These policies could include lower parking ratios, car-sharing programs, bicycle parking and showers for employees, and providing transit passes to residents and employees, among others. For information about parking ratios, see the Metropolitan Transportation Commission (MTC) report *Reforming Parking Policies to Support Smart Growth* or visit the MTC parking webpage: http://www.mtc.ca.gov/planning/smart_growth/parking.

In addition, secondary impacts on pedestrians and bicyclists resulting from any traffic impact mitigation measures should be analyzed. The analysis should describe any pedestrian and bicycle mitigation measures and safety countermeasures that would in turn be needed as a means of maintaining and improving access to transit facilities and reducing vehicle trips and traffic impacts on State highways.

Traffic Impact Fees
Please identify traffic impact fees to be used for project mitigation. Development plans should require traffic impact fees based on projected traffic and/or based on associated cost estimates for public transportation facilities necessitated by development. Scheduling and costs associated with planned improvements on Caltrans right of way should be listed, in addition to identifying viable funding sources correlated to the pace of improvements for roadway improvements, if any.

Should you have any questions regarding this letter, please call Keith Wayne of my staff at 510-286-5737 or keith_wayne@dot.ca.gov.

Sincerely,

ERIK ALM, AICP
District Branch Chief
Local Development - Intergovernmental Review

c: Scott Morgan, State Clearinghouse

ALAMEDA
County Transportation Commission
1111 Broadway, Suite 800, Oakland, CA 94607 • 510.208.7400 • www.AlamedaCTC.org

June 18, 2014

Aaron Sage
Senior Planner
City of Berkeley
Planning and Development Department
2120 Milvia St
Berkeley, CA 94704

SUBJECT: Response to Notice of Preparation of a Draft Environmental Impact Report (DEIR) for the 2211 Harold Way Mixed-Use Project

Dear Mr. Sage,

Thank you for the opportunity to comment on the Notice of Preparation of a Draft Environmental Impact Report (DEIR) for the 2211 Harold Way Mixed-Use Project. The project site is a portion of a 1.63-acre property forming one city block in Downtown Berkeley, bounded by and fronting Shattuck Avenue to the east, Kittredge Street to the south, Harold Way to the west, and Allston Way to the north. The proposed project would consist of 302 residential units, 10,535 square feet of retail or restaurant, a 665 seat cinema, 171 auto parking spaces, and 100 bicycle parking spaces.

The Alameda County Transportation Commission (Alameda CTC) respectfully submits the following comments:

<u>Basis for CMP Review</u>

- The City of Berkeley adopted Resolution No. 56593 on September 29, 1992 establishing guidelines for reviewing the impacts of local land use decisions consistent with the Alameda County Congestion Management Program (CMP). It appears that the proposed project will generate at least 100 p.m. peak hour trips over existing conditions, and therefore the CMP Land Use Analysis Program requires the City to conduct a transportation impact analysis of the project.

<u>Use of Countywide Travel Demand Model</u>

- The Alameda Countywide Travel Demand Model should be used for CMP Land Use Analysis purposes. The CMP was amended on March 26th, 1998 so that local jurisdictions are responsible for conducting travel model runs themselves or through a consultant. The City of Berkeley and the Alameda CTC signed a Countywide Model Agreement on September 15, 2010. Before the model can be used for this project, a letter must be submitted to the Alameda CTC requesting use of the model and describing the project. A copy of a sample letter agreement is available upon request. The most current version of the Alameda CTC Countywide Travel Demand Model is the August 2011 update, however a new model version will be released on July 1, 2014.

Impacts

- The DEIR should address all potential impacts of the project on the Metropolitan Transportation System (MTS) roadway network.
  - MTS roadway facilities in the project area include Shattuck Way, Martin Luther King Jr. Way, University Avenue, Dwight Way, Bancroft Way, Ashby Avenue (SR-13), Interstate 880, and San Pablo Avenue (SR-123).
  - For the purposes of CMP Land Use Analysis, the Highway Capacity Manual 2010 freeway and urban streets methodologies are the preferred methodologies to study vehicle delay impacts.
  - The Alameda CTC has *not* adopted any policy for determining a threshold of significance for Level of Service for the Land Use Analysis Program of the CMP. Professional judgment should be applied to determine the significance of project impacts (Please see chapter 6 of 2013 CMP for more information).

- The DEIR should address potential impacts of the project on Metropolitan Transportation System (MTS) transit operators.
  - MTS transit operators potentially affected by the project include BART and AC Transit.
  - Transit impacts to consider include the effects of project vehicle traffic on mixed flow transit operations, transit capacity, transit access/egress, need for future transit service, and consistency with adopted plans. See Appendix L of the 2013 CMP document for more details.

- The DEIR should address potential impacts of the project to cyclists on the Countywide Bicycle Network.
  - Countywide bicycle facilities near the project area include Channing Way, Hearst Avenue, and Milvia Street.
  - Bicycle related impacts to consider include effects of vehicle traffic on bicyclist conditions, site development and roadway improvements, and consistency with adopted plans. See Appendix L of the 2013 CMP document for more details.

- The DEIR should address potential impacts of the project to pedestrians in Countywide Pedestrian Plan Areas of Countywide Significance.
  - The project is within Downtown Berkeley and therefore is within an Area of Countywide Significance as defined in the Countywide Pedestrian Plan.
  - Pedestrian related impacts to consider include effects of vehicle traffic on pedestrian conditions, site development and roadway improvements, and consistency with adopted plans. See Appendix L of the 2013 CMP document for more details.

Mitigation Measures

- Alameda CTC policy regarding mitigation measures is that to be considered adequate they must be:
  - Adequate to sustain CMP roadway and transit service standards;
  - Fully funded; and
  - Consistent with project funding priorities established in the Capital Improvement Program of the CMP, the Countywide Transportation Plan (CWTP), and the Regional Transportation Plan (RTP) or the federal Transportation Improvement Program, if the agency relies on state or federal funds programmed by Alameda CTC

- The DEIR should discuss the adequacy of proposed mitigation measure according to the criteria above. In particular, the DEIR should detail when proposed roadway or transit route improvements are expected to be completed, how they will be funded, and the effect on service standards if only the funded portions of these mitigation measures are built prior to Project completion. The DEIR should also address the issue of transit funding as a mitigation measure in the context of the Alameda CTC mitigation measure criteria discussed above.

- Jurisdictions are encouraged to discuss multimodal tradeoffs associated with mitigation measures that involve changes in roadway geometry, intersection control, or other changes to the transportation network. This analysis should identify whether the mitigation will result in an improvement, degradation, or no change in conditions for automobiles, transit, bicyclists, and pedestrians. The HCM 2010 MMLOS methodology is encouraged as a tool to evaluate these tradeoffs, but project sponsors may use other methodologies as appropriate for particular contexts or types of mitigations.

- The DEIR should consider the use of TDM measures, in conjunction with roadway and transit improvements, as a means of attaining acceptable levels of service. Whenever possible, mechanisms that encourage ridesharing, flextime, transit, bicycling, telecommuting and other means of reducing peak hour traffic trips should be considered. The Alameda CTC CMP Menu of TDM Measures and TDM Checklist may be useful during the review of the development proposal and analysis of TDM mitigation measures (See Appendices G and H of the 2013 CMP).

<u>Other</u>

- For projects adjacent to state roadway facilities, the analysis should address noise impacts of the project. If the analysis finds an impact, then mitigation measures (i.e., soundwalls) should be incorporated as part of the conditions of approval of the proposed project. It should not be assumed that federal or state funding is available.

Thank you for the opportunity to comment on this NOP. Please contact me at (510) 208-7405 or Matthew Bomberg of my staff at (510) 208-7444 if you have any questions.

Sincerely,

Tess Lengyel
Deputy Director of Planning and Policy

cc: Matthew Bomberg, Assistant Transportation Planner
file: CMP/Environmental Review Opinions/2014

THE BERKELEY ARCHITECTURAL HERITAGE ASSOCIATION

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RECEIVED

JUN 17 2014

LAND USE PLANNING

June 16, 2014

Aaron Sage, Senior Planner
Planning and Development Department
Land Use Planning Division
2120 Milvia Street
Berkeley, California 94704

Re: **Environmental Impact Report on 2211 Harold Way Mixed-Use Project**

Dear Mr. Sage:

The Berkeley Architectural Heritage Association (BAHA) is deeply concerned about the potential effects of the Harold Way project. That huge development would be on one of Berkeley's most historic and sensitive sites. The environmental impact report must rigorously assess the project's impacts and describe truly effective mitigation measures and project alternatives that would eliminate or lessen the impacts.

First, it is vital to avoid some people's apparent tacit, but quite false, notion that this site's owner is *entitled* to have on it a huge, 180-foot-high building. Although voter-approved Measure R and the Council-adopted Downtown Area Plan (DAP) and C-DMU zoning district do provide for constructing three 180-foot buildings within the Core Area, it does not follow that such a building would necessarily be acceptable on any *particular* site—especially on a site that, like this one, is officially landmarked. One of Measure R's and the DAP's most basic concerns is preserving historic resources. For example, Measure R's important Policy 3 states, "Preserve historic buildings and provide [please note:] where appropriate for their rehabilitation, adaptive reuse and/or intensification." Similarly, the DAP's Policy HD-1.1 states, "Preserve historic buildings and sites of Downtown, and provide where appropriate for their adaptive reuse and/or intensification." The meaning of "where appropriate" is clarified especially by Policy HD-1.1's Action B (see quotation therefrom in a later part of this letter). The Zoning Ordinance makes any new building subject to obtaining a Use Permit and meeting the specific and general criteria therefor. Also, of course, very pertinent are the regulations in the Landmarks Preservation Ordinance.

Project Description and Related Information

The EIR must clearly describe the full scope of the project—including what it would do in the street-level and basement commercial spaces, along Shattuck Avenue, that are underneath much of the hotel per se.

The January 23, 2014, Revised Applicant's Statement is vague and confusing about what would be done in those spaces. The statement's page 4 says the project has "the potential to provide a number of reciprocal amenities to the hotel, including . . . seismic reinforcement," while page 3 says the project would include "Seismic reinforcement of [just?] the basement [sic] level of Shattuck Avenue retail spaces . . . ." Presumably this work would be in response to the building's soft-story problem. But especially if so, seismic retrofit likely is needed also for the Shattuck Avenue commercial spaces' street-level *first story*.

(Incidentally, the Notice of Preparation's own text and its Figure 1 are unclear or confusing as to whether the project would include [a] work within those spaces' first story and/or [b] work within the Shattuck Avenue-facing spaces at and near the corner of Allston Way.)

In any case the EIR should describe the *overall*, century-old building's seismic condition (a) at present and (b) as it would be after completion of the currently proposed basement and/or first-story work. It appears that several years ago the hotel did some retrofitting within its own part of the building. The EIR should describe that prior work. It should also discuss whatever additional retrofitting is planned or would be appropriate within the building's hotel portion—and say how that would or could be coordinated with the basement and/or first-story work.

Furthermore, it should study whether the current project's adjacent deep excavations or other construction work might have any adverse structural effects on the hotel building.

The EIR should clearly say what changes would or would not be made to the first-story Shattuck Avenue façades as such. For instance, would the present theater marquee be retained or redesigned? The Revised Applicant's Statement is unclear about changes to these façades. Its page 3 seems to say there would be "no . . . modifications" to them. However, its page 12 mentions "repair or restoration of missing elements (if feasible) . . . ."

In any case, the EIR should also say what would happen to the old Hink's ornamental plaster ceiling, above the passageway from the Shattuck Avenue sidewalk to the present theater area as well as above nearby spaces where it still exists or may exist.

If the project or a modified version of it eventually gains approval, provision for functioning cinemas should be essential thereto. So the EIR should describe specifically how the proposed screening rooms' actual usage as such would be guaranteed.

Impacts on Historic Buildings and District

Though the entire block bounded by Shattuck Avenue, Harold Way, Kittredge Street, and Allston Way is an officially designated Landmark site, everything that now sits on half of it would be obliterated. The project would include destroying the whole 1926 wing, which has played an important role in Berkeley's commercial history and was designed by Walter Ratcliff to visually harmonize with the Shattuck Hotel and with the former Armstrong College across Harold Way. The very tall and bulky new building could visually overpower the Shattuck Hotel, and would forever block west-facing hotel rooms' views toward San Francisco Bay. In the design of its façades the new building would mostly ignore, rather than resonate with, the historic hotel building's architectural character.

Neither Measure R nor the Downtown Area Plan and EIR thereon anticipated that such drastic change would occur on designated Landmark properties themselves. Especially pertinent is DAP Policy HD-1.1's above-mentioned Action B, which states:

"When evaluating potential modifications, adaptive reuse or intensification of designated or sufficiently documented historic resources, in addition to applying the Landmarks Preservation Ordinance, the proposed work must also be evaluated for conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings. . . . At a minimum, historic façades should be maintained and the [please note:] scale and character of additions must be compatible with the historic building."

The project obviously would not meet the Secretary of the Interior's standards and guidelines. And as most of the very wide new building would be about two to three times as high as the historic Shattuck Hotel, its "scale" clearly would not be compatible. The proposed building's compatibility as to "character" is very doubtful. It would make hardly any reference to the Shattuck Hotel, and its inclusion of large very glassy expanses quite arguably would conflict with that historic structure. Those glassy expanses evidently would also conflict with the Downtown Berkeley Design Guidelines' statement (on page 29) that "[w]indow should comprise 25–50% of upper façades visible from public areas, and should reflect the rhythm, scale, proportion, and detailing of upper windows of Landmark and Significant buildings."

With its tall slab extending nearly the full length of Harold Way, the project could visually overpower the landmarked former Armstrong College and Elks Club buildings directly across that street and would put them and the street in shadow for much of the day.

The EIR should rigorously assess the project's impact not only on the immediate Landmark site itself and the neighbors right across Harold Way but also on the surrounding potential *historic district* that the DAP identified as extending generally along Shattuck Avenue from about Durant to University Avenue, while also including some buildings along cross streets. This assessment should include comparing the proposed building's specifics with the Downtown Berkeley Design Guidelines' important section on "Subareas Where Historic Resources Are Concentrated." One of that section's key statements is:

"Design new construction and alterations to resonate with prevalent architectural characteristics of historic development in the vicinity of the project including but not limited to: materials, color, cornice, fenestration patterns, structural bays, roof form, vertical projections, overhanging elements, and motif. New features should not precisely replicate but should generally reinforce patterns associated with historic development."

Impacts on Historic Vista

The EIR on this project should rigorously assess its potential effect on the historically very important vista from the terrace adjoining the Campanile's base, and from Campanile Way, to the Golden Gate and vicinity. The EIR on the Downtown Area Plan mentioned that "some . . . scenic vistas have iconic status in the history of Berkeley, such as views from the campus [sic] over Downtown to the Golden Gate Bridge and Bay . . . ." Indeed the sweeping view from the future campus toward the Golden Gate was a major reason why the campus was located in Berkeley, long before the Campanile itself was built.

The DAP EIR failed to meaningfully weigh potential impact on this vista. Its assessment relied on a single computer simulation showing potential Downtown Berkeley construction within a view corridor looking toward the Golden Gate as seen from the Campanile's lofty observation platform—which is some 200 feet above the Campanile's base. But at least equally important, and more frequently experienced, are the view corridor's vantage points (a) from the terrace that adjoins the Campanile's base and (b) along the heavily traversed path called Campanile Way. Tour groups or people taking photos can often be seen on the terrace. And Campanile Way's significance is recognized by UC Berkeley's Landscape Heritage Plan, which says that "Campanile Way's strength is its important role as a major pedestrian access in the heart of the Classical Core and its strong visual axis and view, connecting the tower with the Golden Gate."

Protecting the vista as seen from those vantage points has been made especially important because westward views that used to be available from the campus's Central Glade have been blocked by construction of Moffitt Library and Evans Hall.

The vista's western target must not be defined narrowly. Seeing just the Golden Gate Bridge's main section and the top of Alcatraz Island would be quite insufficient. It is important to be able to see the bridge's full extent, the Presidio's northernmost part, the Marin Headlands' southern end, all of Alcatraz Island, and—in their foreground—a generous expanse of Bay water.

It appears that the project's huge new building would intrude into this crucial view corridor. The effect would be especially significant because of the structure's scale and orientation. Most of the building would alternate from about 126 feet to 184 feet high (including parapets). As measured at the sixth- through twelfth-story levels it would be Downtown Berkeley's very widest building, paralleling Harold Way for some 235 feet. And this width would be perpendicular to the view corridor.

Mitigation Measures

The project's impact could be lessened by reducing the new building's bulkiness. The EIR should especially propose reducing the height of the building's northern half.

Mitigation measures should also include at least partial redesign of the new building's façades so as to improve their compatibility with the Shattuck Hotel building and with the potential Shattuck Avenue Commercial Corridor historic district. One such measure could be reducing the façades' prominent expanses of floor-to-ceiling glass.

The old Hink's ornamental plaster ceiling's portions that are still visible (above the passageway from the Shattuck Avenue sidewalk to the theater area and over part of an adjacent shop) should be preserved and remain visible. If other portions of that ceiling remain but are now hidden from view, they should be preserved and, as soon as practicable, be made visible.

Other appropriate measures would directly involve the hotel itself, and would help to compensate for the project's major adverse effects on the overall designated Landmark. One such measure would be to closely coordinate with and financially assist further seismic retrofit of the building's hotel-owned portion. Not only would this work assist in perpetuating the historically very important building as a whole, but much of it also would directly benefit the Shattuck Avenue-facing commercial spaces by helping to guard them against potential collapse of the stories above them. Other mitigations could involve helping the hotel to restore its historic original balconies—and/or wooden window sashes—that were removed several decades ago.

Alternatives

The EIR should propose and assess alternatives in which the new building's width and/or height would be substantially reduced. These should especially include an option in which the building's northern half would not exceed a height of 60 feet.

The EIR should also seriously describe and evaluate—possibly in combination with width and height options—alternatives in which the new building's façades would be more clearly contextual with the Shattuck Hotel and with the surrounding potential historic district. They should include designing some details so as to understandably reference specific exterior features of the hotel building, and at least one option could involve reducing the currently proposed design's big glassy expanses.

Sincerely,

John McBride

John McBride,
President

EAST BAY
MUNICIPAL UTILITY DISTRICT

June 17, 2014

Aaron Sage, Senior Planner
City of Berkeley Planning and Development Department
2120 Milvia Street
Berkeley, CA 94704

Re: Notice of Preparation of a Draft Environmental Impact Report - 2211 Harold Way Mixed-Use Project, Berkeley

Dear Mr. Sage:

East Bay Municipal Utility District (EBMUD) appreciates the opportunity to comment on the Notice of Preparation of a Draft Environmental Impact Report for the 2211 Harold Way Mixed-Use Project located in the City of Berkeley (City). EBMUD has the following comments.

WATER SERVICE

EBMUD's Aqueduct Pressure Zone, with a service elevation between 100 and 200 feet, will serve the proposed development. Off-site pipeline improvements, at the project sponsor's expense, may be required to meet domestic demands and fire flow requirements set by the local fire department. Off-site pipeline improvements include, but are not limited to, replacement of existing water mains to the project site. When the development plans are finalized, the project sponsor should contact EBMUD's New Business Office and request a water service estimate to determine costs and conditions for providing water service to the proposed development. Engineering and installation of water mains and services requires substantial lead-time, which should be provided for in the project sponsor's development schedule.

The project sponsor should be aware that EBMUD will not inspect, install or maintain pipeline in contaminated soil or groundwater (if groundwater is present at any time during the year at the depth piping is to be installed) that must be handled as a hazardous waste or that may pose a health and safety risk to construction or maintenance personnel wearing Level D personal protective equipment. Nor will EBMUD install piping in areas where groundwater contaminant concentrations exceed specified limits for discharge to sanitary sewer systems or sewage treatment plants. Project sponsors for EBMUD services requiring excavation in contaminated areas must submit copies of existing information regarding soil and groundwater quality within or adjacent to the project boundary.

In addition, the project sponsor must provide a legally sufficient, complete and specific written remedial plan establishing the methodology, planning and design of all necessary systems for the removal, treatment, and disposal of all identified contaminated soil and/or groundwater. EBMUD will not design the installation of pipelines until such time as soil and groundwater quality data and remediation plans are received and reviewed and will not install pipelines until remediation has been carried out and documentation of the effectiveness of the remediation has been received and reviewed. If no soil or groundwater quality data exists or the information supplied by the project sponsor is insufficient, EBMUD may require the project sponsor to perform sampling and analysis to characterize the soil being excavated and groundwater that may be encountered during excavation or perform such sampling and analysis itself at the project sponsor's expense.

WASTEWATER

EBMUD's Main Wastewater Treatment Plant (MWWTP) and interceptor system are anticipated to have adequate dry weather capacity to treat the proposed wastewater flows from this project, provided that the project and the wastewater generated by the project meet the requirements of the current EBMUD Wastewater Control Ordinance. However, wet weather flows are a concern. EBMUD has historically operated three Wet Weather Facilities to provide treatment for high wet weather flows that exceed the treatment capacity of the MWWTP. On January 14, 2009, due to Environmental Protection Agency's (EPA) and the State Water Resources Control Board's (SWRCB) re-interpretation of applicable law, the Regional Water Quality Control Board (RWQCB) issued an order prohibiting further discharges from EBMUD's Wet Weather Facilities. Additionally, on July 22, 2009 a Stipulated Order for Preliminary Relief issued by EPA, the SWRCB, and RWQCB became effective. This order requires EBMUD to begin work that will identify problem infiltration/inflow areas, begin to reduce infiltration/inflow through private sewer lateral improvements, and lay the groundwork for future efforts to eliminate discharges from the Wet Weather Facilities.

Currently, there is insufficient information to forecast how these changes will impact allowable wet weather flows in the individual collection system subbasins contributing to the EBMUD wastewater system, including the subbasin in which the proposed project is located. As required by the Stipulated Order, EBMUD is conducting extensive flow monitoring and hydraulic modeling to determine the level of flow reductions that will be needed in order to comply with the new zero-discharge requirement at the Wet Weather Facilities. It is reasonable to assume that a new regional wet weather flow allocation process may occur in the East Bay, but the schedule for implementation of any new flow allocations has not yet been determined. In the meantime, it would be prudent for the lead agency to require the project applicant to incorporate the following measures into the proposed project: (1) replace or rehabilitate any existing sanitary sewer collection systems, including sewer lateral lines, to reduce infiltration/inflow and (2) ensure any new wastewater collection systems, including sewer lateral lines, for the project are constructed to prevent infiltration/inflow to the maximum extent feasible. Please include such provisions in the environmental documentation and other appropriate approvals for this project.

WATER CONSERVATION

The proposed project presents an opportunity to incorporate water conservation measures. EBMUD requests that the City include in its conditions of approval a requirement that the project sponsor comply with Assembly Bill 325, "Model Water Efficient Landscape Ordinance," (Division 2, Title 23, California Code of Regulations, Chapter 2.7, Sections 490 through 495). The project sponsor should be aware that Section 31 of EBMUD's Water Service Regulations requires that water service shall not be furnished for new or expanded service unless all the applicable water-efficiency measures described in the regulation are installed at the project sponsor's expense.

If you have any questions concerning this response, please contact David J. Rehnstrom, Senior Civil Engineer, Water Service Planning, at (510) 287-1365.

Sincerely,

William R. Kirkpatrick
Manager of Water Distribution Planning

WRK:TRM:sb
sb14_132.docx

cc: Joseph Penner
HSR Berkeley Investments, LLC
c/o Rhoades Planning Group
1611 Telegraph Avenue, Suite 200
Oakland, CA 94612

June 18, 2014

Mr. Aaron Sage / Planner

City of Berkeley

asage@cityofberkeley.info

Dear Mr. Sage:

I am writing to convey comments on the Notice of Preparation of a Draft Environmental Impact Report for the **Proposed 2211 Harold Way Mixed-Use Project** in Downtown Berkeley. This letter is intended to supplement and amplify comments I made during the two scoping sessions on the project and also during Design Review, Landmarks Preservation Commission, and Zoning Adjustment Board and subcommittee meetings regarding this project during the past year.

I would like to first convey my concern that the first scoping session had to be abruptly rescheduled, with only four days posted notice, and no re-mailing of notices to affected properties.

Second, that the project has been obscurely described by an address—2211 Harold Way—that doesn't really exist, except perhaps in an assessors listing, among many site addresses—and definitely misdescribed in mailed notices and postings as a "remodel" of the Shattuck Hotel landmark, rather than the more accurate description of complete demolition of the western half of the landmark complex, and some alterations to the remaining eastern structure.

Third, that staff have refused—without giving reasons—to release the checklist / initial study of this project, thus compromising the ability of the public to make an informed assessment of the project impacts before the close of the scoping period.

Fourth, that it has been inaccurately stated to public review bodies, without correction—most recently at the ZAB at the June 12, 2014 scoping hearing—that a project of this type was studied in the DAP EIR at this site. That is not the case. A smaller building on only a fraction of this site was incorporated in the DAP EIR.

Nonetheless, I am submitting these comments for consideration by the City and environmental consultant in the development of the Draft EIR.

Sincerely,

Steven Finacom berkeley1860@gmail.com

PUBLIC SERVICES:

The Draft EIR should include an analysis of the impact of this project on inadequate public services, particularly active recreation resources, in the Downtown area. The Downtown has only a single park space—Martin Luther King, Jr. Park—which is mainly a multipurpose lawn and ceremonial plaza space. Aside from a skateboard area and a small children's playground, it has no facilities for active recreation. There are no other public parks within reasonable walking distance, except a portion of Ohlone Park, which is already heavily used.

This project will bring perhaps 500 or more new residents to downtown and, in combination with other projects entitled, proposed, or planned, will increase the population of the Downtown by thousands. Where will those thousands of residents go for their active recreation? The City has made no plan or provision for this. The DEIR should analyze the impacts on public services in this regard, and evaluate some reasonable alternatives to provide active, permanent, public recreation space—such as basketball courts, other playing courts, mini-dog park areas—serving the Downtown.

PARKING AND CIRCULATION:

The proposed three level parking garage with 171 spaces will become one of the four largest parking structures in Downtown Berkeley. (the other three are the "Library Gardens" garage a block west, a privately owned garage on Allston north of the project site, and the City of Berkeley's garage on Center Street, two blocks north).

The project team stated at the June 12 ZAB scoping session that perhaps 39 of those spaces might be available for general public parking, presumably meaning that the remaining 130+ spaces would be available for the residents of the complex: 30+ more parking spaces than bicycle parking spaces provided for residents.

Since the project is in the Downtown Core and the proponents and supporters have trumpeted the goal of a "car free" and "transit first", the project should consider an alternative that reduces the amount of structure parking space for motor vehicles. This should be considered in two respects: first, as a "stand alone" alternative to analyze with the simple goal of promoting car free housing; second, as an opportunity to reduce the number of residential units required in the structure by reducing the extremely high cost of building structure parking.

Structure parking—especially multi-level underground structure parking, adjacent to a known creek bed, as is the case with this site—is extremely expensive to build and will not provide as much income for the building owner, per square foot, as residential space. Thus, reducing the amount of parking construction could easily reduce the cost of project construction, per square foot.

In essence, one sensible project alternative to study would be an overall smaller project with fewer parking spaces and fewer residential units. This would create further opportunities for the hulking mass of the above-ground portion of the building to be reconfigured to have less impact on views and historic resources.

The project plans accompanying the NOP indicate that the parking access will be on Kittredge Street, directly across from the Central Berkeley Public Library, in an area with frequent vehicle stops for drop-off/pick-up of passengers. The DEIR should address the disruptive impacts of this entrance to circulation on this block, and the impacts of the loud “beepers” that are inevitably installed at the entrance to such garages and sound, night and day, as vehicles come in and out. This is particularly problematic within a few dozen feet of hotel rooms and a public library.

HISTORIC RESOURCES:

Historic Elements of the Shattuck block itself:

The Walter Ratcliff, Jr. designed façade of the Hinks Department Store building along Kittredge Street and turning the corner onto Allston is an extremely important part of the historic resource. Demolishing it will remove essentially 100% of what remains of the physical structure of Hinks, which was an important part of Berkeley’s civic and Downtown heritage, and a key part of the Shattuck Hotel block landmark designation.

The Hinks structure had handsome decorative detailing cornice ornamentation—still present—and large windows (still present, but painted over) on the Kittredge frontage in particular.

An alternative should be studied in which at least the Kittredge façade of the Hinks structure is retained and adaptively reused as part of the project. Entries and commercial frontage could be inserted at sidewalk level, and the historic windows could be reopened to light the floors above. The new building could then rise, with a slight setback, above that. This approach would also help better harmonize the massive new building with its historic surroundings; instead of a new building wall rising 18 stories from the sidewalk, the lower ¼ or so of that wall would be the historic façade, which was designed to mesh well with the Shattuck Hotel to the east and the historic buildings across the street on Harold Way (Armstrong College, Elks Club, etc.).

The DEIR should also take into account that the current entrance to the theatres from Shattuck Avenue is a bowdlerized version of the original, handsome, Hinks entrance. Consideration should be given to restoring this entrance area to a more historic character, as well as restoring important elements of the Shattuck Hotel façade—including clerestory windows, and balconies—that were lost in remodels of the building.

The Historic View Corridor Down Campanile Way:

The project needs to consider an alternative that does not impact the historic view corridor from the Jane K. Sather Tower / Campanile (hereafter, the Campanile) on the UC Berkeley campus.

This is a vital Berkeley historic resource, dating back to the 19th century, known worldwide, documented in numerous historic accounts, and recognized as a resource in both the Berkeley General Plan and the Downtown Area Plan.

A summary of the history of the Campanile Way view corridor is in order. I provide it here in some detail, and would be happy to talk to the DEIR consultants about further reference materials and historic resources to fully document this outline.

In the 1860s, Frederick Law Olmsted—the "Father of American Landscape Architecture"—was engaged by the private College of California to prepare a plan for their new Berkeley campus site. Olmsted's recommendations recognized the premiere natural feature of the site—that fact that from the sloping hillsides of the campus, one looked directly across the lower elevations of Berkeley to San Francisco Bay and the as yet unbridged Golden Gate. Olmsted recommended in 1866 that the campus be oriented so its view corridors and building sites faced the Golden Gate, rather than rigidly aligning with an east/west, north/south street grid. Olmsted placed a primary view corridor in what would later become the "Central Glade" of the campus, extending west from approximately the location of the future Mining Circle. "He sited two college buildings on a small terrace at the head of an allee, a central axis aligned with the Golden Gate." (Harvey Helfand, The Campus Guide: University of California, Berkeley, Princeton Architectural Press, 2002, page 5).

The College of California did not develop the campus other than some vegetation plantings and creation of a water system. In 1868 the property passed to the State of California, as part of an agreement to help found the new, public, University of California. *"But four important elements rooted in his plan for the college grounds—a central axis,* ***orientation to the Golden Gate****, picturesque creek landscaping, and the concept of the 'campus park'—****influenced subsequent plans and are in evidence to the present day****."* (Helfand, page 5). (emphasis added).

The next plan for the campus was by Wright and Sanders (San Francisco based architects). *"Responding to a larger program than the small college of Olmsted's plan, Wright and Sanders proposed a formal symmetrical arrangement of five principal buildings,* ***oriented to the west, as Olmsted had done, but situated further south along Strawberry Creek****"* on an elevated terrace north of the depression where Olmsted had sited his primary axis. (Helfand, page 7). (emphasis added). This plan was adopted by the University of California Regents.

The next year, 1869, a modified plan was prepared by Kenitzer and Farquharson, who had been runners up to Wright and Sanders. *"Adopted by the Regents in September, their plan featured six 'spacious and elegant buildings' in a staggered arrangement that* ***maintained Olmsted's***

Golden Gate axis—shifted southward and aligned with a main central building opening to a plaza and glade as Wright and Sanders had proposed. *"* (Helfand, page 7). (emphasis added).

David Farquharson, part of the team, was subsequently hired to design the first building for the campus, now known as South Hall, completed in 1873. He also designed North Hall, placed symmetrically from South Hall across the new, southward shifted, westward looking, axis.

Thus, by 1873, two key, enduring, features of the campus were established: an orientation of buildings to face the Golden Gate; placement of the first buildings symmetrically flanking a corridor to the west (which would later become Campanile Way).

In 1876 the Central Pacific (later, Southern Pacific) Railroad was induced by private developers—particularly Francis K. Shattuck, namesake of the Shattuck Hotel and owner of the land where the 2211 Harold Way project is proposed—to build a spur rail line up what is now Shattuck Avenue to Center Street. This became the terminus hub for Downtown transit and has continued as such to the present day, nearly 140 years later, when the same intersection, Shattuck / Center, serves as the central hub for the Downtown Berkeley BART station and numerous public bus and private shuttle connections.

As a result of the rail station development, a pedestrian corridor quickly developed one block up Center Street to the Oxford Street edge of the UC campus, and then into the campus itself. A curving pathway through the lower grounds connected, at Strawberry Creek, to a straight pathway that led east and uphill to the campus buildings, originally with a campus playing field (now the site of the Valley Life Sciences Building) on its left / north. This path—which is visible on numerous early campus maps and in photographs from the 19th century—is essentially the line of Campanile Way today.

At the top of the path, the walkway passed between South Hall and North Hall and ended at a campus flagpole. In the 1880s the Bacon Art and Library building was constructed symmetrically behind the flagpole, with a clock / belltower atop, facing west. Other permanent campus buildings were grouped nearby, to the northeast and east.

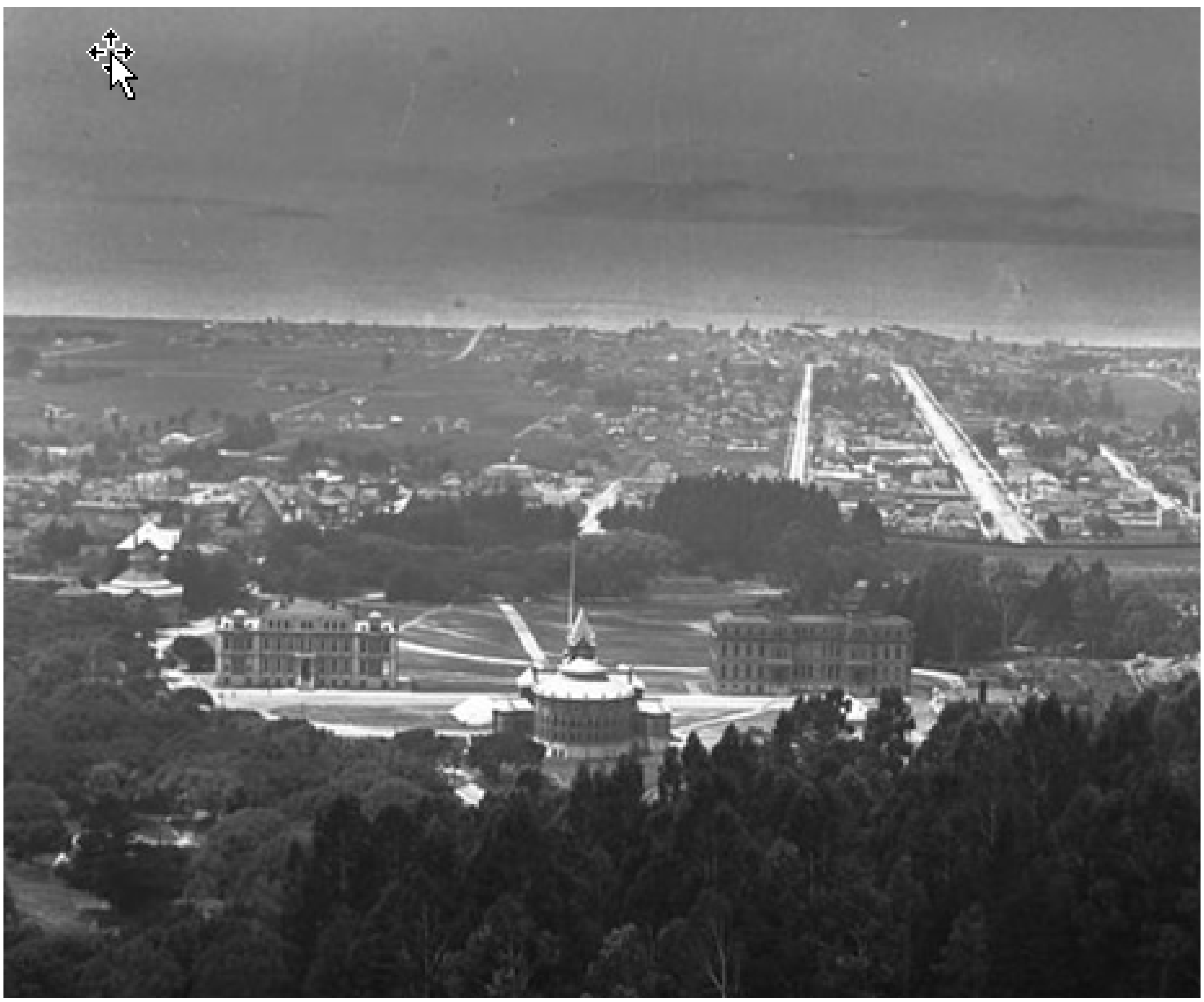
South Hall, North Hall, and Bacon Hall formed an equilateral triangle, centered on the flagpole. From the tower of Bacon Hall a bisecting view line ran west, through the flagpole, between the two other buildings, and directly out towards the Golden Gate, along the line of the footpath / campus road. All of this was in place by 1881, when Bacon Hall was completed.

Thus, all the historic elements of the present day corridor were intentionally in place, by design, 133 years ago, except for the Campanile itself which was sited to reflect the historic conditions.

This photograph, below, from the late 1890s shows North Hall (left), South Hall (right) and the flagpole in front of Bacon Hall.

The next photograph, circa 1899, shows the view looking west over these buildings. Note the cylindrical drum of Bacon Hall, the shaft of the flagpole beyond it (exactly on the site of the Campanile today) and the broad, white, roadway pointed at the Golden Gate beyond—the roadway being the early incarnation of Campanile Way. Note the way the roadway points at Alcatraz and the Golden Gate in the distance.

What is most important to understand here is that all the compositional elements of the present Campanile Way existed here in the late 18th century—a formal roadway, anchored at the east / top end by a clock / bell tower; campus buildings oriented to the Golden Gate, flanking the descending roadway; a central view corridor "exactly towards the Golden Gate".



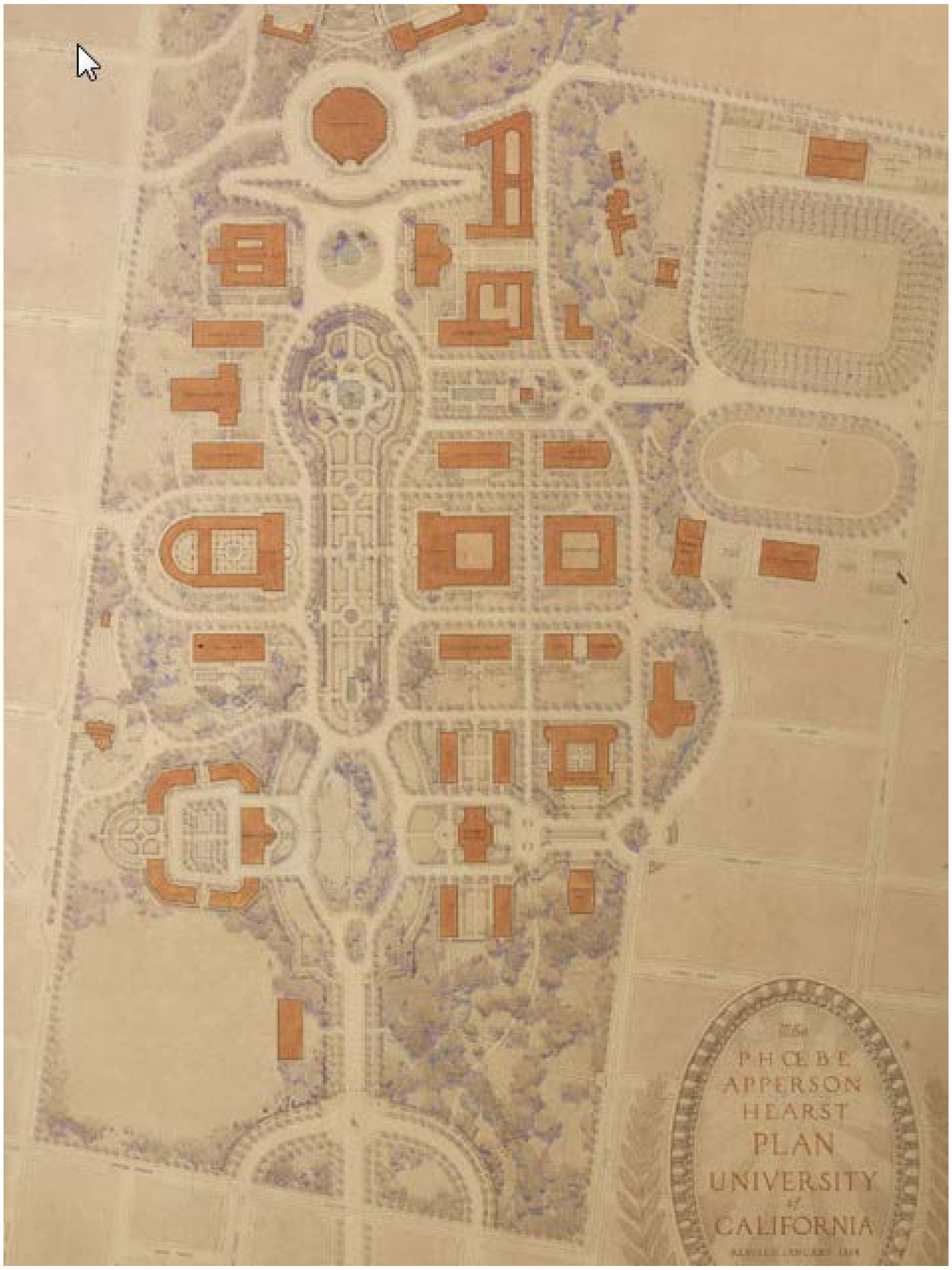
In the early 1900s when John Galen Howard was hired to implement the Phoebe Apperson Hearst Architectural Plan for the Berkeley campus, he was able to successfully persuade the UC Regents to comform to this Golden Gate orientation. Howard revived Olmsted's idea of a large axis from the Mining Circle area to the west, but he also maintained, and strengthened, what would become the Campanile Way view corridor.

Several of Howard's buildings—including his earliest to be completed (California Hall)—were aligned in descending terraces along the future Campanile Way. California Hall, Boalt (now Durant) Hall, Doe Library, and Wheeler Hall all flanked this axis and were oriented to the Golden Gate, just as the earlier North and South Halls had been to their east.

Howard's revised master plan for the campus was formally adopted in 1908 and revised and amplified in 1914 and 1917. He established Campanile Way as an east/west axis, and two key cross axes—South Hall Road, and Sather Road—intersecting it at right angles.

Howard began designing concepts for a central bell tower or campanile in 1903, and planning continued until 1913 when the present design for the Campanile was adopted and construction began. Campanile construction was completed in 1915, the same year construction began on Wheeler Hall, west of the Campanile and the fourth and final building in a grid centered on Campanile Way and Sather Road. Howard's concept for Campanile Way is shown in this elevation drawing, below, part of the Collection of the Environmental Design Archives, and in the following plan drawing from 1914.

SOURCE: John Galen Howard, *Planting Scheme, West Elevation of California Hall, Boalt Hall, and Philosophy Building* n.d. Pencil and wash on paper 12-3/4 x 38-3/4 in. John Galen Howard Collection (1955-4), Environmental Design Archives, University of California, Berkeley



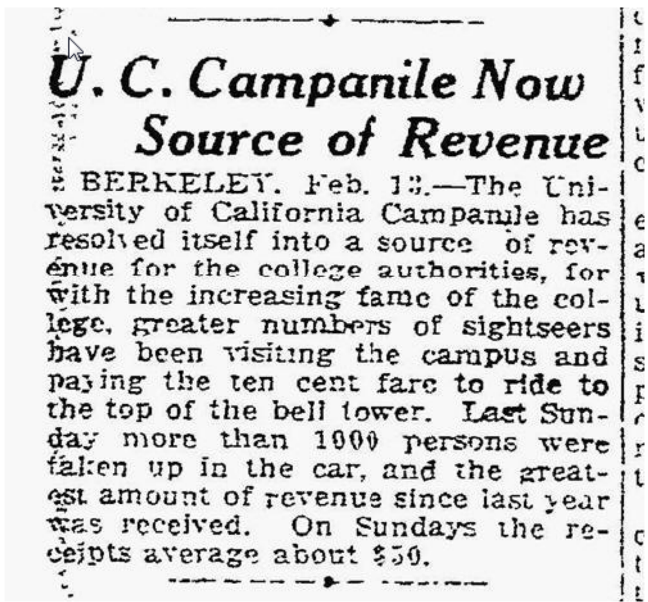
SOURCE: John Galen Howard *Phoebe A. Hearst Plan,* 1914 Pencil, ink and wash on drafting board, drawn by Stafford L. Jory 113 x 66 in. (Framed). John Galen Howard Collection (1955-4), Environmental Design Archives, University of California, Berkeley

In the 1914 Plan drawing, above, Doe Library is at the center, on the northern edge of Campanile Way, and the Campanile itself is two buildings to the east, visible as a small square on the map. The alignment of Campanile Way, westwards to Strawberry Creek, is clearly visible. In size, this is a secondary axis to the main "University Axis" to the north, extending west from Mining Circle. However, it was still a primary design element and view corridor of the campus, one of two focused to the west.

It is instructive in this regard that Howard and the Regents chose to site the most visible and monumental feature of the developing campus—their 300+ foot high Campanile—at the top of this view corridor, rather than in the other view corridor.

Howard's landscape intent for Campanile way is also visible in the elevation drawing which was, in fact, entitled "Planting Scheme" for the area. Two symmetrical rows of low trees flank the roadway; foundation plantings extend from those trees back to the facades of the flanking buildings. There are no tall trees rising between the buildings; the view, even from the base of the Campanile (visible at the top of the drawing) is emphasized and preserved over the low trees and landscaping, to the west.

After the completion of the Campanile in late 1915 and its opening to public use in 1916, it quickly became a popular destination for locals and tourists. The newspaper article, below, from early 1916, attests to the "great number of sightseers" who were paying 10 cents to visit the tower and see the views.



U. C. Campanile Now Source of Revenue

BERKELEY, Feb. 13.—The University of California Campanile has resolved itself into a source of revenue for the college authorities, for with the increasing fame of the college, greater numbers of sightseers have been visiting the campus and paying the ten cent fare to ride to the top of the bell tower. Last Sunday more than 1000 persons were taken up in the car, and the greatest amount of revenue since last year was received. On Sundays the receipts average about $50.

Oakland Tribune, February 13, 1920

As important, however, was the view established from the **base of the tower**. The Campanile was, and is, only open for a limited time each day—10-4 on weekdays, at present. It also has no disabled access to the observation platform—viewers must ascend a narrow, twisting, staircase at the end.

So the base of the tower on the west also became an essential and treasured place from which to look out to the west at the view, particularly at times—mornings, evenings, and parts of the weekends—when the observation platform was not open.

In addition, the base of the tower and the top of Campanile Way are crossed by thousands of students and campus visitors each day, unlike the tower which may be ascended only by a few score or hundreds on a given day.

Students going to and from class, and visitors taking campus tours—or a quick walk through the campus—do not have time or opportunity to go up the tower. They see the view from this lower level. Many of them see San Francisco Bay and the Golden Gate for the first time from this perspective. Compromising this view is compromising an essential element of what makes the campus special.

The importance of the view to the west from the base was emphasized by Howard by his placement of a broad set of steps (today's Murdock Steps) descending to the top of Campanile Way from the Campanile Esplanade. In 1920 the view was reinforced by the placement, approved by Howard, of a stone memorial bench honoring those from the campus who had died in service in World War I. The bench was installed at the base of the tower, so those sitting on it would face the Golden Gate view. (Helfand, page 52). The bench had to be moved, later, for other reasons to the north side of the tower but the Murdock Steps, the balustrades, and the coping of the tower landscaping serve, as they have for generations, as places for visitors and viewers to sit looking at the view.

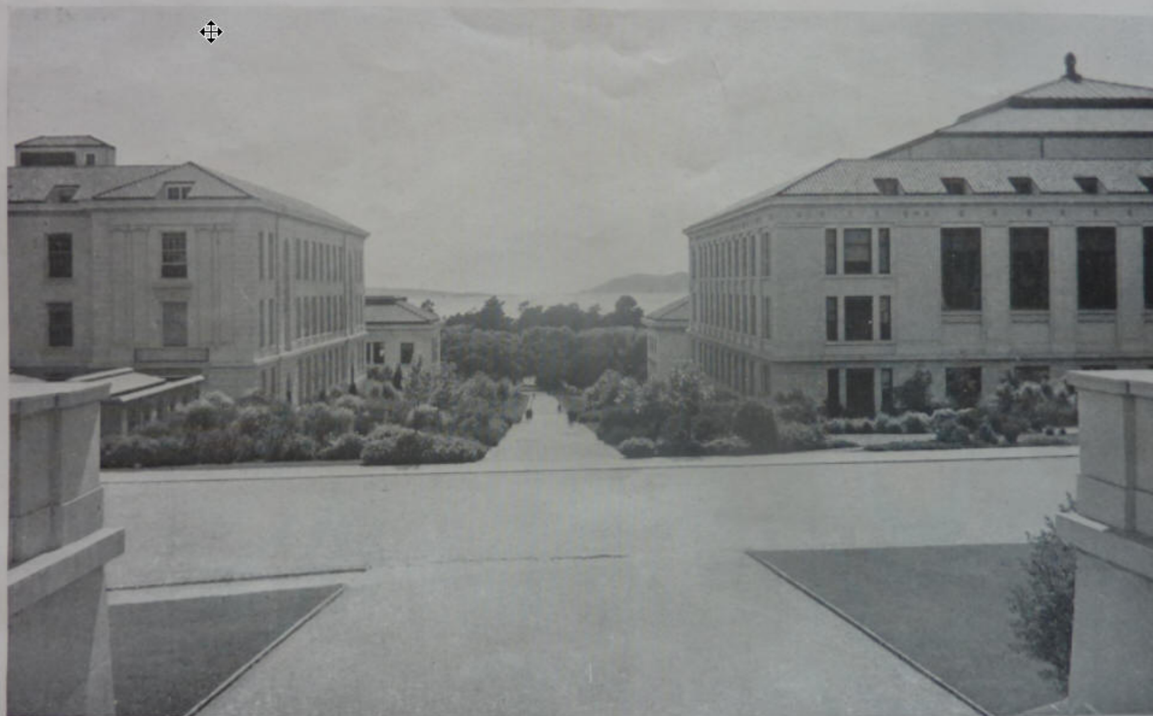
It is important to emphasize at this point that the view from the completion of the Campanile Esplanade in 1916 to the mid-1930s was of the Bay, the Golden Gate, and the Marin and San Francisco headlands—not of the famed Golden Gate Bridge. Proponents of the 2211 Harold Way project have harped endlessly over the past year on the assertion that the project doesn't compromise this view because one will probably still be able to see the bridge itself. That's not germane. It's as if an art historian were to say *"Let's restore the Mona Lisa, but let's trim off all these trees and part of the body—it's the smile that's significant, after all."* No, it's the whole picture—and, at Campanile Way, the whole historic panorama—that is important.

An analysis of this view that focuses primarily on what can be seen of the bridge itself from Campanile Way or the Campanile is not historically accurate.

This point is illustrated by the following, circa 1923, photograph from what would become the Murdock Steps.

The photograph shows:

- Howard's symmetrical and descending relationship of buildings flanking Campanile Way;
- The Way itself, lined by low foundation plantings;
- In the distance, a low border of trees along Strawberry Creek which does not obscure the Bay;
- The panorama of Bay, headlands, islands, and Golden Gate beyond.



A VIEW OF THE CALIFORNIA CAMPUS, LOOKING TOWARD THE BAY FROM THE CAMPANILE STEPS

The fully realized form of this historic view corridor is then further illustrated by the next photograph on the following page, taken from the 1952 publication California Pilgrimage, written by Robert Sibley, Executive Director of the California Alumni Association.

It shows:

(1) Campanile Way, with its lines of flanking pollarded London Plane trees;
(2) The completed buildings of the Classical Core, flanking the Way symmetrically and descending in uniform tiers down the campus slope;
(3) The adjacent formal landscaping of lawn panels, ground covers, and low tree and shrub foundation plantings

Note the caption. ***"The view down Campanile Way…and out through the Golden Gate is listed in Karl Baedaker's Guide as one of the world's great vistas."*** A clear acknowledgment that this vista—"down Campanile Way", not specifically from the observation platform of Sather Tower—was by that time, more than 60 years ago, already world famous.

The Campanile Way. *The view down Campanile Way, past California Hall, Boalt, Wheeler and the Library, and on out through the Golden Gate, is listed in Karl Baedecker's Guide as one of the world's great vistas. Here in the foreground, youth in search of truth and knowledge pass in and out of the great classes of great teachers.*

In the 1950s and 60s the Campanile Way landscaping was partially altered by Thomas Church and Lawrence Halprin,mainly by widening the hardscape to accommodate more pedestrians and the occasional service vehicle. This did not compromise the view, but haphazard maintenance of the plantings has, in some cases, allowed shrubs to grow to tree size, and trees originally not planted along the Way to grow into the viewshed.

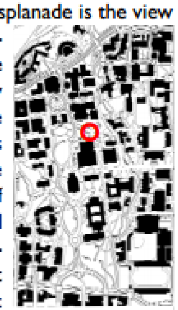
However, Campanile Way has, from its informal creation in the 1870s as a pedestrian path, and from its formalization by every subsequent campus plan, remained a permanent, key, view corridor and landscape feature of the campus.

This is reaffirmed by the current Landscape Heritage Plan and Landscape Master Plan of the campus (available online). The Landscape Heritage Plan, in particular, affirmed that the landscaping of the Classical Core of the campus (including the Campanile environs and Campanile Way) is of national significance. The Landscape Master Plan reaffirms the importance of retaining and enhancing this view corridor.

from the vehicle dominated system of roads and places new emphasis on pedestrian use. No place within the campus is more deserving of this conversion than the Classical Core. The essence of these initiatives is to restore the Classical Core to its original intent as the Beaux-Arts heart of the campus. Four of the six projects in this group are priority initiatives.

11 Campanile Environs

The Campanile (Sather Tower) sits within a formal plaza/garden of brick paths and lawn panels shaded by a grid of pollarded London Plane trees. One of the campus' more beautiful discrete classical open spaces, it is in near original condition with decorative brick paving and a grid of London Plane trees relocated from San Francisco's Panama Pacific Exposition of 1915. A remarkable element of the esplanade is the view from the base of the tower - straight out through the Golden Gate - the gateway of the West. Other notable aspects of the site include its relationship adjacent to the Central Glade. Just west of the Campanile is South Hall Road. This street and landscape form an important connector to other historic



The excerpt, above, is from page 38. Note the sentence: "a remarkable element of the esplanade is the **view from the base of the tower**—straight out through the Golden Gate—the gateway of the West." (emphasis added).

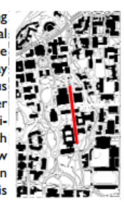
The restoration of the historical elements along this long view corridor and its renewal as a primary pedestrian pathway are vital to the organization of the campus landscape, and to a successful system of safe pedestrian circulation.

- Create a place of significance by converting the asphalt paving, ramps, curbs and walks into a level plane of special paving materials
- Control traffic uniformly with a ring of cast stone bollards like those at North Gate
- Install ceremonial pedestrian lighting at the pedestrian perimeter of the circle
- Update the west entry gatehouse in order to provide an electronic information kiosk
- Replace the grass median with evergreen flowering shrubs and replant the irregular wall of shrubs next to the Eucalyptus Grove with a tall, clipped, formal hedge
- Retain the view to Sather Tower through the management of adjacent trees

These improvements will strengthen and enhance the formal Beaux-Arts west entry to the University and simplify the flow of pedestrians and vehicles around the circle. Although the West Circle may be considered the symbolic front entrance to the campus, it is a vital and busy location. The cumulative impact from years of small, well-intended, but uncoordinated actions can be reversed by the treatment of the entire space as a coherent whole.

15 Campanile Way

Campanile Way is a primary east-west corridor linking the two campus axial termini: Sather Tower on the east and the Golden Gate and Pacific Ocean beyond on the west. Frederick Law Olmsted and William Hammond Hall first outlined the east-west corridors in the planning for the new University of California in the 1860s and 1870s. John Galen Howard subsequently formalized both Campanile Way and the much larger University Axis running parallel, through the central glades to the north of Doe Library. Campanile Way descends past paired campus buildings from Sather Tower west to California Hall, culminating at the junction with Strawberry Creek. The view westward to the Golden Gate is obscured beyond this point. Pollarded London Plane trees were planted in rows on either side of the pedestrian corridor early in the 20th century, and most of them remain. A formal paving material was never designated and the way was paved with asphalt. A decorative gutter of brick was also laid along part of the route, though it is currently deformed or missing along much of its length.



Priority Initiative

As one stands at the top of the stairs below Sather Tower and gazes out toward the Golden Gate Bridge, the unfortunate condition of the spotty planting, patched asphalt surface, missing brick gutter and intermittent plane trees mar the grandeur of the space. Campanile Way has multiple roles as a view corridor, pedestrian corridor, service vehicle route and temporary parking zone; all of which are in need of clarification. The daily conflicts due to pedestrian and service vehicle use are a hazard. A proper terminus is needed at the Valley Life Sciences Building to announce the western terminus of this important axial corridor. Restoration of this primary pedestrian corridor proposes to:

- Provide a special paving for the pathway with consideration of using of a historic brick edging

The excerpt above (page 42) regarding Campanile Way again states the importance of this view corridor and sets out specific steps to correct conditions, such as uneven landscaping and poor hardscape, that detract from the view. Note *"Campanile Way has multiple roles as a view corridor…" and also "**as one stands at the top of the stairs below Sather Tower and gazes out toward the Golden Gate Bridge…**"*

Here again campus policy and historical study reaffirms the importance of the <u>view from the base of the tower</u>—not just its observation deck—and the University's policy to continue to maintain and enhance this view as part of a key, historic, vista of the campus.

That view is now endangered by the 2211 Harold Way project, as has been acknowledged by the project applicants who have stated in public presentations throughout the project, that the portions of the proposed building would rise high enough to intrude into the historic view corridor.

An absolutely appropriate—and, indeed, necessary—element of the Draft EIR must be a through documentation of the impacts of the proposed building on the entire Campanile Way view corridor.

This view was not analyzed in the Downtown Plan EIR, which only assessed view impacts from the observation level of the Campanile. The DAP EIR also did not study a building of the size / siting of 2211 Harold Way—instead, it incorporated a much smaller building, inserted onto just a sliver of the site along Allston Way.

When the view impacts are analyzed in the DEIR, the analysis should take into account these factors:

1. The **historic viewshed is the entire space of Campanile Way between the flanking buildings**, not just the area along / above the road. This extends from the foot of the Campanile to the end of the "Way", south of the Valley Life Sciences Building, at the 1908 Bridge across Strawberry Creek. The 1923 picture, and similar contemporary views, should be used as a basis for analysis in this regard.
2. **The trees currently planted along Campanile Way and growing along Strawberry Creek may not remain in the long term. They must be considered a changeable, not a permanent, feature of the viewshed.** In particular, the vegetation that most currently occludes portions of the view include: specimens planted as shrubs that have been allowed to grow to tree size and may subsequently be removed in renovations of Campanile Way forecast by the Landscape Heritage Plan and Landscape Master Plan; redwoods, the tallest trees visible, that are not native to the Berkeley campus and may not be sustainable in the campus landscape in the long term, due to climate change. Redwoods require certain temperature, water, and fog conditions to survive; these are changing, according to UC researchers, and the habitat for redwoods is moving west and north. In the foreseeable future Berkeley may no longer be a place where mature coastal redwoods can survive, and the tree canopy in the Campanile Way viewshed will lower, as a result. Campus plans—again, as shown in the Landscape Heritage and Landscape Master Plan—also include the expectation that the tree plantings along Campanile Way

will be less dense in the future, so it can be reasonably expected that the view will re-open to something more resembling its historic expanse.

3. **The viewshed is not simply from the Murdock Steps at the west face of the Campanile, but from Campanile Way itself (particularly the terrace area where South Hall Drive crosses) and the entire width of the square terrace around the Campanile base.** Visitors do not confine themselves to standing rigidly in the exact middle of the steps; they admire the view from this entire perspective, including from the balustrade walls flanking the steps.

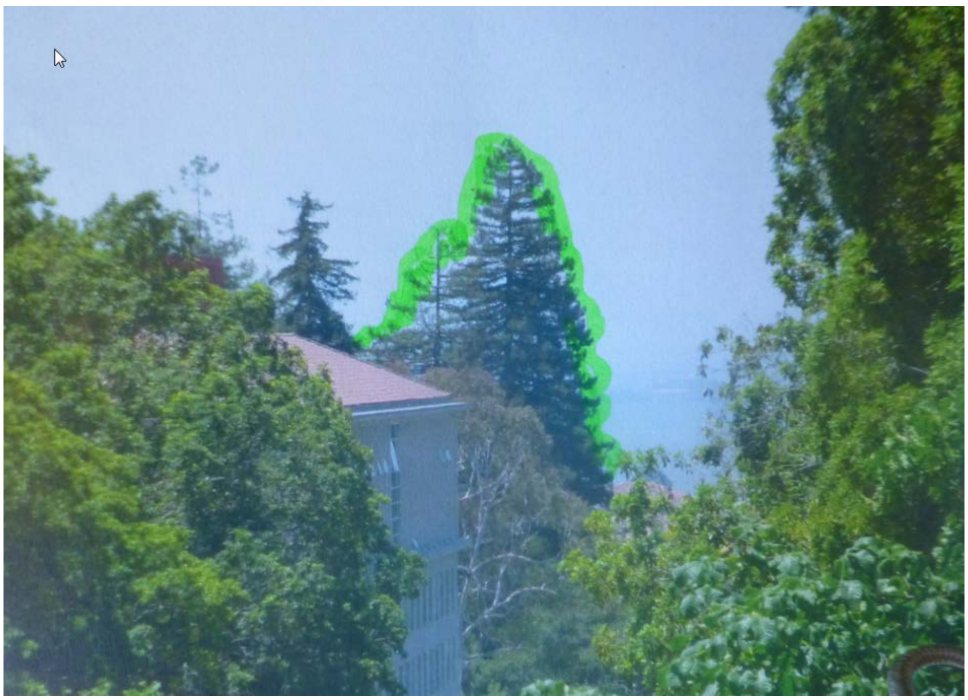
These final photographs, below, illustrate these issues.

In this photograph, taken at mid-day earlier this year: (1) are foundation shrubs along the façade of Wheeler Hall which have been allowed to grow to tree size. (2) shows two redwood trees (including the Grand Army of the Republic Tree) which stand south of Campanile Way and adjacent to Strawberry Creek, as well as a single redwood southwest of the Valley Life Sciences Building; (3) is a single redwood south of Doe Library; (4) is a cluster of shrubs, again allowed to grow to tree size, south of the Doe Annex: (5) is a single Monterey Pine, near the end of its life, in the Grinnell Natural Area, west of Campanile Way. The Bay and Golden Gate are visible in the "V" formed by these plantings.

The point of this photograph is to illustrate that the lowering or removal of two clumps of shrubbery—consistent with the Landscape Master Plan—and the death by natural causes—including climate change, or windstorms—or removal of just five conifers—four redwoods and one Monterey Pine—would considerably open up the view to a condition quite similar to the 1923 view, which was photographed from the same perspective.

These are actions / conditions than can readily be anticipated in the DEIR and must be taken into account.

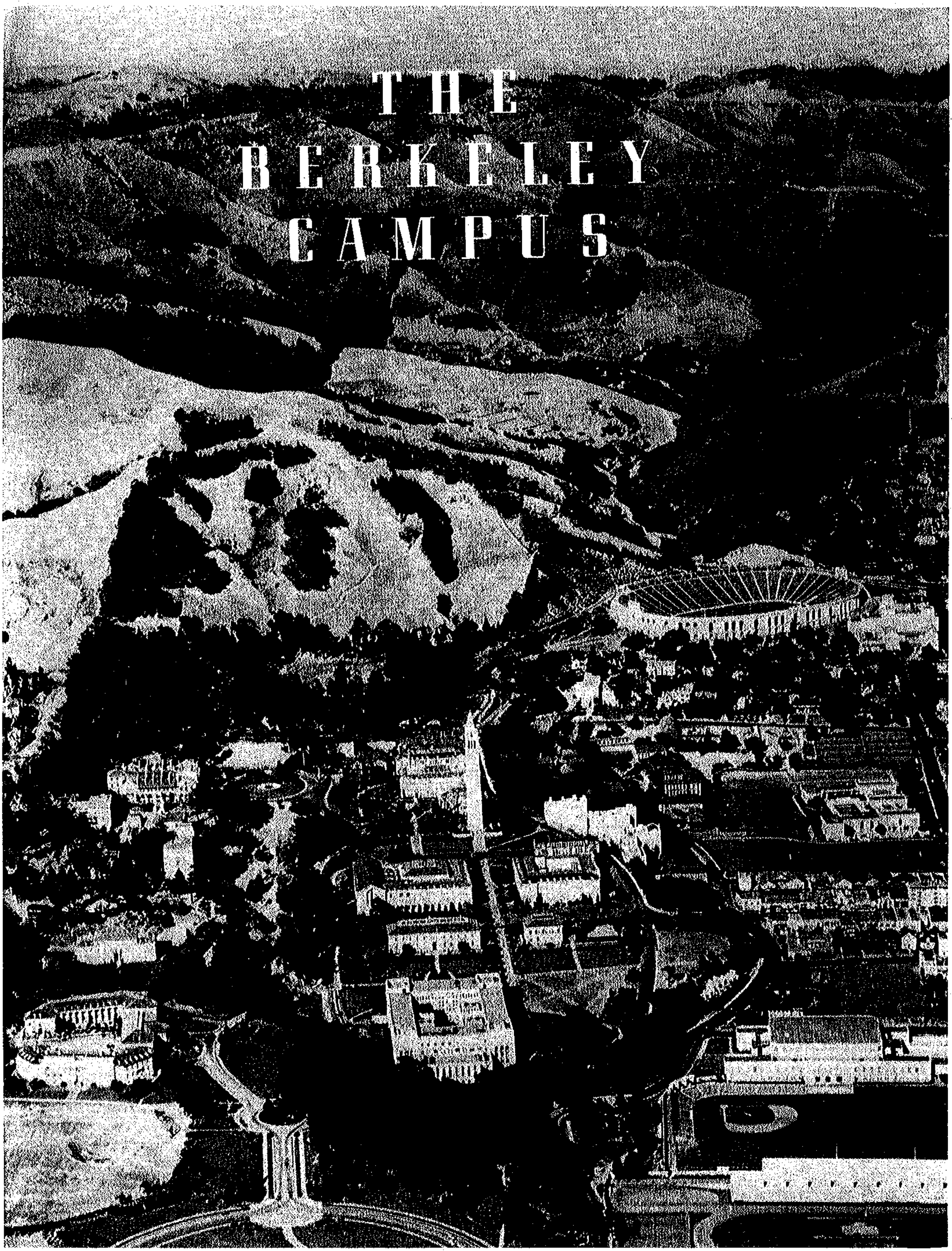
The second view, below, is taken from the balustrade immediately north of the Murdoch Steps and shows, in more detail, the redwoods beyond Dwinelle Hall and in front of Alcatraz and the Golden Gate. This is exactly the area of Bay that the project proponents concede would be partially blocked by the high-rise 2211 Harold Way building.

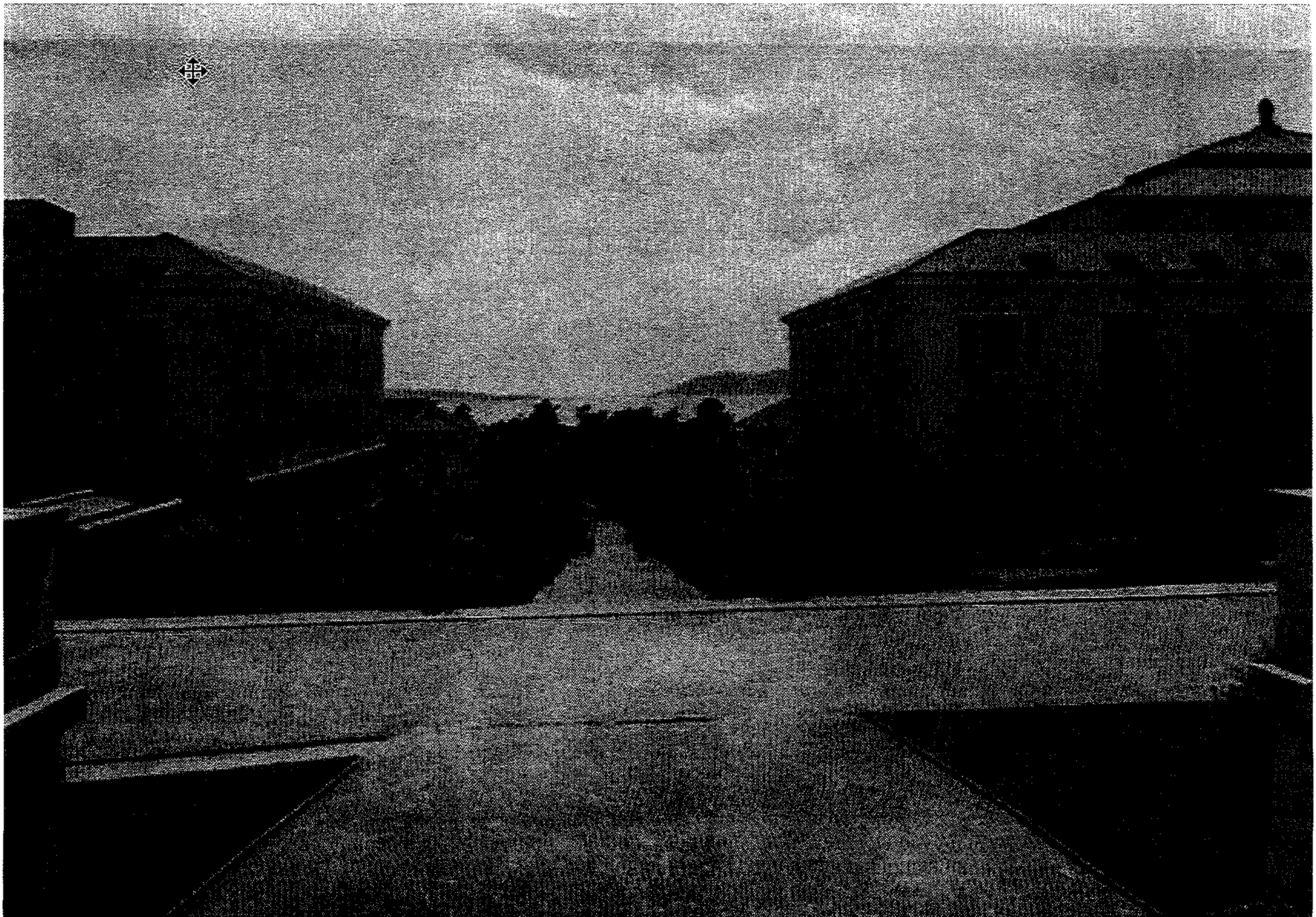


In summary, in order to properly analyze the impact on the historic Campanile Way view corridor, the DEIR must include an alternative that studies lowering the height of at least the northern portion of the proposed 2211 Harold Way building to an elevation that would not block any of the historic view shed down Campanile Way.

This alternative could be readily accomplished in one of two ways, or a combination thereof:

(1) reducing the number of units and, thus, the number of floors required;
(2) realigning some of the mass of the building towards the center of the block so the unit count can be accommodated but the northern wing height can be reduced.


THE
BERKELEY
CAMPUS



A VIEW OF THE CALIFORNIA CAMPUS, LOOKING TOWARD THE BAY FROM THE CAMPANILE STEPS

SUGGESTED MOTION:

The Landmarks Preservation Commission recommends that the Environmental Impact report on the subject project—2211 Harold Way—address these issues in addition to those already identified:

A. **Include a section on AESTHETICS, including potential impacts on historic and scenic vistas and views.**

1. Particularly evaluate **potential impacts on views of San Francisco Bay down Campanile Way on the University of California, Berkeley, campus.** The viewshed to be analyzed should be defined as all of the historic view corridor—the Bay itself, horizon, Golden Gate, San Francisco and Marin County headlands, and Bay islands—depicted in the 1923 photograph down Campanile Way, attached. *This view corridor aligns with a historic campus pathway dating to the early days of the Berkeley campus and was formalized in the early 1900s by construction of Doe Library, California Hall, Durant Hall and Wheeler Hall framing the vista, and by the placement of the Campanile at the head of the vista.*
2. This viewshed impact should be analyzed from these points, at minimum : (1) the ground level terrace enclosed by a balustrade surrounding the base of the Campanile. This terrace is level with the base of the tower; (2) a point or points of Campanile Way itself between South Hall Road and Sather Road (the roadway area between Wheeler Hall and Doe Library).
3. **The analysis should include the visual impact of the proposed development at 2211 Harold Way shown with and without existing trees / vegetation along and west of Campanile Way.** The existing vegetation cannot be regarded as permanent; much of it is of relatively recent vintage and it is not an unchangeable / permanent feature of the view corridor.
4. Include in the EIR the study of **one or more alternatives to the proposed project that would eliminate intrusions into this historic view corridor**. This could potentially be accomplished by either reducing the overall size and height of the project, or by reconfiguring the building mass to shift height away from the northern end of the new structure. An appropriate alternative height of the new building to be analyzed would be 60 feet at the corner of Allston Way and Harold Way, extending along approximately 50 % of the frontage of Harold Way.

B. **Include visual simulations showing the proposed project from a variety of actual street level perspectives on adjacent streets and from intermediate distances, such as south Shattuck Avenue and the neighborhood to the west of Downtown.**

C. **Include in the EIR the study of reflectivity and glare from facades of the proposed building** in all directions, and possible mitigations that would reduce reflectivity / glare to an insignificant level.

D. Include in **the CULTURAL AND HISTORIC RESOURCES SECTION of the DEIR** a discussion of the structural / seismic condition of the existing landmark Shattuck Hotel Building. Identify possible project mitigations that would improve the structural / seismic condition of the Shattuck Hotel Building overall.

Landmarks Preservation Commission Meeting
June 9, 2014
Item 6.A, 2211 Harold Way - DEIR Notice of Preparation/Scoping

(Transcription begins after meeting has commenced, with public comment relating to item 6.A.)
>> Commissioner Hall: Public comment?
Okay.
>> I'm sorry, I should have turned the mic up.
>> Commissioner Hall: You're in big trouble.
>> Commissioner Hall: Steve Finacom.
>> Steve Finacom: Good evening, commissioners.
Steve Finacom.
I want to comment to you on the general principle of scoping sessions for Environmental Impact Report with a few topical examples that are appropriate to tonight.
So the scoping -- the notices for this session were somewhat oblique in the way they described the project.
The designation of the project site, 2211 Harold Ways a designation that doesn't really exist other than in terms of this project, as far as I can tell.
So if you said to someone in the city, "Go to 2211 Harold Way," they wouldn't really know where that is.
So it's not an easily understandable location.
That could have been corrected by describing the site in terms of the location.
For example, the perimeter streets.
The scoping session notice -- and I want to read to you what the mailed notice said.
It said, "Scoping session for Environmental Impact Report proposed project involving remodel of west portion of Shattuck Hotel building, portion fronting along Harold Way and construction of an 18 story mixed-use building."
Now, I don't think even the project applicants would get up here and say this is a remodel of the west portion of the Shattuck Hotel building.
Now, technically, this may be a remodel of the landmark site overall, but the notice should have said demolition of the west portion of the Shattuck Hotel building and remodel of the overall thing.
So for people receiving this in the mail, that would have been a confusing issue.
Then there's the unfortunate circumstance of the -- this meeting having to be canceled last week because of an insect infestation, and then being rescheduled with just four days' notice.
You have a smaller commission than usual as a result of that, and also it's most likely there are members of the public who can't attend tonight.
I myself should be sitting in a nonprofit boardroom right now at a regular monthly meeting, but I had to come here instead.
So I understand that the -- it was said that the meeting was renoticed, but how do you renotice a meeting, in other than just a technical formality sense, when the meeting is canceled on a Thursday and the new meeting is four days later over a weekend?
There was no -- I presume there was no opportunity to mail notices to all the people who received the notices to begin with.
And so I believe that the City should have said -- should have rescheduled this hearing on this project for a later date when there could be proper mailed notice to the general public and proper notice of the meeting.
Now, you'll be told, I believe, that, well, that has to fit within -- we can't do that because it has to fit within the 30-day scoping period.
But my basic understanding of CEQA is that the 30-day scoping period applies to comments by public agencies that are mailed the notice.
So, for example, if the State Office of Historic Preservation wanted to make a comment, well, they would need to send it within 30 days of the notice.
But I can't find a requirement that a scoping session has to -- I mean the scoping process has to end 30 days from when its beginning is announced.
And the 30 -- The schedule seems to be driven by what's been actually published in your materials of the schedule for when the EIR will be produced, when the hearings will be held in the future.
Well, if there is an act of God, like the insect infestation last week, that causes a meeting to be postponed and canceled, then the appropriate measure for the City is to reset the process, not to say we are driven by this process to cut corners, and we'll just have a meeting -- a quick meeting four days later and that will satisfy the intent of what you're supposed to be doing.
So I will be making comments during the scoping session, but I wanted to bring these issues to your attention because I don't believe that either the noticing or the fact that this meeting was rescheduled so hastily really operates in the proper procedures.
And it gets this process off to a wrong start.
Thank you.
>> Commissioner Hall: Thank you.
Any other public comment?
Any agenda changes?
(Meeting continues. Transcription resumes with the calling of item 6.A.)
>> Commissioner Hall: Okay.
Now we have a referral, 2211 Harold Way is scoping -- DEIR notice of preparation, scoping session. (Indiscernible).
>> S. Zarnowitz: Thank you.
So just as an introduction to project, the Commission has seen this as a preliminary application or, you know, a preliminary review of the project and is somewhat -- and has set up a subcommittee that's reviewing it as well.
So the Commission is very familiar with this project.
18-story mixed-use development behind the Shattuck Hotel, which clearly includes demolition of the 1959 Hink's Building at Harold and Allston and removal of portions of the Shattuck Hotel building, primarily the 1926 addition and part of the 1913 addition.
And in order to complete the environmental review for this project, the City is completing an Environmental Impact Report and has a consultant who is here this evening to talk about the EIR.
The -- Really the purpose of the scoping session is to solicit input from the public, and coming to a Commission like this allows input from the Commission itself, particularly pertaining to historic resources, which are a main topic under this EIR.
So the schedule is on your staff report as well.

The -- Technically, the end of the NOP comment period would be June 19th, so that's commenting coming up.
We wanted again to come before the Commission to get your input as to any of the topics or concerns about the draft EIR as it's being prepared.
And then once a draft EIR is prepared, it's anticipated, again, on the schedule, to circulate from August through September.
So that would -- While it's circulating, that document itself, then the Commission can actually comment on the draft once it's circulating.
So we have Rincon Associates here, the consultants preparing the environmental document, and they can talk about that document and take comment from you and also, you know, give you more information on the project description and the EIR.
Thanks.
>> Thank you, Ms. Zarnowitz.
Commissioner, Chair, thank you.
What I'll do is give a quick overview of the purpose of this meeting, sort of the context of why we're doing this meeting here; a brief description of the project, without going into great detail; some of the preliminary results of the environmental analysis to date, which is the first steps that are in progress; and then with some of the opportunities for public comment, both during the scoping period and on the draft EIR when it's released.
So the California Environmental Quality Act, or CEQA, is a law that requires public agencies to have all the information reasonable in front of them about environmental impacts of a project before they make a decision on it.
So CEQA calls on the City to disclose the potential significant impacts of a project, ways to reduce or avoid impacts and mitigate those effects if possible, and look at alternatives to proposed projects that meet the objectives but also reduce impacts; also to foster interagency coordination and to enhance public participation in the planning process, which is what we're doing here tonight.
The meeting itself, as Sally said, is to inform everybody about the project and to get input on the scope of the EIR.
Specifically, what should the EIR be looking at, what impacts does the public, specifically for the agencies that are -- trustees that are responsible for this project, what do they see significant or important to study in the EIR as far as impacts.
And of course to tell the community when they can give input both on the scope and then later on the analysis itself.
This may be hard to read from there. It's a small screen from there.
It's a small screen but this is a quick flowchart and as you can see, we are here. Shows that we are sort of in the beginning of the process when we scope the environmental review, what needs to be looked at, what environmental topics need to be looked at in depth in the actual Environmental Impact Report.
So after the scoping period is over, we're right smack in the middle of it now, the City will prepare a draft Environmental Impact Report that will go out to the public and agencies for at least 45 days for review.
Then the City will take public comments on the actual content off the draft EIR, respond to those comments and prepare a final EIR that needs to go to the decision-makers to support their decisions.
And again, it's -- The environmental document doesn't make recommendations as to the project.
Doesn't say it's a good project or bad, it should be approved or denied.
It really is there just to give information on the environmental impacts.
The project 2211 Harold Way mixed-use project, this is the project site and gives a little context.
I think most people in the room are probably familiar with the site.
It's across the street from the public library.
It's directly adjacent to the Shattuck Hotel and other civic buildings and historic resources and cultural landmarks.
It's right smack in the middle of downtown, basically, and about half a block from the downtown Berkeley BART station.
This figure is a little misleading because it shows the project's footprint going out to Shattuck Avenue whereas that is only because there are certain improvements underneath the existing Shattuck Hotel building that are going to remain.
I'll try to get a little more detailed about that in a minute.
This is a diagram to show the existing building on the project site.
So if you can read the number 5 in the top left-hand corner, that's the 1959 Hink's Building, also called the Postal Annex.
That's a separate building.
It's labeled number 5.
The 1 through 4 are different parts of the Shattuck Hotel building, starting with -- sort of not quite chronologically, maybe it is chronologically correct, with the third and fourth -- 3 and 4 being the later additions of 1913, roughly, and 1926. And this will come into play later when we show the proposed project site plan.
The basic project statistics are 302 residential units are proposed; six theaters with 665 seats between them; about 10,500 square feet of ground floor retail/restaurant space. Gives them some flexibility the applicant is asking for there between whether it's all retail, partial restaurant.
All parking is proposed to be underground in several levels of roughly 171, roughly, spaces with bike spaces as well.
And the maximum building height proposed is 18 stories or 180 feet.
This will be pretty hard to read from that distance, but if you look at the top and the left-hand side of the screen, you'll see the corner that the existing Shattuck Hotel and the portion of the Shattuck Hotel to remain is, and you can sort of see the cinema seats, and the proposed retail which is would be at the ground floor along Harold Way and Kittredge and Allston.
We can go over some more detail on this later if we want to go through the specifics of the site plan, but right now I just want to go over the basics.
This is the proposed demolition plan, and as you can see the red is what would be demolished roughly from the below-ground up, and so the Postal Annex or 1959 Hink's Building would be demolished and the 1913 and a portion of the 1926 part of the Shattuck Hotel additions would be removed.
The lines on the top that are under the Shattuck Hotel mostly have to do with seismic underpinnings for the hotel, existing hotel, and some improvements to the access of the cinema, which would still take access through the Shattuck Avenue entrance like it does now at existing movie theaters.
This is the proposed elevation along Harold Way.
So as you can see, the elevation takes up the entire image because the property has full frontage on Harold Way.

As you can see, the massing is massed towards Kittredge orientation.
This is the proposed Shattuck Avenue elevation, so of course the existing Shattuck Hotel to remain -- could be seen in the foreground in the white with the orange roof and the proposed building behind it.
This EIR is maybe -- I think maybe the City has done one or two of this certain type of EIR which sort of a new streamlining provision under the CEQA guidelines.
It's called an in-fill EIR.
The City analyzed whether this project would be eligible for too these streamlining provisions, and also whether there was the proper regulatory infrastructure, we could say, in place to go with it.
And essentially a project has to fulfill certain requirements as far as being in an in-fill site near transit and a few other aspects and has to have a prior EIR ideally that has analyzed it within its programmatic extent.
So the Downtown Area Plan EIR analyzed the impact of buildout under the Downtown Area Plan within the downtown area, which included a highrise structure in the Environmental Impact Report for this particular site.
So in the scoping document, which is an in-fill checklist to decide what impacts can go into the EIR, we look at whether the Downtown Area Plan sufficiently analyzed those impacts in order the disclose the impact of buildout, including this project.
There is some preliminary work that we've done with staff on potentially scope -- which environmental issue areas would go into the EIR and which would be discussed in the scoping document.
As of this point -- again, it's preliminary because we're still in the scoping process, which this meeting is a part of, historic resources is one of the issues that we see potentially requiring study in the EIR, including a number of impacts under that category demolition or removal of all or part of the historic structures on the site, impacts related to introducing new construction adjacent to those historic structures as far as context, compatibility, et cetera.
Construction itself next to a historic resource can have impacts as far as vibration and structural damage potentially.
The City has adopted policies about preservation of historic resources, and the EIR will have to look at whether the project is consistent or not with those policies.
And finally there's a view from the base of the Campenile that looks out across downtown and frames the Golden Gate, and we will look at whether this project -- this proposed building would be in that view and whether that's a historic view and whether that's a potential impact in itself.
Another issue in addition to historic resources that so far looks like it is likely to go in the EIR is traffic.
That's because specific impacts at specific intersections may be different than what was studied in the Downtown Area Plan EIR.
And the final bullet there is just to be clear, the scoping document itself, which decides what needs further study in the actual EIR, needs to go through every single issue area and describe why it's not in the EIR, and basically give an environmental analysis in itself for each of those areas.
So again, the purpose of the scoping meeting is to get comments on the scope, focus and content of the EIR, what kind of mitigation measures may be appropriate to avoid or reduce the impacts; ideas on alternatives to the project to be studied in the EIR.
There's some comment forms over there.
There's many ways to comment during the scoping period. It can be done by email or mail to Mr. Sage, the senior planner who is managing the project.
It can be done with a little scoping card over there that has space to write in your name or comments and of course it can be done verbally tonight.
>> Sally, just kind of curious.
There was an initial study completed on this project?
And if so, is it made available to us so we can look at what this --
>> Yes, and kind of.
>> Pardon me?
>> Yes.
The answer to the first question is yes and the answer to the second question is a little bit not quite yes, because yes there's an initial study, but in this case it's called an in-fill environmental checklist.
That's the CEQA streamline provisions.
It looks just like an initial study. So the answer is basically yes.
That's still in draft form.
We're working with staff to finalize it.
It will become an appendix to the EIR report so you can study it along with the EIR.
>> So are you preparing the initial study or is staff?
>> We're consultant --
>> You're working together?
>> Yes.
>> And who hired you?
>> The City of Berkeley.
>> Okay.
Okay.
Thank you for the information.
We now have public comment on this.
I've got Steve Finacom, John, English and Jurgen Aust.
Okay.
John.
>> John English: Good evening.
First, let me apologize for being even more disorganized this evening than I usually am, but I have a lot of things to say and I'm worried about whether there's a three-minute limit on this.
>> We don't have too many people so I don't think you necessarily have --
>> I won't worry too much about that, then.
Okay.
One thing as background that I cannot stress too much is that the entire block there between Shattuck, Harold Way, Kittredge and Allston, the entire block is an officially designated landmark site.
Now, I have several comments about the project description, and some related questions.
I think -- One thing about the project description, it needs to say more about what would happen at the ground floor underneath -- the ground floor and the basement underneath the Shattuck Hotel.
The ground floor facing Shattuck Avenue and the basement are in the same ownership as the site where the new building would be constructed.
But what would happen, exactly, in those basement and ground floor spaces?

The applicant's statement some time ago said that there would be retrofit work in the basement, but what about retrofitting the first story also?
And this relates me -- this leads me to think about -- to worry about what's going to happen to the wonderfully important Shattuck Hotel when the Hayward fault really cuts loose, which will happen probably sooner rather than later.
I think the EIR should discuss the seismic condition of the overall hotel building, including its upper stories, and it should describe what current plans, if any, the hotel itself has for retrofit.
I believe several years ago there was a different proposal where the hotel was going to be retrofitted, but there's been information on that in the draft EIR.
I think the project description needs to say more about what, if anything, would happen to the facades, the ground floor facades around Shattuck Avenue, and what would happen to the very nice ornamental plaster ceiling you can see as you walk in from the sidewalk toward the Shattuck cinemas now.
It's a remnant of a great arcade that used to be along the front of Hink's Department Store.
So let's get more information about things like that.
Now, talking about impact on historic resources, as I said, the entire block is landmarked but measured horizontally, half of the block would be utterly destroyed by this project.
Big impact.
So not only that, but, well, I'm concerned that the scale of new development would visually overpower the existing Shattuck Hotel.
That is an issue that needs to be studied in the draft EIR.
The -- There are questions about the design of the facades of the new building.
I think -- Personally, I think they make hardly any reference at all to the architects of the existing Shattuck Hotel building.
So in terms of both bulkiness and facade design, the EIR needs to compare what's proposed with key policies in the Downtown Area Plan.
One in particular I'm thinking about is in paragraph B under policy HD 1.1, which among other things says that additions to a historic building. When there's an addition. And at a minimum, the scale and character of the additions must be compatible with the historic building.
It's very dubious to me whether it meets either of those criteria, scale and character.
Okay.
Now, in terms of impacts on historic resources, it's important to compare -- to consider not just impact on the historic -- immediate landmark site including the hotel but also on the much larger surrounding potential historic district which the Downtown Area Plan identifies, which would then -- going to the Downtown Area Plan, this potential district could extend from Shattuck Avenue to Durant, up to University and including various buildings on side streets.
So what would be the impact of this project on that?
And in that connection, look towards the downtown Berkeley design guidelines.
They have an interesting section, the guidelines, called subareas of downtown where historic resources are concentrated.
Well, that's very relevant to the impact on the potential historic district.
And read that whole section of the design guidelines very closely.
Now, another area of concern is what I call impacts on scenic vista.
And I think technically in terms of EIR organization, scenic vistas is usually treated as a subcategory of aesthetics, whereas in this presentation it was shown as a subcategory of historic resource.
Well, actually, it's both.
But in any case there are major issues posed about the project impact on the terribly important scenic vista from the terrace at the base of the Campenile and from Campenile Way that proceeds west there from, from those points toward the Golden Gate.
And when I say told the Golden Gate, the target-of-that view corridor must not be defined too narrowly.
It's just the bridge itself.
It's not just the top of Alcatraz island.
It's also a substantial portion of the top of the Presidio and the bottom of Marin County and in the foreground, a generous expanse of blue bay water.
So all that needs to be carefully considered.
Okay.
Now, as far as mitigation measures, there are so many I could get into.
One thing that would mitigate effects would be to reduce the height and/or bulk of the proposed new building.
Another strategy which could -- would consist of revising the facade design somewhat to include more references, more understandable references to the historic architectural of the Shattuck Hotel itself and to the surrounding potential historic district.
I think also it's very important to -- since about half of the existing landmark would be destroyed by this project, I think to compensate for that, it's very important that the project do as much as possible to help perpetuate the rest of the landmark; namely, the very important historic Shattuck Hotel building itself.
So the EIR needs to look into that and think about how the retrofit of the ground floor or basement spaces under the Shattuck Hotel would or should be coordinated with the hotel's own retrofit.
And maybe since the proposal would be destroying, as I said, half the landmark, perhaps -- not perhaps.
I think, personally, the project should contribute financially toward retrofitting the hotel in general.
And this is not -- I say this not for the benefit of the owners of the hotel but because of the great public interest in preserving, perpetuating the century-old Shattuck Hotel for another century or two.
Then finally, the topic of alternatives.
Well, the EIR should look at alternatives as to bulk and massing that could reduce either the height or the width.
I think one of the alternatives in this regard that should be considered is an option in which the building's northern half, the half closest to Allston Way, would not exceed a height of 60 feet which happens to be an important threshold in terms of downtown zoning regulations.
Mitigate -- also to be considered mitigation measures regarding the facades in the new building.
And one thing that could be considered would be greatly reducing the extent of the large expanses of the new facades which almost entirely floor-to-ceiling glass.

That glassiness, by the way, seems to conflict with specific statements in the downtown Berkeley design guidelines.
And -- Oh, one more thing I wanted to say.
In looking at one of the written descriptions of the project where it listed the -- it listed the kinds of cities approvals that would be required.
The Administrative Use Permits, Use Permits, and so on.
I think there was one missing; namely, a Use Permit to exceed the normal maximum 120-foot width of buildings that exceed 120 feet in height.
Now, here I'm not talking about the 18-story portion of the building.
I'm talking about the 12-story portion.
And judging by the architect's own renderings, which had dimensions on it, the roof, not the top of the parapet but the roof of the 12-story building, it looks from their dorms, it would be not 120 but 122 feet above grade.
Well, if so, then, as I said, a Use Permit would be required to exceed the normal maximum width for a building that exceeds -- (indiscernible) that exceeds 120 feet in height.
Thank you very much.
>> Thank you.
Steve Finacom.
>> Steve Finacom: Good evening, Commissioners.
I have a handout, so I want to wait just a moment until it reaches you.
Maybe I can say while we're waiting that I concur with John English on the seismic issue of the Shattuck Hotel.
It's not going to matter very much if the new building is seismically safe if the Shattuck Hotel, which will -- which sits above part of the buildings not.
And as -- From a preservation standpoint and protecting it as a historic resource, it is proper to link this building project with -- with upgrades to the Shattuck Hotel.
I think it's just like a case where you have, let's say, an old historic house that's moved off a site and given to someone for $1 for renovation.
Well, that's a gift for someone, but it preserves that historic resource.
And that's an appropriate step to take with this sort of project.
So, okay.
So I won't start with the verbiage.
I'll start with the picture.
So if you look at the picture on the second sheet here, that's the view down Campenile Way in 1922, 1923.
And that is the view corridor as it was intended.
This is a historic vista.
Frederick Law Olmsted, the father of American landscape architecture, in his plan for the college of California first called attention to the views of the bay and the Golden Gate from the campus.
And in -- when buildings started construction on the campus, they framed this particular view corridor, although Olmsted did not specify this exact spot, but the buildings framed the space.
There was a flagpole that stood where the Campenile stands today.
That was the symbolic center of the campus with the library right behind it, built in the 1890s.
And then in the early 20th century, the buildings you see here, culminating with the Campenile, replaced that.
But dating way back into the 19th century, there was a pathway running to where the Campenile is.
You could look down the pathway and see the bay.
This is a fundamental resource of Berkeley.
It's the most important vista, single vista that we have in Berkeley.
Now, what I want to suggest, and this goes to the single sheet here, is that the EIR be expanded to include a section on aesthetics.
Aesthetics is one of the standard categories of environmental review.
The consultant presentation noted sort of in passing that the Campenile view would be studied as a historic resource.
It's also an aesthetic resource.
People will go there and walk by there and look at it.
People who couldn't care less about historic buildings or how long it's been there, but they stand there and in many cases that's their first view of the Golden Gate.
So it's perfectly legitimate and proper for aesthetics to be studied separately in terms of this resource.
And most of what I've written here as a suggested motion is to define for the aesthetic section what should be studied.
And to summarize that, the view should be studied from the base of the Campenile and from Campenile way, and it shouldn't be just rigidly standing at the top of the stairs but it should be the terrace that is slightly around the base.
I work on campus, and I go by there frequently.
There are always people standing there.
That's where tour groups stop to point out the view.
There are hundreds of people a day outside that go there.
They sit there and eat their lunch.
They pull out their cameras.
They stand there and hug their significant others looking out at the view.
This is a really important place.
And this building will stick up into what you can see now of the bay.
That's acknowledged by the project consultants.
At your subcommittee meeting a couple weeks ago, one of the project consultants said that part of the view of the bay would be blocked but not Alcatraz.
Well, if you go out there now, if you can envision this building, Alcatraz (indiscernible) as a little lumpy projection from the top of the building, and instead of looking at the blue bay, you're looking at windows of apartments.
So that needs to be -- that needs to be studied.
It needs to be studied in the context of the original view of this, 1923 view.
This is the best view I could find today showing this, because you can see in here, if you go today you'll see that there are a number of trees along Campenile Way.
Actually, they're large shrubs that have grown up into the view shed.
Some view trees further down the campus.
But those are ephemeral.
There could be a windstorm this winter that would blow them down.
The campus could decide to cut the trees down and go back to this original landscaping format, something.

So what you need to analyze is the -- what the EIR needs to analyze is not only the sort of occluded window of current view but also the historic view which runs from facade to facade of the classical core buildings here.
And the EIR should look at a project alternative that would mitigate the impact upon that view.
And probably the best way to define that, a reasonable way to define that, would be a building that comes up only as high as the -- I believe it's 60 feet on the northern portion of the block.
But that's -- I think that's probably for the consultants to study.
The project should also -- or the EIR should also provide ample visual simulations of views from real points.
At the subcommittee, I was sort of disheartened to see that many of the views that are being shown to the City commissions are sort of from people hovering in the air or people encased in adjacent buildings.
They're not real views that people will see as they walk down the streets down the streets of downtown.
So the EIR should be filled with accurate simulations.
If you're standing in the library forecourt and you're looking up, what do you see there?
Not if you're 50 feet above the roof of library gardens nearby on a hovercraft or something.
So that's an important issue.
The EIR should also look at reflectivity and glare.
We've had a number of buildings built in Berkeley in recent years that provide a lot of glare, especially at sunset.
And there are places I could take you to in Berkeley where you can't even look at the building at sunset because it's so bright, shining back at you.
So this is an important issue and needs to be addressed with a building that will be one of the highest in downtown.
So I want to leave you with one last comment.
So I'm not asking you to pass adjustment tonight on the view corridor issue.
I'm asking you to require that it be properly studied in the EIR, which is through the process having an aesthetics section that looks at the view from the top of Campenile Way to the base of the Campenile and along there.
And I want to quote someone who is an expert on this project, Mr. Taecker who said at a subcommittee meeting a couple weeks ago, he asked the commissioners to withhold judgment until you see the environmental document.
Well, I agree with that.
Withhold judgment until you see the environmental document, but what's crucial tonight is that you specify that the environmental document accurately and fully address these issues.
And that's not through having the views simply be a little subset of the historic cultural resources section.
And I'll just add in closing that this particular view was not addressed in the downtown plan EIR.
And both the general plan Berkeley and the Downtown Area Plan do speak to the importance of views involving the Campenile and the Golden Gate.
So this is a perfectly legitimate issue to bring up.
And I would be happy to answer any questions you might have.

>> I have a question.
Do you -- Based on what you just said, it sounds like you believe the university should have a perpetual view (indiscernible) over the city of Berkeley all the way to the bay from this corridor; is that correct?
>> No, I'm not saying that.
I'm saying this needs to be evaluated as a historic and aesthetic resource in Berkeley.
And I remember, Commissioner Schwartz, that you had spoken in the past about the degradation of the view from the rose garden, for example.
So this is sort of a similar case where it's a public asset, and it's a -- It belongs to all of us, not simply to the university.
And it's a case where a private development -- in the case of the rose garden, people planting trees below have grown into fairly large size, have gotten into the view shed.
And if that had been studied many years ago, the City might have been able to head that off.
But -- Yeah.
So --
>> In regard to the rose garden, I'm not going to go into a lengthy discussion --
>> Let's not go into the rose garden.
>> I want to respond to him.
He raised the rose garden.
Many of the are City owned trees in the rose garden.
And the City of Berkeley does nothing to trim them or get rid of them.
When I moved to Berkeley 45 years ago, there was a 180-degree panoramic view of the City of San Francisco, Marin, the Golden Gate bridge and the bay.
Most of that is blocked out.
Now there's about a 40-degree view.
And the City of Berkeley controls most of those trees and does nothing about them.
But getting back to this, what -- In essence, your view corridor argument would prevent any developer in downtown Berkeley from building a building in that view corridor.
If this project could not go forward, no other project could go forward.
And what's also to prevent the university from building maybe an elevation above the Campenile so people could go up there and see the view?
If you're at the top of the Campenile with this building, you could see the view.
But your arguments talk about the base of the Campenile.
But what if the university were to take matters into their own hand and build some sort of structure or hill in the area of the Campenile so people could go up there, still have this building and still see the view?
>> That's --
>> I can't speak for the university.
>> I know.
>> I can just say -- I do want to say this is -- The base -- The Campenile itself is open six hours a day and you pay an admission fee to go up.
So there are many people, particularly on weekends and evenings and all, who come to campus who never get to see that view.

Disabled people, for example, cannot get up in the Campenile.
>> They have no access.
>> Right.
So the base here is the public comments.
And as I said, the base is where, every day -- I invite you to go up there any day of the week and stand around for half an hour and you will see people stopping there and looking at that view.
And that's their introduction to this important incredible asset of Berkeley.
So that's what I want to try to protect.
Now, I will say in terms of the corridor through the downtown, when the American -- the Chamber of Commerce building, which is now the Wells Fargo building, was built in 1920s, the developers of it first came to the university and they asked the university if they felt that having a building that tall in downtown would interfere with views from the Campenile.
And at that time, the university said no because it wasn't in the view corridor.
But this issue has gone back that far, and it's coming up again.
>> Thank you.
Rose marry re?
>> Commissioner Pietras: Yeah, you mentioned something about a general plan in Berkeley and I was told there was no general plan in Berkeley.
Is there a master plan?
>> There's a general plan.
>> Commissioner Pietras: Okay. In the general plan, are there specific -- because I have not seen the general plan and I should probably get a copy and look at it myself.
Are there specific policies which are requirements that we have to fulfill in regards to these vistas?
Because --
>> Yes.
>> Commissioner Pietras: -- we are subordinate to that.
If there is a policy in the general plan that discusses that, then the initial study in the EIR have to incorporate those policies and see whether or not there are actual impacts.
>> Yes.
And I didn't bring that tonight, but, yes, there is a general plan policy that speaks specifically to views and it mentions the Campenile and it mentions the Golden Gate.
And there's a Downtown Area Plan policy.
So -- And I'll address those in my comment letter on the scoping process.
But short answer is yes, the general plan says protect views towards the Golden Gate and protect views towards -- involving the Campenile, to paraphrase.
>> Commissioner Hall: Any other questions for Steve?
Yes.
>> Steve, have any other buildings been built that impinge -- you said the Wells Fargo building DOS doesn't but does the Great Western building or any other building?
.
>> The best way to answer you is if you look at the third picture here, this is a 1930s aerial view, and you can see the Campenile there, of course, and you can see Campenile Way quite clearly.
And then you see this big open space over here on the left.
That's the -- that was the larger university access, which was also a view corridor.
And that's been blocked by Evans Hall and Moffett Library, which were both the fault of the campus, and University Hall on the edge but the Chamber of Commerce building, the Wells Fargo building is not in the Campenile way view shed.
I think it is actually a little in the other view shed.
And then the Great Western building, Power Bar building, whatever it's called now, that is also sort of on the edge, but it doesn't get into this slot.
It's actually only a few properties downtown that are covered by this slot, and it's not this entire Shattuck Hotel site.
It grazes the corner of it.
So this is not an argument against the project of the it's not a -- it's not a poison pill to prevent the project happening because the EIR looks at this as a significant impact.
This is an argument of specific impacts on specific portions of the sites at certain heights.
>> Commissioner Hall: Any other question?
>> One last question.
You made an argument about the trees and the shrubs, you said they're not permanent.
But in essence, usually the trees are there for a very long time.
.
I can see if we were to cause them to alter their project or to not do the project because of the impact of view from the Campenile at the base, what are we going to do if the trees on the campus grow up and the university does nothing to cut them and the view disappears anyway?
That's a strong possibility.
Cutting trees is death in the City of Berkeley, and on campus we've seen demonstrations, we've seen tree sitters.
I know the university sometimes cuts trees with impunity and does not give notice, but even this -- it is this a photograph of the 1920s?
>> Yes.
>> And even here it looks like the trees are growing up, and even then, which was 80 years, about to block the view.
How is it now?
Are the trees blocking the view now?
>> So there are a number of foundation plantings along -- So some of these -- This was not intended in the original plans for these buildings to have large trees and shrubs that would occupy their whole facade, but Wheeler Hall particularly is covered with trees on the north side now.
So that wasn't part of the historic plantings.
The campus in the '20's tended to overplant ever greens because the people doing it came from the Midwest and they thought they needed to plant a bunch of trees because a lot of them would die in the harsh winters.
Well, of course we didn't have harsh winters so all the trees grew up.
>> So they --
>> Yeah.
I would say this is before redwood tree plantings on the campus, and you can see these sort of two bars of trees in the distance.

And those are the live oaks and those are Monterey pines, both of which are shorter than redwoods.
So if you were a campus architect standing out there 80, 90 years ago, you wouldn't be thinking of trees large enough to block -- to grow up in this area.
The oaks in particular were cherished at that time.
>> Thank you.
>> Commissioner Hall: Okay.
Jurgen.
>> Jurgen Aust: Good evening. Jurgen Aust, a resident in Berkeley and planning and design consultant and also in real estate.
I learned about this meeting only on Saturday afternoon, and I had been to work and I thought I'd come by here, and (indiscernible) upstairs.
In other words, I'm not very prepared.
But I have done quite a (indiscernible) impacts with (indiscernible), and my plan also was what was based on what's now in the Environmental Impact Report before it became law.
So I don't want to repeat everything.
I think Steve, everybody talked about this, the height and width.
My question is where is this building?
Is it in San Leandro?
Is it in Hayward?
Is it -- Who knows where?
I know it's (indiscernible) Berkeley, but it will never get because the relationship between the ocean, the bay and the mountains that separate the area from the (indiscernible) is the key (indiscernible).
And I mention that in real estate.
And I see it everywhere.
In doing the properties, there's a (indiscernible).
It may have surprised you, I lived out there on the foot of the hill for 41 years. 42 now or 43.
Last year, or was it the year before, was the first time I went on Campenile.
There was no real need to get up there.
Every time I walk through the city (indiscernible) my house, but when I moved to Berkeley, I experience this relationship between the bay and the hills.
I know where I am.
I know in San Leandro, I know the neighbors, I know the Richmond, I know the (indiscernible).
I'm not in Oakland.
I'm in Berkeley.
And this is a key thing.
Now, I'm not surprised that they got this far. When I look (indiscernible) design consultant for this project.
When I first met him, he used (indiscernible) as a reference (indiscernible) frame his (indiscernible).
Now, I don't want to talk at length about this, but it took a special intervention so that you can still see the bay from the only place in downtown Berkeley on street level; namely, from Shattuck and University intersection.
With what this plan has in mind, you wouldn't see it anymore.
Again, this is an important aspect.
It also has a cumulative impact because it would set a precedent.
Everyone subsequent would say, okay, you allowed this one; why not me?
And there's something you might think about as the long-term impact.
So what I say, there has to be a view analysis, how this building fits into what establishes Berkeley.
And the Campenile (indiscernible).
You might as well say for people (indiscernible). Who knows where you're at?
There's some points, I don't know what's going to be in the EIR, which I want to bring up.
I don't know the specific program of what they're building.
For instance, what are the expected rents?
(Indiscernible) as an impact, who is going to live there?
Now, you may recall in the downtown plan, there are (indiscernible) we have to bring in people who now have to move out to the central valley because they cannot live in downtown Berkeley and (indiscernible).
Now most of these kids, they're not single people.
They're not (indiscernible).
They are people with established families.
So if this is (indiscernible) thing people approve, because Berkeley never approved the downtown plan.
We approved the proposition R, which it was a policy statement.
We are a (indiscernible) by a developer.
There is no downtown plan.
I'm a person (indiscernible) in Oakland, some people said I should come down (indiscernible) presentation of the so-called downtown plan, and he showed the pictures and everything and then he started a list of (indiscernible) items, what needs to be done after approval of the plan.
And it published virtually everything which is usually part of a planning process.
Now, I would assume there will be a traffic analysis.
Now, I would like to point out to you there is no traffic study for the downtown plan.
When I requested them to see a copy, I've been given six links to the Environmental Impact Report.
I was very much (indiscernible).
Especially it says in big letters, basically, there is no substitutes for (indiscernible).
This is a (indiscernible) statement EIR drafting (indiscernible).
In other words, when they do this traffic study, they have to do what should have been done with the so-called downtown.
And this should also relates to the parking, obviously.
The assumption is since they have this model of transit, which obviously doesn't work, and say there are no need for cars and they don't have to have any provisions where to park.
Now I am studying this for 40 years, how this works, and every City that has a policy, transit policy versus automotive policy, they have a transit plan that works and a parking plan.
Berkeley doesn't have either.
As a matter of fact, I can quote you a deputy planning director, I have it in writing that initial came out with basic transit planning for Berkeley.
And there's an interesting comment.
Since A.C. Transit is doing it, we don't have to do anything.
And that's where we still are.

You may recall the BRT issue and these things, and there's no transit plan for downtown.
Coming back why I think it's so important to find handout who is supposed to live or expected to live (indiscernible) can't afford it and so forth, and who should come (indiscernible).
Now, if you plan to have a family or if your a senior, you need open space.
There's open space for (indiscernible), there's open space for seniors, and every sophisticated community has (indiscernible).
Berkeley doesn't have open space plan.
They have one major (indiscernible) who said something like about a thousand -- one acre per thousand people, but it doesn't really say for what and where.
Now, do they expect people moving in in this case and the kids going up and down the elevator, is this the exercise they're proposing?
Are they going to propose (indiscernible) and all these things in their apartments?
>> Are you --
>> I'm just saying I think --
>> It's the last one.
>> There are some (indiscernible) I think should be looked into.
Oh, one more thing because the issue came with the (indiscernible).
You will notice that in Berkeley, so far a reference has been made to the (indiscernible) building. (Indiscernible) or you could extend buildings.
They are built perpendicular to the bay area.
And there's a reason for it.
It would be the first (indiscernible).
I'm not going to say so far and (indiscernible) and in San Francisco it's convenience but in (indiscernible) it's the same.
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>> Thank you.
And our last person is the consultant to.
>> Commissioner Hall: Thank you.
And the last person is the consultant to this project.
>> Thank you, Chair Hall and members of the commission.
Good evening.
I will try not to take up the 11 and a half minutes or so that I would be allotted tonight, and thank you to the chair for opening up the public hearing so we're not constrained to three minutes.
Just a couple of quick items, actually.
I think, first of all, I want to thank staff for going above and beyond, well beyond, the CEQA requirements for a scoping meeting.
This meeting isn't required either by CEQA or by the City's environmental review guidelines, nor is the second public scoping session that will be held Thursday night at the Zoning Adjustments Board.
So the public has ample -- more than ample opportunity with this and with other projects, because that has been the practice of staff for the last 15 years, to bring these EIR/scoping meetings to the boards that will have some purview over the permits and we're looking forward to the draft EIR.
It should be very interesting.
Secondly, wasn't to be very clear for the record because Mr. Finacom made some statements about Frederick Law Olmsted and the views of the campus and how those were laid out originally and I just don't want anyone to be confused.
Olmstead's plan significantly predates the Campenile and according to a former president of the California Preservation Foundation, Kathy Garrett, who is also on the project team, and her review of the historic documentation, that axial view is actually from the mining circle which the university plunked a building down to block a view of the bay from the mining circle a long, long time ago.
So we do agree that as an aesthetic resource that it really does need to be looked at.
And, you know, over time, that is where all the tour buses go, as Mr. Finacom said.
And I'm not sure that that constitutes a historic view, so to speak, but it certainly has become kind of the traditional view, I guess.
And we'll have to see what those photo simulations look like.
But I just wanted to thank the landmarks commission again and the public for their comments, and we're looking for a very robust environmental document.
Thank you.
>> Commissioner Hall: Any more comments from the public?
Okay.
Then we'll move to our comments now that we have lots of information.
Lots more information.
So does anyone have comments regarding the scoping or what should be in the draft EIR that the Harold Way project will be doing.
Sure, start.
>> Okay.
I'm just going to say a couple things off the top of my head.
I'm not really happy with the idea of tiering off the Downtown Area Plan EIR.
I don't think this specific site was studied, but I haven't looked at the DAP EIR in a long time.
I am very concerned in general about the height and the massing of this building in this site.
I mean, as many people mentioned, it is smack dab in the middle of most -- our most precious historic resources in the downtown.
I think it will really alter our sense of that -- it's not a word -- historicity of the downtown.
You know, we're fighting to preserve the post office.
Berkeley High is going through some changes.
It's just a very precious part of us -- part of it.
And it seems a bit ironic, actually, because included in what we got on our handouts today was a very nice letter, that we'll discuss later, that we did get money from the State to do our historic -- potentially historic district survey.
So I think this really muddles it up and in a not very pleasing way.
I support everything that John English, Steve Finacom, and Jurgen Aust said.
I would like -- So I'll mention a couple of mitigations.
I think a replica of the Shattuck Hotel, especially given the monumental construction that is going on and is going to go on, (indiscernible) this project, next to such a valuable historic resource, I mean the amount of shaking and digging is really not going to -- that old lady is not going to do very well.

I strongly encourage them to work on retrofitting the Shattuck Hotel.
If you do that, which would be great -- I guess Mark Rhoades is gone.
But another thing that is kind of a pet peeve for us on the landmarks commission is the restoration of the balconies on the Shattuck Hotel.
So I'll just throw that in because that's not a very big expense for you guys.
And I wish Mark Rhoades was here -- He's really gone.
>> We apologize.
He (indiscernible).
>> Okay.
So you'll get him that.
You can report back to him.
When he came before us on another project, he was very generous in donating to our downtown historic survey, so I'd like to make the request that a similar -- more money. This is a bigger project -- be donated to, which actually now -- when I requested it last time it was a maybe we will go ahead and do the survey.
Now that we've gotten money from the State preservation office, we will go ahead so additional funding would be fantastic.
I like Steve's ideas of the views from different parts, but I would also say don't confine it so much to the adjacent areas of where this project was going to be.
It would be interesting to see what it would look like if you're coming into town from Shattuck or from the north side or other parts of the hill.
I don't think people realize at this point how massive this new structure is going to be.
So it would be interesting to do view/views from elsewhere.
I know we can't put up story poles.
There's no way, but you know.
And I think Jurgen Aust pointed out a very important point, which is that this is the first building that is built perpendicular to the view.
So it's not just a tall building but it's a long tall building.
And that's -- I'm not (indiscernible).
Apologies.
But thank you very much to John English, Steve Finacom, and Jurgen Aust for their comments.
And that's all I (indiscernible) and I'm going to (indiscernible).
>> I have a question. Is there any precedent for requiring a developer to put money into another private piece of property as mitigation?
>> Probably somewhere.
I don't know if Sally knows if there has been.
>> Because I don't know if -- know who the owner of the Shattuck Hotel is but why should they profit by somebody who is trying to build another building unless the (indiscernible) says the construction might damage the building.
But I don't know that that's likely to happen.
>> Well, they kind of work together, the Shattuck Hotel and building this thing.
>> Wouldn't you look at it as the whole of the project?
I mean, I know in my planning days when we had projects that were contiguous to each other, even though they were independent developers and independent landowners, the Board of Supervisors would always require the EIR to look at the whole of the project because it's adjacent to each other and they're all impacting each other.
And I think that's what we need to do here.
Even though the Shattuck Hotel may not necessarily be part of the development, it's still going to be impacted by it and we should look at as a whole.
I mean, that's my opinion.
>> That's a very good point.
And almost half of it will be basically demolished, plus the shadow studies, plus the construction and if there's any of the pile driving, which they're putting parking underneath, I'm sure there's going to be pile driving, all that can be a huge issue for a very old building as (indiscernible).
>> When you say half the Shattuck Hotel will be demolished, basically I think you're talking about the rectangular boxes behind it which aren't particularly attractive.
They're basically eyesores at this point.
>> Some of them are landmarked, and the whole thing is one big project.
>> No, I understand, but the part of the Shattuck Hotel people had mentioned is going to be demolished, it really is not particularly attractive.
I think anything would be an improvement over what's there now.
[Speaking simultaneously]
>> One of the things I'm curious about is digging 171 parking places in the ground.
>> I think they said three tiers?
Is it three tiers of parking?
>> Three stories down, you're going to go?
>> Three: Three basement layers.
>> And what is that going to do to the structure next-door?
Because we are in a seismic area.
I mean, the whole -- I mean, I don't know if there is a fault in that area or not or what the condition of the soil is.
But, I mean, I would think that needs to be looked at as well, the impact to the structure of the hotel when they dig that far.
>> The creek and all the water.
>> I would assume when they do the structural work that it would benefit the Shattuck Hotel, I would assume.
>> Well, that's what we're asking for.
>> Has to be --
>> I believe that the structure of the Shattuck Hotel upper story will be (indiscernible).
>> Can't hear.
>> There was a retrofit that was done on the Shattuck Hotel in the upper stories.
>> Right.
>> But it never came all the way down to the ground. It's a soft story initially.
So this is an opportunity to tie what was already done on the upper stories all the way down.
>> That's a good point.
>> And by doing -- So (saying name), a very reputable, award winning local structural engineer, is their structural engineer.

If it's the pleasure of the Commission, we'll come back and give you some information about the seismic --
>> Yeah.
>> -- issues.
>> -- cracks in the hotel when you start working.
You know what I mean?
>> My impression is it's being addressed very carefully.
>> What --
>> Yeah, I would imagine.
>> And somebody mentioned there would actually be shoring that's actually going to go deep and operate the project entirely from anything -- any soil work anywhere close to the (indiscernible).
>> Well, talking about creeks, I worked in Metropole for many years while I was in grad school, and Metropole is right across the street from what was then Baggett's, the temporary Reid's music shop, that beautiful building across. And when they opened up the Bistro Cellar, one year it rained and the whole cellar had four feet of water in it.
And it was later discovered that it was an underground creek that had resurfaced, and that's right across the street from where we're talking about.
So I'm sure that there are maybe some waterways.
You just don't know when you start digging.
You know what I mean?
>> And that will be in the EIR.
It has to be in the EIR.
Part of (indiscernible).
>> And we will come back with some project (indiscernible) seismic issues being addressed and by our company.
>> Also, Anne mentioned that -- it was mentioned that this particular site was studied in the Downtown Area Plan for a 180 foot building.
I don't recall that.
Certainly wasn't what we voted on because it's (indiscernible) --
>> Well, of course this is a simulation, and in the sites that were selected for the simulation were representative of what might happen without any intention of being literal about exactly where the (indiscernible).
At that time, the owner of the hotel Shattuck was interested in building a highrise basically where the alley is now.
>> The what?
>> The Patels wanted --
>> The Patels wanted to build a highrise where the alley is.
>> Oh, the alley.
>> Which actually crowds Allston Way more than where we've got it.
>> Is that Ali --
>> No, no. It's the Patel --
>> It would have been a little more in the middle.
>> Literally, since I've been (indiscernible), the footprint of the alley.
A little bit wider than that.
>> Okay.
Other comments regarding things that we are looking for in this draft EIR or that you believe they should be looking for in the draft EIR?
Concerns?
Comments?
I think mine have been addressed.
Shadows I believe are in there because I think the shadows -- and we also talked about views.
Of course, the one from the Campenile and some of the others from the road.
But the views of the people in the Shattuck Hotel I think are really important because suddenly, they don't have them.
What they have is a view of the glass building or a brick building.
>> That's an interesting comment.
I was just wondering about what is the spacing between the Shattuck Hotel and the addition of the building.
>> It varies based on where the movie theaters are and where the 12 stories, 120 versus 180.
The spacing, they're pretty close together.
>> I don't know exactly so I don't want to say.
>> I don't know, not very -- they're very close together.
Not from here to there, but --
>> 25 feet?
>> It seems close from what I've seen.
Dint bring my drawings.
>> No.
Some of us have not had the latest drawings or the subcommittee (indiscernible).
>> Did anyone (indiscernible) bring that?
It's quite -- It's quite close.
They have no views.
>> And also, to the point that I believe John made about the entrance on Shattuck and the plaster ceiling and all that, has there been any work on that, on what that would look like?
>> That we have not seen in the subcommittee. I don't know.
>> Is that the same developer?
I thought that was a different owner.
I'm all confused.
>> It is a different owner.
>> I believe it's odd.
The owner of the Hink's site for this project also owns the ground floor and the basement --
>> Right.
>> -- below the Shattuck Hotel.
>> The hotel is one --
>> So that includes the arcade, and then I believe it probably hasn't been addressed only because we are still at a kind of design development phase of the building. (Indiscernible) details.
We're proceeding (indiscernible) at this point, so --
>> Are you talking about the (indiscernible) side?
>> (indiscernible).
>> S. Zarnowitz: Madam Chair?
>> Yeah.
>> S. Zarnowitz: So just to kind of refocus us on the fact that this is a scoping meeting and we're looking at the environmental document, I'm assuming the Commission's asking questions trying to understand the -- what the environmental impacts would be; which environmental impacts would be studied and what mitigation measures would be included.

Again, we're not sort of getting a presentation of the project so much as understanding what significant impacts might be there.
And I would also defer to maybe the environmental consultant to maybe answer some of those questions.
Particularly maybe the relationship to the Downtown Area Plan and the in-fill checklist and how this fits into that.
That might -- I don't know if the Commission is interested in hearing that again or if the Commission understood that, because this is the document you'll be using in the decisions that you make.
So understanding -- really understanding the environmental process, I would argue, is really very key to your work as well as understanding the project.
So....
>> Anne.
>> Commissioner Wagley: Yeah, I was going to ask you a question about that.
For the in-fill EIR streamline provisions, I'd like to get a copy of that, or is that, like, online?
Because that's --
>> Yeah, it is online.
It's in several places, but if you ask staff, or they can ask me, we can --
>> Commissioner Wagley: Yeah.
>> I can give you the section of the CEQA guidelines which is available I think on the State site and also on the AEP, Association of Environmental Professionals. But the section is 15183.3.
>> It just passed about a year ago.
>> Exactly.
>> It's hard to find the actual one because there were so many proposed ones online.
>> Right.
You can't look at the proposed rules.
You have to look at the final adopted version, and it would be in the most recent published CEQA guidelines.
>> Commissioner Wagley: Okay.
>> So if you have trouble finding it --
>> It's also on the NOP.
That section is right on the first --
>> Commissioner Wagley: Since you're here, could you say in a few minutes or less what is omitted from --
>> Yes.
>> Commissioner Wagley: Streamline process versus the full process?
>> So -- Well, there's a few things that are unique about it and you could put it in terms of omissions.
If you're talking about specific environmental topics that are talked about in those streamlinings, two that are specifically mentioned are aesthetics and parking, I believe.
One of the commenters asked what about aesthetics and where do views fit in between aesthetics and historic resources.
There's a very specific reason why we listed the view from the Campenile under historic resources and not under aesthetics.
That's because the streamlining provisions don't allow the City to call an aesthetic impact a significant environmental impact if the project meets the other streamlining provisions.
>> If the project meets what?
>> Meets the other streamlining eligibility provisions. Being near transit, being a certain density.
>> so you've added it back in?
>> Well, because there's a historic component to that view, it does allow the City to bring it into the EIR where it discuss potentially significant impacts.
>> I mean, it's basically an overriding consideration.
>> Yeah, if the City finds it's a significant and unavoidable impact, then the City would have to make a finding of overriding considerations to approve it.
That's correct.
>> S. Zarnowitz: And that's what the document will analyze, whether or not it's a significant impact.
>> When will we most likely be getting document?
>> S. Zarnowitz: So we're anticipating that it was on the -- again, your staff report has a schedule and it's anticipated to circulate between August and September of this year.
To be -- It says publication to be late July, early August.
So probably published in August.
>> There are some other provisions of streamlining section that narrow the scope a little bit having to do with certain variable aspects of CEQA that may be not worth going through.
They're kind of dry.
But, for example, the alternatives analysis.
This one is important.
The alternatives analysis need not necessarily analyze a reduced project even if it would avoid impacts, which is an interesting provision in itself.
Growth inducing impacts, which wouldn't apply to this project anyway, is another thing that the office -- that the State decided not to put into the streamlining -- streamlined EIR.
So it's a few things.
>> So if comments come back to you about the concern for the overall height and massing impact on the historic resources, if the alternative project or alternative analysis is not part of the streamlined project, would you analyze that anyway because the comments have come in on height and massing?
>> I think we'll be working with staff to figure out what's the best way for an alternative to achieve the objectives and meet the intent of the guideline.
So, yeah -- first of all, just very basically, different project configurations will definitely be on the table when we look at alternatives, whether it's changing the massing, how it's distributed on the site, design -- certainly design aspects are all potentially within the purview of what the City can look at for alternatives.
>> Okay.
And then I'm assuming the City is going to also incorporate the downtown Berkeley design guidelines?
>> Yeah, the EIR --
>> Do you know?
>> -- will look at potential consistency or otherwise with the guidelines.

And also, the guidelines will guide what, for example, the alternatives might look like in a design that, say, could be -- if the EIR finds there are some aspects of the proposed design that aren't quite consistent with the proposed guidelines, then the alternatives can use the guidelines to say here's a project that --
>> This is better.
>> Yeah, a design that might fit better.
>> Because I am concerned about the glass -- I mean, the -- the eastern facade as the sun comes up.
If it's too much of a wall of glass. I mean, there's a concern of the western side --
>> Wall of glass.
>> -- in the same sense, but the eastern side kind of reflects, as -- you know, the hill goes up, you could get a lot of light, you know, reflecting back onto the hill.
Is that -- I mean, there's -- west side is also.
The eastern side --
>> I think something that surprised me was to read that, it was considered in-fill project.
I think in-fill is when you have two buildings, a little bit of space and you put something maybe several stories tall in Portland or Seattle or somewhere.
And suddenly in-fill is going to be one of the tallest buildings that we have, which I found really shocking.
And that's why I went looking for those guidelines.
>> Right.
>> I so far haven't seen anything that talks about ultimate height in relationship to other buildings, but I think that is extremely important for us to be looking at because this building is surrounded by historic buildings which are far shorter than it is. Absolutely.
That is our -- some of our most precious.
It's right next-door to national trust register historic district plus, obviously, landmarks and a lot going on all around.
So suddenly this in-fill thing is actually the biggest one in the bunch.
>> The guidelines do define in-fill in a couple different places.
>> Right.
By density and how big.
>> Typically, if it's consistent with the general plan designation, surrounded by urban development, and develop sites served by public services, then it's essentially in-fill.
>> Right. It doesn't matter.
>> That's for the purposes of the CEQA guidelines, specifically what we're working with.
>> Are there any temperature studies?
For example, when Frank Gehry built the Disney Concert Hall in Los Angeles, the condos and the apartments across the street from it, their temperature went up over ten degrees because of the reflection of the light off the metal.
And eventually they modified the Disney Concert Hall.
They dulled it so it wouldn't increase the temperatures.
Now, this one has a lot of glass.
Are there temperature impacts from glass?
>> We'll certainly take a look at it.

>> Commissioner Hall: So I guess my question now is do we need something like a motion to say that we study this, we study this?
Because a number of people here have said that -- either repeated what the public said or brought up their own points, and all of those I think are very important to get into this study.
So you probably need to state that for me.
>> S. Zarnowitz: We're actually -- This is being recorded. It will be transcribed, so we'll have all of these comments. If you wanted to make one or two key points, you could certainly do that if you wanted to have a motion as a commission. But generally it's an information gathering, an input gathering meeting. But you could summarize it.
>> But if we don't make a motion -- It seems to me that if we make a motion, it's actually more a part of the record as opposed to just it was said but can easily be ignored.
>> S. Zarnowitz: If you have an agreement on a particular issue, -- again, it's up to you, but we have all of these comments.
>> Yes.
And that's all it is for a scoping session, is just a report on the comments and make sure they're addressed in the EIR.
So -- And --
>> And they will.
>> So we'll have a discussion when we see the draft EIR in September.
>> So then my comment would be that everything that the public has said and that has been heard here will be included as something that is looked at --
>> Right.
>> -- as part of the scope.
>> And that's, I think, very good language because it means they'll be considered.
These comments are considered.
>> Yeah.
Okay.
And then when it comes back to us, I will make a formal request for the mitigation.
>> S. Zarnowitz: Yeah.
We've taken into account the suggestions this evening as well, yeah.
And it will come back to you as a draft document for you to comment on.
And then eventually you'll use it in your decision.
>> Right.
Okay.
>> Commissioner Hall: Okay.
Are we done with comments?
And I'm glad we gave the public lots of time to speak because I think it was extremely important, even though Mark Rhoades made a very snide comment about (indiscernible).
>> Well, I think he was under time pressure.
>> Yeah.
His personal time pressure.
That's a little different.
Thank you for your time, project people and public.
(conclusion of discussion of item 6.A)

Zoning Adjustments Board Meeting
June 12, 2014

>> M. Alvarez Cohen: We're going to get started in a minute.
If you want to speak please go to the staff table and fill out a green speaker card.

>> M. Alvarez Cohen: Welcome to the City of Berkeley Zoning Adjustments Board meeting for Thursday, June 12th, 2014.
Let's start with a roll call vote and ex parte disclosures.
Sally, can you do that for us, please.
>> S. Zarnowitz: Yes, thank you.
Murphy.
>> S. Murphy: Here.
>> S. Zarnowitz: Allen.
Here.
No ex parte.
>> S. Zarnowitz: Donaldson.
>> S. Donaldson: Here.
I did speak with the applicant from Far West Spring at an event he happened to be at, and I said hello and he talked to me.
And he just introduced himself, so that was it.
>> S. Zarnowitz: Thank you.
Alvarez Cohen.
>> M. Alvarez Cohen: Here.
No ex parte communication.
>> S. Zarnowitz: Thank you.
Pinto.
>> P. Pinto: Here.
No ex parte.
>> S. Zarnowitz: Hahn.
>> S. Hahn: Present.
No ex parte.
>> S. Zarnowitz: Thank you.
O'Keefe.
>> S. O'Keefe: Here and no ex parte.
>> S. Zarnowitz: And Tregub, not here yet.
>> M. Alvarez Cohen: And Stephen can you just confirm whether you have ex parte communication?
>> S. Murphy: No ex parte communication.
>> S. Zarnowitz: Thank you.
>> M. Alvarez Cohen: Let's move to preliminary matters.
Anyone who wants to speak on a topic not agendized on tonight's calendar, you're welcome to do so now.
All right.
Let's move to the consent calendar.
Let me tell you what we have here in terms of cards.
We have one card for 1621 Harmon.
And the other card is for 2211 Harold Way.
And they're both in support.
So 2211 Harold Way is a scoping session. We're going to hear that one.
So we have no cards on number one, number two, and number three.
Any discussion or motion?
>> R. Allen: I would move that we put number one, 2941 Telegraph, on consent.
And number 2, 2828 McGee Avenue on consent, and number 3, 1150 Sixth Avenue on consent.
>> S. Hahn: I'll second that.
>> M. Alvarez Cohen: Great.
Any discussion?
All right.
I'll take a voice vote.
All in favor, say aye.
>>Multiple Voices: Aye.
>> M. Alvarez Cohen: Anyone against?
Anyone abstaining?
All right.
So 2941 Telegraph Avenue, you have your Use Permit. It's appealable to City Council. You can go home.
2828 McGee Avenue, you have your Use Permit, and it's also appealable to the council and you can go home.
And finally, 1150 Sixth Avenue, you have your Use Permit and that is also appealable to the city council.
Let's move to item number 4, the draft EIR scoping session for 2211 Harold way.
Aaron, do you want to kick us off with a little summary?
>> A. Sage: Yeah, I prepared a little presentation.
Some of you are familiar with this project.
We did a little preview last year, and the process continues.
We're currently in the EIR process, and I'm sure you're all probably familiar with what an EIR is but it's an Environmental Impact Report, and it's required by the California Environmental Quality Act.
And basically, projects that could have a, quote, "significant impact on the environment" have to prepare this type of project -- this type of report.
And this project is located on a site with a designated city landmark, the Shattuck hotel building which has had several additions to it since it was first constructed in the early 1900s.
And so it's been known by staff from the very beginning that because this project is removing a portion of that landmarked building that an EIR would be required.
So we've been starting that process, and this meeting is encouraged by CEQA.
It's not required by CEQA but it's encouraged and it's often done basically to get early feedback from other public agencies that might have an interest or regulatory role in the process, and by members of the public, and of course in Berkeley we also are wanting to check in with our decision-makers.
We had a scoping meeting for this project last week with the landmarks commission, and we've also scheduled this one with you.
So, just to run through the presentation here real quick.
So the purposes of CEQA are to disclose potential significant environmental effects; to identify ways to reduce or avoid those effects; to consider feasible alternatives to the proposed project; to foster

interagency coordination in the review of projects; and to enhance public participation in the planning process.
I've already talked a little bit about the purpose of the scoping meeting.
Another thing I'll just add is really we're here to just get input, and we also want to provide some basic information about the project itself and about the process moving forward, but what we don't want to do is get into discussion about whether a particular effect might happen or exactly what kind of analysis staff is going to do.
It's really more about, hey, staff, make sure you consider this.
And we'll be taking comments and taking that under consideration.
So here's an overview of the EIR process.
The City -- the first step is that the City prepares a notice of preparation, and that went out a few weeks ago.
There's a schedule on page 3 of your staff report.
That went out May 19th.
And that kicks off a 30-day comment period, which will end on June 19th.
And then any comments that we receive during that comment period need to be considered, and we will briefly discuss those in the EIR.
After -- So we're at the teal stage.
And the next step is to prepare the draft EIR, and once that is finalized and released for public review, there's a 45-day comment period.
We will be releasing the initial study with the EIR in -- on other projects and, in some cases, the City will release the initial study ahead of the EIR with the notice of preparation and get comments on that.
In this case, we've decided to release that with the EIR, and there's language in the provisions of CEQA that this project is falling under that encourages us to do it that way.
Then next, a notice of completion is filed, and that kicks off the 45-day comment period on the EIR.
After the comments come in, we prepare a response to comments.
We make any amendments to the draft EIR that are needed.
And that gets compiled as the final EIR.
And then that will come to you for certification.
And according to our rough project schedule, that would be coming to you in November.
So just to kind of orient you where the project is located -- if I can get my laser pointer here -- the site is in this yellow outline.
This is Shattuck Avenue here.
Here's the BART station, the main entrance.
And this hatched area is basically the upper floors of the Shattuck hotel building, which are not being affected by this project.
The project does excavate beneath the ground floor of the hotel building in this area to create room for some of the Cinemas that are part of this project.
And I'll get into the project description in just a second here.
This slide was particularly geared toward the LPC since they are going to be considering a structural alteration permit due to the landmarks on the site.
But just to orient you, the -- this area here with the number 1 is the oldest portion of the site built in, I believe, 1909.
And then there were several additions.
There was an addition in 1912, which is where the restaurant is located, the single story portion along Allston.
And then in 1913, there was an addition bringing the building further down Shattuck and kind of wrapping around the corner onto Kittredge here.
And so this piece was from 1913.
And then in 1926, this piece here at the corner of Harold and Kittredge was added.
And then finally in 1959, this piece here was added.
The project will include 302 dwelling units, a six-theater cinema, ground floor retail and restaurant space of about 10,000 square feet and a three-level underground parking garage with a total of 171 auto spaces and 100 bicycle spaces.
The maximum height of the building is 180 feet with 18 stories in that portion.
Here's a site plan.
Here's Shattuck Avenue, and the building itself, the new building is basically in this area here along Harold Way and along Kittredge.
It's kind of an L shape.
The red area on this slide shows you the existing structures that are going to be removed.
Again, it's the 1959 portion at this corner and the 1926 portion, and then part of the 1913 portion.
Here's an elevation.
The massing of this has not changed but the applicant has continued to massage and refine the facade in terms of materials and colors and window placement.
But the basic massing is still as shown here.
Here's an elevation from Shattuck.
As you can see, the tower is located toward the southwest corner along Kittredge -- at Kittredge and Harold, basically.
Just briefly, I don't plan to read through this but one thing that's unique about this project under CEQA is that it's taking advantage of a new section in CEQA that is intended to streamline the review process for projects that are falling under an EIR that's already been prepared.
And in this case, the EIR that this project falls under is the DAP EIR from a few years ago.
And basically the idea is to not rehash, you know, issues and analysis and impacts that have already been looked at under that previous EIR but to just focus on specific new impacts that result from this project.
So again, the issues that we are already aware of that have triggered the EIR from the beginning, demolition -- oops, I did not mean to hit next -- demolition of portions of the historic building, impacts related to the new construction on surrounding historic structures, impacts on adjacent and surrounding historic structures from the construction of the proposed project, and that would be things like potential -- potential impacts from vibration during construction, potential inconsistency with adopted policies related to historic resource protection.
There are policies within the DAP, the Downtown Area Plan, that basically encourage existing landmarked buildings to be preserved.
So the EIR will be discussing that and doing an analysis of that.
And then we're also going to be looking at potential view blockage from the area on the U.C. Berkeley campus near the Campenile, which is sort of a feature of the campus that could contribute to the historical significance of the campus.
And then also, there is going to be some discussion of traffic impacts due to additional trips being added by the project.

Of course, any other issues that we hear about during the scoping session or just any written comments we get during the scoping comment period, we'll be looking at those and making a decision as to whether those should also be addressed in the EIR.
But whatever is determined not to be a potentially significant impact by staff would be discussed in the checklist or in what would commonly be referred to as the initial study checklist, which will come out with the draft EIR.
So just to conclude, the comment period ends June 19th.
This is where you can send any comments.
We will be taking comments from you tonight, and if you want to make comments as individual board members, you're welcome to do that.
If the Board wants to make a motion to make comments as a board, you could also do that.
As individuals, if you want to submit comments to me later on, you're welcome to do that as well.
>> M. Alvarez Cohen: Thank you, Aaron.
Any questions for staff?
Yes, go ahead, Sophie.
>> S. Hahn: I just wanted to thank you for putting together this nice PowerPoint, and I think it's great to have visuals for us and for the public.
And I appreciate.
Hope to see more of that.
>> A. Sage: Thanks.
I do have to give credit to our CEQA consultant.
He actually prepared this for the LPC scoping session so I'm just riding on his coattails.
>> M. Alvarez Cohen: All right.
Go ahead.
Igor.
>> I. Tregub: Thank you.
I echo Sophie's comments and I have two questions.
One, there was a slide where you mentioned potential inconsistencies with historic buildings.
If you could just expand on that.
And the other question is I just wanted to clarify that to be defined as a demolition, 50% of the walls and the roof would have to be taken down.
>> A. Sage: Okay.
I'll do the second question.
Then I'll ask our historic preservation planner here to address the other one.
The demolition, the code provision on that is that if you remove more than 50% of a building's exterior walls and roof, that constitutes a demolition.
And this entire -- Other than the 1959 portion, everything else is one building.
It's all considered one building.
So we've looked at those calculations and they don't exceed those 50% thresholds.
So technically, they don't need a Use Permit for demolition.
>> S. Zarnowitz: And the question about historic resources, it's CEQA, which requires the evaluation of the -- any adverse effects to significant historic resources, such as City landmarks and buildings eligible for the Cal and national register.
But also the Downtown Area Plan has policies for preserving, you know, landmarked structures where possible, and also has policies about relating the new construction to the historic resources that remain.
So while the project is doing some of that, it also has impacts particularly related to the demolition.
>> P. Pinto: I had a question.
Could you clarify, is this structure -- it's not on the national historic list of structures or state?
It's being considered or has been?
Or I'm just trying to understand where it is.
>> S. Zarnowitz: Well, it's eligible and it's listed as a City landmarks, so it's considered a -- it's been evaluated.
You would see that in the Environmental Impact Report, but it's considered a significant resource under CEQA.
That's what we're anticipating in the report.
>> P. Pinto: And do you know if the project is going for tax credits in that, for historic structures?
>> S. Zarnowitz: We're not aware that it is.
It's mainly it's new construction related to it.
So, you know, more so than the rehabilitation of the existing.
So it's really seen as new construction versus rehabilitation of the existing historic resource, but it's a good question, a good....
>> S. Hahn: You mentioned that the DAP EIR studied that parcel.
Did the DAP EIR study a building of this size on this parcel?
>> A. Sage: It did.
It studied a building actually taller than this building.
>> S. Hahn: On that particular parcel?
>> A. Sage: Yes.
>> S. Hahn: Is that something we might be able to see at some point?
I mean, we're creating a new EIR, but it could be helpful for us to see the information that was already compiled.
>> A. Sage: Yeah, we're definitely going --
>> S. Hahn: Because it's really hard to know what to ask for when you don't -- I mean, I suppose I could have dug into the DAP EIR and found it so it's partly on me but it would be helpful for that to be provided to us to know what's left what wasn't in there.
>> Yeah, and as this is an in-fill EIR and it is using the DAP EIR, the document itself does refer to -- each section refers to what the DAP covered and then how this builds on that.
So the document itself should help you with that but we can also provide links.
>> P. Pinto: Yeah, I have to follow-up on that.
So it would be helpful to get some clarification.
Maybe I can get this later or we can get this later, because the DAP was a more programmatic EIR versus a project-specific EIR.
So there are certain differences there that I would like to make sure that this EIR follows through because there are -- you have to go a little bit further in terms of that.
Program is one thing, but I think project specific has a different set of criteria.
I'm assuming it's a project specific EIR.

>> A. Sage: We're definitely going through all the different times of environment impacts very carefully to distinguish between what is covered by the analysis in the DAP EIR and what needs further detailed analysis for this project.
>> M. Alvarez Cohen: Other questions for staff?
No?
Seeing none, I have two speaker cards here so let's open up the public hearing.
And first of alls the applicant, are you here?
Yeah, there you are.
Do you want to speak?
Mark, did you fill out a speaker card?
>> Mark Rhoades: I won't but I will.
We didn't intend to speaker.
Mark Rhoades, applicant and representing the property owner for this project.
Thank you for your consideration, and all I have to say at the moment is we're looking forward to a robust environmental document coming out for this thing in July or August.
So thank you.
I'm happy to try to answer any questions you might have about the project as it stands today.
We're moving through the design subcommittee process with landmarks commission and Design Review Committee currently.
>> M. Alvarez Cohen: Any questions for the applicant?
Go ahead, Igor.
>> I. Tregub: I just have a question.
If you could help remind us, how many off-street parking spaces, if any, exist there now?
And I know you're adding a garage as proposed, but what exists there now?
>> Mark Rhoades: Zero.
There are no parking spaces on-site right now.
>> I. Tregub: Thank you.
>> M. Alvarez Cohen:
>> S. Donaldson: I have one question.
So most of the demolition is occurring below or beneath the existing Shattuck hotel; is that correct?
>> Mark Rhoades: No.
The demolition that's occurring is essentially the western half of the block.
>> S. Donaldson: Oh, I see.
I forgot that.
>> Mark Rhoades: Where the theaters are now, and then the postal annex building.
>> S. Donaldson: Right.
Oh, okay.
>> Mark Rhoades: The Shattuck hotel will be untouched except for where the theater box attaches to it.
>> S. Donaldson: I got it.
Thank you.
>> M. Alvarez Cohen: I have a question.
I guess I didn't notice this Are you allocating 171 parking spaces in any particular way, by residential and commercial or?
>> Mark Rhoades: Well, consistent with the Zoning Ordinance's implementation of the Downtown Area Plan, the parking spaces are unbundled from the residential units.
So there's some allotment of parking spaces for the retail space, and one of the things that we're hoping to do as well is dedicate the top level, about 39, 40 spaces, to public parking.
So the public would have access to parking right there in the core.
Is.
>> M. Alvarez Cohen: Good to know.
Go ahead, Sophie.
>> S. Hahn: Do you guys own the Shattuck hotel building as well?
>> Mark Rhoades: No.
It's a -- Go ahead.
I'm sorry.
>> S. Hahn: No, you started answering.
I guess my question was -- and I don't know if this is an EIR issue, but whether the hotel will have to close during the demolition or is there any danger structurally to the building?
And if that's something that should be looked at carefully.
How does that work?
>> Mark Rhoades: I'll try to remember those.
Forgive me if I have to come back and ask.
But first of all, the ownership structure of that block is a condominium structure.
It's very complex.
The hotel is owned by the Patel family with the exception of the retail strip facing Shattuck Avenue under the hotel.
So the retail strip is owned by the property owner who's proposing the development of the apartments, but the hotel above it and around the rest of the block is owned by the Patel family.
As far as closing the hotel during construction, no.
There will be, you know, certain impacts associated with the construction and digging the whole and things of that nature, but we don't think they're going to have to close.
This EIR is going to really carefully look at those impacts, both adjacency from the standpoint of other businesses and the library and noise and dust and vibration in the area, but more specifically, like we did for the Acheson Commons project that has the Bockenheimer building right in the middle of it where people are living right now, versus like Ace Hardware and others. You know, what equipment gets to be used, where and how close to the building becomes a very,very important consideration. And so those you will see come out as mitigations in the EIR.
So like not using big heavy equipment and vibration-creating devices.
You know, more fine-grain of construction has to occur --
>> S. Hahn: It will be interesting to see how that building will be built without it.
It will be quite interesting.
But for staff to follow-up on this same question.
If the impact, like the economic impact on the businesses is something we can address, because even if that hotel isn't closed, it seems like, you know, the business -- the business -- stream of business is going to be impacted for the merchants and for the hotel.
Is that not something we address in the EIR?

>> A. Sage: Well, CEQA is limited to impacts on the physical environment.
So the only way that issue would come into CEQA would be as if the socioeconomic impact leads to a physical impact on the environment.
>> S. Hahn: Didn't follow that, but maybe whether it would be addressed here or elsewhere, it seems that would be an issue we would want to consider.
>> A. Sage: Right.
We'll definitely take note of the comment.
>> M. Alvarez Cohen: That's a good point.
I bet you the hotel would have to disclose to people that are coming to the hotel about the construction, maybe even have to discount rooms to keep it going.
>> Mark Rhoades: We're in discussion with them about all of that.
>> M. Alvarez Cohen: Good to know.
Shoshana.
>> S. O'Keefe: I'm trying to remember the exact layout of that building, but I'm assuming the Habitot section in the basement, is that also going to be demo'd?
>> Mark Rhoades: That becomes the new theater spaces, essentially, and Habitot is looking at moving down to -- if I'm not mistaken, they are in contract at a new space down at Adeline and Alcatraz.
>> S. O'Keefe: Are they in contract now?
>> Mark Rhoades: I'm not sure to tell you the truth, but I know they have been working on it.
>> S. O'Keefe: So they're gone.
>> Mark Rhoades: Yes, from that space.
>> S. O'Keefe: I wanted to clarify. From that space.
>> M. Alvarez Cohen: Good to know.
Did you consider other uses?
For example, any office space on any floors or even condominiums?
>> Mark Rhoades: Thank you, that's a good question.
On the first point, office space, this developer isn't an office space developer.
He's a residential developer.
So, no, it hasn't been a part of the consideration.
I'll tell you that from what I know about some of the other development projects that are coming through --, in particular, the hotel project -- I think people are still a little reticent to propose spec office space in the downtown for whatever reason.
And, you know, I really don't have a good answer to that myself, but not for this project.
What was the second half of your question?
>> M. Alvarez Cohen: I was just curious, you could probably make this decision later on in your project but at this point you're not considering any condominium versus rental?
>> Mark Rhoades: Oh, no.
There's a number of program changes that have already been put into effect for the proposal that you see right now from when we first walked the project in the door.
For instance, the entire mid block area was proposed to be a plaza.
And when we started meeting with community groups and the Downtown Berkeley Association, it became very, very clear that replacing those theaters was job one.
Job two was, you know, apartments are fine but if you're really trying to make a difference in the downtown, can we look at an ownership model.
So we've gone back and taken a hard look and we're going to be filing a condominium map on the project.
>> M. Alvarez Cohen: Good to know.
Great.
Igor.
>> I. Tregub: Just a follow-up from a previous question, and wanted to get clarification.
Have you be in talks with Habitot about potentially leasing part of the ground floor in the new building?
>> Mark Rhoades: I have had extensive talks with Gina at Habitot, and in fact I'm the person that referred them to the building that they're looking at right now.
>> I. Tregub: Okay.
>> Mark Rhoades: So they actually would rather be at that space, I think, given all the circumstances, than where they are in the basement right now.
So I think it's going to work out well for them.
>> M. Alvarez Cohen: Okay.
Sophie, keep it going.
>> S. Hahn: I'm sorry.
Last question elicited by the condominium conversation and this may be a question for staff.
This is sort affordable housing rental versus a condo project.
>> Mark Rhoades: Under the current ordinance, you know the inclusionary requirement for a condominium project is 20% of the units.
But there's a peninsula lawsuit similar to the Palmer decision of about seven, eight years ago that invalidates inclusion requirements for condominiums.
So I think the City's going to need to go through a nexus process for condominium units to establish what that inclusionary requirement should be based on the need.
So I don't know what that number is going to end up being.
If the Planning Commission and the City Council aren't able to get to some kind of a number before this project comes through, it will probably have to have what we would loosely refer to as a blank check condition.
That is, the project will have to comply with whatever inclusionary requirements the City Council passes when it passes them.
>> S. Hahn: That's interesting.
Thank you very much.
The staff concurs with how that would work?
>> A. Sage: Yeah.
Basically staff is looking at that issue in the wake of this lawsuit, the Sterling Park decision.
And that is the approach we're looking at with incoming condo projects, to put that type of condition on these projects.
>> S. Hahn: Seems like we might want to speed that process up.
It's not easy for a developer to figure out a project when they don't know how much of it is going to be asked to be affordable.
Is that something we can contribute to the speeding of?
>> A. Sage: You're welcome to, you know, reach out to your council person on that.

One thing I'll say is that typically when we have these kinds of conditions that say you're going to be subject to this thing that hasn't been adopted yet, we have to put like a not to exceed parameter on that, put some parameters on that so they know the worst case scenario.
>> S. Hahn: The best?
>> A. Sage: In the most expensive scenario.
I'll just put it that way.
>> Mark Rhoades: It's what was done in the wake of the Palmer decision for rental housing projects in Berkeley.
>> S. Hahn: Thank you.
I appreciate it.
And I do appreciate that not knowing can be really a challenge, so I hope we figure it out.
>> M. Alvarez Cohen: Okay.
I think that's it, Mark.
One piece of advice.
Maybe when you bring this before us, it won't be like the previous project where we had to spend an entire five hours working on it.
Thank you for considering that.
[Laughter]
All right.
So we have two speakers.
Elizabeth Rudnick followed by Steve Finicom.
Elizabeth, you have three minutes.
>> Good evening.
I'm Elizabeth Rudnick and I'm here to speak on behalf of Dharma College along with Dharma publishing book store, the Tibetan Aid Project, and Mongolian Research Center for Buddhist languages, and we're located all along Harold Way, right across the street from where the project is proposed.
I'm here tonight to express some very grave concerns that we have.
And I realize that some of these things may be addressed in the Use Permit or in the construction permit, but I still wanted to get these out on the table so that we don't forget about it.
I think that staff has preliminarily concluded that the significant effects would be limited to historical and traffic circulation concerns.
And we really think that wherever possible, we'd like to have included in the EIR the impacts of parking and the daily operations of neighboring businesses and the impact of construction activities.
Certainly there will be noise.
There will be dust flying.
There will be interruptions to services at our places of business, and so we want to be on top of that at all times.
And we believe the project will significantly impact our operations, and we want to mitigate and manage those possibilities early on in the program.
We'd like to see these issues addressed in the EIR, and including parking.
Now, we understand that there will be additional parking.
There will be, we just heard, public parking.
But already the parking is very, very congested.
It's very expensive for students and faculty, and, yeah, the faculty that we have, which is primarily volunteer.
So we like to see those things discussed.
We think that we'd like to see in the construction phase of the project what the schedule would be as far as the duration of the construction, the staging, the location of the staging and the timeline.
The location will be essentially away from us, but to me, this is a very complicated project, and staging tends to spread itself out, unless you're really on top of it.
So we want to work with that.
There may be emergencies caused by this construction, emergencies that would effect our classes and our students there, and we want to be able to deal with that effectively.
So we need good communications between the Berkeley plaza management and the construction contractor.
So in closing, we are expecting a very good and long relationship with Berkeley plaza.
We have many mutual interests.
And we intend to build trust and cooperation between our organizations and the ownership and management of Berkeley plaza.
Thank you.
>> M. Alvarez Cohen: Good comments.
We may have a question for you.
Go ahead, Sophie.
>> S. Hahn: Have you been contacted by them to discuss these things?
>> I believe that we -- that Dharma College has been contacted and there have been -- yes, I think so.
>> S. Hahn: Four meetings.
That's great.
>> I knew, and I've been tasked with tracking this.
>> S. Hahn: I think you're going to have a fifth meeting.
>> Yeah.
But I won't be too hard on you.
I want to go back, just very quickly, to the location, the project location, and to tell you that Dharma College, if I can --
>> M. Alvarez Cohen: You're going to have to --
>> Can you do the previous slide?
>> Over here, Harold Way.
>> You're going to have to speak into the microphone.
So we'll use the laser pointer.
We know what you're talking about.
You go back over here.
By the way, are you basically done?
Is this an adjunct to your -- Okay.
Go ahead.
>> Harold Way, right across the street is Dharma College, and the little white area is the Tibetan publishing -- I mean Dharma publishing book store, and that next building is what I really want to emphasize is one of the businesses there, too, is Mongolian research where a lot of scholars work.
And so we -- And we're used to -- we're academic, and we're used to quiet and being able to study and research and we work on Tibetan languages.
It's not the easiest work.
So if you could address that particular -- I noticed on one of the exhibits, that was not marked as being affected.
Dharma College, the book store, and the center, the research center.
>> M. Alvarez Cohen: Got it.

Very good.
Any other questions?
No?
Thank you for your comments.
>> Thank you.
>> M. Alvarez Cohen: Stephen.
>> Good evening, commissioners.
Okay?
I know that wasn't three minutes.
So I won't take five hours of your time, but I have several issues I want to address with you.
The first, which I've brought up in other forums but I'm not sure I've presented to the ZAB is the issue of impacts on the historic views from the campus and the Campenile of this project.
The building -- the downtown plan EIR did not, in fact, analyze a building like this on this site.
It analyzed a very narrow sliver of a building on just a tiny piece of the property.
So there needs to be -- I'll use Mr. Rhoades's term, a very robust analysis of the large structure here, which the applicants have acknowledged will intrude into the view of the bay and the general view shed of looking out there from the base of the Campenile which was not analyzed in the downtown plan EIR either.
So this EIR needs to look seriously at some alternatives, reconfiguring some of the massing of the building to reduce the impacts on those views.
The parking spaces are an interesting issue because this project will create the fourth largest parking garage in the downtown core.
That doesn't necessarily square with Berkeley's transit first policy, and it's interesting that the project will have a hundred bicycle spaces but 171 parking spaces.
I'd like to ask that the EIR look at the financial issues of the parking.
So parking is very expensive to build and is parking driving -- in part driving the size of the building?
And could there be an alternative with reduced parking, which is very consistent with the City stated goals for right here within a block of the downtown BART station, and reduce the overall cost of the project and possibly have a slightly smaller building as a result.
There's an issue about impacts of adding population to downtown and not having any active public open space added downtown as a result.
I just want to note that.
It's an issue that comes up with all these projects.
Finally, this process has been a bit confusing because there hasn't been any released initial study.
There hasn't been a released environmental checklist as far as I know.
So we're all sort of -- we see these presentations, and every commission and committee asks for more information and says, "We hope you'll give more information in the future." Usually you have a release of an initial checklist, and then you have the EIR, the draft EIR, and then you react to that.
So we've been told, I believe, that the initial checklist or the initial study will be released at the same time as the draft EIR.
So we won't have a chance to comment on that in scoping.
Thank you.
>> M. Alvarez Cohen: Wait a second.
Any questions?
>> I. Tregub: Just a question for staff based on that comment.
For future, might it be possible to issue the draft checklist before the publication of the draft EIR?
>> A. Sage: Yes, that would be possible.
>> I. Tregub: And is that something that staff could do?
>> A. Sage: We could, but we've decided not to do that.
And just to give you a little more background, again, this EIR is being processed under a new section in CEQA.
And one of the provisions of that section is that the -- it doesn't require but it encourages that the EIR be released with the EIR -- excuse me.
That the checklist be released with the EIR.
>> S. Donaldson: I just had a quick question.
Do you represent an organization or a particular group or just yourself?
>> Not at present.
Just myself.
>> S. Donaldson: Okay.
Thanks.
And what's your address?
>> Oh, it's -- I'll add it to the card and pass the card around.
>> S. Donaldson: Okay.
>> M. Alvarez Cohen: Any other questions for the applicant?
I mean for the speaker?
No.
All right.
Thank you.
So applicant, would you like to come up and maybe address some of these concerns or are you -- do you prefer -- anyone have a question for the applicant?
I actually do.
I have a question for the applicant, so....
>> Just to remind the commission this is about scoping the EIR and talking about that document, not so much the project itself and questions on the project.
>> M. Alvarez Cohen: But it never hurts to just get some clarifications.
I was just curious, what were your comments on open space?
Because in your first presentation that, whole area behind the building, you know, it was pretty exciting, so has that been completely eliminated?
>> Mark Rhoades: I think I have two responses.
First, under the City's general plan, the Citywide open space is -- exceeds, actually, what the state's requirements are per resident.
Second, this project proposes -- is going to exceed the open space requirement under the Downtown Area Plan zoning by about 4,000 square feet.
So with the public plaza, the open spaces on what we've referred to as the shoulders of the building and the top of the building, you know, again it, exceeds what that requirement is.
>> M. Alvarez Cohen: Great.
Thanks for that clarification.
Any other questions?
Go ahead, Steven.

>> S. Donaldson: I'm assuming this, but I just want to you talk a little bit about the issues of the Dharma College and how you're thinking about addressing those and mitigating those.
If you can comment on those.
>> Mark Rhoades: Working with Dharma College and the Mongolian Center has been kind of one of the centerpieces of our project from the get-go.
We have had four very, very productive meetings with the leadership at the college and the center and the book store. We worked very closely in concert with them to design our streetscape, to pull it across the street to their side of the street, and I think they're pretty happy about the results.
And in addition, they're pretty happy about the number of people that are going to be living across the street, potentially becoming students at the center and things of that nature.
And consistent with what Ms. Rudnick had to say, we share the concerns about the potential for dust, vibration and noise, and we're going to do what we can in the EIR to mitigate that.
>> M. Alvarez Cohen: Very good.
We're all done with the applicant, so questions for the staff?
Go ahead, Prakash.
>> P. Pinto: I have more of a general comment.
As these come up in conjunction with the Downtown Area Plan, and this happened with the hotel as well, but looking at just in terms of how we analyze views, we tend to look at the Campenile as the primary view but I think there are other views such as the one coming north along Shattuck.
If you look at the historic postcards or photographs of Berkeley, there are many photos that -- because that's how the trains actually came into the station downtown.
So I want us to be a little bit more holistic in terms of how we look at these projects in terms of the views.
And especially as the Skyline starts to evolve.
Because I think it's great that the Skyline is evolving, but how we look at it is kind of important from various views.
Thank you.
>> M. Alvarez Cohen: Go ahead, Igor.
>> I. Tregub: Thank you.
This is a not so general comment.
I think staff should really look at whether a cumulative impact assessment is warranted that's more detailed than just a checklist.
This is a project that is being proposed along a major transit-oriented development corridor, and we're going to have the BART plaza reconfiguration.
We have, of course, other projects in the downtown core in the pipeline.
The comments that were mentioned today I think are indicative to not just the traffic flow but the environmental impacts of other activity.
I would like to see a robust look at parking and what other parking structures are going to be proposed within the downtown core, within, say, a thousand feet radius of the project.
So that would be my main comment, is to look at not just the parking specifically but the parking in the context of the other both positive and negative environmental impacts that are created as part of the entire Downtown Area Plan implementation.
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>> M. Alvarez Cohen: Thanks, Igor.
Any other questions from the board or comments by the board?
>> A. Sage: Could I just get a little bit of clarification on your comment, Igor?
With regard to parking, could you just expand a little bit on what sorts of adverse effects you'd be wanting us to look for in terms of other parking near the projects?
>> I. Tregub: Well, you mentioned circulation.
And as I understand the EIRs, the circulation that staff would be analyzing would be specific to this project.
The impacts of different traffic flows with respect to the 171 parking space -- parking structure as well as maybe ingress and egress outside of that, some off-street parking.
But of course this project is not in a vacuum.
We have other developments, some as tall as 120 feet that are going up in other parts of the downtown corridor, or that are at least in the pipeline.
With that, with the BART plaza reconfiguration, it would be interesting to look at the cumulative impacts of that.
And perhaps the goBerkeley study might be a starting point of at least the current impacts, but of course they're going to change in the next five years.
>> M. Alvarez Cohen: Go ahead, Shoshana.
>> S. O'Keefe: I have a question for Igor.
Are those other tall building projects that are in the pipeline, are those going to trigger EIRs?
Do we know?
Because they aren't involving landmarked buildings but they're pretty big.
Is that too speculative?
>> A. Sage: Yeah, I probably -- I wouldn't be comfortable making a guess on that.
I don't think staff has really made that determination yet.
>> M. Alvarez Cohen: All right.
I think we're done with this topic.
Oh, well, the public hearing is closed.
Staff, do you have more comments?
Board, you have comments?
>> S. Hahn: Yes.
>> M. Alvarez Cohen: Go ahead.
>> S. Hahn: Sorry.
So I did attend the landmarks scoping, and I just -- I want to emphasize that there are a lot of really worthwhile issues that were brought up there.
And I hope they will be carefully detailed and reflected.
This is the largest -- I believe it will be the largest building built in the downtown in something like 40 or 50 years and it happens to be within a historic structure.
It will then be wrapped around or sort of muffled up against a historic structure. It is across the street from a historic structure, it is a stone's throw from the post office and the library which I have to assume is a structure of some kind of special merit.
So I really feel like, yes, robust, absolutely, on the historic implications -- on the implications for historic buildings from many, many different perspectives.

I am skeptical of relying on the downtown EIR for this particular parcel, especially in light of a number of comments that were made, but it was a different type of building that was studied, that the criteria for the EIR may be a little bit different for a site or project specific EIR.
And I really feel like for the big -- a project of this size in such a sensitive location historically but also, you know, it's a huge addition of cars, a huge addition of people.
I just -- I don't see why we would be truncating anything.
It seems to me we want to overreach, if anything.
So I don't know if we're precluded from doing a full EIR but I would certainly like to see something approximating a full EIR, unless there's a reason not to do it.
It seems that if any project ever called for it, this might be it.
I'd like to see a lot about the traffic.
I wonder, has it ever been studied to make Kittredge and/or Allston one way?
I mean, it seems to me the whole traffic patterns, not just the volume but circulation is going to be a huge issue.
It's just a tight location. Obviously the increase in pedestrians.
There's a lot of pedestrian safety issues, particularly with the high school there.
There's certain times where there are little floods of people on the streets, and if you add to that what I hope will be a flood of people going in and out of this building for a variety of reasons, I think you just -- you have something really unusually significant.
Shadows, again, very large building.
What is proposed is kind of very long and large.
I think the shadow impacts are going to be sort of unusual for Berkeley.
And then in terms of views, I think there's the question of what views the bedroom might block, and that can be views of people close to the building, looking up at the sky or looking up towards the hills as well as views from the hills looking down towards the bay, from north and south not just views from the Campenile or from campus.
So there's the question of looking -- What would that building block or obstruct or contribute to?
How would it make the views better?
But also, looking at the building.
The building itself, how does it look?
The aesthetics, the historic context, the massing.
Is it relating to all these or at least some of the historic resources that it's embedded?
So I think the question of views is a very broad question and I think we should see it addressed.
If there are topics that you're considering omitting from this EIR because you think they were addressed in the DAP EIR, it would be really nice to have those included in an appendix or kind of excerpted and really have them surveyed and make sure there isn't some supplement that should be added to what was said in there.
And if it's not applicable, I'd like an explanation of why, as well as, you know, what you're including.
And then the last thing was just for the applicant, I know this is very early on, but this is a huge significant development, and I think it would be good to start thinking early.

The code does ask for significant community benefits beyond what is otherwise required, and my personal philosophy is that sort of mutual benefits, like it's good to have more bedrooms downtown or good to have more housing, well that accrues to the benefit of the community, obviously accrues to the benefit of the developer.
So I would like to see the community benefits early on in this process and I think that goes to the question of mitigations; right?
So that's it.
>> M. Alvarez Cohen: Thank you, Sophie.
Any other comments from the Board?
No?
Okay.
I think we're done with this topic, then, so let's move on.
Let's move to item 5, the 1619 Harmon Street.
And when staff is ready, please start us off.
Whenever you're ready.
>> H. Young: Good evening, my name is Hannah young and I'm the contract planner for 1619 Harmon Street.
This is Use Permit 2013-0053, and it's for the construction of a second single-family house on a parcel that currently has one house on the lot.
The zoning is R-2A, restricted multi-family residential.
There's six zoning permits that are required, two Use Permits, one for construction of a new dwelling unit and one to increase the number of bedrooms on the parcel above five bedrooms.
There's a couple Administrative Use Permits that are needed, one for the vertical extension of nonconforming front yard.
That's due to lifting the front house.
The second is the Administrative Use Permit for vertical extension of the nonconforming side yard.
That's due, again, to the lifting of the front house.
Administrative Use Permit for residential addition to the main house exceeding 14 feet in average height, and Administrative Use Permit to reduce the required rear yard.
The project is categorically exempt from CEQA.
A couple details about the now house.
It's two stories with a modern design.
It has a flat roof with a parapet wall height of 21 feet, eight inches and architectural elements at the northeast corner of the parapet, with a parapet height of 23 feet, eight inches.
It would be 1941 square feet with four bedrooms and one parking space.
Changes to the existing house involve racing the house two feet to 22.5 feet in height, converting the basement to a conditioned living space resulting in four bedrooms total.
And then the house would remain the 1775 square feet, as it currently is.
There would be a new uncovered parking space at the rear of the front unit.
And then the front stairs and rear deck would be replaced.
The existing curb cut would be removed, and a new curb cut and driveway would be constructed for use by both units.
There's a bit of process with community outreach and coordination, so I just want to touch on that briefly.
Ms. Gomez, the neighbor at 1615 Harmon, which is immediately to the west of this property, has expressed concerns regarding the impacts of the proposed two-story rear unit.

Staff met with the neighbor and viewed the parcel.
The applicant has also met with the neighbors to discuss the plans.
This process culminated in a SEEDS mediation with the applicant and the neighbors from 1615 Harmon on May 3rd.
According to the report from SEEDS, and after the neighbors presented their concerns, the applicant presented modifications to the proposed project, including shifting the house back by seven feet towards the year property line, reducing the second floor mass along the west property line by cutting the building corner back on the west property line.
Okay.
So right in this area.
And then adding frosted glass on the second story windows facing the neighbors. So those three modifications.
The applicants also indicated they would look at adding a third parking space.
According to the report from SEEDS, after this discussion, the neighbors agreed to support the proposed changes and inform the Planning Department of their support.
On the basis of that support the applicant prepared the necessary documents for submittal to the Planning Department and provided the revised plans to the neighbors.
However, according to a letter from Mrs. Gomez submitted on May 9th, the neighbors did not agree to anything during the mediation but merely told the applicants that one of the alternative plans submitted by the applicant, which was plan D, was more appealing and that the neighbors would provide a response to plan D within a week.
As of this date Ms. Gomez has not provided any further communications with staff and has not responded to staff's request for clarification of her position on the proposed plan.
So that's just a little bit of the background, how the project has evolved.
I'll speak briefly about the findings of the report.
Staff finds that the proposed project would be compatible with the proposed -- with the purposes of the R-2A district and would be compatible with the surrounding neighborhood's scale and character.
While there do not appear to be other two-story rear units on the immediate block, there are such units on the other side of the street.
A couple examples, 1608, 1612, and 1614 Harmon Street.
These both have two-story front and rear buildings with a total of eight and four units, respectively.
In addition, the site plan would maximize the usable open space on the lot.
It would provide a generous 35 foot distance between the two buildings.
It has a lot coverage that is significantly less than the maximum allowed.
It has 25% -- sorry, 27% coverage where 40% is permissible.
And it provides more than the double required usable open space.
It provides ten -- 1,000 -- sorry, 1012 square feet versus the 600 required square feet.
The height of the proposed project would be consistent with the other two-story buildings in the area.
With respect to privacy, although staff finds that construction of a new building in an undeveloped rear yard would reduce the privacy of the immediately adjacent properties, staff finds that the project would not be detrimental.
The applicant would replace the chain link fence with a six-foot tall wooden fence along the property line.
The applicant has modified the initial proposal to include obscured glass on several of the second-story windows that would face the adjacent parcels, so that direct views of those parcels would not be possible.
And in addition, the existing vegetation to the north of the parcels would also minimize impacts on privacy.
With respect to sunlight and shadows, based on the shadow studies provided by the applicant, in your packet as attachment 3, the shadow impacts on adjacent residences are not expected to be detrimental.
The raised front unit would have a very minor increase on shadows on the adjacent properties.
The new rear unit would generally have the greatest shading on the rear unit at 1615 Harmon Street.
The applicant has modified the design of this rear unit to reduce the shadow impacts.
As we mentioned before, the original design was shifted back seven feet towards the -- into the required rear yard, toward the rear property line.
And then in addition, the southwest corner of the second story was stepped back five feet.
So with these two design modifications, and based on the shadows -- the shadow studies from the applicant, you can see that the approximately three windows on the rear unit at 1615 Harmon would be shaded at 7:00 a.m., then by 9:40 a.m. the two windows would remain -- two windows would remain shaded and by 11:00, no windows would be shaded.
With respect to on-street parking, the traffic engineering has reviewed the plans and approved the new layout and curb cut.
Overall, staff finds that the proposed project is compatible with the R-2A zoning district purposes.
It provides medium density housing, similar to what is in the neighborhood.
It provides adequate open space for both units.
It does not unreasonably obstruct light or air for adjacent parcels, and it is of a similar intensity to the uses in the neighborhood.
Staff recommends that ZAB approve these permits 2013-0053 pursuant to Section 23B.32.040 and subject to the findings and conditions in your packet.
>> M. Alvarez Cohen: Well, thank you for that comprehensive summary.
Any questions for staff?
Go ahead, Igor.
>> I. Tregub: One question.
And thank you for the in-depth staff report, by the way.
I had a question.
I saw in one of the appendices that there is a reference that there is no intent to subdivide the rooms and rent them out; that it would truly be a single family property in both buildings.
But I just wanted to see if -- if the applicant wanted to come back and if they, in the future, wanted to choose to subdivide the rooms, rent them out separately, if there would need to be a future hearing before ZAB?
>> H. Young: You mean to subdivide the lot and sell --

>> I. Tregub: Subdivide the housing -- Well.
To rent out the rooms separately.
>> S. Zarnowitz: So I'm sure the ZAB's aware that as long as people are living as a single housekeeping unit, they can rent rooms individually within a housing unit, within a dwelling unit.
>> I. Tregub: And the reason I bring up this question, obviously we have a mini-dorm ordinance now on the books.
Anything more than five rooms would be subject to a public hearing.
Would something like that trigger the mini-dorm ordinance if, in fact, more than five are being rented, where it would be subject to a public hearing?
>> H. Young: Right.
That's what one of the Use Permits is addressing.
>> I. Tregub: Oh, that is the Use Permit that's being applied for.
>> H. Young: Yes.
>> I. Tregub: Sometimes there is a deed restriction that the applicant agrees to.
I'm not sure if there is a deed restriction in this case.
I only bring it up because this was one of the concerns pointed out by neighbors, and that's the one part where I didn't see a whole a lot of discussion in the staff report of how that might be addressed.
>> M. Alvarez Cohen: Go ahead, Sophie.
>> S. Hahn: Can I just -- Igor, was your question whether the two units could somehow be -- each unit could be divided and become a fourplex?
Is that your question?
>> I. Tregub: Or rooms being rented separately.
Some arrangement that would go beyond what --
>> S. Hahn: So your question is would that have to come before us?
>> I. Tregub: Yes.
>> S. Hahn: I have a feeling request (inaudible) an answer.
>> A. Sage: Yeah, I just want to add to what staff has already told you.
Aaron Sage.
There's a provision in the code, I believe it's Chapter 23C.20, and I actually mentioned this on the fun Parnassus hearing we had recently.
But the provision states that the renting of rooms to persons who are not living as a single household -- in other words, if someone has an individual room rental agreement with someone within their dwelling unit, that is exempt from discretionary review under this ordinance, but only up to four roomers.
But the big catch with that is that you have to provide additional parking at the rate of one space for every two roomers.
And because we round up on our parking calculations, renting one room would trigger one parking space, and that could not be a tandem parking space.
So effectively, you know, this project is right at the requirement for the two dwelling units. To rent to one additional person would trigger one tandem parking space which would be difficult for them physically to provide.
So it's my understanding that the code already has pretty good protections against that situation.
>> I. Tregub: Thanks.
>> M. Alvarez Cohen: Thanks for that clarification.
Shoshana.
>> S. O'Keefe: You mentioned that in the neighborhood there are several other similar properties that have a two-story back house, and I was wondering if any of those -- I don't know if you delved into the history of any of those units but I was wondering if any of those built in such a way that they shadowed a building to the east or to the west, just like this one.
I'm trying to -- The reason I'm asking is I'm trying to understand what the precedent we've set previously on detriment regarding shadows in similar projects.
So do you have any comments about that?
>> H. Young: I haven't looked into the shading or the history of the ones across the street.
Aaron, do you have anything to say?
>> A. Sage: Well, we recently had a project that was similar height and massing to this one in terms of being a two-story rear unit at 1535 Oregon Street that the ZAB approved.
And that one had -- I believe it was a one-story rear unit to the east.
Probably roughly the same distance apart, about eight feet.
So that's one precedent that comes to mind immediately.
>> S. O'Keefe: And to the best of your recollection, did that one shade the adjacent building similarly?
Like did it cover two windows until 11:00 or do you remember the details by any chance?
>> A. Sage: I mean, just my general sense is that that one had probably a little bit less of a shading impact because it was in line with the neighboring building, so more of the shadows were probably falling to the north of the neighboring building.
>> H. Young: And also, as I recall, that -- the rear single story unit that was adjacent to 1535 was set back from the side yard from the property line more substantially, and only had I think one window on the side.
>> S. O'Keefe: Thank you.
>> M. Alvarez Cohen: Okay.
No other questions for staff.
Let's open up the public hearing and my first card is from the applicant, Matt.
.
>> Matt Baran: Good evening.
Can you hear me?
>> M. Alvarez Cohen: Now we can.
Go ahead.
>> Matt Baran: Good evening.
And thank you for being here this evening to consider our project and especially to Hannah for being sure that we've got all our bases covered and considered all angles.
I think it's been a pretty thorough process.
As you can see, she's quite thorough.
So I don't know that there's a lot more that I can add to this, but just a few things to kind of reiterate, I suppose.
We did meet with the neighbors on four occasions.
Two of those were formal occasions, and we have minutes from those meetings.
One was with the SEEDS people, so that was documented, and we did believe that we had come to an agreement.

That has taken over six months.
I think the whole process has been over about eight months, so it's been quite exhaustive.
I think there's a file here that I'd like to just kind of go through the process of some of the design changes that we did make briefly, and then I'd also like to touch on some of the earlier questions because I have some additional information on that.
>> 16 --
>> Matt Baran: There's another one.
Yeah, that's the one.
So what I have here is just the first few slides are the original design.
So you can see there in that image that we're at the 15-foot --
>> Change the slides with that.
>> Great.
Just the forward button there?
So you can see the 15-foot rear yard setback.
You might be able to see it clearer in your documents.
But also the --
>> M. Alvarez Cohen: Can you use the laser pointer and speak into the microphone a little better?
>> Matt Baran: Yeah.
Where -- I don't see where it is.
Am I missing it?
Oh, there it is.
Can you see it on the white?
>> M. Alvarez Cohen: Yeah, we can see it.
>> Matt Baran: I can't.
So in any case, sorry, I'm not going to be able to use it.
I can't see it at all.
>> H. Young: The rear setback.
>> Matt Baran: There's the 15-foot rear yard setback.
The angle of the house was set for two reasons.
One, because of the tree, the existing tree that you see there.
Right.
And the neighbors had expressed interest in tearing that tree out, which we've agreed to do.
But the other reason for the angle was that it did minimize the impact to the surroundings.
It actually minimized the profile of the house to the west.
And as you'll see in the shadow study that we did minimize the impact in the mornings as well.
So if you go to the next slide.
Oh.
Right.
This is the original design with the full floor plan.
You can go to the next slide.
The elevations.
And next slide.
And then the shadow impact of that design.
And the next two slides are the same thing.
You can see here that the shadow impact is limited to the mornings, roughly in the winter and in the -- during the equinox.
All of the rest of the blank drawings you see are no impact.
The next slide shows you the actual specific times of that heavier impact across the morning.
The next slide will show you -- so -- Can you go one more?
Oh, so -- right.
That would go back.
This shows you that we actually dropped the second floor by a foot.
That was the first thing we did.
And then the next slide will show you the impact of that.
The next slide will show you that we moved the building back to seven feet, which is this request for a reduced rear yard.
And the following slide will show the impact of that shadow study.
And then the following slide will show you we did an additional move where we cut the second floor back.
The next -- that other drawing to the left at the bottom corner there, there's a little triangle shape, the bottom right corner.
Yeah.
So that -- we cut that back, and then you see the shadow impact of that.
And then we actually combined all three of those and you'll see the shadow impact of that at the top there in option D.
I think the time that Hannah gave might not have been this particular impact because in the front -- well, it is correct. In the front it's about 15 minutes of shadow in the winter in the worst case scenario on that front window, and in the rear, I believe it is a couple of hours.
And so that gives you the process we went through to get to where we are now, and what we submitted, what we thought we had an agreement on.
And then as far as the rental issue, we have -- Both the rental issue and the precedent for shadows, we've done about an four or five of these now.
Each one has sold to a single family occupant.
There's never any intention to rent these, and to my knowledge, none of them that we've done have. The developer has every intention to sell them.
That's the business model.
And in addition to the Oregon property we have two more properties at, I believe, 1531 and 1519 Harmon Street on the same side of the block that have the same effect in terms of shadowing. We're doing two-story, single-family houses.
One is built and sold and the other one is under construction now.
So there are several precedents, similar precedents.
>> M. Alvarez Cohen: Any questions for the applicant?
No.
All right.
Thank you.
Our next and last speaker card is from Richard.
>> Richard: Hi, everyone.
Yeah, my name is Richard Z. and I'm representing my mother-in-law, Ena Gomez.
She lives at 1615 Harmon Street, which is next to the 1619 and 1621 that they're trying to put this building in the backyard.
I wanted to show this picture that I have here.
In the last mediation we have, we did not agree in the -- we did not agree on the conversation we had, but here's one of the -- the last guy who talk, he was saying that we -- that he says that we have an agreement, which I wanted to say that's not true.

Until today, we didn't have an agreement because if they build this unit, there's a lot of affectation what will happen on my mother-in-law.
I wanted to show this picture.
One of the affectation will be the viewing.
When they bought this property, the reason they bought it is because there was a nice view.
But if they build this construction, you know, it's a two-story house, it will be blocking her unit in which she lives, and then will be a shadow impact as well.
As he says, I think the plan D that he shows at the last time, it shows two hours.
And two hours, you know, it's a affectation that she will be shaded in the future.
And I would like also to attach this -- the letter that my mother-in-law gave me today.
She did this for me, and I would like to pass it around.
She couldn't came today because she has a -- a child care business, and then I think a few parents call at the last minute that they couldn't show up.
So she has to stay.
But I came here on her behalf to present the pictures and the letter that she gave us, gave it to me.
>> M. Alvarez Cohen: Okay.
Thank you.
Any questions?
No.
Go ahead, Igor.
>> I. Tregub: Yeah, I'm not sure if you know, but since the -- your mother-in-law is not here, I thought I would ask you.
It's tricky because this is actually zoned for as many as four dwelling units, so within the requirements, the number of dwelling units comply.
My question is is there any proposal that would be amenable?
In terms of is there anything that you would like to request the applicant do that would address the concerns that you or she still have?
>> Yeah.
We give him a few options.
One of the option will be reducing the three bedroom, I think what they're planning to build, a three bedroom, two bath might be two bedroom, one bath, but they say they don't want to -- that's not their project.
They don't want to do that.
And also will be that three.
Instead building the three bedroom and angle side, building on the opposite side, with the square side.
And they say no because they -- if they do that, they won't be getting enough profit when they sell this property.
I mean, that's the other unit that they're building.
>> M. Alvarez Cohen: All right.
Sophie.
>> S. Hahn: I thank you for being here.
.
It was stated that -- the papers stated that you were not in agreement or your mother-in-law was not in agreement with plan D.
>> No, no.
She had -- I think May 2nd is when we had the mediation.
She wasn't there present because I represent her.
But they assuming that there was an agreement, but, no, we didn't end up in no agreement.
>> S. Hahn: I understand that you did not intend to agree, and so that may not be true.
My question for you is what are you still disagreeing about ?
>> I'm disagree --
>> S. Hahn: Just the shadow?
>> The shadow impact, one of them, and also we're losing the view, the nice view, they have it.
>> S. Hahn: What is it a view of?
>> Because in the backyard --
>> S. Hahn: Just to see the garden?
>> Yeah.
Right now, the way it is, the front house, it's a nice Victorian house.
In the back it's all land.
But they're going to build a building, you know, but the building is going to be sideways which will block the whole view on my mother-in-law's property, and also she will be affected with shadow impact.
>> S. Hahn: Okay.
So it was just the fact that she's looking at green space now and she would be looking at a building?
That's the view?
>> Yeah.
If they build this property -- I know the zoning says for two, to build another property in the back.
But when she bought her property, she didn't know that.
>> S. Hahn: Well, it's not her property, the little cottage in the back?
>> It is.
>> S. Hahn: So she had a cottage in the back.
>> Yes.
>> S. Hahn: Okay.
Thank you.
>> M. Alvarez Cohen: Prakash.
>> P. Pinto: I had a question but I think it's better for staff.
SEEDS, they usually issue a report about what was agreed upon, if there was an agreement, not an agreement.
Is there such a report?
I didn't see it in my packet, but --
>> H. Young: Yes.
The report that we received from SEEDS is included in the packet.
Let me find that for you.
And we quoted it in the summary --
>> P. Pinto: Okay.
>> H. Young: -- of -- the summary of the process.
>> P. Pinto: I must have missed that.
>> I. Tregub: Attachment 6, page 13.
>> H. Young: Thank you.
>> M. Alvarez Cohen: All right.
No other questions?
Thank you for your comments.
>> No problem.

>> M. Alvarez Cohen: Applicant, would you like to come back up and respond?
Before you do, is there anyone else in the audience who wants to speak on this topic?
Oh, okay.
You have to give us your card.
You can't hold it.
Applicant, go back down.
>> I just have a quick comment.
I'm the neighbor at 1633 Harmon, and the block is -- there's so many cars, it's really hard to park.
Everyone has little backyard things and now people keep building more two-story buildings.
Our neighbor is going to do the same and it's just really hard to park.
And I understand the fear of losing the light in your yard, because like I said, our neighbors are going to do the same thing.
That's the last view -- or the sun coming in in the afternoon on my garden.
So anyway, I just wanted to say I'm standing up for that.
And, you know, in the packet that he put together, there were a lot of neighbors that they also came around and people signed off.
A lot of the neighbors said it's not a good idea.
It's so many people in the neighborhood.
It's pretty impacted neighborhood now.
You saw the pictures.
It's like every house has a, you know, another house in the back.
So anyway, I just want to -- I'm standing in solidarity with him.
>> M. Alvarez Cohen: Okay.
Thank you.
Any comments?
Okay.
Sorry.
Matt, come on back up here.
>> Matt Baran: The -- I just wanted to clarify at least one thing, which was the reversing of the project wasn't profitable.
Actually, the reversing of the project would have had a greater neighborhood impact.
The project as designed has the minimal impact on all properties.
So we weren't intending to design the house around one person's property.
We were trying to design the house so that it had the minimum impact to all surrounding properties.
So by the orientation of that house, it actually minimizes the shadow to the west and there's a limited shadow, as you can see from those studies in the morning to the east.
One other thing.
Do you still have that file?
Can we pull that up again?
The one I was -- Just in terms of precedent.
There were two slides at the end of that that I failed to speak to.
>> M. Alvarez Cohen: Are you addressing public hearing or are you adding content?
>> Matt Baran: Well, it's addressing the public hearing because she was suggesting that there are many houses that have done the same, and I'd actually like to support that claim, because there is precedent in the neighborhood for other buildings that have done the same thing.
>> M. Alvarez Cohen: Okay.
We can bring it up because we're going to finish tonight before the captioner break.
That's my goal.
>> Sounds good.
>> For a change.
>> Matt Baran: So just these last two drawings.
This particular drawing shows all the units that are two stories that cross the 50% mark going into the back rear of the lot.
And the slide just prior to that shows all the units that are within 25% of the lot to the rear yard.
So of course it's reduced.
So a greater number across the halfway mark, but depending on what you call the rear, we just wanted to show that there is plenty of similar building going on in the neighborhood.
>> This is the first slide and then this is the second slide.
>> Matt Baran: Right.
So it would be -- the one with the larger number is the one that crosses the 50% line.
The one with the lesser number is the one that's 75%.
>> M. Alvarez Cohen: Interesting.
All right, Shoshana.
>> S. O'Keefe: I apologize.
You might have said this. Are those two-story buildings or one --
>> Matt Baran: There are others that cross that line but they are only one story.
So we are only marking the two stories.
>> M. Alvarez Cohen: Very good.
Igor.
>> I. Tregub: I had a question for you based on the public hearing.
The neighbors that signed off with concerns on this project in March, can you update us on the resolution?
Is it just this one applicant that still has concerns?
>> Matt Baran: That was my -- That was my understanding, because we actually -- if I'm not mistaken, and maybe Heather wants to come up and speak to this, but we did discuss mediation with -- all the neighbors were invited; correct?
It wasn't just one set of neighbors.
Do you know, Heather?
>> (Off mic.)
>> M. Alvarez Cohen: You're going to have to speak into the microphone.
>> Matt Baran: So I believe all the neighbors were invited to that mediation, and only the set of neighbors showed up.
So we assume that all their concerns were resolved.
>> M. Alvarez Cohen: Okay.
Any other questions for the applicant?
No.
Okay.
Let's close the public hearing.
Thank you for your comments.
Any questions for staff?
Any motions or comments?

Bob, take us.
>> R. Allen: Well, I think it's a really nice project.
If I lived next-door and was used to the open backyard, I'd be concerned, too, but this is what it's zoned for and this is the intent of that zoning for multiple housing.
It's another situation where, rare occurrence, where we're actually looking at legitimate family housing, and this applicant's been before us in the past and they have done some really nice work, primarily in South Berkeley.
So I have high hopes that it's going to be the same standard.
So I'm going to move approval.
>> M. Alvarez Cohen: Thank you.
>> I'd like to take a second on that.
>> M. Alvarez Cohen: Great.
Any other comments or questions by the board?
No.
All right.
Go ahead, Shoshana.
>> S. O'Keefe: I was just going to say I think I'm going to support this and my reason is that I appreciate the amount of compromise that the neighbor -- that the developer has -- the applicant has done in terms of changing the project -- or being willing to change the project to accommodate the neighbors.
>> M. Alvarez Cohen: Yes.
Good observation.
All right.
So let's take a roll call vote.
>> S. Zarnowitz: Okay.
Commissioner Murphy.
>> S. Murphy: Yes.
>> S. Zarnowitz: Allen.
>> R. ALlen: Yes.
>> S. Zarnowitz: Donaldson.
>> S. Donaldson: Yes.
>> S. Zarnowitz: Pinto.
>> P. Pinto: Yes.
>> S. Zarnowitz: Hahn.
>> S. Hahn: Yes.
>> S. Zarnowitz: O'Keefe.
>> S. O'Keefe: Yes.
>> S. Zarnowitz: Tregub.
>> I. Tregub: Yes.
>> S. Zarnowitz: Alvarez Cohen.
>> M. Alvarez Cohen: Yes.
So it's unanimous.
1619-1621 Harmon Street, you have your Use Permits.
And REO Homes, where are you?
Thank you for building more housing stock in Berkeley.
All right.
Let's move to the last item.
The minutes.
Am I -- any comments or a motion?
Go ahead, Igor.
>> I. Tregub: I move approval.
>> I second.
>> M. Alvarez Cohen: All right.
All in favor, say aye.
>>Multiple Voices: Aye.
>> M. Alvarez Cohen: All against?
Any abstaining?
Stephen?
>> S. Zarnowitz: He can still vote. He can still vote, actually.
>> S. Murphy: I wasn't here.
>> S. Zarnowitz: But you're still allowed to vote on the minutes, here or not.
>> M. Alvarez Cohen: Before we leave, we have any questions for staff.
Go ahead, Sophie.
>> S. Hahn: I'm sorry; I have a very quick question.
Would it be possible for the ZAB members to be provided with a copy of the general plan?
I looked online, and copies of the general plan are for sale but I was wondering if maybe, given that they are pretty fundamental and that they are quoted extensively by staff, if perhaps we can each be furnished with a copy.
>> I would second that, actually.
I think that's a very good point.
>> S. Hahn: I would love to have all the other plans as well, like the aerial plans that get referred to, but I'll start with the general plan.
>> S. Zarnowitz: Okay.
A show of hands of commissioners who would want them?
Does everyone want them?
Paper copy?
I assume it would be printed --
>> S. Hahn: Well, perhaps you can ask us by email who wants paper.
>> S. Zarnowitz: Thank you.
>> M. Alvarez Cohen: First, can you take a roll call vote for Igor and ask for ex parte communications and take his vote on the consent calendar.
>> I. Tregub: Thank you.
>> S. Zarnowitz: Tregub?
>> I. Tregub: Present.
No ex parte.
And I would like to be recorded as voting yes on the three consent items.
I know this has already been voted on, so this is just a suggestion for staff for conditions 28 and 32 where it stays hours of 10:00 to 11:00 p.m. I suggest adding "a.m." after 10:00.
It's minor enough that you can probably just do that.
>> S. Hahn: I had previously told Claudine that the mistake that is always there about restaurant hours was in three different conditions.
This time, I think that's a record.
I think it might be the 50th time we've corrected it but I don't think I've ever seen it in three conditions.
I do hope that was corrected.
>> S. Zarnowitz: You should have received that online.
It's posted this afternoon and you should have received that by email.
No?
>> S. Hahn: I did not.
>> S. Zarnowitz: All right.

I have a copy here.
>> S. Hahn: I had other things going on this afternoon.
I'm sorry.
>> S. Zarnowitz: All right.
We have a copy here and it was provided on the bench.
It was benched.
>> M. Alvarez Cohen: And actually, one more item.
On the next ZAB meeting, June 26th, I will not be present and nor will Prakash.
So the Board is probably going to have to -- George won't be here, yeah.
He has excuses.
So I don't know if you want to pick a chair now.
But go ahead, Igor.
>> I. Tregub: I nominate Steven.
>> S. Donaldson: Thank you.
>> R. Allen: Second.
>> M. Alvarez Cohen: We have a second.
So Steven -- All in favor of that motion, say aye.
>>Multiple Voices: Aye.
>> M. Alvarez Cohen: Anyone against?
Anyone abstaining?
So Steven will be the chair of the next, June 26th ZAB meeting.
And we are dismissed to wrap.
Thank you.

City of Berkeley

2211 Harold Way Mixed-Use Project

Draft

Infill Environmental Checklist

September 2014

rincon

Environmental Scientists Planners Engineers

2211 Harold Way Mixed-Use Project

Draft
Infill Environmental Checklist

Prepared for:
City of Berkeley
Planning Department, Land Use Division
2120 Milvia Street, 2nd Floor
Berkeley, California 94704

Contact:
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September 2014

This report is printed on 30% recycled paper.

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Appendix

***NOTE**: Technical appendices to this Infill Environmental Checklist are provided on a CD attached to this printed EIR.*

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INFILL ENVIRONMENTAL CHECKLIST

NOTE: This form is intended to assist lead agencies in assessing infill projects according to the procedures provided in Section 21094.5 of the Public Resources Code. The content satisfies the requirements in Section 15183.3 of the CEQA Guidelines, which are included in Appendix H to this report for reference.

1. Project title:

2211 Harold Way Mixed-Use Project

2. Lead agency name and address:

City of Berkeley Planning Department, Land Use Division
2120 Milvia Street, 2nd Floor
Berkeley, California 94704

3. Contact person and phone number:

Aaron Sage, Senior Planner, (510) 981-7425

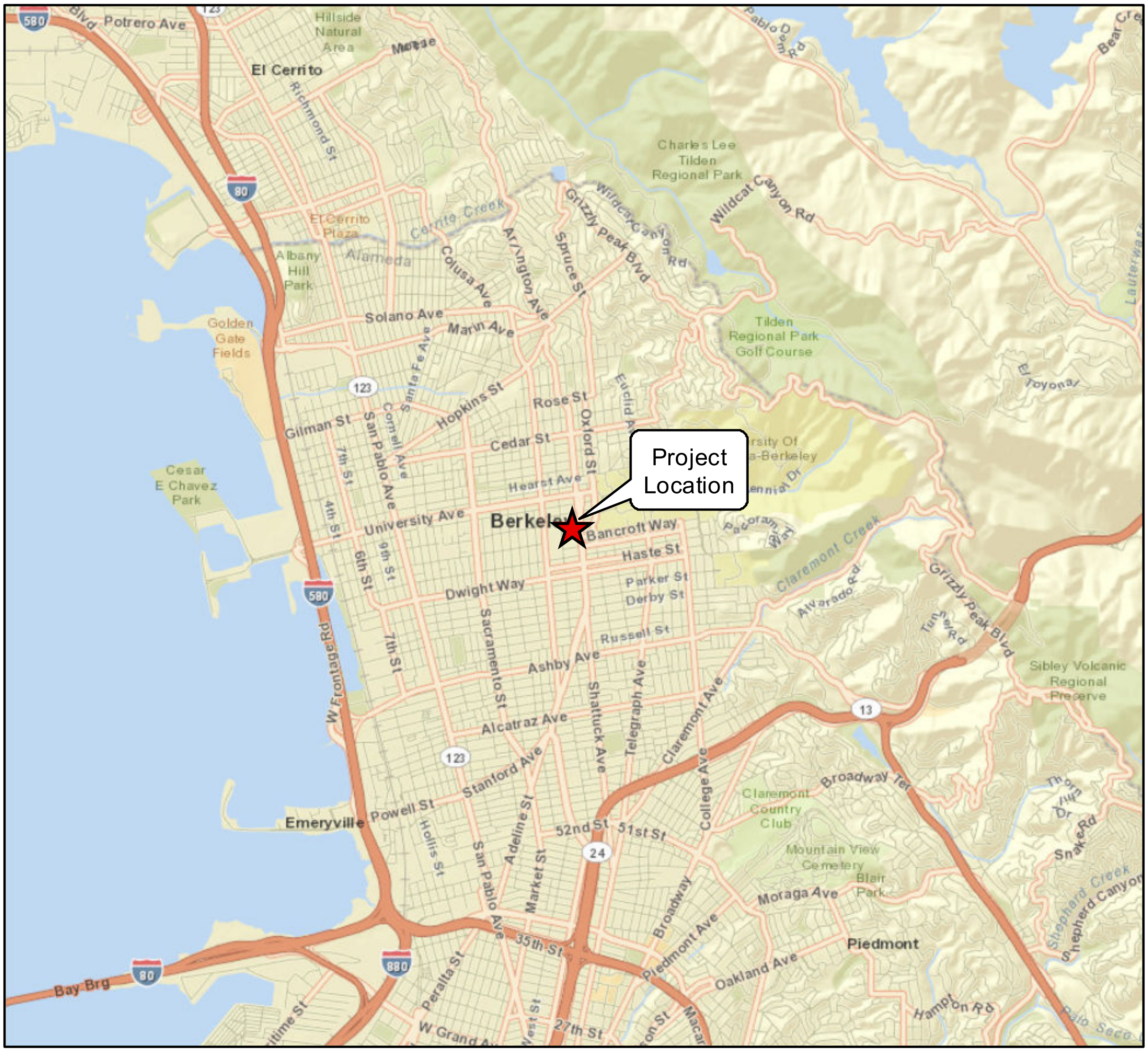
4. Project location:

The project site is a portion of an irregularly shaped but generally square 1.63-acre larger property forming one city block in Downtown Berkeley, bounded by and fronting Shattuck Avenue to the east, Kittredge Street to the south, Harold Way to the west, and Allston Way to the north. The assessor's parcel numbers for the larger property are 057-2027-00600, -00700, -00800, and -00900. The larger property has multiple addresses; the primary address in the assessor's records and in the City's parcel database is 2060 Allston Way. The project site itself – the primary area of proposed new development – is a 34,800 square-foot (0.8-acre), generally "L" shaped portion of the larger property, with frontage on Allston Way, Harold Way and Kittredge Street, and also includes a portion of the basement level of the adjacent Hotel Shattuck Plaza (commonly referred to as the Shattuck Hotel) building beneath its existing retail space and movie theater entrance. The address for the project site is 2211 Harold Way. Figure 1 shows the location of the project site within the region and Figure 2 shows the location of the project site within the vicinity. Figure 3 shows the general configuration of existing development on the larger property.

5. Project sponsor's name and address:

Joseph Penner
HSR Berkeley Investments, LLC

c/o Rhoades Planning Group
1611 Telegraph Avenue, Suite 200
Oakland, California 94612



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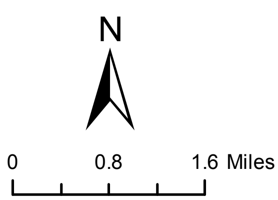
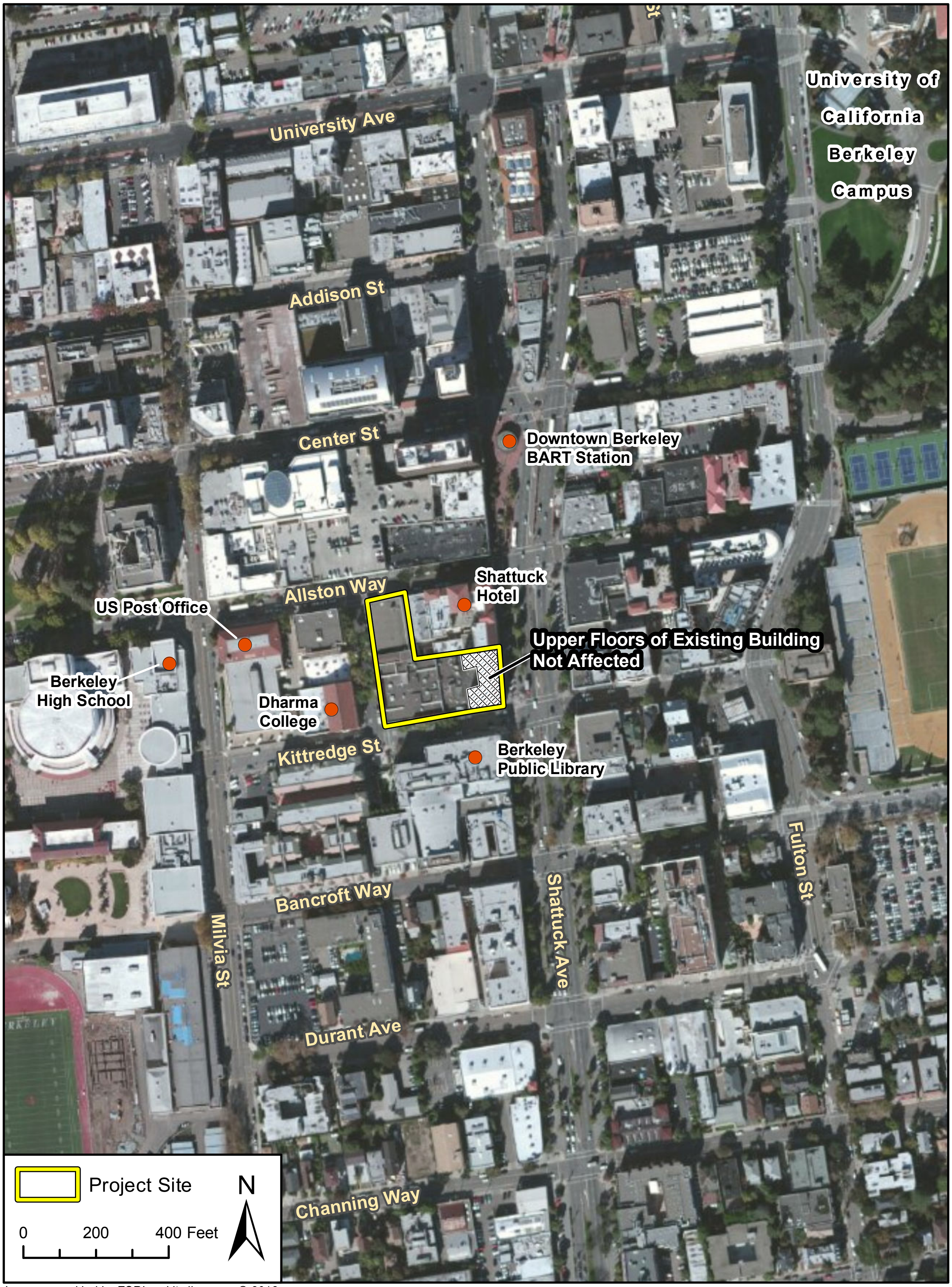


Regional Location Map

Figure 1



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Project Location Map

Figure 2

Imagery provided by ESRI and its licensors © 2014.

Existing Project Site Development

Figure 3

6. **General Plan designation:**

   Downtown (DT); Downtown Area Plan, Core Area

7. **Zoning:**

   Downtown Mixed Use District (C-DMU), Core Area

8. **Prior Environmental Document(s) Analyzing the Effects of the Infill Project (including State Clearinghouse Number if assigned):**

   Final Environmental Impact Report, Berkeley Downtown Area Plan, April 2009, State Clearinghouse Number 2008102032

9. **Location of Prior Environmental Document(s) Analyzing the Effects of the Infill Project:**

   City of Berkeley Planning Department, Land Use Division, 2120 Milvia Street, 2nd Floor, Berkeley, California 94704

10. **Description of project:**

Project Overview and Design.

The 2211 Harold Way Mixed Use Project is a proposed residential and commercial mixed-use development in Downtown Berkeley. The project's primary street frontage would be along Harold Way, although it would also front on portions of Allston Way and Kittredge Street. The existing structures on the project site would be altered or demolished to accommodate the project, as detailed further below under Site Preparation and Construction. (Please see figures 17 through 20 for the location and extent of proposed alteration and demolition of existing structures.)

The proposed project would have components of various heights, the highest portion reaching 180 feet in 18 stories. The project would maintain a generally continuous street wall at the edge of the abutting streets up to where the building would step back toward the interior of the site. The proposed building would step down to 54 feet (5 stories) along the street fronts, and at the street fronts would be about 10 feet shorter than the adjacent Shattuck Hotel, but would be about three feet taller than the heights of the public library across Kittredge Street and Armstrong College across Harold Way. Building step backs would occur primarily just above the fifth and 13th floors. Proposed materials are predominantly brick veneer panels, pre-cast concrete panels, glass, and glass spandrels.

The ground floor is proposed to accommodate retail and/or restaurant uses, in addition to residential lobby and amenity areas. A six-theater cinema complex would be located on the ground floor and below-ground levels. Parking would be provided in a three-level subterranean garage. The proposed project includes the following components:

- 302 apartment/condominium units (including 28 affordable units) with an average unit size of 729 square feet
- 1,499 square feet of lobby area

- A 1,403 square-foot community room available to be reserved by the residents for parties and other social events (not be available to the general public)
- Residential open space, consisting of 14,535 square feet of shared rooftop terraces and 11,045 square feet of private balconies and decks
- An AC Transit pass for each apartment/condominium unit and every employee for a duration defined during the City's Approval process
- Six new movie theaters to replace the existing Shattuck cinemas, totaling 21,641 square feet
- 10,535 square feet of retail and/or restaurant commercial floor area fronting Allston and Harold Ways and Kittredge Street
- 1,872 square feet of privately owned, publicly accessible open space at the corner of Kittredge Street and Harold Way with improvements including special paving and amenities, and street improvements along Harold and Allston ways including a speed table (please see the discussion below under Offsite Public Improvements for further details)
- 171 parking spaces in a three–level, subterranean parking structure accessed from Kittredge Street, including 11 electric vehicle charging stations and 6 spaces reserved for carsharing vehicles
- 100 secured bicycle storage spaces within the building, including spaces on the first level as well as in the parking garage
- Seismic reinforcement of the basement and ground levels of the existing Shattuck Avenue retail spaces (no exterior modifications). These areas are located below the Shattuck Hotel
- Roof-top solar energy and hot water production
- LEED Gold or equivalent environmental performance

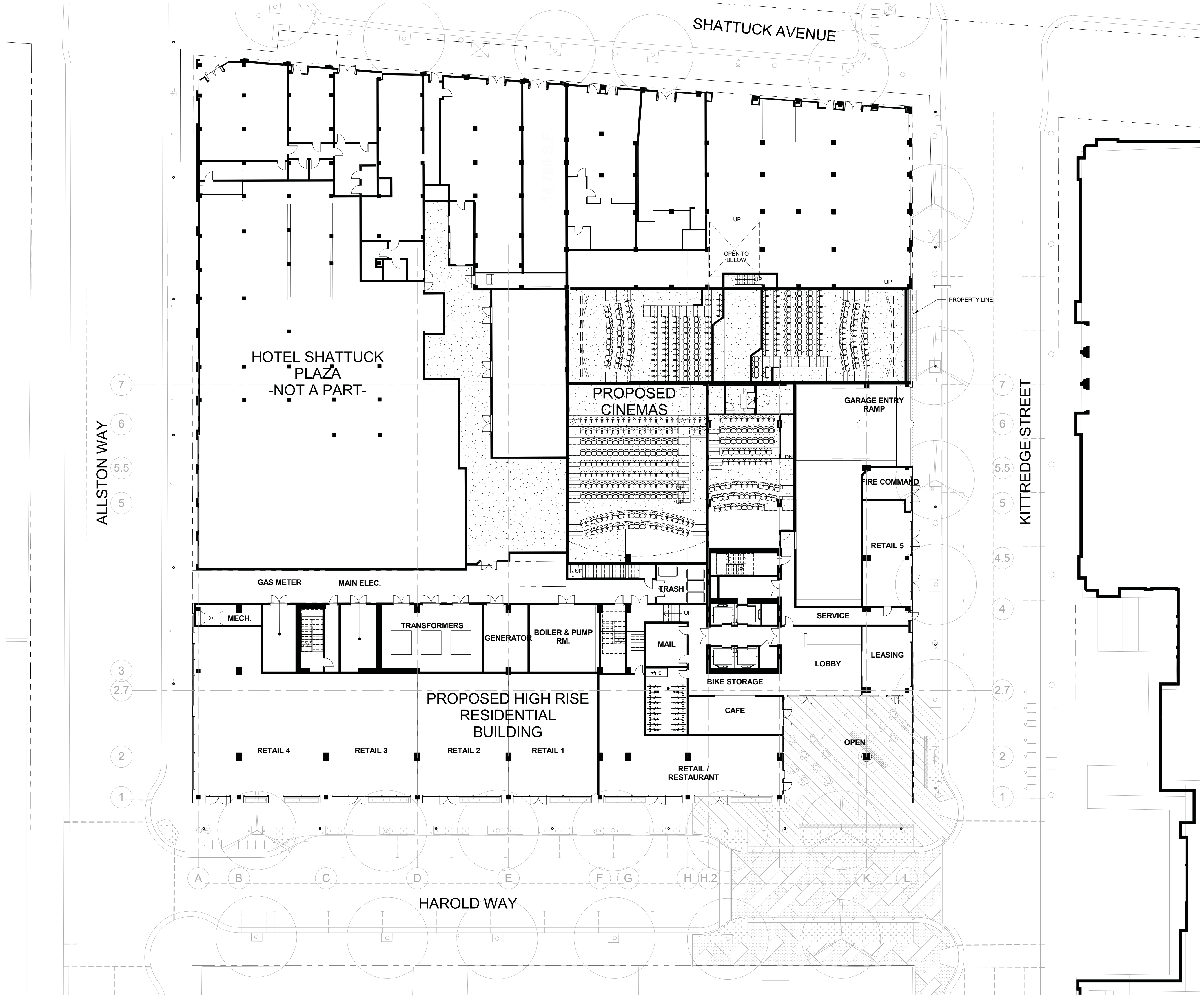
Table 1 summarizes the basic project components.

Table 1
Project Summary

Use	Gross Floor Area (Square Feet)	Units
Residential	278,185 (includes 57,893 square feet for residential circulation)*	302
Retail or Restaurant	10,535	n/a
Cinema	21,641	665 seats
Parking	79,109	171 auto 100 bike
Max. Building Height: 180 feet/18 stories		

Sources: Rhoades Planning Group and MVE Institutional, Inc., Jan. 2014
** Residential circulation (includes residential core, circulation, amenities, storage, and ancillary spaces at ground floor such as the lobby, leasing office, fire command and bike storage)*

The proposed site plan, selected floor plans and conceptual elevations are shown on Figures 4 through 16.



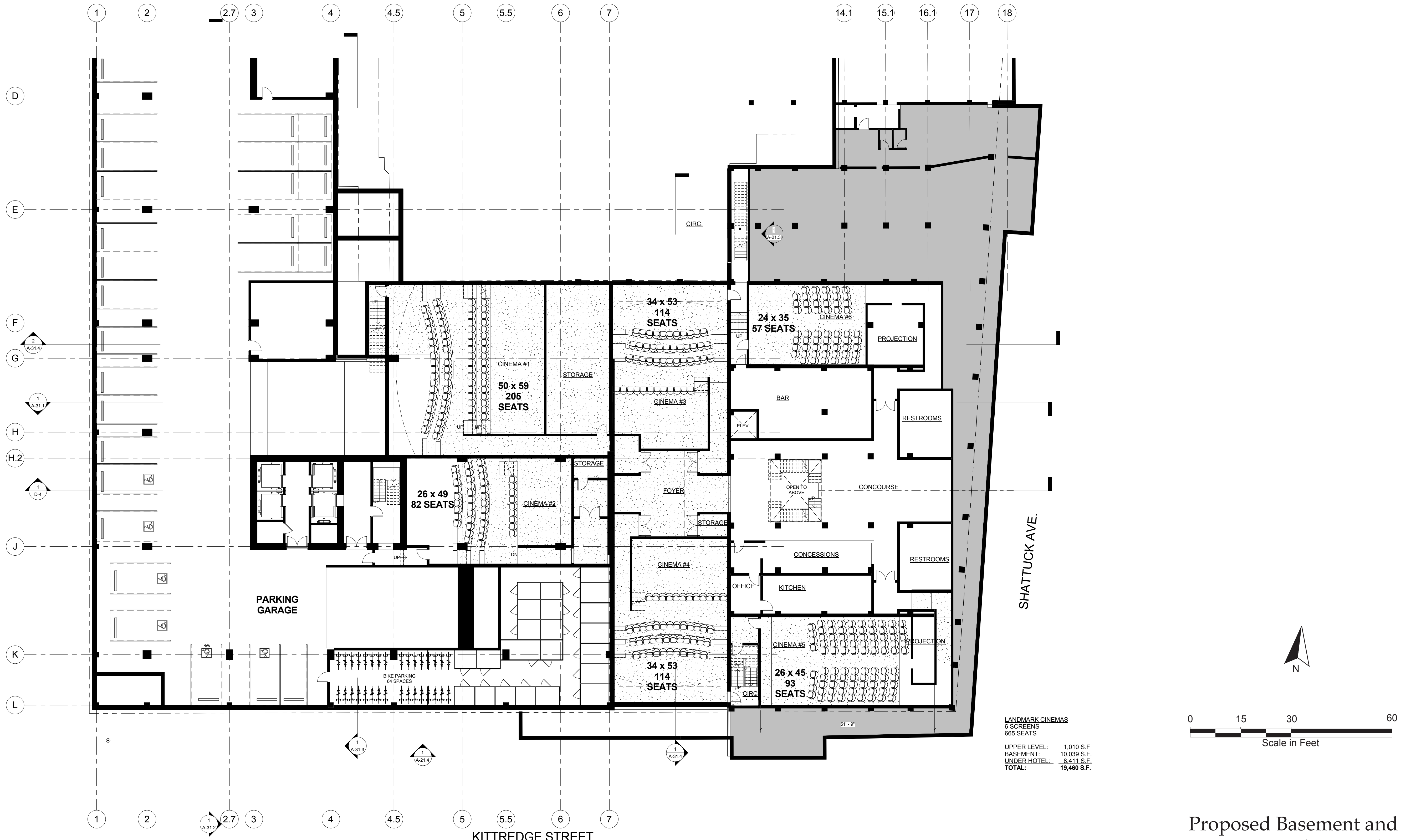
Proposed Site Plan

Source: MVEI Institutional, Inc., January 2014

Figure 4

Proposed First Basement Level Floor Plan

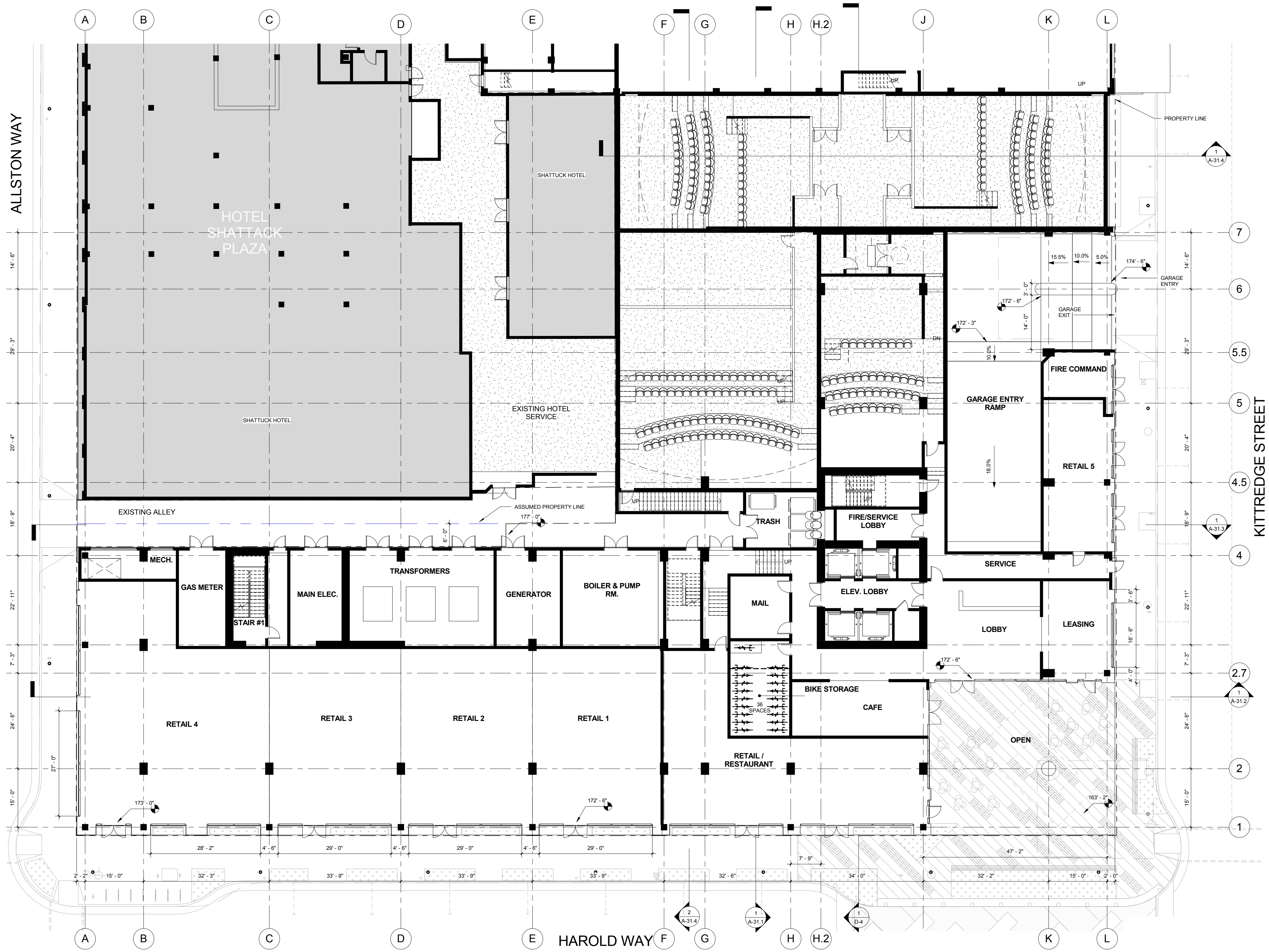
Source: MVEI Institutional, Inc., January 2014



Proposed Basement and Cinema Level Floor Plan

Source: MVEI Institutional, Inc., January 2014

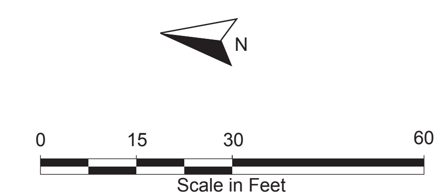
Figure 6



Proposed Ground Floor Plan

Proposed Level 2 Floor Plan

Source: MVEI Institutional, Inc., January 2014



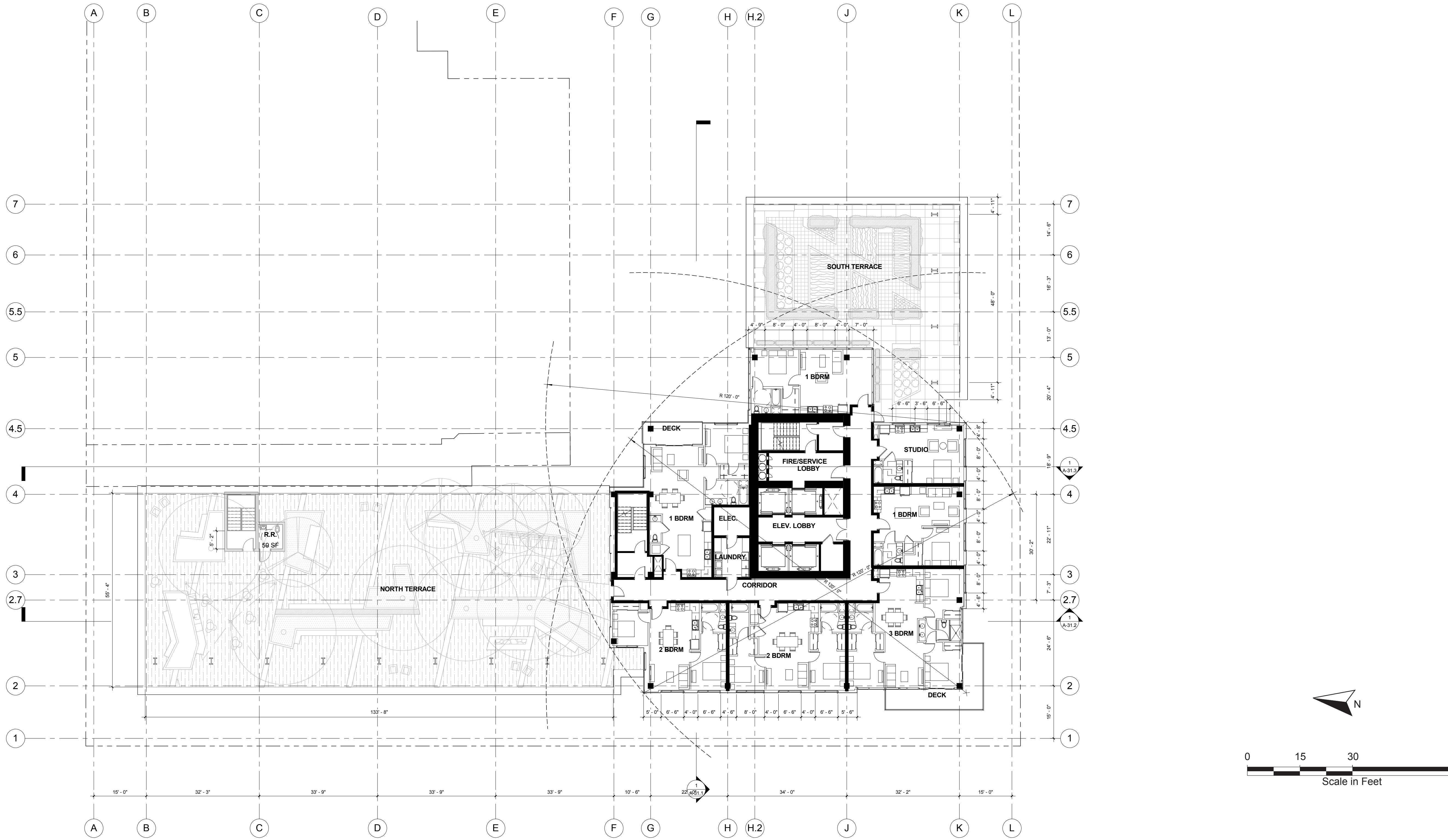
Proposed Level 3 Floor Plan

Source: MVEI Institutional, Inc., January 2014

Source: MVEI Institutional, Inc., January 2014

Proposed Levels
9-12 Floor Plan

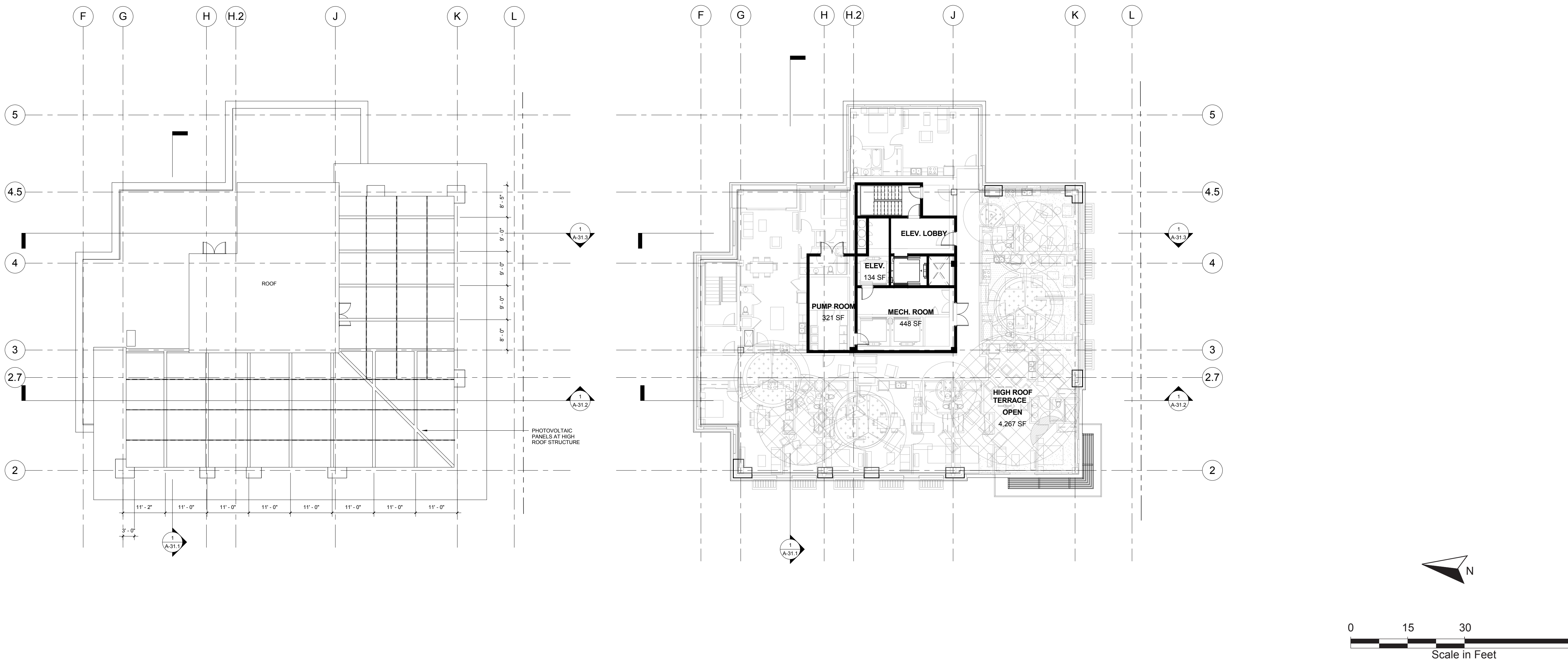
Figure 10



Proposed Level 13 Floor Plan

Source: MVEI Institutional, Inc., January 2014

Figure 11



Proposed Roof Plans

Source: MVEI Institutional, Inc., January 2014

Figure 12

Source: MVEI Institutional, Inc., January 2014

Proposed Allston Way Elevation

Figure 13

Source: MVEI Institutional, Inc., January 2014

Proposed Kittredge Street Elevation

Figure 14

Source: MVEI Institutional, Inc., January 2014

Proposed Shattuck Avenue Elevation

Figure 15

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Proposed Harold Way Elevation

Source: MVEI Institutional, Inc., January 2014

Figure 16

Vesting Tentative Tract Map. The project applicant proposes two subdivision map requests as a part of the project. The first subdivision map request would adjust the lot lines on the existing condominium parcel map that currently divides the land and air space between the hotel, retail, and the theaters. The second map request would create individual condominium units equal to the number of proposed residential units plus a number of additional condominium spaces (for example, common areas, commercial spaces, parking areas) consistent with the approved project and floor plans at the discretion of the owner. Residential units, whether rented or sold as condominiums, would be subject to the City's affordability requirements (i.e., mitigation or in-lieu fees, and/or on-site below-market-rate units).

Residential Component. The residential component is proposed to be accommodated on floors 2 through 18 of the proposed project. Residential units would be accessed from a residential lobby on Harold Way or from the below-grade parking garage. The unit count and size range are shown in Table 2.

Table 2
Residential Unit Summary

Unit Type	Count	Size Range (square feet)
Studio	73	474 - 774
1 Bedroom	148	583 –979
2 Bedroom	75	752 – 1,085
3 Bedroom	6	1,103
TOTAL	302	n/a

Source: MVE Institutional, Inc., January 2014

If the project's residential units are rented, ten percent of the market rate units, or 28 units, are proposed to be designated as below-market-rate units affordable to households earning 50% or less of Area Median Income.

Proposed private open space for project residents would consist of:

- 10,268 square feet of 13th floor terrace space with outdoor cooking and entertaining facilities, community gardens, and fireplace area, and
- 11,045 square feet of usable balconies and terraces for selected units.

Additionally, the project would include a 1,872-square-foot privately owned public open space plaza.

Theater/Cinema Component. The proposed project includes a six-screen, 665-seat movie theater that would be accessed from Shattuck Avenue via the same entry location as the existing Shattuck Cinemas access. Theater-goers would access theater rooms from a concourse and concession area at the basement level, after descending from street level. The basement level would be lowered by six feet from its current level to provide adequate space for the theater. Three of the theater rooms would have stadium-style seating and would extend vertically from the basement level to the third floor of the project, and slightly above the second floor of the Hotel Shattuck. A fourth theater room would extend from the basement level to the second floor of the project, and the remaining theater rooms would be entirely within the basement below the ground floor retail strip. The floor area devoted to cinema and related uses would be approximately 21,641 square feet, which would extend under the southern portion of the existing ground floor retail area.

Retail and Restaurant Component. Proposed retail and/or restaurant commercial space would all be on the first (ground floor) level and would be located primarily along Harold Way. One retail space would wrap onto Allston Way at the southeast corner of Harold and Allston ways. A portion of the building on Kittredge Street, between Harold Way and a proposed driveway (described below), would be occupied by retail or restaurant storefronts, as well as the project leasing office. Proposed retail/restaurant space would total approximately 10,535 square feet, which could be divided between several tenants.

Access, Parking, Circulation and Transportation Demand Management. Vehicular access to the project's proposed parking garage would be provided via a two-way driveway from Kittredge Street down to a proposed three-level subterranean parking garage accommodating 171 parking spaces. Of these, 26 would be "small car" spaces and six would be car-sharing spaces. The residential parking spaces would be leased separately from the residential units, and AC Transit passes would be provided, consistent with Section 23E.68.080 of the Berkeley Municipal Code. Of the 171 parking spaces, 11 electric vehicle charging stations would be provided within the garage. Also 100 secure bicycle parking spaces would be provided (36 on the ground level, 64 in the first parking level). The project may make up to 39 parking spaces (equal to the number of spaces on the first basement parking level) available to the public and/or the Shattuck Hotel.

Pedestrian access would be incorporated from all four fronting street sidewalks. The main entrance to the proposed movie theater would be from Shattuck Avenue; the primary residential access would be through the lobby on Harold Way; and retail access would be to each storefront along Harold Way and Kittredge Street. The existing private alley from Allston Way would remain as a service entrance for the hotel and the proposed project.

Offsite Public Improvements. A number of offsite, public streetscape and mobility improvements are proposed. Bulb-outs on both sides of Harold Way would be constructed at its intersections with Allston Way and Kittredge Street. One of these would accommodate public bicycle racks. Approximately 11 new street trees along Harold Way and Kittredge Street would be installed to replace the seven that would be removed. Selected tall street lights would be replaced with shorter pedestrian-scaled lights, and additional pedestrian scaled lights would be installed on Harold Way.

At the corner of the site at Harold Way and Kittredge Street, a 1,872 square-foot exterior plaza area would include a formal entry for the proposed new building and a public space at the northeast corner of Harold and Kittredge (see Figure 6 above). The plaza could provide seating for customers of the proposed restaurant and café spaces. Construction materials would include stone and hardwoods, and planters with steel, cast stone and concrete. The Harold Way crossing area adjacent to Kittredge Street would include an enhanced treatment with textured or colored paving, landscape pockets, and bollards. Surrounding sidewalks and crossings would be treated with decorative paving. Other improvements would include installation of a speed table to calm traffic and to enhance the public right-of-way providing access to the Berkeley Central Library, the Armstrong College Property, the Library Gardens and the project, and installation of street furniture such as benches, planters with seat walls, and additional bike racks. These improvements would be refined and finalized in coordination with City staff, in accordance with applicable City standards.

Sustainable Building Features. The proposed project is designed to achieve a LEED Gold (or equivalent) rating, as required under Section 23E.68.085.A of the Berkeley Municipal Code. The project's sustainability features include:

- *Compliance with Title 24 of California's Building Standards Code*
- *Roof gardens with flow through planters to reduce heat island effect and capture water*
- *Solar shading for residential units*
- *Rooftop solar panels for hot water and electric power generation*
- *Reuse of captured rainwater for landscape irrigation*
- *Installation of drought-tolerant plants and materials*
- *Transportation Demand Management features as listed above, including unbundled parking (parking that is leased separately from dwelling units), AC Transit passes for each residential household and every commercial employee, six car share and 11 dedicated electric vehicle charging spaces equipped with chargers, and secure bicycle parking.*

Site Preparation and Construction. The existing 1959 Hink's Building would be demolished, and a portion of the Shattuck Hotel building (primarily the 1926 addition and a small portion of the 1913 addition; refer to Figure 3 for the location of these buildings on the site) would be removed or altered to prepare the site for construction of the proposed project, including some alteration of the underground areas. Figures 17 through 20 illustrate the proposed limits of alteration and demolition. Approximately 36,000 cubic yards of grading would be required for site preparation and excavation for the subterranean parking garage. The maximum depth to the bottom of the lowest proposed foundation would be approximately 34 feet below the existing street-level grade. Pile driving would not be required; rather, a mat foundation (a type of continuous thick-slab foundation supporting the entire structure) varying from approximately three to six feet in thickness is proposed. Demolition and construction would require approximately 18-24 months.

Proposed changes to the retail strip and basement under the Shattuck Hotel (which is not owned by the project proponent), include the creation of a new cinema lobby on the ground floor and adding two theaters in the basement. There would be three major components to the associated structural work:

1. Frame out a new 20′ by 20′ opening in the ground floor to create a two story lobby. This would require new steel beams and girders.
2. Lower the basement floor by six feet to create the head-room necessary for the two new theaters. This would require the removal of the basement slab, soil excavation,

and construction of new footings, retaining walls, and floor in the areas where the new theaters will be located.

3. Seismically strengthen the area affected by the new construction and the retail strip under the Shattuck Hotel. This would require the addition of four concrete shear walls that would extend from the basement to the underside of the second floor. This work would not seismically strengthen the entire building, but only the area directly affected by the new construction. This structural work would not be visible from the exterior of the building.

No other changes are proposed to the Shattuck Hotel building.

Utilities and Services. The proposed project would include utility connections in accordance with requirements of the applicable utility providers for water, wastewater, storm water drainage, power, and telecommunications services. These utilities would connect to existing infrastructure in the vicinity of the site. Pacific Gas & Electric would provide electrical and natural gas services, East Bay Municipal Utility District would provide water and sewer service, and the City of Berkeley would provide storm water services and solid waste services. The project would rely on existing public services, including but not limited to, City of Berkeley police and fire protection, Berkeley Unified School District for schools, and parks and open spaces provided by the City of Berkeley, East Bay Regional Parks District, the County of Alameda and the state of California.

Requested Entitlements. The proposed project is subject to approvals by both the City of Berkeley's Zoning Adjustments Board and the City's Landmarks Preservation Commission. The project would require the following discretionary entitlements from the City of Berkeley:

- *Use Permit for a Mixed Use Development in the C-DMU Zoning District*
- *Use Permit to allow the service of beer, wine and distilled spirits incidental to food service*
- *Administrative Use Permit to allow more than 2,000 square feet of Full Service Restaurant space*
- *Administrative Use Permit to allow amplified live entertainment incidental to food service*
- *Use Permit to construct more than 10,000 square feet of floor area*
- *Use Permit to exceed a building height of 75 feet*
- *Administrative Use Permit to allow mechanical penthouse to exceed maximum building height*
- *Use Permit to demolish a non-residential building (1959 Hink's Building)*
- *Structural Alteration Permit for the alteration of the Shattuck Hotel Landmark structure and site (1926 Hink's Department Store addition and a small portion of 1913 addition to beremoved), and demolition of the 1959 Hink's Building at Allston and Harold Ways.*

Source: MVEI Institutional, Inc., January 2014

Proposed Basement Level Alteration and Demolition Plan

Figure 17

Source: MVEI Institutional, Inc., January 2014

Proposed Ground Level Alteration and Demolition Plan

Figure 18

Source: MVEI Institutional, Inc., January 2014

Proposed Upper Level Alteration and Demolition Plan

Figure 19

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Areas shown in red are proposed to be removed or altered

Proposed Section-View
Alteration and Demolition Plan

Source: MVEI Institutional, Inc., January 2014

Figure 20

11. Surrounding land uses and setting:

The larger property is a fully urbanized city block that is generally level, sloping slightly downward towards the west and south. The project site – the area where existing buildings would be altered or demolished and new buildings constructed – is currently occupied by two structures, as shown on Figure 3. The first structure is a small office building with an area of US Post Office boxes on the corner of Alston Way and Harold way, which is also known as the Postal Annex building or 1959 Hink's Building, and was constructed in the 1950s. The second structure, known as the Hink's Addition/Shattuck Cinemas, was the 1926 Hink's addition to the Shattuck Hotel building. This structure has frontage on Kittredge Street and Harold Way, and houses the Shattuck Cinema's movie theaters, part of the Habitot Children's Museum, and office space. Both buildings are two stories in height with a partial third story and a basement level (although the theater rooms occupy the equivalent of two stories of vertical space in what is essentially one level of useable space). Existing uses in the areas to be altered or demolished on the project site are summarized in Table 3.

Table 3
Existing Site Development

USE	NET SQUARE FEET
Office (combination of professional, institutional and medical)	41,170
Shattuck Cinemas	23,474
Children's Museum	7,056

Source: Rhoades Planning Group, January 2014

The structural area affected by the project also extends to a portion of the basement level sitting below the street retail and Shattuck Hotel building, as discussed above under Project Description. Table 4 summarizes the existing characteristics of the project site and surroundings.

Table 4
Existing Site Characteristics

Address:	Multiple, including 2211 Harold Way
Assessor's Parcel Numbers:	057-2027-00600, -00700, -00800, and -0090
Site Size:	38,400 square feet (0.88-acre)
General Plan Land Use Designation:	Downtown (DT); Downtown Area Plan "Core Area"
Zoning Designation:	Downtown Mixed Use District (C-DMU), Core Area
Current Use and Development:	Commercial and Institutional

Table 4
Existing Site Characteristics

Surrounding General Plan Land Use Designations:	North: DT; Downtown Area Plan "Core Area" South: DT; Downtown Area Plan "Corridor" East: DT; Downtown Area Plan "Core Area" West: DT; Downtown Area Plan "Outer Core"
Surrounding Zoning Designations:	North: C-DMU - Core Area South: C-DMU – Corridor Area East: C-DMU – Core Area West: C-DMU – Outer Core Area
Regional Access: Local Access:	Interstate 80/580, State Route 24, SR 123, SR 13 Shattuck Ave, Allston Way, Harold Way, Kittredge St
Public Services:	Water: East Bay Municipal Utility District Wastewater: East Bay Municipal Utility District Fire Protection: Berkeley Fire Department Police Protection: Berkeley Police Department School District: Berkeley Unified, Central Zone

The project site is located in the "Core Area" zoning sub-area of the Commercial-Downtown Mixed-Use (C-DMU) zone within Downtown Berkeley, and is immediately surrounded by commercial, public and institutional land uses, as shown in Figure 2 above. The Downtown Core, as described in the Downtown Area Plan, is known for "its exceptional access to transit, shops amenities, and the UC campus. The Core Area contains BART, the convergence of over thirty bus lines, unique cultural resources, and the highest volume of foot traffic in the East Bay."

As noted above, directly adjacent to the project site and on the same block is the Shattuck Hotel, a City of Berkeley Landmark, whose main lobby and entrance are on Allston Way but which also occupies the airspace above the ground floor retail along the entire block's frontage on Shattuck Avenue. Below the hotel rooms along Shattuck Avenue is a row of commercial storefronts that are part of the project site, as well as the entrance to the Shattuck Cinemas, a 10-screen movie theater. The hotel currently has 199 guest rooms, a restaurant, a bar and meeting rooms.

Commercial uses are located along Shattuck Avenue north of and across from the project site. One block north, around the intersection of Center Street and Shattuck Avenue, are several AC Transit and UC Berkeley Shuttle bus stops serving a number of bus lines, as well as the Downtown Berkeley BART Station on Shattuck Avenue between Allston Way and Addison Street. South of the project site on Shattuck and across Kittredge Street is the Berkeley Central Library, a City of Berkeley and National historic landmark. West of the project site across Harold Way are the Dharma College and the Mangalam Center, both City of Berkeley Landmarks. Commercial land uses and a public parking structure are located north of the project site across Allston Way.

Building heights in the vicinity range from two to three-stories (portions of the Dharma College complex on Harold Way and U.S. Post Office along Kittredge Street) to the 12-story 2140–2144 Shattuck Avenue Chamber of Commerce Building (173 feet) and 14-story 2150 Shattuck Avenue First Savings/Great Western Building (180 feet). The adjacent

Shattuck Hotel is five stories in height, not including the basement. Most buildings around the project site are in the two- to five-story range.

Photographs of the project site and surroundings are shown in figures 21 through 26.

12. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.):

None. Although the University of California at Berkeley has no permitting authority over the project, the Draft EIR will be provided to the University for comment.

Photo 1 - View of the Allston Street frontage of the existing "Postal Annex" building, also known as the 1958 Hink's Building, at the corner of Harold Way and Allston Way, looking southwest from across Allston Way. The adjacent one-story 1912 Restaurant Addition portion of the Shattuck Hotel is visible to the left of the frame, and the Dharma College building across Harold Way from the site is visible in the right of the frame.

Photo 2 - View of the corner of and the Allston Way and Harold Way frontages of the 1958 Hink's Building looking southeast from across Allston Way.

Existing Project Site Development

Figure 21

Photo 3 - View of the Harold Way frontage of the Shattuck Cinemas building, also known as the 1926 Hink's addition to the Shattuck Hotel, looking north from across Kittredge Street.

Photo 4 - View of the Kittredge Street-fronting portion of the 1926 Hink's Addition/Shattuck Cinemas building looking northeast from across Kittredge Street.

Existing Project Site Development

Figure 22

Photo 5 - View of the Kittredge Street-fronting portion of the 1926 Hink's Addition/Shattuck Cinemas building looking west from Kittredge Street.

Photo 6 - View of the Kittredge Street-fronting portion of the 1926 Hink's Addition/Shattuck Cinemas building looking west from Kittredge Street. A portion of the 1913 Shattuck Hotel addition is in the right of the frame.

Existing Project Site Development

Figure 23

Photo 7 - View of the Shattuck Hotel building, immediately adjacent to the project site, looking northwest from across Shattuck Avenue.

Photo 8 - View of the Shattuck Hotel building, immediately adjacent to the project site, looking south from Shattuck Avenue at Center Street. The adjacent BART station plaza and commercial development are in the right of the frame.

Surrounding Development

Figure 24

Photo 9 - The south side of Shattuck Avenue, looking northwest from Shattuck Avenue at Allston Way across from the Shattuck Hotel.

Photo 10 - The public library building across Kittredge Street from the project site, looking southwest from across Shattuck Avenue. A portion of the Shattuck Hotel is visible in the rightside of the frame.

Surrounding Development

Figure 25

Photo 11 - Development on Shattuck Avenue and Allston Way east of the project site, viewed looking east from across Shattuck Avenue.

Photo 12 - The adjacent Shattuck Hotel, and development to the east beyond, viewed from Allston Way looking east. A portion of the project site is visible at the right of the frame.

Surrounding Development

Figure 26

SATISFACTION OF APPENDIX M PERFORMANCE STANDARDS

CEQA *Guidelines* Section 15183.3 allows lead agencies to streamline the environmental review process for eligible infill projects by removing analysis of the following types of environmental effects from the CEQA document:

1. If an effect was addressed as a significant effect in a prior EIR for a planning level decision (such as the Downtown Area Plan), then, with some exceptions, that effect need not be analyzed again for an individual infill project even when that effect was not reduced to a less than significant level in the prior EIR.

2. An effect need not be analyzed, even if it was not analyzed in a prior EIR or is more significant than previously analyzed, if the lead agency makes a finding that uniformly applicable development policies or standards, adopted by the lead agency or a city or county, apply to the infill project and would substantially mitigate that effect.

A copy of Section 15183.3 is provided in Appendix H to this document.

In order to be eligible for streamlined review under Section 15183.3, a project must meet the performance standards contained in Appendix M of the *Guidelines*. The following section provides information demonstrating that the infill project satisfies these standards

1. *Does the non-residential infill project include a renewable energy feature? If so, describe below. If not, explain below why it is not feasible to do so.*

   Pursuant to CEQA *Guidelines* Appendix M, "Where a project includes some combination of residential, commercial and retail, office building, transit station, and/or schools, the performance standards in this Section that apply to the predominant use shall govern the entire project." The proposed project is predominantly residential; therefore, this standard does not apply. However, it may be noted that the proposed project would include rooftop solar panels and an integrated solar water heating trellis.

2. *If the project site is included on any list compiled pursuant to Section 65962.5 of the Government Code, either provide documentation of remediation or describe the recommendations provided in a preliminary endangerment assessment or comparable document that will be implemented as part of the project.*

   The project site is not included on any list compiled pursuant to Section 65962.5 of the Government Code. Review of Cortese List sites indicates that the closest listed property is a closed Underground Storage Tank at 2001 Allston Way, currently the site of the YMCA.

3. *If the infill project includes residential units located within 500 feet, or such distance that the local agency or local air district has determined is appropriate based on local conditions, of a high volume roadway or other significant source of air pollution, as defined in Appendix M, describe the measures that the project will implement to protect public health. Such measures may include policies and standards identified in the local general plan, specific plans, zoning code or community risk reduction plan, or measures recommended in a health risk assessment, to promote the protection of public health. Identify the policies or standards, or refer to the site specific analysis, below. (Attach additional sheets if necessary.)*

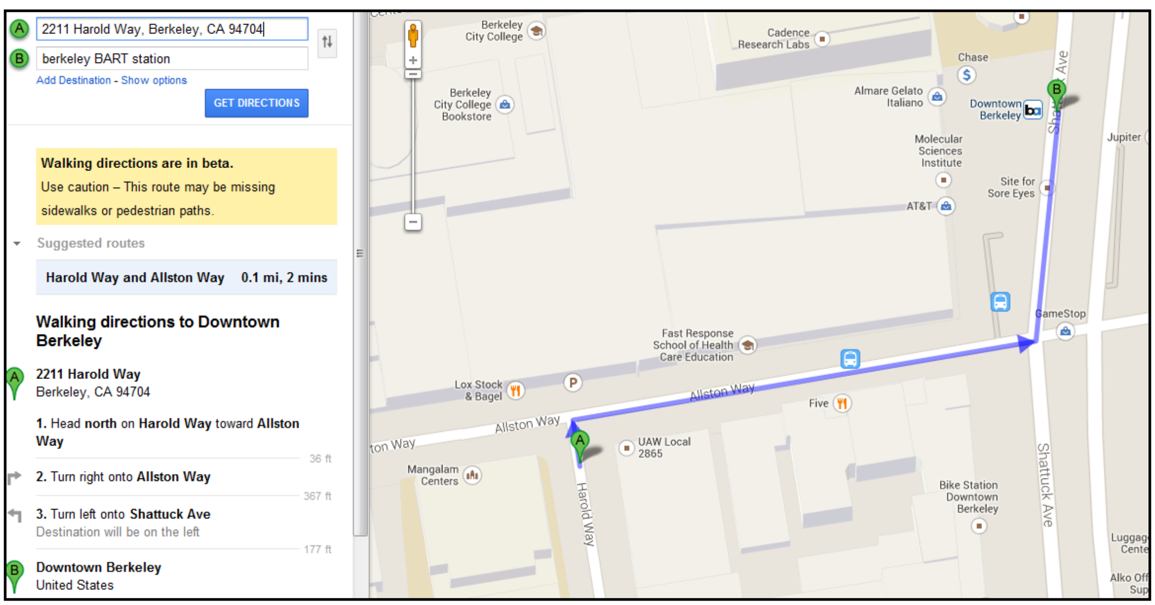
The proposed project does not include residential units located within 500 feet, or such distance that the local agency or local air district has determined is appropriate based on local conditions, of a high-volume roadway or other significant source of air pollution. High-volume roadways are defined as freeways, highways, or urban roads with traffic volumes of at least 100,000 vehicles per day, or rural roads with 50,000 vehicles per day. The nearest such roadway is Interstate 80, approximately two miles from the project site.

4. *For residential projects, the project satisfies which of the following?*

☐ *Located within a low vehicle travel area, as defined in Appendix M. (Attach VMT map.)*

☒ *Located within ½ mile of an existing major transit stop or an existing stop along a high quality transit corridor. (Attach map illustrating proximity to transit.)*

The project site is approximately 0.15 miles from the main entrance to the Berkeley BART station at Shattuck Avenue and Center Street (it is closer to a second BART entrance at Shattuck Avenue and Allston Way), and to numerous bus stops, as illustrated in the map excerpt below.



☐ *Consists of 300 or fewer units that are each affordable to low income households. (Attach evidence of legal commitment to ensure the continued availability and use of the housing units for lower income households, as defined in Section 50079.5 of the Health and Safety Code, for a period of at least 30 years, at monthly housing costs, as determined pursuant to Section 50053 of the Health and Safety Code.)*

5. *For commercial projects with a single building floor-plate below 50,000 square feet, the project satisfies which of the following?*

[Not Applicable]

☐ *Located within a low vehicle travel area, as defined in Appendix M. (Attach VMT map.)*

☐ *The project is within one-half mile of 1800 dwelling units. (Attach map illustrating proximity to households.)*

6. *For office building projects, the project satisfies which of the following?*

[Not Applicable]

☐ *Located within a low vehicle travel area, as defined in Appendix M. (Attach VMT map.)*

☐ *Located within ½ mile of an existing major transit stop or within ¼ of a stop along a high quality transit corridor. (Attach map illustrating proximity to transit.)*

7. *For school projects, the project does all of the following:*

[Not Applicable]

☐ *The project complies with the requirements in Sections 17213, 17213.1 and 17213.2 of the California Education Code.*

☐ *The project is an elementary school and is within one mile of 50% of the student population, or is a middle school or high school and is within two miles of 50% of the student population. Alternatively, the school is within ½ mile of an existing major transit stop or an existing stop along a high quality transit corridor. (Attach map and methodology.)*

☐ *The project provides parking and storage for bicycles and scooters.*

8. *For small walkable community projects, the project must be a residential project that has a density of at least eight units to the acre or a commercial project with a floor area ratio of at least 0.5, or both.*

The proposed project would represent a density of approximately 343 units per acre (302 units proposed on 0.88 acres), which is more than eight units to the acre. The proposed floor area ratio of approximately 9.0 is greater than 0.5.

ENVIRONMENTAL FACTORS AFFECTED

The infill project could potentially result in one or more of the following environmental effects.

☐ Aesthetics	☐ Agriculture and Forest Resources	☐ Air Quality
☐ Biological Resources	☒ Cultural Resources	☐ Geology/Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☐ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☒ Transportation/Traffic	☐ Utilities/Service Systems	☒ Mandatory Findings of Significance

DETERMINATION:

On the basis of this initial evaluation:

☐ I find that the proposed infill project WOULD NOT have any significant effects on the environment that either have not already been analyzed in a prior EIR or that are more significant than previously analyzed, or that uniformly applicable development policies would not substantially mitigate. Pursuant to Public Resources Code Section 21094.5, CEQA does not apply to such effects. A Notice of Determination (Section 15094) will be filed.

☐ I find that the proposed infill project will have effects that either have not been analyzed in a prior EIR, or are more significant than described in the prior EIR, and that no uniformly applicable development policies would substantially mitigate such effects. With respect to those effects that are subject to CEQA, I find that such effects WOULD NOT be significant and a NEGATIVE DECLARATION, or if the project is a Transit Priority Project a SUSTAINABLE COMMUNITIES ENVIRONMENTAL ASSESSMENT, will be prepared.

☐ I find that the proposed infill project will have effects that either have not been analyzed in a prior EIR, or are more significant than described in the prior EIR, and that no uniformly applicable development policies would substantially mitigate such effects. I find that although those effects could be significant, there will not be a significant effect in this case because revisions in the infill project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION, or if the project is a Transit Priority Project a SUSTAINABLE COMMUNITIES ENVIRONMENTAL ASSESSMENT, will be prepared.

☒ I find that the proposed infill project would have effects that either have not been analyzed in a prior EIR, or are more significant than described in the prior EIR, and that no uniformly applicable development policies would substantially mitigate such effects. I find that those effects WOULD be significant, and an infill ENVIRONMENTAL IMPACT REPORT is required to analyze those effects that are subject to CEQA.

______________________________ ______________________________
Signature Date

____
Printed Name and Title

ENVIRONMENTAL CHECKLIST

As described below and reflected in the organization and content of the checklist, this Infill Environmental Checklist is different from the Appendix G CEQA *Guidelines* Checklist commonly used for CEQA Initial Studies. This Infill Environmental Checklist is based on Appendix N CEQA *Guidelines* Infill Environmental Checklist form. The Appendix N Infill Environmental Checklist form and this Infill Environmental Checklist are intended to document a qualifying infill project's eligibility for streamlining pursuant to CQEA Guidelines Section 15183.3 and to assist in making the determinations required by Section 15183.3, including whether the infill project's effects have been addressed in a planning level decision or by uniformly applicable development policies.

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) For the purposes of this checklist, "prior EIR" means the environmental impact report certified for a planning level decision, as supplemented by any subsequent or supplemental environmental impact reports, negative declarations, or addenda to those documents. "Planning level decision" means the enactment or amendment of a general plan, community plan, specific plan, or zoning code. (Section 15183.3(e).)

4) Once the lead agency has determined that a particular physical impact may occur as a result of an infill project, then the checklist answers must indicate whether that impact has already been analyzed in a prior EIR. If the effect of the infill project is not more significant than what has already been analyzed, that effect of the infill project is not subject to CEQA. The brief explanation accompanying this determination should include page and section references to the portions of the prior EIR containing the analysis of that effect. The brief explanation shall also indicate whether the prior EIR included any mitigation measures to substantially lessen that effect and whether those measures have been incorporated into the infill project.

5) If the infill project would cause a significant adverse effect that either is specific to the project or project site and was not analyzed in a prior EIR, or is more significant than what was analyzed in a prior EIR, the lead agency must determine whether uniformly applicable development policies or standards that have been adopted by the lead agency, or city or county, would substantially mitigate that effect. If so, the checklist shall explain how the infill project's implementation of the uniformly applicable development policies

will substantially mitigate that effect. That effect of the infill project is not subject to CEQA if the lead agency makes a finding, based upon substantial evidence, that the development policies or standards will substantially mitigate that effect.

6) If all effects of an infill project were either analyzed in a prior EIR or are substantially mitigated by uniformly applicable development policies or standards, CEQA does not apply to the project, and the lead agency shall file a Notice of Determination.

7) Effects of an infill project that either have not been analyzed in a prior EIR, or that uniformly applicable development policies or standards do not substantially mitigate, are subject to CEQA. With respect to those effects of the infill project that are subject to CEQA, the checklist shall indicate whether those effects are significant, less than significant with mitigation, or less than significant. If there are one or more "Significant Impact" entries when the determination is made, an infill EIR is required. The infill EIR should be limited to analysis of those effects determined to be significant. (Sections 15128, 15183.3(d).)

8) "Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures will reduce an effect of an infill project that is subject to CEQA from " Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how those measures reduce the effect to a less than significant level. If the effects of an infill project that are subject to CEQA are less than significant with mitigation incorporated, the lead agency may prepare a Mitigated Negative Declaration. If all of the effects of the infill project that are subject to CEQA are less than significant, the lead agency may prepare a Negative Declaration.

9) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to an infill project's environmental effects in whatever format is selected.

10) The explanation of each issue should identify:

   a) the significance criteria or threshold, if any, used to evaluate each question; and
   b) the mitigation measure identified, if any, to reduce the impact to less than significance.

RELATIONSHIP OF THE PROPOSED PROJECT TO THE DOWNTOWN AREA PLAN EIR ANALYSIS

As required by CEQA, the City prepared a Final Environmental Impact Report (FEIR), State Clearinghouse Number: 2008102032, which analyzed the environmental impacts of the Downtown Area Plan (DAP). The City Council certified the DAP FEIR as meeting the requirements of CEQA on March 20, 2012 by adopting Resolution 65647 – N. S. On March 20, 2012, the Berkeley City Council adopted the 2012 Downtown Area Plan (DAP) by adopting Resolution 65648 – N. S. The following written checklist cites the specific portions of the DAP EIR, including page and section references, containing the analysis of the Project's significant effects. The written checklist also indicates the applicable mitigation measures from the DAP

EIR that will be incorporated into the Project. The written checklist follows the same Chapter organization used by the DAP EIR.

The following checklist of "environmental factors potentially affected" should be viewed in the context that the DAP FEIR, as it states at page 1-5, "constitutes and is designated as a 'program environmental impact report' for purposes of Public Resources Code Section 21090(a). Any new projects (such as private or public development activities) that might occur within the Downtown Area following adoption of the DAP will be subject to subsequent environmental review pursuant to CEQA. Such review will determine whether:

- A project is exempt from further review;
- The activity is adequately covered by this EIR, so that no further CEQA review is needed……."

This Report presents the written checklist that cites the specific portions of the DAP EIR, including page and section references, containing the analysis of the Project's potential significant effects. For this reason, this analysis begins with reference to the Project Description in the DAP EIR to demonstrate that the Project is generally included within the overall plan area buildout described in the Project Description for the DAP EIR.

Chapter 3: Project Description.

The Project Description for the DAP FEIR contains numerous references that relate to the project site, project location, and proposed type of development, including the following.

- Page 3-14, final bullet on the page: The text notes: "Within the Inner Core Area, not more than four mixed-use structures built to a height of up to 180 feet each are assumed, on parcels exceeding 13,000 square feet.
- Page 3-16: Figure 3.6: EIR Building Height Assumptions. The project site is designated as "Inner Core Area: Mixed Use" which generally allows building heights up to 85 feet but within which two hotels up to 225 feet and four other buildings ("non-hotels") up to 180 feet would be allowed.
- Page 3-16: Figure 3.6: EIR Building Height Assumptions. The EIR identifies a building height assumption for the project site of 225 feet.

Although the project site was modeled in the DAP EIR with a taller building than proposed, its development would also be within the overall buildout assumptions for the Inner Core Area, which includes development on several Inner Core sites with buildings of 180 to 225 feet in height. As noted on Page 3-15, these developments could potentially occur on a number of Inner Core sites, not only those chosen for conceptual modeling purposes, and might not occur specifically on those where the development was modeled.

As also discussed in the DAP EIR Project Description (Page 3-4), the DAP EIR assumed that implementation of the Plan would enable the City of Berkeley to accommodate up to 3,100 additional dwelling units and nearly 1,000,000 square feet of non-residential space (largely comprised of University uses) within the 20-year planning horizon. The project's proposed 302 new units and cinema and retail/restaurant space are within this projected buildout.

As described above, the Project is specifically identified in the Project Description in all relevant terms – subject property, use type and building height. As documented throughout this Infill Environmental Checklist, development on the subject property is included in all aspects of the DAP EIR.

Finally, pursuant to Section 23E.68.065 of the Berkeley Municipal Code, "Projects that may create potentially significant environmental impacts as described in the Downtown Area Plan Final EIR shall be subject to the adopted Mitigation Monitoring Program adopted concurrently with this Chapter. (Ord. 7229-NS § 1 (part), 2012)."

	Significant Impact	**Less Than Significant or Less than Significant with Mitigation Incorporated**	**No Impact**	**Analyzed in the Prior EIR**	**Substantially Mitigated by Uniformly Applicable Development Policies**
I. AESTHETICS. Would the project:					
a) Have a substantial adverse effect on a scenic vista?	☐	☒	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☒	☐	☒	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☒	☐	☒	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☒	☐	☒	☒

Note: Pursuant to California State law (Senate Bill 743, 2013), aesthetic impacts of a mixed-use residential/commercial project (to the extent they are not also historic resource impacts) on an infill site within a transit priority area, such as the proposed project, may not be considered significant impacts on the environment.

Downtown Area Plan Summary.

The 2009 DAP EIR analyzes aesthetics in pages 4-1 through 4-35. It reviews the potential for development accommodated by the DAP to result in adverse effects on scenic vistas, light or glare that could adversely affect day or nighttime views, degradation of the visual character of city or specific neighborhoods, damage to scenic resources including historic buildings, increased shading on parks, open space, or schoolyards, and winds exceeding 36 mph for more than 1 hour during the day.

The Aesthetics section of the DAP Environmental Impact Report includes discussion of scenic vistas within and through downtown Berkeley. According to the DAP EIR, in addition to the scenic vistas identified in the 1994 Downtown Design Guidelines, "some more distant scenic vistas have iconic status in the history of Berkeley, such as views from the campus over Downtown to the Golden Gate Bridge and Bay, or views from the Campanile on campus through Downtown towards the Bay." The DAP EIR concludes that the 3,100 new dwelling units and the 1,000,000 square feet of non-residential space that could be accommodated by the approved plan would result in unavoidable significant aesthetic impacts on views from Downtown Berkeley toward the Berkeley Hills through the introduction of tall, dense structures. The DAP EIR requires site specific visual analysis for structures proposed between Shattuck Avenue and Oxford Street, but concludes that this impact would remain unavoidable:

- *Impact AES-l:* DAP-Related Reduction in Views of the Berkeley Hills from the Downtown Area. Development anticipated under DAP would result in a reduction in the existing views of the Berkeley Hills available to observers traveling east along east-west streets in the Downtown Area (e.g., University Avenue, Center Street and Allston Way). This would represent a *potentially significant* impact.

    - *Mitigation AES-l:* Conduct Site-Specific Visual Analysis for Buildings Proposed Between Shattuck Avenue and Oxford Street. In order to reduce development-related impacts on existing views of the Berkeley Hills for observers traveling east along east-west streets in the Downtown Area, the City should require site-specific visual analysis for proposed buildings that have the potential to affect existing view corridors to determine the extent to which such structures may interfere with existing views of the Berkeley Hills, and should consider whether stepping back such buildings is feasible and would result in a substantial reduction in impact.

      While the measures incorporated in the DAP and the additional recommended mitigation measures could reduce potential adverse impacts related to views of the Berkeley Hills from the Downtown Area, the impact would remain *significant and unavoidable.*

A second aesthetic impact identified in the DAP EIR involves the potential for shadowing of the West Crescent open space at the western entrance to the UC Berkeley campus. The EIR requires that shadow effects be analyzed for structures proposed to reach 85 feet or taller near the eastern edge of Downtown. Depending on the ability to modify the envelopes of such structures that would cast shadows on the Crescent, the impact may remain unavoidable:

- *Impact AES-2:* DAP-Related Shadows Falling onto University "Crescent." Shadow modeling indicates that development anticipated under the DAP would be expected to add new shadows that would fall on the "crescent" open space on the western edge of the University of California campus (between Addison Street and University Avenue) in the late afternoons/early evenings during fall and winter. This would represent a *potentially significant* impact.
  - *Mitigation AES-2:* Evaluate Shadow Effects for Proposed Structures near the Eastern Edge of the Downtown Area. The extent of the impact on the Crescent will depend on the location, height and bulk of structures to the southwest. While the impact may be significant, it is not possible to determine with any certainty the level of impact. Accordingly, all structures with a proposed height of 85 feet or more to be located within an area bounded by Addison Street on the north, Oxford Street on the east, Allston Way on the south, and Shattuck Avenue/Shattuck Square on the west shall be evaluated in a site-specific basis to determine the extent to which such buildings may cast shadows within the Crescent. Modifications to building heights, bulk or location should be considered as a way to reduce such shadowing.

    If the locations, heights and bulk of new structures in the immediate vicinity of the Crescent can be modified to effectively reduce afternoon shadowing within the area during the fall and winter (as demonstrated by project-specific shadow analysis under Mitigation AES-2, above), the impact could be reduced to a level of less than significant. However, absent such modifications for this purpose, the impact would remain *significant and unavoidable.*

Impacts to scenic resources were determined to be less than significant in the DAP EIR. The EIR states that "There are no scenic resources that meet the narrow definition of scenic resources typically used in CEQA Guidelines…it is the "main street" character of the Downtown Area characterized by zero lot line buildings (no setbacks), retail frontages, and the relatively large number of buildings from earlier eras that establish its visual character. " The DAP EIR does conclude that aesthetic impacts to the visual resources associated with historic buildings and street trees would be less than significant through implementation of DAP policies including those calling for preservation of important historic buildings and street trees.

In regard to light and glare impacts, the DAP EIR concluded that impacts would be less than significant through implementation of DAP policies intended to reduce glare and night lighting.

<u>Aesthetics and Urban Design Policy Setting.</u>

The project site and vicinity are located within an urban area in the City of Berkeley and lie entirely within the DAP planning area. The primary policy documents used to review aesthetics and urban design issues as part of the City's review of development applications in the Downtown area include the DAP itself and the City's Downtown Design Guidelines (2012).

It should be noted here that, pursuant to California State law (Senate Bill 743, 2013), aesthetic impacts of a mixed-use residential/commercial project on an infill site within a transit priority area, such as the proposed project, may not be considered significant impacts on the environment. (It should also be noted that, pursuant to CEQA Statute Section 21099.d, in this context "aesthetic impacts do not include impacts on historical or cultural resources.")

Project-Specific Impacts

a) A photo documentation site reconnaissance tour of the project site vicinity was conducted on December 4, 2013 in order to document current visual conditions and compare viewshed conditions to those analyzed in the DAP EIR. The photographic data was also used to determine which viewpoints warranted further analysis in photosimulations. Appendix A includes a cataloged list of the viewshed imagery recorded, and serves as a reference for viewshed impact discussions analyzed in this report.

Of the locations identified in the Downtown Design Guidelines as "important vistas," three would be affected by the proposed project, as demonstrated in the viewshed reconnaissance exercise (Appendix A):

- the Allston Way corridor (see Figure 28a on Page 64 below);
- the terminations of Kittredge Street (see Figure 29a); and
- the north and south termination of Harold Way.

In none of these cases would views to the hills from Downtown be affected by the proposed project, as such views are defined and wholly framed by the existing structures fronting the street. This framing would not change with the implementation of the proposed project, and the project would not block views to the hills from these vantage points. This observation is consistent with DAP EIR Mitigation Measure AES-1, which requires "site-specific visual analysis for buildings proposed between Shattuck Avenue and Oxford Street." This mitigation measure would apply only to DAP-affected development proposals east of Shattuck Avenue. Parts of the proposed new buildings could potentially intermittently appear within views toward the Berkeley Hills while travelling along other east-west or north-south streets within or near to the Downtown area, but from no such viewpoint would substantial portions of views to the hills be blocked.

The Downtown Design Guidelines also broadly identify preserving existing views of the bay from Downtown as a goal. No public views of the bay can be directly accessed from or through the project site, except for a distant view from the UC Berkeley campus. The DAP EIR analyzed views of the bay from the top of the UC Berkeley Campanile (Sather Tower, officially). Figures 4.1A and 4.1B of the DAP EIR illustrate that structural massing potentially accommodated by buildout under the DAP would affect the view of Berkeley buildings in the foreground of the view, but would not substantially effect the bay view or long-range views across the bay. Thus the proposed project would not result in impacts to direct views of the bay from the top of the Campanile (the viewpoint shown in figures 4.1A and 4.1B of the DAP EIR).

The DAP EIR included a survey of potential viewshed impacts that the DAP could facilitate as a result of its broad policy objective of selective and thoughtfully-planned urban intensification. The viewshed photo simulation work in the DAP EIR focused on height and massing concepts that would be generally permitted under the DAP. Because the structural massing used in the DAP EIR modeling was conceptual, additional simulation modeling was conducted for the proposed 2211 Harold Way project. Using the December 4, 2013 survey imagery (Appendix A), combined with policy direction from the aforementioned planning policy documents, City of Berkeley staff selected four viewshed perspective locations that warranted further visual impact analysis through the photosimulation. Figure 27 presents a map indicating the viewshed perspective locations. Table 5 lists the viewshed locations and visual features accessible therefrom.

Milvia @ Allston Crosswalk looking east. Figure 28a illustrates the view east towards the Berkeley Hills from the mid-crosswalk location. This location provides a streetscape-framed distant view of the Berkeley Hills, and close-range view of the Downtown Berkeley streetscape. This location provides a direct linear sightline toward the visual backdrop of the Berkeley Hills. As shown, the views of the Hills features would not be affected by the proposed project from this location. The new construction would extend into the sky, increasing the development profile within the view; in the context of the DAP, this change would be an anticipated result of the desired urban intensification and is within the overall impacts identified in the DAP EIR for buildout of the plan area as a whole. As mentioned throughout this report, the DAP allows for, and the DAP EIR included in its buildout projections, a 225-foot tall building within the project site. Compared to Figure 4.7B in the DAP EIR, which shows a similar view, neither the modeled DAP view for development on the site nor the proposed project simulated view would block views to the hills.

Table 5
View Locations and Visual Features

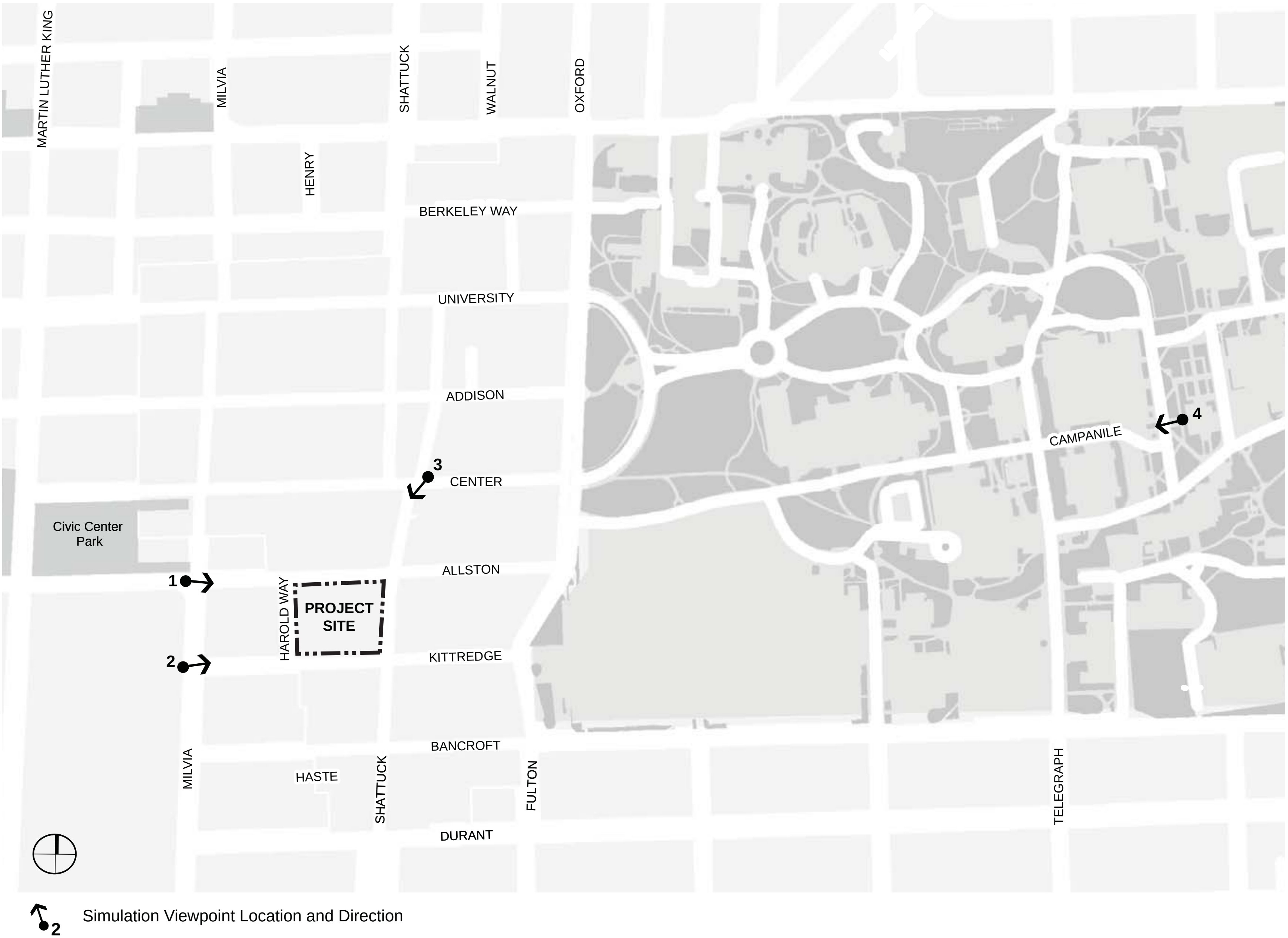
Figure # and (Photosim Perspective Number)	Location and Direction of Viewshed	Visual Features in Viewshed
28a (View 1)	Milvia @ Allston, west midblock crosswalk looking east. (Compare to Figure 4.7B in the DAP EIR.)	This location provides a streetscape-framed distant view of the Berkeley Hills, and close-range view of the Downtown Berkeley streetscape.
29a (View 2)	Milvia @ Kittredge, west sidewalk looking east. (Not simulated in DAP EIR.)	This location provides a streetscape-framed distant view of the Berkeley Hills, and close-range view of the Downtown Berkeley streetscape.
30a (View 3)	Shattuck @ Center, northeast corner looking southwest. (Not simulated in DAP EIR.)	This location provides a view toward the Shattuck Hotel building and the west streetscape frontage of Shattuck Avenue including the Berkeley BART portal plaza complex.
31a (View 4)	UC Berkeley Campanile upper base looking west. (Not simulated in DAP EIR.)	This location provides a view west of the San Francisco Bay, the northern end of Alcatraz Island, and the south tower of the Golden Gate Bridge.

Milvia @ Kittredge looking east/northeast. Figure 29a illustrates the view east northeast towards the Berkeley Hills from the sidewalk on the east edge of the Berkeley High School campus. This location also provides a direct linear sightline toward the visual backdrop of the Berkeley Hills. As shown, the views of the hills would not be affected by the proposed project from this location. The proposed new building would extend into the the sky view as framed in this photograph (but less of the overall sky view experienced in person); however, in the context of the DAP and DAP EIR, this incremental growth in the built environment is an anticipated result of the desired urban intensification envisioned in the DAP.

Shattuck @ Center, northeast corner looking southwest. This location provides a view (Figure 30a) dominated by the urban streetscape of Shattuck Avenue in Downtown Berkeley. This location provides a view toward the Shattuck Hotel building and the west streetscape frontage of Shattuck Avenue including the Downtown Berkeley BART station's main entry plaza. Most prominent from this location is the background view of the Shattuck Hotel with its façade generously articulated with windows and its ground floor storefronts. Also prominent at the edge of the frame is the density of the Chase Bank building and the BART plaza, with its unique cylindrical entry structure. As shown, the project would extend into the sky above the site – part of the anticipated effect of overall Downtown buildout under the DAP - but views of the hills would not be affected by the proposed project from this location.

The proposed project would also alter this vista by introducing building massing into the perspective. This would alter the view of approximately 50% of the parapet line of the block (and a portion of the block to the north) from this location by changing the background view from sky to the proposed new building. The articulation of the massing of the proposed project, however, results in an interesting play on the parapet height of the urban scene, and adds a visual texture to the streetscape viewshed. While this increase in intensity may be considered adverse by some viewers, the proposed project could be viewed as imparting a more interesting skyline vista to Downtown Berkeley from this location. It should be noted that from other viewpoints along Shattuck Avenue, the backdrop with the proposed project would vary, shifting the background of portions of the hotel's roof line from proposed building to sky as one moves along the street.

UC Berkeley Campanile base looking west. Of the seven perspective viewsheds from this location examined in the photo survey (Appendix A), Figure 31a illustrates the most sensitive view west from the Campanile toward the San Francisco Bay and the Golden Gate. The viewshed is from one side of the base of the Campanile structure (rather than the top as modeled in the DAP EIR), along the north edge of the top of the landing, adjacent to the balustrade. From this location, a central axial view of the Bay and Golden Gate, framed by the Campanile Way/Frank Schlessinger Way promenade and its fronting academic buildings and mature landscaping, is available. According to UC Berkeley's 2004 *Landscape Heritage Plan*, Campanile Way is a historically significant component of the campus, and east-west views along the Way are a character-defining feature of this area of the campus. Therefore, this issue is discussed further in the cultural resources section of this checklist.



Source: City of Berkeley & Environmental Vision, February 2014

Simulation Viewpoint Locations

Figure 27

Existing view from Milvia Street at Allston Way looking east (VP 1)

Visual simulation of Proposed Project

Source: Environmental Vision, February 2014

Photosimulations
Milvia at Allston

Figure 28a

Visual simulation of Proposed Project

Existing view with Proposed Project overlaid.

Visual Impact Calculation
Milvia at Allston

Source: Environmental Vision, February 2014

Figure 28b

Existing view from Milvia Street at Kittredge Street looking east (VP 2)

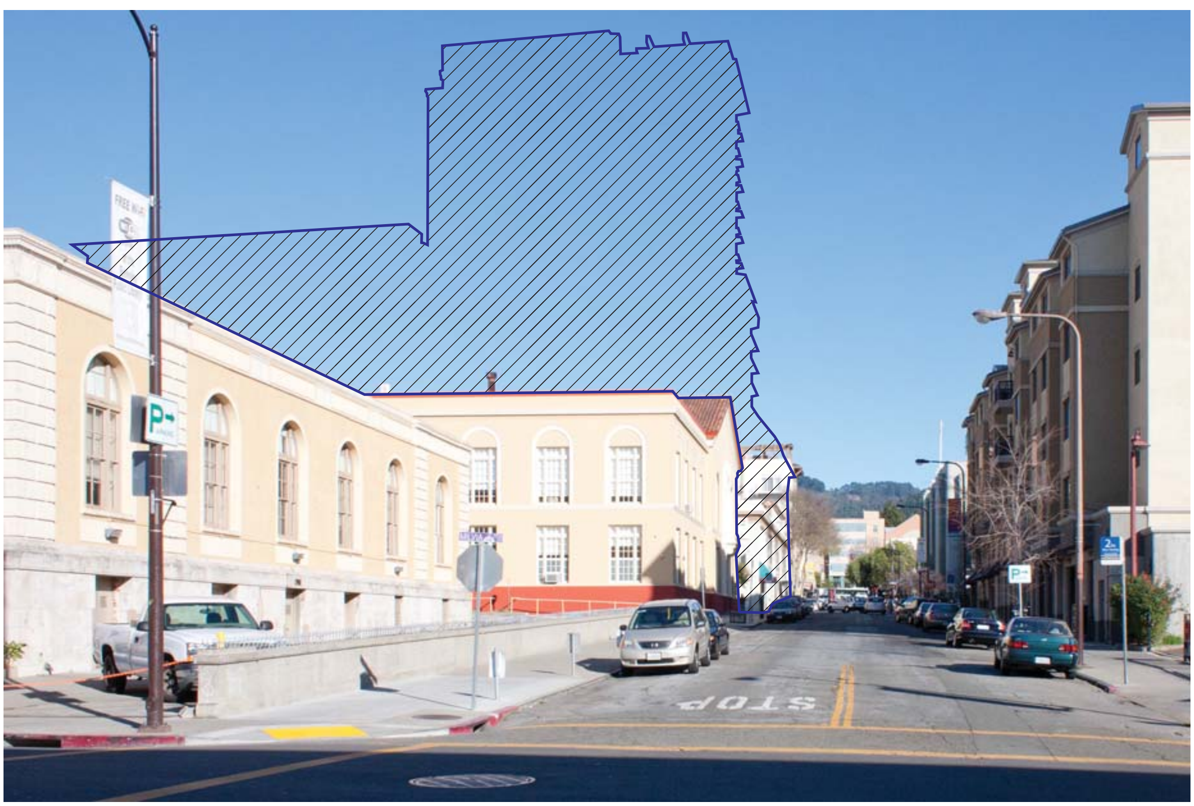
Visual simulation of Proposed Project

Photosimulations
Milvia at Kittredge

Figure 29a

Source: Environmental Vision, February 2014

Visual simulation of Proposed Project



Existing view with Proposed Project overlaid.

Source: Environmental Vision, February 2014

Visual Impact Calculation
Milvia at Kittredge

Figure 29b

Figure 31b provides an isolated and telescoped frame of the San Francisco Bay view in order to more clearly show details of the view change. This subset of the image is indicated by a dashed box. The image is then modified with an insertion of an outline of the proposed project's massing. Within this geometry, the modeling shows that the view of Alcatraz Island within this viewshed would be the feature most affected by the proposed project. Approximately 85%percent of the view of the island from this viewpoint would be eliminated. In contrast, the proposed project would not substantially affect the views of the bridge. The effect on the vista of Alcatraz Island, a significant landmark under the City's definition of "View Corridor,"[1] would be considered adverse. It should be noted that the degree of intrusion into the view of the island would vary with one's specific location at the base of the Campanile; specifically, the island is substantially visible only from the north (viewer's right) side of the stairway, while it is mostly blocked by existing trees when standing at the south (viewer's left) and middle of the stairway, from which the proposed project would not be visible.

The view obstruction discussed above would be similar to, but less adverse than, what was modeled for the site in the DAP EIR. This is because the assumption for buildout in the DAP EIR had the 225-foot building located on the northern portion of the site, potentially blocking more of the bay and island view from this specific location. On the other hand, this viewing location was not specifically discussed and analyzed in the DAP EIR, which focused on the view from the top of the Campanile. The project would not block any bay views from the top of the Campanile (refer to DAP EIR Figure 4.1B).

In summary, scenic vistas and identified important views would not be adversely affected by the proposed project, with the exception of the view of the bay and Alcatraz Island from the base of the Campanile, which would be partially obstructed. This is considered an adverse aesthetic impact of the project. As required by California State law (Senate Bill 743, 2013, which says that aesthetic impacts of a mixed-use project on an infill site within a transit priority area may not be considered significant impacts on the environment), **this impact cannot be considered significant** on aesthetic grounds alone. However, as noted earlier, due to the potential historic significance of the east-west views along Campanile Way, this issue will be discussed in the EIR's analysis of cultural resources impacts.

b, c) The proposed project would have adverse effects if it would "substantially damage" scenic resources. This topic was thoroughly analyzed in the DAP EIR, and this analysis focuses on the project site and visual character of the immediate vicinity. As noted at the beginning of this section, the aesthetic effects of this project are not considered significant due to SB 743, but the following analysis is provided nonetheless for the purpose of public discussion.

As noted in the project description, the subject property is fully developed and there are no rock outcroppings, trees or other substantial natural features located on the property. Although there are seven street trees on Harold Way and Kittredge Street that would be removed during site preparation and construction, they are not of sufficient stature or type to be considered substantial scenic resources. The project includes replacing them with approximately 11 street trees of species acceptable to the City's Street Trees and Urban Forestry Management Program.

[1] See Berkeley Municipal Code Section 23F.04.010.

The *Infill Environmental Checklist* form incorporated into the State CEQA *Guidelines* also lists "historic buildings within a state scenic highway" as a type of scenic resource warranting examination. The project site is not visible from a State scenic highway, and there are no such highways within the DAP planning area. Therefore, by definition, the proposed project would not result in an adverse effect on scenic resources associated with a State scenic highway pursuant to the Infill Environmental Checklist.

The DAP EIR notes that the grouping of a large number of buildings from earlier eras establishes visual character in the vicinity of the project site, and that "this built environment…would be regarded as scenic resources by local residents and visitors." Because the project would not physically alter the built environment surrounding the project site, it would not "substantially damage" any off-site buildings or features regarded as "scenic resources." Furthermore, as discussed further below, the project would utilize durable, attractive materials that are compatible with surrounding buildings, and would generally conform to the Downtown Design Guidelines that were developed to promote aesthetic quality in new projects. Therefore, the project's aesthetic impacts on the built environment surrounding the project site would be less than significant. However, as required by CEQA, the project's impacts on historical resources, both on the project site and in its immediate vicinity, are discussed below in Item V, *Cultural Resources*.

The DAP incorporates numerous policies that strive to reduce the potential to adversely impact the visual character of the Downtown. These include directives to:

- *preserve, reuse, and restore historic structures and sites*
- *maintain "main street" character and pedestrian orientation*
- *allow for variety is massing and scale*
- *require street-level commercial facades and entrances without street setbacks*
- *promote open spaces and plazas.*

The proposed project would result in the removal of a portion of an identified historic structure. As noted below under Item V, *Cultural Resources,* the project appears to be inconsistent with certain adopted City policies related to protection of historic resources, and this issue will therefore be studied further in the EIR.

The proposed project includes a number of urban design features that appear to implement urban design policy directives adopted in the DAP - features that would improve the aesthetic environment and condition of the affected block faces. By association, these would be expected to beneficially affect the neighborhood's urban visual character. These features include

- *a variety of massing and scale;*
- *inclusion of new retail frontage on Allston and Harold Ways and Kittredge Street;*
- *the inclusion of an open plaza on the corner of Harold Way and Kittredge Street; and*
- *Streetscape amenities.*

Existing view from Shattuck Avenue at Center Street looking south (VP 3)

Visual simulation of Proposed Project

Source: Environmental Vision, February 2014

Photosimulations
Shattuck Center

Figure 30a

Visual simulation of Proposed Project

Existing view with Proposed Project overlaid.

Visual Impact Calculation
Shattuck Center

Source: Environmental Vision, February 2014

Figure 30b

Existing view from UC Berkeley Campanile at plaza level looking west (VP 4)

Visual simulation of Proposed Project

Photosimulations
Campanile

Source: Environmental Vision, February 2014

Figure 31a

Visual simulation of Proposed Project

Existing view with Proposed Project overlaid.

Visual Impact Calculation
Campanile

Source: *Environmental Vision, February 2014*

Figure 31b

The DAP called for updates to the City's Downtown Design Guidelines to update the design vision as appropriate and to address the potential changes envisioned by the DAP, and these updates have been incorporated into the current Downtown Design Guidelines. Among the key site design guidelines for new construction applicable to the project are the following (guidelines applicable to historical resources will be discussed in the EIR):

Frontages, Setbacks and Heights Guidelines:

1. *Maintain a continuous zero-setback "build-to line" at the ground floor at the edge of all Downtown streets where commercial and higher levels of activity is anticipated, as has been indicated in the map "Public Serving Frontages" (see Figure 43). The only exceptions to this may be to: provide suitably defined, usable open space; create a special corner feature; provide recessed storefront entrances; create an arcade; to provide a narrow band of landscaping (see Figure 37); or to give emphasis to a civic building.*

2. *On Downtown streets without commercial or higher levels of activity, bring buildings close to the street-facing property line while also providing landscaping.*

3. *Continue the rhythm of 15-30 foot spacing of structural bays and/or enframed storefronts at ground level, in order to establish visual continuity with existing buildings and create pedestrian scale.*

4. *Design recessed storefront entrances so they do not exceed 50% of the width of the storefront, nor ten feet in depth.*

5. *Consider massing alternatives that would reduce shadow impacts on streets and relate new construction to the scale of nearby buildings, such as use of upper-story setbacks. Consider ways that buildings with upper-story setbacks can avoid the "wedding cake effect," such as by setting street-level entrances back to the same vertical plane as upper floors and/or by incorporating features that tie the building together visually (see Figure 38).*

6. *For new construction projects located on narrow east-to-west streets and over 75 feet in height, prepare an analysis of shade impacts on public open spaces and pedestrian sidewalks across the street. East of Shattuck, analyze visual impacts of ridgeline views to the east. Based on such analysis/ analyses, consider upper floor setbacks, setbacks at street corners or other techniques to mitigate negative impacts. (see #12 for Wind Impacts.)*

7. *Place entrances to storefronts and other ground floor uses so that they are accessible directly from the public sidewalk, not internal lobbies.*

8. *Design entrances of individual buildings to contribute positively to the street. Main entries should be clearly identifiable and inviting, and located to encourage interaction between open space and pedestrians.*

9. *New curb cuts in the Downtown core area are discouraged. Existing driveways may be relocated or replaced.*

10. *Maintain and reinforce Downtown's historic streetwall at the property line. Upper floor setbacks are desirable above 60 feet (usually the fifth floor for residential construction), and should be used above 75 feet.*

11. *Along Oxford Street, consider ways to link Downtown to the University campus, such as with usable open space, public art and other features.*

12. *For buildings over 85 feet in height, prepare an analysis of potential wind impacts. Protect sidewalks and public open spaces by deflecting downward wind drafts ("wind shear") by using building setbacks, recesses, projections, and other devices (see Figure 40). For projects with potentially significant wind impacts, evaluate massing options with a wind tunnel or other simulation, such as are available at UC Berkeley's College of Environmental Design.*

13. *Consider how the building's form and orientation can take advantage of sun and shade to appropriately heat and cool the building.*

Although, as noted previously, there is a DAP policy to require street-level commercial facades and entrances without street setbacks, it should be noted that site design Guideline 1 for new construction above specifically allows for exceptions to "provide suitably defined, usable open space; create a special corner feature; provide recessed storefront entrances…" The proposed corner plaza would generally meet the intent of the allowed exception; the remaining facades would generally extend to the sidewalk line. The number of curb cuts would remain at one (the existing driveway on Harold Way would be removed and a new driveway is proposed on Kittredge Street).

Shadow impacts are discussed above under Item I, *Aesthetics*, and would be less than significant, as would wind impacts, as discussed under Item X, *Land Use and Planning*. Upper floor setbacks are included in project design, and the ground floor retail spaces would be accessible directly from the public sidewalk. See further discussion of DAP development policies under Item X, *Land Use and Planning*.

The Guidelines reflect the potential for buildings up to 180 feet in height as envisioned in the DAP for specific plan subareas. Many of the issues raised in these guidelines are addressed throughout this report. Others are addressed in the project description, such as bringing development to the lot line, and locating commercial uses at the ground floor. The project would maintain a generally continuous street wall at the edge of the abutting streets up to where the building would step back toward the interior of the site.

<u>Selected "Corner Sites" Guidelines:</u>

1. *Accentuate the corner as the focal point of the site (see Figure 50). This may be accomplished by building to the maximum height, utilizing setbacks, providing definition at the streetwall with landscaping or architectural elements, or providing open space or main entries at the corner.*

3. *Both street fronts are individual facades. (See also Building Design: Facades.)*

The project's tallest feature would be located at the corner of Kittredge Street and Harold Way. Architectural elements and a 1,872 square-foot public plaza are also proposed at this corner. The two main street fronts on either side of the primary corner include full façade design.

Applicable "All Buildings" Guidelines:

1. *Consult Berkeley's Zoning Ordinance for specific height limits for sub-areas within the Downtown.*

2. *Respect the height of neighboring buildings, and provide a sense of continuity and enclosure which avoids abrupt changes in height.*
3. *On the corner sites, locate the tallest elements at the corners, particularly at major intersections, except where ridgeline views may be obstructed.*

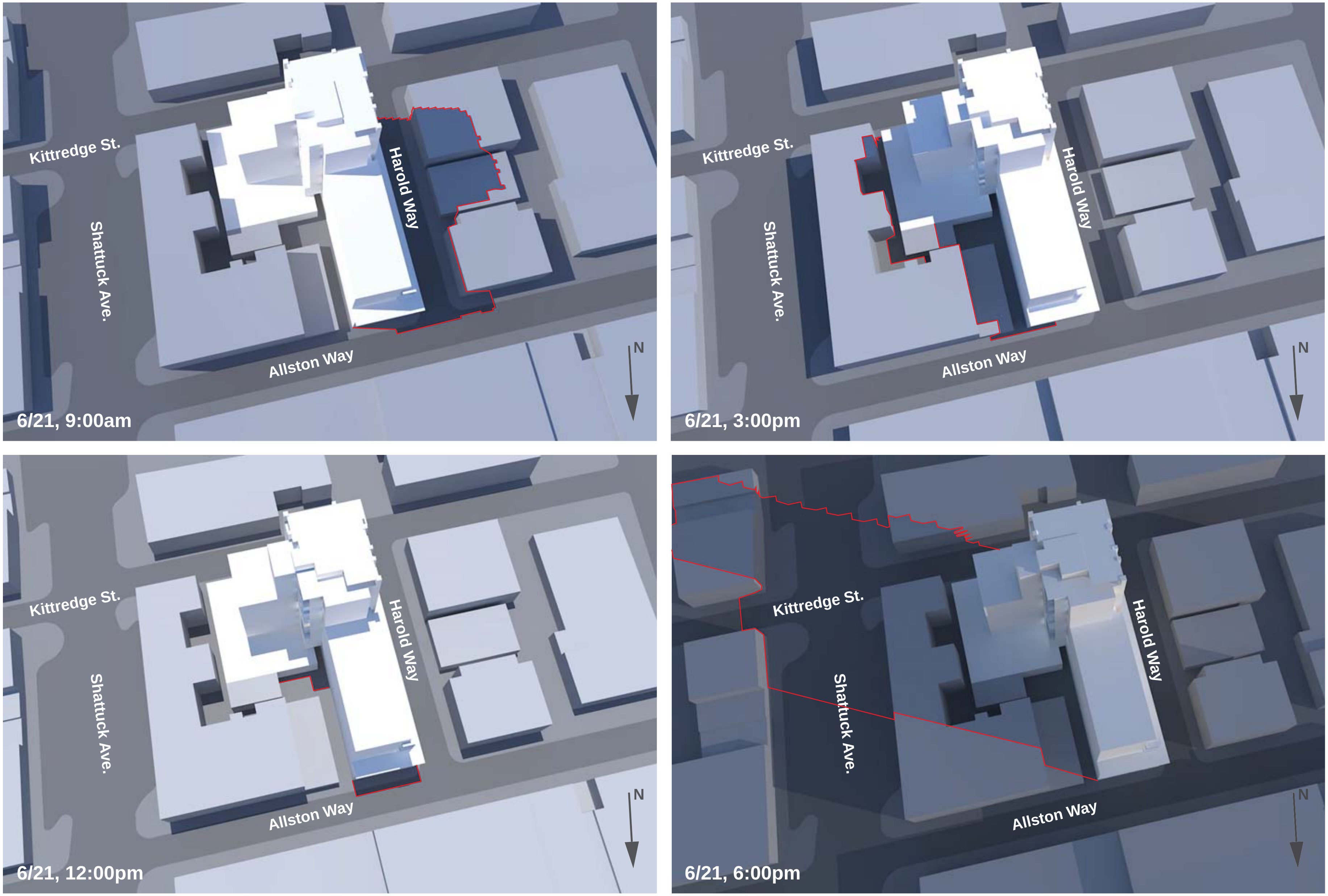
The proposed building would step down to 54 feet (5 stories) along the street fronts, and would be about 10 feet shorter than the adjacent Shattuck Hotel, but would be about three feet taller than the height of the public library across Kittredge Street. Building step backs would occur primarily just above the fifth and 13th floors. The project's tallest feature would be located at the corner of Kittredge Street and Harold Way.

Shadows:

The proposed project would result in structural massing greater than the current condition, and new shading patterns would result. DAP Policy ES-3.15 directs that new structures in the plan area be designed and located in a manner that minimizes shading on public open spaces. Whereas no public open spaces are located within the block or block faces fronting the proposed project, Civic Center Park lies one block west of Harold Way and the West Crescent open space at the western entrance to the UC Berkeley campus is located three blocks to the east. Figure 32 illustrates four conditions throughout the day of the Winter Solstice, while Figure 33 illustrates four diurnal conditions on the Summer Solstice. These models indicate the range of shading pattern that could be anticipated during the year.

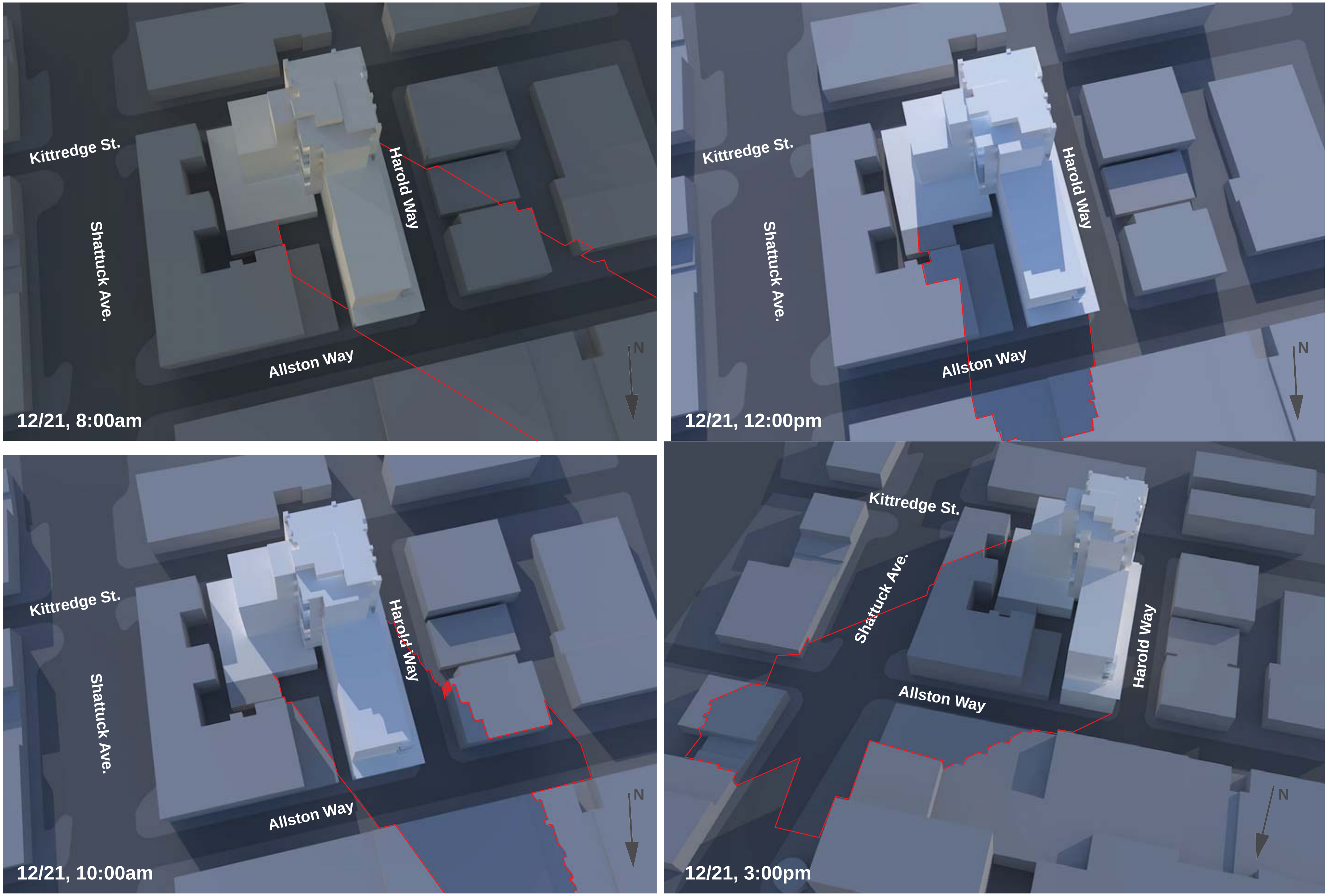
None of the shadow modeling diagrams suggest that project-related shading impacts would occur to the Crescent, Civic Center Park, or other public open spaces, other than streets and sidewalks, except for the southern portion of the BART plaza, which would be shaded for approximately one hour on winter afternoons. However, as shown in the DAP EIR on Figure 4.16, this area is largely shaded under existing and DAP-analyzed conditions at this hour as well. Therefore, the project would not adversely affect public open spaces with shading. The issue of solar access for neighboring structures is a related land use issue. The modeling confirms that there would be no impacts to neighboring structures wherein access to solar rays for energy production via photovoltaic arrays would be precluded in a substantial way.

In the DAP EIR, the shadow models included a tall building on the site but with a more limited footprint than the proposed project. The shadow diagrams in the DAP EIR are shown in figures 4.10-4.18. Because the proposed project's shadows would accordingly have an incrementally larger "footprint," a correspondingly larger area would be shaded throughout the day. However, the DAP EIR conclusions would remain valid for the proposed project, because the types of areas affected (city streets, sidewalks and commercial buildings rather than open spaces) and the general duration of shadows would be similar.



Shadow Models - Summer Solstice

Figure 32



Shadow Models - Winter Solstice

Figure 33

Conclusion

The proposed project could result in one adverse aesthetic impact beyond those identified in the DAP EIR, related to the partial obstruction of a vista of Alcatraz Island from the base of the UC Berkeley Campanile. Under state law (SB 743), this impact may be noted as adverse, but may not be considered significant; therefore, no additional mitigation is required. In general, the scale and general intensity of proposed development on the site would fall within that envisioned under the DAP EIR. Additional analysis of viewshed impacts will be included in the EIR in relation to potential historic impacts, but not in relation to aesthetic impacts.

Impacts related to the proposed project's compatibility with surrounding development are discussed above in the context of aesthetics and visual resources, and would not be significant in this context. However, additional analysis of impacts related to compatibility with surrounding development from a historic resources perspective is warranted in the EIR, as discussed below under Item V, *Cultural Resources*, and will be included in the EIR discussion of cultural resources.

See additional discussion under Item V, *Cultural Resources*, and Item X, *Land Use and Planning*.

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
<u>II. AGRICULTURE AND FORESTRY RESOURCES.</u> In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and					

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:					
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☒	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☒	☒	☐
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☒	☒	☐
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☒	☐

Downtown Area Plan EIR Summary

The DAP EIR discusses agricultural resources impacts on pages 4-36 and 4-37. As noted therein, "the Downtown Area is a highly urbanized area within Berkeley. No portion of the Downtown Area has been in active agricultural use for many years, and no parcels in the area have been identified as Prime Farmland, Unique Farmland or Farmland of Statewide Importance. No land within the Downtown Area is currently under a Williamson Act contract, or zoned for agricultural use." The DAP EIR concluded that there would be no DAP-related impacts to agricultural resources, and no mitigation measures were required or identified.

Project-Specific Impacts

a - d) The project site and vicinity are located within an urban area in the City of Berkeley. There are no agricultural resources, Williamson Act-contracted land, or forest land located on or near the project site. The site and all surrounding properties are classified as "Urban and Built-Up Land" on the State Department of Conservation's Farmland Mapping and Monitoring Maps (2010). The proposed project would not convert agricultural land to non-agricultural uses or result in the loss of forest land or conversion of forest land to non-forest use. The site's urban zoning designation would not change. Although there are seven street trees on Harold Way and Kittredge Street that would be removed during site preparation and construction, those ornamental trees are not considered forestry resources, and the project includes replacing them with approximately 11 street trees of species acceptable to the City's Street Trees and Urban Forestry Management Program. The proposed project would have no impact on agriculture or forestry resources.

Conclusion

As the project would have no impact on agriculture or forestry resources – the same as the impacts identified in the DAP EIR for the Plan as a whole – this issue **does not require mitigation or further study in an EIR**.

	Significant Impact	**Less Than Significant or Less than Significant with Mitigation Incorporated**	**No Impact**	**Analyzed in the Prior EIR**	**Substantially Mitigated by Uniformly Applicable Development Policies**
<u>III. AIR QUALITY.</u> Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:					
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☒	☐	☒	☐

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☒	☐	☒	☐

Downtown Area Plan EIR Summary

The DAP EIR discusses air quality impacts on pages 4-69 through 4-77 (project-level air quality impacts) and page 4-87 (cumulative air quality impacts). The DAP EIR examined a range of potential impacts related to local and regional air quality, including consistency with the 1991 Clean Air Plan (1991 CAP, October 1991); possible exposure of sensitive receptors to toxic air contaminants (TACs) and odors; and construction period air quality impacts. Impacts were assessed in the context of adopted planning documents, including the City's 2003 General Plan and 1991 CAP. The DAP EIR identified the following impacts and mitigation measures:

- *Impact AIR-1:* Conflict with CAP Assumptions. Development anticipated under the Downtown Area Plan would increase population and employment at a greater rate than assumed when preparing the latest update to the CAP. This could lead to greater regional emissions of nonattainment air pollutants (or their precursors) than assumed in the CAP. This would be a *significant and unavoidable* impact.

- *Impact AIR-2:* Possible Exposure of Sensitive Receptors to TACs and Odors. Development anticipated under the Downtown Area Plan may expose sensitive receptors to TACs or odors through development of new residential units near non-residential uses that may be sources of TACs or odors, or through development of new non-residential development that may be sources of TACs or odors near existing residences or other sensitive receptors. Such exposure would represent a *potentially significant* impact.

- *Mitigation AIR-2:* Buffer TAC and Odor Emission Sources and Sensitive Land Uses. Consider potential air pollution and odor impacts from future development that may emit pollution and/or odors when locating (a) air pollution sources, and (b) residential and other pollution-sensitive land uses in the vicinity of air pollution sources (which may include areas where buses idle, diesel generators, parking garage vents, restaurants, and other similar uses). Buffer sensitive receptors from TACs whenever possible, and if buffering is not feasible, apply appropriate mitigation to reduce impacts to a less than significant level, such as air filtration systems or other technologies. While the above mitigation can address most conflicts, because buffering will not always be feasible, the DAP is technically inconsistent with the *BAAQMD CEQA Guidelines*, and the impact remains *significant and unavoidable*.

- *Impact AIR-3:* Construction Period Air Quality Impacts. Construction of development projects under the DAP would result in temporary emissions of dust and diesel exhaust that may result in both nuisance and health impacts. Without appropriate measures to control these emissions, these impacts would be considered *significant*.

  - *Mitigation AIR-3:* Implement BAAQMD-Recommended Measures to Control PM_{10} Emissions during Construction. Measures to reduce diesel particulate matter and PM_{10} from construction are recommended to ensure that short-term health impacts to nearby sensitive receptors are avoided.

    Dust (PM_{10}) Control Measures:

    - Water all active construction areas at least twice daily and more often during windy periods. Active areas adjacent to residences should be kept damp at all times.
    - Cover all hauling trucks or maintain at least two feet of freeboard.
    - Pave, apply water at least twice daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas.
    - Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas and sweep streets daily (with water sweepers) if visible soil material is deposited onto the adjacent roads.
    - Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (i.e., previously-graded areas that are inactive for 10 days or more).
    - Enclose, cover, water twice daily, or apply (non-toxic_ soil binders to exposed stockpiles.
    - Limit traffic speeds on any unpaved roads to 15 mph.
    - Replant vegetation in disturbed areas as quickly as possible.
    - Suspend construction activities that cause visible dust plumes to extend beyond the construction site.

Measures to Reduce Diesel Particulate Matter and $PM_{2.5}$.

- Clear signage at all construction sites will be posted indicating that diesel equipment standing idle for more than five minutes shall be turned off. This would include trucks waiting to deliver or receive soil, aggregate, or other bulk materials. Rotating drum concrete trucks could keep their engines running continuously as long as they were onsite or adjacent to the construction site.
- Opacity is an indicator of exhaust particulate emissions from off-road diesel powered equipment. The project shall ensure that emissions from all construction diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately.
- The contractor shall install temporary electrical service whenever possible to avoid the need for independently powered equipment (e.g., compressors).
- Properly tune and maintain equipment for low emissions.

Implementation of the measures recommended by BAAQMD and listed above would reduce the air quality impacts associated with grading and new construction to a level of *less than significant*.

Mitigation Measures AIR-2 and AIR-3 would apply to the proposed project. However, the DAP EIR concluded that impacts related to 1991 CAP consistency (Impact AIR-1) and possible exposure of sensitive receptors to odors (Impact AIR-2) were determined to remain significant and unavoidable.

Air Quality Environmental and Regulatory Setting

The project site is located in the City of Berkeley within the boundaries of the San Francisco Bay Area Air Basin (Bay Area). The Bay Area's moderate climate steers storm tracks away from the region for much of the year, although storms generally affect the region from November through April. Berkeley's proximity to the refreshing onshore breezes stimulated by the Pacific Ocean provide for generally very good air quality. However, during the ozone smog season (typically, May through October), transport studies have shown that ozone precursor emissions generated in Oakland and Berkeley are often transported to other regions of the Bay Area and beyond (e.g., Central Valley) that are more conducive to the formation of ozone smog. In the winter, reduced solar energy and cooler temperatures diminish ozone smog formation, but increase the likelihood of carbon monoxide formation.

Average annual temperatures in the area are in the mid-fifties, generally ranging from the low-forties on winter mornings to mid-seventies during summer afternoons. Daily and seasonal oscillations of temperature are small because of the moderating effects of the nearby ocean. In contrast to the steady temperature regime, rainfall is highly variable and confined almost exclusively to the "rainy" period from November through April. About 95 percent of the average annual rainfall of approximately 30 inches occurs during this period. Precipitation may vary widely from year to year as a shift in the annual storm track of a few hundred miles can mean the difference between a wet year and drought conditions. Winds in the project area display several characteristic regimes. During the day, especially under fair weather conditions, winds are from the west and northwest as air is funneled through the Golden Gate toward Berkeley. At night, cooling of the land generates winds from the east and southeast. Summer afternoon sea breezes typically range from 20 to 30 miles per hour. Peak annual winds occur during winter storms. South and southeast winds typically also precede weather systems passing through the region.

As required by the federal Clean Air Act passed in 1970, the United States Environmental Protection Agency has identified six criteria air pollutants that are pervasive in urban environments and for which state and federal health-based ambient air quality standards have been established. EPA calls these pollutants criteria air pollutants because the agency has regulated them by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. Ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM), and lead are the six criteria air pollutants.

The California Health and Safety Code defines toxic air contaminants (TACs) as air pollutants "which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health" (Health and Safety Code Section 39655(a)). By definition, TACs include substances listed in the federal Clean Air Act as "hazardous air pollutants." TACs are less pervasive in the urban atmosphere than criteria air pollutants, but are linked to short-term (acute) or long-term (chronic and/or carcinogenic) adverse human health effects. There are hundreds of different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust. Unlike regulations concerning criteria air pollutants, there are no ambient air quality standards for evaluation of TACs based on the amount of emissions. Instead, emissions of TACs are evaluated based on the degree of health risk that could result from exposure to these pollutants.

Project-Specific Impacts

a) The California Clean Air Act requires that air districts create a Clean Air Plan (CAP) that describes how the jurisdiction will meet air quality standards. These plans must be updated every three years. The most recently adopted air quality plan in the San Francisco Bay Area Air Basin is the 2010 Clean Air Plan (2010 CAP). The 2010 CAP is a roadmap showing how the San Francisco Bay Area will achieve compliance with the state one-hour ozone standard as expeditiously as practicable, and how the region will reduce transport of ozone and ozone precursors to neighboring air basins. The 2010 CAP does not include control measures that apply directly to individual development projects; instead, the control strategy includes stationary-source control measures to be implemented through the Bay Area Air Quality Management District (BAAQMD) regulations; mobile-source control measures to be implemented through incentive programs and other activities; and transportation control measures to be implemented through transportation programs in cooperation with the Metropolitan Transportation Commission (MTC), local governments, transit agencies, and others. The 2010 CAP also represents the Bay Area's most recent triennial assessment of the region's strategy to attain the state one-hour ozone standard. In this, the 2010 CAP replaces the 2005 Ozone Strategy. Under BAAQMD's methodology, a determination of consistency with the most recently adopted CAP should demonstrate that a project:

- *Supports the primary goals of the CAP;*
- *Includes applicable control measures from the CAP; and*
- *Does not disrupt or hinder implementation of any CAP control measures.*

Support the Primary Goals of the CAP. The primary goals of the 2010 CAP are to:

- *Attain air quality standards;*
- *Reduce population exposure and protecting public health in the Bay Area; and*
- *Reduce greenhouse gas emissions and protect the climate.*

Any project that would not support these goals would not be considered consistent with the 2010 CAP. On an individual project basis, consistency with BAAQMD quantitative thresholds is interpreted as demonstrating support for the CAP goals. As shown in the response to checklist items b and c (see pp. 91-93), approval of the project would not result in significant and unavoidable criteria pollutant emissions or other significant air quality impacts; similarly, as shown in Section VII, *Greenhouse Gas Emissions*, the project would result in less than significant GHG impacts. The DAP EIR identified impacts related to CAP consistency as significant and unavoidable, due to the large scale of development, which would increase population and employment at a greater rate than assumed in the then-current 1991 CAP. However, the proposed project would result in a smaller increase in population and employment than forecast for the DAP as a whole, and the project is designated as Downtown in the City of Berkeley General Plan, which is considered appropriate for mixed-use commercial and residential buildings. The project site is zoned Commercial Downtown Mixed Use District (C-DMU). The proposed project is consistent with these existing designations, indicating that the project represents anticipated growth under the inventory and assumptions of the General Plan and the 2010 CAP. Therefore, the project is consistent with the 2010 CAP.

Include Applicable CAP Control Strategies. The Bay Area 2010 CAP contains 61 control strategies aimed at reducing air pollution in the Bay Area. Of these, 18 address stationary sources and will be implemented by BAAQMD using its permit authority and are therefore not suited to implementation through local planning efforts. An additional 18 strategies are a draft list of strategies for further study and are not yet identified as feasible for implementation under the 2010 CAP. The remaining 25 strategies include area, mobile source, and transportation control measures designed to protect the climate and promote mixed use, compact development to reduce vehicle emissions and exposure to pollutants from stationary and mobile sources. BAAQMD encourages project developers and lead agencies to incorporate these Land Use and Local Impact (LUM) measures and Energy and Climate measures (ECM) into proposed project designs and plan elements. These control measures are identified in Table 6. This table identifies each control measure and correlates it to specific elements of the project or explains why the measure does not apply to the proposed project.

Table 6
2010 Clean Air Plan Control Measures

Transportation Control Measures	
TCM A: Improve Local and Regional Transit (Bus & Rail) Services	Not Applicable: The proposed project would include retail, commercial and residential development, and would not include changes to transit services. However, the project would increase the intensity of residential and commercial development within ¼-mile of a major transit hub. Also, the project would include AC Transit passes for each new residential household and commercial employee.
TCM B: Improve Freeway Performance and Transit System Efficiency	Not Applicable: This measure addresses infrastructure improvements to increase operational efficiencies on freeways and transit service (such as common fare payment systems) and are geared toward regional transit agencies and Caltrans.
TCM C: Encourage Sustainable Travel Behavior (e.g., voluntary employer-based trip reduction, safe routes to schools, rideshare services, etc.)	The project would establish a Transportation Demand Management (TDM) program that would reduce vehicle trips, which would include: • Unbundled parking (parking that is leased separately from dwelling units); • AC Transit passes for each residential household and every commercial employee; • Six car share parking spaces; • 11 dedicated electric vehicle charging areas; and • 100 secure bicycle parking spaces. The project is located within two blocks of the Downtown Berkeley BART station.
TCM D: Support Focused Growth (Bicycle and Pedestrian Access and Facilities & Local Land Use Strategies)	The project would provide 100 secure bicycle parking spaces, as well as construct a number of offsite, public streetscape and mobility improvements. Bulb-outs on both sides of Harold Way would be constructed at its intersections with Allston Way and Kittredge Street. One of these would accommodate public bicycle racks.
TCM E: Implement Pricing Strategies (Parking and Transportation)	The project would provide the required parking per City of Berkeley requirements for the residential apartments and the retail/commercial units. The project would also include unbundled parking (parking that is leased separately from dwelling units), six car share parking spaces, 11 dedicated electric vehicle charging areas; and 100 secure bicycle parking spaces.
Mobile Source Control Measures	
MSM A-1: Promote Clean, Fuel Efficient Light & Medium-Duty Vehicles. Expand the use of Super Ultra-low Emission (SULEV) and Partial-Zero emission (PZEV) light-duty passenger vehicles and trucks within the Bay Area.	The project would establish electric vehicle charging stations for electric vehicles as one element of the proposed TDM program for the new development.
MSM A-2: Zero Emission Vehicles and Plug-in Hybrids. Expand the use of Zero Emission (ZEV) and Plug-in Hybrid (PHEV) passenger vehicles and light-duty trucks within the Bay Area, working in partnership with the Bay Area Electric Vehicle Corridor coalition.	

Table 6
2010 Clean Air Plan Control Measures

MSM A-3: Green Fleets (Light, Medium, and Heavy-Duty Vehicles). Develop a green fleet certification component of the Bay Area Green Business program, promote best practices for green fleets, and evaluate existing grant programs to ensure incentive funding is directed towards fleets and vehicles that meet stringent fuel economy standards.	Not Applicable: The project would be a complex containing retail, commercial and residential units and would not include a vehicle fleet.
MSM A-4: Replacement or Repair of High-Emitting Vehicles. Enhance the Air District's Vehicle Buy Back program to increase participation from car owners; e.g., via higher cash payments and/or increased marketing. Consider including motorcycles in the VBB programs, or other potential enhancements, e.g. implementing a vehicle repair program. Pursue improvements to the Air District's Smoking Vehicle program.	Not Applicable: This strategy addresses vehicle buy-back programs implemented by BAAQMD.
MSM B-1: HDV Fleet Modernization. Provide incentives to accelerate the replacement or retrofit of on-road heavy-duty diesel engines in advance of requirements for the CARB in-use heavy-duty truck regulation.	Not Applicable: This strategy addresses incentive programs for truck modernization which are implemented by BAAQMD or CARB.
MSM B-2: Low- NO_X retrofits for In-Use Engines. Provide cash incentives to install retrofit devices that reduce NO_X emissions from MY 1994-2006 heavy-duty engines. Continue requiring software updates to engine control modules in model year 1993-1998 diesel trucks as a condition of all heavy duty vehicle retrofit grants.	Not Applicable: This strategy addresses cash incentives for retrofits which are implemented by BAAQMD or CARB.
MSM B-3: Efficient Drive Trains. Encourage development and demonstration of hybrid drive trains for medium- and heavy-duty vehicles, in partnership with CARB, CEC and other existing programs.	Not Applicable: This strategy addresses development and demonstration programs in partnership with CARB and the California Energy Commission.
MSM C-1: Construction and Farming Equipment. Reduce emissions from construction and farming equipment by 1) cash incentives to retrofit construction and farm equipment with diesel particulate matter filters or upgrade to a Tier III or IV off-road engine; 2) work with CARB, CEC and	Not Applicable: This strategy addresses cash incentives for retrofits which are implemented by BAAQMD or CARB.

Table 6
2010 Clean Air Plan Control Measures

others to develop more fuel efficient off-road engines and drive-trains; 3) work with local communities, contractors and developers to encourage the use of renewable alternative fuels in applicable equipment.	
MSM C-2: Lawn & Garden Equipment. Reduce emissions from lawn and garden equipment through voluntary retirement and replacement programs.	Not Applicable: This strategy addresses voluntary exchange programs implemented by BAAQMD.
MSM C-3: Recreational Vessels. Reduce emissions from recreational vessels through voluntary retirement and replacement programs.	Not Applicable: This strategy addresses voluntary exchange programs implemented by BAAQMD.
Land Use & Local Impact Measures	
LUM 1: Goods Movement. Reduce diesel PM and GHG emissions from goods movement in the Bay Area through targeted enforcement of CARB diesel ATCMs in impacted communities, partnerships with ports and other stakeholders, increased signage indicating truck routes and anti-idling rules, shifts in freight transport mode, shore-side power for ships, and improvements in the efficiency of engine drive trains, distribution systems (roadways, logistic systems) and land use patterns.	The City of Berkeley's transportation network promotes truck travel along highways and arterial routes, and away from constrained routes and concentrated sensitive receptors.
LUM 2: Indirect Source Review Rule. Develop an indirect source review rule to reduce construction and vehicular emissions associated with new or modified land uses.	The project would be required to conform to applicable statutes, ordinances, and regulations of the City of Berkeley. Further the project would reduce emissions to decrease the impact on air quality through: • LEED Gold or equivalent environmental conformance; • Roof gardens with flow through planters to reduce heat island effect and capture water; • Solar shading for residential units; • rooftop solar panels for hot water and electric power generation; • Reuse of captured rainwater for landscape irrigation; • Installation of drought-tolerant plants and materials; • Transportation Demand Management, including unbundled parking, AC Transit passes, electric vehicle charging spaces and 100 secure bicycle parking spaces; and • Planting additional street trees.
LUM 3: Enhanced CEQA Program. 1) Develop revised CEQA guidelines and thresholds of significance and 2) expand District review of CEQA documents.	Not Applicable: The project's environmental review will be consistent with the *CEQA Guidelines* that are in place at the time of project approval.

Table 6
2010 Clean Air Plan Control Measures

LUM 4: Land Use Guidance. Provide guidance to local governments re: 1) air quality and greenhouse gases in General Plans, and 2) how to address and mitigate population exposure related to land use development.	The project would be consistent with the City of Berkeley's land use planning documents such as the Land Use Element and the Downtown Area Plan (DAP) and with air quality protection guidance such as the BAAQMD *CEQA Guidelines*.
LUM 5: Reduce Risk in Impacted Communities. Establish a system to track cumulative health risks from all emissions sources in impacted communities (as identified by the District's CARE program) in order to monitor progress in reducing population exposure.	The project site is not located near a high-volume road or industrial activities. The nearest high-volume road is the I-80 freeway, approximately 1.7 miles to the west. The project area is generally developed with commercial, retail and residential uses and would not be considered to be an "impacted" community with regard to airborne health risk exposure.
LUM 6: Enhanced Air Quality Monitoring. Expand monitoring program to provide better local air quality monitoring data in impacted communities.	Not Applicable: This strategy addresses air quality monitoring that is the purview of BAAQMD and/or CARB.
Energy & Climate Measures	
ECM 1: Energy Efficiency. Provide 1) education to increase energy efficiency; 2) technical assistance to local governments to adopt and enforce energy-efficient building codes; and 3) incentives for improving energy efficiency at schools.	The project would include energy efficient features, such as: • LEED Gold or equivalent environmental conformance; • Roof gardens with flow through planters to reduce heat island effect and capture water; • Solar shading for residential units; • Rooftop solar panels for hot water and electric power generation; • Reuse of captured rainwater for landscape irrigation; and • Installation of drought-tolerant plants and materials. Under State law, all appliances that are purchased for the project - both pre- and post-development – would be consistent with energy efficiency standards that are in effect at the time of manufacture. In addition, the proposed project would be required to comply with all standards of Title 24 that are in effect at the time of development. The 2013 Title 24 standards are approximately 30% more efficient than the 2008 standards, which in turn are approximately 15% more efficient than the 2005 standards.
ECM 2: Renewable Energy. Promote distributed renewable energy generation (solar, micro wind turbines, cogeneration, etc.) on commercial and residential buildings, and at industrial facilities.	See Measure ECM-1 above.
ECM 3: Urban Heat Island Mitigation. Mitigate the "urban heat island" effect by promoting the implementation of cool roofing, cool paving, and other strategies.	See Measure ECM-1 above.

Table 6
2010 Clean Air Plan Control Measures

ECM 4: Tree-Planting. Promote planting of low-VOC-emitting shade trees to reduce urban heat island effects, save energy, and absorb CO_2 and other air pollutants.	The project would include planting of four additional street trees.

Table 6 shows that the proposed project would not disrupt or hinder implementation of any CAP control measures. Therefore, the proposed project would be consistent with the Control Strategies contained in the 2010 CAP for the San Francisco Bay Area Air Basin.

Hinder Implementation of CAP Control Measures. The proposed project would be required to be consistent with BAAQMD rules and regulations, including dust and diesel particulate matter reduction measures which were included in Mitigation Measures AIR-3 in the DAP EIR, and would not otherwise cause the disruption, delay or otherwise hinder the implementation of any air quality plan control measure. The project would not preclude any planned transit or bike pathways, and would not otherwise disrupt regional planning efforts to reduce VMT and meet federal and state air quality standards. Impacts would be within those identified in the DAP EIR for the Plan as a whole, and would be **less than significant.**

b, c) In June 2010, the BAAQMD Board of Directors adopted thresholds of significance to assist in the review of projects under CEQA. The BAAQMD was ordered to set aside the adopted thresholds by the by the Alameda County Superior Court (*California Building Industry Association v. Bay Area Air Quality Management District*, 2013), and is no longer recommending that these thresholds be used as a general measure of a project's significant air quality impacts. As such, lead agencies need to determine appropriate GHG thresholds of significance based on substantial evidence in the record. Lead agencies may rely on the BAAQMD's *CEQA Guidelines* (updated May 2012) for assistance in calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures. According to the BAAQMD's 2012 *CEQA Guidelines*, the BAAQMD's 1999 thresholds of significance for criteria pollutants remain appropriate for use in CEQA analysis. These thresholds are 15 tons per year of ROG, NO_X and PM_{10}. The estimated air pollution emissions associated with the project were calculated using the California Emissions Estimator Model (CalEEMod) version 2013.2. Complete results from CalEEMod and assumptions are included in Appendix B.

Construction Emissions. Construction of the proposed project would generate temporary criteria pollutant emissions primarily due to the operation of construction equipment and truck trips. Site preparation and grading typically generate the greatest amount of emissions due to the use of grading equipment and soil hauling. CalEEMod was used to estimate emissions associated with the construction period, based on parameters such as the duration of construction activity, area of disturbance, and anticipated equipment use during construction.

Demolition and construction activities would occur over a period of 18-24 months . For the purpose of the emissions estimates in this analysis, an overall construction period of 18 months is assumed, which represents a conservative estimate of the construction period, as the total required construction activity is compressed into a shorter period. As shown in Table 7, construction emissions would not exceed BAAQMD thresholds.

Table 7
Estimated Construction Emissions

	Emissions (tons/year)				
	ROG	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
2015 Construction Emissions	0.7	5.2	5.1	0.7	0.4
2016 Construction Emissions	6.1	1.1	1.4	0.2	0.1
Maximum Annual Construction Emissions	**6.1**	**5.2**	**5.1**	**0.7**	**0.4**
BAAQMD Thresholds (tons/year)	*15*	*15*	*n/a*	*15*	*n/a*
Exceeds Threshold?	no	no	n/a	no	n/a

See Appendix B for CalEEMod results.

The project is also subject to standard dust and diesel particulate matter reduction measures, which were included in Mitigation Measures AIR-3 in the DAP EIR. Construction air pollutant emissions would be within those identified in the DAP EIR for the Plan as a whole, and would be **less than significant with mitigation.**

Operational Emissions. Operation of the proposed project would consume energy and result in new motor vehicle trips. Operational emissions from energy use for the proposed project were estimated using CalEEMod (see Appendix B for calculations). The default values on which CalEEMod is based include the California Energy Commission (CEC) sponsored California Commercial End Use Survey (CEUS) and Residential Appliance Saturation Survey (RASS) studies. Emissions associated with area sources, including consumer products, landscape maintenance, and architectural coatings were calculated in CalEEMod based on standard emission rates from the California Air Resources Board (CARB), USEPA, and district supplied emission factor values (CalEEMod User's Guide, July 2013). Emissions from transportation sources were based on the traffic impact analysis conducted by the IBI Group (July, 2014), using the standard Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 9th Edition vehicle trip generation rates.

Table 8 shows operational emissions associated with the proposed project. In addition, the proposed project would involve the removal of existing land uses on the project site, which include Shattuck Cinemas, the Habitot children's museum, a medical office, and approximately 41,000 square feet of leasable office space. Removal of these existing uses would eliminate ongoing GHG emissions associated with these uses, replacing them with the proposed residential, theater, and retail/restaurant uses. The estimate of net new emissions associated with the project subtracts emissions associated with these existing uses that would be removed as part of the project. Table 8 combines the operational emissions associated with new development with the ongoing emissions from these existing land uses on the project site to estimate the net new criteria pollutant emissions that would result from the proposed project.

Table 8
Estimated New Operational Emissions

	Emissions (tons/year)				
	ROG	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
Area	1.9	<0.1	2.3	<0.1	<0.1
Energy	<0.1	0.2	0.1	<0.1	<0.1
Mobile	1.5	3.2	3.5	1.2	0.4
Subtotal Annual Operational Emissions (Proposed Project Gross)	3.4	3.4	15.9	1.2	0.4
Existing Onsite Annual Operational Emissions	1.5	3.3	12.0	1.1	0.3
Net New Annual Operational Emissions	**1.9**	**0.1**	**3.9**	**0.1**	**0.1**
BAAQMD Thresholds (tons/year)	*15*	*15*	*n/a*	*15*	*n/a*
Exceeds Threshold?	no	no	n/a	no	n/a

See Appendix B for CalEEMod results.

As shown in Table 8, the estimated new annual operational emissions associated with the proposed project would not exceed BAAQMD threshold. Operational air pollutant emissions would be within those identified in the DAP EIR for the Plan as a whole, and would be **less than significant.**

d) Certain population groups are considered more sensitive to air pollution than others. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardio-respiratory diseases. Residential uses are also considered more sensitive to air pollution than non-residential uses because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. The project would be subject to DAP Mitigation Measure AIR-2, which requires that sensitive receptors be buffered from TACs where possible, and when buffering is not feasible, to apply appropriate mitigation to reduce impacts to a less than significant level, such as air filtration systems or other technologies. The project does not involve commercial uses that are known to emit substantial quantities of TACs. Similarly, adjacent commercial uses are not known to emit substantial quantities of TACs. Therefore, onsite and nearby sensitive receptors would not be exposed to TAC emissions that would significantly impact human health, since the project would only involve minor releases of air contaminants during construction and operations [2]. In addition, the proposed project would not result in an exceedance of any thresholds for operational emissions; therefore, the project would not contribute to an exceedance of federal or State ambient air quality standards (AAQS). Therefore, impacts to sensitive receptors would be within those identified in the DAP EIR for the Plan as a whole, and would be **less than significant** with implementation of DAP Mitigation Measure AIR-2**.**

e) The uses proposed for the project include retail/restaurant space, which may result in odors related to cooking processes and waste disposal. The project would be subject to DAP Mitigation Measure AIR-2, which requires that sensitive receptors be buffered from odors where possible, and when buffering is not feasible, to apply appropriate mitigation to reduce impacts to a less than significant level.

The 2012 BAAQMD *CEQA Guidelines* lists land uses considered by BAAQMD to have greater potential for offensive odors. The list includes wastewater treatment plants; landfills; confined animal facilities; composting stations; food manufacturing plants; refineries; and hemical plants.

None of these uses are located in close enough proximity to the project site to affect substantial numbers of people at the site. While there may be some odors from future restaurants, these would be controlled according to standard permit conditions of the Health Department, BAAQMD, and Building Department. This impact would therefore be **less than significant.**

Conclusion

As the project would have less than significant impacts on air quality – and the impacts would be within the impacts identified in the DAP EIR for the Plan as a whole – this issue **does not require further study in an EIR**.

[2] *In March 2012, the California Supreme Court denied the petition for review and requests for depublication of the Second District Court of Appeal's opinion in* Ballona Wetlands Land Trust et al. v. City of Los Angeles *(2011) 201 Cal.App.4th 455 (Ballona Wetlands). This case held that CEQA does not require analysis of the environment's effects on a proposed project (converse-CEQA analysis), a determination that would place a number of impacts historically analyzed in CEQA documents outside CEQA's statutory authority. For example, a number of questions from the CEQA Guidelines Appendix G checklist may no longer apply, including questions related to such issues as air quality, geology and soils, hazards and hazardous materials, hydrology and water quality, and noise. Therefore, analysis of these effects is not necessarily required to be analyzed under CEQA but included as supplemental environmental information.*

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
IV. BIOLOGICAL RESOURCES: Would the project:					
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☒	☒	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or	☐	☒	☐	☒	☐

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
impede the use of native wildlife nursery sites?					
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☒	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☒	☐

Downtown Area Plan EIR Summary

The DAP EIR discusses biological resources impacts on pages 4-88 and 4-92. As noted therein, "it is unlikely that any portion of the area provides suitable habitat for special status wildlife species… There are no open bodies of water or jurisdictional wetlands within the Downtown Area, and the portion of Strawberry Creek that passes through the area has been culverted for many years, which severely limits its ability to support fish or wildlife." The DAP EIR concluded that DAP-related impacts to biological resources would be less than significant, and no mitigation measures were required or identified. However, the DAP EIR does acknowledge on Page 4-88 that "there are numerous trees within the area which may provide nesting habitat for migratory birds."

Project-Specific Impacts

a – f) The project site and vicinity are located within an urban area in the City of Berkeley and within the DAP area. The setting information for the project site is the same as that described for the DAP area in the DAP EIR; there is virtually no vegetation on-site or adjacent other than non-native street trees on Harold Way and Kittredge Street, and no wetlands or riparian or other habitat on site or nearby. There is no suitable habitat for special status wildlife on site or adjacent. The project site does not provide a suitable corridor for wildlife movement, as it is completely developed with existing structures and not adjacent to habitat or wildlife movement areas. As existing street trees affected by the project would be replaced with an equal or greater number of street trees of species acceptable to the City's Street Trees and Urban Forestry Management Program, no conflict with local policies or ordinances protecting biological resources, including trees, would occur. No adopted Habitat Conservation Plans, Natural Community Conservation Plans or other approved local, regional, or state habitat conservation plans apply to the project site.

In addition, as discussed in the introduction to this document, buildings of similar height and intensity were considered in the DAP EIR, including on the project site, so the project's general impacts on biological resources were considered as part of the overall DAP buildout impact analysis in the DAP EIR.

The DAP EIR did not specifically discuss the potential for bird strikes on new buildings in the DAP area. However, studies have shown that "the bulk of bird deaths result from the cumulative effects of a lone, confused bird mistaking glass for a safe flight path. The lone bird strike occurs over and over with conservative estimates calculating that each building kills 10 birds per year on average in the United States (Klem 1990). Poorly designed buildings kill hundreds per year (Hager et al. 2008)." The amount, location and design of glass on buildings are the primary factors affecting safety for birds. The City of Berkeley has adopted bird-safe building standards that are "uniformly applicable development policies for multi-story buildings with the potential for significant bird strikes (City of Berkeley, *Additional Amendments to the Master Use Permit Process, West Berkeley Project EIR*, 2012). Pursuant to these standards, new buildings with the potential for significant bird strikes must adhere to the following design measures, which would be included in the conditions of approval for the proposed project:

- *Create visual markers and mute reflections in the glass features of buildings. Glass treatment (e.g., modifications in transparency, reflectivity, patterns and colors) shall be on at least the first 12 meters, or to the anticipated height of the majority of vegetation at maturity, whichever is higher. Applying these solutions to the entire building is preferred.*

- *Reduce light pollution which disorients migrating birds by choosing exterior light fixtures that project light downward rather than toward the sky, by turning off interior lights at night, especially during spring and fall migration periods, and by locating interior plantings away from glass areas that are lit at night.*

- *For buildings located inside of, or within a clear flight path of less than 300 feet from, suitable bird habitat, require bird-safe glass treatment on building facades such that the first 6o feet of the building is no more than 10 percent untreated glass. Treatments include fritting, netting, perimeter stencils, frosted glass, grids, or UV patterns visible to birds. Vertical elements of patterns must be at least ~ inch wide at a minimum spacing of 4 inches; or have horizontal elements at least 1/8-inch wide at a minimum spacing of 2 inches. Require minimal shielded lighting, and no uplighting or event searchlights. Prohibit the construction of horizontal-axis windmills or vertical axis windmills that do not appear solid.*

- *For structures such as greenhouses, skyways, free-standing glass walls and some balconies, require that 100 percent of glass be treated.*

It should be noted that the third bullet would not apply to the proposed project, as the site is well over 300 feet from suitable bird habitat such as foraging areas, large tracts of open space or stands of mature trees, or wetlands or water features.

Conclusion

As the project would have less than significant impacts on biological resources with required adherence to uniformly applicable development policies – generally the same as the impacts identified in the DAP EIR for the Plan as a whole – this issue **does not require further study in an EIR**.

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
<u>V. CULTURAL RESOURCES.</u> Would the project:					
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	☒	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☒	☐	☒	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☒	☐

Downtown Area Plan EIR Summary

The DAP EIR discusses cultural resources impacts on pages 4-93 through 4-124. The DAP EIR identified the following impacts and mitigation measures:

- *Impact CUL-l:* Demolition of Historic Resources. Despite the substantial protections in place in City policy and the proposed DAP, it is possible that development anticipated under the DAP could result in the demolition of historic resources located within the Downtown Area. Were demolition of historic resources to occur, this would represent a *significant and unavoidable* impact associated with DAP implementation.
    - Demolition of any historic resources within the Downtown Area would represent a *significant and unavoidable* environmental impact, which could not be

mitigated to a level of less than significant. However, should demolition be proposed, a separate, site-specific environmental review would be required, requiring an analysis of alternatives and potential project-specific mitigation measures.

- *Impact CUL-2:* Substantial Adverse Changes in Character-Defining Features in Portions of the Downtown Area that may have the Potential for Future Designation as Historic Districts. Implementation of the DAP may cause substantial adverse changes in the character-defining features of structures in areas within the Downtown Area that may have the potential for future designation as historic districts. Because implementation of the DAP could result in a cumulative impact on the existing character-defining features in those portions of the Downtown Area that may be formally designated as historic districts at some point in the future, any significant adverse change to those features would represent a *potentially significant* impact.

    - *Mitigation CUL-2:* Establish Parameters for Compatible Infill Development in the Downtown Area within Updated Design Guidelines. Using the Secretary of the Interior's "Standards" as a starting point (in compliance with DAP Policy HD-l-la), the Design Guidelines for future development in the Downtown Area should be updated to ensure that new construction respects the authentic character, significance and integrity of the existing building stock in areas that may have the potential for designation as historic districts. Specific guidelines that could be added for this purpose include, but are not limited to, the following:

        - Consider the difference in character of individual blocks. The scale of buildings change within the potential historic district(s) and new construction should reflect the appropriate scale per block.
        - Priorities for new construction and additions include: build-to-the-street, particularly at corners; construct infill buildings at vacant or underutilized sites along major streets; and modify non-historic buildings so that they contribute visual interest and quality.
        - Construct new buildings, of compatible design with the surrounding neighborhood.
        - Encourage creative and innovative contemporary designs for new buildings in the downtown.
        - Streetscape plays an important role in drawing individuals to a particular area of the city. Use signage, lighting, and paving to improve the pedestrian experience.
        - Build consistently with the street wall, particularly at corner sites. Continue dominant rhythms for structural bays, bay windows, large pilasters, and other repeating vertical elements. Also, continue dominant cornice lines, such as between ground floors and upper stories, and at the top of facades that meet a street.
        - Design new buildings to respond to the existing building context within a block, and provide continuity to the overall streetscape. Frequently, a new building will be inserted on a site between two existing buildings of disparate scale and design.

- Set back upper floors where taller buildings are permitted, so that dominant roof and cornice lines remain generally consistent in the Downtown, as seen from the street.
- Explore options for multi-use buildings, combining residential, commercial, and other compatible uses where appropriate.
- Provide multi-tenant retail space and other active publicly accessible uses at the street level. These should be accessible directly from the sidewalk, rather than through common interior lobbies.
- Provide easy-to-locate building entrances on all street-facing facades. Where a building extends through an entire block or is located at a comer, connect its entrances with a suitably scaled public lobby. Highlight entrances with signage and lighting to distinguish them from storefronts.
- Use vertically-proportioned windows. Group such windows in sets where a horizontally proportioned window opening is desired, especially for the expression of structural bays.

The DAP EIR discussion under Impact CUL-2 goes on to explain that as individual development projects are proposed in the Downtown Area, those which may have potential adverse effects on historic resources will be evaluated under the Landmark Preservation Ordinance. Project compliance with the provisions of the Landmark Preservation Ordinance, conformance with the Secretary of the Interiors Standards (consistent with DAP Policy HD l-la), and consistency with updated Design Guidelines intended to protect the character-defining features of those portions of the Downtown Area which may have the potential for designation as historic districts (as called for in Mitigation CUL-2, above) would reduce potential impacts associated with development that might jeopardize existing character defining features in those areas to a less than significant level.

- *Impact CUL-3:* Possible Disturbance of Unidentified Subsurface Archaeological Resources. Although no archaeological resources are currently known to exist in the Downtown Area, ground-disturbing activities associated with new construction and related underground utility installation could result in the destruction or disturbance of unidentified subsurface archaeological resources, which would represent a *potentially significant* impact.

    - *Mitigation CUL-3:* Halt Work/Archaeological Evaluation/Site-Specific Mitigation. If archaeological resources are uncovered during construction activities, all work within 50 feet of the discovery shall be redirected until a qualified archaeologist can be contacted to evaluate the situation, determine if the deposit qualifies as an archaeological resource, and provide recommendations. If the deposit does not qualify as an archaeological resource, then no further protection or study is necessary. If the deposit does qualify as an archaeological resource, then the impacts to the deposit shall be avoided by project activities. If the deposit cannot be avoided, adverse impacts to the deposit must be mitigated. Mitigation may include, but is not limited to, archaeological data recovery. Upon completion of the archaeologist's assessment, a report should be prepared documenting the methods, findings and recommendations. The report should be submitted to the City, the project proponent and the NWIC.

Implementation of this mitigation measure would reduce the impact to a level of *less than significant.*

- *Impact CUL-4:* Possible Disturbance of Unidentified Subsurface Paleontological Resources. Although no paleontological resources are currently known to exist in the Downtown Area, ground-disturbing activities associated with new construction and related underground utility installation could result in the destruction of unidentified subsurface paleontological resources, which would represent a *potentially significant* impact.

  - *Mitigation CUL-4:* Halt Work/Paleontological Evaluation/Site-Specific Mitigation. Should paleontological resources be encountered during construction or site preparation activities, such works shall be halted in the vicinity of the find. A qualified paleontologist shall be contacted to evaluate the nature of the find and determine if mitigation is necessary. All feasible recommendations of the paleontologist shall be implemented. Mitigation may include, but is not limited to, in-field documentation and recovery of specimen(s), laboratory analysis, the preparation of a report detailing the methods and findings of the investigation, and curation at an appropriate paleontological collection facility. Implementation of this mitigation measure would reduce the impact to a level of *less than significant.*

- *Impact CUL-5:* Possible Disturbance of Unidentified Human Remains. Ground disturbing activities associated with new construction and related underground utility installation could result in the disturbance of unidentified subsurface human remains, which would represent a *potentially significant* impact.

  - *Mitigation CUL-5:* Halt Work/Coroner's Evaluation/Native American Heritage Consultation/Compliance with Most Likely Descendent Recommendations. If human remains are encountered during construction activities, all work within 50 feet of the remains should be redirected and the County Coroner notified immediately. At the same time, an archaeologist shall be contacted to assess the situation. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Native American Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and any associated grave goods. The archaeologist shall recover scientifically-valuable information, as appropriate and in accordance with the recommendations of the MLD. Upon completion of the archaeologist's assessment, a report should be prepared documenting methods and results, as well as recommendations regarding the treatment of the human remains and any associated archaeological materials. The report should be submitted to the City, the project proponent and the NWIC. Implementation of this mitigation measure would reduce the impact to a level of *less than significant.*

Project-Specific Impacts

a) The city block that includes the project site and immediately adjacent structures is bound by Allston Way to the north, Kittredge Street to the south, Shattuck Avenue to the east, and Harold Way to the west. The Shattuck Plaza Hotel and associated additions occupy the block. The entire block was designated a City of Berkeley Historic Landmark by the Landmarks Preservation Commission in 1987. The Shattuck Plaza Hotel is not listed in the National Register of Historic Places, and is only noted in the California Register of Historical Resources as a local landmark designated under a local municipal or county ordinance. However, the Shattuck Plaza Hotel is a significant landmark in Berkeley's commercial and architectural history. Completed in 1910, the building was Berkeley's first grand hotel constructed during the city's post-earthquake building boom, and was one of the first reinforced concrete structures built in the Downtown area. The hotel was conceived by Rosa Shattuck in honor of her late husband, Francis Kittredge Shattuck, a prominent civic leader and Berkeley developer, and was constructed on a portion of the family's nineteenth-century estate. Noted California architect Benjamin Geer McDougall designed the original hotel and 1913 addition in the popular Mission Revival Style. As the success of the hotel's main commercial tenant (Hink's Department Store) grew, the building was further expanded in 1926 by Walter H. Ratcliff Jr., one of Berkeley's most respected and prolific architects.

The Shattuck Plaza Hotel, a designated City Landmark, is considered a historical resource for purposes of CEQA. Some or all of the additions to the hotel (constructed in 1913, 1926 and 1959) also may be eligible for listing on the California Register of Historical Resources and the National Register of Historic Places. Thus, the proposed alteration of the 1926 addition and demolition of the 1959 Hink's Building, and structural work that would affect below-grade portions of the Shattuck Plaza Hotel and its earlier additions, may result in a potentially significant impact.

In addition to potential direct impacts as a result of alteration and demolition of historic resources, the proposed project is adjacent to or otherwise in proximity to a number of designated or potentially eligible historic properties. These include, but are not limited to, the following:

- Portions of the Shattuck Plaza Hotel to remain
- 2000 Allston Way, Berkeley Post Office (1914/1931), Civic Center Historic District
- 2001 Allston Way, Berkeley YMCA (1910) [designed by Benjamin G. McDougall, Civic Center Historic District
- 2016 Allston Way, Elks Lodge (1913)
- 2105 Bancroft Way, Masonic Temple (1905)
- 2124 Center Street, Mikkelsen & Berry Building (1902)
- 2128 Center Street, Ennor's Restaurant Building (1923)
- 2222 Harold Way, Armstrong College (1923) [designed by Walter H. Ratcliff, Jr.]
- 2090 Kittredge Street, Berkeley Public Library (1930)

The proposed project could cause a substantial adverse change in a historical resource by enabling new construction that could compromise the historic setting of these or other adjacent and nearby historical resources. In addition, it could cause substantial adverse changes in the character-defining features of such structures in areas that may have the potential for future designation as historic districts.

UC Berkeley's 2004 *Landscape Heritage Plan* indicates that Campanile Way is a "historically significant" component of the campus, and that the westward view of the Golden Gate is a character-defining feature of the Way. As mentioned above under Item I, *Aesthetics,* there is the potential for view-related cultural resources impacts related to alteration of the view toward the San Francisco Bay and Golden Gate from the UC Berkeley Campanile.

Finally, vibration caused by construction of the proposed project could result in structural damage to adjacent and nearby historic properties. **These are potentially significant impacts and will be studied in an Infill EIR.**

b – d. As discussed in the DAP EIR, no archaeological or paleontological resources are currently known to exist in the Downtown Area, which includes the project site. Nevertheless, the DAP EIR identified impacts to unrecorded subsurface archaeological and paleontological resources, and to human remains, as potentially significant but mitigable.

The majority of the project site has been excavated to accommodate the basement level of the existing buildings, reducing the likelihood that resources within approximately 10 to 15 feet of the surface are still present. However, the proposed subterranean parking garage would descend a greater distance than the existing basement, to over 30 feet below existing street grade; thus previously undisturbed resources could be disturbed during excavation for the proposed project, if they are located on the site. The site is not known to have greater likelihood of containing subsurface archaeological and paleontological resources or human remains than the DAP area as a whole. Therefore, mitigation measures CUL-3 through CUL-5 would apply to the project, and would be expected to reduce impacts to **less than significant levels.**

Conclusion

Potential impacts to historic resources throughout the Downtown area have already been identified in the DAP EIR. The DAP EIR found that the DAP's impacts related to alteration or demolition of historic properties would be significant and unavoidable, and that the DAP's impacts related to changes in the character-defining features of certain structures would be potentially significant but mitigable. The proposed project is within the location and intensity of development envisioned in the DAP and the DAP EIR. However, the DAP EIR specifically states that "should demolition be proposed, a separate, site-specific environmental review would be required, requiring an analysis of alternatives and potential project-specific mitigation measures." Therefore, these topics and these **potentially significant impacts will be analyzed in detail in an Infill EIR** pursuant to CEQA Guidelines Section 15183.3, which will include a technical report assessing specific project impacts and including specific mitigation measures as appropriate. In addition, under Item I, *Aesthetics*, potential view-related cultural resources impacts were identified. These impacts will also be analyzed in an EIR.

As the project would have potentially significant but mitigable impacts on unrecorded subsurface archaeological and paleontological resources and human remains – generally the same as the impacts identified in the DAP EIR for the Plan as a whole – these issue areas **do not require further study in an EIR**.

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
<u>VI. GEOLOGY AND SOILS.</u> Would the project:					
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☒	☐	☒	☒
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☒	☐
ii) Strong seismic ground shaking?	☐	☒	☐	☒	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☒	☐	☒	☒
iv) Landslides?	☐	☐	☒	☒	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☒	☒
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☒	☐	☒	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994),	☐	☒	☐	☒	☒

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
creating substantial risks to life or property?					
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☒	☒	☐

Downtown Area Plan EIR Summary

The DAP EIR discusses impacts related to geology and soils on pages 4-125 through 4-132. The basic geologic setting of the project area has not changed since certification of the DAP EIR. The DAP EIR found that all impacts related to geology and soils would be less than significant with required implementation of existing regulations, policies, and standard practices, including the following:

- Current Uniform Building Code and City of Berkeley design requirements and guidelines for buildings constructed in areas of high seismic risk.
- Berkeley General Plan Policy S-20, which identifies mitigation for potentially hazardous buildings in the event that development under the DAP results in the retrofitting or replacement of existing soft-story or URM (unreinforced masonry) buildings.
- Berkeley General Plan policies S-14 and S-15, which require that new development in the Downtown Area be evaluated for susceptibility to liquefaction and landslides, and in those instances where such risks are present, appropriate structural design features be required.
- Standard soil erosion control measures during demolition and construction associated with development under the DAP in order to minimize erosion from exposed surfaces and reduce soil erosion impacts.
- Appropriate foundation design in accordance with current Uniform Building Code requirements in order to reduce any potential stability hazards.

Project-Specific Impacts

a (i-iv). As stated in the DAP EIR, the Downtown Area is not in an Alquist Priolo fault zone and is therefore not an area where structures are at significant risk from fault rupture; however, it is, like all of the East Bay, in an area at high risk from seismic shaking. The project site and its surroundings are relatively flat, and are not subject to landslides. Because development under the proposed project would fall within that envisioned under the DAP EIR in terms of location, use, scale and density, the project would not increase the exposure of people or structures, relative to that analyzed in the DAP EIR, to adverse effects from seismic shaking, seismic-related ground failure including liquefaction, or landslides.

A Geotechnical Feasibility Report was completed for the project by ENGEO Incorporated in January 2013 (Appendix C). It found that, while an earthquake of moderate to high magnitude in the region could cause considerable ground shaking at the site, design of all structures on the site using sound engineering judgment and the latest California Building Code (CBC) requirements would make the project geotechnically feasible.

The DAP EIR found that most of the Downtown Area is not subject to liquefaction, with the exception of the alignment of the underground portion of Strawberry Creek. The Geotechnical Feasibility Report found that, while the native soils on the project are too dense to be prone to liquefaction, backfilled soils in the original alignment of Strawberry Creek exist under the northern end of the project site, and these soils could be prone to liquefaction. However, it determined that these fill soils would be removed from the site during excavation, and that this would remove this potential hazard. One of the recommendations of the report is that a site-specific, design-level geotechnical exploration be performed, which would allow this finding to be confirmed.

The Geotechnical Feasibility Report concluded that the proposed project is feasible from a geotechnical standpoint, provided that the preliminary recommendations included in the report, along with other sound engineering practices, are incorporated in the design and construction of the project. In addition, the proposed new building's foundation system would be integrated with and would complement the existing adjacent Shattuck Hotel building's foundation system where it may come in contact, so would not adversely affect that building's seismic readiness. The City of Berkeley requires all projects to submit a geotechnical report in order to receive a building permit from the City, and to comply with the recommendations of the report. Compliance with this uniformly applicable standard condition would reduce the project's potential impacts related to seismic shaking and landslides to a level of **less than significant level**.

b) As stated in the DAP EIR, most of the Downtown Area has already been developed. The use of standard soil erosion control measures during demolition and construction associated with the proposed project would be expected to minimize erosion from exposed surfaces and reduce soil erosion impacts to a **less than significant** level.

c) As stated in the DAP EIR, the Downtown Area is relatively flat, and soils have proven sufficiently stable to support previous urban development. The Geotechnical Feasibility Report for the proposed project found that the project site is underlain by dense, stable soils of the Quaternary Temescal formation, except under the northern end of the project site where, as mentioned above, there are backfilled soils in the original alignment of Strawberry Creek. However, the geotechnical report determined that these fill soils would be removed from the site during excavation, thus removing any potential soil stability hazard. Development under the project would therefore not be expected to face major soil stability concerns, and appropriate foundation design in accordance with current Uniform Building Code requirements, as well as required compliance with the project-specific geotechnical report, would be expected to reduce any potential soil stability hazards to a level of **less than significant with mitigation incorporated**.

d) As stated in the DAP EIR, expansive soils may be present within the Downtown Area. However, General Plan Policy S-14 would help to reduce the potential risk associated with development on expansive soil. This Policy includes the following actions:

- When appropriate, utilize the environmental review process to ensure avoidance of hazards and/or adequate mitigation of hazard-induced risk.
- Require soil investigation and/or geotechnical reports in conjunction with development/redevelopment on sites within designated hazard zones such as areas with high potential for soil erosion, landslides, fault rupture, liquefaction and other soil-related constraints.
- Place structural design conditions on new development to ensure that recommendations of the geotechnical/soils investigations are implemented.
- Encourage owners to evaluate their buildings' vulnerability to earthquake hazards, fire, landslides, and floods and to take appropriate action to minimize the risk.
- Develop criteria for disaster-resistant land use regulations to ensure that new construction reduces rather than increases risk of all kinds.

As stated above, a geotechnical report has already been completed for the proposed project in January 2013. It did not identify expansive soils as a potential hazard at this site. As discussed above, the City of Berkeley requires compliance with the recommendations contained in the geotechnical report, thus complying with General Plan Policy S-14. Risks to life and property from expansive soils would be **less than significant**.

e) As discussed in the DAP EIR and under Item XVII, *Utilities and Service Systems,* of this environmental checklist, the Downtown Area, including the project site, is served by a sanitary sewer system maintained by the City of Berkeley for the collection system, and by the East Bay Municipal Utility District (EBMUD) for interceptor lines. The proposed project would have access to these systems, and the use of septic systems would be neither required nor permitted. The project would therefore have **no impact** in this regard.

Conclusion

The basic geologic setting of the project area has not changed since adoption of the DAP EIR, and the project's impacts related to Geology and Soils would be no greater than the less than significant impacts identified in the DAP EIR for the Plan as a whole. Implementation of the geotechnical recommendations from the project-specific geotechnical report would reduce any potential impacts to a less than significant level. These issues **do not require further study in an EIR**.

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
VII. GREENHOUSE GAS EMISSIONS. Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☒	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☒	☐	☒	☐

Downtown Area Plan EIR Summary

The DAP EIR discusses greenhouse gas emissions (GHGs) on pages 4-77 through 4-86. As noted therein, "the adoption of the DAP, in itself, will have no impacts related to GHGs. However, individual projects developed in conformance with the DAP will generate GHG impacts from their construction and operation." However, the DAP EIR also noted that the increase in density associated with the DAP would result in reduced long-term GHGs, compared to alternative locations for accommodating future growth. Page 4-79 of the DAP states that "One of the core concepts underlying the DAP is that, by its nature, it is intended to be a plan for sustainable development. It would allow increased development within a quarter mile of one of the busiest transit node in the East Bay." Therefore, the DAP EIR concluded that there would be no DAP-related impacts related to GHGs, and no mitigation measures were required or identified.

In addition, the DAP EIR notes that, "while no significant GHG-related impacts have been identified in relation to adoption and implementation of the DAP, and no mitigation is required, the DAP includes many policies that will further reduce the GHG emissions from individual development projects." DAP policies that would reduce GHG emissions include:

Goal ES-3: *Encourage higher-density, highly livable development to take advantage of Downtown's proximity to regional transit and to improve the availability of diverse walk-to destinations – such as retail, services, culture, and recreation.*

Goal LU-1: *Concentrate housing, jobs, and cultural destinations in Downtown to be near transit, shops, and amenities, while simultaneously enhancing its character and livability.*

Goal AC-1: *Improve options that increase access to Downtown on foot, by bicycle, and via transit.*

Goal AC-4: Promote transit as an efficient, attractive choice and as a primary mode of motor-vehicle travel.

Greenhouse Gas Emissions Environmental and Regulatory Setting

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without the natural heat trapping effect of GHG, Earth's surface would be about 34° C cooler (CalEPA, 2006). However, it is believed that emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. According to the CalEPA's 2010 Climate Action Team Biennial Report, potential impacts of climate change in California may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (CalEPA, April 2010). While there is growing scientific consensus about the possible effects of climate change at a global and potentially statewide level, current scientific modeling tools are unable to predict what local impacts may occur with a similar degree of accuracy.

The regulatory circumstances surrounding the analysis of GHG emissions has developed substantially since the DAP EIR, including the amendment of the CEQA guidelines to include checklist items addressing GHG emissions pursuant to SB 97, the BAAQMD's adoption of thresholds of significance for analyzing GHG emissions, and the subsequent overruling of the BAAQMD thresholds by the Alameda County Superior Court (*California Building Industry Association v. Bay Area Air Quality Management District*, March 2013). The BAAQMD was ordered to set aside the thresholds and is no longer recommending that these thresholds be used as a general measure of a project's significant air quality impacts. In August 2013, the First District Court of Appeal overturned the trial court and held that the thresholds of significance adopted by the BAAQMD were not subject to CEQA review. The California Supreme Court has agreed to hear an appeal of this case. The case is currently being briefed and the matter is still pending. Thus, BAAQMD will not issue a further recommendation until this litigation is complete.

Climate Action Plan. Adopted in June of 2009, the City of Berkeley's Climate Action Plan (CAP; City of Berkeley, June 2009) sets a 2020 year target to achieve a 33 percent absolute reduction below 2000 community-wide emissions and identifies actions to achieve the target with the ultimate goal of 80 percent emission reductions. The CAP contains GHG-reduction policies for transportation and land use, building energy use, and waste reduction and recycling.

General Plan. The City of Berkeley also addresses GHG emissions in its General Plan, primarily in the Environmental Management Element. Policies in the General Plan that would reduce GHG emissions include developing a green building certification program and encouraging compliance with green building standards (Policy EM-4, Policy EM-5), increased waste diversion (Policy EM-7), construction and demolition material recycling (Policy EM-8), support and implementation of local emission reduction programs (Policy EM-19), promotion of energy-efficient design techniques (Policy EM-35), and implementation of energy conservation techniques (Policy EM-36).

Project-Specific Impacts

Thresholds of Significance. Pursuant to the requirements of SB 97, the Resources Agency adopted amendments to the *State CEQA Guidelines* for the feasible mitigation of GHG emissions or the effects of GHG emissions in March 2010. These guidelines are used in evaluating the cumulative significance of GHG emissions from the proposed project. According to the adopted *CEQA Guidelines*, impacts related to GHG emissions from the proposed project would be significant if the project would:

- *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; and/or*
- *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.*

The vast majority of individual projects do not generate sufficient GHG emissions to create a project-specific impact through a direct influence to climate change; therefore, the issue of climate change typically involves an analysis of whether a project's contribution towards an impact is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (*CEQA Guidelines*, Section 15355). In June 2010, the BAAQMD Board of Directors adopted thresholds of significance to assist in the review of projects under CEQA. As described above, the BAAQMD was ordered to set aside its adopted GHG thresholds and is no longer recommending that these thresholds be used as a general measure of a project's significant air quality impacts. As such, lead agencies need to determine appropriate GHG thresholds of significance based on substantial evidence in the record. Lead agencies may rely on the BAAQMD's *CEQA Guidelines* (updated May 2012) for assistance in calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures.

The City of Berkeley's CAP is not a qualified GHG Reduction Strategy (Strategy) pursuant to BAAQMD's *CEQA Air Quality Guidelines*. Among other requirements, a qualified Strategy must establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable. The City's CAP does not set such a threshold. Therefore, for this EIR, the City of Berkeley has determined that the significance thresholds in the BAAQMD's May 2010 *CEQA Guidelines* for project operations within the San Francisco Bay Area Air Basin are the most appropriate thresholds for use to determine the GHG impacts of the proposed project. The significance thresholds are shown in Table 9.

Table 9
GHG Significance Thresholds

GHG Emission Source Category	Operational Emissions
Non-stationary Sources	1,100 MT of CO_2E/year OR 4.6 MT of CO_2E/SP/year (residents + employees)
Stationary Sources	10,000 MT/year
Plans	6.6 MT of CO_2E/SP/year (residents + employees)

Notes: SP = Service Population.
Project emissions can be expressed on a per-capita basis as metric tons of CO_2E/Service Population/year, which represents the project's total estimated annual GHG emissions divided by the estimated total number of new residents and employees that would result from development of a project.

These thresholds are lower than many other commonly used thresholds, including the BAAQMD's 1999 thresholds, and thus use of the thresholds in the May 2010 *CEQA Guidelines* represents a more conservative analysis of potential GHG impacts. The per-service population guideline is intended to avoid penalizing large projects that incorporate GHG-reduction measures such that they may have high total annual GHG emissions, but would be relatively efficient, as compared to projects of similar scale. Therefore, the proposed project would have a potentially significant contribution to GHG emissions if it would result in GHG emissions that would exceed both the bright-line threshold of 1,100 metric tons of CO_2E per year or the efficiency threshold of 4.6 metric tons of CO_2E per service population per year. If the proposed project would not result in more than 1,100 metric tons of CO_2E per year, then comparison to the efficiency threshold is not required.

Study Methodology. Calculations of carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) emissions are provided to identify the magnitude of potential project effects. The analysis focuses on CO_2, CH_4, and N_2O because these make up 98.9 percent of all GHG emissions by volume (IPCC, 2007) and are the GHG emissions that the project would emit in the largest quantities. Fluorinated gases, such as HFCs, PFCs, and SF_6, were also considered for the analysis. However, because the project is a mixed-use development that would not include industrial uses, the quantity of fluorinated gases would not be significant since fluorinated gases are primarily associated with industrial processes. Emissions of all GHGs are converted into their equivalent weight in CO_2 (CO_2E). Minimal amounts of other main GHGs (such as chlorofluorocarbons [CFCs]) would be emitted; however, these other GHG emissions would not substantially add to the calculated CO_2E amounts. Calculations are based on the methodologies discussed in the California Air Pollution Control Officers Association (CAPCOA) *CEQA and Climate Change* white paper (January 2008) and included the use of the California Climate Action Registry (CCAR) General Reporting Protocol (January 2009).

a) GHG emissions associated with project construction and operations are discussed below.

Construction Emissions. Although construction activity is addressed in this analysis, CAPCOA does not discuss whether any of the suggested threshold approaches adequately address impacts from temporary construction activity. As stated in the *CEQA and Climate Change* white paper, "more study is needed to make this assessment or to develop separate thresholds for construction activity" (CAPCOA, 2008). Nevertheless, air pollution control districts such as BAAQMD have recommended amortizing construction-related emissions over a 30-year period in conjunction with the proposed project's operational emissions.

Construction of the proposed project would generate temporary GHG emissions primarily due to the operation of construction equipment and truck trips. Site preparation and grading typically generate the greatest amount of emissions due to the use of grading equipment and soil hauling. CalEEMod was used to estimate emissions associated with the construction period, based on parameters such as the duration of construction activity, area of disturbance, and anticipated equipment use during construction. Complete results from CalEEMod and assumptions are included in Appendix B.

Demolition and construction activities would occur over a period of 18-24 months. For the purpose of the emissions estimates in this analysis, an overall construction period of 18 months is assumed, which represents a conservative estimate of the construction period, as the total required construction activity is compressed into a shorter period. As shown in Table 10, construction activity associated with the project would generate an estimated 1,064 metric tons of CO_2E. In order to assess the potential impact of construction GHG emissions, which occur prior to project occupancy and then cease, construction emissions are amortized over the estimated lifetime of the project (most commonly assumed to be 50 years). Amortized over a 50-year period, construction of the proposed project would generate approximately 21.3 metric tons of CO_2E per year.

Table 10
Estimated Construction Emissions of Greenhouse Gases

	Annual Emissions (metric tons CO_2E)
Total Estimated Construction Emissions	1,064 MT of CO_2E
Amortized over 50 years	21.3 MT CO_2E/year

See Appendix B for CalEEMod Results.

On-Site Operational Emissions. Operation of the proposed project would consume natural gas and electricity. Operational emissions from energy use for the proposed project were estimated using CalEEMod (see Appendix B for calculations). The default values on which CalEEMod is based include the California Energy Commission (CEC) sponsored California Commercial End Use Survey (CEUS) and Residential Appliance Saturation Survey (RASS) studies.

Emissions associated with area sources, including consumer products, landscape maintenance, and architectural coatings were calculated in CalEEMod based on standard emission rates from the California Air Resources Board (CARB), USEPA, and district supplied emission factor values (CalEEMod User's Guide, 2013).

Emissions from waste generation were also calculated in CalEEMod and are based on the IPCC's methods for quantifying GHG emissions from solid waste using the degradable organic content of waste (CalEEMod User's Guide, 2013). Waste disposal rates by land use and overall composition of municipal solid waste in California were primarily based on data provided by the California Department of Resources Recycling and Recovery (CalRecycle). A 50% reduction in waste was assumed, consistent with the requirements of AB 939.

Emissions from water and wastewater usage calculated in CalEEMod were based on the default electricity intensity from the CEC's 2006 Refining Estimates of Water-Related Energy Use in California using the average values for Northern and Southern California.

Direct Emissions from Mobile Combustion. GHG emissions from transportation sources were based on the traffic impact analysis conducted by the IBI Group (April 2014), using the standard Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 9th Edition vehicle trip generation rates. Emissions of CO_2 and CH_4 from transportation sources associated with the proposed project were quantified using CalEEMod.

Combined Annual Construction, Operational, and Mobile GHG Emissions. Table 11 combines the construction and operational GHG emissions associated with the proposed project. As described above, emissions associated with construction activity (approximately 1,064 metric tons CO_2E) are amortized over 50 years (the anticipated lifetime of the project).

Table 11
Combined Annual Emissions of Greenhouse Gases from Proposed New Development

Emission Source	Annual Emissions
Construction	21.3 MT of CO_2E
Operational	
Area	3.8 MT of CO_2E
Energy	744.4 MT of CO_2E
Solid Waste	34.0 MT of CO_2E
Water	88.4 MT of CO_2E
Mobile	1,495.6 MT of CO_2E
Total	**2,352.0 MT of CO_2E**

Sources: See Appendix B for calculations and for GHG emission factor assumptions.

As shown in Table 11, the combined annual emissions from new development on the project site would total approximately 2,352 metric tons per year of CO_2E. The majority (64%) of the project's GHG emissions are associated with transportation sources.

In addition, the proposed project would result in the removal of existing land uses on the project site, which include Shattuck Cinemas, the Habitot children's museum, a medical office, and approximately 41,000 square feet of leasable office space. Removal of these existing uses would eliminate ongoing GHG emissions associated with these uses, replacing them with the proposed residential, theater, and retail/restaurant uses. Table 12 combines the operational GHG emissions associated with these existing land uses on the project site.

Table 12
Combined Annual Emissions of Greenhouse Gases from Existing Development

Emission Source	Annual Emissions
Operational	
Area	<0.1 MT of CO_2E
Energy	278.4 MT of CO_2E
Solid Waste	16.7 MT of CO_2E
Water	46.7 MT of CO_2E
Mobile	1,387.4 MT of CO_2E
Total	**1,729.3 MT of CO_2E**

Sources: See Appendix B for calculations and for GHG emission factor assumptions.

As shown in Table 12, the combined annual emissions from existing development on the project site would total approximately 1,729 metric tons per year of CO_2E. When subtracted from the new GHG emissions that would result from proposed new development on the project site, the net new annual GHG emissions would total approximately 637 metric tons of CO_2E per year. These emissions do not exceed the threshold of 1,100 metric tons per year. Because the DAP EIR did not identify project-specific impacts related to GHG emissions, impacts resulting from GHG emissions would be greater than impacts identified in the DAP EIR for the Plan as a whole, but would remain **less than significant**.

b) State policies to reduce GHG emissions associated with energy use, including the Renewable Portfolio Standard, Title 24 of the California Building Code, and the California Solar Initiative, would reduce anticipated emissions associated with the proposed project by reducing energy use, or by providing a "cleaner" (less GHG-intensive) mix of electricity to the project from the regional utility. In addition, the City General Plan, Community Design Guidelines, and Zoning Regulations include policies that reduce energy use from buildings and equipment, including design standards that maximize passive ventilation and cooling systems and use of natural lighting within buildings, and energy efficiency performance standards for proposed buildings taller than 50 feet. By complying with existing City policies and regulations, the project would be generally consistent with these existing requirements.

In addition, the City of Berkeley adopted a Climate Action Plan in 2009. The CAP includes goals, policies, and implementing actions that are applicable to the project proposal, including:

- *The Transportation and Land Use Chapter includes policies designed to reduce vehicle miles traveled in Berkeley by making cycling, walking, public transit, and other sustainable mobility modes the mainstream and to increase vehicle fuel efficiency and the utilization of low carbon fuels.*

- *The Building Energy chapter includes policies that would reduce conventional energy use in existing Berkeley homes, businesses, and institutions through energy efficiency retrofits and a greater reliance on renewable energy, such as solar.*
- *The Waste Reduction and Recycling chapter includes policies that would eliminate solid waste at the point of production, and to maximize reuse and recycling throughout the community.*

City of Berkeley General Plan Environmental Management Element also contains policies and actions that would be expected to reduce GHG emissions. The project site is designated as Downtown in the City of Berkeley General Plan, which is considered appropriate for mixed-use commercial and residential buildings and is also located within the Downtown Area Plan. The project site is zoned Commercial Downtown Mixed Use (C-DMU). The proposed project is consistent with these existing designations, indicating that the project represents anticipated growth under the inventory and assumptions of the General Plan and the CAP.

Table 13 illustrates that the proposed project would be consistent with the applicable implementation measures in the CAP and General Plan Environmental Management Element.

Table 13
Project Consistency with Applicable
Climate Action Plan and General Plan Implementation Strategies

Goals, Policies, and Actions	*Project Consistency*
City of Berkeley Climate Action Plan	
Sustainable Transportation & Land Use Actions: *1. Goal: Increase density along transit corridors* *a. Policy: Encourage the development of housing (including affordable housing) retail services, and employment centers in areas of Berkeley best served by transit* **Implementing Actions:** • *Implement zoning adjustments to facilitate a mix of housing and commercial development (including retail services and employment centers) in certain transit-served areas. Proposed zoning adjustments or changes to the General Plan will not have any force or effect until approved by a separate action by the City Council. Such proposals will undergo thorough review by commissions, community members and the City Council. Review processes will include noticed public hearings. Proposed zoning adjustments include:* • *Encourage car-lite (e.g., households with fewer cars than driving-age residents) and, where possible, car-free (e.g., households without cars) development in certain transit-served areas by creating incentives and eventually requiring developers and business owners who work with the City, AC Transit, BART and other appropriate agencies to develop and implement a plan of action for reducing the impact of their development/business on VMT.* • *Encourage car-lite and/or car-free development in certain transit-served areas by making parking*	**Consistent.** The proposed project is located in Downtown Berkeley near the intersection of University Avenue and Shattuck Avenue. The site is located within ½-mile of bus stops and the Downtown Berkeley BART station. The project proposes: • 302 apartment/condominium units (including 28 affordable units) • A 1,403 square-foot community room available to be reserved by the residents for parties and other social events (not be available to the general public) • Residential open space, consisting of 14,535 square feet of shared rooftop terraces and 11,045 square feet of private balconies and decks • An AC Transit pass for each apartment/condominium unit and one pass for each employee • Six new movie theaters to replace the existing Shattuck cinemas, totaling 21,641 square feet • 10,535 square feet of retail and/or restaurant commercial floor area fronting Allston and Harold Ways and Kittredge Street • 1,872 square feet of privately owned, publicly accessible open space at the corner of Kittredge Street and

Table 13
Project Consistency with Applicable
Climate Action Plan and General Plan Implementation Strategies

Goals, Policies, and Actions	***Project Consistency***
requirements more flexible for developers and business owners that site near transit and that provide services, infrastructure and/or mitigation payments to reduce parking demand. Options a developer/business owner could provide in lieu of providing parking spaces may include: ○ *Car share parking* ○ *Indoor and outdoor bicycle parking* ○ *Indoor showers and changing rooms for cycling employees* ○ *Dedicated parking for electric vehicles, hybrids and plug-in hybrids* ○ *Implementation of an Eco-Pass program for employees/tenants* ○ *Mitigation payments that would be allocated to local transportation* ○ *demand management projects* • *Establish parking maximums in specified transit-rich areas of the City.* • *Adjust zoning to allow for greater residential density and specified commercial uses along certain transit corridors and in proximity to the Downtown Berkeley, Ashby and North Berkeley BART stations* • *Establish minimum building heights in certain transit-rich areas such as the Downtown in order to prevent the underutilization of transit-served areas* • *Ensure that dense transit-served corridors transition well into surrounding lower density residential zones in order to preserve the character of interior neighborhoods* • *Increase current bicycle parking requirements for new development in Berkeley*	Harold Way with improvements including special paving and amenities, and street improvements along Harold and Allston ways including a speed table (please see the discussion below under Offsite Public Improvements for further details) • 171 parking spaces in a three–level, subterranean parking structure accessed from Kittredge Street, including 11 electric vehicle charging stations and 6 spaces reserved for carsharing vehicles • 100 secured bicycle storage spaces within the building, including spaces on the first level as well as in the parking garage • Roof-top solar energy production and solar water heating • LEED Gold or equivalent environmental performance
2. Goal: Increase and enhance urban green and open space, including local food production, to improve the health and quality of life for residents, protect biodiversity, conserve natural resources, and foster walking and cycling *b. Policy: Promote tree planting, landscaping, and the creation of green and open space that is safe and attractive and that helps to restore natural processes.* **Implementing Actions:** • *Establish standards and guidelines to ensure that ecologically beneficial stormwater quality and retention features and water conservation features are integrated into the design of landscaping features on both public and private land.* • *Encourage the development of green roofs by providing outreach and guidelines consistent with the building code.* *c. Policy: Increase access to healthy and affordable foods for the community by supporting efforts to build more complete and sustainable local food production*	**Consistent.** The project would incorporate urban green features such as: • LEED Gold or equivalent environmental conformance; • Roof gardens with flow through planters to reduce heat island effect and capture water; • Solar shading for residential units; • rooftop solar panels for hot water and electric power generation; • Reuse of captured rainwater for landscape irrigation; • Installation of drought-tolerant plants and materials; • Transportation Demand Management, including unbundled parking, AC Transit passes, electric vehicle charging spaces and 100 secure bicycle parking spaces; and • Planting 4 additional street trees.

Table 13
Project Consistency with Applicable
Climate Action Plan and General Plan Implementation Strategies

Goals, Policies, and Actions	***Project Consistency***
and distribution systems. **Implementing Actions:** • *Encourage and provide guidelines consistent with the building code for buildings to incorporate rooftop gardens that can be used for food production.* • *Through the City's website and publications, encourage residents to grow food in home and community gardens using methods that reduce GHG emissions, such as using organic inputs and compost.*	
3. Goal: Manage parking more effectively to minimize driving demand and to encourage and support alternatives to driving *a. Policy: Design and implement parking strategies to create disincentives for driving – especially for single-occupancy commuting – and, where possible, to build revenue for transportation services.* **Implementing Actions:** • *"Un-bundle" prices for housing and parking so that parking spaces require separate payment and are not included in the rent or purchase price of a unit. Those who choose to live car-free should not be burdened with the cost of a parking space they do not need. And those that do require a car should be made aware of the full costs associated with owning it.*	**Consistent.** The project would implement Transportation Demand Management features that would reduce vehicle trips, which include: • Unbundled parking (parking that is leased separately from dwelling units); • AC Transit passes for each residential household and every commercial employee; • Six car share parking spaces; • 11 dedicated electric vehicle charging; and • 100 secure bicycle parking spaces. A number of offsite, public streetscape and mobility improvements are proposed as well. Bulb-outs on both sides of Harold Way would be constructed at its intersections with Allston Way and Kittredge Street. One of these would accommodate public bicycle racks.
5. Goal: Accelerate Implementation of the City's Bicycle & Pedestrian Plans *a. Policy: Continue to expand and improve Berkeley's bicycle and pedestrian infrastructure* **Implementing Actions:** • *Continue to create additional bicycle parking throughout the community, including near transit centers and other key destinations and as part of any new development projects.*	**Consistent.** The project would create additional bicycle parking as a part of the proposed development. As mentioned previously the project site is located near transit centers, as well as located in a key location Downtown. Bicycle parking includes : • 100 secure bicycle parking spaces; and • Public bicycle racks on one of the proposed bulb-outs on Harold Way. In addition, the project would be located approximately 350 feet from the Milvia Street Bicycle Boulevard, one of Berkeley's main designated north-south bicycle routes.
6. Goal: Make public transit more frequent, reliable, integrated and accessible *d. Policy: Partner with AC Transit, BART, UC Berkeley and other employers to provide subsidized transit passes and fare-free zones.* **Implementing Actions:** • *Negotiate conditions of approval for all new residential multi-family developments to provide free or subsidized transit passes for tenants. Incentives can*	**Consistent.** The project would implement Transportation Demand Management features that would reduce vehicle trips, and provide AC Transit passes for each residential household and every commercial employee.

Table 13
Project Consistency with Applicable
Climate Action Plan and General Plan Implementation Strategies

Goals, Policies, and Actions	***Project Consistency***
include reduced parking requirements for projects served by transit.	
7. Goal: Enhance and expand car sharing and ridesharing programs ***a.*** *Policy: Make car sharing convenient and available to all Berkeley residents by providing additional incentives and by removing disincentives to car sharing* **Implementing Actions:** • *Require that developers of new residential and commercial projects of a certain size (to be specified) make spaces available for car share vehicles (provide decreased parking requirements in return).*	**Consistent.** The project would implement Transportation Demand Management features that would reduce vehicle trips, and provide six car share parking spaces.
City of Berkeley General Plan Environmental Management Element	
Policy EM-4*: Green Building Certification. Develop a green building certification program.* ***Actions****:* *A. Requiring City-owned buildings, buildings developed by private developers on City-owned and controlled land, and projects that include City financial assistance to be Green Building certified.* *B. Encouraging all private buildings to be Green Building certified.* *C. Developing a green design assistance program.* *D. The minimization of greenhouse gases produced by new buildings especially as related to space heating efficiencies.*	**Consistent.** The project would include green building and design standards including: • LEED Gold or equivalent environmental conformance (as required under Section 23E.68.085.A of Berkeley's Municipal Code); • Roof gardens with flow through planters to reduce heat island effect and capture water; • Solar shading for residential units; and • Rooftop solar panels for hot water and electric power generation. In addition, the proposed project would be required to comply with all standards of Title 24 that are in effect at the time of development. The 2013 Title 24 standards are approximately 30% more efficient than the 2008 standards, which in turn are approximately 15% more efficient than the 2005 standards.
Policy EM-5*: "Green" Buildings. Promote and encourage compliance with "green" building standards. (Also see Urban Design and Preservation Policy UD-33.)* ***Actions****:* *A. Encourage, and where appropriate require, new construction and major remodel projects to be sited, designed, constructed, and operated to enhance the well-being of their occupants, and to minimize present and future impacts on the community and the natural environment. (Also see Policy EM-39.)* *B. Encourage landscaping for water and energy efficiency. (Also see Policy EM-26.)* *C. Encourage buildings to incorporate renewable energy and energy- and water-efficient technologies. (Also see Policies EM-38 and EM-39.)* *D. Encourage use of recycled-content construction materials.*	**Consistent.** The project would incorporate green building standards, as well as other sustainable building features. These features include: • LEED Gold or equivalent environmental conformance; • Roof gardens with flow through planters to reduce heat island effect and capture water; • Solar shading for residential units; • rooftop solar panels for hot water and electric power generation; • Reuse of captured rainwater for landscape irrigation; • Installation of drought-tolerant plants and materials;

Table 13
Project Consistency with Applicable
Climate Action Plan and General Plan Implementation Strategies

Goals, Policies, and Actions	***Project Consistency***
(Also see Policy EM-6.) *E. Encourage efforts to improve indoor air quality and to provide a comfortable and healthy environment.* *F. Encourage reduction of construction and demolition waste. (Also see Policy EM-6.)* *G. Encourage construction of durable buildings.* *H. Establish a green design assistance and green building certification program.*	• Transportation Demand Management, including unbundled parking, AC Transit passes, electric vehicle charging spaces and 100 secure bicycle parking spaces; and • Planting 4 additional street trees. The proposed project would also be required to comply with all standards of Title 24 that are in effect at the time of development. The 2013 Title 24 standards are approximately 30% more efficient than the 2008 standards, which in turn are approximately 15% more efficient than the 2005 standards. The project would also be required to comply with all State and local measures that address water use and conservation that are in effect at the time of development, including the State CALGreen water efficiency standards.
Policy EM-7*: Reduced Wastes. Continue to reduce solid and hazardous wastes.* ***Actions****:* *A. Achieve a 64 percent diversion of waste from landfills.* *B. Manage wastes locally to the greatest extent feasible to minimize the export of wastes and pollution to other communities.* *C. Encourage the Lawrence Berkeley Laboratory and the University of California to minimize to the greatest extent feasible the storage of radioactive and other toxic wastes in Berkeley.* *D. Encourage reduction in the use of toxic materials.* *E. Encourage reuse, recycling, and composting.* *F. Facilitate battery and used oil recycling.* *G. Support programs and incentives to reduce the manufacture and use of materials which are non-recyclable or hazardous to people and the environment.* *H. Develop education and promotion programs to increase recycling by occupants of multifamily buildings.* *I. Through legislation and other means, reduce the use of plastic by eliminating multiple layers in packaging and encourage reusable shipping containers such as collapsible pallets and refillable bottles for bulk liquids.* *J. Encourage reusable bags and packaging such as reusable bottles, whether glass or plastic.* *K. Link collection of plastic to mandated recycled content in plastic packaging.* *L. Advocate at the state level for higher disposal fees for products that are designed for single use and for products that do not incorporate any post-consumer recycled content.*	**Consistent.** The City of Berkeley is responsible for complying with AB 939. The City has consistently met its goals for solid waste diversion, and achieved a diversion rate of 57% in 2006, the last year for which diversion rate data is available from CalRecycle (CalRecycle, 2014). From 2007 to 2012, the City of Berkeley reduced its per capita disposal rate from 5.1 lbs/day to 3.5 lbs/day, a decrease of 31%. Therefore, it is reasonable to expect that the current diversion rate in the City of Berkeley exceeds the 64% goal stated in the CAP. It is anticipated that the proposed project would participate in the City's waste diversion programs and would similarly divert a minimum of 57% of its solid waste. The project would also be subject to all applicable State and County requirements for solid waste reduction as they change in the future.

Table 13
Project Consistency with Applicable
Climate Action Plan and General Plan Implementation Strategies

Goals, Policies, and Actions	***Project Consistency***
Policy EM-8*: Building Reuse and Construction Waste. Encourage rehabilitation and reuse of buildings whenever appropriate and feasible in order to reduce waste, conserve resources and energy, and reduce construction costs. (Also see Urban Design and Preservation Policy UD-6.)* ***Actions****:* *A. Encourage the reuse of demolition materials and recycling of construction scraps.* *B. Expand the existing yard-waste recycling program to include restaurant and institutional food waste.*	**Consistent.** The City of Berkeley responsible for complying with AB 939. The City has consistently met its goals for solid waste diversion, and achieved a diversion rate of 57% in 2006. Additionally, the City of Berkeley requires that Building Permit applicants constructing any new building are required to divert Construction and Demolition (C&D) waste and debris from landfill disposal in accordance with Construction & Demolition Debris Diversion Requirements (BMC 19.24) and the Berkeley Green Code (BMC 19.37). Subject building projects shall divert 100% of asphalt, concrete, excavated soil and land clearing debris and at least 50% of the remaining construction and demolition debris by recycling, reuse, compost, or other approved method.
Policy EM-19*: 15 percent Emission Reduction: Global Warming Plan. Make efforts to reduce local emissions by 15 percent by the year 2010. (Also see Transportation Policy T-19.)* ***Action****:* *A. Continue to support and implement local emission reduction programs, such as the City of Berkeley Employee Fleet Bicycle Program, the Police Bicycle Program, and the actions recommended in the City of Berkeley Resource Conservation and Global Warming Abatement Plan.*	**Consistent.** The project would implement Transportation Demand Management features that would reduce vehicle trips, which include: • Unbundled parking (parking that is leased separately from dwelling units); • AC Transit passes for each residential household and every commercial employee; • Six car share parking spaces; • 11 dedicated electric vehicle charging; and • 100 secure bicycle parking spaces. A number of offsite, public streetscape and mobility improvements are proposed as well. Bulb-outs on both sides of Harold Way would be constructed at its intersections with Allston Way and Kittredge Street. One of these would accommodate public bicycle racks.
Policy EM-35*: Energy-Efficient Design. Promote high-efficiency design and technologies that provide cost-effective methods to conserve energy and use renewable energy sources. (Also see Urban Design and Preservation Policy UD-33.)* ***Action****:* *A. Promote statewide code revisions necessary to enable the use of new methods and materials to conserve resources and prevent pollution.*	**Consistent.** The project would install energy efficient features, such as: • LEED Gold or equivalent environmental conformance; • Roof gardens with flow through planters to reduce heat island effect and capture water; • Solar shading for residential units; and • Rooftop solar panels for hot water and electric power generation; Under State law, all appliances that are purchased for the project - both pre- and post-occupancy – would be consistent with energy efficiency standards that are in effect at the

Table 13
Project Consistency with Applicable
Climate Action Plan and General Plan Implementation Strategies

Goals, Policies, and Actions	***Project Consistency***
	time of manufacture. In addition, the proposed project would be required to comply with all standards of Title 24 that are in effect at the time of development. The 2013 Title 24 standards are approximately 30% more efficient than the 2008 standards, which in turn are approximately 15% more efficient than the 2005 standards.
Policy EM-36*: Energy Conservation. Continue to implement energy conservation requirements for residential and commercial buildings at the time of sale and at time of major improvements.* ***Actions****:* *A. Encourage patterns of development, building designs, and construction methods that are energy-efficient and reduce pollution.* *B. Encourage the use of lighting that is energy-efficient and non-intrusive.*	**Consistent.** The project would conserve energy by establishing: • LEED Gold or equivalent environmental conformance ; • Roof gardens with flow through planters to reduce heat island effect and capture water; • Solar shading for residential units; • Rooftop solar panels for hot water and electric power generation; • Reuse of captured rainwater for landscape irrigation; and • Installation of drought-tolerant plants and materials. In addition, the proposed project would be required to comply with all standards of Title 24 that are in effect at the time of development. The 2013 Title 24 standards are approximately 30% more efficient than the 2008 standards, which in turn are approximately 15% more efficient than the 2005 standards.

As shown in Table 13, the project would be consistent with the applicable implementation measures in the City's CAP and General Plan. Because the proposed project would not conflict with state regulations intended to reduce GHG emissions from new development, and represents anticipated growth under the inventory and assumptions of the General Plan and the CAP, GHG emissions from the project would not conflict with California's commitment to GHG reduction under AB 32, or any other plan, policy or regulation intended to reduce GHG emissions. The DAP EIR did not address impacts related to GHG emissions; however, impacts from GHG emissions would be **less than significant**.

Conclusion

The DAP EIR did not address impacts related to GHG emissions; however, impacts from GHG emissions would be less than significant. This issue **does not require mitigation or further study in an EIR**.

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
VIII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:					
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☒	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☒	☒
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☒	☐	☒	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☒	☐	☒	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☒	☐

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☒	☐
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☒	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☒	☐	☒	☐

Downtown Area Plan EIR Summary

The DAP EIR discusses hazards and hazardous materials impacts on pages 4-133 through 4-140. It addresses the following issues, discussed below: hazardous materials; aviation hazards; emergency response and evacuation; and wildland fire hazards.

<u>Hazardous Materials Use and Transport</u>

The DAP identifies motor vehicle use and storage, and use of materials for periodic cleaning, repair, and maintenance or for landscape maintenance/pest control as potential source of exposure to hazardous materials. However, it concludes that normal use of hazardous materials at commercial and residential land uses in the Downtown would not pose a significant risk to human health or the environment because those using such materials would be responsible for their safe use and would be required to comply with all applicable regulations regarding the disposal of household hazardous waste.

According to the DAP EIR, the major sources of existing hazardous materials contamination on sites in the Downtown Area are associated with non-residential activity, including chemical contamination from businesses such as dry cleaning establishments; gasoline and waste oil contamination from automobile repair and service facilities whose underground storage tanks (USTs) may have leaked; and fuel oil contamination from underground heating oil storage tanks. It identifies sites with a record of having leaking underground storage tanks (LUSTs) and leaking underground fuel tanks (LUFTs), but no sites on the "Cortese" list (i.e., Government Code Section 65962.5). The DAP EIR concludes that any development on these sites would require remediation of the site contamination, but that after remediation, impacts associated with development on these sites would be considered less than significant.

The DAP EIR also states that medical facilities, dentists, veterinarians, and clinics in the Downtown Area are another potential source of hazardous materials, but are required to comply with the Medical Waste Management Act, which establishes handling, storing, hauling, treating and disposal requirements for medical waste. The Medical Waste Management Act also requires that generators responsible for the production of more than 200 pounds of medical waste per month register with the State. The DAP EIR also identifies potential activities of the University of California in the Downtown that may involve the routine transport, use and disposal of hazardous materials, such as use and transport of chemicals, medical wastes and biohazards, radioactive substances, explosives, toxic gases, nanoparticles and controlled substances. However, it also states that the Hazardous Materials Management team within the University's Office of Environment, Health and Safety has responsibility for monitoring the transport, use and disposal of all hazardous materials that may be present in University laboratories and research facilities, and has established procedures and regulations to ensure that all such materials will be handled safely. The DAP EIR concludes that potential impacts related to hazardous materials transport, such as risk of upset, would be less than significant.

Similarly, the DAP EIR concludes that, although there are schools in the Downtown that could be within ¼ mile of facilities with the potential to release hazardous materials, compliance with existing regulations and standard safety procedures related to the handling of hazardous materials at these facilities would be expected to reduce potential impacts to a less than significant level.

<u>Aviation Hazards</u>

The DAP EIR concludes that, because there are no airstrips in the vicinity of the Downtown Area, development under the DAP would not expose those in the Downtown Area to any hazards associated with aviation operations.

<u>Emergency Response and Evacuation</u>

The DAP EIR finds that the DAP proposes no changes to the Downtown Area street system that would impede or otherwise negatively affect emergency access, including the emergency access and evacuation routes identified in the Berkeley General Plan. It also states that Berkeley General Plan Policy T-28, which identifies actions to help maintain emergency access, including not installing diverters or speed humps on streets identified as Emergency Access and Evacuation Routes (which includes all streets in the Downtown Area except Milvia Street north of University Avenue and Fulton Street south of Bancroft Way), would help ensure that adequate emergency access would be maintained. It also states that the Berkeley Fire Department and Berkeley Police Department would review any proposed changes to the current Emergency Access and Evacuation routes prior to modification. It finds that, for all these reasons, the DAP would have a less than significant impact on emergency response and evacuation.

Wildland Fire Hazards

The DAP EIR finds that no part of the Downtown Area is within an area formally identified as subject to wildland fire hazards, and that development under the DAP would therefore not increase exposure to this hazard in any significant way, although such a hazard cannot be completely ruled out. As stated on page 4-135 of the DAP EIR, "…in September, 1923, a major wildfire that began in the Wildcat Canyon area ultimately destroyed homes within a few blocks of the Downtown Area. An uncontrolled wildfire originating in the Berkeley Hills today could still pose a threat to people and property in the Downtown Area, given conditions favorable to the rapid spread of such a fire."

Project-Specific Impacts

a,c) As stated in the DAP EIR, hazardous materials use associated with the type of commercial and residential uses proposed under the project can include motor vehicle use and storage, and use of materials for periodic cleaning, repair, and maintenance or for landscape maintenance or pest control. The DAP EIR's conclusion remains valid that, with existing regulations and normal standards of use, use of hazardous materials at commercial and residential land uses in the Downtown would not pose a significant risk to human health or the environment. Transport and use of such materials would be subject to all applicable state and federal laws, such as Hazardous Materials Transportation Act, the Resource Conservation and Recovery Act, the California Hazardous Materials Management Act, and the California Code of Regulations, Title 22. While the project site is within roughly 330 feet (0.06 miles) of Berkeley High School, it would not emit hazardous emissions or pose a significant risk to this or any other school from hazardous materials releases. This impact is **less than significant**.

b, d) The existing structures on the project site would be altered or demolished to accommodate the proposed project. A Phase I Site Assessment performed in June 2012 by IVI Assessment Services, Inc. (Appendix D) found some materials in the buildings currently located on the project site that may contain Asbestos-Containing Material (ACM). It found that these materials were in good condition, and recommended no further action other than maintaining potential ACM in good condition under the site's existing Asbestos Operations and Maintenance (O&M) Program. It recommended that all activities involving disturbance of ACM should be conducted in accordance with governmental regulations. BAAQMD Regulation 11, Rule 2, which governs the proper handling and disposal of ACM for demolition, renovation, and manufacturing activities in the Bay Area, is the applicable governmental regulation, and would apply to the project. The Phase I Assessment also found that lead-based paint (LBP) may exist at the project site. It concluded that testing would be required in order to determine whether LBP exists. The City of Berkeley recommends that common renovation activities like sanding, cutting and demolition, which can create hazardous lead dust, are conducted properly by trained and certified contractors or individuals (City of Berkeley. *Frequently Asked Questions (FAQs) from Residents*. April 2014), consistent with the EPA's Lead Renovation, Repair and Painting Rule, which is available on the EPA's website at http://www.epa.gov/lead/pubs/renovation.htm (United States Environmental Protection Agency, April 2014).

Review of Cortese List sites in the Geotracker database (California State Water Resources Control Board, March 2014) indicates that the closest listed property is a closed Underground Storage Tank at 2001 Allston Way, located approximately 285 feet to the west of the project site, which is currently the site of the YMCA. Because this site has a closed status, and because the generally southward flow of groundwater in this area would not tend to carry contamination from this site to the project site, it would not pose a significant risk of having introduced contamination in the soils underneath the project site. The closest "open status" listed property is Berkeley Touchless Car Wash, a LUST cleanup site at 2176 Kittredge Street, located approximately 415 feet to the east of, and slightly uphill from, the project site. The site status for this site is "Open - Site Assessment as of 1/9/2013." The contaminants of concern are gasoline, waste oil/motor/hydraulic/lubricating. However, groundwater flow in the area is to the south, which would generally not carry contamination from this site to the project site, although Geotracker does show multiple "closed case" historical contamination sites to the north of the project site.

The project site is not included on any list compiled pursuant to Section 65962.5 of the Government Code. Additionally, the Phase I Site Assessment for the site (Appendix D) found no evidence of Recognized Environmental Conditions (REC) in connection with the project site. However, it does identify a portion of the project site as the site of dry cleaning establishments during the 1920s-1950s, although these former cleaners were not identified on any regulatory databases that report releases, spills or contamination conditions, such as the CERCLIS or SHWS lists. Nevertheless, it concludes that the potential still exists for adverse impact to the project site, mainly as a vapor intrusion concern from any potential remaining contamination not removed during construction of the current building's basement level.

The proposed project would involve excavation of the project site, both for the subterranean parking garage and for lowering the theater floor. Although unlikely, the potential exists to encounter contaminated soils from the sources discussed above or others. However, standard conditions of the City of Berkeley's Toxics Management Division (TMD) require that a Soil and Groundwater Management Plan (SGMP) be submitted to the TMD with a project's building permit application and be approved by TMD prior to issuance of the building permit for residential or mixed-use projects that include four or more units and are (1) in the Environmental Management Area (EMA) as shown on the most recent City of Berkeley EMA map; and (2) propose any excavations deeper than five feet below grade. The proposed project meets both these conditions. The SGMP is required to identify procedures for soil and groundwater management, including identification of pollutants and disposal methods, and is required to comply with the hazardous materials and waste management standards required by Berkeley Municipal Code Section 15.12.100, the San Francisco Bay Regional Water Quality Control Board's Order No. R2-2009-0074 C3 and C6, California hazardous waste generator regulations (Title 22 California Code of Regulations (CCR) 66360 et seq.), and the East Bay Municipal Utility District's Ordinance 311.

The SGMP is also required to include:

- A requirement that TMD be notified within 24 hours of the discovery of any previously undiscovered contamination;

- Procedures to manage odors, dust and other potential nuisance conditions expected during development.
- A requirement that the name and phone number of the individual responsible for implementing the SGMP and responding to community questions and complaints be posted at the construction site on the same notice required by Zoning Officer for noise management (BMC B.28.050.D).

TMD is required to review the SGMP and may require additional information or impose additional conditions as deemed necessary to protect human health and the environment. All requirements of the approved SGMP are deemed conditions of approval of the project's Use Permit.

The TMD also requires that, prior to approving any permit for partial or complete demolition activities, a hazardous materials survey shall be conducted by a qualified professional. The survey shall include, but not be limited to, identification of any lead-based paint, asbestos, PCB containing equipment, elevators or lifts, refrigeration systems, and treated wood and mercury containing devices. The survey shall include hazardous materials removal and disposal procedures to be implemented that fully comply with hazardous waste generator requirements (22 California Code of Regulations (CCR) 66360 et seq.). If the survey identifies hazardous materials, the removal and disposal procedures included in the survey shall become conditions of any building or demolition permit for the project. Documentation evidencing disposal of hazardous waste in compliance with the survey shall be submitted to TMD within 30 days of the completion of the demolition (City of Berkeley TMD, March 2013).

Compliance with these standard City conditions would reduce these potential impacts to a **less than significant** level.

e, f) As stated in the DAP EIR, the Downtown Area is not near any airports or airstrips. The closest airport is Oakland International Airport, located approximately eight miles to the south. The project would therefore have **no impact** in this regard.

g) The proposed project would not include any street closures. It would include various offsite public streetscape and mobility improvements, including bulb-outs on both sides of Harold Way at its intersections with Allston Way and Kittredge Street; an enhanced treatment with textured or colored paving, landscape pockets, and bollards at the Harold Way crossing area adjacent to Kittredge Street; and a speed table to calm traffic and enhance the public right-of-way at the Harold Way/Kittredge Street access to the Berkeley Central Library, the Armstrong College Property, the Library Gardens, and the project site. As stated above, Berkeley General Plan Policy T-28 states that, in order to help maintain emergency access, diverters or speed humps should not be installed on streets identified as Emergency Access and Evacuation Routes, which would include Harold Way. However, it is not clear if a speed table qualifies as a diverter or speed hump. (It should be noted that the DAP suggests that Harold Way may be a candidate for reconfiguring as a "slow street," indicating that emergency access via Harold Way is not a critical function of the street.) As stated in the DAP EIR and as is standard City practice, the Berkeley Fire Department and Berkeley Police

Department would review any proposed changes to the current Emergency Access and Evacuation routes prior to modification, and would confirm at that time that the proposed improvements would not impede emergency access. For these reasons, this impact is **less than significant**.

h) As stated in the DAP EIR, no part of the Downtown Area is within an area formally identified as subject to wildland fire hazards. The project site is within a completely urbanized area, approximately one mile from the Berkeley Hills. Development of the proposed project would therefore not increase exposure to wildland fire hazards in any significant way, although such hazards cannot be completely ruled out because there have historically been wildland fires in the undeveloped hillsides east of the Downtown Area that have threatened the area. However, the project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires, and this impact is **less than significant**.

Conclusion

With existing regulations and normal standards of use, the project's impacts related to Hazards and Hazardous Materials would be no greater than the less than significant impacts identified in the DAP EIR for the Plan as a whole. These issues **do not require further study in an EIR**.

	Significant Impact	**Less Than Significant or Less than Significant with Mitigation Incorporated**	**No Impact**	**Analyzed in the Prior EIR**	**Substantially Mitigated by Uniformly Applicable Development Policies**
IX. HYDROLOGY AND WATER QUALITY. Would the project:					
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☒	☒
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☒	☐	☒	☐

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☒	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☒	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☒	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☒	☐	☒	☒
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☒	☒	☐
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☒	☐

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☒	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☒	☐

Downtown Area Plan EIR Summary

The DAP EIR discusses hydrology and water quality impacts on pages 4-141 through 4-150. It addresses the following potential impacts, as summarized below: water quality standards; groundwater; alteration of existing drainage patterns resulting in erosion or flooding; urban runoff in relation to storm drainage system capacity and increased pollutants; flood hazards; and inundation by seiche, tsunami, or mudflow.

<u>Water Quality Standards</u>

Development under the DAP would result in demolition and/or construction activity that could generate pollutants that might adversely affect urban runoff. Operational activities, such as landscape maintenance, could also pollute urban runoff if chemicals used in these activities were to come into contact with rainfall or runoff. However, proponents of any development project in the Downtown Area would be required to comply with all City of Berkeley requirements under the NPDES permit, and construction contractors are responsible for implementing and monitoring erosion and sedimentation control/drainage plans to ensure that contaminants are not released into urban runoff, in order to prevent significant adverse impacts to water quality. Taken together, these measures were determined to reduce potential adverse impacts to water quality to a level of less than significant.

<u>Groundwater</u>

Because it is located in a dense urban area, the Downtown Area is almost fully paved over. Urban runoff is collected and carried via existing storm drain pipes and channelized creeks, and does not provide significant groundwater recharge. The DAP would not result in a significant increase in impermeable surfaces in the Downtown Area, and would thus not significantly reduce recharge. Also, the groundwater underneath the area is not used for human consumption or other use. Development under the DAP would not deplete groundwater in the area, or result in substantial interference with groundwater recharge, and this impact was determined to be less than significant.

Alteration of Existing Drainage Patterns Resulting in Erosion or Flooding

Development under the DAP would not modify the course of any existing stream or river, except for potential realignment of a portion of Strawberry Creek through the proposed Center Street Plaza, which would require site-specific evaluation of drainage-related effects. Outside of this potential proposal to realign a portion of Strawberry Creek, the DAP would not result in alteration of existing drainage patterns resulting in erosion or flooding, and this impact was determined to be less than significant.

Urban Runoff in Relation to Storm Drainage System Capacity and Increased Pollutants

Because the Downtown Area is fully developed and highly urbanized, the vast majority of development under the DAP would be redevelopment of already-paved areas, and would not result in any significant increase in stormwater runoff which would be likely to exceed existing storm drainpipe capacity or creek culvert capacity, or increase pollutants in stormwater runoff. This impact was determined to be less than significant.

Flood Hazards

No portion of the Downtown Area is located within a 100-year flood hazard area, and development under the DAP would therefore not result in the placement of any housing units within a 100-year flood hazard area, or placement of any structures within a 100-year flood hazard area that could impede or reduce flood flows. The Downtown Area is also not located in an area subject to inundation in the event of a dam or levee failure. The DAP was determined to have no impact related to flood hazards.

Inundation by Seiche, Tsunami, or Mudflow

The Downtown Area is located well above sea level and nearly two miles from the nearest edge of San Francisco Bay. Any risk of inundation by seiche, tsunami or mudflow in the Downtown Area would be remote, and would not be increased as a result of development under the DAP. The DAP was determined to have no impact in this regard.

Project-Specific Impacts

a, f) As discussed in the DAP EIR, proponents of any development project in the Downtown Area, including the currently proposed project, are required to comply with all City of Berkeley requirements under its NPDES permit, and construction contractors are responsible for implementing and monitoring erosion and sedimentation control/drainage plans to ensure that contaminants are not released into urban runoff, in order to prevent significant adverse impacts to water quality. The Geotechnical Feasibility Report (Appendix C) states that groundwater levels are estimated to be 15 feet below existing grade, which is above the level of deepest excavation associated with project construction. It recommends waterproofing the concrete slabs and walls for the basements rather than installing permanent dewatering mechanisms. However, dewatering would be required during excavation and until the waterproof slabs and walls are installed. As discussed in Section VIII, *Hazards and Hazardous Materials*, soils beneath the project could contain contamination, and the discharge resulting from the dewatering could therefore also be contaminated. However, as discussed in Section VIII, the project would be subject to standard conditions of the City of Berkeley's Toxics Management Division (TMD) requiring that a Soil and Groundwater Management Plan (SGMP) be submitted to the TMD with the project's building permit application and be approved by TMD prior to issuance of the building permit. The SGMP is required to identify procedures for soil and groundwater management, including identification of pollutants and disposal methods, and is required to comply with the hazardous materials and waste management standards required by Berkeley Municipal Code Section 15.12.100, the San Francisco Bay Regional Water Quality Control Board's Order No. R2-2009-0074 C3 and C6, California hazardous waste generator regulations (Title 22 California Code of Regulations (CCR) 66360 et seq.), and the East Bay Municipal Utility District's Ordinance 311. Additionally, as discussed in Section VI, *Geology and Soils,* the City of Berkeley would require compliance with the recommendations of the Geotechnical Report for the project (Appendix C). Section 7.1 of the Geotechnical Report contains recommendations for construction dewatering at the project site. Additionally, any dewatering activities would be required to comply with all City of Berkeley requirements under its NPDES permit. Section 17.20.070 of the Berkeley Municipal Code stipulates the following:,

A. *It is unlawful to discharge any matter into the storm drain system such that the discharge results in or contributes to a violation of any National Pollutant Discharge Elimination System (NPDES) permit issued to the discharger and administered by the state of California under authority of the U.S. Environmental Protection Agency, including the NPDES permit issued to the City of Berkeley and others (NPDES Permit No. CA0029831, on file in the office of the City Clerk) and any amendment, revision or reissuance thereof, and whether such discharge is separately considered or when combined with other discharges.*

B. *Each industrial discharger, discharger associated with construction activity, or any other discharger described in any general NPDES permit regulating stormwater discharges, as may be adopted by the U.S. Environmental Protection Agency, the State Water Resources Control Board, or the California Regional Water Quality Control Board, San Francisco Bay Region, shall submit to the appropriate agency a notice of intent to comply with said permit and undertake all other activities required by any general stormwater permit applicable to such discharges.*

C. *Each discharger identified in any individual NPDES permit regulating stormwater discharges shall comply with and undertake all activities required by such permit.*

Section 17.20.050 of the Berkeley Municipal Code contains the following requirements for construction and development:

1. *Any construction contractor performing work in the City shall provide filter materials at catch basins to retain any debris, dirt, or other pollutants generated by such work to prevent said pollutants from flowing into the City's storm drain system.*

2. *Any applicant for a building or grading permit from the City shall, as a condition of receiving such permit, sign a certification stating that the applicant has read and shall use, to the maximum extent practicable, applicable portions of the state stormwater best management*

practices manual for construction activity, a copy of which shall be available to the applicant where building and grading permits are obtained.

3. *Any applicant for a building or grading permit from the City who is subject to the state NPDES construction general permit shall, as a condition of receiving such permit, provide evidence that the applicant has submitted a notice of intent to the state Water Resources Control Board as required by said permit.*

4. *The City Manager may establish controls on the volume and rate of stormwater runoff from new developments and redevelopments as may be appropriate to minimize the discharge and transport of pollutants into the storm drain system.*

As stated under the DAP EIR, construction contractors are responsible for implementing and monitoring erosion and sedimentation control/drainage plans to ensure that the above requirements are being met, and that contaminants are not released into urban runoff, in order to prevent significant adverse impacts to water quality. For all the reasons stated above, the project would not violate water quality standards or otherwise substantially degrade water quality, and this impact would be **less than significant with mitigation incorporated**.

b) The project site, like the Downtown Area in general, is already developed, and the proposed project would not increase impermeable areas in a way that would significantly interfere with groundwater recharge. This impact would be **less than significant**.

c-e) The project site is already fully developed with impervious surfaces. Development of the proposed project would therefore not increase the amount of impervious surfaces on the site, and would therefore not increase runoff. The project would also not introduce new uses that would produce an increase in polluted runoff compared to existing uses. For example, no surface parking is proposed that could lead to runoff of automotive fluids into the storm drain system. The project includes 10,268 square feet of 13th floor terrace space with outdoor cooking and entertaining facilities, community gardens, and fireplace area; roughly 2,900 square feet of this terrace space would be landscaped. The project also includes 11,045 square feet of usable balconies and terraces for selected units, and ground-floor courtyard space. These spaces would or may include landscaping that could have the potential to produce polluted runoff from sources such as chemical fertilizers. However, a technical memorandum prepared by Telamon Engineering Consultants, Inc. in February 2013 (Appendix E) found that the landscaped area on the 13th floor terrace could potentially be used for bio-treatment of runoff, and roughly 1,196 square feet of flow through planter area for the ground-floor courtyard that could potentially be used for bio-treatment area. It concluded that the proposed project would be able to meet the Alameda County Clean Water Program, "C.3 Storm Water Technical Guidance."

For all the above reasons, the proposed project would not alter existing drainage patterns in a manner that would result in erosion or flooding, or increase stormwater runoff which would be likely to exceed existing storm drainpipe capacity or creek culvert capacity, or increase pollutants in stormwater runoff. This impact would be **less than significant**.

g-i) As stated in the DAP EIR, no portion of the Downtown Area, including the project site, is located within a 100-year flood hazard area or an area subject to inundation in the event of a dam or levee failure. The proposed project would therefore have **no impact** related to these hazards.

j) The project site is located at an elevation of approximately 180 feet above sea level, and is nearly two miles from the nearest edge of San Francisco Bay. It is also not near any major inland body of water such as a large lake that could produce a seiche. It is not in an area subject to mudflows. Any risk of inundation by seiche, tsunami or mudflow at the project site would be remote, and would not be increased as a result of project development. The proposed project would therefore have **no impact** related to these hazards.

Conclusion

With existing regulations and normal standards of use, the project's impacts related to Hydrology and Water Quality would be no greater than the less than significant impacts identified in the DAP EIR for the Plan as a whole. These issues **do not require further study in an EIR**.

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
X. LAND USE AND PLANNING. Would the project:					
a) Physically divide an established community?	☐	☐	☒	☒	☐
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☒	☐	☒	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☒	☒	☐

Downtown Area Plan EIR Summary

The DAP EIR discusses land use and planning-related impacts on pages 4-151 through 4-174. The DAP EIR found that impacts in all impact categories for this topic would be less than significant without the need for mitigation. The DAP EIR discussions of these impact areas are summarized below.

- Physical Division of an Established Community. Development under the DAP would not include components that would physically divide the existing community. Future development would take place largely on existing parcels in the Downtown Area. Street modifications anticipated within the Downtown Area under the DAP could be expected to facilitate more efficient circulation and transit operations, enhancing connections between established neighborhoods in Berkeley.

- Introduction of New Land Uses that Could Conflict with Existing Land Uses. The Downtown Area is largely already developed in a mix of urban land uses. Implementation of the DAP would be expected to replace some existing uses and buildings to add new residential units, office space, and commercial services to support those living and working in the Downtown Area. These uses would be similar in character, density and intensity to the uses that are currently found in the Downtown Area. Implementation of the DAP would not introduce new uses that would conflict with established uses in the Downtown Area.

- Conflict with Applicable Land Use Plans, Policies or Regulations. Implementation of the DAP would not fundamentally conflict with any of the City of Berkeley's land use plans, policies or regulations adopted for the purpose of avoiding or mitigating effects that could result in adverse physical changes in the environment. The DAP was developed to provide specific policy guidance for future development in the Downtown Area, consistent with the land use plans, policies and regulations of the City. Adoption of the DAP would make it an amendment to the Berkeley General Plan, which would effectively eliminate any conflict with General Plan Policies, reducing any potential impact to a level of less than significant.

- Conflict with Habitat Conservation Plan/Natural Community Conservation Plan. There are currently no approved Habitat Conservation Plans or Natural Community Conservation Plans applicable to the Downtown Area. Implementation of the DAP would not conflict with any applicable Habitat Conservation Plan or Natural Community Conservation Plan.

Project-Specific Impacts

a) Consistent with the discussion in the DAP EIR for the plan area as a whole, the proposed project would be constructed on existing parcels in the Downtown Area. The project would occupy a portion of an existing city block that is already developed with structures. It would not involve construction of a physical feature (e.g., a highway or rail line) or removal of an existing means of access (e.g., a road or bridge linking different portions of a community) that would represent a physical division of an established community.

b) Consistent with the discussion in the DAP EIR for the plan area as a whole, the proposed project would not introduce new land uses that do not already exist in the Downtown area. There are residential and retail uses adjacent to the project site, and the proposed movie theaters would replace existing movie theaters. The project site was modeled in the DAP EIR with a taller building than proposed, and its development would be within the overall buildout assumptions for both use and scale within the Core Area, which includes development on several Core sites with buildings of 180 to 225 feet in height.

The project site's General Plan Land Use classification is Downtown. The Downtown classification is intended to "encourage, promote, and enhance development that will increase the residential population in the Downtown, provide new high density, transit-oriented housing opportunities, and support a vital city center. Uses appropriate for this area include: medium- and high-density housing, regional- and local-serving arts, entertainment, retail, office, cultural, open space, civic uses, and institutional uses and facilities. It is General Plan policy to increase the residential population in the Downtown." The project, as a mixed-use building with entertainment, retail, and a high residential density near transit opportunities would be consistent with this vision.

The Downtown Area Plan (DAP) provides additional, specific land use guidance within the Downtown area. The DAP classifies the project site as Core Area. (Site and surrounding DAP land use classifications are shown in Figure 34.) The DAP includes the following discussion of development potential in the Core Area: "Because of immediate access to BART, multiple bus lines, and walk-to conveniences, provisions for the Core Area allow the tallest buildings, including three buildings up to 180 feet."

The General Plan and DAP also have a number of policies that are applicable to the proposed project; a discussion of project consistency with selected policies follows. The emphasis is on the DAP policies, as the DAP was developed to provide specific policy guidance for future development in the Downtown Area, consistent with the land use plans, policies and regulations of the City including the General Plan. As specified in the environmental checklist (see appendices G and N to the CEQA *Guidelines*), the discussion focuses on policies adopted for the purpose of avoiding or mitigating an environmental effect.

General Plan Policies.

Policy LU-2 Preservation. *Protect Berkeley's character by identifying, restoring, and preserving historic buildings. (Also see Urban Design and Preservation Policies UD-1 through UD-3.)*

Inconsistent. This policy calls for protection of identified historic resources. While the project would preserve the c.1910-1913 Shattuck Hotel Landmark structure, it also includes demolition or alteration of latter Hotel additions, and therefore would not fully comply with this policy. As reflected in the City's larger context of policies and regulations, there are circumstances where demolition or alteration of historic resources may be permitted depending on the value of the resource and potential benefits of the proposed project as a whole. Nevertheless, this policy inconsistency is a potentially significant impact and will be discussed in the Infill EIR.

> ***Policy UD-16 Context.*** *The design and scale of new or remodeled buildings should respect the built environment in the area, particularly where the character of the built environment is largely defined by an aggregation of historically and architecturally significant buildings. (Also see Land Use Policies LU-3, LU-4, LU-7, LU-17, and LU-21.)*
>
> ***Policy UD-17 Design Elements.*** *In relating a new design to the surrounding area, the factors to consider should include height, massing, materials, color, and detailing or ornament.*

<u>Inconsistent.</u> The proposed project is surrounded on three sides by historically and architecturally significant buildings. The alteration of one of these structures, the Shattuck Hotel, and introduction of a larger building of contemporary design and materials into this context, could result in incompatibility. This potential policy inconsistency is a potentially significant impact and will be discussed in the Infill EIR.

> ***Policy UD-18 Contrast and Cohesiveness.*** *The overall urban experience should contain variety and stimulating contrasts achieved largely through contrast between different areas each of which is visually cohesive.*

Consistent. The proposed project would introduce a larger building employing contemporary design and materials to the site vicinity, which would provide architectural contrast and variety.

> ***Policy UD-19 Visually Heterogeneous Areas.*** *In areas that are now visually heterogeneous, a project should be responsive to the best design elements of the area or neighborhood.*
>
> ***Policy UD-20 Alterations.*** *Alterations to a worthwhile building should be compatible with the building's original architectural character.*
>
> *Action:*
>
> *A. In cases where a well-designed building's original character has since been destroyed by a poorly designed remodel, new alterations to reverse those changes can be used to improve the character of the area.*

Consistent. As noted above, the proposed project would contribute a dramatic contrast in architecture between its own contemporary modernist lines, materials, and massing, and the Mission Revival style of the c. 1910-13 hotel building. The step back on the fifth floor of the proposed project's Kittredge Street frontage would result in its subordination to the Shattuck Hotel's Kittredge façade, allowing it and its tiled hip-roof corner element to remain prominent along the block from the street frontage viewing locations. The project would maintain a generally continuous street wall at the edge of the abutting streets up to where the building would step back toward the interior of the site. The proposed building would step down to 54 feet (five stories) along the street fronts, and would be about 10 feet shorter than the adjacent Shattuck Hotel, but would be about three feet taller than the height of the public library across Kittredge Street.

The Downtown Design Guidelines specific guidelines for new construction, many of which serve to implement these policies as projects are taken through the City's design review and decision making processes. The Design Review Committee and Zoning Adjustments Board must consider the project's adherence to these policies and the Downtown Design Guidelines in their recommendations and decisions, and ultimately determine consistency with both the Design Guidelines and the DAP. This process continues throughout the discretionary development review process until the building permit process begins. This Infill Environmental Checklist's discussion of consistency with design policies that apply largely to design details necessarily addresses only the broad policy and Design Guideline parameters, recognizing that design details evolve through the review process.

> ***Policy UD-31 Views.*** *Construction should avoid blocking significant views, especially ones toward the Bay, the hills, and significant landmarks such as the Campanile, Golden Gate Bridge, and Alcatraz Island. Whenever possible, new buildings should enhance a vista or punctuate or clarify the urban pattern.*

Inconsistent. As discussed in Section I, *Aesthetics*, significant views of the hills or Campanile would not be blocked by the proposed project. However, the project would block a portion of the view of the Bay and Alcatraz Island from the base of the Campanile. As also discussed in Section I, *Aesthetics*, pursuant to California State law aesthetic impacts of a mixed-use project on an infill site within a transit priority area may not be considered significant impacts on the environment. Therefore, although this potential policy inconsistency is acknowledged, the impact itself cannot be considered significant per CEQA on aesthetic grounds alone.)

<u>Downtown Area Plan Policies.</u>

> ***Policy LU-1.5: Downtown Intensities & Building Heights.*** *To advance Downtown as a vibrant city center and encourage car-free options near transit, accommodate urban intensities by using building heights that are appropriate and feasible, as indicated in Table LU-1 and "Figure LU-1, Land Use & Building Heights." All new buildings shall deliver significant public benefits, many of which should be in proportion to building height (see Policy LU-2.1). Buildings exceeding a height of 85 feet shall be subject to shadow studies and visual analysis, – and buildings exceeding a height of 120 feet shall be subject to wind analysis – to avoid detriment to residential areas, public streets and public open spaces, and if necessary require modifications to the project design including setbacks and stepbacks to reduce view and shadow impacts (see policies under Goals ES-4, LU-2, and HD-1, as well as footnotes in Table LU-1). Provide appropriate transitions to Residential areas that surround Downtown as described in Policies LU-4.2.*

> ***Policy HD–4.2: Solar, Visual & Wind Impacts.*** *Design and position new buildings to avoid significant adverse solar-, visual- or wind-related impacts on important public open spaces. Also provide for adequate natural light in residential units through appropriate building form (see Policies ES-3.3 and LU-4.2, and Table LU-1).*
>
> a) *Strengthen standards and guidelines to better address potential solar access and wind impacts.*
> b) *For buildings exceeding 85 feet, use solar, visual and wind simulations to evaluate and refine design alternatives.*

Consistent. Shadow impacts are discussed under Item I, *Aesthetics*, and were determined to be less than significant. Wind impacts are discussed below. Regarding public benefits, see the discussion of Policy LU-2.2 below. The project site is not adjacent to a residential area.

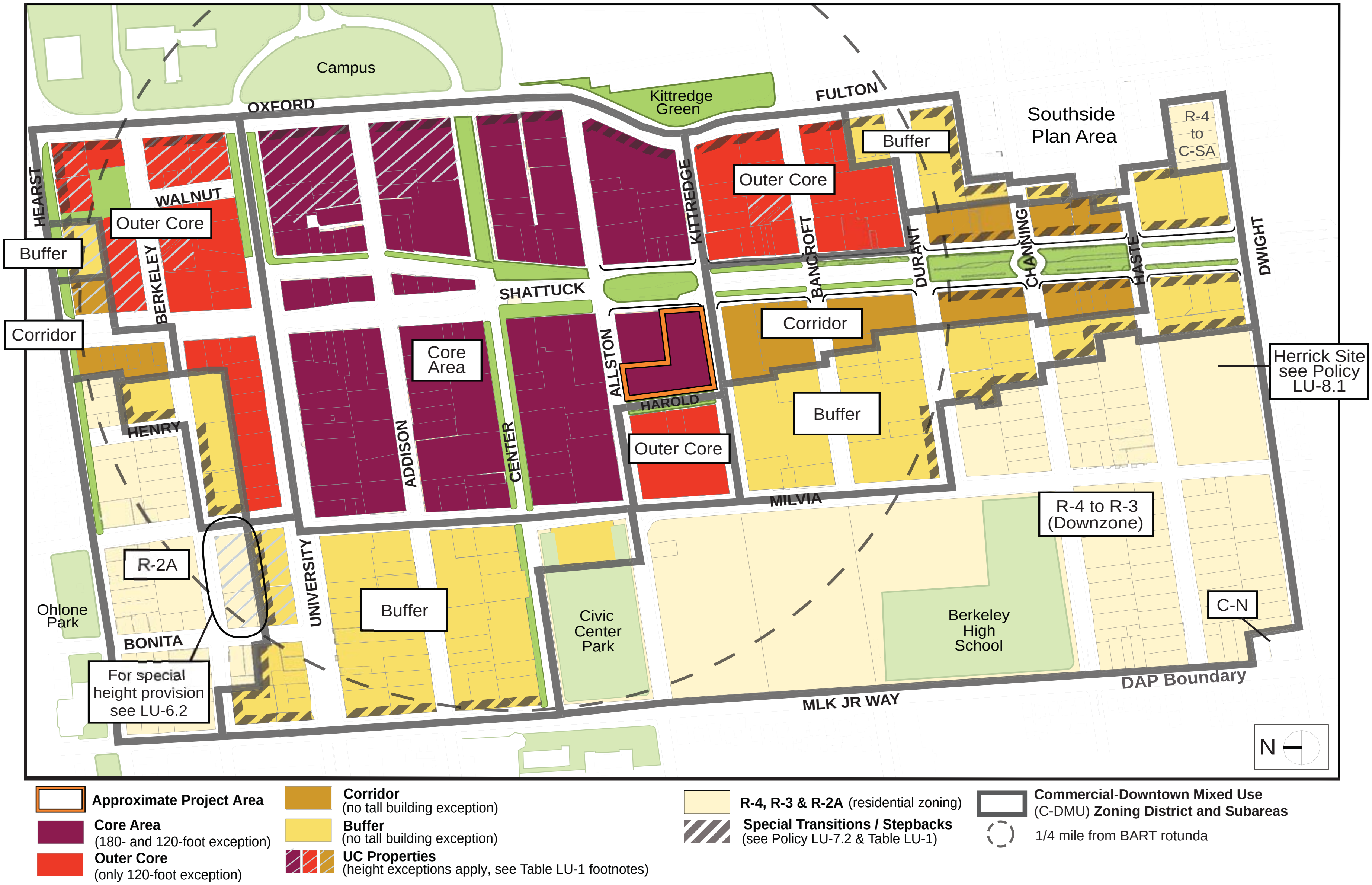
The 2009 DAP EIR discusses wind impacts on Page 4-35. It acknowledges that new buildings could increase winds at ground level and that impacts could be significant, but that adoption of DAP policies including LU-1.5 would ensure that wind impacts for DAP buildout would be less than significant.

Donald Ballanti prepared a *Wind and Comfort Impact Analysis* (January 2014; included in Appendix F to this report)) summarizing potential wind impacts associated with the proposed project. Westerly winds (west to east) are the most frequent and strongest winds in the project vicinity during all seasons. This is the primary wind direction during the spring and summer months when sea breezes predominate. The second most frequent winds in the area are southerly (south to north), which is the wind direction associated with winter storms, and is historically the direction of the strongest winds in the Bay Area. The annual average wind speed measured at Alameda Naval Air Station is 7.7 miles per hour and annual average wind speed at the project site would be somewhat less than this.

The project area gently slopes to the west and has no significant terrain features. Building heights in the vicinity range from single-story construction to the 12-story (173 and 180 feet, respectively) office towers at Center Street and Shattuck Avenue. The adjacent Shattuck Hotel is five stories in height. Most buildings around the project site are in the two- to five-story range. The project is partially wind-sheltered by existing structures for the important westerly and southeasterly wind directions.

CEQA guidance does not list any specific criterion for the evaluation of wind effects of a project. San Francisco and Oakland have established both standards and criteria for the evaluation of wind impacts. CEQA significance levels in San Francisco and Oakland are based on pedestrian hazard. For the purposes of CEQA, San Francisco and Oakland have established a pedestrian wind hazard criterion of one occurrence per year of winds greater than 36 mph as representing a significant adverse impact. The DAP EIR includes the same threshold (Page 4-9). This wind hazard criterion developed by San Francisco and adopted by Oakland is based on research conducted in several locations and would be appropriate for a project located in Berkeley. Since the ambient wind (undisturbed by buildings) in Berkeley seldom exceeds 36 mph, a project must substantially increase winds at pedestrian levels for this threshold to be exceeded. For this analysis, the project is considered to have a potentially significant wind impact if the exposure, orientation and massing of the structure can be expected to substantially increase ground-level winds in pedestrian corridors or public spaces near the project site.

The *Wind and Comfort Impact Analysis* determined that the lower portion of the proposed project (consisting of the first five floors) would only be partially exposed to prevailing winds, and would not be expected to significantly affect ground level winds. The upper portions of the building would be exposed to prevailing winds, but the massing of the project is such that the wind accelerations generated would be located over rooftops of adjacent buildings or at decks/terraces within the project itself. It should also be noted that



Source: City of Berkley, 2012

Site and Surrounding Downtown Area Plan Land Use Classifications

Figure 34

the building's design in relation to wind is consistent with the Downtown Design Guidelines, which call for articulation and stepbacks to reduce winds (see Downtown Design Guidelines Figure 40 and its caption: "Consider ways to mitigate potential wind shear impacts from taller buildings by using upper story setbacks, architectural projections and recesses, and trees").

The only area on or adjacent to the project site and proposed project identified as potentially subject to a substantial increase in winds that could affect comfort levels would be the rooftop decks of the project itself. This would be a private space, and building management would have a range of options to address the associated potential discomfort of its residents, such as providing shelter in the form of porous materials or structures (vegetation, hedges, screens, latticework, perforated or expanded metal), which offer superior wind shelter compared to a solid surface. Impacts related to wind would be less than significant.

> ***Policy LU-4.1: Transit-Oriented Development.*** *Encourage use of transit and help reduce regional greenhouse gas emissions, by allowing buildings of the highest appropriate intensity and height near BART and along the Shattuck and University Avenue transit corridors (see Goal ES-3).*
>
> *a) Require efficient use of available sites and help attain goals related to vitality. Adopt minimum building heights as provided in Table LU 1 in effect while in an active pursuit of the use permit. If LPC designates a positive determination, the project reverts to standard zoning review process. LPC action appealable to City Council.*
>
> *– Design Review Commission and Zoning Adjustment Board (ZAB) process not to exceed a combined total of 210 days; ZAB action appealable to City Council.*

<u>Consistent.</u> The project site is within the Core Area and is within two blocks of a major transit hub, and the proposed project includes a high residential density, with a total of 302 units on site. The proposed units range from studios to three-bedrooms and include affordable units.

> ***Policy LU-4.2: Development Compatibility.*** *Encourage compatible relationships between new and historic buildings, and reduce localized impacts from new buildings to acceptable levels. The size and placement of new buildings should: reduce street-level shadow, view, and wind impacts to acceptable levels; and maintain compatible relationships with historic resources (such as street wall continuity in commercial areas). See policies under Goals ES-4 and HD-1, and Policy LU-1.5.*
>
> *a) Revise zoning provisions and amend the Downtown Design Guidelines to provide for appropriate controls on setbacks and building bulk (such as through the use of floor area ratios and maximum horizontal dimensions), and rules for street-level open space and other devices. Emphasize measurable standards that are easy to understand and apply.*
>
> *b) Strengthen zoning and the Downtown Design Guidelines to better address solar access and wind impacts. For buildings exceeding 85 feet, use solar, visual and wind simulations to evaluate and refine design alternatives.*

> ***Policy HD-1.1: Historic Buildings & Sites.*** *Preserve historic buildings and sites of Downtown, and provide where appropriate for their adaptive reuse and/or intensification.2*

a) *Retain Landmarks and Structures of Merit in Downtown. Designate, where appropriate, additional properties as Landmarks or Structures of Merit.*
b) *When evaluating potential modifications, adaptive reuse or intensification of designated or sufficiently documented historic resources, in addition to applying the Landmarks Preservation Ordinance, the proposed work must also be evaluated for conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings. Where applicable, the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes, must also be applied. At a minimum, historic facades should be maintained and/or rehabilitated and the scale and character of additions must be compatible with the historic building.*
c) *For the most common practices and alterations, compile reference materials that describe appropriate maintenance and façade improvements document, and where additional information can be obtained. Develop materials using community participation. Make these materials available to property owners, contractors, and architects.*
d) *Allow flexibility in parking and other standards, such as exemption from on-site open space requirements, when such buildings are substantially and appropriately preserved or restored as part of a development project. Review and, if necessary, revise standards that may discourage historic rehabilitation and adaptive reuse. Identify potential sources of financing, tax relief (such as through the Mills Act), grants, and a full range of other incentives and resources for historic preservation, such as those relating to accessibility and seismic upgrading. Provide this information to owners of historic resources (see Policies ES-4.1, LU-2.1 and LU-4.3).*

<u>Inconsistent.</u> The proposed project would include alteration or removal of historic structures and introduction of a new building adjacent to existing historic structures to remain, activities which could be considered inconsistent with these policies. This potential inconsistency would be potentially significant and will be studied in an Infill EIR. (See discussion under policies LU-1.5 and HD-4.2 above regarding wind impacts.)

Policy AC-2.1: Pedestrian Safety and Amenities. *Improve the safety, attractiveness and convenience of pedestrian routes within Downtown – and to and from surrounding areas. Encourage a wide range of pedestrian amenities to meet the needs and interests of those who live and work in and near Downtown (see policies under Goals HD-4 and in the Streets and Open Space chapter).*

a) *Adopt a Streets and Open Space Improvement Plan with policies and implementing actions, including provisions for adequate sidewalk width, shortening pedestrian crossing distances at intersections, and new midblock pedestrian crosswalks where justified by high volumes of pedestrians and a long distance between intersections.*
b) *To reduce pedestrian-vehicle conflicts, minimize driveway curb cuts to the extent feasible, and where they must occur: avoid making driveways too wide or creating uneven surfaces where driveways cross sidewalks.*
c) *Maintain sidewalks, crosswalks, plazas, and other pedestrian environments so that they are safe, clean and in good repair.*
d) *Regularly evaluate indicators of pedestrian safety, and adjust implementation priorities to improve pedestrian safety.*

Policy AC-3.3: Pedestrian Impacts. *Locate and design new parking in ways that minimize negative impacts upon the pedestrian quality of Downtown (see Policy HD-4.1).*

a) With new development, discourage parking on-site to increase space available for street-level retail and activity.
b) Minimize driveway curb cuts to make Downtown more safe and attractive for pedestrians. Locate, design, and size entrances and exits to parking to minimize impact on the pedestrian realm, such as through traffic management, exit mirrors, and warning lights.
c) Consolidate parking to minimize visual and other negative impacts from parking. Enlarge the capacity of existing parking garages as feasible, through management practices and/or physical improvements.
d) Discourage use of more than 25% of a building's street-level area for parking. Place parking below grade when feasible. When below grade parking is deemed infeasible, above grade parking structures should face streets and public open spaces in ways that support pedestrian safety and activity. Surface parking should be prohibited along streets.

Policy AC-3.2: New Parking. *Provide sufficient parking for expected growth by evaluating future parking needs, funding parking facilities, and promoting alternatives to the car. In addition, replace on-street parking lost to street and other improvements within off-street garages. Consolidate parking in shared facilities to the extent possible.*

a) Parking facilities should be planned as part of a Parking/TDM program to address future parking needs, replace on-street parking lost to improvements, and evaluate locations for potential parking garages, and encourage visitors to park once and experience Downtown on foot and/or via low-cost shuttles/transit (see Policy AC-4.5).
b) Allow fees to be paid in lieu of on-site parking, and apply revenues toward transit enhancements (see Policy AC-1.3). Encourage developers to pay fees in lieu of on-site parking, especially commercial projects that bring large numbers of new commuters Downtown.
c) Consider revisions to parking standards and programs to better accomplish policies of the DAP. Analyze such revisions as part of a consolidated Parking/TDM program and as a way to reduce impediments to the preservation and the adaptive reuse of historic buildings.
d) Prohibit new driveways on Shattuck and University Avenues in Downtown except when it can be demonstrated that no other site access options exist or where other alternatives would have greater negative impacts.
e) Monitor the amount of on-site parking that new development includes and, if excessive, develop standards for maximum allowable on-site parking.
f) Expand electric car and hybrid plug-in location through standards and guidelines, and encourage their connection to local renewable energy sources.
g) New development should provide effective parking and TDM measures (see Policy LU- 2.1 and AC-1.3).

<u>Consistent.</u> The project site currently has one curb cut, which would be removed. One curb cut is proposed; therefore the number of curb cuts on the block would not be increased. Because the project requires parking and vehicular access, one curb cut is the minimum practical. The curb cut would only be as wide as necessary to accommodate vehicle ingress and egress. Parking would be entirely below grade and would serve the entire project site.

The project includes streetscape enhancements, as discussed under Project Description, which would improve the pedestrian environment and pedestrian safety and circulation at the corner of Harold Way and Kittredge Street. The project includes "unbundled" parking, transit passes for residents, 11 electric car charging stations and six car-share spaces.

c) There are currently no approved Habitat Conservation Plans or Natural Community Conservation Plans applicable to the project site or its immediate surroundings. The project would therefore not conflict with any applicable Habitat Conservation Plan or Natural Community Conservation Plan.

Conclusion

The project would have no impact regarding division of an established community, as identified in the DAP EIR for the Plan as a whole. The project would have no impact regarding Habitat Conservation Plans or Natural Community Conservation Plan, also as identified in the DAP EIR for the Plan as a whole. The DAP EIR identified the potential for wind impacts associated with development allowed under the DAP, and required project-specific study to identify and address such impacts; a project-specific study was performed, and impacts were determined to be less than significant. Therefore, impacts related to consistency with policies regarding wind would be less than significant. However, while the project would be generally consistent with the majority of applicable General Plan and DAP policies, it would be potentially inconsistent with selected policies regarding preservation and protection of cultural resources; this is a **potentially significant impact that will be studied in an Infill EIR.**

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
XI. MINERAL RESOURCES. Would the project:					
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☒	☐
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☒	☒	☐

Downtown Area Plan EIR Summary

The DAP EIR identified no known mineral deposits of local importance or value to the region or residents of the State, or locally-important mineral resource recovery sites, within the Downtown Area. Consequently, the DAP EIR identified no impacts on mineral resources from development anticipated under buildout of the Downtown Area Plan.

Project-Specific Impacts

a,b) Because the project site is located in a highly urbanized area without known mineral resources of value, impacts would remain as identified in the DAP EIR. The proposed project would have **no impact** on mineral resources.

Conclusion

As the project would have no impact – the same as the impacts identified in the DAP EIR for the Plan as a whole – this issue **does not require mitigation or further study in an EIR**.

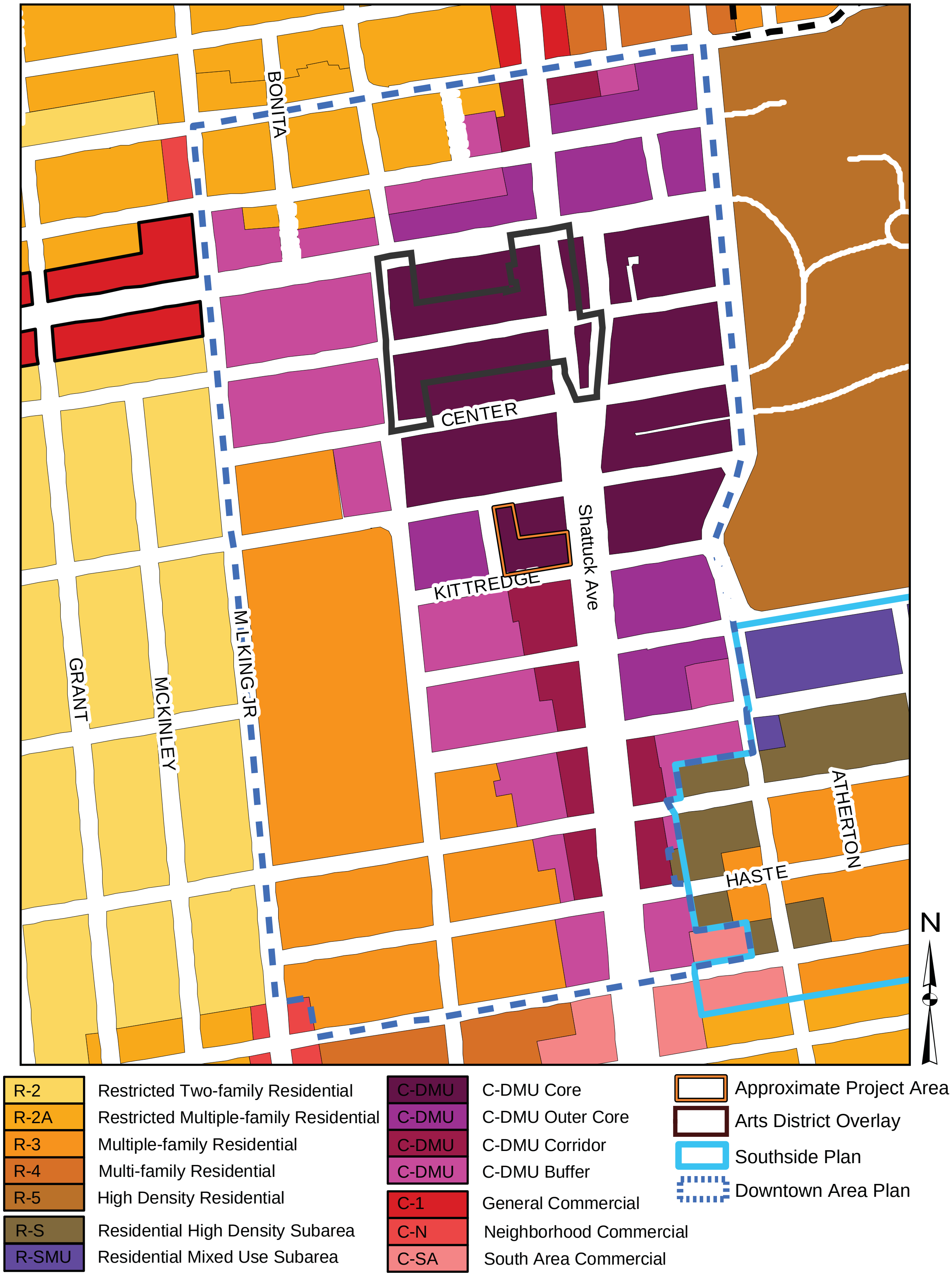
	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
<u>XII. NOISE.</u> Would the project result in:					
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☒	☐

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐	☐
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐	☐

Downtown Area Plan EIR Summary

The DAP EIR discusses noise and vibration impacts on pages 4-195 through 4-205. The DAP EIR examined a range of potential impacts related to noise and vibration, including exposure of new development to excessive noise levels; exposure of Downtown area residents to noise associated with commercial activities and/or mechanical equipment; increased traffic noise, a cumulative increase in Downtown area noise levels; traffic noise; and construction-related noise and vibration. Impacts were assessed in the context of adopted planning documents, including the City's 2003 General Plan. The DAP EIR identified the following mitigation measures that would be applicable to the current proposed project:

- *Impact NOI-1:* Exposure to Excessive Noise Levels. New development under the DAP (particularly residential uses adjacent to principal streets) could be exposed to excessive noise levels. With completion of the development anticipated under the DAP, noise levels along many Downtown Area roadways would exceed those considered compatible with exterior residential land uses (60 dBA Ldn), a potentially significant impact. Where exterior noise levels exceed 70 dBA Ldn, such as along University Avenue and Shattuck Avenue, residential units would not be able to meet the 45-dBA Ldn interior standard simply through typical construction methods. This would be a potentially significant impact. Retail units developed under the DAP along most of the area roadways would meet the exterior commercial land use compatibility guideline of 70 dBA Ldn established in the Noise Element. Exterior noise levels would exceed 70 dBA Ldn along University Avenue and Shattuck Avenue. This would be a *potentially significant* impact.



Source: City of Berkley, 2014

Site and Surrounding Zoning Classifications

Figure 35

- *Mitigation NOI-1:* Site-Specific Noise Studies/Site Planning/Noise Control Treatments. Future residential units proposed under the DAP would be exposed to outdoor noise levels in excess of 60 dBA Ldn and indoor noise levels in excess of 45 dBA Ldn, which would exceed the City's and state's established land use compatibility thresholds. In areas where residential development would be exposed to an Ldn of greater than 60 dBA, site-specific noise studies should be conducted to determine the area of impact and to present appropriate mitigation measures, which may include the following:
  - Utilize site planning to minimize noise in shared residential outdoor activity areas by locating these areas behind the buildings, in courtyards, or orienting the terraces to alleyways rather than streets, whenever possible.
  - The California Building Code and the City of Berkeley require project-specific acoustical analyses to achieve interior noise levels of 45 dBA Ldn or lower in residential units exposed to exterior noise levels greater than 60 dBA Ldn. Building sound insulation requirements would need to include the provision of forced-air mechanical ventilation in noise environments exceeding 70 dBA Ldn so that windows could be kept closed at the occupant's discretion to control noise. Special building construction techniques (e.g., sound-rated windows and building façade treatments) may be required where exterior noise levels exceed 65 dBA Ldn. These treatments include, but are not limited to, sound rated windows and doors, sound rated exterior wall assemblies, acoustical caulking, etc. The specific determination of what treatments are necessary will be conducted on a unit-by-unit basis during project design. Result of the analysis, including the description of the necessary noise control treatments, will be submitted to the City along with the building plans and approved prior to issuance of a building permit. Feasible construction techniques such as these would adequately reduce interior noise levels to 45 dBA Ldn or lower.

  Implementation of the above measure would reduce the impact to a level of *less than significant*.

- *Impact NOI-5:* Construction Noise. Businesses and residences throughout the Downtown Area would be intermittently exposed to high levels of noise throughout the planning horizon. Construction would elevate noise levels at adjacent businesses and residences by 15 to 20 dBA or more, a *significant* impact.

  - *Mitigation NOI-5:* Develop Site-Specific Noise-Reduction Programs and Implement Noise Abatement Measures During Construction. Prior to the issuance of building permits, the applicant shall develop a site specific noise reduction program prepared by a qualified acoustical consultant to reduce construction noise impacts to the maximum extent feasible, subject to review and approval of the Zoning Officer. The noise reduction program shall include appropriate time limits for construction (7:00 AM to 7:00 PM on weekdays and between the hours of 9:00 AM and 8:00 PM on weekends or holidays) as well as technically and economically feasible controls to meet the requirements of the Berkeley Municipal Code. The noise reduction program should include, but shall not be limited to, the following available controls to reduce construction noise levels as low as practical:

- Construction equipment should be well maintained and used judiciously to be as quiet as practical.
- Equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment.
- Utilize "quiet" models of air compressors and other stationary noise sources where technology exists. Select hydraulically or electrically powered equipment and avoid pneumatically powered equipment where feasible.
- Locate stationary noise-generating equipment as far as possible from sensitive receptors when adjoining construction sites. Construct temporary noise barriers or partial enclosures to acoustically shield such equipment where feasible.
- Prohibit unnecessary idling of internal combustion engines.
- If impact pile driving is required, pre-drill foundation pile holes to minimize the number of impacts required to seat the pile.
- Construct solid plywood fences around construction sites adjacent to operational business, residences or other noise-sensitive land uses where the noise control plan analysis determines that a barrier would be effective at reducing noise.
- Erect temporary noise control blanket barriers, if necessary, along building facades facing construction sites. This mitigation would only be necessary if conflicts occurred which were irresolvable by proper scheduling. Noise control blanket barriers can be rented and quickly erected.
- Route construction related traffic along major roadways and away from sensitive receptors where feasible.
- Businesses, residences or other noise-sensitive land uses within 500 feet of construction sites should be notified of the construction schedule in writing prior to the beginning of construction. Designate a "construction liaison" that would be responsible for responding to any local complaints about construction noise. The liaison would determine the cause of the noise complaints (e.g., starting too early, bad muffler, etc.) and institute reasonable measures to correct the problem. Conspicuously post a telephone number for the liaison at the construction site.

Although the above measures would reduce noise generated by the construction of individual projects, the impact would remain significant and unavoidable as a result of the extended period of time that adjacent receivers would be exposed to construction noise.

- *Impact NOI-6:* Construction-Related Vibration. Residences, businesses, and historic structures within or in the vicinity of the Downtown Area would be exposed to construction-related vibration during the excavation and foundation work of the buildings constructed under the DAP, a *significant* impact.

- *Mitigation NOI-6:* Avoidance of Pile-Driving/Site-Specific Vibration Studies/Monitoring/Contingency Planning. The following measures are recommended to reduce vibration from construction activities:
  - Avoid impact pile-driving where possible. Drilled piles causes lower vibration levels where geological conditions permit their use.
  - Avoid using vibratory rollers and tampers near sensitive areas.
  - In areas where project construction is anticipated to include vibration-generating activities, such as pile-driving in close proximity to existing structures, site-specific vibration studies should be conducted to determine the area of impact and to present appropriate mitigation measures that may include the following:
    - Identification of sites that would include vibration compaction activities such as pile-driving and that have the potential to generate groundborne vibration, and the sensitivity of nearby structures to goundborne vibration. Vibration limits should be applied to all vibration-sensitive structures located within 200 feet of the project. A qualified structural engineer should conduct this task.
    - Development of a vibration monitoring and construction contingency plan to identify structures where monitoring would be conducted, set up a vibration monitoring schedule, define structure-specific vibration limits, and address the need to conduct photo, elevation, and crack surveys to document before and after construction conditions.
    - Construction contingencies would be identified for when vibration levels approached the limits.
    - At a minimum, vibration monitoring should be conducted during initial demolition activities and during pile-driving activities. Monitoring results may indicate the need for more or less intensive measurements.
    - When vibration levels approach limits, suspend construction and implement contingencies to either lower vibration levels or secure the affected structures.
    - Conduct post-survey on structure where either monitoring has indicated high levels or complaints of damage has been made. Make appropriate repairs or compensation where damage has occurred as a result of vibration.

It may not be possible to avoid using impact pile-drivers, vibratory rollers, and tampers entirely during the construction of projects in the Downtown Area. Due to the density of development in the area, some of these activities may take place near sensitive structures. In these cases, the mitigation measures listed above would not be sufficient to reduce groundborne vibration to a level of less than significant. Therefore, this impact would be considered *significant and unavoidable*.

Mitigation Measures NOI-1, NOI-5, and NOI-6 would apply to the proposed project. However, the DAP EIR concluded that impacts related to construction-related noise and vibration (Impacts NOI-5 and NOI-6) would be significant and unavoidable.

Project-Specific Impacts

a, c) The project would locate new residences in areas exposed to potentially excessive noise levels, and result in new long-term sources of operational noise, including increased traffic noise on area roadways. Potential impacts associated with long-term sources of noise are discussed below.

Exposure to Excessive Noise Levels. The project would introduce new residential land uses adjacent to local roadways, potentially exposing sensitive receptors to noise levels that would exceed those considered compatible with exterior residential land uses (60 dBA Ldn). As described in the DAP EIR, where exterior noise levels exceed 70 dBA Ldn, residential units may not meet the 45-dBA Ldn interior standard through typical construction methods. Existing and future noise levels along Allston Way and Kittredge Street were estimated using traffic volumes provided in the traffic impact analysis conducted by the IBI Group (April 2014) using the Federal Highway Administration's (FHWA) Traffic Noise Model (TNM) Look-Up version 2.5 (refer to Appendix G for output). The results of this analysis are shown in Table 14.

Table 14
Estimated Roadway Noise Levels

Allston Way		Kittredge Street	
Existing AM	**Existing PM**	**Existing AM**	**Existing PM**
67.1 dBA	66.6 dBA	65.5 dBA	65.2 dBA
2020 Plus Project AM	**2020 Plus Project PM**	**2020 Plus Project AM**	**2020 Plus Project PM**
67.4 dBA	66.9 dBA	66.6 dBA	66.7 dBA
2035 Plus Project AM	**2035 Plus Project PM**	**2035 Plus Project AM**	**2035 Plus Project PM**
68.5 dBA	68.0 dBA	67.5 dBA	67.6 dBA

Sources: See Appendix G for Traffic Noise Model Look-Up version 2.5 noise estimates.

As shown in Table 14, under existing conditions noise levels at 32.8 feet from roadway centerlines (the shortest distance available in TNM Look-Up) are not expected to exceed a one-hour Leq (the average noise level over a one-hour period) of 67.1 dBA along either Allston Way or Kittredge Street. Under 2020 Plus Project conditions, estimated noise levels would not exceed a one-hour Leq of 67.4 dBA along either Allston Way or Kittredge Street, and under 2035 Plus Project conditions estimated noise levels would not exceed a one-hour Leq of 68.5 dBA along either Allston Way or Kittredge Street (for all conditions the AM peak hour along Allston Way resulting in the highest estimated roadway noise levels). The estimated traffic noise levels are during peak hour conditions would typically be similar to (and would not be expected to exceed) the Ldn (which represents a weighted 24-hour average). Therefore, new residential units would not be exposed to noise levels that would exceed 70 dBA Ldn, and the 45-dBA Ldn interior standard described in Impact NOI-1 of the DAP EIR would be achieved in all new residential units through typical construction methods.

The project would be consistent with the requirement in DAP Mitigation Measure NOI-1 that shared residential outdoor areas be located behind buildings, in courtyards, or orienting terraces to alleyways rather than streets, whenever possible. Impacts would be within those identified in the DAP EIR for the Plan as a whole, and would be **less than significant**.

Commercial/Mechanical Noise. The project would introduce new commercial land uses adjacent to new and existing residential land uses; however, the types of commercial uses proposed are not anticipated to include substantial loading or unloading activities, operation of heavy mechanical equipment, or other uses that would result in noise that would exceed the City of Berkeley Municipal Code Limits. Currently, loading and unloading activities occur at the site associated with the existing building. Potential impacts would be similar to those anticipated in the DAP EIR for the Plan as a whole, and would be **less than significant.**

Traffic Noise. As shown in the traffic impact analysis prepared by the IBI Group (April 2014), the project would result in an incremental increase in vehicle trips to and from the project site. Project-generated traffic would incrementally increase noise levels on area roadways.

Existing peak hour traffic volumes for the AM and PM hours were compared with the expected peak hour traffic volume increases associated with the proposed project (all traffic volumes were based on the traffic impact analysis), because they represent the busiest traffic conditions. Table 15 illustrates the increase in roadway traffic along the studied roadway segments with the greatest increase in traffic for the AM and PM peak hours.

Table 15
Project Contribution to Area Roadway Traffic Levels during AM and PM Peak Hours

Roadway Segment	Existing Peak Hour (trips)	Existing Peak Hour Net Project Change (trips)	Project Increase Compared to Existing Traffic
AM Peak Hour			
Allston Way between Milvia Street and Martin Luther King Jr. Way	486	1	0.2%
Shattuck Avenue between Kittredge Street and Bancroft Way	1,721	0	0.0%
Kittredge Street between the Proposed Project Driveway and Milvia Street	113	13	11.5%

Table 15
Project Contribution to Area Roadway Traffic Levels during AM and PM Peak Hours

Roadway Segment	Existing Peak Hour (trips)	Existing Peak Hour Net Project Change (trips)	Project Increase Compared to Existing Traffic
PM Peak hour			
Allston Way between Milvia Street and Martin Luther King Jr. Way	461	7	1.5%
Shattuck Avenue between Kittredge Street and Bancroft Way	1,879	12	0.6%
Kittredge Street between the Proposed Project Driveway and Milvia Street	99	35	35%

Source: Draft 2211 Harold Way Traffic and Parking Study, IBI Group, March 2014.

As indicated in Table 15, the highest traffic volume increases for both the AM and PM peak hours are on Kittredge Street between the proposed project driveway and Milvia Street, where the increases would be 11.5% and 35%, respectively. No other change in peak hour traffic resulting from the project would be expected to exceed a 1.5% increase in peak hour vehicle trips. In general, a doubling of vehicle traffic is required in order to produce a 3 dBA increase in traffic-related noise, which is the minimum increase that is perceptible by most people. Project-added vehicle trips would not increase existing traffic more than 35 percent, less than the doubling (200 percent) of traffic that would result in a perceptible increase in traffic noise. Therefore, the noise increase from new vehicle traffic associated with the proposed project would not result in a significant increase in traffic noise, and would be lower than anticipated in the DAP EIR. Impacts associated with traffic noise would be within those identified in the DAP EIR for the Plan as a whole and would be **less than significant**.

b, d) Project construction could intermittently generate high noise levels as well as vibration on and adjacent to the project site. The existing 1959 Hink's Building would be demolished and a portion of the Shattuck Hotel would be removed to prepare the site for construction of the proposed project, including alteration of the underground areas. Grading and excavation would be required for site preparation and excavation for the subterranean parking garage. The maximum depth to the bottom of the lowest proposed foundation would be approximately 34 feet below the existing street-level grade. Pile driving would not be required; rather, a mat foundation (a type of continuous thick-slab foundation supporting the entire structure) varying from approximately three to six feet in thickness is proposed. Demolition and construction would require approximately 18-24 months. Temporary noise associated with demolition and construction activities may adversely affect nearby residential uses. Vibration associated with excavation and foundation work may impact nearby residences, businesses, and other structures. The main sources of noise during construction activities would be the heavy machinery used in demolition, grading, excavation, and building construction. Potential impacts associated with temporary sources of construction noise and vibration are discussed below.

Construction Noise. Table 16 demonstrates the maximum noise levels associated with the use of heavy equipment at construction sites. As shown therein, average noise levels associated with the use of heavy equipment at construction sites can range from about 74 to 101 dBA at 50 feet from the source, depending upon the types of equipment in operation at any given time and phase of construction (FHWA, 2006).

Table 16
Typical Construction Equipment Noise Levels

Equipment	Acoustical Usage Factor (%)[1]	Measured Lmax (dB at 50 feet)
Augur Drill Rig	20	84
Backhoe	40	78
Compactor (ground)	20	83
Dozer	40	82
Dump Truck	40	76
Excavator	40	81
Flat Bed Truck	40	74
Front End Loader	40	79
Generator	50	81
Grader	40	83
Pickup Truck	40	75
Pneumatic Tools	50	85
Roller	20	80
Scraper	40	84
Warning Horn	5	83
Welder/Torch	40	74

[1] The average fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.
Source: FHWA, 2006.

Maximum noise levels from construction equipment would not be expected to exceed 91 dBA at 50 feet from the source. This assumes up to four pneumatic tools being used simultaneously, which increases the maximum sound level by approximately 6 dBA. Overall, project construction activity may require more pneumatic tools than this assumption; however, it is unlikely that multiple pneumatic tools would be in use simultaneously at the same location on the project site. Therefore, this assumption represents a reasonable worst-case estimate of potential noise from construction activity on the site.

Noise-sensitive uses near the project site include residential units located within the Library Gardens Apartments, on the south side of Kittredge Street, within 100 feet of potential construction activity. These land uses would be exposed to temporary noise levels during project construction. Table 17 shows noise levels at various distances from construction activity, based on a standard noise attenuation rate of 6 dBA per doubling of distance.

Table 17
Construction Noise Levels at Various Distances from Project Construction

Distance from Construction	Maximum Noise Level at Receptor (dBA)
25 feet	97
50 feet	91
100 feet	87
250 feet	77
500 feet	71

As shown in Table 17, construction noise levels could be up to 94 dBA at 25 feet from the project site boundary. These potential construction noise levels are within with those anticipated by the DAP EIR, which determined that businesses and residences throughout the Downtown Area would be intermittently exposed to elevated noise levels throughout the planning horizon of the DAP. The project would be subject to DAP Mitigation Measure NOI-5, which requires the use of available controls to reduce construction noise levels, including equipment mufflers, temporary noise barriers, and neighbor notification. Adjacent and nearby sensitive noise receptors would be exposed to noise levels within those anticipated in the DAP EIR for the Plan as a whole; impacts associated with temporary construction noise would remain **significant.**

Vibration. Residences adjacent to the project site may be exposed to construction-related vibration during the demolition, excavation, and foundation work. Residential land uses would not be exposed to significant vibration impacts during the day because vibration impacts affect residents the most if sleep is disturbed. Section 13.40.070 of the Berkeley Community Noise Ordinance restricts construction activity that involves operating tools or equipment used in construction, drilling, repair, alteration, or demolition work between weekday hours of 7:00 PM and 7:00 AM, or 8:00 PM and 9:00 AM on weekends or holidays. Therefore, construction vibration impacts on residential sensitive receptors would be **less than significant**.

Tuan and Robinson Structural Engineers, Inc. conducted a vibration analysis (March 2014) to determine if vibrations from project construction would potentially affect the existing adjacent structures, which could result in damage to historic resources. For a discussion of potential impacts to historic resources associated with vibration, refer to Item V, *Cultural Resources*.

e, f) The project is not located within an airport land use plan, within two miles of a public airport or public use airport, or within the vicinity of a private airstrip. Impacts associated with airport noise were not discussed in the DAP EIR; however, **no impacts** would occur.

Conclusion

Potential noise impacts associated with the project would be within the impacts identified in the DAP EIR for the Plan as a whole with implementation of the mitigation measures listed above, and would incorporate mitigation measures required by the DAP EIR. Therefore, environmental effects related to noise and vibration (potential vibration effects on historic resources are discussed in Section V. *Cultural Resources*) **do not require further study in an EIR**.

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
XIII. POPULATION AND HOUSING. Would the project:					
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☒	☐	☐	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐	☐
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐	☐

Downtown Area Plan EIR Summary

The DAP EIR discusses population and housing impacts on pages 4-206 through 4-218. As noted therein, “2,734 people were living within the Downtown Area at the time of the 2000 Census,” and “the 2007 Downtown Area population may now be approximately 3,000.” Within the Downtown Area, the Alameda County Congestion Management Agency (ACCMA) estimated that the population of the ten traffic analysis zones (TAZs) totaled 4,761 in 2000, and projected that the population living in the Downtown TAZs would increase to 5,414 by 2015 and to 6,528 by 2030 under a “Baseline” scenario (without the DAP). The DAP EIR estimated that new residential units developed as a result of the DAP could increase the population of the area by approximately 3,252 new residents, increasing the total Downtown Area population to an estimated 9,780 persons. The DAP EIR noted that population growth in the Downtown Area is not unanticipated, as General Plan Policy H-16 encourages the construction of new medium- and high-density housing on major transit corridors (e.g., Shattuck Avenue and University Avenue in the Downtown Area). The DAP EIR concluded that "Implementation of the DAP would not result in substantial population or housing growth beyond that already anticipated under the City's General Plan, and the DAP-related impact would be less than significant," and that DAP-related impacts to population and housing were less than significant, and no mitigation measures were required or identified.

Project-Specific Impacts

a) The proposed project would develop the site with a mix of uses, including 302 residential units, and therefore would directly increase population growth on the project site. Based on the City of Berkeley's General Plan Housing Element, adopted in 2010, for housing projects of five or more units, it can be assumed that the household size averages 1.73 persons (Berkeley, 2002). Therefore, it is assumed that the proposed project would increase the local population by up to 516 persons. However, this population growth would not be considered substantial in the context of existing population in Berkeley, and would be within the population projections in the DAP EIR. The anticipated population growth associated with the project represents approximately 15 percent of the potential population growth that would result from the DAP, and less than 10 percent of the Downtown Area's projected 2015 population (the earliest year for which the proposed project would be operational).

   In addition, the project does not include infrastructure improvements that would extend roadways or infrastructure into areas which do not currently support residential or other urban uses. Therefore, the proposed project would neither directly nor indirectly increase population growth in Berkeley beyond that planned for by the City in the DAP, and impacts would be **less than significant**.

b, c) No occupied or vacant residential structures would be demolished to accommodate the project. Therefore, the proposed project would not result in displace existing housing or people. **No impact** would occur.

Conclusion

As the project would have a less than significant impact on population and housing, and would be within the impacts identified in the DAP EIR for the Plan as a whole – this issue **does not require mitigation or further study in an EIR**.

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
XIV. PUBLIC SERVICES. a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	☐	☒	☐	☒	☒
Fire protection?	☐	☒	☐	☒	☒
Police protection?	☐	☒	☐	☒	☒
Schools?	☐	☒	☐	☒	☒
Parks?	☐	☒	☐	☒	☐
Other public facilities?	☐	☒	☐	☒	☐

Downtown Area Plan EIR Summary

The DAP EIR discusses impacts to public services in Section M, on pages 4-219 through 4-233. Each of the following public services is discussed separately within Section M:

Fire Protection and Emergency Medical Services

The DAP EIR states that "…the DAP could result in an increase in the population of the Downtown Area by up to 3,252 new residents during the planning period. This increase in the number of Downtown Area residents could result in additional service calls to the Berkeley Fire Department" (the BFD). However, the DAP EIR concludes that, because the level of development anticipated under the DAP is generally consistent with that anticipated under the Berkeley General Plan, "…it is not expected that such development would generate a need for new or expanded facilities to support fire protection and emergency response providers, and the impact would be less than significant." It also notes that the BFD would continue to be required to exercise its review authority to review new development for such impacts, as required by Mitigation Measure SVC-6a and Mitigation Measure SVC-6b of the City's 2001 General Plan EIR.

Police Protection

The DAP EIR states that the potential population increase resulting from the DAP could result in additional service calls to the Berkeley Police Department. However, the DAP EIR concludes that, because the level of development anticipated under the DAP is generally consistent with that anticipated under the Berkeley General Plan, "it is not expected that such development would generate a need for new or expanded police facilities, and the impact would be less than significant." It also notes that the BPD would continue to review individual development projects to determine whether or not significant adverse effects to police response times could result. It also notes that Mitigation Measure SVC-4 of the City's General Plan EIR requires the City to annually review police staffing development trends and crime trends to determine whether additional police staffing is needed.

Schools

The DAP EIR concludes that "The level of development anticipated under the DAP is not expected to result in demand for school services that would exceed the existing or planned capacity of the District, and the District would not anticipate the need to develop new facilities or expand existing facilities to accommodate an increased number of school-age residents who might be living in the Downtown Area following development under the DAP." It also notes that "Project developers in the Downtown Area would be required to pay all applicable school impact fees to the Berkeley Unified School District, which (under California law) would effectively reduce any school-related impacts that might be associated with such development to a level of less than significant." It also notes that Mitigation Measure SVC-5 of the City's General Plan EIR requires the City and Berkeley Unified School District (BUSD) to continue to work together to evaluate the impacts of new development on BUSD facilities.

Parks

The DAP EIR states that, although the population increase potentially resulting from the DAP could potentially "place additional pressure on the only City park in the area: Martin Luther King Jr. Memorial Park at the Civic Center", residents in the Downtown Area would continue to have access to public open space on the campus of U.C. Berkeley, which could relieve pressure on this park. It concluded that DAP-related impacts related to possible physical deterioration of existing parks would therefore be less than significant.

Library Services

The DAP EIR states that, although the population increase potentially resulting from the DAP could place additional demands on the Berkeley Central Library, this increase would result in the ratio of items in this library's collection to Berkeley residents dropping only slightly, from

3.12 items per Berkeley resident to 3.03 items per Berkeley resident. The DAP EIR determined that no new library facilities, and no expansion of existing library facilities, would be needed to serve the new residents of the Downtown Area, and this impact would be less than significant.

Health and Human Services

The DAP concludes that, although the potential population increase of 3,252 new residents in the Downtown Area "could place additional demands on providers of health and human services in Berkeley," that "the additional population in the Downtown Area would not be likely to require new health/human services facilities or expansion of existing health/human services facilities, and the DAP-related impact would be less than significant."

Project-Specific Impacts

a) As described in Section XIII, *Population and Housing*, the proposed project would involve development of the site with a mix of uses, including 302 residential units, and therefore would lead to an estimated direct increase in population growth on the project site of 516 persons, which is within ABAG and DAP growth projections. Potential public services impacts, if any, would result from the increased demand on public services resulting from this population growth. The potential for the project to result in such impacts to public services is analyzed below for the following public services: fire protection and emergency medical services; police protection; schools; parks; library services; and health and human services.

Fire Protection and Emergency Medical Services

Because the proposed project would increase the local population by up to 516 persons, which is well within the projected total population growth attributed to the DAP of 3,252 new residents during the planning period, it would not result in substantial population or housing growth beyond that already anticipated under the DAP EIR. Therefore, like the DAP EIR itself, the project would not generate a need for new or expanded facilities to support fire protection and emergency response providers, and this impact would be **less than significant**.

Police Protection

The DAP EIR concludes that, because the level of development anticipated under the DAP is generally consistent with that anticipated under the Berkeley General Plan, "it is not expected that such development would generate a need for new or expanded police facilities, and the impact would be less than significant." As stated above, the population growth resulting from the proposed project would be well within that envisioned under the DAP EIR. The project's 302 new residential units and cinema and retail/restaurant space are within the projected buildout of the DAP EIR. The BPD is still required to review individual development projects such as the project to determine whether or not significant adverse effects to the City's ability to provide police services that might increase response times could result; and Mitigation Measure SVC-4 of the City's General Plan EIR, which requires the City to annually review police staffing development trends and crime trends to determine whether additional police staffing is needed, still applies. For these reasons, project impacts related to police protection services would be **less than significant**.

Schools

As stated in the DAP EIR, The Berkeley Unified School District has not established student generation rates to estimate the number of students that might be anticipated with new development. However, because the amount of development under the project would fall within that envisioned under the DAP EIR, the findings of that EIR in relation to school services, as discussed above, would apply to the project. Consequently, the project would not result in demand for school services that would exceed the existing or planned capacity of the District, and would not require new facilities or expand existing facilities to accommodate an increased number of school-age residents who might be living in the Downtown Area following development of the project. While the BUSD does not currently impose school impact fees, it does receive funding from several parcel taxes and general obligation bonds that help finance facilities improvements (Berkeley Public Schools, May 2014). Lastly, Mitigation Measure SVC-5 of the City's General Plan EIR, which requires the City and the BUSD to continue to work together to evaluate the impacts of new development on BUSD facilities, would continue to apply. For these reasons, project impacts related to school facilities would be **less than significant**.

Parks

The project site is located within walking distance (approximately 0.2 miles, or a roughly five minute walk) from Martin Luther King Jr. Memorial Park at the Civic Center. The DAP EIR states that population increases resulting from buildout of the DAP would "place additional pressure on the only City park in the area: Martin Luther King Jr. Memorial Park at the Civic Center", and new residents of the project site could lead to greater use of this park. However, the project site is also located within walking distance (approximately 0.25 miles) of the Eucalyptus Grove/Grinnell Natural Area, as well as the large area of lawn between Oxford Street and The Crescent, both of which are on the campus of U.C. Berkeley. As stated in the DAP EIR, the availability of these and other open space resources on the campus would make DAP-related impacts related to possible physical deterioration of existing parks less than significant. Because the project would not lead to population growth beyond that analyzed in the DAP EIR, the project's impact on parks would also be **less than significant**.

Library Services

The Berkeley Central Library is located directly across Kittredge Street from the southern boundary of the project site. New residents at the project site resulting from the project may use this and other libraries in Berkeley and surrounding areas, resulting in increased use of these facilities. However, the DAP EIR concluded that no new facilities or expansion of existing facilities would be required to serve residents of the Downtown Area due to the population increase resulting from buildout of the DAP. Because the potential population increase resulting from the project would be well within that forecast under the DAP, this conclusion remains valid, and impacts to library facilities and services would be **less than significant**.

Health and Human Services

The Alta Bates Summit Medical Center is located approximately ½ mile south of the project site. New residents at the project site resulting from the project may use this and other medical facilities in Berkeley and surrounding areas, resulting in increased use of these facilities. However, the DAP EIR concluded that the additional population in the Downtown Area would not be likely to require new health/human services facilities or expansion of existing health/human services facilities, and this impact would be less than significant. Because the potential population increase resulting from the project would be well within that forecast under the DAP, this conclusion remains valid, and impacts to health and human services would be **less than significant**.

Conclusion

As the project would have a less than significant impact on public services – the same as the impacts identified in the DAP EIR for the Plan as a whole – this issue **does not require mitigation or further study in an EIR**.

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
XV. RECREATION.					
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☒	☐	☐	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐	☐

Downtown Area Plan EIR Summary

The DAP EIR discusses recreational resources impacts on pages 4-234 through 4-237. As noted therein, public recreational facilities in the Downtown Area are limited. The DAP EIR states that "The major open space in the Downtown Area is the approximately three-acre Martin Luther King Jr. Memorial Park in the Civic Center area, which provides limited recreational opportunities on a large lawn, but supports a number of outdoor events (e.g., Cinco de Mayo, 'How Berkeley Can You Be?', etc.). The playing fields/track and warm pool at the Berkeley High School area also used by the public when not in use for physical education classes, team practices, and school sporting events. The YMCA also provides its members and guests with indoor recreation and fitness facilities." The DAP EIR concluded that there would be no DAP-related impacts to recreational resources, and no mitigation measures were required or identified.

Project-Specific Impacts

a) Residents of the project site would use local parks in the vicinity of the project. According to the General Plan Open Space and Recreation Element, the acres of parkland available to city residents increases to over 10 acres per 1,000 residents. If the 198-acre Claremont Canyon Regional Reserve is included, the figure increases to over 12 acres per 1,000 residents.

   The playing fields/track and warm pool at Berkeley High School are also used by the public when not in use for physical education classes, team practices, and school sporting events. The YMCA also provides its members and guests with indoor recreation and fitness facilities. The nearest park is the Martin Luther King Jr. Memorial Park in the Civic Center area, and the nearest regional park is Tilden Park, which is owned by the East Bay Regional Park District (EBRPD). The park is approximately two miles from the site and includes over 2,000 acres of open space, hiking trails, and recreational facilities. In addition, the UC Berkeley campus is located one block east of the site. Although the project would incrementally increase use of community and regional parks and recreation facilities, the City exceeds its goal of two park acres per 1,000 people, and the increase in use would be within that anticipated by the DAP EIR, and is not expected to result in substantial physical deterioration of these facilities. In addition, the proposed project would include an on-site outdoor common area for use by project residents, further ensuring that the project's impacts on local parks and recreational facilities would be **less than significant**.

b) The proposed project involves the redevelopment of the existing project site with residential and commercial uses. As discussed above, the project does not require the construction or expansion of off-site public recreational facilities; therefore, development of the proposed project would not result in additional environmental effects beyond those described in this document. **No impact** would occur.

Conclusion

As the project would have no impact on recreational resources – the same as the impacts identified in the DAP EIR for the Plan as a whole – this issue **does not require mitigation or further study in an EIR**.

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
XVI. TRANSPORTATION/ TRAFFIC. Would the project:					
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☒	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☒	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☒	☐	☐
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☒	☐
e) Result in inadequate emergency access?	☐	☒	☐	☒	☐

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☒	☐	☒	☐

Downtown Area Plan EIR Summary

The DAP EIR discusses transportation/traffic impacts on pages 4-270 through 4-325. The DAP EIR analysis for year 2030 buildout of the Plan assumed that the Downtown Area would accommodate up to 3,100 new residential units and up to 1,000,000 square feet of non-residential floor space (the vast majority of which would be related to University of California, Berkeley, projects).

The DAP EIR examined a range of potential impacts related to transportation and traffic, including unacceptable level of service (LOS) at the Martin Luther King Jr. Way/Hearst Avenue Intersection, the Martin Luther King Jr. Way/Allston Way Intersection, the Milvia Street/University Avenue Intersection, the Milvia Street/Center Street Intersection, the Shattuck Avenue/Center Street Intersection, the Shattuck Avenue/Allston Way Intersection, the Shattuck Avenue/Bancroft Way Intersection, the Shattuck Avenue/Durant Avenue Intersection, the Oxford Street/Hearst Avenue Intersection, the Oxford Street/University Avenue Intersection, the Oxford Street/Allston Way Intersection, increased AM peak hour congestion along Ashby Avenue eastbound between Adeline Street and Telegraph Avenue, DAP-related reduction of emergency access along Center Street, and increased traffic along Milvia Street adversely affecting bicycle boulevard operations. Impacts were assessed in the context of adopted planning documents and were based on the IBI Group's *Berkeley Downtown Area Plan – Program Environmental Impact Report Traffic Impact Analysis*. The DAP EIR identified the following mitigation measures related to intersections and other traffic impacts that may be affected by the current proposed project:

- *Impact TRA-2:* Unacceptable LOS during PM Peak Hour at Martin Luther King Jr. Way/Allston Way Intersection. LOS changes from D in Year 2030 Baseline condition to F in Year 2030 With Project condition. The likely cause of this impact is the increase in traffic volumes due to increased development anticipated under the DAP. The existing geometry of this intersection is one through-right and one through-left lane for northbound and southbound directions, one through-left and one right-turn lane for eastbound and westbound directions. In 2030 With Project condition (which would maintain the existing geometry), the intersection of Martin Luther King Jr. Way and Allston Way would operate at LOS F in the PM peak hour, a *potentially significant* impact.

  - *Mitigation TRA-2:* Modify Lane Configuration at Martin Luther King Jr. Way/Allston Way Intersection. The eastbound lane configuration should be changed, turning the existing through-left lane to left turn only and the right lane to a through-right. A right turn lane to Martin Luther King Jr. Way in the southbound direction should be added, changing the through-right lane to through only. This mitigation measure would result in changing the LOS to D, with delay of 49.8s. The implementation of this mitigation measure requires re-striping of Allston Way west of Martin Luther King Jr. Way to accommodate the lane changes, and the acquisition of right-of-way north of Allston Way to accommodate the southbound right tum lane. This measure is not anticipated to cause significant impacts to pedestrian traffic.

    Implementation of this measure would reduce the DAP-related impact to a level of *less than significant*.

- *Impact TRA-5:* Unacceptable LOS during PM Peak Hour at Shattuck Avenue/Center Street Intersection. LOS E occurs in Year 2030 Baseline condition, but deteriorates to F in Year 2030 With Project condition. The likely cause of this impact is the reconfiguration of the Downtown Area street network, in particular the changes in the number of lanes on Shattuck Avenue. Shattuck Avenue is a one-way street, with four lanes in the southbound direction: one through-left, two through lanes and one through-right lane. In the eastbound and eastbound directions, there is one through-left lane. In 2030 With Project condition (with Shattuck Avenue converted into a two-way street, with one through and one left tum lane in the northbound direction and one through and one right tum lane in the southbound direction, with Center Street closed to traffic east of Shattuck Avenue and the eastbound direction having one right tum lane and one left tum lane), the intersection of Shattuck Avenue and Center Street would operate at LOS F in the PM peak hour, a *potentially significant* impact.

  - *Mitigation TRA-5:* Modify Lane Configuration at Shattuck Avenue/Center Street. The significant impact at this intersection can only be mitigated by restoring Shattuck Avenue to provide two traffic lanes in the northbound direction. The proposed mitigation measure would add one lane to Shattuck Avenue in the northbound direction, changing lane configuration to one left tum lane and two through lanes. This mitigation measure would result in change of LOS to D, with delay of 42.6s in the PM peak hour. The implementation of this mitigation measure would require the removal of the parking spaces in the northbound direction of Shattuck Avenue, the reconfiguration of the southeast sidewalk, and the re-striping of Shattuck Avenue in the block south of Center Street. This improvement would result in the loss of about eight on-street parking spaces, but is not anticipated to generate significant impact with regard to parking.

    Implementation of this measure would reduce the DAP-related impact to a level of *less than significant*.

- *Impact TRA-6:* Unacceptable LOS during PM Peak Hour at Shattuck Avenue/Allston Way Intersection. LOS D occurs in Year 2030 Baseline condition, and deteriorates to F in

Year 2030 With Project condition. This impact results from the combination of the increase in vehicle traffic due to increased development anticipated under the DAP and the reconfiguration of the Downtown Area street network. This impact is connected to the changes proposed on Shattuck Avenue under the DAP. With the existing geometry, in the northbound and southbound directions, the lane configuration is one left tum, one through and one through-right lane. In the eastbound and westbound directions, there is one lane that allows all movements. In 2030 With Project condition (with the existing intersection geometry changed to loose a through lane in the northbound and southbound directions, but maintained in the eastbound and westbound directions), the intersection of Shattuck Avenue and Allston Way would operate at LOS F in the PM peak hour, a *potentially significant* impact.

- *Mitigation TRA-6:* Modify Lane Configurations at Shattuck Avenue/Allston Way Intersection. The existing number of lanes (three) in the northbound and southbound directions should be maintained, changing lane configurations to one left tum lane, one through lane and one right tum lane. One right tum lane should be added to the westbound direction, changing the existing lane to a through-left only. This mitigation measure would change the forecast LOS to D, with delay of 37.6s in the PM peak hour. The proposed mitigation measure would maintain the single through lane concept of the Shattuck Boulevard plan, but would widen the street cross section by providing a right tum lane in the northbound and southbound directions. On Allston Way, the implementation of the proposed mitigation measure requires the removal of on-street parking to accommodate the new lane configuration. This measure is not anticipated to cause significant impacts to pedestrian traffic. The anticipated loss of six on-street parking spaces on Alston Way and none spaces on Shattuck Avenue is not expected to generate significant impacts.

  Implementation of this measure would reduce the DAP-related impact to a level of *less than significant*.

- *Impact TRA-7:* Unacceptable LOS during PM Peak Hour at Shattuck Avenue/Bancroft Way Intersection. LOS B occurs in Year 2030 Baseline condition, and deteriorates to E in Year 2030 With Project condition. This impact results from the combination of the increase in trips due to increased development under the DAP and the reconfiguration of the Downtown Area street network. This impact is associated with the changes proposed to lane geometries on Shattuck Avenue. The existing geometry of this intersection is one left tum lane and two through lanes in the northbound and westbound directions, one through and one through right lane in the southbound direction, and one right tum lane in the eastbound direction. Bancroft Way is also a Bicycle Boulevard. In 2030 With Project condition (with the northbound direction configuration changed to one left tum lane and one through-right lane and reducing the southbound direction to one lane, maintaining the existing lane configuration in the eastbound and westbound directions), the intersection of Shattuck Avenue and Bancroft Way would operate at LOS E in the PM peak hour, a *potentially significant* impact.

- *Mitigation TRA-7:* Modify Lane Configurations at Shattuck Avenue/Bancroft Way Intersection. The existing number of lanes in the southbound direction should be maintained, changing lane configuration to one through-left lane and one through-right lane. This mitigation measure would result in change of LOS to D, with delay of 37.6s in the PM peak hour. The proposed mitigation measure would not maintain the single through concept of the Shattuck Boulevard plan. On Shattuck Avenue, the implementation of this mitigation measure would require the reconfiguration of the parking spaces and sidewalk in the southbound direction and the re-striping of the segment of the block north of Bancroft Way. This measure is not anticipated to cause significant impacts to pedestrian traffic.

  Implementation of this measure would reduce the DAP-related impact to a level of *less than significant*.

- *Impact TRA-8:* Unacceptable LOS during AM and PM Peak Hours at Shattuck Avenue/Durant Avenue Intersection. LOC C occurs in the AM peak hour and LOS B occurs in the PM peak hour in Year 2030 Baseline condition, and both periods experience deterioration to LOS F in Year 2030 With Project condition. The likely cause of this impact is the reconfiguration of lane geometry on Shattuck Avenue. The existing geometry of this intersection is one left tum, one through and one through right lane in the northbound and southbound directions. Durant Avenue is a one-way street with one through-left and one through-right lane in the eastbound direction. In 2030 With Project condition (with northbound and southbound directions both changed to one left tum lane and one through right lane, and existing lane configurations in eastbound and westbound directions maintained), the intersection of Shattuck Avenue and Durant Avenue would operate at LOS F in the AM peak hour and LOS F in the PM peak hour, a *potentially significant* impact.

  - *Mitigation TRA-8:* Modify Lane Configurations at Shattuck Avenue/Durant Avenue Intersection. The existing number of lanes in the northbound direction should be maintained, changing the lane configuration to one left tum lane, one through and one right tum lane. This mitigation measure will result in change of LOS to B in the AM peak hour (17.8s delay). LOS C is achieved in the PM peak hour (21.6s delay) applying the mitigation measures described above plus a 20s increase in cycle time. On Shattuck Avenue, the implementation of this mitigation measure would require the reconfiguration of the parking spaces and sidewalk in the northbound direction and the re-striping of the segment in the block south of Durant Avenue. This measure is not anticipated to cause significant impacts to pedestrian traffic.

    Implementation of this measure would reduce the DAP-related impact to a level of *less than significant*.

- *Impact TRA-11:* Unacceptable LOS during PM Peak Hour at Oxford Street/Allston Way Intersection. LOS E occurs in the PM peak hour in Year 2030 Baseline condition, and experiences deterioration to LOS F in Year 2030 With Project condition. The likely cause of this impact in the increase in vehicle trips due to increased development under the DAP. Existing geometry at this intersection is one through-left and one through lane in the northbound direction, one through and one through-right lane in the southbound direction and eastbound configuration with one lane only allowing right and left turns only. In 2030 With Project condition (with the existing geometry), the intersection of Oxford Street and Allston Way would operate at LOS F in the PM peak hour, a *potentially significant* impact.

- o *Mitigation TRA-11:* Modify Lane Configurations at Oxford Street/Allston Way Intersection and Alter Signal Cycle Timing. One lane should be added in the southbound direction, changing the lane configuration to two through and one right tum lane. One lane should be added to the northbound direction, changing the configuration to one left tum and two through lanes. One lane should be added in the eastbound direction, changing the configuration to one left tum lane and one right tum lane. Cycle length should be increased to 25s and to provide a protected left tum signal phase in the northbound direction. This mitigation measure would result in change of LOS to C in the Pm peak hour, with delay of33.6s. On Oxford Street, the implementation of this mitigation measure would require the removal of 5 of the parking spaces in the southbound direction and the re-striping of the segment in the block north of Allston Way. In the northbound direction there is the need to use the median space, as well as re-stripe the roadway. On Allston Way, the addition of the extra lane would require the loss of 4 on-street parking spaces on the south side of the street, as well as restriping. This measure is not anticipated to cause significant impacts to pedestrian traffic. The loss of on-street parking spaces on Oxford Street and Allston Way is not anticipated to generate significant impacts.

  Implementation of this measure would reduce the DAP-related impact to a level of *less than significant*.

- *Impact TRA-13:* DAP-Related Reduction of Emergency Access along Center Street. Under the DAP, The proposed closure of Center Street between Shattuck Avenue and Oxford Street would eliminate the existing emergency access to several buildings located along this segment of Center Street. This would represent a *potentially significant* impact.
  - o *Mitigation TRA-13:* Incorporate Emergency Access Lane in Design for Center Street Pedestrian Corridor. In order to maintain adequate emergency access to buildings located along Center Street between Shattuck Avenue and Oxford Street, the design of the proposed Center Street pedestrian corridor shall be required to incorporate a clear area, a minimum of 20 feet in width, where permanent and temporary structures, landscaping, and other physical features are prohibited. This area shall be designated as an emergency access lane, and must be accessible from both Shattuck Avenue and Oxford Street.

    Implementation of this measure would reduce the DAP-related impact to a level of *less than significant*.

Mitigation Measures TRA-2, TRA-5, TRA-6, TRA-7, TRA-8, TRA-11, and TRA-13 would apply to intersections and other traffic operations that would be potentially affected by the proposed project. The DAP EIR concluded that, with implementation of required mitigation measures, impacts related to transportation/traffic would be reduced to a level of less than significant.

Project-Specific Impacts

Traffic Impact Analysis Methodology. A traffic impact analysis is being prepared for the project. The existing conditions analysis will be based on existing traffic volumes obtained through new traffic counts conducted in December 2013. Future conditions traffic volumes were obtained through the Alameda County Transportation Commission (ACTC) regional traffic model forecasts for 2020 and 2035. Specific intersection turning movement volumes were obtained by applying an annual growth factor obtained from the model forecasts to existing traffic volumes.

Thresholds of Significance. Per the City's Traffic Impact Report Guidelines (City of Berkeley, September 2005), the traffic impact analysis for the project will assess Level of Service (LOS) for signalized intersections and determine the significance of project and cumulative impacts using the following standards:

- *The Highway Capacity Manual (Transportation Research Board, 2000) defines levels of service based on average seconds of delay per vehicle. The upper threshold for LOS D is 55 sec/veh and for LOS E is 80 seconds/vehicle. The average delay can be significantly affected by signal timing at a signalized intersection. In general, traffic impact analyses should retain cycle lengths, phase minimums, and phasing that occur for existing conditions. Phase lengths can be adjusted but should not adversely affect signal coordination. Any major changes need to be documented and fully justified.*
- *The City has established significance thresholds based on the fact that for a given level of traffic on critical movements, the delay increases at a greater rate as LOS F is approached. The following average delay thresholds have been established: LOS D to E=2 seconds; LOS E and LOS E to F=3 seconds.*
- *The volume-to-capacity ratio (v/c) is also an important indicator of capacity and should be included as part of all Level of Service tables. It can indicate the extent to which the signal timing is optimal and provides a useful indicator for over-saturated conditions. However, v/c's are not utilized for identifying level of service. As the delay can increase dramatically with small increases of traffic after LOS F has been reached, a threshold of an increase of 0.01 in the volume-to-capacity ratio will be used.*
- *Intersection level of service is dependent on a variety of factors. In general, existing timing and phasing should be retained for scenarios with and without the project. In this way, the only variable is the traffic volume, which ensures a valid comparison of project impacts. Nevertheless, with the approval of City staff, mitigations can include changes in signal timing; but care must be taken to ensure that these changes do not affect operations at adjacent signals. Finally, where closely spaced signals exist, estimated queue lengths should be provided to demonstrate whether or not there are potential impacts on upstream intersections or on access to turn lanes.*

a, b) Existing and future traffic impacts associated with the project are discussed below.

Existing and Future Year 2020 Traffic Operations. Based on preliminary traffic generation estimates, under existing conditions, all study intersections are forecast to operate at LOS C or better with project traffic. Similarly, under Future Year 2020 conditions, all but one of the study intersections is forecast to operate at acceptable levels of service. The intersection of Shattuck Avenue and Durant Avenue is forecast to operate at LOS D in both the no project and with project conditions. However, the proposed project's contribution to the delay (1.8 seconds) would not result in a new significant traffic impact at this intersection in this horizon year.

Future Year 2035 Traffic Operations. Based on preliminary traffic generation estimates, under Future Year 2035 conditions, the project is forecast to contribute to significant traffic impacts at the following intersections:

- Shattuck Avenue & Center Street – AM Peak Hour
- Shattuck Avenue & Bancroft Way – AM & PM Peak Hour
- Shattuck Avenue & Durant Avenue – AM & PM Peak Hour
- Shattuck Avenue & Kittredge Street – AM & PM Peak Hour

The intersections of Shattuck Avenue at Center Street, Bancroft Way, and Durant Avenue were all identified as significantly impacted in the DAP EIR. At the intersections of Shattuck Avenue at Center Street and Shattuck Avenue at Durant Avenue, DAP EIR Mitigation Measures TRA-5 and TRA-8 would also mitigate the impacts identified for the proposed project. DAP EIR Mitigation Measure TRA-5 requires the City to maintain two northbound lanes on Shattuck Avenue at the Center Street intersection. The northbound lane configuration would be one left turn lane and two through lanes (with one of the through lanes being a through/right lane in Center Street east of Shattuck remains open to vehicles). DAP EIR Mitigation Measure TRA-8 requires the City to provide one left turn lane, one through lane, and one right turn lane in the northbound direction on Shattuck Avenue at Durant Avenue. For these two intersections, the proposed project would be required to contribute its fair share to the implementation of these two DAP EIR mitigation measures, and impacts would be reduced to a level of **less than significant**, and would be within those identified in the DAP EIR for the Plan as a whole.

At the intersection of Shattuck Avenue and Bancroft Way, DAP EIR Mitigation Measure TRA-7 calls for maintaining two southbound lanes on Shattuck Avenue as a shared through/right lane and a through lane; however, Mitigation Measure TRA-7 would not fully address the identified impact for this project. The impact at the intersection of Shattuck Avenue and Bancroft Way is **potentially significant**.

The intersection of Shattuck Avenue and Kittredge Street was not analyzed in the DAP EIR. Therefore, the impact forecast to occur here is attributed solely to the proposed project, and is **potentially significant**.

These impacts, and the potential for others, will be assessed and confirmed through a completed technical traffic impact analysis which will be included in the Infill EIR.

c) The project would not result in any change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks. Impacts associated with air traffic patterns were not discussed in the DAP EIR; however, **no impacts** would occur as a result of the proposed project.

d) The DAP EIR determined that the roadway network changes proposed as part of the DAP did not include any identified hazardous design features, and that the DAP would not incorporate any design features that could increase traffic hazards. The proposed project does not include modifications to the existing off-site transportation network that would result in potential transportation hazards not anticipated in the DAP EIR. The main pedestrian entrance to the proposed movie theater would be from Shattuck Avenue; the primary residential pedestrian access would be through the lobby on Harold Way; and retail access would be to each storefront along Allston Way, Harold Way and Kittredge Street. The existing private alley from Allston Way would remain as a service entrance for the hotel and the proposed project. All access to the project site would be designed in accordance with applicable City standards.

The project includes installation of a speed table to calm traffic and to enhance the public right-of-way providing access to the Berkeley Central Library, the Armstrong College Property, the Library Gardens and the project. This improvement would be refined and finalized in coordination with City staff, in accordance with applicable City standards, and would not result in any hazards to local vehicle, bicycle, or pedestrian circulation, or to pedestrian access to the site. As described in the traffic impact analysis, the project driveway configuration is anticipated to provide for adequate traffic operations during both the AM and PM peak hours. Adequate sight distance is also provided. Therefore, the proposed project's potential impacts related to potential design hazards would be **less than significant**, and would be within those identified in the DAP EIR for the Plan as a whole.

e) The project includes limited off-site public improvements, including bulb-outs on both sides of Harold Way and installation of a speed table to calm traffic and to enhance the public right-of-way providing access to the Berkeley Central Library, the Armstrong College Property, the Library Gardens and the project. These improvements would be refined and finalized in coordination with City staff, in accordance with applicable City standards, and would not modify any existing roadway or emergency access route that would result in inadequate emergency access.

It should be noted that the DAP suggests that Harold Way may be a candidate for reconfiguring as a "slow street," indicating that emergency access via Harold Way is not a critical function of the street. The proposed project's potential impacts related to emergency access would be **less than significant**, and would be within those identified in the DAP EIR for the Plan as a whole.

f) Pedestrian access to the project site would be incorporated from all four fronting street sidewalks. The main entrance to the proposed movie theater would be from Shattuck

Avenue; the primary residential access would be through the lobby on Harold Way; and retail access would be to each storefront along Allston Way, Harold Way and Kittredge Street. The existing private alley from Allston Way would remain as a service entrance for the hotel and the proposed project.

The project includes limited off-site, public streetscape and mobility improvements, such as a bulb-out on Harold Way that would accommodate public bicycle racks, replacement of tall street lights with shorter pedestrian-scaled lights, additional pedestrian scaled lights on Harold Way, and installation of a speed table to calm traffic and to enhance the public right-of-way providing access to the Berkeley Central Library, the Armstrong College Property, the Library Gardens and the project. These improvements would be refined and finalized in coordination with City staff, in accordance with applicable City standards, and would not modify any existing roadway or emergency access route that would result in inadequate emergency access. With implementation of these improvements for pedestrian and bicycle access, and also considering the project's close proximity to several AC Transit and UC Berkeley Shuttle bus stops serving a number of bus lines, as well as the Downtown Berkeley BART Station on Shattuck Avenue between Allston Way and Addison Street, the project would not conflict with any adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

As described in the traffic impact analysis, the project is anticipated to contribute positively to the pedestrian and bicycle environment surrounding the project site, and it is not anticipated that the project will have a significant adverse impact on the existing and future transit routes serving Downtown Berkeley. In addition, dense mixed-use development in this transit-rich and heavy pedestrian traffic area of Downtown Berkeley was envisioned in the DAP and analyzed in the DAP EIR. Therefore, impacts would be **less than significant**, and would be within those identified in the DAP EIR for the Plan as a whole.

Conclusion

The project would not result in significant impacts, or impacts not studied in the DAP EIR, related to air traffic patterns, traffic hazards, inadequate emergency access, or conflicts with adopted policies, plans, or programs regarding alternative transportation. For these issue areas, impacts would be within those studied in the DAP EIR for buildout within the plan area as a whole. However, the project could result in level of service impacts at intersections that exceed or differ from those identified in the DAP, and therefore will **require further study in an Infill EIR**.

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
XVII. UTILITIES AND SERVICE SYSTEMS. Would the project:					
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☒	☐	☒	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☒	☐	☒	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☒	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☒	☐	☒	☐
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☒	☐	☒	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☒	☐	☒	☐

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☒	☐	☒	☐

Downtown Area Plan EIR Summary

The DAP EIR discusses impacts on utilities and service systems on pages 4-326 through 4-349. This discussion addresses the issues of water supply, wastewater, stormwater runoff, streets and sidewalks, gas/electricity/telecommunications, and solid waste and recycling.

<u>Water Supply</u>

According to the DAP EIR, development anticipated in the Downtown Area under the DAP would generate demand for 0.76 million gallons per day (mgd) of water, including 0.42 mgd for residential uses and 0.34 mgd for non-residential uses. However, the DAP EIR found that projections in the East Bay Municipal Utility District's 2005 Urban Water Management Plan had assumed such an increase in water demand. Furthermore, the application of City ordinances to conserve water used in landscaping and install low-flow plumbing fixtures would limit future increases in water demand within the Downtown Area. Therefore, the DAP EIR identified impacts on water supply as less than significant.

<u>Wastewater</u>

Wastewater generated in the City of Berkeley flows to a plant operated by the East Bay Municipal Utility District (EBMUD), which the DAP EIR identified as providing secondary treatment for up to 168 mgd. With an average dry-weather flow of 80 mgd, the EBMUD treatment plant had an available capacity of 88 mgd. Thus, the DAP EIR found that the plant would be able to accommodate increased wastewater flow from Downtown Area. However, individual development projects proposed under the Downtown Area Plan could exceed the capacity of the existing local sanitary sewer conveyance system. In the absence of a completed System Evaluation & Capacity Assurance Plan to ascertain the capacity of sewer lines and needed capital improvements, the DAP EIR found a potentially significant impact from improvements to sewer lines. The following mitigation measure was required to subject individual projects to site-specific analysis of sewer lines.

- *Mitigation UTIL-1: Site-Specific Analysis of Project-Related Effects on the Sanitary Serwer Conveyance System/Project-Related Contribution to Necessary Capacity Expansion.* As individual development projects are proposed in the Downtown Area, each project will be subject to site-specific analysis by the City of Berkeley to determine whether the development proposed would exceed the capacity of the sanitary sewer conveyance system that directly serves the project. In the event that existing sanitary sewer modeling demonstrates that sanitary sewer conveyance system capacity would be exceeded by the proposed project, then the project proponents and the City shall enter into negotiations to determine the financial contribution required from the project proponents to enable the City to expand sanitary sewer conveyance capacity as necessary to accommodate the project as proposed.

Stormwater Runoff

As discussed in the DAP EIR, the Downtown Area is almost entirely impermeable with little diversion or slowing of runoff before it enters drainpipes and Strawberry Creek. Given the already developed nature of the Downtown Area, the EIR found that implementation of the DAP would not result in significant increase in impervious surface area. Furthermore, compliance with the City's NPDES permit and Stormwater Ordinance (Chapter 17.20 of the Berkeley Municipal Code) would reduce impacts to a less than significant level.

Streets and Sidewalks

During construction of developments anticipated under the DAP, the movement of heavy trucks and construction equipment has the potential to damage streets and sidewalks. However, the City requires pre- and post-construction surveys of street conditions as standard conditions of approval. Any damage to sidewalks during construction would be repaired or replaced at property owner's expense. Therefore, the DAP EIR identified physical impacts on streets and sidewalks as less than significant.

Gas/Electricity/Telecommunications

The DAP EIR found that implementation of the Downtown Area Plan would not result in significant increase in dependence on non-renewable energy resources or in substantial increases in peak or base-period energy use. Compliance with Title 24 of the California Energy Code and with the City's Energy Conservation Ordinance would reduce energy use. In addition, the City's commitment to reducing GHG emissions would reduce energy demand from non-renewable sources. Impacts would be less than significant.

Solid Waste and Recycling

The DAP EIR identified impacts on the capacity of landfills as less than significant. The Vasco Road Landfill was determined to have enough capacity to accommodate solid waste generated from the Downtown Area through 2024, with or without implementation of the DAP. In addition, impacts related to regulatory compliance were found to be less than significant, based on compliance with the City's Solid Waste Management Plan requires compliance with statutes and regulations related to solid waste in the Downtown Area.

Project-Specific Impacts

a-g)

Water Supply.

The DAP EIR demonstrates that anticipated water demand in this area has been accounted for in EBMUD's water demand projections and that development occurring under the Downtown Area Plan would not require any changes to those projections. Because the proposed project would be within the maximum buildout of the project site as anticipated under the Draft DAP, it is not anticipated that EBMUD would need new or expanded entitlements to serve the proposed project.

However, EBMUD's Urban Water Management Plan 2010 found that, in the event of a single-year or multi-year drought, the utility's water supply would be insufficient in future years and would require supplementation (EBMUD, 2011). Due to water scarcity, future users of the project site (and all EBMUD customers) should plan for shortages in times of drought. Thus, EBMUD imposes a system capacity charge on new developments to fund system maintenance and the development of new water sources. The project applicant would be required to pay this fee and undertake measures to conserve water.

The project would substantially reduce water use relative to standard building practices by attaining a LEED Gold (or equivalent) rating. To attain this rating, the project would reduce overall water use by at least 20% and water for landscaping by 50%, according to the green building checklist submitted to the City as part of the project application package. Landscaping would consist of drought-tolerant plants, and captured rainwater would be used for irrigation. Furthermore, the installation of water-efficient toilets, urinals, faucets, and shower-heads – project features reflected in the green building checklist submitted to the City as part of the project application package – is expected to achieve 40-percent reductions in water use, according to the applicant's completed green building checklist. These water conservation measures would reduce the project's burden on municipal water supply and wastewater systems. Because the project applicant's proposed measures would reduce overall water use by at least 20%, the City's existing water entitlements would be sufficient to serve the proposed project, and the construction of new water treatment facilities or the expansion of existing facilities would not be required. Impacts would be **less than significant**.

Wastewater.

As discussed above, the DAP EIR requires that individual developments proposed in the Downtown Area undergo site-specific analysis of the capacity of sanitary sewer lines that would convey wastewater from the project site. Based on the conceptual utilities plan for the project, a new sanitary sewer line eight inches in diameter would be constructed on-site leading to an existing 12-inch sewer main under Allston Way. In compliance with Mitigation Measure UTIL-1 from the DAP EIR, the City of Berkeley Department of Public Works was consulted to ascertain the project's site-specific impact on sanitary sewer lines. City staff responded that existing sewer lines adjacent to the project site would have adequate capacity to serve the site, and that the installation of a connection to an existing sewer line would not generate any significant environmental impacts (Aikenhead, personal communications, May 2, 2014). In addition, as noted in the DAP EIR, the wastewater treatment plant operated by EBMUD has an available capacity of 88 mgd and could accommodate development in accordance with the Downtown Area Plan. Water conservation as part of achieving a LEED Gold (or equivalent) rating, as discussed above, would further reduce wastewater output. Therefore, the proposed project would not require the construction of wastewater infrastructure and would have a **less than significant** impact.

Stormwater Runoff.

As discussed in Section IX, *Hydrology and Water Quality*, the proposed project would involve infill development on a site that consists entirely of hardscape. Given the already developed nature of the site, the proposed project would not result in an increase in impervious surface. Moreover, the project would include features that reduce the volume of stormwater runoff and improve water quality. Precipitation would infiltrate into planters in roof gardens, while captured rainwater would irrigate landscaped areas. With such low-impact development (LID), Telamon Engineering Consultants calculated that stormwater flow is expected to be compliant with Alameda County's obligations under Provision C.3 of its Municipal Regional Stormwater Permit (to which the City of Berkeley is a co-permittee) (Telamon, 2013). Therefore, the proposed project would not require the construction of new or expanded off-site facilities for stormwater drainage and would have a **less than significant** impact related to stormwater runoff.

Streets and Sidewalks.

As discussed in the DAP EIR, construction could result in physical damage to streets and sidewalks, although the City would require pre- and post-construction surveys of street conditions and repair or replacement of any damage to sidewalks at property owner's expense. Therefore, the proposed project would have **less than significant** physical impacts on streets and sidewalks.

Gas/Electricity/Telecommunications.

Because the project is within the buildout assumptions used in the DAP EIR for the plan area as a whole, service by and consumption of these utilities would be within that considered in the DAP EIR. It should also be noted that the City's General Plan, Community Design Guidelines, and Zoning Regulations include policies that reduce energy use from buildings and equipment, including design standards that maximize passive ventilation and cooling systems and use of natural lighting within buildings, and energy efficiency performance standards for proposed buildings taller than 50 feet. The project would be conditioned to comply with these existing requirements. Furthermore, according to the proposed project's green building checklist from December 2012 (submitted to the City as part of the project application package), it is expected that efficient design and on-site renewables would achieve a minimum energy savings of 24 percent. Rooftop solar panels for hot water and electric power generation would reduce dependence on non-renewable energy. Therefore, impacts related to energy use would be **less than significant**.

Solid Waste and Recycling.

Solid waste from the project site would be disposed of at the Vasco Road Landfill, which the DAP EIR found to have sufficient capacity to accommodate solid waste from the Downtown Area through the year 2024 including assumed buildout under the DAP. Diversion of solid waste from the project site into the recycling stream would substantially reduce the project's impact on landfill capacity. The 2013 California Green Building Standards Code (CALGreen) would require the diversion of at least 50 percent of solid waste from construction and demolition for high-rise residential projects. For the diversion of solid waste during operation of the project, LEED certification (or equivalent) would require the provision of a 275-square foot central collection area for recycling. According to the green building checklist for the proposed project (on file with the Planning Department as part of the project application), it is expected to achieve a 75 percent diversion rate. Therefore, the proposed project would not result in greater impacts on landfill capacity or regulatory compliance related to solid waste than anticipated in the DAP EIR. Impacts would be **less than significant**.

Conclusion

As the project would have less than significant impacts related to utilities and service systems – the same as the impacts identified in the DAP EIR for the Plan as a whole – this issue **does not require mitigation or further study in an EIR**.

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE.					
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☒	☐

	Significant Impact	Less Than Significant or Less than Significant with Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☒	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☒	☐

a) As discussed in this environmental checklist under item IV, *Biological Resources*, the project does not have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal. Nor are significant impacts to prehistoric or archaeological resources anticipated. However, the project would involve demolition or alteration of a historic structure that has the potential to be considered an example of a major period of California history. **This topic will be evaluated in the EIR.**

b) The project has the potential to have cumulatively considerable impacts in one issue area: historic resources. **This topic will be evaluated in the EIR.**

c) As discussed throughout this environmental checklist but particularly under items I, *Aesthetics;* III, *Air Quality*; VI, *Geology and Soils*; VII, *Greenhouse Gas Emissions*; VIII, *Hazards and Hazardous Materials*; XII, *Noise*; and XIV, *Public Services*; **with adherence to the identified mitigation measures, the project would not have environmental effects which would cause substantial adverse effects on human beings**, either directly or indirectly.

Authority: Public Resources Code 21083, 21094.5.5
Reference: Public Resources Code Sections 21094.5 and 21094.5.5

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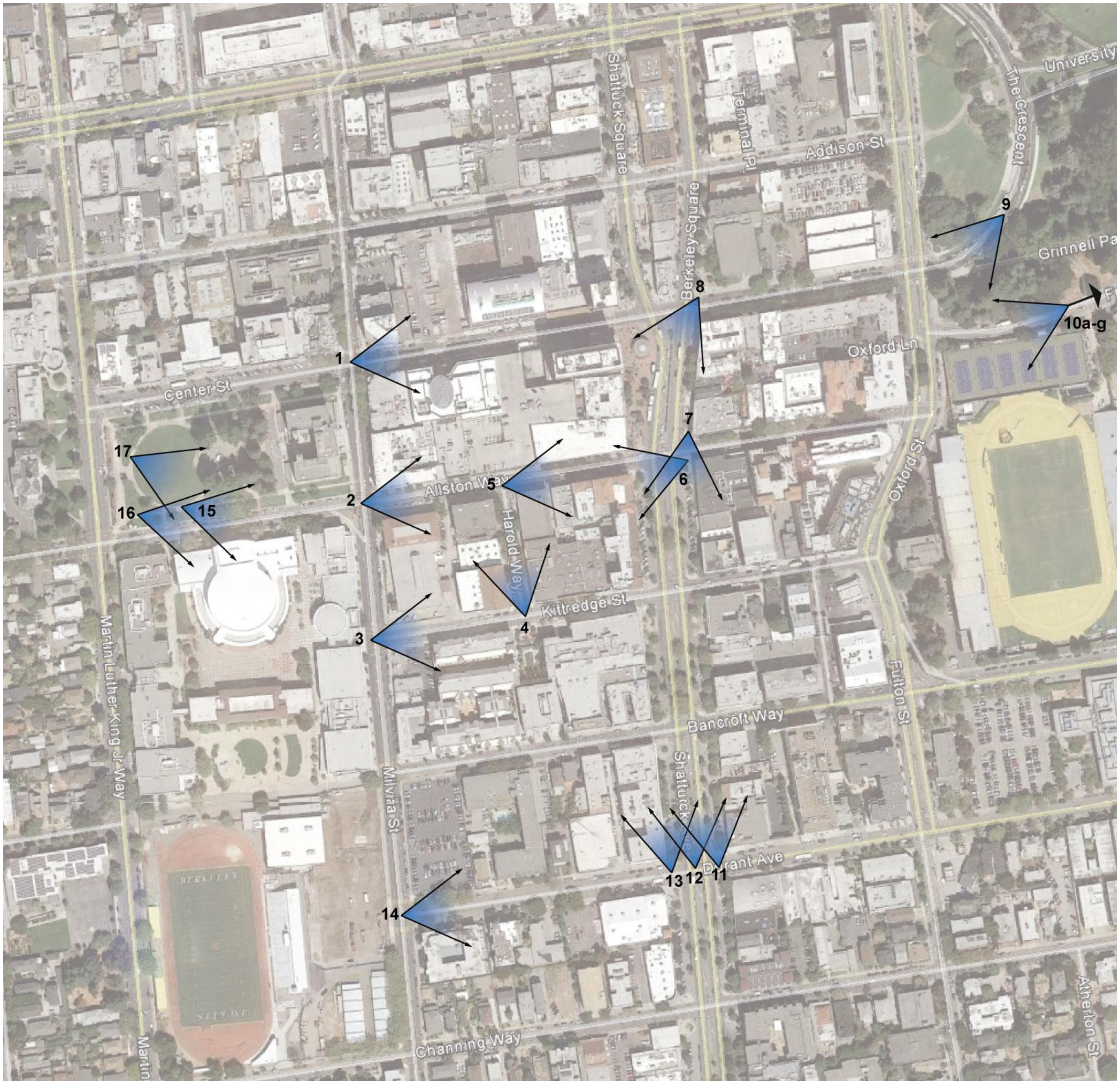
Appendix A

Viewshed Location Screening Analysis Worksheet

Photo Location Key Map



1. Milvia @ Center west midblock crosswalk looking E.

Observations: Development *would not* be visible from this perspective.

Limited view of hills from this location can be accessed.

2. Milvia @ Allston west midblock crosswalk looking E.

Observations: Development *would be* visible to in the right half of this image.

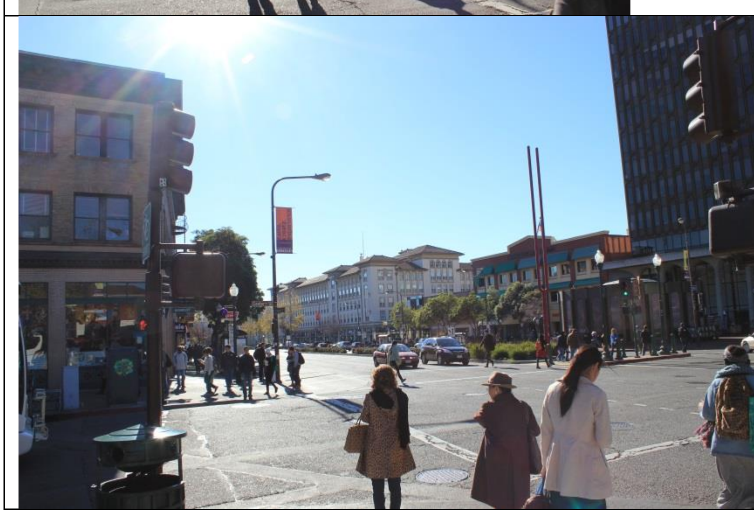
Limited view of hills from this location can be accessed.

3. Milvia @ Kittredge west sidewalk midblock looking E.

Observations: Development *would* be visible to in the left half of this image.

4. Kittredge @ Harold Way east sidewalk looking E.

Observations: Development *would change facades* visible from this view.

	**5. Allston @ Harold Way midblock** looking E. Observations: Development *would* be visible to in the right half of this image. Limited view of hills from this location can be accessed.
	**6. Shattuck @ Allston SE corner sidewalk** looking W. Observations: Development *would* be visible to in the left half of this image.
	**7. Shattuck @ Allston NE corner sidewalk** looking S. Observations: Development *may* be visible to in the right half of this image.
	**8. Shattuck @ Center Street NE sidewalk** corner looking S. Observations: Development *would be very visible* in the right of this image.

9. The Crescent sidewalk looking SW. The 20 degree location on the arc offers a view through the tree canopy directly toward the Shattuck Hotel.

Observations: Project *would* be visible in the center of this image.

10.A. Left of the lower base of Campanile, Center view in alignment with allee.

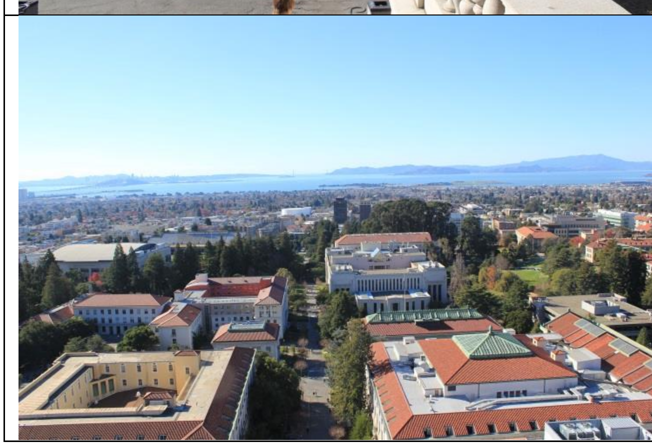
Observations: Project *may* be visible at the end of this viewing corridor.

10.B. Center of lower base of Campanile, Center view in alignment with allee.

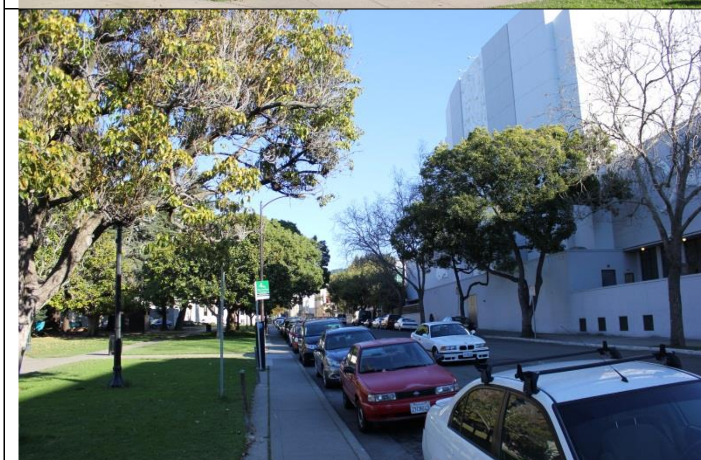
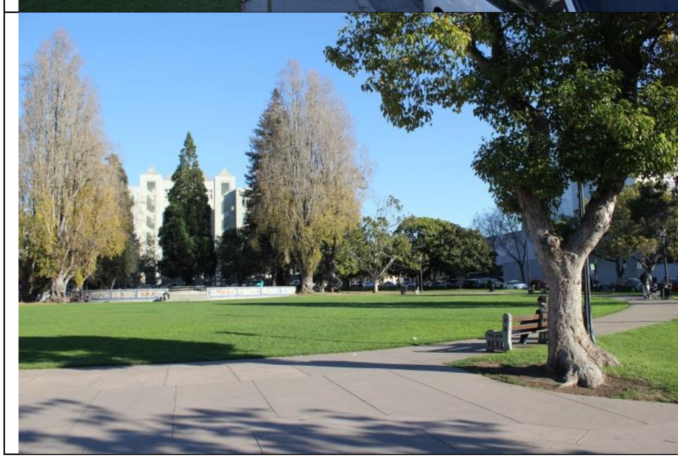
Observations: Project *may* be visible at the end of this viewing corridor.

10.C. Right of lower base of Campanile, Center view in alignment with allee.

Observations: Project *may* be visible at the end of this viewing corridor.

	**10.D. Left** of the upper base of Campanile (plaza level), Center view in alignment with allee. Observations: Project *may* be visible at the end of this viewing corridor.
	**10.E. Center** of the upper base of Campanile (plaza level), Center view in alignment with allee. Observations: Project *may* be visible at the end of this viewing corridor.
	**10.F. Right** of the upper base of Campanile (plaza level), Center view in alignment with allee. Observations: Project *may* be visible at the end of this viewing corridor.
	**10.G. View from Top of Campanile**, in alignment with allee. Observations: Project would be visible from this location, but would likely only obscure views of the BHS theatre. Views of bay and GGB would not likely be affected.

	**11. Shattuck @ Durant, NE corner bulb-out** looking N. Observations: Project *would* be visible at the end of this viewing corridor.
	**12. Shattuck @ Durant, midblock median** looking N. Observations: Project *would likely* be visible at the end of this viewing corridor.
	**13. Shattuck @ Durant, NW corner bulb-out** looking N.. Observations: Project would not likely be visible at the end of this viewing corridor.
	**14. Milvia @ Durant, West sidewalk** looking NNE. Observations: Development *would likely* be visible in center of this image. No hillside obstruction would occur.

	**15. MLK Civic Center Park** internal south sidewalk (inset approx.. 22 ft from curbside) looking ESE up Allston corridor. Observations: Project *would not likely* be visible owing to tree canopy obstruction. No view of hillsides from this location.
	**16. MLK Civic Center Park** south sidewalk (inset approx. 22 ft from curbside) looking E up Allston corridor. Observations: Project may be visible from this location. Very limited view of hillsides from this location.
	**17. MLK Civic Center Park** west sidewalk near flagpole looking E. Observations: Project *may* be visible from this location. No view of hillsides from this location.

Color-code Legend:

Most suitable photosimulation viewpoint location (**9**)	Potentially suitable photosimulation viewpoint location (**11**)	Do not recommend using this viewshed location (**3**)

Appendix B

Air Quality and Greenhouse Gas Emissions Modeling Data

2211 Harold Way Mixed-Use Project

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	171.00	Space	0.88	68,400.00	0
Movie Theater (No Matinee)	665.00	Seat	0.34	19,460.00	0
Apartments Mid Rise	302.00	Dwelling Unit	0.29	302,000.00	864
Regional Shopping Center	8.08	1000sqft	0.19	8,081.00	0
Quality Restaurant	2.45	1000sqft	0.06	2,454.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 63

Climate Zone 5 **Operational Year** 2016

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 641.35 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Unit amounts and size from Initial Study project description. Res acreage modified to .29 to total 0.88 acres (project site area).

Construction Phase - IS PD indicates that demolition and construction would require approximately 18-24 months. Estimated by extending length of demo, building, and arch coating phases.

Demolition - Approx one-story footprint: 5,220sf; Approx two-story footprint: 8,500sf + 44,730sf; Approx three-story footprint: 8,050sf. Total estimated demo: 135,830sf.

Grading - IS PD: Approximately 36,000 cy of grading would be required for site preparation and excavation for the subterranean parking garage.

Mobile Land Use Mitigation - Land Use trip reduction measures per IS PD. Transit Accessibility excluded due to trip rate modification for mode-share. Assumed cost of unbundled parking at $100/month.

Mobile Commute Mitigation - Employee AC Transit passes for all employees (and residential households, unaccounted for).

Area Mitigation -

Energy Mitigation - Need capacity of proposed rooftop solar for hot water and electric power generation.

Water Mitigation - Use captured rainwater for landscape irrigation. Assumed 25%.

Waste Mitigation - 50% waste diversion, consistent with AB 939.

Trips and VMT - 34 miles to Tri-Cities Landfill; assumed destination for demolition and soil export haul trips.

Vehicle Trips - Weekday trip generation rates consistent with traffic analysis conducted by IBI Group (March 2014). ITE Trip Generation Manual 9th Ed. trip rates reduced using a 0.58 mode share factor.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	250.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	250.00
tblConstructionPhase	NumDays	10.00	40.00
tblConstructionPhase	NumDays	200.00	260.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	4.00	20.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	10.00
tblGrading	AcresOfGrading	7.50	0.88

tblGrading	AcresOfGrading	5.00	0.88
tblGrading	MaterialExported	0.00	36,000.00
tblLandUse	LandUseSquareFeet	14,962.50	19,460.00
tblLandUse	LotAcreage	1.54	0.88
tblLandUse	LotAcreage	7.95	0.29
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripLength	20.00	34.00
tblTripsAndVMT	HaulingTripLength	20.00	34.00
tblTripsAndVMT	HaulingTripLength	20.00	34.00
tblVehicleTrips	ST_TR	7.16	3.86
tblVehicleTrips	ST_TR	1.80	1.30
tblVehicleTrips	ST_TR	49.97	24.77
tblVehicleTrips	ST_TR	94.36	52.17
tblVehicleTrips	SU_TR	6.07	3.86
tblVehicleTrips	SU_TR	1.80	1.30
tblVehicleTrips	SU_TR	25.24	24.77
tblVehicleTrips	SU_TR	72.16	52.17
tblVehicleTrips	WD_TR	6.59	3.86
tblVehicleTrips	WD_TR	1.80	1.30
tblVehicleTrips	WD_TR	42.94	24.77
tblVehicleTrips	WD_TR	89.95	52.17

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.6975	5.1703	5.1359	9.8900e-003	0.4715	0.2318	0.7033	0.1389	0.2203	0.3593	0.0000	861.2235	861.2235	0.0753	0.0000	862.8047
2016	6.0566	1.1128	1.4232	2.4400e-003	0.1021	0.0624	0.1645	0.0274	0.0599	0.0873	0.0000	200.8240	200.8240	0.0234	0.0000	201.3145
Total	**6.7541**	**6.2831**	**6.5591**	**0.0123**	**0.5736**	**0.2942**	**0.8678**	**0.1663**	**0.2802**	**0.4465**	**0.0000**	**1,062.0475**	**1,062.0475**	**0.0987**	**0.0000**	**1,064.1192**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.6975	5.1703	5.1359	9.8900e-003	0.4715	0.2318	0.7033	0.1389	0.2203	0.3593	0.0000	861.2232	861.2232	0.0753	0.0000	862.8044
2016	6.0566	1.1128	1.4232	2.4400e-003	0.1021	0.0624	0.1645	0.0274	0.0599	0.0873	0.0000	200.8239	200.8239	0.0234	0.0000	201.3144
Total	**6.7541**	**6.2831**	**6.5591**	**0.0123**	**0.5736**	**0.2942**	**0.8678**	**0.1663**	**0.2802**	**0.4465**	**0.0000**	**1,062.0471**	**1,062.0471**	**0.0987**	**0.0000**	**1,064.1188**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.1342	0.0307	2.6167	4.1000e-004		0.0611	0.0611		0.0611	0.0611	4.9430	11.6634	16.6063	0.0130	4.1000e-004	17.0061
Energy	0.0196	0.1701	0.0918	1.0700e-003		0.0135	0.0135		0.0135	0.0135	0.0000	741.1274	741.1274	0.0285	8.6700e-003	744.4136
Mobile	1.6037	4.3170	16.4514	0.0272	1.7697	0.0545	1.8243	0.4756	0.0501	0.5257	0.0000	2,187.4803	2,187.4803	0.0914	0.0000	2,189.3994
Waste						0.0000	0.0000		0.0000	0.0000	30.3756	0.0000	30.3756	1.7951	0.0000	68.0736
Water						0.0000	0.0000		0.0000	0.0000	8.5746	55.9876	64.5622	0.8832	0.0213	89.7188
Total	**3.7575**	**4.5177**	**19.1599**	**0.0287**	**1.7697**	**0.1291**	**1.8989**	**0.4756**	**0.1247**	**0.6003**	**43.8932**	**2,996.2586**	**3,040.1518**	**2.8112**	**0.0304**	**3,108.6117**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.9000	0.0267	2.2816	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	3.6780	3.6780	3.7800e-003	0.0000	3.7573
Energy	0.0196	0.1701	0.0918	1.0700e-003		0.0135	0.0135		0.0135	0.0135	0.0000	741.1274	741.1274	0.0285	8.6700e-003	744.4136
Mobile	1.4652	3.1791	13.5352	0.0186	1.1831	0.0378	1.2210	0.3180	0.0348	0.3527	0.0000	1,494.1915	1,494.1915	0.0657	0.0000	1,495.5713
Waste						0.0000	0.0000		0.0000	0.0000	15.1878	0.0000	15.1878	0.8976	0.0000	34.0368
Water						0.0000	0.0000		0.0000	0.0000	8.5746	54.6596	63.2342	0.8830	0.0213	88.3721
Total	**3.3848**	**3.3758**	**15.9086**	**0.0198**	**1.1831**	**0.0637**	**1.2468**	**0.3180**	**0.0606**	**0.3785**	**23.7624**	**2,293.6565**	**2,317.4189**	**1.8785**	**0.0299**	**2,366.1512**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**9.92**	**25.28**	**16.97**	**30.97**	**33.15**	**50.70**	**34.34**	**33.15**	**51.43**	**36.94**	**45.86**	**23.45**	**23.77**	**33.18**	**1.51**	**23.88**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2015	2/25/2015	5	40	
2	Site Preparation	Site Preparation	2/26/2015	3/11/2015	5	10	
3	Grading	Grading	3/12/2015	4/8/2015	5	20	
4	Building Construction	Building Construction	4/9/2015	4/6/2016	5	260	
5	Paving	Paving	4/7/2016	5/4/2016	5	20	
6	Architectural Coating	Architectural Coating	5/5/2016	6/29/2016	5	40	

Acres of Grading (Site Preparation Phase): 0.88

Acres of Grading (Grading Phase): 0.88

Acres of Paving: 0

Residential Indoor: 611,550; Residential Outdoor: 203,850; Non-Residential Indoor: 147,593; Non-Residential Outdoor: 49,198 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Grading	Graders	1	6.00	174	0.41
Grading	Rubber Tired Dozers	1	6.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	7.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	619.00	12.40	7.30	34.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	4,500.00	12.40	7.30	34.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	12.40	7.30	34.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	258.00	48.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	52.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0669	0.0000	0.0669	0.0101	0.0000	0.0101	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0613	0.5936	0.4411	4.9000e-004		0.0373	0.0373		0.0349	0.0349	0.0000	45.5236	45.5236	0.0115	0.0000	45.7658
Total	**0.0613**	**0.5936**	**0.4411**	**4.9000e-004**	**0.0669**	**0.0373**	**0.1042**	**0.0101**	**0.0349**	**0.0451**	**0.0000**	**45.5236**	**45.5236**	**0.0115**	**0.0000**	**45.7658**

3.2 Demolition - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0108	0.1780	0.0961	3.9000e-004	8.8700e-003	2.7300e-003	0.0116	2.4400e-003	2.5100e-003	4.9500e-003	0.0000	36.3985	36.3985	3.0000e-004	0.0000	36.4048
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1200e-003	1.6400e-003	0.0159	3.0000e-005	2.3600e-003	2.0000e-005	2.3800e-003	6.3000e-004	2.0000e-005	6.5000e-004	0.0000	2.2230	2.2230	1.3000e-004	0.0000	2.2258
Total	**0.0119**	**0.1796**	**0.1121**	**4.2000e-004**	**0.0112**	**2.7500e-003**	**0.0140**	**3.0700e-003**	**2.5300e-003**	**5.6000e-003**	**0.0000**	**38.6215**	**38.6215**	**4.3000e-004**	**0.0000**	**38.6306**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0669	0.0000	0.0669	0.0101	0.0000	0.0101	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0613	0.5936	0.4411	4.9000e-004		0.0373	0.0373		0.0349	0.0349	0.0000	45.5236	45.5236	0.0115	0.0000	45.7658
Total	**0.0613**	**0.5936**	**0.4411**	**4.9000e-004**	**0.0669**	**0.0373**	**0.1042**	**0.0101**	**0.0349**	**0.0451**	**0.0000**	**45.5236**	**45.5236**	**0.0115**	**0.0000**	**45.7658**

3.2 Demolition - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0108	0.1780	0.0961	3.9000e-004	8.8700e-003	2.7300e-003	0.0116	2.4400e-003	2.5100e-003	4.9500e-003	0.0000	36.3985	36.3985	3.0000e-004	0.0000	36.4048
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1200e-003	1.6400e-003	0.0159	3.0000e-005	2.3600e-003	2.0000e-005	2.3800e-003	6.3000e-004	2.0000e-005	6.5000e-004	0.0000	2.2230	2.2230	1.3000e-004	0.0000	2.2258
Total	**0.0119**	**0.1796**	**0.1121**	**4.2000e-004**	**0.0112**	**2.7500e-003**	**0.0140**	**3.0700e-003**	**2.5300e-003**	**5.6000e-003**	**0.0000**	**38.6215**	**38.6215**	**4.3000e-004**	**0.0000**	**38.6306**

3.3 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0289	0.0000	0.0289	0.0148	0.0000	0.0148	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1344	0.0851	9.0000e-005		7.3400e-003	7.3400e-003		6.7500e-003	6.7500e-003	0.0000	8.1726	8.1726	2.4400e-003	0.0000	8.2238
Total	**0.0127**	**0.1344**	**0.0851**	**9.0000e-005**	**0.0289**	**7.3400e-003**	**0.0362**	**0.0148**	**6.7500e-003**	**0.0216**	**0.0000**	**8.1726**	**8.1726**	**2.4400e-003**	**0.0000**	**8.2238**

3.3 Site Preparation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0783	1.2940	0.6988	2.8600e-003	0.0645	0.0198	0.0843	0.0177	0.0182	0.0360	0.0000	264.6094	264.6094	2.1700e-003	0.0000	264.6550
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	2.5000e-004	2.4500e-003	0.0000	3.6000e-004	0.0000	3.7000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3420	0.3420	2.0000e-005	0.0000	0.3424
Total	**0.0785**	**1.2943**	**0.7012**	**2.8600e-003**	**0.0649**	**0.0198**	**0.0847**	**0.0178**	**0.0182**	**0.0361**	**0.0000**	**264.9514**	**264.9514**	**2.1900e-003**	**0.0000**	**264.9974**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0289	0.0000	0.0289	0.0148	0.0000	0.0148	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1344	0.0851	9.0000e-005		7.3400e-003	7.3400e-003		6.7500e-003	6.7500e-003	0.0000	8.1726	8.1726	2.4400e-003	0.0000	8.2238
Total	**0.0127**	**0.1344**	**0.0851**	**9.0000e-005**	**0.0289**	**7.3400e-003**	**0.0362**	**0.0148**	**6.7500e-003**	**0.0216**	**0.0000**	**8.1726**	**8.1726**	**2.4400e-003**	**0.0000**	**8.2238**

3.3 Site Preparation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0783	1.2940	0.6988	2.8600e-003	0.0645	0.0198	0.0843	0.0177	0.0182	0.0360	0.0000	264.6094	264.6094	2.1700e-003	0.0000	264.6550
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	2.5000e-004	2.4500e-003	0.0000	3.6000e-004	0.0000	3.7000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3420	0.3420	2.0000e-005	0.0000	0.3424
Total	**0.0785**	**1.2943**	**0.7012**	**2.8600e-003**	**0.0649**	**0.0198**	**0.0847**	**0.0178**	**0.0182**	**0.0361**	**0.0000**	**264.9514**	**264.9514**	**2.1900e-003**	**0.0000**	**264.9974**

3.4 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0456	0.0000	0.0456	0.0249	0.0000	0.0249	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0207	0.2194	0.1409	1.4000e-004		0.0120	0.0120		0.0110	0.0110	0.0000	13.4245	13.4245	4.0100e-003	0.0000	13.5087
Total	**0.0207**	**0.2194**	**0.1409**	**1.4000e-004**	**0.0456**	**0.0120**	**0.0576**	**0.0249**	**0.0110**	**0.0359**	**0.0000**	**13.4245**	**13.4245**	**4.0100e-003**	**0.0000**	**13.5087**

3.4 Grading - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	5.1000e-004	4.9000e-003	1.0000e-005	7.3000e-004	1.0000e-005	7.3000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	0.6840	0.6840	4.0000e-005	0.0000	0.6849
Total	**3.4000e-004**	**5.1000e-004**	**4.9000e-003**	**1.0000e-005**	**7.3000e-004**	**1.0000e-005**	**7.3000e-004**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.6840**	**0.6840**	**4.0000e-005**	**0.0000**	**0.6849**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0456	0.0000	0.0456	0.0249	0.0000	0.0249	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0207	0.2194	0.1409	1.4000e-004		0.0120	0.0120		0.0110	0.0110	0.0000	13.4245	13.4245	4.0100e-003	0.0000	13.5087
Total	**0.0207**	**0.2194**	**0.1409**	**1.4000e-004**	**0.0456**	**0.0120**	**0.0576**	**0.0249**	**0.0110**	**0.0359**	**0.0000**	**13.4245**	**13.4245**	**4.0100e-003**	**0.0000**	**13.5087**

3.4 Grading - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	5.1000e-004	4.9000e-003	1.0000e-005	7.3000e-004	1.0000e-005	7.3000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	0.6840	0.6840	4.0000e-005	0.0000	0.6849
Total	**3.4000e-004**	**5.1000e-004**	**4.9000e-003**	**1.0000e-005**	**7.3000e-004**	**1.0000e-005**	**7.3000e-004**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.6840**	**0.6840**	**4.0000e-005**	**0.0000**	**0.6849**

3.5 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3438	2.0594	1.4329	2.1000e-003		0.1418	0.1418		0.1370	0.1370	0.0000	178.0914	178.0914	0.0411	0.0000	178.9540
Total	**0.3438**	**2.0594**	**1.4329**	**2.1000e-003**		**0.1418**	**0.1418**		**0.1370**	**0.1370**	**0.0000**	**178.0914**	**178.0914**	**0.0411**	**0.0000**	**178.9540**

3.5 Building Construction - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0625	0.5332	0.7072	1.1000e-003	0.0296	8.7200e-003	0.0384	8.5100e-003	8.0100e-003	0.0165	0.0000	101.0898	101.0898	9.2000e-004	0.0000	101.1090
Worker	0.1059	0.1559	1.5105	2.6700e-003	0.2236	2.0300e-003	0.2257	0.0595	1.8600e-003	0.0614	0.0000	210.6648	210.6648	0.0127	0.0000	210.9305
Total	**0.1684**	**0.6890**	**2.2177**	**3.7700e-003**	**0.2533**	**0.0108**	**0.2640**	**0.0680**	**9.8700e-003**	**0.0779**	**0.0000**	**311.7546**	**311.7546**	**0.0136**	**0.0000**	**312.0395**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3438	2.0594	1.4329	2.1000e-003		0.1418	0.1418		0.1370	0.1370	0.0000	178.0912	178.0912	0.0411	0.0000	178.9538
Total	**0.3438**	**2.0594**	**1.4329**	**2.1000e-003**		**0.1418**	**0.1418**		**0.1370**	**0.1370**	**0.0000**	**178.0912**	**178.0912**	**0.0411**	**0.0000**	**178.9538**

3.5 Building Construction - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0625	0.5332	0.7072	1.1000e-003	0.0296	8.7200e-003	0.0384	8.5100e-003	8.0100e-003	0.0165	0.0000	101.0898	101.0898	9.2000e-004	0.0000	101.1090
Worker	0.1059	0.1559	1.5105	2.6700e-003	0.2236	2.0300e-003	0.2257	0.0595	1.8600e-003	0.0614	0.0000	210.6648	210.6648	0.0127	0.0000	210.9305
Total	**0.1684**	**0.6890**	**2.2177**	**3.7700e-003**	**0.2533**	**0.0108**	**0.2640**	**0.0680**	**9.8700e-003**	**0.0779**	**0.0000**	**311.7546**	**311.7546**	**0.0136**	**0.0000**	**312.0395**

3.5 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1136	0.7088	0.5074	7.6000e-004		0.0471	0.0471		0.0455	0.0455	0.0000	64.0650	64.0650	0.0141	0.0000	64.3607
Total	**0.1136**	**0.7088**	**0.5074**	**7.6000e-004**		**0.0471**	**0.0471**		**0.0455**	**0.0455**	**0.0000**	**64.0650**	**64.0650**	**0.0141**	**0.0000**	**64.3607**

3.5 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0198	0.1675	0.2371	4.0000e-004	0.0107	2.5200e-003	0.0132	3.0800e-003	2.3200e-003	5.3900e-003	0.0000	36.0884	36.0884	2.9000e-004	0.0000	36.0946
Worker	0.0341	0.0504	0.4862	9.6000e-004	0.0808	6.9000e-004	0.0815	0.0215	6.3000e-004	0.0221	0.0000	73.4899	73.4899	4.1600e-003	0.0000	73.5772
Total	**0.0539**	**0.2178**	**0.7233**	**1.3600e-003**	**0.0915**	**3.2100e-003**	**0.0947**	**0.0246**	**2.9500e-003**	**0.0275**	**0.0000**	**109.5783**	**109.5783**	**4.4500e-003**	**0.0000**	**109.6718**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1136	0.7088	0.5074	7.6000e-004		0.0471	0.0471		0.0455	0.0455	0.0000	64.0649	64.0649	0.0141	0.0000	64.3606
Total	**0.1136**	**0.7088**	**0.5074**	**7.6000e-004**		**0.0471**	**0.0471**		**0.0455**	**0.0455**	**0.0000**	**64.0649**	**64.0649**	**0.0141**	**0.0000**	**64.3606**

3.5 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0198	0.1675	0.2371	4.0000e-004	0.0107	2.5200e-003	0.0132	3.0800e-003	2.3200e-003	5.3900e-003	0.0000	36.0884	36.0884	2.9000e-004	0.0000	36.0946
Worker	0.0341	0.0504	0.4862	9.6000e-004	0.0808	6.9000e-004	0.0815	0.0215	6.3000e-004	0.0221	0.0000	73.4899	73.4899	4.1600e-003	0.0000	73.5772
Total	**0.0539**	**0.2178**	**0.7233**	**1.3600e-003**	**0.0915**	**3.2100e-003**	**0.0947**	**0.0246**	**2.9500e-003**	**0.0275**	**0.0000**	**109.5783**	**109.5783**	**4.4500e-003**	**0.0000**	**109.6718**

3.6 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0129	0.1321	0.0909	1.3000e-004		8.0800e-003	8.0800e-003		7.4400e-003	7.4400e-003	0.0000	12.4143	12.4143	3.6800e-003	0.0000	12.4915
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0129**	**0.1321**	**0.0909**	**1.3000e-004**		**8.0800e-003**	**8.0800e-003**		**7.4400e-003**	**7.4400e-003**	**0.0000**	**12.4143**	**12.4143**	**3.6800e-003**	**0.0000**	**12.4915**

3.6 Paving - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	7.4000e-004	7.1000e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0733	1.0733	6.0000e-005	0.0000	1.0746
Total	**5.0000e-004**	**7.4000e-004**	**7.1000e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1900e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0733**	**1.0733**	**6.0000e-005**	**0.0000**	**1.0746**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0129	0.1321	0.0909	1.3000e-004		8.0800e-003	8.0800e-003		7.4400e-003	7.4400e-003	0.0000	12.4142	12.4142	3.6800e-003	0.0000	12.4914
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0129**	**0.1321**	**0.0909**	**1.3000e-004**		**8.0800e-003**	**8.0800e-003**		**7.4400e-003**	**7.4400e-003**	**0.0000**	**12.4142**	**12.4142**	**3.6800e-003**	**0.0000**	**12.4914**

3.6 Paving - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	7.4000e-004	7.1000e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0733	1.0733	6.0000e-005	0.0000	1.0746
Total	**5.0000e-004**	**7.4000e-004**	**7.1000e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1900e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0733**	**1.0733**	**6.0000e-005**	**0.0000**	**1.0746**

3.7 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.8644					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.3700e-003	0.0474	0.0377	6.0000e-005		3.9300e-003	3.9300e-003		3.9300e-003	3.9300e-003	0.0000	5.1065	5.1065	6.0000e-004	0.0000	5.1192
Total	**5.8718**	**0.0474**	**0.0377**	**6.0000e-005**		**3.9300e-003**	**3.9300e-003**		**3.9300e-003**	**3.9300e-003**	**0.0000**	**5.1065**	**5.1065**	**6.0000e-004**	**0.0000**	**5.1192**

3.7 Architectural Coating - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9800e-003	5.8800e-003	0.0568	1.1000e-004	9.4400e-003	8.0000e-005	9.5200e-003	2.5100e-003	7.0000e-005	2.5800e-003	0.0000	8.5866	8.5866	4.9000e-004	0.0000	8.5968
Total	**3.9800e-003**	**5.8800e-003**	**0.0568**	**1.1000e-004**	**9.4400e-003**	**8.0000e-005**	**9.5200e-003**	**2.5100e-003**	**7.0000e-005**	**2.5800e-003**	**0.0000**	**8.5866**	**8.5866**	**4.9000e-004**	**0.0000**	**8.5968**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.8644					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.3700e-003	0.0474	0.0377	6.0000e-005		3.9300e-003	3.9300e-003		3.9300e-003	3.9300e-003	0.0000	5.1065	5.1065	6.0000e-004	0.0000	5.1191
Total	**5.8718**	**0.0474**	**0.0377**	**6.0000e-005**		**3.9300e-003**	**3.9300e-003**		**3.9300e-003**	**3.9300e-003**	**0.0000**	**5.1065**	**5.1065**	**6.0000e-004**	**0.0000**	**5.1191**

3.7 Architectural Coating - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9800e-003	5.8800e-003	0.0568	1.1000e-004	9.4400e-003	8.0000e-005	9.5200e-003	2.5100e-003	7.0000e-005	2.5800e-003	0.0000	8.5866	8.5866	4.9000e-004	0.0000	8.5968
Total	**3.9800e-003**	**5.8800e-003**	**0.0568**	**1.1000e-004**	**9.4400e-003**	**8.0000e-005**	**9.5200e-003**	**2.5100e-003**	**7.0000e-005**	**2.5800e-003**	**0.0000**	**8.5866**	**8.5866**	**4.9000e-004**	**0.0000**	**8.5968**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Improve Walkability Design

Improve Destination Accessibility

Integrate Below Market Rate Housing

Unbundle Parking Cost

Transit Subsidy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.4652	3.1791	13.5352	0.0186	1.1831	0.0378	1.2210	0.3180	0.0348	0.3527	0.0000	1,494.191 5	1,494.191 5	0.0657	0.0000	1,495.571 3
Unmitigated	1.6037	4.3170	16.4514	0.0272	1.7697	0.0545	1.8243	0.4756	0.0501	0.5257	0.0000	2,187.480 3	2,187.480 3	0.0914	0.0000	2,189.399 4

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,165.72	1,165.72	1165.72	2,602,314	1,801,345
Enclosed Parking with Elevator	0.00	0.00	0.00		
Movie Theater (No Matinee)	864.50	864.50	864.50	1,627,851	1,041,635
Regional Shopping Center	200.17	200.17	200.17	350,953	224,148
Quality Restaurant	128.03	128.03	128.03	151,859	97,044
Total	2,358.41	2,358.41	2,358.41	4,732,977	3,164,171

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Movie Theater (No Matinee)	9.50	7.30	7.30	1.80	79.20	19.00	66	17	17
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11
Quality Restaurant	9.50	7.30	7.30	12.00	69.00	19.00	38	18	44

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.542001	0.061858	0.168333	0.112636	0.031145	0.004643	0.019061	0.047615	0.001767	0.003701	0.005606	0.000207	0.001427

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	547.4416	547.4416	0.0248	5.1200e-003	549.5491
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	547.4416	547.4416	0.0248	5.1200e-003	549.5491
NaturalGas Mitigated	0.0196	0.1701	0.0918	1.0700e-003		0.0135	0.0135		0.0135	0.0135	0.0000	193.6858	193.6858	3.7100e-003	3.5500e-003	194.8645
NaturalGas Unmitigated	0.0196	0.1701	0.0918	1.0700e-003		0.0135	0.0135		0.0135	0.0135	0.0000	193.6858	193.6858	3.7100e-003	3.5500e-003	194.8645

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Movie Theater (No Matinee)	499733	2.6900e-003	0.0245	0.0206	1.5000e-004		1.8600e-003	1.8600e-003		1.8600e-003	1.8600e-003	0.0000	26.6677	26.6677	5.1000e-004	4.9000e-004	26.8299
Quality Restaurant	417205	2.2500e-003	0.0205	0.0172	1.2000e-004		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003	0.0000	22.2636	22.2636	4.3000e-004	4.1000e-004	22.3991
Regional Shopping Center	38788.8	2.1000e-004	1.9000e-003	1.6000e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	2.0699	2.0699	4.0000e-005	4.0000e-005	2.0825
Apartments Mid Rise	2.67381e+006	0.0144	0.1232	0.0524	7.9000e-004		9.9600e-003	9.9600e-003		9.9600e-003	9.9600e-003	0.0000	142.6846	142.6846	2.7300e-003	2.6200e-003	143.5530
Total		**0.0196**	**0.1701**	**0.0918**	**1.0700e-003**		**0.0135**	**0.0135**		**0.0135**	**0.0135**	**0.0000**	**193.6858**	**193.6858**	**3.7100e-003**	**3.5600e-003**	**194.8645**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Movie Theater (No Matinee)	499733	2.6900e-003	0.0245	0.0206	1.5000e-004		1.8600e-003	1.8600e-003		1.8600e-003	1.8600e-003	0.0000	26.6677	26.6677	5.1000e-004	4.9000e-004	26.8299
Quality Restaurant	417205	2.2500e-003	0.0205	0.0172	1.2000e-004		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003	0.0000	22.2636	22.2636	4.3000e-004	4.1000e-004	22.3991
Regional Shopping Center	38788.8	2.1000e-004	1.9000e-003	1.6000e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	2.0699	2.0699	4.0000e-005	4.0000e-005	2.0825
Apartments Mid Rise	2.67381e+006	0.0144	0.1232	0.0524	7.9000e-004		9.9600e-003	9.9600e-003		9.9600e-003	9.9600e-003	0.0000	142.6846	142.6846	2.7300e-003	2.6200e-003	143.5530
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0196**	**0.1701**	**0.0918**	**1.0700e-003**		**0.0135**	**0.0135**		**0.0135**	**0.0135**	**0.0000**	**193.6858**	**193.6858**	**3.7100e-003**	**3.5600e-003**	**194.8645**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.09184e +006	317.6275	0.0144	2.9700e-003	318.8503
Enclosed Parking with Elevator	461016	134.1148	6.0600e-003	1.2500e-003	134.6311
Movie Theater (No Matinee)	160934	46.8176	2.1200e-003	4.4000e-004	46.9978
Quality Restaurant	74209	21.5882	9.8000e-004	2.0000e-004	21.6714
Regional Shopping Center	93820.4	27.2934	1.2300e-003	2.6000e-004	27.3985
Total		**547.4416**	**0.0248**	**5.1200e-003**	**549.5491**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.09184e+006	317.6275	0.0144	2.9700e-003	318.8503
Enclosed Parking with Elevator	461016	134.1148	6.0600e-003	1.2500e-003	134.6311
Movie Theater (No Matinee)	160934	46.8176	2.1200e-003	4.4000e-004	46.9978
Quality Restaurant	74209	21.5882	9.8000e-004	2.0000e-004	21.6714
Regional Shopping Center	93820.4	27.2934	1.2300e-003	2.6000e-004	27.3985
Total		**547.4416**	**0.0248**	**5.1200e-003**	**549.5491**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.9000	0.0267	2.2816	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	3.6780	3.6780	3.7800e-003	0.0000	3.7573
Unmitigated	2.1342	0.0307	2.6167	4.1000e-004		0.0611	0.0611		0.0611	0.0611	4.9430	11.6634	16.6063	0.0130	4.1000e-004	17.0061

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2639					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.5637					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.2342	3.9800e-003	0.3351	2.9000e-004		0.0488	0.0488		0.0488	0.0488	4.9430	7.9853	12.9283	9.1800e-003	4.1000e-004	13.2488
Landscaping	0.0724	0.0267	2.2816	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	3.6780	3.6780	3.7800e-003	0.0000	3.7573
Total	**2.1342**	**0.0307**	**2.6167**	**4.1000e-004**		**0.0611**	**0.0611**		**0.0611**	**0.0611**	**4.9430**	**11.6634**	**16.6063**	**0.0130**	**4.1000e-004**	**17.0061**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2639					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.5637					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0724	0.0267	2.2816	1.2000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	3.6780	3.6780	3.7800e-003	0.0000	3.7573
Total	**1.9000**	**0.0267**	**2.2816**	**1.2000e-004**		**0.0123**	**0.0123**		**0.0123**	**0.0123**	**0.0000**	**3.6780**	**3.6780**	**3.7800e-003**	**0.0000**	**3.7573**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	63.2342	0.8830	0.0213	88.3721
Unmitigated	64.5622	0.8832	0.0213	89.7188

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	19.6765 / 12.4048	49.8461	0.6431	0.0156	68.1714
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Movie Theater (No Matinee)	6.00896 / 0.383551	11.7557	0.1963	4.7200e-003	17.3387
Quality Restaurant	0.743658 / 0.0474675	1.4549	0.0243	5.8000e-004	2.1458
Regional Shopping Center	0.598506 / 0.366826	1.5055	0.0196	4.7000e-004	2.0629
Total		**64.5622**	**0.8832**	**0.0213**	**89.7188**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	19.6765 / 11.1793	48.5984	0.6430	0.0155	66.9090
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Movie Theater (No Matinee)	6.00896 / 0.345661	11.7172	0.1962	4.7100e-003	17.2970
Quality Restaurant	0.743658 / 0.0427784	1.4501	0.0243	5.8000e-004	2.1406
Regional Shopping Center	0.598506 / 0.330589	1.4686	0.0196	4.7000e-004	2.0255
Total		**63.2342**	**0.8830**	**0.0213**	**88.3721**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	15.1878	0.8976	0.0000	34.0368
Unmitigated	30.3756	1.7951	0.0000	68.0736

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	138.92	28.1995	1.6665	0.0000	63.1969
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	2.24	0.4547	0.0269	0.0000	1.0190
Regional Shopping Center	8.48	1.7214	0.1017	0.0000	3.8577
Total		**30.3756**	**1.7951**	**0.0000**	**68.0736**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	69.46	14.0998	0.8333	0.0000	31.5985
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	1.12	0.2274	0.0134	0.0000	0.5095
Regional Shopping Center	4.24	0.8607	0.0509	0.0000	1.9288
Total		**15.1878**	**0.8976**	**0.0000**	**34.0368**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

2211 Harold Way Mixed-Use Project

Alameda County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	171.00	Space	0.88	68,400.00	0
Movie Theater (No Matinee)	665.00	Seat	0.34	19,460.00	0
Apartments Mid Rise	302.00	Dwelling Unit	0.29	302,000.00	864
Regional Shopping Center	8.08	1000sqft	0.19	8,081.00	0
Quality Restaurant	2.45	1000sqft	0.06	2,454.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 63

Climate Zone 5 **Operational Year** 2016

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 641.35 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Unit amounts and size from Initial Study project description. Res acreage modified to .29 to total 0.88 acres (project site area).

Construction Phase - IS PD indicates that demolition and construction would require approximately 18-24 months. Estimated by extending length of demo, building, and arch coating phases.

Demolition - Approx one-story footprint: 5,220sf; Approx two-story footprint: 8,500sf + 44,730sf; Approx three-story footprint: 8,050sf. Total estimated demo: 135,830sf.

Grading - IS PD: Approximately 36,000 cy of grading would be required for site preparation and excavation for the subterranean parking garage.

Mobile Land Use Mitigation - Land Use trip reduction measures per IS PD. Transit Accessibility excluded due to trip rate modification for mode-share. Assumed cost of unbundled parking at $100/month.

Mobile Commute Mitigation - Employee AC Transit passes for all employees (and residential households, unaccounted for).

Area Mitigation -

Energy Mitigation - Need capacity of proposed rooftop solar for hot water and electric power generation.

Water Mitigation - Use captured rainwater for landscape irrigation. Assumed 25%.

Waste Mitigation - 50% waste diversion, consistent with AB 939.

Trips and VMT - 34 miles to Tri-Cities Landfill; assumed destination for demolition and soil export haul trips.

Vehicle Trips - Weekday trip generation rates consistent with traffic analysis conducted by IBI Group (March 2014). ITE Trip Generation Manual 9th Ed. trip rates reduced using a 0.58 mode share factor.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	250.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	250.00
tblConstructionPhase	NumDays	10.00	40.00
tblConstructionPhase	NumDays	200.00	260.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	4.00	20.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	10.00
tblGrading	AcresOfGrading	7.50	0.88

tblGrading	AcresOfGrading	5.00	0.88
tblGrading	MaterialExported	0.00	36,000.00
tblLandUse	LandUseSquareFeet	14,962.50	19,460.00
tblLandUse	LotAcreage	1.54	0.88
tblLandUse	LotAcreage	7.95	0.29
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripLength	20.00	34.00
tblTripsAndVMT	HaulingTripLength	20.00	34.00
tblTripsAndVMT	HaulingTripLength	20.00	34.00
tblVehicleTrips	ST_TR	7.16	3.86
tblVehicleTrips	ST_TR	1.80	1.30
tblVehicleTrips	ST_TR	49.97	24.77
tblVehicleTrips	ST_TR	94.36	52.17
tblVehicleTrips	SU_TR	6.07	3.86
tblVehicleTrips	SU_TR	1.80	1.30
tblVehicleTrips	SU_TR	25.24	24.77
tblVehicleTrips	SU_TR	72.16	52.17
tblVehicleTrips	WD_TR	6.59	3.86
tblVehicleTrips	WD_TR	1.80	1.30
tblVehicleTrips	WD_TR	42.94	24.77
tblVehicleTrips	WD_TR	89.95	52.17

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	17.1998	276.3122	131.9406	0.5905	19.1833	5.4277	24.6111	6.6406	4.9929	11.6335	0.0000	60,253.0164	60,253.0164	1.0202	0.0000	60,274.4413
2016	293.8011	26.5245	34.8366	0.0636	2.7533	1.4584	4.2117	0.7369	1.4028	2.1397	0.0000	5,733.6247	5,733.6247	0.5921	0.0000	5,746.0581
Total	**311.0010**	**302.8367**	**166.7772**	**0.6541**	**21.9367**	**6.8861**	**28.8228**	**7.3775**	**6.3957**	**13.7732**	**0.0000**	**65,986.6411**	**65,986.6411**	**1.6123**	**0.0000**	**66,020.4994**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	17.1998	276.3122	131.9406	0.5905	19.1833	5.4277	24.6111	6.6406	4.9929	11.6335	0.0000	60,253.0164	60,253.0164	1.0202	0.0000	60,274.4413
2016	293.8011	26.5245	34.8366	0.0636	2.7533	1.4584	4.2117	0.7369	1.4028	2.1397	0.0000	5,733.6247	5,733.6247	0.5921	0.0000	5,746.0581
Total	**311.0010**	**302.8367**	**166.7772**	**0.6541**	**21.9367**	**6.8861**	**28.8228**	**7.3775**	**6.3957**	**13.7732**	**0.0000**	**65,986.6411**	**65,986.6411**	**1.6123**	**0.0000**	**66,020.4994**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	117.2627	1.7468	156.7226	0.0546		18.8157	18.8157		18.8129	18.8129	1,941.4478	4,148.6951	6,090.1430	1.9637	0.2118	6,197.0486
Energy	0.1072	0.9318	0.5029	5.8500e-003		0.0741	0.0741		0.0741	0.0741		1,169.8741	1,169.8741	0.0224	0.0215	1,176.9938
Mobile	8.9672	22.4123	82.7364	0.1576	10.0947	0.2991	10.3939	2.7042	0.2749	2.9790		13,960.1464	13,960.1464	0.5538		13,971.7758
Total	**126.3371**	**25.0908**	**239.9619**	**0.2181**	**10.0947**	**19.1889**	**29.2836**	**2.7042**	**19.1619**	**21.8660**	**1,941.4478**	**19,278.7157**	**21,220.1635**	**2.5399**	**0.2333**	**21,345.8182**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	10.8187	0.2964	25.3512	1.3200e-003		0.1366	0.1366		0.1366	0.1366	0.0000	45.0481	45.0481	0.0462	0.0000	46.0192
Energy	0.1072	0.9318	0.5029	5.8500e-003		0.0741	0.0741		0.0741	0.0741		1,169.8741	1,169.8741	0.0224	0.0215	1,176.9938
Mobile	8.1920	16.5266	64.9162	0.1077	6.7487	0.2072	6.9559	1.8079	0.1904	1.9982		9,529.6454	9,529.6454	0.3981		9,538.0047
Total	**19.1179**	**17.7548**	**90.7703**	**0.1149**	**6.7487**	**0.4179**	**7.1666**	**1.8079**	**0.4011**	**2.2089**	**0.0000**	**10,744.5676**	**10,744.5676**	**0.4667**	**0.0215**	**10,761.0177**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**84.87**	**29.24**	**62.17**	**47.34**	**33.15**	**97.82**	**75.53**	**33.15**	**97.91**	**89.90**	**100.00**	**44.27**	**49.37**	**81.62**	**90.81**	**49.59**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2015	2/25/2015	5	40	
2	Site Preparation	Site Preparation	2/26/2015	3/11/2015	5	10	
3	Grading	Grading	3/12/2015	4/8/2015	5	20	
4	Building Construction	Building Construction	4/9/2015	4/6/2016	5	260	
5	Paving	Paving	4/7/2016	5/4/2016	5	20	
6	Architectural Coating	Architectural Coating	5/5/2016	6/29/2016	5	40	

Acres of Grading (Site Preparation Phase): 0.88

Acres of Grading (Grading Phase): 0.88

Acres of Paving: 0

Residential Indoor: 611,550; Residential Outdoor: 203,850; Non-Residential Indoor: 147,593; Non-Residential Outdoor: 49,198 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Grading	Graders	1	6.00	174	0.41
Grading	Rubber Tired Dozers	1	6.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	7.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	619.00	12.40	7.30	34.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	4,500.00	12.40	7.30	34.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	12.40	7.30	34.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	258.00	48.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	52.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3468	0.0000	3.3468	0.5067	0.0000	0.5067			0.0000			0.0000
Off-Road	3.0666	29.6778	22.0566	0.0245		1.8651	1.8651		1.7469	1.7469		2,509.059 9	2,509.059 9	0.6357		2,522.410 4
Total	**3.0666**	**29.6778**	**22.0566**	**0.0245**	**3.3468**	**1.8651**	**5.2119**	**0.5067**	**1.7469**	**2.2537**		**2,509.059 9**	**2,509.059 9**	**0.6357**		**2,522.410 4**

3.2 Demolition - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.5030	8.5759	3.9344	0.0197	0.4587	0.1362	0.5949	0.1256	0.1253	0.2509		2,007.280 9	2,007.280 9	0.0164		2,007.626 0
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0596	0.0724	0.8462	1.5200e-003	0.1226	1.0700e-003	0.1237	0.0325	9.8000e-004	0.0335		131.9976	131.9976	7.3600e-003		132.1521
Total	**0.5626**	**8.6482**	**4.7806**	**0.0212**	**0.5813**	**0.1373**	**0.7185**	**0.1581**	**0.1262**	**0.2844**		**2,139.278 5**	**2,139.278 5**	**0.0238**		**2,139.778 1**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3468	0.0000	3.3468	0.5067	0.0000	0.5067			0.0000			0.0000
Off-Road	3.0666	29.6778	22.0566	0.0245		1.8651	1.8651		1.7469	1.7469	0.0000	2,509.059 9	2,509.059 9	0.6357		2,522.410 4
Total	**3.0666**	**29.6778**	**22.0566**	**0.0245**	**3.3468**	**1.8651**	**5.2119**	**0.5067**	**1.7469**	**2.2537**	**0.0000**	**2,509.059 9**	**2,509.059 9**	**0.6357**		**2,522.410 4**

3.2 Demolition - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.5030	8.5759	3.9344	0.0197	0.4587	0.1362	0.5949	0.1256	0.1253	0.2509		2,007.2809	2,007.2809	0.0164		2,007.6260
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0596	0.0724	0.8462	1.5200e-003	0.1226	1.0700e-003	0.1237	0.0325	9.8000e-004	0.0335		131.9976	131.9976	7.3600e-003		132.1521
Total	**0.5626**	**8.6482**	**4.7806**	**0.0212**	**0.5813**	**0.1373**	**0.7185**	**0.1581**	**0.1262**	**0.2844**		**2,139.2785**	**2,139.2785**	**0.0238**		**2,139.7781**

3.3 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7698	0.0000	5.7698	2.9682	0.0000	2.9682			0.0000			0.0000
Off-Road	2.5362	26.8886	17.0107	0.0171		1.4671	1.4671		1.3497	1.3497		1,801.7440	1,801.7440	0.5379		1,813.0398
Total	**2.5362**	**26.8886**	**17.0107**	**0.0171**	**5.7698**	**1.4671**	**7.2368**	**2.9682**	**1.3497**	**4.3179**		**1,801.7440**	**1,801.7440**	**0.5379**		**1,813.0398**

3.3 Site Preparation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	14.6269	249.3791	114.4092	0.5724	13.3381	3.9600	17.2982	3.6525	3.6426	7.2951		58,370.0431	58,370.0431	0.4778		58,380.0771
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0367	0.0445	0.5207	9.4000e-004	0.0754	6.6000e-004	0.0761	0.0200	6.0000e-004	0.0206		81.2293	81.2293	4.5300e-003		81.3244
Total	**14.6636**	**249.4236**	**114.9300**	**0.5733**	**13.4136**	**3.9607**	**17.3743**	**3.6725**	**3.6432**	**7.3157**		**58,451.2724**	**58,451.2724**	**0.4823**		**58,461.4015**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7698	0.0000	5.7698	2.9682	0.0000	2.9682			0.0000			0.0000
Off-Road	2.5362	26.8886	17.0107	0.0171		1.4671	1.4671		1.3497	1.3497	0.0000	1,801.7440	1,801.7440	0.5379		1,813.0398
Total	**2.5362**	**26.8886**	**17.0107**	**0.0171**	**5.7698**	**1.4671**	**7.2368**	**2.9682**	**1.3497**	**4.3179**	**0.0000**	**1,801.7440**	**1,801.7440**	**0.5379**		**1,813.0398**

3.3 Site Preparation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	14.6269	249.3791	114.4092	0.5724	13.3381	3.9600	17.2982	3.6525	3.6426	7.2951		58,370.0431	58,370.0431	0.4778		58,380.0771
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0367	0.0445	0.5207	9.4000e-004	0.0754	6.6000e-004	0.0761	0.0200	6.0000e-004	0.0206		81.2293	81.2293	4.5300e-003		81.3244
Total	**14.6636**	**249.4236**	**114.9300**	**0.5733**	**13.4136**	**3.9607**	**17.3743**	**3.6725**	**3.6432**	**7.3157**		**58,451.2724**	**58,451.2724**	**0.4823**		**58,461.4015**

3.4 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.5632	0.0000	4.5632	2.4877	0.0000	2.4877			0.0000			0.0000
Off-Road	2.0666	21.9443	14.0902	0.0141		1.1968	1.1968		1.1011	1.1011		1,479.8000	1,479.8000	0.4418		1,489.0774
Total	**2.0666**	**21.9443**	**14.0902**	**0.0141**	**4.5632**	**1.1968**	**5.7600**	**2.4877**	**1.1011**	**3.5888**		**1,479.8000**	**1,479.8000**	**0.4418**		**1,489.0774**

3.4 Grading - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0367	0.0445	0.5207	9.4000e-004	0.0754	6.6000e-004	0.0761	0.0200	6.0000e-004	0.0206		81.2293	81.2293	4.5300e-003		81.3244
Total	**0.0367**	**0.0445**	**0.5207**	**9.4000e-004**	**0.0754**	**6.6000e-004**	**0.0761**	**0.0200**	**6.0000e-004**	**0.0206**		**81.2293**	**81.2293**	**4.5300e-003**		**81.3244**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.5632	0.0000	4.5632	2.4877	0.0000	2.4877			0.0000			0.0000
Off-Road	2.0666	21.9443	14.0902	0.0141		1.1968	1.1968		1.1011	1.1011	0.0000	1,479.8000	1,479.8000	0.4418		1,489.0774
Total	**2.0666**	**21.9443**	**14.0902**	**0.0141**	**4.5632**	**1.1968**	**5.7600**	**2.4877**	**1.1011**	**3.5888**	**0.0000**	**1,479.8000**	**1,479.8000**	**0.4418**		**1,489.0774**

3.4 Grading - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0367	0.0445	0.5207	9.4000e-004	0.0754	6.6000e-004	0.0761	0.0200	6.0000e-004	0.0206		81.2293	81.2293	4.5300e-003		81.3244
Total	**0.0367**	**0.0445**	**0.5207**	**9.4000e-004**	**0.0754**	**6.6000e-004**	**0.0761**	**0.0200**	**6.0000e-004**	**0.0206**		**81.2293**	**81.2293**	**4.5300e-003**		**81.3244**

3.5 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6000	21.5642	15.0041	0.0220		1.4851	1.4851		1.4344	1.4344		2,055.6247	2,055.6247	0.4741		2,065.5812
Total	**3.6000**	**21.5642**	**15.0041**	**0.0220**		**1.4851**	**1.4851**		**1.4344**	**1.4344**		**2,055.6247**	**2,055.6247**	**0.4741**		**2,065.5812**

3.5 Building Construction - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5794	5.3979	5.6064	0.0116	0.3203	0.0908	0.4111	0.0916	0.0835	0.1751		1,170.541 2	1,170.541 2	0.0105		1,170.761 0
Worker	1.1830	1.4362	16.7940	0.0302	2.4330	0.0213	2.4543	0.6453	0.0195	0.6648		2,619.643 7	2,619.643 7	0.1460		2,622.710 6
Total	**1.7624**	**6.8340**	**22.4004**	**0.0417**	**2.7533**	**0.1121**	**2.8654**	**0.7369**	**0.1030**	**0.8399**		**3,790.184 9**	**3,790.184 9**	**0.1565**		**3,793.471 6**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6000	21.5642	15.0041	0.0220		1.4851	1.4851		1.4344	1.4344	0.0000	2,055.624 7	2,055.624 7	0.4741		2,065.581 2
Total	**3.6000**	**21.5642**	**15.0041**	**0.0220**		**1.4851**	**1.4851**		**1.4344**	**1.4344**	**0.0000**	**2,055.624 7**	**2,055.624 7**	**0.4741**		**2,065.581 2**

3.5 Building Construction - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5794	5.3979	5.6064	0.0116	0.3203	0.0908	0.4111	0.0916	0.0835	0.1751		1,170.541 2	1,170.541 2	0.0105		1,170.761 0
Worker	1.1830	1.4362	16.7940	0.0302	2.4330	0.0213	2.4543	0.6453	0.0195	0.6648		2,619.643 7	2,619.643 7	0.1460		2,622.710 6
Total	**1.7624**	**6.8340**	**22.4004**	**0.0417**	**2.7533**	**0.1121**	**2.8654**	**0.7369**	**0.1030**	**0.8399**		**3,790.184 9**	**3,790.184 9**	**0.1565**		**3,793.471 6**

3.5 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2915	20.5459	14.7074	0.0220		1.3656	1.3656		1.3176	1.3176		2,046.943 2	2,046.943 2	0.4499		2,056.391 3
Total	**3.2915**	**20.5459**	**14.7074**	**0.0220**		**1.3656**	**1.3656**		**1.3176**	**1.3176**		**2,046.943 2**	**2,046.943 2**	**0.4499**		**2,056.391 3**

3.5 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5096	4.6941	5.0993	0.0115	0.3203	0.0727	0.3930	0.0916	0.0669	0.1585		1,156.750 4	1,156.750 4	9.2300e-003		1,156.944 4
Worker	1.0597	1.2846	15.0300	0.0302	2.4330	0.0200	2.4530	0.6453	0.0184	0.6637		2,529.931 1	2,529.931 1	0.1329		2,532.722 5
Total	**1.5693**	**5.9786**	**20.1292**	**0.0417**	**2.7533**	**0.0927**	**2.8461**	**0.7369**	**0.0852**	**0.8221**		**3,686.681 5**	**3,686.681 5**	**0.1422**		**3,689.666 9**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2915	20.5459	14.7074	0.0220		1.3656	1.3656		1.3176	1.3176	0.0000	2,046.943 2	2,046.943 2	0.4499		2,056.391 3
Total	**3.2915**	**20.5459**	**14.7074**	**0.0220**		**1.3656**	**1.3656**		**1.3176**	**1.3176**	**0.0000**	**2,046.943 2**	**2,046.943 2**	**0.4499**		**2,056.391 3**

3.5 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5096	4.6941	5.0993	0.0115	0.3203	0.0727	0.3930	0.0916	0.0669	0.1585		1,156.750 4	1,156.750 4	9.2300e-003		1,156.944 4
Worker	1.0597	1.2846	15.0300	0.0302	2.4330	0.0200	2.4530	0.6453	0.0184	0.6637		2,529.931 1	2,529.931 1	0.1329		2,532.722 5
Total	**1.5693**	**5.9786**	**20.1292**	**0.0417**	**2.7533**	**0.0927**	**2.8461**	**0.7369**	**0.0852**	**0.8221**		**3,686.681 5**	**3,686.681 5**	**0.1422**		**3,689.666 9**

3.6 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2872	13.2076	9.0880	0.0133		0.8075	0.8075		0.7438	0.7438		1,368.436 6	1,368.436 6	0.4053		1,376.947 3
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2872**	**13.2076**	**9.0880**	**0.0133**		**0.8075**	**0.8075**		**0.7438**	**0.7438**		**1,368.436 6**	**1,368.436 6**	**0.4053**		**1,376.947 3**

3.6 Paving - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0534	0.0647	0.7573	1.5200e-003	0.1226	1.0100e-003	0.1236	0.0325	9.3000e-004	0.0334		127.4772	127.4772	6.7000e-003		127.6178
Total	**0.0534**	**0.0647**	**0.7573**	**1.5200e-003**	**0.1226**	**1.0100e-003**	**0.1236**	**0.0325**	**9.3000e-004**	**0.0334**		**127.4772**	**127.4772**	**6.7000e-003**		**127.6178**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2872	13.2076	9.0880	0.0133		0.8075	0.8075		0.7438	0.7438	0.0000	1,368.436 6	1,368.436 6	0.4053		1,376.947 3
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2872**	**13.2076**	**9.0880**	**0.0133**		**0.8075**	**0.8075**		**0.7438**	**0.7438**	**0.0000**	**1,368.436 6**	**1,368.436 6**	**0.4053**		**1,376.947 3**

3.6 Paving - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0534	0.0647	0.7573	1.5200e-003	0.1226	1.0100e-003	0.1236	0.0325	9.3000e-004	0.0334		127.4772	127.4772	6.7000e-003		127.6178
Total	**0.0534**	**0.0647**	**0.7573**	**1.5200e-003**	**0.1226**	**1.0100e-003**	**0.1236**	**0.0325**	**9.3000e-004**	**0.0334**		**127.4772**	**127.4772**	**6.7000e-003**		**127.6178**

3.7 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	293.2191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3685	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966		281.4481	281.4481	0.0332		282.1449
Total	**293.5875**	**2.3722**	**1.8839**	**2.9700e-003**		**0.1966**	**0.1966**		**0.1966**	**0.1966**		**281.4481**	**281.4481**	**0.0332**		**282.1449**

3.7 Architectural Coating - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2136	0.2589	3.0293	6.0800e-003	0.4904	4.0300e-003	0.4944	0.1301	3.7000e-003	0.1338		509.9086	509.9086	0.0268		510.4712
Total	**0.2136**	**0.2589**	**3.0293**	**6.0800e-003**	**0.4904**	**4.0300e-003**	**0.4944**	**0.1301**	**3.7000e-003**	**0.1338**		**509.9086**	**509.9086**	**0.0268**		**510.4712**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	293.2191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3685	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966	0.0000	281.4481	281.4481	0.0332		282.1449
Total	**293.5875**	**2.3722**	**1.8839**	**2.9700e-003**		**0.1966**	**0.1966**		**0.1966**	**0.1966**	**0.0000**	**281.4481**	**281.4481**	**0.0332**		**282.1449**

3.7 Architectural Coating - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2136	0.2589	3.0293	6.0800e-003	0.4904	4.0300e-003	0.4944	0.1301	3.7000e-003	0.1338		509.9086	509.9086	0.0268		510.4712
Total	**0.2136**	**0.2589**	**3.0293**	**6.0800e-003**	**0.4904**	**4.0300e-003**	**0.4944**	**0.1301**	**3.7000e-003**	**0.1338**		**509.9086**	**509.9086**	**0.0268**		**510.4712**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Improve Walkability Design

Improve Destination Accessibility

Integrate Below Market Rate Housing

Unbundle Parking Cost

Transit Subsidy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	8.1920	16.5266	64.9162	0.1077	6.7487	0.2072	6.9559	1.8079	0.1904	1.9982		9,529.6454	9,529.6454	0.3981		9,538.0047
Unmitigated	8.9672	22.4123	82.7364	0.1576	10.0947	0.2991	10.3939	2.7042	0.2749	2.9790		13,960.1464	13,960.1464	0.5538		13,971.7758

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,165.72	1,165.72	1165.72	2,602,314	1,801,345
Enclosed Parking with Elevator	0.00	0.00	0.00		
Movie Theater (No Matinee)	864.50	864.50	864.50	1,627,851	1,041,635
Regional Shopping Center	200.17	200.17	200.17	350,953	224,148
Quality Restaurant	128.03	128.03	128.03	151,859	97,044
Total	2,358.41	2,358.41	2,358.41	4,732,977	3,164,171

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Movie Theater (No Matinee)	9.50	7.30	7.30	1.80	79.20	19.00	66	17	17
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11
Quality Restaurant	9.50	7.30	7.30	12.00	69.00	19.00	38	18	44

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.542001	0.061858	0.168333	0.112636	0.031145	0.004643	0.019061	0.047615	0.001767	0.003701	0.005606	0.000207	0.001427

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1072	0.9318	0.5029	5.8500e-003		0.0741	0.0741		0.0741	0.0741		1,169.8741	1,169.8741	0.0224	0.0215	1,176.9938
NaturalGas Unmitigated	0.1072	0.9318	0.5029	5.8500e-003		0.0741	0.0741		0.0741	0.0741		1,169.8741	1,169.8741	0.0224	0.0215	1,176.9938

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Movie Theater (No Matinee)	1369.13	0.0148	0.1342	0.1128	8.1000e-004		0.0102	0.0102		0.0102	0.0102		161.0742	161.0742	3.0900e-003	2.9500e-003	162.0545
Quality Restaurant	1143.03	0.0123	0.1121	0.0941	6.7000e-004		8.5200e-003	8.5200e-003		8.5200e-003	8.5200e-003		134.4737	134.4737	2.5800e-003	2.4700e-003	135.2921
Regional Shopping Center	106.271	1.1500e-003	0.0104	8.7500e-003	6.0000e-005		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004		12.5024	12.5024	2.4000e-004	2.3000e-004	12.5785
Apartments Mid Rise	7325.5	0.0790	0.6751	0.2873	4.3100e-003		0.0546	0.0546		0.0546	0.0546		861.8238	861.8238	0.0165	0.0158	867.0687
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.1073**	**0.9318**	**0.5029**	**5.8500e-003**		**0.0741**	**0.0741**		**0.0741**	**0.0741**		**1,169.8741**	**1,169.8741**	**0.0224**	**0.0215**	**1,176.9938**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Movie Theater (No Matinee)	1.36913	0.0148	0.1342	0.1128	8.1000e-004		0.0102	0.0102		0.0102	0.0102		161.0742	161.0742	3.0900e-003	2.9500e-003	162.0545
Quality Restaurant	1.14303	0.0123	0.1121	0.0941	6.7000e-004		8.5200e-003	8.5200e-003		8.5200e-003	8.5200e-003		134.4737	134.4737	2.5800e-003	2.4700e-003	135.2921
Regional Shopping Center	0.106271	1.1500e-003	0.0104	8.7500e-003	6.0000e-005		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004		12.5024	12.5024	2.4000e-004	2.3000e-004	12.5785
Apartments Mid Rise	7.3255	0.0790	0.6751	0.2873	4.3100e-003		0.0546	0.0546		0.0546	0.0546		861.8238	861.8238	0.0165	0.0158	867.0687
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.1073**	**0.9318**	**0.5029**	**5.8500e-003**		**0.0741**	**0.0741**		**0.0741**	**0.0741**		**1,169.8741**	**1,169.8741**	**0.0224**	**0.0215**	**1,176.9938**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	10.8187	0.2964	25.3512	1.3200e-003		0.1366	0.1366		0.1366	0.1366	0.0000	45.0481	45.0481	0.0462	0.0000	46.0192
Unmitigated	117.2627	1.7468	156.7226	0.0546		18.8157	18.8157		18.8129	18.8129	1,941.4478	4,148.6951	6,090.1430	1.9637	0.2118	6,197.0486

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4460					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.5685					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	106.4440	1.4504	131.3714	0.0533		18.6790	18.6790		18.6763	18.6763	1,941.4478	4,103.6471	6,045.0949	1.9175	0.2118	6,151.0294
Landscaping	0.8042	0.2964	25.3512	1.3200e-003		0.1366	0.1366		0.1366	0.1366		45.0481	45.0481	0.0462		46.0192
Total	**117.2627**	**1.7468**	**156.7226**	**0.0546**		**18.8157**	**18.8157**		**18.8129**	**18.8129**	**1,941.4478**	**4,148.6951**	**6,090.1429**	**1.9637**	**0.2118**	**6,197.0486**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4460					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.5685					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.8042	0.2964	25.3512	1.3200e-003		0.1366	0.1366		0.1366	0.1366		45.0481	45.0481	0.0462		46.0192
Total	**10.8187**	**0.2964**	**25.3512**	**1.3200e-003**		**0.1366**	**0.1366**		**0.1366**	**0.1366**	**0.0000**	**45.0481**	**45.0481**	**0.0462**	**0.0000**	**46.0192**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

2211 Harold Way Mixed-Use Project

Alameda County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	171.00	Space	0.88	68,400.00	0
Movie Theater (No Matinee)	665.00	Seat	0.34	19,460.00	0
Apartments Mid Rise	302.00	Dwelling Unit	0.29	302,000.00	864
Regional Shopping Center	8.08	1000sqft	0.19	8,081.00	0
Quality Restaurant	2.45	1000sqft	0.06	2,454.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2016
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Unit amounts and size from Initial Study project description. Res acreage modified to .29 to total 0.88 acres (project site area).

Construction Phase - IS PD indicates that demolition and construction would require approximately 18-24 months. Estimated by extending length of demo, building, and arch coating phases.

Demolition - Approx one-story footprint: 5,220sf; Approx two-story footprint: 8,500sf + 44,730sf; Approx three-story footprint: 8,050sf. Total estimated demo: 135,830sf.

Grading - IS PD: Approximately 36,000 cy of grading would be required for site preparation and excavation for the subterranean parking garage.

Mobile Land Use Mitigation - Land Use trip reduction measures per IS PD. Transit Accessibility excluded due to trip rate modification for mode-share. Assumed cost of unbundled parking at $100/month.

Mobile Commute Mitigation - Employee AC Transit passes for all employees (and residential households, unaccounted for).

Area Mitigation -

Energy Mitigation - Need capacity of proposed rooftop solar for hot water and electric power generation.

Water Mitigation - Use captured rainwater for landscape irrigation. Assumed 25%.

Waste Mitigation - 50% waste diversion, consistent with AB 939.

Trips and VMT - 34 miles to Tri-Cities Landfill; assumed destination for demolition and soil export haul trips.

Vehicle Trips - Weekday trip generation rates consistent with traffic analysis conducted by IBI Group (March 2014). ITE Trip Generation Manual 9th Ed. trip rates reduced using a 0.58 mode share factor.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	250.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	250.00
tblConstructionPhase	NumDays	10.00	40.00
tblConstructionPhase	NumDays	200.00	260.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	4.00	20.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	10.00
tblGrading	AcresOfGrading	7.50	0.88

tblGrading	AcresOfGrading	5.00	0.88
tblGrading	MaterialExported	0.00	36,000.00
tblLandUse	LandUseSquareFeet	14,962.50	19,460.00
tblLandUse	LotAcreage	1.54	0.88
tblLandUse	LotAcreage	7.95	0.29
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripLength	20.00	34.00
tblTripsAndVMT	HaulingTripLength	20.00	34.00
tblTripsAndVMT	HaulingTripLength	20.00	34.00
tblVehicleTrips	ST_TR	7.16	3.86
tblVehicleTrips	ST_TR	1.80	1.30
tblVehicleTrips	ST_TR	49.97	24.77
tblVehicleTrips	ST_TR	94.36	52.17
tblVehicleTrips	SU_TR	6.07	3.86
tblVehicleTrips	SU_TR	1.80	1.30
tblVehicleTrips	SU_TR	25.24	24.77
tblVehicleTrips	SU_TR	72.16	52.17
tblVehicleTrips	WD_TR	6.59	3.86
tblVehicleTrips	WD_TR	1.80	1.30
tblVehicleTrips	WD_TR	42.94	24.77
tblVehicleTrips	WD_TR	89.95	52.17

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	19.3111	289.8657	181.2389	0.5904	19.1833	5.4372	24.6205	6.6406	5.0016	11.6422	0.0000	60,166.4429	60,166.4429	1.0236	0.0000	60,187.9384
2016	293.8010	27.0584	37.9502	0.0612	2.7533	1.4591	4.2124	0.7369	1.4035	2.1404	0.0000	5,524.8168	5,524.8168	0.5923	0.0000	5,537.2549
Total	**313.1121**	**316.9241**	**219.1890**	**0.6516**	**21.9367**	**6.8963**	**28.8329**	**7.3775**	**6.4050**	**13.7826**	**0.0000**	**65,691.2597**	**65,691.2597**	**1.6159**	**0.0000**	**65,725.1933**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	19.3111	289.8657	181.2389	0.5904	19.1833	5.4372	24.6205	6.6406	5.0016	11.6422	0.0000	60,166.4429	60,166.4429	1.0236	0.0000	60,187.9384
2016	293.8010	27.0584	37.9502	0.0612	2.7533	1.4591	4.2124	0.7369	1.4035	2.1404	0.0000	5,524.8168	5,524.8168	0.5923	0.0000	5,537.2549
Total	**313.1121**	**316.9241**	**219.1890**	**0.6516**	**21.9367**	**6.8963**	**28.8329**	**7.3775**	**6.4050**	**13.7826**	**0.0000**	**65,691.2597**	**65,691.2597**	**1.6159**	**0.0000**	**65,725.1933**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	117.2627	1.7468	156.7226	0.0546		18.8157	18.8157		18.8129	18.8129	1,941.4478	4,148.6951	6,090.1430	1.9637	0.2118	6,197.0486
Energy	0.1072	0.9318	0.5029	5.8500e-003		0.0741	0.0741		0.0741	0.0741		1,169.8741	1,169.8741	0.0224	0.0215	1,176.9938
Mobile	9.5694	24.5521	102.1276	0.1488	10.0947	0.3013	10.3961	2.7042	0.2769	2.9811		13,179.3740	13,179.3740	0.5547		13,191.0226
Total	**126.9394**	**27.2307**	**259.3531**	**0.2093**	**10.0947**	**19.1911**	**29.2858**	**2.7042**	**19.1639**	**21.8681**	**1,941.4478**	**18,497.9432**	**20,439.3911**	**2.5408**	**0.2333**	**20,565.0650**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	10.8187	0.2964	25.3512	1.3200e-003		0.1366	0.1366		0.1366	0.1366	0.0000	45.0481	45.0481	0.0462	0.0000	46.0192
Energy	0.1072	0.9318	0.5029	5.8500e-003		0.0741	0.0741		0.0741	0.0741		1,169.8741	1,169.8741	0.0224	0.0215	1,176.9938
Mobile	8.7952	18.0598	85.8081	0.1018	6.7487	0.2094	6.9581	1.8079	0.1924	2.0003		8,998.0000	8,998.0000	0.3990		9,006.3786
Total	**19.7212**	**19.2881**	**111.6622**	**0.1090**	**6.7487**	**0.4201**	**7.1688**	**1.8079**	**0.4031**	**2.2110**	**0.0000**	**10,212.9222**	**10,212.9222**	**0.4676**	**0.0215**	**10,229.3915**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	84.46	29.17	56.95	47.92	33.15	97.81	75.52	33.15	97.90	89.89	100.00	44.79	50.03	81.60	90.81	50.26

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2015	2/25/2015	5	40	
2	Site Preparation	Site Preparation	2/26/2015	3/11/2015	5	10	
3	Grading	Grading	3/12/2015	4/8/2015	5	20	
4	Building Construction	Building Construction	4/9/2015	4/6/2016	5	260	
5	Paving	Paving	4/7/2016	5/4/2016	5	20	
6	Architectural Coating	Architectural Coating	5/5/2016	6/29/2016	5	40	

Acres of Grading (Site Preparation Phase): 0.88

Acres of Grading (Grading Phase): 0.88

Acres of Paving: 0

Residential Indoor: 611,550; Residential Outdoor: 203,850; Non-Residential Indoor: 147,593; Non-Residential Outdoor: 49,198 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Grading	Graders	1	6.00	174	0.41
Grading	Rubber Tired Dozers	1	6.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	7.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	619.00	12.40	7.30	34.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	4,500.00	12.40	7.30	34.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	12.40	7.30	34.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	258.00	48.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	52.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3468	0.0000	3.3468	0.5067	0.0000	0.5067			0.0000			0.0000
Off-Road	3.0666	29.6778	22.0566	0.0245		1.8651	1.8651		1.7469	1.7469		2,509.059 9	2,509.059 9	0.6357		2,522.410 4
Total	**3.0666**	**29.6778**	**22.0566**	**0.0245**	**3.3468**	**1.8651**	**5.2119**	**0.5067**	**1.7469**	**2.2537**		**2,509.059 9**	**2,509.059 9**	**0.6357**		**2,522.410 4**

3.2 Demolition - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.5756	9.0416	5.6300	0.0197	0.4587	0.1365	0.5952	0.1256	0.1256	0.2512		2,004.524 3	2,004.524 3	0.0166		2,004.871 8
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0601	0.0900	0.8347	1.4000e-003	0.1226	1.0700e-003	0.1237	0.0325	9.8000e-004	0.0335		121.5756	121.5756	7.3600e-003		121.7301
Total	**0.6357**	**9.1316**	**6.4647**	**0.0211**	**0.5813**	**0.1376**	**0.7189**	**0.1581**	**0.1265**	**0.2847**		**2,126.099 9**	**2,126.099 9**	**0.0239**		**2,126.601 9**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3468	0.0000	3.3468	0.5067	0.0000	0.5067			0.0000			0.0000
Off-Road	3.0666	29.6778	22.0566	0.0245		1.8651	1.8651		1.7469	1.7469	0.0000	2,509.059 9	2,509.059 9	0.6357		2,522.410 4
Total	**3.0666**	**29.6778**	**22.0566**	**0.0245**	**3.3468**	**1.8651**	**5.2119**	**0.5067**	**1.7469**	**2.2537**	**0.0000**	**2,509.059 9**	**2,509.059 9**	**0.6357**		**2,522.410 4**

3.2 Demolition - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.5756	9.0416	5.6300	0.0197	0.4587	0.1365	0.5952	0.1256	0.1256	0.2512		2,004.524 3	2,004.524 3	0.0166		2,004.871 8
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0601	0.0900	0.8347	1.4000e-003	0.1226	1.0700e-003	0.1237	0.0325	9.8000e-004	0.0335		121.5756	121.5756	7.3600e-003		121.7301
Total	**0.6357**	**9.1316**	**6.4647**	**0.0211**	**0.5813**	**0.1376**	**0.7189**	**0.1581**	**0.1265**	**0.2847**		**2,126.099 9**	**2,126.099 9**	**0.0239**		**2,126.601 9**

3.3 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7698	0.0000	5.7698	2.9682	0.0000	2.9682			0.0000			0.0000
Off-Road	2.5362	26.8886	17.0107	0.0171		1.4671	1.4671		1.3497	1.3497		1,801.744 0	1,801.744 0	0.5379		1,813.039 8
Total	**2.5362**	**26.8886**	**17.0107**	**0.0171**	**5.7698**	**1.4671**	**7.2368**	**2.9682**	**1.3497**	**4.3179**		**1,801.744 0**	**1,801.744 0**	**0.5379**		**1,813.039 8**

3.3 Site Preparation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	16.7379	262.9218	163.7145	0.5724	13.3381	3.9694	17.3076	3.6525	3.6513	7.3037		58,289.8831	58,289.8831	0.4812		58,299.9878
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0370	0.0554	0.5137	8.6000e-004	0.0754	6.6000e-004	0.0761	0.0200	6.0000e-004	0.0206		74.8158	74.8158	4.5300e-003		74.9109
Total	**16.7748**	**262.9771**	**164.2282**	**0.5733**	**13.4136**	**3.9701**	**17.3837**	**3.6725**	**3.6519**	**7.3243**		**58,364.6989**	**58,364.6989**	**0.4857**		**58,374.8986**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7698	0.0000	5.7698	2.9682	0.0000	2.9682			0.0000			0.0000
Off-Road	2.5362	26.8886	17.0107	0.0171		1.4671	1.4671		1.3497	1.3497	0.0000	1,801.7440	1,801.7440	0.5379		1,813.0398
Total	**2.5362**	**26.8886**	**17.0107**	**0.0171**	**5.7698**	**1.4671**	**7.2368**	**2.9682**	**1.3497**	**4.3179**	**0.0000**	**1,801.7440**	**1,801.7440**	**0.5379**		**1,813.0398**

3.3 Site Preparation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	16.7379	262.9218	163.7145	0.5724	13.3381	3.9694	17.3076	3.6525	3.6513	7.3037		58,289.8831	58,289.8831	0.4812		58,299.9878
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0370	0.0554	0.5137	8.6000e-004	0.0754	6.6000e-004	0.0761	0.0200	6.0000e-004	0.0206		74.8158	74.8158	4.5300e-003		74.9109
Total	**16.7748**	**262.9771**	**164.2282**	**0.5733**	**13.4136**	**3.9701**	**17.3837**	**3.6725**	**3.6519**	**7.3243**		**58,364.6989**	**58,364.6989**	**0.4857**		**58,374.8986**

3.4 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.5632	0.0000	4.5632	2.4877	0.0000	2.4877			0.0000			0.0000
Off-Road	2.0666	21.9443	14.0902	0.0141		1.1968	1.1968		1.1011	1.1011		1,479.8000	1,479.8000	0.4418		1,489.0774
Total	**2.0666**	**21.9443**	**14.0902**	**0.0141**	**4.5632**	**1.1968**	**5.7600**	**2.4877**	**1.1011**	**3.5888**		**1,479.8000**	**1,479.8000**	**0.4418**		**1,489.0774**

3.4 Grading - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0370	0.0554	0.5137	8.6000e-004	0.0754	6.6000e-004	0.0761	0.0200	6.0000e-004	0.0206		74.8158	74.8158	4.5300e-003		74.9109
Total	**0.0370**	**0.0554**	**0.5137**	**8.6000e-004**	**0.0754**	**6.6000e-004**	**0.0761**	**0.0200**	**6.0000e-004**	**0.0206**		**74.8158**	**74.8158**	**4.5300e-003**		**74.9109**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.5632	0.0000	4.5632	2.4877	0.0000	2.4877			0.0000			0.0000
Off-Road	2.0666	21.9443	14.0902	0.0141		1.1968	1.1968		1.1011	1.1011	0.0000	1,479.8000	1,479.8000	0.4418		1,489.0774
Total	**2.0666**	**21.9443**	**14.0902**	**0.0141**	**4.5632**	**1.1968**	**5.7600**	**2.4877**	**1.1011**	**3.5888**	**0.0000**	**1,479.8000**	**1,479.8000**	**0.4418**		**1,489.0774**

3.4 Grading - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0370	0.0554	0.5137	8.6000e-004	0.0754	6.6000e-004	0.0761	0.0200	6.0000e-004	0.0206		74.8158	74.8158	4.5300e-003		74.9109
Total	**0.0370**	**0.0554**	**0.5137**	**8.6000e-004**	**0.0754**	**6.6000e-004**	**0.0761**	**0.0200**	**6.0000e-004**	**0.0206**		**74.8158**	**74.8158**	**4.5300e-003**		**74.9109**

3.5 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6000	21.5642	15.0041	0.0220		1.4851	1.4851		1.4344	1.4344		2,055.6247	2,055.6247	0.4741		2,065.5812
Total	**3.6000**	**21.5642**	**15.0041**	**0.0220**		**1.4851**	**1.4851**		**1.4344**	**1.4344**		**2,055.6247**	**2,055.6247**	**0.4741**		**2,065.5812**

3.5 Building Construction - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.7364	5.6536	9.0987	0.0115	0.3203	0.0919	0.4122	0.0916	0.0845	0.1761		1,161.7081	1,161.7081	0.0107		1,161.9329
Worker	1.1918	1.7863	16.5660	0.0278	2.4330	0.0213	2.4543	0.6453	0.0195	0.6648		2,412.8082	2,412.8082	0.1460		2,415.8751
Total	**1.9282**	**7.4399**	**25.6647**	**0.0393**	**2.7533**	**0.1132**	**2.8665**	**0.7369**	**0.1040**	**0.8409**		**3,574.5164**	**3,574.5164**	**0.1567**		**3,577.8080**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6000	21.5642	15.0041	0.0220		1.4851	1.4851		1.4344	1.4344	0.0000	2,055.6247	2,055.6247	0.4741		2,065.5812
Total	**3.6000**	**21.5642**	**15.0041**	**0.0220**		**1.4851**	**1.4851**		**1.4344**	**1.4344**	**0.0000**	**2,055.6247**	**2,055.6247**	**0.4741**		**2,065.5812**

3.5 Building Construction - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.7364	5.6536	9.0987	0.0115	0.3203	0.0919	0.4122	0.0916	0.0845	0.1761		1,161.708 1	1,161.708 1	0.0107		1,161.932 9
Worker	1.1918	1.7863	16.5660	0.0278	2.4330	0.0213	2.4543	0.6453	0.0195	0.6648		2,412.808 2	2,412.808 2	0.1460		2,415.875 1
Total	**1.9282**	**7.4399**	**25.6647**	**0.0393**	**2.7533**	**0.1132**	**2.8665**	**0.7369**	**0.1040**	**0.8409**		**3,574.516 4**	**3,574.516 4**	**0.1567**		**3,577.808 0**

3.5 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2915	20.5459	14.7074	0.0220		1.3656	1.3656		1.3176	1.3176		2,046.943 2	2,046.943 2	0.4499		2,056.391 3
Total	**3.2915**	**20.5459**	**14.7074**	**0.0220**		**1.3656**	**1.3656**		**1.3176**	**1.3176**		**2,046.943 2**	**2,046.943 2**	**0.4499**		**2,056.391 3**

3.5 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.6454	4.9144	8.5250	0.0115	0.3203	0.0735	0.3938	0.0916	0.0676	0.1592		1,147.972 4	1,147.972 4	9.4600e-003		1,148.171 0
Worker	1.0591	1.5981	14.7178	0.0278	2.4330	0.0200	2.4530	0.6453	0.0184	0.6637		2,329.901 2	2,329.901 2	0.1329		2,332.692 6
Total	**1.7045**	**6.5125**	**23.2428**	**0.0393**	**2.7533**	**0.0935**	**2.8468**	**0.7369**	**0.0859**	**0.8228**		**3,477.873 6**	**3,477.873 6**	**0.1424**		**3,480.863 6**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2915	20.5459	14.7074	0.0220		1.3656	1.3656		1.3176	1.3176	0.0000	2,046.943 2	2,046.943 2	0.4499		2,056.391 3
Total	**3.2915**	**20.5459**	**14.7074**	**0.0220**		**1.3656**	**1.3656**		**1.3176**	**1.3176**	**0.0000**	**2,046.943 2**	**2,046.943 2**	**0.4499**		**2,056.391 3**

3.5 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.6454	4.9144	8.5250	0.0115	0.3203	0.0735	0.3938	0.0916	0.0676	0.1592		1,147.9724	1,147.9724	9.4600e-003		1,148.1710
Worker	1.0591	1.5981	14.7178	0.0278	2.4330	0.0200	2.4530	0.6453	0.0184	0.6637		2,329.9012	2,329.9012	0.1329		2,332.6926
Total	**1.7045**	**6.5125**	**23.2428**	**0.0393**	**2.7533**	**0.0935**	**2.8468**	**0.7369**	**0.0859**	**0.8228**		**3,477.8736**	**3,477.8736**	**0.1424**		**3,480.8636**

3.6 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2872	13.2076	9.0880	0.0133		0.8075	0.8075		0.7438	0.7438		1,368.4366	1,368.4366	0.4053		1,376.9473
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2872**	**13.2076**	**9.0880**	**0.0133**		**0.8075**	**0.8075**		**0.7438**	**0.7438**		**1,368.4366**	**1,368.4366**	**0.4053**		**1,376.9473**

3.6 Paving - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0534	0.0805	0.7416	1.4000e-003	0.1226	1.0100e-003	0.1236	0.0325	9.3000e-004	0.0334		117.3981	117.3981	6.7000e-003		117.5388
Total	**0.0534**	**0.0805**	**0.7416**	**1.4000e-003**	**0.1226**	**1.0100e-003**	**0.1236**	**0.0325**	**9.3000e-004**	**0.0334**		**117.3981**	**117.3981**	**6.7000e-003**		**117.5388**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2872	13.2076	9.0880	0.0133		0.8075	0.8075		0.7438	0.7438	0.0000	1,368.436 6	1,368.436 6	0.4053		1,376.947 3
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2872**	**13.2076**	**9.0880**	**0.0133**		**0.8075**	**0.8075**		**0.7438**	**0.7438**	**0.0000**	**1,368.436 6**	**1,368.436 6**	**0.4053**		**1,376.947 3**

3.6 Paving - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0534	0.0805	0.7416	1.4000e-003	0.1226	1.0100e-003	0.1236	0.0325	9.3000e-004	0.0334		117.3981	117.3981	6.7000e-003		117.5388
Total	**0.0534**	**0.0805**	**0.7416**	**1.4000e-003**	**0.1226**	**1.0100e-003**	**0.1236**	**0.0325**	**9.3000e-004**	**0.0334**		**117.3981**	**117.3981**	**6.7000e-003**		**117.5388**

3.7 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	293.2191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3685	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966		281.4481	281.4481	0.0332		282.1449
Total	**293.5875**	**2.3722**	**1.8839**	**2.9700e-003**		**0.1966**	**0.1966**		**0.1966**	**0.1966**		**281.4481**	**281.4481**	**0.0332**		**282.1449**

3.7 Architectural Coating - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2135	0.3221	2.9664	5.6000e-003	0.4904	4.0300e-003	0.4944	0.1301	3.7000e-003	0.1338		469.5925	469.5925	0.0268		470.1551
Total	**0.2135**	**0.3221**	**2.9664**	**5.6000e-003**	**0.4904**	**4.0300e-003**	**0.4944**	**0.1301**	**3.7000e-003**	**0.1338**		**469.5925**	**469.5925**	**0.0268**		**470.1551**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	293.2191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3685	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966	0.0000	281.4481	281.4481	0.0332		282.1449
Total	**293.5875**	**2.3722**	**1.8839**	**2.9700e-003**		**0.1966**	**0.1966**		**0.1966**	**0.1966**	**0.0000**	**281.4481**	**281.4481**	**0.0332**		**282.1449**

3.7 Architectural Coating - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2135	0.3221	2.9664	5.6000e-003	0.4904	4.0300e-003	0.4944	0.1301	3.7000e-003	0.1338		469.5925	469.5925	0.0268		470.1551
Total	**0.2135**	**0.3221**	**2.9664**	**5.6000e-003**	**0.4904**	**4.0300e-003**	**0.4944**	**0.1301**	**3.7000e-003**	**0.1338**		**469.5925**	**469.5925**	**0.0268**		**470.1551**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Improve Walkability Design

Improve Destination Accessibility

Integrate Below Market Rate Housing

Unbundle Parking Cost

Transit Subsidy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	8.7952	18.0598	85.8081	0.1018	6.7487	0.2094	6.9581	1.8079	0.1924	2.0003		8,998.0000	8,998.0000	0.3990		9,006.3786
Unmitigated	9.5694	24.5521	102.1276	0.1488	10.0947	0.3013	10.3961	2.7042	0.2769	2.9811		13,179.3740	13,179.3740	0.5547		13,191.0226

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,165.72	1,165.72	1165.72	2,602,314	1,801,345
Enclosed Parking with Elevator	0.00	0.00	0.00		
Movie Theater (No Matinee)	864.50	864.50	864.50	1,627,851	1,041,635
Regional Shopping Center	200.17	200.17	200.17	350,953	224,148
Quality Restaurant	128.03	128.03	128.03	151,859	97,044
Total	2,358.41	2,358.41	2,358.41	4,732,977	3,164,171

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Movie Theater (No Matinee)	9.50	7.30	7.30	1.80	79.20	19.00	66	17	17
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11
Quality Restaurant	9.50	7.30	7.30	12.00	69.00	19.00	38	18	44

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.542001	0.061858	0.168333	0.112636	0.031145	0.004643	0.019061	0.047615	0.001767	0.003701	0.005606	0.000207	0.001427

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1072	0.9318	0.5029	5.8500e-003		0.0741	0.0741		0.0741	0.0741		1,169.8741	1,169.8741	0.0224	0.0215	1,176.9938
NaturalGas Unmitigated	0.1072	0.9318	0.5029	5.8500e-003		0.0741	0.0741		0.0741	0.0741		1,169.8741	1,169.8741	0.0224	0.0215	1,176.9938

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Movie Theater (No Matinee)	1369.13	0.0148	0.1342	0.1128	8.1000e-004		0.0102	0.0102		0.0102	0.0102		161.0742	161.0742	3.0900e-003	2.9500e-003	162.0545
Quality Restaurant	1143.03	0.0123	0.1121	0.0941	6.7000e-004		8.5200e-003	8.5200e-003		8.5200e-003	8.5200e-003		134.4737	134.4737	2.5800e-003	2.4700e-003	135.2921
Regional Shopping Center	106.271	1.1500e-003	0.0104	8.7500e-003	6.0000e-005		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004		12.5024	12.5024	2.4000e-004	2.3000e-004	12.5785
Apartments Mid Rise	7325.5	0.0790	0.6751	0.2873	4.3100e-003		0.0546	0.0546		0.0546	0.0546		861.8238	861.8238	0.0165	0.0158	867.0687
Total		**0.1073**	**0.9318**	**0.5029**	**5.8500e-003**		**0.0741**	**0.0741**		**0.0741**	**0.0741**		**1,169.8741**	**1,169.8741**	**0.0224**	**0.0215**	**1,176.9938**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Movie Theater (No Matinee)	1.36913	0.0148	0.1342	0.1128	8.1000e-004		0.0102	0.0102		0.0102	0.0102		161.0742	161.0742	3.0900e-003	2.9500e-003	162.0545
Quality Restaurant	1.14303	0.0123	0.1121	0.0941	6.7000e-004		8.5200e-003	8.5200e-003		8.5200e-003	8.5200e-003		134.4737	134.4737	2.5800e-003	2.4700e-003	135.2921
Regional Shopping Center	0.106271	1.1500e-003	0.0104	8.7500e-003	6.0000e-005		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004		12.5024	12.5024	2.4000e-004	2.3000e-004	12.5785
Apartments Mid Rise	7.3255	0.0790	0.6751	0.2873	4.3100e-003		0.0546	0.0546		0.0546	0.0546		861.8238	861.8238	0.0165	0.0158	867.0687
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.1073**	**0.9318**	**0.5029**	**5.8500e-003**		**0.0741**	**0.0741**		**0.0741**	**0.0741**		**1,169.8741**	**1,169.8741**	**0.0224**	**0.0215**	**1,176.9938**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	10.8187	0.2964	25.3512	1.3200e-003		0.1366	0.1366		0.1366	0.1366	0.0000	45.0481	45.0481	0.0462	0.0000	46.0192
Unmitigated	117.2627	1.7468	156.7226	0.0546		18.8157	18.8157		18.8129	18.8129	1,941.4478	4,148.6951	6,090.1430	1.9637	0.2118	6,197.0486

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4460					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.5685					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	106.4440	1.4504	131.3714	0.0533		18.6790	18.6790		18.6763	18.6763	1,941.4478	4,103.6471	6,045.0949	1.9175	0.2118	6,151.0294
Landscaping	0.8042	0.2964	25.3512	1.3200e-003		0.1366	0.1366		0.1366	0.1366		45.0481	45.0481	0.0462		46.0192
Total	**117.2627**	**1.7468**	**156.7226**	**0.0546**		**18.8157**	**18.8157**		**18.8129**	**18.8129**	**1,941.4478**	**4,148.6951**	**6,090.1429**	**1.9637**	**0.2118**	**6,197.0486**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4460					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.5685					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.8042	0.2964	25.3512	1.3200e-003		0.1366	0.1366		0.1366	0.1366		45.0481	45.0481	0.0462		46.0192
Total	**10.8187**	**0.2964**	**25.3512**	**1.3200e-003**		**0.1366**	**0.1366**		**0.1366**	**0.1366**	**0.0000**	**45.0481**	**45.0481**	**0.0462**	**0.0000**	**46.0192**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

2211 Harold Way Mixed-Use Project - Existing Uses On-Site

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Movie Theater (No Matinee)	855.00	Seat	0.44	19,237.50	0
General Office Building	32.63	1000sqft	0.27	32,626.00	0
Medical Office Building	0.26	1000sqft	0.01	263.00	0
Government (Civic Center)	7.06	1000sqft	0.16	7,056.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2014
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Unit amounts and size from traffic analysis. General office acreage modified to .29 to total 0.88 acres (project site area).

Construction Phase - No construction (existing operational use estimate.)

Demolition -

Grading -

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation - 50% waste diversion, consistent with AB 939.

Trips and VMT -

Vehicle Trips - Weekday trip generation rates consistent with traffic analysis conducted by IBI Group (March 2014). ITE Trip Generation Manual 9th Ed. trip rates reduced using a 0.58 mode share factor.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	250.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	250.00
tblLandUse	LotAcreage	0.75	0.27
tblVehicleTrips	ST_TR	2.37	6.40
tblVehicleTrips	ST_TR	0.00	19.62
tblVehicleTrips	ST_TR	1.80	1.30
tblVehicleTrips	ST_TR	8.96	20.96
tblVehicleTrips	SU_TR	0.98	6.40
tblVehicleTrips	SU_TR	0.00	19.62
tblVehicleTrips	SU_TR	1.80	1.30
tblVehicleTrips	SU_TR	1.55	20.96
tblVehicleTrips	WD_TR	11.01	6.40
tblVehicleTrips	WD_TR	27.92	19.62
tblVehicleTrips	WD_TR	1.80	1.30
tblVehicleTrips	WD_TR	36.13	20.96

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.7763	0.8385	0.5962	8.6000e-004	0.0144	0.0547	0.0691	4.0700e-003	0.0504	0.0545	0.0000	79.2900	79.2900	0.0179	0.0000	79.6664
Total	**0.7763**	**0.8385**	**0.5962**	**8.6000e-004**	**0.0144**	**0.0547**	**0.0691**	**4.0700e-003**	**0.0504**	**0.0545**	**0.0000**	**79.2900**	**79.2900**	**0.0179**	**0.0000**	**79.6664**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.7763	0.8385	0.5962	8.6000e-004	0.0144	0.0547	0.0691	4.0700e-003	0.0504	0.0545	0.0000	79.2899	79.2899	0.0179	0.0000	79.6663
Total	**0.7763**	**0.8385**	**0.5962**	**8.6000e-004**	**0.0144**	**0.0547**	**0.0691**	**4.0700e-003**	**0.0504**	**0.0545**	**0.0000**	**79.2899**	**79.2899**	**0.0179**	**0.0000**	**79.6663**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2629	8.0000e-005	8.6000e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0160	0.0160	5.0000e-005	0.0000	0.0170
Energy	7.0300e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	277.1875	277.1875	0.0107	3.2200e-003	278.4103
Mobile	1.1811	3.2143	11.9011	0.0164	1.0716	0.0481	1.1197	0.2879	0.0441	0.3321	0.0000	1,386.0286	1,386.0286	0.0673	0.0000	1,387.4411
Waste						0.0000	0.0000		0.0000	0.0000	14.8995	0.0000	14.8995	0.8805	0.0000	33.3908
Water						0.0000	0.0000		0.0000	0.0000	4.7463	28.5524	33.2986	0.4888	0.0118	47.2140
Total	**1.4510**	**3.2783**	**11.9634**	**0.0168**	**1.0716**	**0.0530**	**1.1246**	**0.2879**	**0.0490**	**0.3370**	**19.6458**	**1,691.7844**	**1,711.4302**	**1.4474**	**0.0150**	**1,746.4732**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2629	8.0000e-005	8.6000e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0160	0.0160	5.0000e-005	0.0000	0.0170
Energy	7.0300e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	277.1875	277.1875	0.0107	3.2200e-003	278.4103
Mobile	1.1811	3.2143	11.9011	0.0164	1.0716	0.0481	1.1197	0.2879	0.0441	0.3321	0.0000	1,386.0286	1,386.0286	0.0673	0.0000	1,387.4411
Waste						0.0000	0.0000		0.0000	0.0000	7.4498	0.0000	7.4498	0.4403	0.0000	16.6954
Water						0.0000	0.0000		0.0000	0.0000	4.7463	28.0582	32.8044	0.4887	0.0118	46.7104
Total	**1.4510**	**3.2783**	**11.9634**	**0.0168**	**1.0716**	**0.0530**	**1.1246**	**0.2879**	**0.0490**	**0.3370**	**12.1960**	**1,691.2902**	**1,703.4863**	**1.0070**	**0.0150**	**1,729.2741**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**37.92**	**0.03**	**0.46**	**30.43**	**0.20**	**0.98**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/15/2015	1/15/2015	5	1	
2	Grading	Grading	1/16/2015	1/19/2015	5	2	
3	Building Construction	Building Construction	1/20/2015	6/8/2015	5	100	
4	Paving	Paving	6/9/2015	6/15/2015	5	5	
5	Architectural Coating	Architectural Coating	6/16/2015	6/22/2015	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 88,774; Non-Residential Outdoor: 29,591 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	21.00	10.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.1000e-004	7.1500e-003	3.7000e-003	0.0000		4.4000e-004	4.4000e-004		4.0000e-004	4.0000e-004	0.0000	0.4466	0.4466	1.3000e-004	0.0000	0.4494
Total	**7.1000e-004**	**7.1500e-003**	**3.7000e-003**	**0.0000**	**2.7000e-004**	**4.4000e-004**	**7.1000e-004**	**3.0000e-005**	**4.0000e-004**	**4.3000e-004**	**0.0000**	**0.4466**	**0.4466**	**1.3000e-004**	**0.0000**	**0.4494**

3.2 Site Preparation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	2.0000e-005	1.5000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0214	0.0214	0.0000	0.0000	0.0214
Total	**1.0000e-005**	**2.0000e-005**	**1.5000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0214**	**0.0214**	**0.0000**	**0.0000**	**0.0214**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.1000e-004	7.1500e-003	3.7000e-003	0.0000		4.4000e-004	4.4000e-004		4.0000e-004	4.0000e-004	0.0000	0.4466	0.4466	1.3000e-004	0.0000	0.4494
Total	**7.1000e-004**	**7.1500e-003**	**3.7000e-003**	**0.0000**	**2.7000e-004**	**4.4000e-004**	**7.1000e-004**	**3.0000e-005**	**4.0000e-004**	**4.3000e-004**	**0.0000**	**0.4466**	**0.4466**	**1.3000e-004**	**0.0000**	**0.4494**

3.2 Site Preparation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	2.0000e-005	1.5000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0214	0.0214	0.0000	0.0000	0.0214
Total	**1.0000e-005**	**2.0000e-005**	**1.5000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0214**	**0.0214**	**0.0000**	**0.0000**	**0.0214**

3.3 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.5000e-004	0.0000	7.5000e-004	4.1000e-004	0.0000	4.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4100e-003	0.0119	8.8100e-003	1.0000e-005		8.7000e-004	8.7000e-004		8.4000e-004	8.4000e-004	0.0000	1.0892	1.0892	2.2000e-004	0.0000	1.0939
Total	**1.4100e-003**	**0.0119**	**8.8100e-003**	**1.0000e-005**	**7.5000e-004**	**8.7000e-004**	**1.6200e-003**	**4.1000e-004**	**8.4000e-004**	**1.2500e-003**	**0.0000**	**1.0892**	**1.0892**	**2.2000e-004**	**0.0000**	**1.0939**

3.3 Grading - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	6.0000e-005	6.1000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0855	0.0855	1.0000e-005	0.0000	0.0856
Total	**4.0000e-005**	**6.0000e-005**	**6.1000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0855**	**0.0855**	**1.0000e-005**	**0.0000**	**0.0856**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.5000e-004	0.0000	7.5000e-004	4.1000e-004	0.0000	4.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4100e-003	0.0119	8.8100e-003	1.0000e-005		8.7000e-004	8.7000e-004		8.4000e-004	8.4000e-004	0.0000	1.0892	1.0892	2.2000e-004	0.0000	1.0939
Total	**1.4100e-003**	**0.0119**	**8.8100e-003**	**1.0000e-005**	**7.5000e-004**	**8.7000e-004**	**1.6200e-003**	**4.1000e-004**	**8.4000e-004**	**1.2500e-003**	**0.0000**	**1.0892**	**1.0892**	**2.2000e-004**	**0.0000**	**1.0939**

3.3 Grading - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	6.0000e-005	6.1000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0855	0.0855	1.0000e-005	0.0000	0.0856
Total	**4.0000e-005**	**6.0000e-005**	**6.1000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0855**	**0.0855**	**1.0000e-005**	**0.0000**	**0.0856**

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0727	0.7189	0.4149	5.7000e-004		0.0500	0.0500		0.0460	0.0460	0.0000	54.0547	54.0547	0.0161	0.0000	54.3936
Total	**0.0727**	**0.7189**	**0.4149**	**5.7000e-004**		**0.0500**	**0.0500**		**0.0460**	**0.0460**	**0.0000**	**54.0547**	**54.0547**	**0.0161**	**0.0000**	**54.3936**

3.4 Building Construction - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.8200e-003	0.0582	0.0771	1.2000e-004	3.2300e-003	9.5000e-004	4.1800e-003	9.3000e-004	8.7000e-004	1.8000e-003	0.0000	11.0264	11.0264	1.0000e-004	0.0000	11.0285
Worker	4.5100e-003	6.6400e-003	0.0644	1.1000e-004	9.5300e-003	9.0000e-005	9.6200e-003	2.5400e-003	8.0000e-005	2.6100e-003	0.0000	8.9776	8.9776	5.4000e-004	0.0000	8.9889
Total	**0.0113**	**0.0648**	**0.1415**	**2.3000e-004**	**0.0128**	**1.0400e-003**	**0.0138**	**3.4700e-003**	**9.5000e-004**	**4.4100e-003**	**0.0000**	**20.0039**	**20.0039**	**6.4000e-004**	**0.0000**	**20.0174**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0727	0.7189	0.4149	5.7000e-004		0.0500	0.0500		0.0460	0.0460	0.0000	54.0546	54.0546	0.0161	0.0000	54.3935
Total	**0.0727**	**0.7189**	**0.4149**	**5.7000e-004**		**0.0500**	**0.0500**		**0.0460**	**0.0460**	**0.0000**	**54.0546**	**54.0546**	**0.0161**	**0.0000**	**54.3935**

3.4 Building Construction - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.8200e-003	0.0582	0.0771	1.2000e-004	3.2300e-003	9.5000e-004	4.1800e-003	9.3000e-004	8.7000e-004	1.8000e-003	0.0000	11.0264	11.0264	1.0000e-004	0.0000	11.0285
Worker	4.5100e-003	6.6400e-003	0.0644	1.1000e-004	9.5300e-003	9.0000e-005	9.6200e-003	2.5400e-003	8.0000e-005	2.6100e-003	0.0000	8.9776	8.9776	5.4000e-004	0.0000	8.9889
Total	**0.0113**	**0.0648**	**0.1415**	**2.3000e-004**	**0.0128**	**1.0400e-003**	**0.0138**	**3.4700e-003**	**9.5000e-004**	**4.4100e-003**	**0.0000**	**20.0039**	**20.0039**	**6.4000e-004**	**0.0000**	**20.0174**

3.5 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.0200e-003	0.0289	0.0184	3.0000e-005		1.8100e-003	1.8100e-003		1.6800e-003	1.6800e-003	0.0000	2.4801	2.4801	6.7000e-004	0.0000	2.4943
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.0200e-003**	**0.0289**	**0.0184**	**3.0000e-005**		**1.8100e-003**	**1.8100e-003**		**1.6800e-003**	**1.6800e-003**	**0.0000**	**2.4801**	**2.4801**	**6.7000e-004**	**0.0000**	**2.4943**

3.5 Paving - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	2.8000e-004	2.7600e-003	0.0000	4.1000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3848	0.3848	2.0000e-005	0.0000	0.3852
Total	**1.9000e-004**	**2.8000e-004**	**2.7600e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3848**	**0.3848**	**2.0000e-005**	**0.0000**	**0.3852**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.0200e-003	0.0289	0.0184	3.0000e-005		1.8100e-003	1.8100e-003		1.6800e-003	1.6800e-003	0.0000	2.4801	2.4801	6.7000e-004	0.0000	2.4943
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.0200e-003**	**0.0289**	**0.0184**	**3.0000e-005**		**1.8100e-003**	**1.8100e-003**		**1.6800e-003**	**1.6800e-003**	**0.0000**	**2.4801**	**2.4801**	**6.7000e-004**	**0.0000**	**2.4943**

3.5 Paving - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	2.8000e-004	2.7600e-003	0.0000	4.1000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3848	0.3848	2.0000e-005	0.0000	0.3852
Total	**1.9000e-004**	**2.8000e-004**	**2.7600e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3848**	**0.3848**	**2.0000e-005**	**0.0000**	**0.3852**

3.6 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6858					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0200e-003	6.4300e-003	4.7500e-003	1.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	0.6383	0.6383	8.0000e-005	0.0000	0.6401
Total	**0.6868**	**6.4300e-003**	**4.7500e-003**	**1.0000e-005**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**8.0000e-005**	**0.0000**	**0.6401**

3.6 Architectural Coating - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	6.0000e-005	6.1000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0855	0.0855	1.0000e-005	0.0000	0.0856
Total	**4.0000e-005**	**6.0000e-005**	**6.1000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0855**	**0.0855**	**1.0000e-005**	**0.0000**	**0.0856**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6858					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0200e-003	6.4300e-003	4.7500e-003	1.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	0.6383	0.6383	8.0000e-005	0.0000	0.6401
Total	**0.6868**	**6.4300e-003**	**4.7500e-003**	**1.0000e-005**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**8.0000e-005**	**0.0000**	**0.6401**

3.6 Architectural Coating - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	6.0000e-005	6.1000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0855	0.0855	1.0000e-005	0.0000	0.0856
Total	**4.0000e-005**	**6.0000e-005**	**6.1000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0855**	**0.0855**	**1.0000e-005**	**0.0000**	**0.0856**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.1811	3.2143	11.9011	0.0164	1.0716	0.0481	1.1197	0.2879	0.0441	0.3321	0.0000	1,386.0286	1,386.0286	0.0673	0.0000	1,387.4411
Unmitigated	1.1811	3.2143	11.9011	0.0164	1.0716	0.0481	1.1197	0.2879	0.0441	0.3321	0.0000	1,386.0286	1,386.0286	0.0673	0.0000	1,387.4411

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	208.81	208.81	208.81	498,996	498,996
Government (Civic Center)	138.44	138.44	138.44	264,645	264,645
Movie Theater (No Matinee)	1,111.50	1,111.50	1111.50	2,092,951	2,092,951
Medical Office Building	5.51	5.51	5.51	10,789	10,789
Total	1,464.26	1,464.26	1,464.26	2,867,381	2,867,381

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Government (Civic Center)	9.50	7.30	7.30	75.00	20.00	5.00	50	34	16
Movie Theater (No Matinee)	9.50	7.30	7.30	1.80	79.20	19.00	66	17	17
Medical Office Building	9.50	7.30	7.30	29.60	51.40	19.00	60	30	10

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.542757	0.062006	0.168650	0.114572	0.031552	0.004717	0.018583	0.044562	0.001747	0.003723	0.005493	0.000211	0.001428

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	207.5743	207.5743	9.3900e-003	1.9400e-003	208.3734
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	207.5743	207.5743	9.3900e-003	1.9400e-003	208.3734
NaturalGas Mitigated	7.0300e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	69.6133	69.6133	1.3300e-003	1.2800e-003	70.0369
NaturalGas Unmitigated	7.0300e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	69.6133	69.6133	1.3300e-003	1.2800e-003	70.0369

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	661982	3.5700e-003	0.0325	0.0273	1.9000e-004		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003	0.0000	35.3259	35.3259	6.8000e-004	6.5000e-004	35.5408
Government (Civic Center)	143166	7.7000e-004	7.0200e-003	5.9000e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004	0.0000	7.6399	7.6399	1.5000e-004	1.4000e-004	7.6864
Medical Office Building	5336.27	3.0000e-005	2.6000e-004	2.2000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2848	0.2848	1.0000e-005	1.0000e-005	0.2865
Movie Theater (No Matinee)	494019	2.6600e-003	0.0242	0.0203	1.5000e-004		1.8400e-003	1.8400e-003		1.8400e-003	1.8400e-003	0.0000	26.3627	26.3627	5.1000e-004	4.8000e-004	26.5232
Total		**7.0300e-003**	**0.0640**	**0.0537**	**3.8000e-004**		**4.8600e-003**	**4.8600e-003**		**4.8600e-003**	**4.8600e-003**	**0.0000**	**69.6133**	**69.6133**	**1.3500e-003**	**1.2800e-003**	**70.0369**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	661982	3.5700e-003	0.0325	0.0273	1.9000e-004		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003	0.0000	35.3259	35.3259	6.8000e-004	6.5000e-004	35.5408
Government (Civic Center)	143166	7.7000e-004	7.0200e-003	5.9000e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004	0.0000	7.6399	7.6399	1.5000e-004	1.4000e-004	7.6864
Medical Office Building	5336.27	3.0000e-005	2.6000e-004	2.2000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2848	0.2848	1.0000e-005	1.0000e-005	0.2865
Movie Theater (No Matinee)	494019	2.6600e-003	0.0242	0.0203	1.5000e-004		1.8400e-003	1.8400e-003		1.8400e-003	1.8400e-003	0.0000	26.3627	26.3627	5.1000e-004	4.8000e-004	26.5232
Total		**7.0300e-003**	**0.0640**	**0.0537**	**3.8000e-004**		**4.8600e-003**	**4.8600e-003**		**4.8600e-003**	**4.8600e-003**	**0.0000**	**69.6133**	**69.6133**	**1.3500e-003**	**1.2800e-003**	**70.0369**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	452849	131.7389	5.9600e-003	1.2300e-003	132.2461
Government (Civic Center)	97937.3	28.4911	1.2900e-003	2.7000e-004	28.6008
Medical Office Building	3650.44	1.0620	5.0000e-005	1.0000e-005	1.0660
Movie Theater (No Matinee)	159094	46.2823	2.0900e-003	4.3000e-004	46.4605
Total		**207.5743**	**9.3900e-003**	**1.9400e-003**	**208.3734**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	452849	131.7389	5.9600e-003	1.2300e-003	132.2461
Government (Civic Center)	97937.3	28.4911	1.2900e-003	2.7000e-004	28.6008
Medical Office Building	3650.44	1.0620	5.0000e-005	1.0000e-005	1.0660
Movie Theater (No Matinee)	159094	46.2823	2.0900e-003	4.3000e-004	46.4605
Total		**207.5743**	**9.3900e-003**	**1.9400e-003**	**208.3734**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	0.2629	8.0000e-005	8.6000e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0160	0.0160	5.0000e-005	0.0000	0.0170
Unmitigated	0.2629	8.0000e-005	8.6000e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0160	0.0160	5.0000e-005	0.0000	0.0170

6.2 Area by SubCategory

Unmitigated

SubCategory	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Architectural Coating	0.0309					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2311					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.7000e-004	8.0000e-005	8.6000e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0160	0.0160	5.0000e-005	0.0000	0.0170
Total	**0.2629**	**8.0000e-005**	**8.6000e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0160**	**0.0160**	**5.0000e-005**	**0.0000**	**0.0170**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0309					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2311					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.7000e-004	8.0000e-005	8.6000e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0160	0.0160	5.0000e-005	0.0000	0.0170
Total	**0.2629**	**8.0000e-005**	**8.6000e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0160**	**0.0160**	**5.0000e-005**	**0.0000**	**0.0170**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	32.8044	0.4887	0.0118	46.7104
Unmitigated	33.2986	0.4888	0.0118	47.2140

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	5.79945 / 3.5545	14.5881	0.1896	4.5800e-003	19.9889
Government (Civic Center)	1.40254 / 0.85962	3.5280	0.0458	1.1100e-003	4.8341
Medical Office Building	0.0326249 / 0.0062142	0.0680	1.0700e-003	3.0000e-005	0.0984
Movie Theater (No Matinee)	7.72581 / 0.493137	15.1145	0.2523	6.0600e-003	22.2926
Total		**33.2986**	**0.4888**	**0.0118**	**47.2140**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	5.79945 / 3.20337	14.2306	0.1895	4.5700e-003	19.6271
Government (Civic Center)	1.40254 / 0.774702	3.4415	0.0458	1.1100e-003	4.7466
Medical Office Building	0.0326249 / 0.0056003	0.0674	1.0700e-003	3.0000e-005	0.0977
Movie Theater (No Matinee)	7.72581 / 0.444422	15.0649	0.2523	6.0500e-003	22.2389
Total		**32.8044**	**0.4887**	**0.0118**	**46.7104**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7.4498	0.4403	0.0000	16.6954
Unmitigated	14.8995	0.8805	0.0000	33.3908

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	30.35	6.1608	0.3641	0.0000	13.8067
Government (Civic Center)	40.24	8.1684	0.4827	0.0000	18.3058
Medical Office Building	2.81	0.5704	0.0337	0.0000	1.2783
Total		**14.8995**	**0.8805**	**0.0000**	**33.3908**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	15.175	3.0804	0.1821	0.0000	6.9034
Government (Civic Center)	20.12	4.0842	0.2414	0.0000	9.1529
Medical Office Building	1.405	0.2852	0.0169	0.0000	0.6392
Total		**7.4498**	**0.4403**	**0.0000**	**16.6954**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

2211 Harold Way Mixed-Use Project - Existing Uses On-Site

Alameda County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Movie Theater (No Matinee)	855.00	Seat	0.44	19,237.50	0
General Office Building	32.63	1000sqft	0.27	32,626.00	0
Medical Office Building	0.26	1000sqft	0.01	263.00	0
Government (Civic Center)	7.06	1000sqft	0.16	7,056.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2014
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Unit amounts and size from traffic analysis. General office acreage modified to .29 to total 0.88 acres (project site area).

Construction Phase - No construction (existing operational use estimate.)

Demolition -

Grading -

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation - 50% waste diversion, consistent with AB 939.

Trips and VMT -

Vehicle Trips - Weekday trip generation rates consistent with traffic analysis conducted by IBI Group (March 2014). ITE Trip Generation Manual 9th Ed. trip rates reduced using a 0.58 mode share factor.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	250.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	250.00
tblLandUse	LotAcreage	0.75	0.27
tblVehicleTrips	ST_TR	2.37	6.40
tblVehicleTrips	ST_TR	0.00	19.62
tblVehicleTrips	ST_TR	1.80	1.30
tblVehicleTrips	ST_TR	8.96	20.96
tblVehicleTrips	SU_TR	0.98	6.40
tblVehicleTrips	SU_TR	0.00	19.62
tblVehicleTrips	SU_TR	1.80	1.30
tblVehicleTrips	SU_TR	1.55	20.96
tblVehicleTrips	WD_TR	11.01	6.40
tblVehicleTrips	WD_TR	27.92	19.62
tblVehicleTrips	WD_TR	1.80	1.30
tblVehicleTrips	WD_TR	36.13	20.96

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	274.7358	15.6191	10.8332	0.0162	0.8471	1.0201	1.7227	0.4388	0.9385	1.2754	0.0000	1,648.7916	1,648.7916	0.3698	0.0000	1,656.5583
Total	**274.7358**	**15.6191**	**10.8332**	**0.0162**	**0.8471**	**1.0201**	**1.7227**	**0.4388**	**0.9385**	**1.2754**	**0.0000**	**1,648.7916**	**1,648.7916**	**0.3698**	**0.0000**	**1,656.5583**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	274.7358	15.6191	10.8332	0.0162	0.8471	1.0201	1.7227	0.4388	0.9385	1.2754	0.0000	1,648.7916	1,648.7916	0.3698	0.0000	1,656.5583
Total	**274.7358**	**15.6191**	**10.8332**	**0.0162**	**0.8471**	**1.0201**	**1.7227**	**0.4388**	**0.9385**	**1.2754**	**0.0000**	**1,648.7916**	**1,648.7916**	**0.3698**	**0.0000**	**1,656.5583**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.4453	9.3000e-004	0.0955	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004		0.1959	0.1959	5.9000e-004		0.2082
Energy	0.0385	0.3504	0.2943	2.1000e-003		0.0266	0.0266		0.0266	0.0266		420.4684	420.4684	8.0600e-003	7.7100e-003	423.0273
Mobile	6.5827	16.6839	60.4829	0.0951	6.1127	0.2633	6.3760	1.6372	0.2417	1.8789		8,855.4117	8,855.4117	0.4076		8,863.9720
Total	**8.0665**	**17.0352**	**60.8728**	**0.0972**	**6.1127**	**0.2903**	**6.4029**	**1.6372**	**0.2687**	**1.9059**		**9,276.0759**	**9,276.0759**	**0.4163**	**7.7100e-003**	**9,287.2074**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.4453	9.3000e-004	0.0955	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004		0.1959	0.1959	5.9000e-004		0.2082
Energy	0.0385	0.3504	0.2943	2.1000e-003		0.0266	0.0266		0.0266	0.0266		420.4684	420.4684	8.0600e-003	7.7100e-003	423.0273
Mobile	6.5827	16.6839	60.4829	0.0951	6.1127	0.2633	6.3760	1.6372	0.2417	1.8789		8,855.4117	8,855.4117	0.4076		8,863.9720
Total	**8.0665**	**17.0352**	**60.8728**	**0.0972**	**6.1127**	**0.2903**	**6.4029**	**1.6372**	**0.2687**	**1.9059**		**9,276.0759**	**9,276.0759**	**0.4163**	**7.7100e-003**	**9,287.2074**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/15/2015	1/15/2015	5	1	
2	Grading	Grading	1/16/2015	1/19/2015	5	2	
3	Building Construction	Building Construction	1/20/2015	6/8/2015	5	100	
4	Paving	Paving	6/9/2015	6/15/2015	5	5	
5	Architectural Coating	Architectural Coating	6/16/2015	6/22/2015	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 88,774; Non-Residential Outdoor: 29,591 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	21.00	10.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	1.4222	14.2999	7.4063	9.3600e-003		0.8797	0.8797		0.8093	0.8093		984.5542	984.5542	0.2939		990.7267
Total	**1.4222**	**14.2999**	**7.4063**	**9.3600e-003**	**0.5303**	**0.8797**	**1.4100**	**0.0573**	**0.8093**	**0.8666**		**984.5542**	**984.5542**	**0.2939**		**990.7267**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0229	0.0278	0.3255	5.8000e-004	0.0472	4.1000e-004	0.0476	0.0125	3.8000e-004	0.0129		50.7683	50.7683	2.8300e-003		50.8277
Total	**0.0229**	**0.0278**	**0.3255**	**5.8000e-004**	**0.0472**	**4.1000e-004**	**0.0476**	**0.0125**	**3.8000e-004**	**0.0129**		**50.7683**	**50.7683**	**2.8300e-003**		**50.8277**

3.2 Site Preparation - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	1.4222	14.2999	7.4063	9.3600e-003		0.8797	0.8797		0.8093	0.8093	0.0000	984.5542	984.5542	0.2939		990.7267
Total	**1.4222**	**14.2999**	**7.4063**	**9.3600e-003**	**0.5303**	**0.8797**	**1.4100**	**0.0573**	**0.8093**	**0.8666**	**0.0000**	**984.5542**	**984.5542**	**0.2939**		**990.7267**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0229	0.0278	0.3255	5.8000e-004	0.0472	4.1000e-004	0.0476	0.0125	3.8000e-004	0.0129		50.7683	50.7683	2.8300e-003		50.8277
Total	**0.0229**	**0.0278**	**0.3255**	**5.8000e-004**	**0.0472**	**4.1000e-004**	**0.0476**	**0.0125**	**3.8000e-004**	**0.0129**		**50.7683**	**50.7683**	**2.8300e-003**		**50.8277**

3.3 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	1.4120	11.9409	8.8138	0.0120		0.8748	0.8748		0.8359	0.8359		1,200.6386	1,200.6386	0.2451		1,205.7861
Total	**1.4120**	**11.9409**	**8.8138**	**0.0120**	**0.7528**	**0.8748**	**1.6276**	**0.4138**	**0.8359**	**1.2496**		**1,200.6386**	**1,200.6386**	**0.2451**		**1,205.7861**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0459	0.0557	0.6509	1.1700e-003	0.0943	8.3000e-004	0.0951	0.0250	7.5000e-004	0.0258		101.5366	101.5366	5.6600e-003		101.6555
Total	**0.0459**	**0.0557**	**0.6509**	**1.1700e-003**	**0.0943**	**8.3000e-004**	**0.0951**	**0.0250**	**7.5000e-004**	**0.0258**		**101.5366**	**101.5366**	**5.6600e-003**		**101.6555**

3.3 Grading - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	1.4120	11.9409	8.8138	0.0120		0.8748	0.8748		0.8359	0.8359	0.0000	1,200.6386	1,200.6386	0.2451		1,205.7861
Total	**1.4120**	**11.9409**	**8.8138**	**0.0120**	**0.7528**	**0.8748**	**1.6276**	**0.4138**	**0.8359**	**1.2496**	**0.0000**	**1,200.6386**	**1,200.6386**	**0.2451**		**1,205.7861**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0459	0.0557	0.6509	1.1700e-003	0.0943	8.3000e-004	0.0951	0.0250	7.5000e-004	0.0258		101.5366	101.5366	5.6600e-003		101.6555
Total	**0.0459**	**0.0557**	**0.6509**	**1.1700e-003**	**0.0943**	**8.3000e-004**	**0.0951**	**0.0250**	**7.5000e-004**	**0.0258**		**101.5366**	**101.5366**	**5.6600e-003**		**101.6555**

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4538	14.3777	8.2983	0.0113		0.9995	0.9995		0.9195	0.9195		1,191.7021	1,191.7021	0.3558		1,199.1733
Total	**1.4538**	**14.3777**	**8.2983**	**0.0113**		**0.9995**	**0.9995**		**0.9195**	**0.9195**		**1,191.7021**	**1,191.7021**	**0.3558**		**1,199.1733**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1207	1.1246	1.1680	2.4100e-003	0.0667	0.0189	0.0857	0.0191	0.0174	0.0365		243.8628	243.8628	2.1800e-003		243.9085
Worker	0.0963	0.1169	1.3670	2.4500e-003	0.1980	1.7300e-003	0.1998	0.0525	1.5800e-003	0.0541		213.2268	213.2268	0.0119		213.4764
Total	**0.2170**	**1.2415**	**2.5350**	**4.8600e-003**	**0.2648**	**0.0207**	**0.2854**	**0.0716**	**0.0190**	**0.0906**		**457.0896**	**457.0896**	**0.0141**		**457.3850**

3.4 Building Construction - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4538	14.3777	8.2983	0.0113		0.9995	0.9995		0.9195	0.9195	0.0000	1,191.7021	1,191.7021	0.3558		1,199.1733
Total	**1.4538**	**14.3777**	**8.2983**	**0.0113**		**0.9995**	**0.9995**		**0.9195**	**0.9195**	**0.0000**	**1,191.7021**	**1,191.7021**	**0.3558**		**1,199.1733**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1207	1.1246	1.1680	2.4100e-003	0.0667	0.0189	0.0857	0.0191	0.0174	0.0365		243.8628	243.8628	2.1800e-003		243.9085
Worker	0.0963	0.1169	1.3670	2.4500e-003	0.1980	1.7300e-003	0.1998	0.0525	1.5800e-003	0.0541		213.2268	213.2268	0.0119		213.4764
Total	**0.2170**	**1.2415**	**2.5350**	**4.8600e-003**	**0.2648**	**0.0207**	**0.2854**	**0.0716**	**0.0190**	**0.0906**		**457.0896**	**457.0896**	**0.0141**		**457.3850**

3.5 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2092	11.5427	7.3586	0.0111		0.7247	0.7247		0.6703	0.6703		1,093.5433	1,093.5433	0.2970		1,099.7794
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2092**	**11.5427**	**7.3586**	**0.0111**		**0.7247**	**0.7247**		**0.6703**	**0.6703**		**1,093.5433**	**1,093.5433**	**0.2970**		**1,099.7794**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0825	0.1002	1.1717	2.1000e-003	0.1698	1.4900e-003	0.1712	0.0450	1.3600e-003	0.0464		182.7658	182.7658	0.0102		182.9798
Total	**0.0825**	**0.1002**	**1.1717**	**2.1000e-003**	**0.1698**	**1.4900e-003**	**0.1712**	**0.0450**	**1.3600e-003**	**0.0464**		**182.7658**	**182.7658**	**0.0102**		**182.9798**

3.5 Paving - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2092	11.5427	7.3586	0.0111		0.7247	0.7247		0.6703	0.6703	0.0000	1,093.5433	1,093.5433	0.2970		1,099.7794
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2092**	**11.5427**	**7.3586**	**0.0111**		**0.7247**	**0.7247**		**0.6703**	**0.6703**	**0.0000**	**1,093.5433**	**1,093.5433**	**0.2970**		**1,099.7794**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0825	0.1002	1.1717	2.1000e-003	0.1698	1.4900e-003	0.1712	0.0450	1.3600e-003	0.0464		182.7658	182.7658	0.0102		182.9798
Total	**0.0825**	**0.1002**	**1.1717**	**2.1000e-003**	**0.1698**	**1.4900e-003**	**0.1712**	**0.0450**	**1.3600e-003**	**0.0464**		**182.7658**	**182.7658**	**0.0102**		**182.9798**

3.6 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	274.3109					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209		281.4481	281.4481	0.0367		282.2177
Total	**274.7175**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**		**281.4481**	**281.4481**	**0.0367**		**282.2177**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0183	0.0223	0.2604	4.7000e-004	0.0377	3.3000e-004	0.0381	0.0100	3.0000e-004	0.0103		40.6146	40.6146	2.2600e-003		40.6622
Total	**0.0183**	**0.0223**	**0.2604**	**4.7000e-004**	**0.0377**	**3.3000e-004**	**0.0381**	**0.0100**	**3.0000e-004**	**0.0103**		**40.6146**	**40.6146**	**2.2600e-003**		**40.6622**

3.6 Architectural Coating - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	274.3109					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209	0.0000	281.4481	281.4481	0.0367		282.2177
Total	**274.7175**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**	**0.0000**	**281.4481**	**281.4481**	**0.0367**		**282.2177**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0183	0.0223	0.2604	4.7000e-004	0.0377	3.3000e-004	0.0381	0.0100	3.0000e-004	0.0103		40.6146	40.6146	2.2600e-003		40.6622
Total	**0.0183**	**0.0223**	**0.2604**	**4.7000e-004**	**0.0377**	**3.3000e-004**	**0.0381**	**0.0100**	**3.0000e-004**	**0.0103**		**40.6146**	**40.6146**	**2.2600e-003**		**40.6622**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	6.5827	16.6839	60.4829	0.0951	6.1127	0.2633	6.3760	1.6372	0.2417	1.8789		8,855.4117	8,855.4117	0.4076		8,863.9720
Unmitigated	6.5827	16.6839	60.4829	0.0951	6.1127	0.2633	6.3760	1.6372	0.2417	1.8789		8,855.4117	8,855.4117	0.4076		8,863.9720

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	208.81	208.81	208.81	498,996	498,996
Government (Civic Center)	138.44	138.44	138.44	264,645	264,645
Movie Theater (No Matinee)	1,111.50	1,111.50	1111.50	2,092,951	2,092,951
Medical Office Building	5.51	5.51	5.51	10,789	10,789
Total	1,464.26	1,464.26	1,464.26	2,867,381	2,867,381

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Government (Civic Center)	9.50	7.30	7.30	75.00	20.00	5.00	50	34	16
Movie Theater (No Matinee)	9.50	7.30	7.30	1.80	79.20	19.00	66	17	17
Medical Office Building	9.50	7.30	7.30	29.60	51.40	19.00	60	30	10

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.542757	0.062006	0.168650	0.114572	0.031552	0.004717	0.018583	0.044562	0.001747	0.003723	0.005493	0.000211	0.001428

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0385	0.3504	0.2943	2.1000e-003		0.0266	0.0266		0.0266	0.0266		420.4684	420.4684	8.0600e-003	7.7100e-003	423.0273
NaturalGas Unmitigated	0.0385	0.3504	0.2943	2.1000e-003		0.0266	0.0266		0.0266	0.0266		420.4684	420.4684	8.0600e-003	7.7100e-003	423.0273

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	1813.65	0.0196	0.1778	0.1494	1.0700e-003		0.0135	0.0135		0.0135	0.0135		213.3704	213.3704	4.0900e-003	3.9100e-003	214.6689
Government (Civic Center)	392.236	4.2300e-003	0.0385	0.0323	2.3000e-004		2.9200e-003	2.9200e-003		2.9200e-003	2.9200e-003		46.1454	46.1454	8.8000e-004	8.5000e-004	46.4263
Medical Office Building	14.6199	1.6000e-004	1.4300e-003	1.2000e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		1.7200	1.7200	3.0000e-005	3.0000e-005	1.7305
Movie Theater (No Matinee)	1353.48	0.0146	0.1327	0.1115	8.0000e-004		0.0101	0.0101		0.0101	0.0101		159.2326	159.2326	3.0500e-003	2.9200e-003	160.2016
Total		**0.0386**	**0.3504**	**0.2943**	**2.1100e-003**		**0.0266**	**0.0266**		**0.0266**	**0.0266**		**420.4683**	**420.4683**	**8.0500e-003**	**7.7100e-003**	**423.0273**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Government (Civic Center)	0.392236	4.2300e-003	0.0385	0.0323	2.3000e-004		2.9200e-003	2.9200e-003		2.9200e-003	2.9200e-003		46.1454	46.1454	8.8000e-004	8.5000e-004	46.4263
Medical Office Building	0.0146199	1.6000e-004	1.4300e-003	1.2000e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		1.7200	1.7200	3.0000e-005	3.0000e-005	1.7305
Movie Theater (No Matinee)	1.35348	0.0146	0.1327	0.1115	8.0000e-004		0.0101	0.0101		0.0101	0.0101		159.2326	159.2326	3.0500e-003	2.9200e-003	160.2016
General Office Building	1.81365	0.0196	0.1778	0.1494	1.0700e-003		0.0135	0.0135		0.0135	0.0135		213.3704	213.3704	4.0900e-003	3.9100e-003	214.6689
Total		**0.0386**	**0.3504**	**0.2943**	**2.1100e-003**		**0.0266**	**0.0266**		**0.0266**	**0.0266**		**420.4683**	**420.4683**	**8.0500e-003**	**7.7100e-003**	**423.0273**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.4453	9.3000e-004	0.0955	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004		0.1959	0.1959	5.9000e-004		0.2082
Unmitigated	1.4453	9.3000e-004	0.0955	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004		0.1959	0.1959	5.9000e-004		0.2082

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1691					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.2665					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.6500e-003	9.3000e-004	0.0955	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004		0.1959	0.1959	5.9000e-004		0.2082
Total	**1.4453**	**9.3000e-004**	**0.0955**	**1.0000e-005**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**		**0.1959**	**0.1959**	**5.9000e-004**		**0.2082**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1691					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.2665					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.6500e-003	9.3000e-004	0.0955	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004		0.1959	0.1959	5.9000e-004		0.2082
Total	**1.4453**	**9.3000e-004**	**0.0955**	**1.0000e-005**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**		**0.1959**	**0.1959**	**5.9000e-004**		**0.2082**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

2211 Harold Way Mixed-Use Project - Existing Uses On-Site

Alameda County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Movie Theater (No Matinee)	855.00	Seat	0.44	19,237.50	0
General Office Building	32.63	1000sqft	0.27	32,626.00	0
Medical Office Building	0.26	1000sqft	0.01	263.00	0
Government (Civic Center)	7.06	1000sqft	0.16	7,056.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 63

Climate Zone 5 **Operational Year** 2014

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 641.35 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Unit amounts and size from traffic analysis. General office acreage modified to .29 to total 0.88 acres (project site area).

Construction Phase - No construction (existing operational use estimate.)

Demolition -

Grading -

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation - 50% waste diversion, consistent with AB 939.

Trips and VMT -

Vehicle Trips - Weekday trip generation rates consistent with traffic analysis conducted by IBI Group (March 2014). ITE Trip Generation Manual 9th Ed. trip rates reduced using a 0.58 mode share factor.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	250.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	250.00
tblLandUse	LotAcreage	0.75	0.27
tblVehicleTrips	ST_TR	2.37	6.40
tblVehicleTrips	ST_TR	0.00	19.62
tblVehicleTrips	ST_TR	1.80	1.30
tblVehicleTrips	ST_TR	8.96	20.96
tblVehicleTrips	SU_TR	0.98	6.40
tblVehicleTrips	SU_TR	0.00	19.62
tblVehicleTrips	SU_TR	1.80	1.30
tblVehicleTrips	SU_TR	1.55	20.96
tblVehicleTrips	WD_TR	11.01	6.40
tblVehicleTrips	WD_TR	27.92	19.62
tblVehicleTrips	WD_TR	1.80	1.30
tblVehicleTrips	WD_TR	36.13	20.96

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	274.7360	15.7009	11.5422	0.0160	0.8471	1.0204	1.7227	0.4388	0.9387	1.2754	0.0000	1,630.116 0	1,630.116 0	0.3699	0.0000	1,637.883 7
Total	**274.7360**	**15.7009**	**11.5422**	**0.0160**	**0.8471**	**1.0204**	**1.7227**	**0.4388**	**0.9387**	**1.2754**	**0.0000**	**1,630.116 0**	**1,630.116 0**	**0.3699**	**0.0000**	**1,637.883 7**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	274.7360	15.7009	11.5422	0.0160	0.8471	1.0204	1.7227	0.4388	0.9387	1.2754	0.0000	1,630.116 0	1,630.116 0	0.3699	0.0000	1,637.883 7
Total	**274.7360**	**15.7009**	**11.5422**	**0.0160**	**0.8471**	**1.0204**	**1.7227**	**0.4388**	**0.9387**	**1.2754**	**0.0000**	**1,630.116 0**	**1,630.116 0**	**0.3699**	**0.0000**	**1,637.883 7**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.4453	9.3000e-004	0.0955	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004		0.1959	0.1959	5.9000e-004		0.2082
Energy	0.0385	0.3504	0.2943	2.1000e-003		0.0266	0.0266		0.0266	0.0266		420.4684	420.4684	8.0600e-003	7.7100e-003	423.0273
Mobile	7.0767	18.2802	73.4136	0.0898	6.1127	0.2662	6.3789	1.6372	0.2444	1.8816		8,350.2901	8,350.2901	0.4082		8,358.8627
Total	**8.5605**	**18.6315**	**73.8034**	**0.0919**	**6.1127**	**0.2932**	**6.4059**	**1.6372**	**0.2713**	**1.9086**		**8,770.9543**	**8,770.9543**	**0.4169**	**7.7100e-003**	**8,782.0981**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.4453	9.3000e-004	0.0955	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004		0.1959	0.1959	5.9000e-004		0.2082
Energy	0.0385	0.3504	0.2943	2.1000e-003		0.0266	0.0266		0.0266	0.0266		420.4684	420.4684	8.0600e-003	7.7100e-003	423.0273
Mobile	7.0767	18.2802	73.4136	0.0898	6.1127	0.2662	6.3789	1.6372	0.2444	1.8816		8,350.2901	8,350.2901	0.4082		8,358.8627
Total	**8.5605**	**18.6315**	**73.8034**	**0.0919**	**6.1127**	**0.2932**	**6.4059**	**1.6372**	**0.2713**	**1.9086**		**8,770.9543**	**8,770.9543**	**0.4169**	**7.7100e-003**	**8,782.0981**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/15/2015	1/15/2015	5	1	
2	Grading	Grading	1/16/2015	1/19/2015	5	2	
3	Building Construction	Building Construction	1/20/2015	6/8/2015	5	100	
4	Paving	Paving	6/9/2015	6/15/2015	5	5	
5	Architectural Coating	Architectural Coating	6/16/2015	6/22/2015	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 88,774; Non-Residential Outdoor: 29,591 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	21.00	10.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	1.4222	14.2999	7.4063	9.3600e-003		0.8797	0.8797		0.8093	0.8093		984.5542	984.5542	0.2939		990.7267
Total	**1.4222**	**14.2999**	**7.4063**	**9.3600e-003**	**0.5303**	**0.8797**	**1.4100**	**0.0573**	**0.8093**	**0.8666**		**984.5542**	**984.5542**	**0.2939**		**990.7267**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0231	0.0346	0.3211	5.4000e-004	0.0472	4.1000e-004	0.0476	0.0125	3.8000e-004	0.0129		46.7599	46.7599	2.8300e-003		46.8193
Total	**0.0231**	**0.0346**	**0.3211**	**5.4000e-004**	**0.0472**	**4.1000e-004**	**0.0476**	**0.0125**	**3.8000e-004**	**0.0129**		**46.7599**	**46.7599**	**2.8300e-003**		**46.8193**

3.2 Site Preparation - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	1.4222	14.2999	7.4063	9.3600e-003		0.8797	0.8797		0.8093	0.8093	0.0000	984.5542	984.5542	0.2939		990.7267
Total	**1.4222**	**14.2999**	**7.4063**	**9.3600e-003**	**0.5303**	**0.8797**	**1.4100**	**0.0573**	**0.8093**	**0.8666**	**0.0000**	**984.5542**	**984.5542**	**0.2939**		**990.7267**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0231	0.0346	0.3211	5.4000e-004	0.0472	4.1000e-004	0.0476	0.0125	3.8000e-004	0.0129		46.7599	46.7599	2.8300e-003		46.8193
Total	**0.0231**	**0.0346**	**0.3211**	**5.4000e-004**	**0.0472**	**4.1000e-004**	**0.0476**	**0.0125**	**3.8000e-004**	**0.0129**		**46.7599**	**46.7599**	**2.8300e-003**		**46.8193**

3.3 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	1.4120	11.9409	8.8138	0.0120		0.8748	0.8748		0.8359	0.8359		1,200.6386	1,200.6386	0.2451		1,205.7861
Total	**1.4120**	**11.9409**	**8.8138**	**0.0120**	**0.7528**	**0.8748**	**1.6276**	**0.4138**	**0.8359**	**1.2496**		**1,200.6386**	**1,200.6386**	**0.2451**		**1,205.7861**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0462	0.0692	0.6421	1.0800e-003	0.0943	8.3000e-004	0.0951	0.0250	7.5000e-004	0.0258		93.5197	93.5197	5.6600e-003		93.6386
Total	**0.0462**	**0.0692**	**0.6421**	**1.0800e-003**	**0.0943**	**8.3000e-004**	**0.0951**	**0.0250**	**7.5000e-004**	**0.0258**		**93.5197**	**93.5197**	**5.6600e-003**		**93.6386**

3.3 Grading - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	1.4120	11.9409	8.8138	0.0120		0.8748	0.8748		0.8359	0.8359	0.0000	1,200.6386	1,200.6386	0.2451		1,205.7861
Total	**1.4120**	**11.9409**	**8.8138**	**0.0120**	**0.7528**	**0.8748**	**1.6276**	**0.4138**	**0.8359**	**1.2496**	**0.0000**	**1,200.6386**	**1,200.6386**	**0.2451**		**1,205.7861**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0462	0.0692	0.6421	1.0800e-003	0.0943	8.3000e-004	0.0951	0.0250	7.5000e-004	0.0258		93.5197	93.5197	5.6600e-003		93.6386
Total	**0.0462**	**0.0692**	**0.6421**	**1.0800e-003**	**0.0943**	**8.3000e-004**	**0.0951**	**0.0250**	**7.5000e-004**	**0.0258**		**93.5197**	**93.5197**	**5.6600e-003**		**93.6386**

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4538	14.3777	8.2983	0.0113		0.9995	0.9995		0.9195	0.9195		1,191.7021	1,191.7021	0.3558		1,199.1733
Total	**1.4538**	**14.3777**	**8.2983**	**0.0113**		**0.9995**	**0.9995**		**0.9195**	**0.9195**		**1,191.7021**	**1,191.7021**	**0.3558**		**1,199.1733**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1534	1.1778	1.8956	2.4000e-003	0.0667	0.0192	0.0859	0.0191	0.0176	0.0367		242.0225	242.0225	2.2300e-003		242.0694
Worker	0.0970	0.1454	1.3484	2.2600e-003	0.1980	1.7300e-003	0.1998	0.0525	1.5800e-003	0.0541		196.3914	196.3914	0.0119		196.6410
Total	**0.2504**	**1.3232**	**3.2440**	**4.6600e-003**	**0.2648**	**0.0209**	**0.2856**	**0.0716**	**0.0192**	**0.0908**		**438.4139**	**438.4139**	**0.0141**		**438.7104**

3.4 Building Construction - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4538	14.3777	8.2983	0.0113		0.9995	0.9995		0.9195	0.9195	0.0000	1,191.7021	1,191.7021	0.3558		1,199.1733
Total	**1.4538**	**14.3777**	**8.2983**	**0.0113**		**0.9995**	**0.9995**		**0.9195**	**0.9195**	**0.0000**	**1,191.7021**	**1,191.7021**	**0.3558**		**1,199.1733**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1534	1.1778	1.8956	2.4000e-003	0.0667	0.0192	0.0859	0.0191	0.0176	0.0367		242.0225	242.0225	2.2300e-003		242.0694
Worker	0.0970	0.1454	1.3484	2.2600e-003	0.1980	1.7300e-003	0.1998	0.0525	1.5800e-003	0.0541		196.3914	196.3914	0.0119		196.6410
Total	**0.2504**	**1.3232**	**3.2440**	**4.6600e-003**	**0.2648**	**0.0209**	**0.2856**	**0.0716**	**0.0192**	**0.0908**		**438.4139**	**438.4139**	**0.0141**		**438.7104**

3.5 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2092	11.5427	7.3586	0.0111		0.7247	0.7247		0.6703	0.6703		1,093.5433	1,093.5433	0.2970		1,099.7794
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2092**	**11.5427**	**7.3586**	**0.0111**		**0.7247**	**0.7247**		**0.6703**	**0.6703**		**1,093.5433**	**1,093.5433**	**0.2970**		**1,099.7794**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0832	0.1246	1.1558	1.9400e-003	0.1698	1.4900e-003	0.1712	0.0450	1.3600e-003	0.0464		168.3355	168.3355	0.0102		168.5494
Total	**0.0832**	**0.1246**	**1.1558**	**1.9400e-003**	**0.1698**	**1.4900e-003**	**0.1712**	**0.0450**	**1.3600e-003**	**0.0464**		**168.3355**	**168.3355**	**0.0102**		**168.5494**

3.5 Paving - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2092	11.5427	7.3586	0.0111		0.7247	0.7247		0.6703	0.6703	0.0000	1,093.5433	1,093.5433	0.2970		1,099.7794
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2092**	**11.5427**	**7.3586**	**0.0111**		**0.7247**	**0.7247**		**0.6703**	**0.6703**	**0.0000**	**1,093.5433**	**1,093.5433**	**0.2970**		**1,099.7794**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0832	0.1246	1.1558	1.9400e-003	0.1698	1.4900e-003	0.1712	0.0450	1.3600e-003	0.0464		168.3355	168.3355	0.0102		168.5494
Total	**0.0832**	**0.1246**	**1.1558**	**1.9400e-003**	**0.1698**	**1.4900e-003**	**0.1712**	**0.0450**	**1.3600e-003**	**0.0464**		**168.3355**	**168.3355**	**0.0102**		**168.5494**

3.6 Architectural Coating - 2015

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Archit. Coating	274.3109					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209		281.4481	281.4481	0.0367		282.2177
Total	**274.7175**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**		**281.4481**	**281.4481**	**0.0367**		**282.2177**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0185	0.0277	0.2568	4.3000e-004	0.0377	3.3000e-004	0.0381	0.0100	3.0000e-004	0.0103		37.4079	37.4079	2.2600e-003		37.4554
Total	**0.0185**	**0.0277**	**0.2568**	**4.3000e-004**	**0.0377**	**3.3000e-004**	**0.0381**	**0.0100**	**3.0000e-004**	**0.0103**		**37.4079**	**37.4079**	**2.2600e-003**		**37.4554**

3.6 Architectural Coating - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	274.3109					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209	0.0000	281.4481	281.4481	0.0367		282.2177
Total	**274.7175**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**	**0.0000**	**281.4481**	**281.4481**	**0.0367**		**282.2177**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0185	0.0277	0.2568	4.3000e-004	0.0377	3.3000e-004	0.0381	0.0100	3.0000e-004	0.0103		37.4079	37.4079	2.2600e-003		37.4554
Total	**0.0185**	**0.0277**	**0.2568**	**4.3000e-004**	**0.0377**	**3.3000e-004**	**0.0381**	**0.0100**	**3.0000e-004**	**0.0103**		**37.4079**	**37.4079**	**2.2600e-003**		**37.4554**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.0767	18.2802	73.4136	0.0898	6.1127	0.2662	6.3789	1.6372	0.2444	1.8816		8,350.290 1	8,350.290 1	0.4082		8,358.862 7
Unmitigated	7.0767	18.2802	73.4136	0.0898	6.1127	0.2662	6.3789	1.6372	0.2444	1.8816		8,350.290 1	8,350.290 1	0.4082		8,358.862 7

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	208.81	208.81	208.81	498,996	498,996
Government (Civic Center)	138.44	138.44	138.44	264,645	264,645
Movie Theater (No Matinee)	1,111.50	1,111.50	1111.50	2,092,951	2,092,951
Medical Office Building	5.51	5.51	5.51	10,789	10,789
Total	1,464.26	1,464.26	1,464.26	2,867,381	2,867,381

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Government (Civic Center)	9.50	7.30	7.30	75.00	20.00	5.00	50	34	16
Movie Theater (No Matinee)	9.50	7.30	7.30	1.80	79.20	19.00	66	17	17
Medical Office Building	9.50	7.30	7.30	29.60	51.40	19.00	60	30	10

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.542757	0.062006	0.168650	0.114572	0.031552	0.004717	0.018583	0.044562	0.001747	0.003723	0.005493	0.000211	0.001428

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0385	0.3504	0.2943	2.1000e-003		0.0266	0.0266		0.0266	0.0266		420.4684	420.4684	8.0600e-003	7.7100e-003	423.0273
NaturalGas Unmitigated	0.0385	0.3504	0.2943	2.1000e-003		0.0266	0.0266		0.0266	0.0266		420.4684	420.4684	8.0600e-003	7.7100e-003	423.0273

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	1813.65	0.0196	0.1778	0.1494	1.0700e-003		0.0135	0.0135		0.0135	0.0135		213.3704	213.3704	4.0900e-003	3.9100e-003	214.6689
Government (Civic Center)	392.236	4.2300e-003	0.0385	0.0323	2.3000e-004		2.9200e-003	2.9200e-003		2.9200e-003	2.9200e-003		46.1454	46.1454	8.8000e-004	8.5000e-004	46.4263
Medical Office Building	14.6199	1.6000e-004	1.4300e-003	1.2000e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		1.7200	1.7200	3.0000e-005	3.0000e-005	1.7305
Movie Theater (No Matinee)	1353.48	0.0146	0.1327	0.1115	8.0000e-004		0.0101	0.0101		0.0101	0.0101		159.2326	159.2326	3.0500e-003	2.9200e-003	160.2016
Total		**0.0386**	**0.3504**	**0.2943**	**2.1100e-003**		**0.0266**	**0.0266**		**0.0266**	**0.0266**		**420.4683**	**420.4683**	**8.0500e-003**	**7.7100e-003**	**423.0273**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Government (Civic Center)	0.392236	4.2300e-003	0.0385	0.0323	2.3000e-004		2.9200e-003	2.9200e-003		2.9200e-003	2.9200e-003		46.1454	46.1454	8.8000e-004	8.5000e-004	46.4263
Medical Office Building	0.0146199	1.6000e-004	1.4300e-003	1.2000e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		1.7200	1.7200	3.0000e-005	3.0000e-005	1.7305
Movie Theater (No Matinee)	1.35348	0.0146	0.1327	0.1115	8.0000e-004		0.0101	0.0101		0.0101	0.0101		159.2326	159.2326	3.0500e-003	2.9200e-003	160.2016
General Office Building	1.81365	0.0196	0.1778	0.1494	1.0700e-003		0.0135	0.0135		0.0135	0.0135		213.3704	213.3704	4.0900e-003	3.9100e-003	214.6689
Total		**0.0386**	**0.3504**	**0.2943**	**2.1100e-003**		**0.0266**	**0.0266**		**0.0266**	**0.0266**		**420.4683**	**420.4683**	**8.0500e-003**	**7.7100e-003**	**423.0273**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.4453	9.3000e-004	0.0955	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004		0.1959	0.1959	5.9000e-004		0.2082
Unmitigated	1.4453	9.3000e-004	0.0955	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004		0.1959	0.1959	5.9000e-004		0.2082

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1691					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.2665					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.6500e-003	9.3000e-004	0.0955	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004		0.1959	0.1959	5.9000e-004		0.2082
Total	**1.4453**	**9.3000e-004**	**0.0955**	**1.0000e-005**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**		**0.1959**	**0.1959**	**5.9000e-004**		**0.2082**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1691					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.2665					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.6500e-003	9.3000e-004	0.0955	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004		0.1959	0.1959	5.9000e-004		0.2082
Total	**1.4453**	**9.3000e-004**	**0.0955**	**1.0000e-005**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**		**0.1959**	**0.1959**	**5.9000e-004**		**0.2082**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Appendix C

Geotechnical Feasibility Report

GEOTECHNICAL FEASIBILITY REPORT

HIGH RISE AT THE SHATTUCK
BERKELEY, CALIFORNIA

Submitted to:
Ms. Gretchen Barth
Hill Street Realty
11100 Santa Monica Boulevard, Suite 880
Los Angeles, CA 90025

Prepared by:
ENGEO Incorporated

January 25, 2013

Project No:
9842.000.000

- Expect Excellence -

ENGEO
Expect Excellence

GEOTECHNICAL
ENVIRONMENTAL
WATER RESOURCES
CONSTRUCTION SERVICES

Project No.
9842.000.000

January 25, 2013

Ms. Gretchen Barth
Hill Street Realty
11100 Santa Monica Boulevard, Suite 880
Los Angeles, CA 90025

Subject: High Rise at The Shattuck
Berkeley, California

GEOTECHNICAL FEASIBILITY REPORT

Dear Ms. Barth:

ENGEO prepared this geotechnical feasibility report for the proposed high-rise development adjacent to The Shattuck Hotel in downtown Berkeley, California, as outlined in our agreement dated November 14, 2012. We characterized the subsurface conditions at the site to provide the preliminary feasibility study.

The accompanying report contains our data review, conclusions, and preliminary recommendations for the geotechnical aspects of the proposed development on the subject site. Based on our study, it is our opinion that the proposed development is feasible from a geotechnical standpoint provided the preliminary recommendations included in this report are followed.

We are pleased to be of service to you on this project and look forward to consulting further with you and your design team.

Sincerely,

ENGEO Incorporated

Pedro Espinosa, GE

R. William Rudolph, GE

2010 Crow Canyon Place, Suite 250 • San Ramon, CA 94583 • (925) 866-9000 • Fax (888) 279-2698
www.engeo.com

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FIGURES

1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

ENGEO prepared this geotechnical feasibility report for the proposed high-rise development adjacent to The Shattuck Hotel in downtown Berkeley, California. We prepared this report as outlined in our agreement dated November 14, 2012. Hill Street Realty authorized ENGEO to conduct the proposed scope of services, which included the following:

- Site visit and review of available subsurface geotechnical and environmental data from the site and adjacent to the site, review of published geologic maps and pre-development historical maps.

- Contact the City of Berkeley to request any available information regarding the construction of the culvert adjacent to the site and any existing geotechnical data in the area.

- Seismic design criteria in accordance with the 2010 CBC and 2013 CBC (ASCE 7-10 methodology), preliminary qualitative evaluation of liquefaction and other seismic hazards.

- Preliminary foundation design alternatives, including shallow mat/footing foundations, and deep foundations to control settlements and resist vertical compression/uplift, as well as lateral loads.

- Design consideration for basements including anticipated groundwater conditions, excavation shoring, construction dewatering, and permanent under-drainage or hydrostatic uplift requirements.

- Preparation of a report providing our preliminary findings and conclusions regarding the geotechnical aspects of the project.

This report was prepared for the exclusive use of our client and their consultants for design of this project. In the event that any changes are made in the character, design or layout of the development, we must be contacted to review the conclusions and recommendations contained in this report to determine whether modifications are necessary. This document may not be reproduced in whole or in part by any means whatsoever, nor may it be quoted or excerpted without our express written consent.

1.2 PROJECT LOCATION

The site is located on the block bounded by Shattuck Avenue to the east, Allston Way to the north, Harold Way to the west and Kittredge Street to the south. in Berkeley, California (Figure 1). The site is generally flat and consists approximately 1.50 acres. The site is currently occupied by 1- to 3-story buildings on the western side of the block, and 1- to 6-story buildings on the eastern and northern ends of the block. The eastern and northern end of the block (facing Shattuck Ave and Allston Way) are part of the historical Shattuck Hotel.

1.3 PROJECT DESCRIPTION

Based on the preliminary renderings from MVEI Architects dated October 26, 2012, two schemes are proposed for the western half of the block bounded by Shattuck Avenue to the east, Allston Way to the north, Harold Way to the west and Kittredge Street to the south. The historical buildings on the eastern side of the block will remain under both schemes. Scheme A depicts "twin" 18-story towers facing Harold Way, while Scheme B depicts one 18-story and one 12-story towers facing Harold way with an additional 12-story tower facing Kittredge Street (single "L" tower). Both schemes are proposed to have as many as four levels of basement for underground garage stalls. The excavation for the four levels of basement will be in relative close proximity to the existing historical buildings.

2.0 FINDINGS

2.1 GEOLOGY AND SEISMICITY

2.1.1 Regional Geology

The site is located in the Northern California Coast Ranges geomorphic province, which is dominated by northwest-trending faults and folds. The Coast Ranges are a complex series of linear mountain ranges that lie more-or-less parallel to the coast and to the San Andreas Fault System. The Coast Ranges are composed primarily of Jurassic and Cretaceous-age rocks that accumulated on the sea floor and were later scraped-off when the ocean plate on which they originated was subducted beneath North America. These older rocks include a tectonic mix of sandstone, chert, altered basalt referred to as greenstone, and serpentinite, collectively referred to as the Franciscan Complex. While Franciscan bedrock is exposed in the hills and cliffs of the San Francisco Bay Area, the flanks of the hills are blanketed with thin to thick layers of colluvium and alluvium (weathered material washed downslope from the bedrock exposures). Valleys are filled with water-laid stream deposits.

2.1.2 Local Geology

The site geology has been mapped by Radbruch (1957) and updated by Seismic Hazard Zone for the Oakland West Quadrangle (California Geological Survey, 2003) (Figures 3 and 4). The geologic unit mapped at the site by Radbruch is described as the Quaternary Temescal formation, which is comprised of alluvial-fan deposits with interfingering lenses of clayey gravel, sandy silty clay, and sand-clay-silt mixtures. The CGS (2003) maps the site as having surficial soils of the Quaternary Holocene alluvial fan deposits, artificial fills related to the historic alignment of the south fork of the Strawberry Creek, and deeper soils of the older Quaternary Pleistocene alluvial fan deposits.

2.1.3 Seismicity

No active faults are known to pass through the site based on a review of the most recent compilation of Quaternary-active faults by the USGS (Graymer, et al., 2006). According to the USGS interactive deaggregation tool, most of the seismic risk for a probability of 2% in 50 years comes from the Hayward fault, which is, situated less than 2 miles away from our site. This seismic event has a moment magnitude of 7.0. The deaggregation output is shown in Appendix A.

Many earthquakes of low magnitude occur every year throughout the region; most are concentrated along the San Andreas, Hayward and Calaveras faults. Figure 5 shows the approximate location of Quaternary faults and significant historic earthquakes mapped within the San Francisco Bay Region.

Active faults in the San Francisco Bay Area capable of producing significant ground shaking at the Site are shown in Figure 5. Any one of these faults could generate an earthquake capable of causing strong ground shaking at the site. Earthquakes of Magnitude 7 and larger have historically occurred in the Bay Area and numerous small magnitude earthquakes occur every year; therefore, the site will likely experience moderate to strong ground shaking from an earthquake within the design life of the project.

2.2 REVIEW OF EXISTING DATA

As part of our scope for this feasibility report, we reviewed relevant information regarding geotechnical and geological aspects of the site. We reviewed the following reports:

- Soils Investigation Segment R-005, Berkeley, California by Dames and Moore (1965) in support of the design of the Bay Area Rapid Transit district tunnel below Shattuck Avenue.
- Geotechnical Exploration, Berkeley High School, Berkeley, California, ENGEO Incorporated, October 22, 2008.
- Geotechnical Study, Brower Center, Berkeley, California, Fugro West, Inc; February 23, 2005.
- Geotechnical Engineering Study, University of California, Berkeley, Art Museum Relocation Study, Berkeley, California; URS; May 8, 2001.

2.3 SUBSURFACE CONDITIONS

Review of available test boring data in the area generally confirms the conditions shown of the referenced geologic and historical maps. Surface soils at the site generally consists of stiff to very stiff gravelly to sandy clayey with interbedded layers of medium dense to dense clayey sand and gravels sized rock fragments. These are interpreted as Holocene age alluvial fan deposits and generally extend to depths less than 20 feet deep. The younger alluvium is underlain by older

Pleistocene alluvium, generally consisting of similar layers of interbedded clays, sands and gravels. However, the older granular deposits are dense to very dense and the clayey soils are very stiff to hard.

As shown on Figure 7, the historical alignment of the Strawberry Creek was incised into the alluvium through the northern side of the project site. At the end of the 1800's the creek was re-aligned within a culvert below Allston Way. Geologic maps (Figure 4) show this historical alignment as being filled with artificial fill. This type of historical creek fill is common within the Berkeley area. Generally, the historic creeks contain up to 10 feet of native creek deposits consisting of loose to medium dense sand and medium stiff to stiff clays. Typically relatively poor quality fill was placed in the historic creek alignments. As a result, the fill may contain weak and compressible soils, debris and/or loose liquefiable soils. The total thickness of the fill and creek deposits generally is less than 20 to 25 feet.

2.4 GROUNDWATER CONDITIONS

During our review of existing data, we found that groundwater levels at the site may range from 15 to 20 feet below ground surface. Fluctuations in groundwater levels may occur daily, seasonally and over a period of years because of precipitation and other factors, including the water levels in the adjacent creeks/culverts. The potential for groundwater contamination could be a construction consideration as described below.

3.0 CONCLUSIONS

Based on our knowledge of the area and our review of existing data, we conclude that the proposed development is feasible from a geotechnical standpoint, provided that the preliminary recommendations included in this report, along with other sound engineering practices, are incorporated in the design and construction of the project. The primary geotechnical considerations for this project are:

- The presence of adjacent structures and roadways to the proposed excavation and the need for shoring and possibly underpinning.
- The presence of groundwater within 15 feet of the existing ground surface and its influence on below grade construction.
- The presence of potentially liquefiable sands locally below the proposed excavation.
- Selection of an appropriate foundation system.

3.1 IMPLEMENTATION OF CBC 2013

We understand that the building may be designed under the future California Building Code to be published in 2013. This new building code will be based on the "Minimum Design Loads for

Buildings and Other Structures: ASCE Standard 7-10." Some of the major geotechnical changes that may result due to the implementation of the new code are the following:

- Use of the Maximum Credible Earthquake peak ground acceleration (PGA) for calculation of geohazards. These geohazards are, but not limited to liquefaction potential, pseudo-static slope stability and horizontal seismic loading on walls.

- Increase in seismic design parameter values to calculate seismic forces on the superstructure. This increase is due to the fact that new code is moving away from a uniform hazard to determine seismic force to a "target risk of structural collapse."

- Additional increases in the seismic forces are due to the adjustment of the ground motions to model the behavior of the maximum response instead of the geometric mean response.

3.2 SEISMIC HAZARDS

Potential seismic hazards resulting from a nearby moderate to major earthquake can generally be classified as primary and secondary. The primary effect is ground rupture, also called surface faulting. The common secondary seismic hazards include ground shaking, and ground lurching. The following sections present a discussion of these hazards as they apply to the site.

3.2.1 Ground Rupture

Since there are no known active faults crossing the property and the site is not located within an Earthquake Fault Special Study Zone, it is our opinion that ground rupture is unlikely at the subject property.

3.2.2 Ground Shaking

An earthquake of moderate to high magnitude generated within the San Francisco Bay Region could cause considerable ground shaking at the site, similar to that which has occurred in the past. To mitigate the shaking effects, all structures should be designed using sound engineering judgment and the latest California Building Code (CBC) requirements, as a minimum.

3.2.3 Liquefaction

Soil liquefaction results from loss of strength during cyclic loading, such as imposed by earthquakes. Soils most susceptible to liquefaction are clean, loose, saturated, uniformly graded, fine-grained sands. The basis of the 2013 CBC is the ASCE 7-10, and this publication no longer uses a "design" PGA derived from the design response spectrum but specifies an "ultimate" value of the PGA derived from the Maximum Credible Earthquake (MCE). This will increase the input motions to calculate triggering of liquefaction.

From our review of existing data, it appears that the native soils are too dense to be prone to liquefaction. However, the historical alignment of the Strawberry Creek was backfilled with uncontrolled fill (see Section 2.3) which has been mapped as potentially liquefiable by the California Geological Survey (Figure 6). As stated above, part of this historical alignment runs underneath the northern end of the project site. From the description of the proposed building, we understand that up to 4 basement levels are considered for the project. It is our opinion that excavation for the construction of the 4 basement levels will remove the backfill used to fill in the Strawberry Creek as well as the potentially weak or liquefiable recent creek deposits at the site. Considering that a site specific geotechnical exploration is recommended to confirm this, it is our opinion that the potential for liquefaction at the site is negligible.

3.2.4 Lateral Spreading

Lateral spread is the finite, lateral displacement of sloping ground (0.1 to <6 percent) as a result of pore pressure buildup or liquefaction in a shallow, underlying soil deposit during an earthquake. Lateral spreading, as a result of liquefaction, occurs when a soil mass slides laterally on a liquefied layer, and gravitational and inertial forces cause the layer, and the overlying non-liquefied material, to move in a downslope direction. The magnitude of lateral spreading movements depends on earthquake magnitude, distance between the site and the seismic event, thickness of the liquefied layer, ground slope or ratio of free-face height to distance between the free face and structure, fines content, average particle size of the materials comprising the liquefied layer, and the standard penetration rates of the materials. As stated in the previous section the liquefaction potential under this preliminary evaluation was deemed to be negligible, therefore lateral spread potential at the building site is also considered low.

3.3 2010 AND 2013 CBC SEISMIC DESIGN PARAMETERS

We provide the 2010 and 2013 California Building Code (CBC) seismic parameters in Table 3.3-1 for your use and comparison. We classified this site as Site Class D.

TABLE 3.3-1
2010 and 2013 CBC Seismic Design Parameters

Parameter	Design Value 2010 CBC	Design Value 2013 CBC
Site Class	D	D
0.2 second Spectral Response Acceleration, S_S	1.93	2.33
1.0 second Spectral Response Acceleration, S_1	0.74	0.97
Site Coefficient, F_A	1.0	1.0
Site Coefficient, F_V	1.5	1.5
Maximum considered earthquake spectral response accelerations for short periods, S_{MS}	1.93	2.33

Parameter	Design Value 2010 CBC	Design Value 2013 CBC
Maximum considered earthquake spectral response accelerations for 1-second periods, S_{MS}	1.11	1.45
Design spectral response acceleration at short periods, S_{DS}	1.29	1.55
Design spectral response acceleration at 1-second periods, S_{D1}	0.74	0.97
Long period transition-period, T_L	8 seconds	8 seconds

If necessary, development of a site-specific spectrally matched time-histories may be develop in conjunction with non-linear structural analyses by the structural designer.

3.4 SOIL CORROSION POTENTIAL

Based on sulfate testing done at nearby sites, the native soils are classified within the negligible sulfate exposure levels. Site specific corrosivity testing should be performed to determine corrosion levels for concrete and steel. A corrosion specialist should be consulted for corrosivity design and protection.

3.5 EXCAVATION

As discussed previously, an excavation upwards of 40 feet deep may be necessary for the construction of the proposed basement levels. During excavation of the basement, the sides of the excavation should be shored, and support of adjacent settlement sensitive structures such as the adjacent historical buildings should be addressed in the design of temporary construction support. The primary considerations related to the selection of the shoring systems are:

- The probable presence of shallow groundwater at approximately 15 feet below the existing ground surface;
- Relative closeness of historical structures around the future excavation.

4.0 PRELIMINARY SITE RECOMMENDATIONS

4.1 DEMOLITION AND SITE CLEARING

After demolition of the existing buildings on the western side of the bock, the site should be cleared of all obstructions, including existing foundations, and debris that are not cleared by the excavation of the proposed parking garage. Any existing underground utilities at the site should be identified and either properly abandoned or relocated. Holes resulting from the removal of underground obstructions extending below the proposed finish grades should be cleared and backfilled with suitable properly compacted fill. If the existing buildings within the footprint of the proposed buildings are founded on deep foundations, these elements should be removed down to at least 5 feet below bottom of proposed building slab.

5.0 PRELIMINARY FOUNDATION RECOMMENDATIONS

Based on our review of existing data as described in Section 2 of this report, it is our opinion that the vertical static loads of the structure can be supported utilizing a structural mat foundation. Generally, a mat foundation will help bridge areas of localized settlement and help resist hydrostatic uplift pressures. Additionally, the high seismic loading expected due to the nearby Hayward Fault, may require deep vertical foundation members to withstand uplift and tension forces due to the "rocking" of the superstructure.

5.1 MAT FOUNDATION

For preliminary cost estimating, a modulus of subgrade reaction of 150 pounds per square inch (psi) per inch of deflection for the native soils can be used. A lateral friction coefficient of 0.35 between the bottom of the mat and the soil can be used for design.

The mat foundation design should be sufficiently stiff to act as a rigid unit with minimum differential movement. Due to the very stiff/dense nature of the native soils, and excavation of up to 4 basement levels, the static settlement of the foundation elements will be negligible after the building has been constructed. This will be confirmed during the site specific geotechnical exploration.

5.1.1 Uplift Loads

We anticipate that the garage will be below the groundwater level and will have to be designed for hydrostatic uplift loads. Uplift resistance can be provided by the weight of the foundation elements and the dead loads of the building.

As previously discussed, high tension or uplift forces may develop at the foundation level during the design seismic event due to high horizontal forces the superstructure will see. These forces may be by deep vertical or battered foundation elements.

The deep foundation elements can be cast-in-place-drilled-holes (CIDH) piles, micropiles, or anchors. These can be designed as active or passive systems and we can provide more details as necessary. If an active system is selected additional vertical loading on the mat and vertical settlement can be expected. The relatively shallow depth of the groundwater may cause difficulties with CIDH and micropile construction.

Depending on the structural seismic design, some of the horizontal forces that produce the rocking motion and uplift loads, may be resisted by ultimate passive resistance of the soils on the basement walls.

5.2 WATERPROOFING

We recommend that for preliminary cost estimating, groundwater levels for the project are assumed to be at about 15 feet below existing grade. Permanent dewatering is not recommended and the concrete slabs and walls for the basements will have to be waterproofed and designed to resist hydrostatic and/or uplift pressures. The waterproofing should be designed by a consultant that specializes in permanent waterproofing construction.

6.0 PRELIMINARY BASEMENT WALLS

6.1 LATERAL SOIL PRESSURES

The garage basement walls will act as retaining walls. Basement walls should be designed for at-rest lateral loading conditions. For cost estimating, we recommend the following lateral equivalent fluid pressures (static case):

TABLE 6.1-1
Lateral Earth Pressures

Loading Condition	Equivalent Fluid Pressures (Pcf)	
	Without Hydrostatic Pressures (pcf)	With Hydrostatic Pressures (pcf)
Restrained (At-Rest)	65	95

The design groundwater level should be assumed to be located at 15 feet below finished exterior grade. The parking garage walls that will be constructed below the design groundwater elevation should be waterproofed and designed to resist hydrostatic pressures acting on the entire wall height. Evaluation of passive resistances should be done accordingly with the structural design needs. Ultimate and allowable values passive resistance can be determined in conjunction with the structural designer.

6.2 SEISMIC DESIGN CONSIDERATIONS

Seismic conditions need to be considered in the design of the garage basement retaining walls. Under seismic conditions, the active incremental seismic force along the face of a retaining wall should be added to the static active pressures. The amount of the increment is a function of the PGA at the site, and as discussed in Section 3.1, additional analyses may be required.

7.0 EXCAVATION DEWATERING, SHORING AND UNDERPINNING

Excavation, dewatering and shoring are temporary works that are typically the responsibility of the contractor to design, install, maintain and monitor. The following sections provide preliminary considerations that should be incorporated into the cost estimating process. Geotechnical shoring design recommendations are dependent on performance criteria, the type of system selected and construction sequencing. Accordingly, detailed recommendation should be made in collaboration with the shoring and dewatering designers.

7.1 CONSTRUCTION DEWATERING

It is anticipated that dewatering will be accomplished using interior well points that collect groundwater and discharge the water to an appropriate discharge facility. The water level should be maintained at least 3 feet below the bottom of the deepest excavation during construction. The selection of equipment, actual depth and spacing of the wells should be determined by the dewatering designer/contractor. The dewatering system implemented should be selected so as to have minimal impact on the groundwater level surrounding the proposed excavation. Environmental concerns regarding dewatering should be taken into account by the environmental consultant.

7.2 TEMPORARY SHORING

Temporary shoring will be required to facilitate site construction. Shoring design pressures and construction sequence should be selected to limit horizontal and vertical ground deformations due to shoring deflection. Types of shoring to be considered by the design team may be but are not limited to: soil nail walls and soldier pile and lagging with tie-backs.

Given the proposed excavation depth, it will likely be necessary to restrain the shoring by using a single-level or multi-level system of tie-back anchors or to provide internal bracing. Prior to tie-back design and construction, permission from the neighboring properties will have to be obtained if tie-backs are to encroach into those adjacent properties. Tie-back anchors may be installed to avoid adjacent underground utilities.

7.3 UNDERPINNING

The excavation for the proposed basement will extend below adjacent foundations and underpinning may be required. Foundation details for the adjacent structures are unknown; however, from our experience, the likelihood that adjacent buildings have shallow foundation systems is high. This will need to be confirmed with test pit excavations, if underpinning is deemed to be necessary.

7.4 PRE-CONSTRUCTION SURVEY AND CONSTRUCTION MONITORING

Excavation dewatering and construction will take place adjacent to existing structures, roadways and underground utilities. We recommend that a pre-construction survey (e.g. crack survey) and monitoring program for the surrounding culverts, buildings, roadways, utilities, etc. which may be affected by construction activities be performed before and during construction. This will form a basis for any damage claims and also assist the contractor in assessing the performance of the shoring or excavation slopes. The pre-construction survey should record the elevation and horizontal position of all existing installations within 50 feet minimum and may consist of photographs, video tapes, topographic survey, etc.

It is recommended that a system of construction monitoring is installed. This may consist of inclinometers and groundwater monitoring wells that are installed within a distance of 5 to 15 feet from the excavation towards the existing buildings. Vibration monitoring should be considered during operations of heavy equipment such as pile driving, demolition, etc. In addition, a settlement survey should initially be performed on a weekly basis during excavation and on a monthly basis, approximately one month after the excavation has been completed, at a minimum.

7.5 ADDITIONAL RECOMMENDATIONS

Based upon our findings and assuming that the project proceeds into the next phase of development, additional geotechnical studies will be necessary. These studies will include:

- A design-level geotechnical exploration which may entail groundwater piezometers and exploratory borings, as appropriate.

- A review of final construction plans and specifications, including grading plans, foundation plans and calculations for conformance with our recommendations.

Although these studies are not included in our scope of work, we believe that they are important in expediting approval by governing agencies and achieving cost-effective construction. We will be pleased to provide an estimate for these additional services once final plans and schedules are available.

8.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

This report presents geotechnical recommendations for design of the improvements discussed in Section 1.3 for the development project. If changes occur in the nature or design of the project, we should be allowed to review this report and provide additional recommendations, if any. It is the responsibility of the owner to transmit the information and recommendations of this report to the appropriate organizations or people involved in design of the project, including but not limited to developers, owners, buyers, architects, engineers, and designers. The conclusions and recommendations contained in this report are solely professional opinions and are valid for a period of no more than 2 years from the date of report issuance.

We strived to perform our professional services in accordance with generally accepted geotechnical engineering principles and practices currently employed in the area; no warranty is expressed or implied. There are risks of earth movement and property damages inherent in building on or with earth materials. We are unable to eliminate all risks or provide insurance; therefore, we are unable to guarantee or warrant the results of our services.

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Actual field or other conditions will necessitate clarifications, adjustments, modifications or other changes to ENGEO's documents. Therefore, ENGEO must be engaged to prepare the necessary clarifications, adjustments, modifications or other changes before construction activities commence or further activity proceeds. If ENGEO's scope of services does not include onsite construction observation, or if other persons or entities are retained to provide such services, ENGEO cannot be held responsible for any or all claims arising from or resulting from the performance of such services by other persons or entities, and from any or all claims arising from or resulting from clarifications, adjustments, modifications, discrepancies or other changes necessary to reflect changed field or other conditions.

We determined the lines designating the interface between layers on the exploration logs using visual observations. The transition between the materials may be abrupt or gradual. The exploration logs contain information concerning samples recovered, indications of the presence of various materials such as clay, sand, silt, rock, existing fill, etc., and observations of groundwater encountered. The field logs also contain our interpretation of the subsurface conditions between sample locations. Therefore, the logs contain both factual and interpretative information. Our recommendations are based on the contents of the final logs, which represent our interpretation of the field logs.

FIGURES

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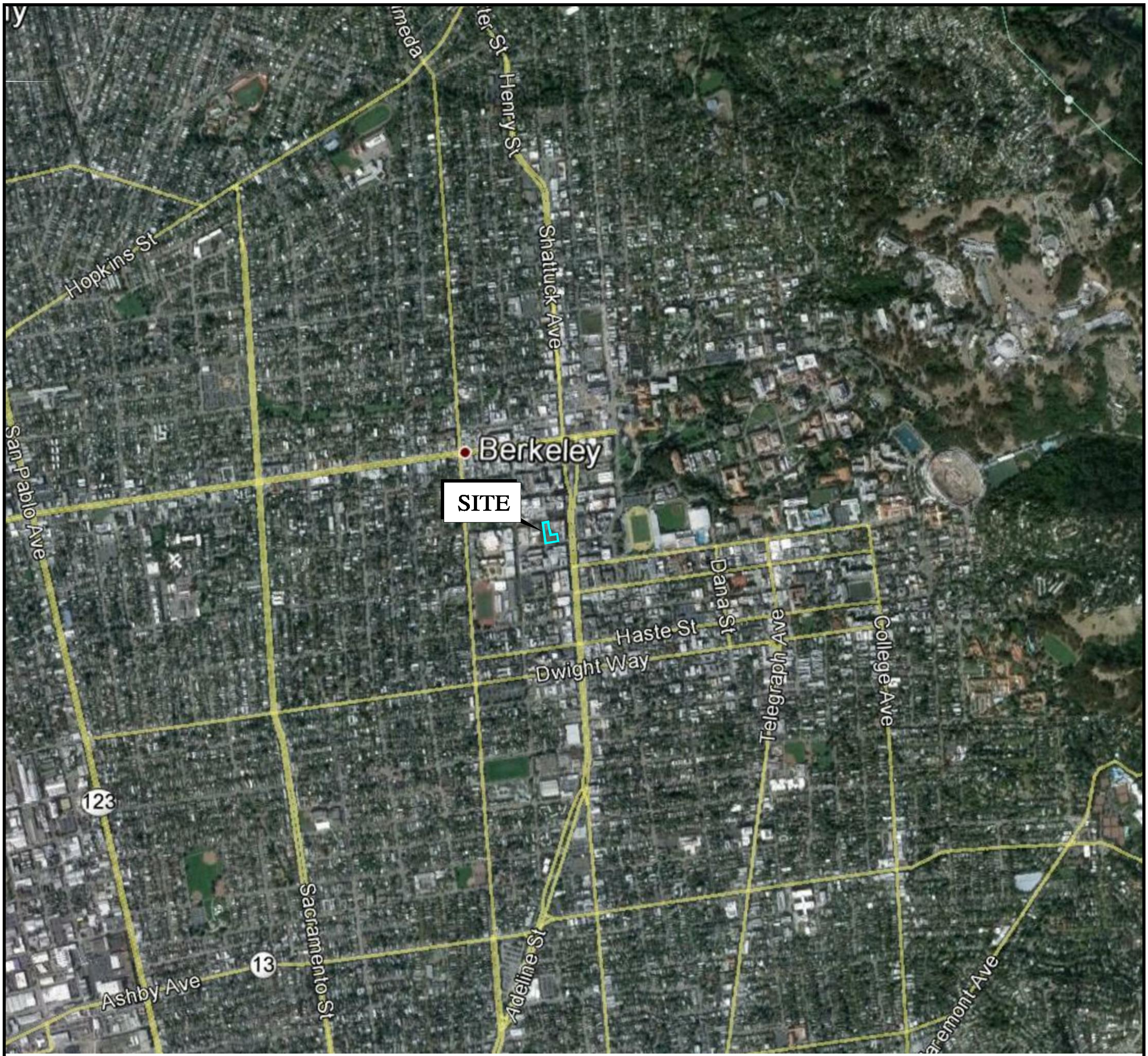

BASE MAP SOURCE: GOOGLE EARTH PRO, 2011

ENGEO Expect Excellence	VICINITY MAP HIGH RISE AT THE SHATTUCK BERKELEY, CALIFORNIA	PROJECT NO.: 9842.000.000 SCALE: AS SHOWN DRAWN BY: SRP CHECKED BY: BR	FIGURE NO. 1

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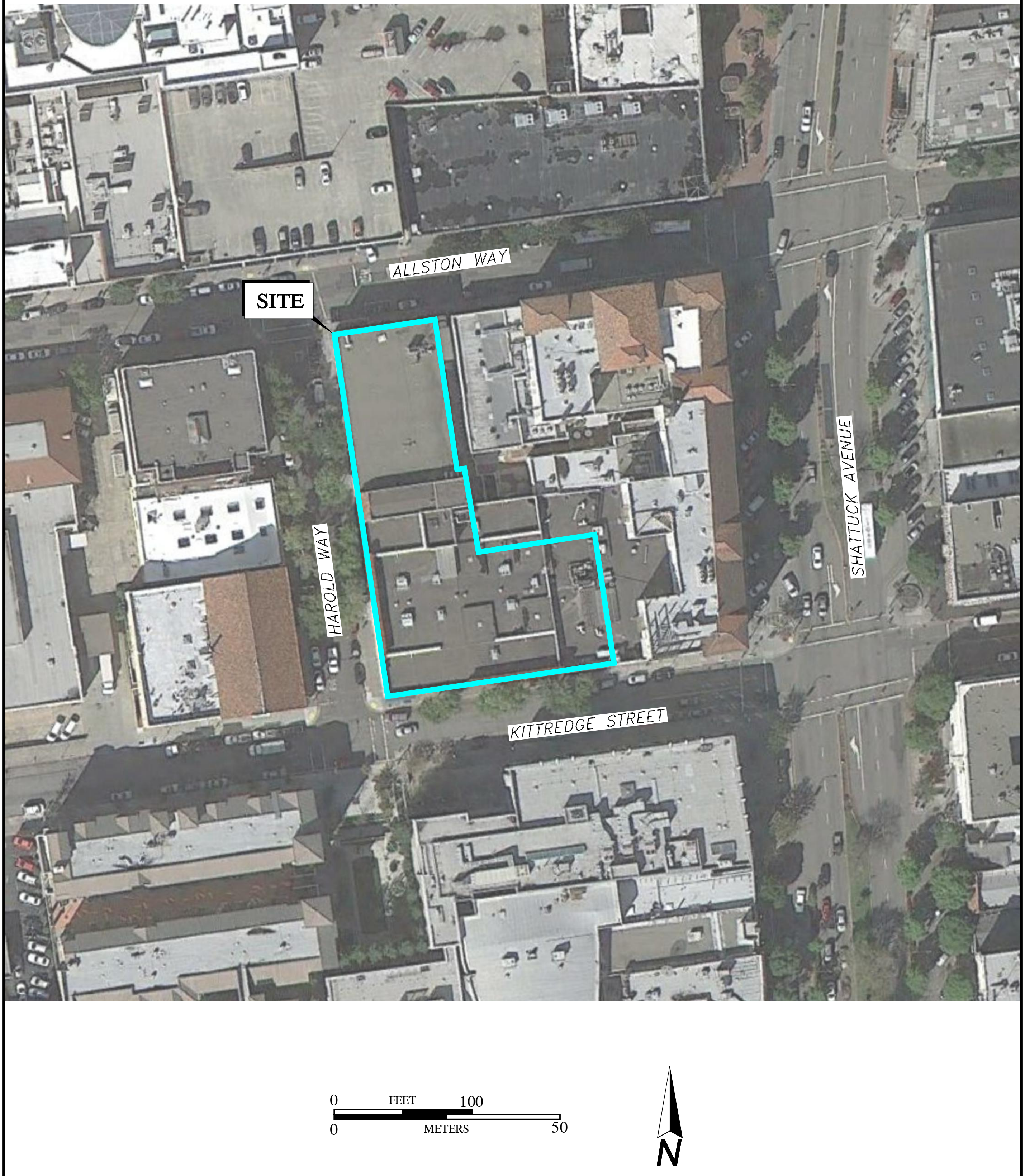
ORIGINAL FIGURE PRINTED IN COLOR



BASE MAP SOURCE: GOOGLE EARTH PRO, 2011

ENGEO Expect Excellence	SITE PLAN HIGH RISE AT THE SHATTUCK BERKELEY, CALIFORNIA	PROJECT NO.: 9842.000.000 SCALE: AS SHOWN DRAWN BY: SRP CHECKED BY: BR	FIGURE NO. 2

EXPLANATION

- Qls LANDSLIDE DEBRIS
- Qaf ARTIFICIAL FILL
- Qrc REWORKED COLLUVIUM
- Qbm BAY MUD
- Qm MERRITT SAND
- Qtc TEMESCAL FORMATION
- Qa ALAMEDA FORMATION
- Jk KNOXVILLE FORMATION
- KJf FRANCISCAN GROUP

N

0 FEET 4000

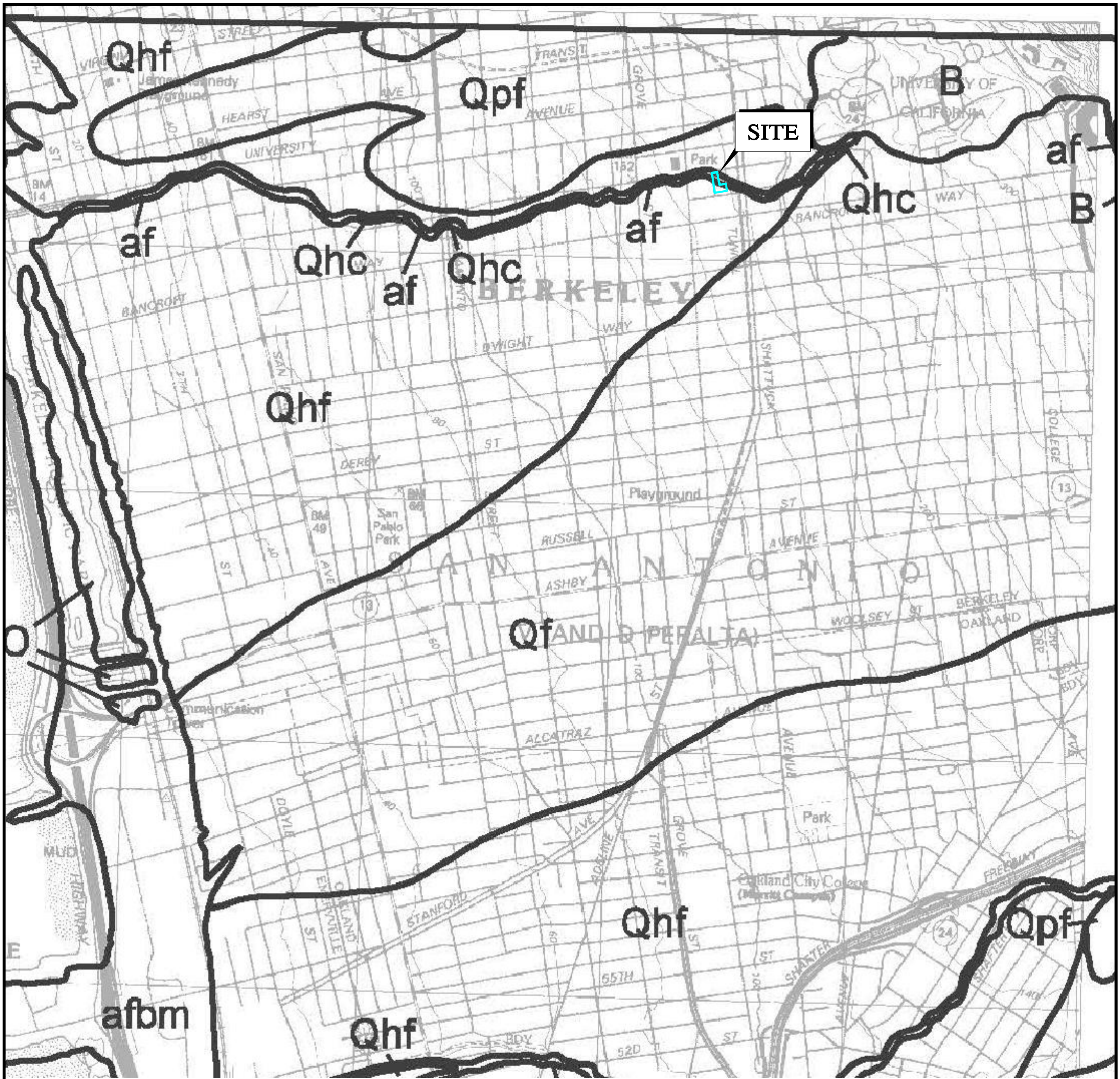
0 METERS 2000

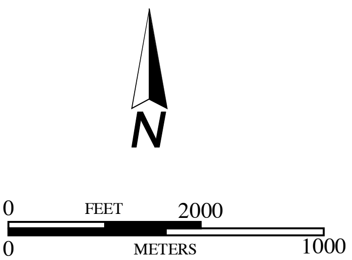
BASE MAP SOURCE: RADBRUCH, 1957

ENGEO Expect Excellence	GEOLOGIC MAP HIGH RISE AT THE SHATTUCK BERKELEY, CALIFORNIA	PROJECT NO.: 9842.000.000 SCALE: AS SHOWN DRAWN BY: SRP CHECKED BY: BR	FIGURE NO. 3

G:\Drafting\DRAFTING2_Dwg\9842\000\9842000000-3-GeologicMap-Radbruch-1212.dwg Plot Date:12-06-12 spatters

ORIGINAL FIGURE PRINTED IN COLOR





EXPLANATION

af	ARTIFICIAL FILL
Qhc	MODERN STREAM CHANNEL DEPOSITS
Qf	LATEST PLEISTOCENE TO HOLOCENE ALLUVIAL FAN DEPOSITS
Qpf	LATEST PLEISTOCENE ALLUVIAL TERRACE DEPOSITS

BASE MAP SOURCE: CGS

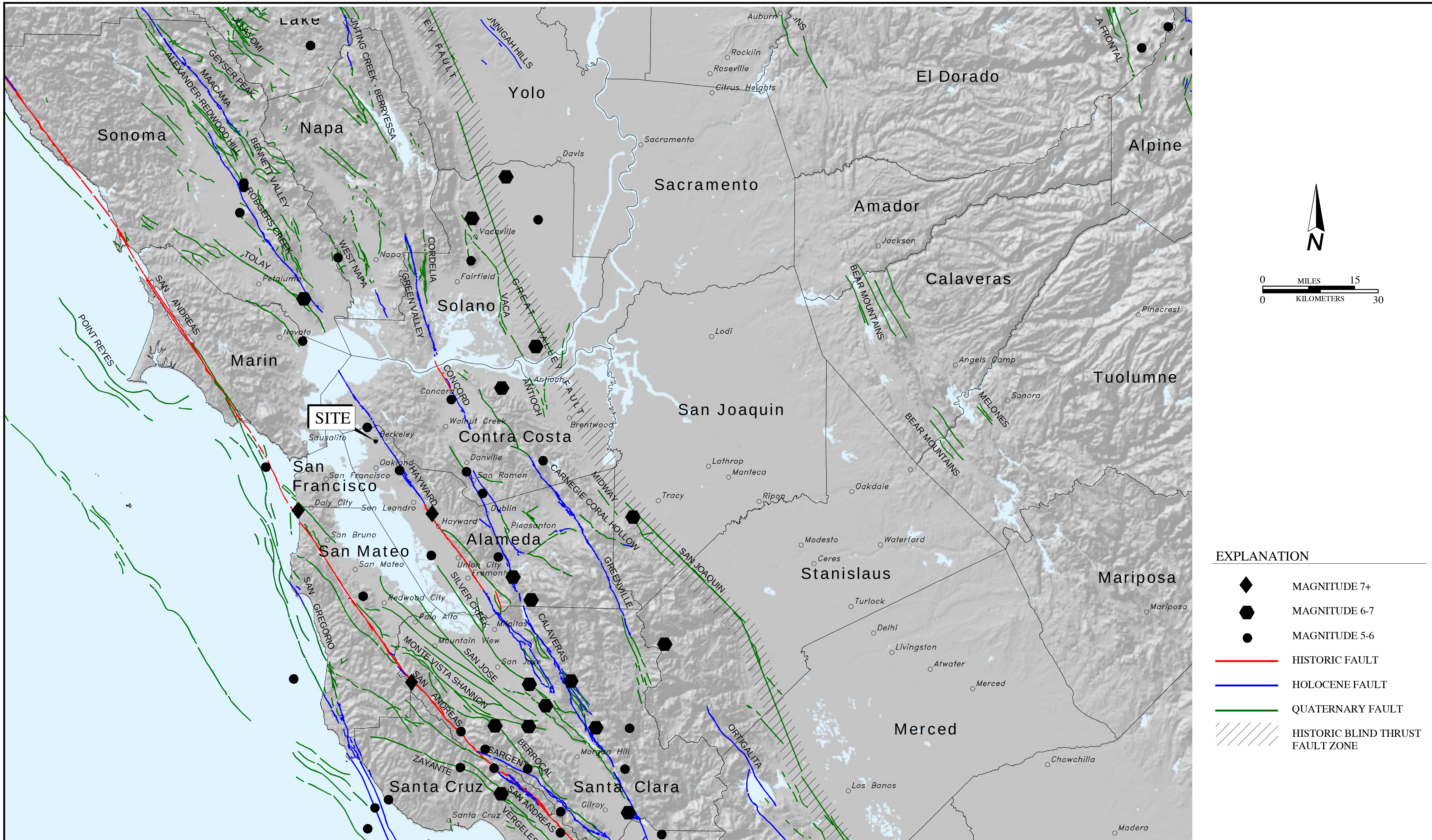
ENGEO
Expect Excellence

GEOLOGIC MAP - CALIFORNIA GEOLOGIC SURVEY
HIGH RISE AT THE SHATTUCK
BERKELEY, CALIFORNIA

PROJECT NO.: 9842.000.000
SCALE: AS SHOWN
DRAWN BY: SRP
CHECKED BY: BR
FIGURE NO. 4

G:\Drafting\DRAFTING2_Dwg\9842\000\9842000000-4-GeologicMap-CGS-1212.dwg Plot Date:12-06-12 spatters

ORIGINAL FIGURE PRINTED IN COLOR



BASE MAP SOURCE:
U.S.G.S. 1-ARC SECOND S.R.T.M. DATABASE
U.S.G.S. QUATERNARY FAULT DATABASE, MARCH, 2006
U.S.G.S. HISTORIC EARTHQUAKE DATABASE (1800-2000)

ENGEO
Expect Excellence

REGIONAL FAULTING AND SEISMICITY	PROJECT NO.: 9842.000.000	FIGURE NO
HIGH RISE AT THE SHATTUCK	SCALE: AS SHOWN	5
BERKELEY, CALIFORNIA	DRAWN BY: SRP / CHECKED BY: BR	

G:\Drafting\DRAFTING2_Dwg\9842\000\9842000000-5-RegionalFaultingMap-1212.dwg Plot Date:12-06-12 spatters

ORIGINAL FIGURE PRINTED IN COLOR

EXPLANATION

N

0 FEET 4000

0 METERS 2000

LIQUEFACTION

AREAS WHERE HISTORIC OCCURRENCE OF LIQUEFACTION, OR LOCAL GEOLOGICAL, GEOTECHNICAL AND GROUNDWATER CONDITIONS INDICATE A POTENTIAL FOR PERMANENT GROUND DISPLACEMENTS SUCH THAT MITIGATION AS DEFINED IN PUBLIC RESOURCES CODE SECTION 2693(c) WOULD BE REQUIRED

EARTHQUAKE-INDUCED LANDSLIDES

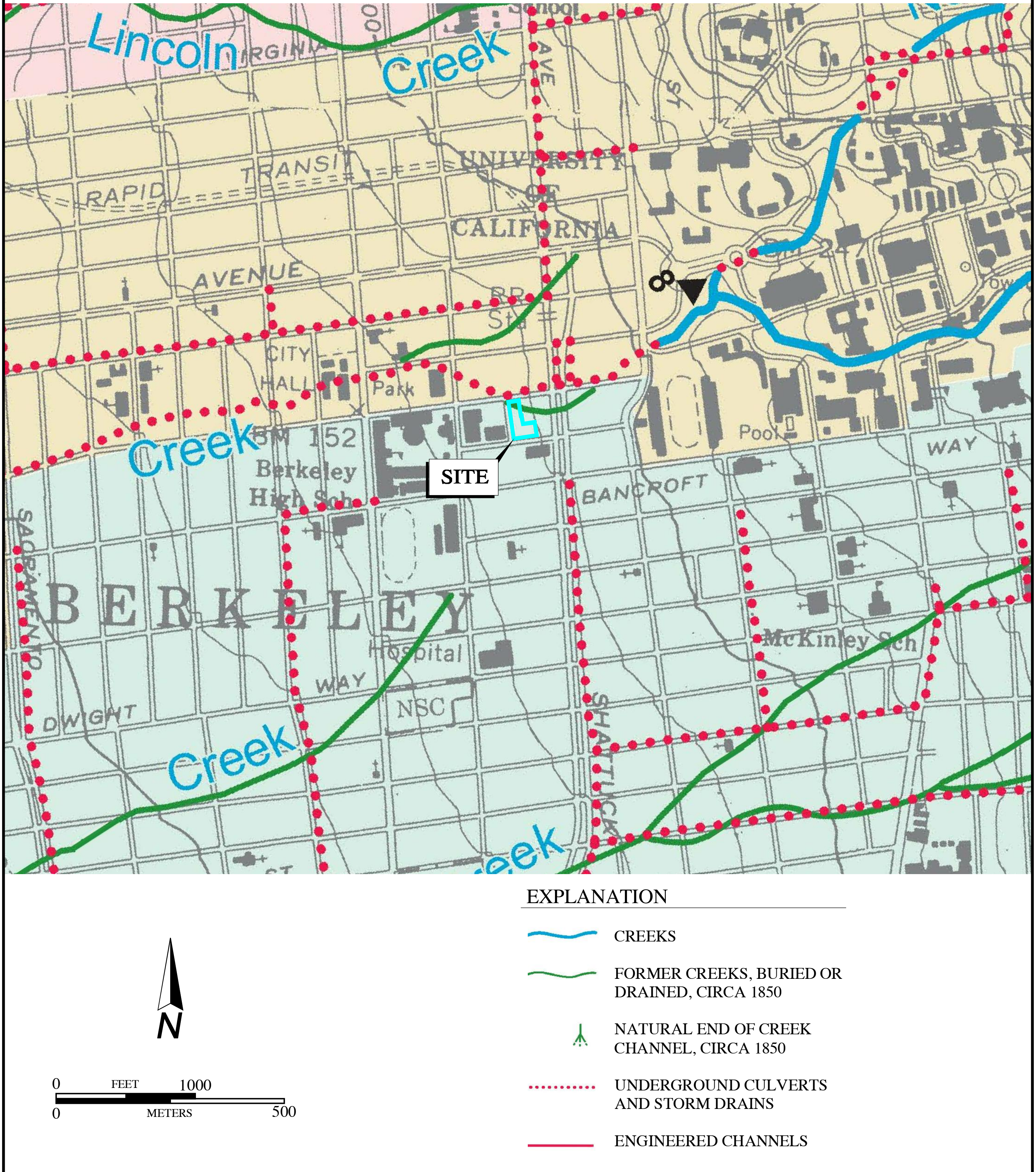
AREAS WHERE PREVIOUS OCCURRENCE OF LANDSLIDE MOVEMENT, OR LOCAL TOPOGRAPHIC, GEOLOGICAL, GEOTECHNICAL AND SUBSURFACE WATER CONDITIONS INDICATE A POTENTIAL FOR PERMANENT GROUND DISPLACEMENTS SUCH THAT MITIGATION AS DEFINED IN PUBLIC RESOURCES CODE SECTION 2693(c) WOULD BE REQUIRED

BASE MAP SOURCE: CALIFORNIA DEPARTMENT OF CONSERVATION, CALIFORNIA GEOLOGICAL SURVEY, 2006

ENGEO Expect Excellence	SEISMIC HAZARD ZONE MAP HIGH RISE AT THE SHATTUCK BERKELEY, CALIFORNIA	PROJECT NO.: 9842.000.000 SCALE: AS SHOWN DRAWN BY: SRP CHECKED BY: BR	FIGURE NO. 6

G:\Drafting\DRAFTING2_Dwg\9842\000\9842000000-6-SeismicHazardZonesMap-1212.dwg Plot Date: 12-06-12 spatters

ORIGINAL FIGURE PRINTED IN COLOR



BASE MAP SOURCE: JANET M. SOWERS

ENGEO Expect Excellence	HISTORICAL ALIGNMENT OF STRAWBERRY CREEK HIGH RISE AT THE SHATTUCK BERKELEY, CALIFORNIA	PROJECT NO.: 9842.000.000 SCALE: AS SHOWN DRAWN BY: SRP CHECKED BY: BR	FIGURE NO. 7

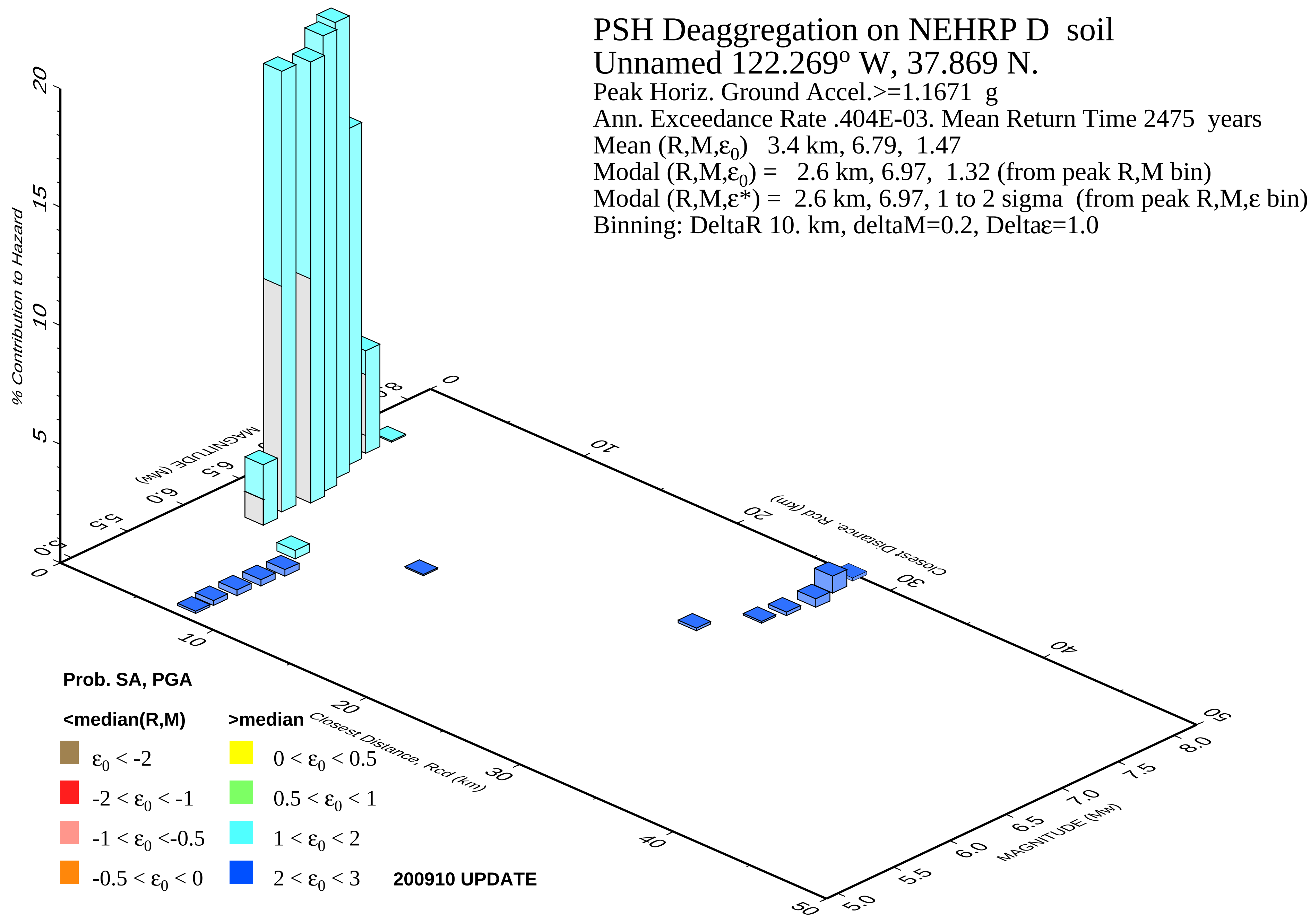
G:\Drafting\DRAFTING2_Dwg\9842\000\9842000000-7-CreekAlignmentMap-1212.dwg Plot Date: 12-06-12 spatters

ORIGINAL FIGURE PRINTED IN COLOR

APPENDIX A

PSH Deaggregation

APPENDIX A



GMT 2012 Dec 8 00:54:44 Distance (R), magnitude (M), epsilon (E0,E) deaggregation for a site on soil with average vs= 300. m/s top 30 m. USGS CGHT PSHA2008 UPDATE Bins with lt 0.05% contrib. omitted

Appendix D

Phase I Environmental Site Assessment

PHASE I
ENVIRONMENTAL SITE ASSESSMENT

The Berkeley Center
2200-2240 Shattuck Avenue
2065 Kittredge Street
2070 Allston Way
Berkeley, California 94704

Prepared for:
Hill Street Realty
Los Angeles, CA

June 11, 2012
IVI Project No.: PC2050723

IVI

IVI Assessment Services, Inc.

IVI

PROPERTY CONDITION & ENVIRONMENTAL DUE-DILIGENCE

IVI ASSESSMENT SERVICES, INC.
55 West Red Oak Lane
White Plains, New York 10604
(914) 694-9600 (tel)
(914) 694-1335 (fax)
www.ivi-intl.com

June 11, 2012

Mr. Joseph Penner
Hill Street Realty
11100 Santa Monica Boulevard, Suite 880
Los Angeles, CA 90025
(310) 914-1410
Joe@HSR.BIZ

Re: Phase I Environmental Site Assessment
The Berkeley Center
2200-2240 Shattuck Avenue; 2065 Kittredge Street; 2070 Allston Way
Berkeley, California 94704
IVI Project No.: PC2050723

Dear Mr. Penner:

IVI Assessment Services, Inc. ("IVI") is pleased to submit this copy of our Phase I Environmental Site Assessment on the above-referenced property. This report outlines the findings of IVI's site reconnaissance, historical land use research, review of governmental records, interviews, and our Pre-Survey Questionnaire.

I declare that, to the best of my professional knowledge and belief, I meet the definition of *environmental professional* as defined in § 312.10 of 40 CFR 312 and I have the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the *subject property*. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Please contact the undersigned at **(619) 254-3124** or by email at scott.pritchard@ivi-intl.com should you have any questions.

Sincerely,

IVI Assessment Services, Inc.
DRAFT

Scott Pritchard, REA I
Environmental Professional

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APPENDICES

This report documents IVI's findings from our Phase I Environmental Site Assessment on The Berkeley Center, located at 2200-2240 Shattuck Avenue, 2070 Allston Way and 2065 Kittredge Street, Berkeley, California (the "Subject"). The property, which is situated in an urban area characterized by commercial office development, consists of a 1.63-acre parcel improved with a 102-year-old (built in 1910), mixed use office and retail building. The building consists of a basement level, a ground level, a second level, and a partial penthouse. In plan the Subject best resembles a set of interconnected rectangles that wrap around and are under the Shattuck Plaza Hotel. It consists of three individual, but connected structures that were constructed between 1910 and 1955. The structures are identified as: the Shattuck Building which is the ground floor retail and basement children's museum area along Shattuck Avenue below the hotel; the Allston Building a two-story with basement structure located at the corner of Allston Way and Harold Way; and the Kittredge Building, a two-story with basement structure, located at the corner of Kittredge Street and Harold Way. The Shattuck Plaza Hotel portion is not included as part of this asset. There is an open, concrete paved, exterior, service corridor accessed from Allston Way that leads to an open area near the center of the complex. The corridor serves both the hotel and the Subject. Subject occupancies include a ten screen theater, a children's museum, restaurants, retail stores, a postal station, and a number of offices.

Prior to the construction of the existing improvements, the site contained single-family dwellings; and a small multi-tenant retail building in the northwestern corner of the property. This retail building was razed in the early-1950s prior to the construction of the current building addition (with basement) in 1955. Previous tenants in the current Subject building were various retail stores and offices. Previous tenants in the former 2-story retail building include various retail shops, offices and dry cleaners.

The purpose of this Phase I Environmental Site Assessment was to assess existing site conditions and render an opinion as to the identified or potential presence of recognized environmental conditions in connection with the property within the scope and limitations of ASTM International's Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process E 1527-05 and the limitations identified herein. Exceptions to or deletions from the scope of work are described in Section 2.0.

This assessment has revealed no evidence of recognized environmental conditions (REC) in connection with the Subject except for the following:

Previous On-Site Operations

The address of 2209 Harold Way, within the former 2-story retail building on the northwest corner of the property, was labeled as "pressing" on the 1950 Sanborn map; which is another term for dry cleaning. From cross referencing with city directories it appears that this address and the former address of 2060 Allston Way, which was the adjoining tenant suite to 2209 Harold Way, were occupied by dry cleaning establishments during the 1920-1950s. These former cleaners were not identified on any regulatory databases that report releases, spills or contamination conditions, such as the CERCLIS, state hazardous waste sites (SHWS) or SLIC lists. Nevertheless, these facilities operated prior to the promulgation of RCRA in 1980 (with amendments for small quantity generators in 1984), the legislation that regulates the handling and disposal of hazardous materials and wastes. As such, these facilities operated virtually unregulated while at the Subject property. IVI attempted to obtain any additional information regarding subsurface conditions at the Subject; however, none was available.

Of note, the building that these dry cleaning establishments were located within did not have a basement and was razed in the early-1950s. The building that was built in this location in 1955 is the current building and has a basement level. It is suspected that any near-surface soil contamination (approximately 0-10' depth) associated with the former onsite dry cleaners would have been removed during site excavation activities prior to the construction of the current building's basement. Nevertheless, based on the type of chemicals utilized, lack of regulatory oversight at the time and the amount of time these cleaners were in operation (at least 30 years), the potential still exists for adverse impact to the Subject; mainly as a vapor intrusion concern from any potentially remaining contamination not removed during construction of the current building's basement level.

Of note, in 2002 a limited indoor air quality survey was performed in a basement office tenant suite of the current building after complaints were received stating that workers in the office were experiencing headaches, stuffiness and allergies. The survey concluded that carbon dioxide, formaldehyde, ozone, thermal analysis levels and a dust sample were all normal and no significant findings were reported. However, the survey did not sample for volatile organic compounds (VOCs) which would be the constituents of concern associated with dry cleaning facilities.

In addition, the following historical REC was also identified:

Possible Former Underground Storage Tanks (USTs)

According to a previous Phase I ESA conducted in 1995, a boiler was present on the hotel site which reportedly had used fuel oil for heating. This previous Phase I speculated that the fuel oil may have been stored in underground tanks, although this was not confirmed at that time. The previous Phase I ESA also reported that a fuel oil line had lead from the old boiler to the basement and then out to Allston Way. Following completion of the 1995 Phase I, an investigation was conducted at the site in an attempt to locate any USTs, if present, at the site. In May 1995, two soil borings were drilled on Allston Way near the entrance to the Shattuck Hotel. While coring through the sidewalk, an empty underground vault was encountered, which was believed to have the previous location of an UST used for the boiler at the Shattuck Hotel. It was believed that the UST was removed sometime after the boiler was converted from fuel oil to natural gas in the 1950s. The concrete vault was found to be in good condition with no evidence of cracking. No hydrocarbon or septic odors were identified and no sludge was located at the bottom of the vault. In June 1995, an inspector from the City of Berkeley Toxics Management Division (TMD) inspected the vault and found no issues. The TMD subsequently issued a letter in June 1996 requiring no further action regarding the potential UST at the site. IVI concurs with the TMD and no further action or investigation appears warranted at this time.

In addition, the following item of environmental concern was identified, which warrants mention:

Asbestos-Containing Material (ACM)

Based on our review of several previous assessments and abatement reports, the majority of previously identified ACM have been abated from the Subject. However, suspect asbestos containing materials remain at the Subject. These materials include 1’ x 1’ acoustical ceiling tiles, textured ceiling finish, 9”x 9” resilient floor tile, 1’x 1’ resilient floor tile, gypsumboard, and built-up roofing system. Since these materials were observed to be in good condition, no further action is recommended at this time other than maintaining these suspect materials in good condition under the existing Asbestos Operations and Maintenance (O&M) Program. All activities involving ACM should be conducted in accordance with governmental regulations.

2.0 INTRODUCTION

2.1 General

IVI was retained by Hill Street Realty ("Client" or "User") to prepare a Phase I Environmental Site Assessment, in conformance with ASTM International's Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process E 1527-05 on the Subject in accordance with our Agreement dated May 22, 2012.

2.2 Purpose and Scope

2.2.1 Purpose

The purpose of this report is to identify Recognized Environmental Conditions in connection with the property, using the methodology recommended by ASTM International in order for a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bone fide prospective purchaser defenses to CERCLA liability and/or to help understand potential environmental conditions that could materially impact the operation of the business associated with the Subject. Specifically, this methodology is referred to as *Standard Practice for Environmental Site Assessments: Phase l Environmental Site Assessment Process* Designation: E 1527-05.

The term Recognized Environmental Condition is defined by ASTM Standard E 1527-05 as "...the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies."

2.2.2 Scope

In general, the scope of this assessment consisted of reviewing readily available information and environmental data relating to the property; interviewing readily available persons knowledgeable about the site; reviewing readily available maps, aerial photographs and records maintained by federal, state, and local regulatory agencies; and conducting a site visit.

Of importance, the client is advised that federal, state, and local laws may impose environmental assessment obligations beyond the scope of this practice. Client is also notified that there are likely to be other legal obligations with regard to hazardous substances or petroleum products discovered on the Subject that are not addressed in this practice and that may pose risks of civil and/or criminal sanctions for non-compliance.

The specific scope of this assignment included the following:

2.2.2.1 Performing a site reconnaissance to characterize on-site conditions and assess the site's location with respect to surrounding property uses and natural surface features. In addition, IVI conducted a reconnaissance of the surrounding roads and readily accessible adjacent properties to identify obvious potential environmental conditions on neighboring properties. Photographs taken as part of the site reconnaissance are provided in Appendix A.

The site visit was conducted on June 1, 2012, by Carol Noland representing IVI. The site was represented by Mr. Darrin Nee, the property owner. It was sunny and the temperature was approximately 75° F at the time of our site survey. IVI conducted the site reconnaissance in a systematic manner focusing initially on the exterior, which was surveyed in a grid pattern. IVI also surveyed a representative sampling of the interior spaces in a systematic manner.

2.2.2.2 Interviewing persons familiar with the property to obtain information on present and previous on-site activities potentially resulting in the environmental degradation of the site or adjoining properties. A Pre-Survey Questionnaire to be filled out and returned to IVI by someone knowledgeable about the site was provided to Mr. Darrin Nee. A completed copy of the Pre-Survey Questionnaire is provided in Appendix B.

The following table presents a summary of the individuals contacted or to whom requests for documentation were made as part of this assessment:

Name	Affiliation	Telephone No.
Records Clerk	City of Berkeley Toxics Management Division	(510) 981-7460
Customer Service Representative	Pacific Gas & Electric (PG&E)	(800) 743-5000
Fire Marshal	Berkeley Fire Department	(510) 981-5585

Name	Affiliation	Telephone No.
Darrin Nee	Subject Property	(415) 430-8042

2.2.2.3 If provided, reviewing of information such as previously prepared appraisals, building plans and specifications, and environmental reports.

2.2.2.4 Reviewing readily available historical documents, such as topographic maps, aerial photographs, city directories, Sanborn Fire Insurance Maps and atlases, to identify previous activities on and in the vicinity of the Subject. Copies of these documents are included in Appendix C.

2.2.2.5 Reviewing readily available environmental databases maintained by federal, state, and local agencies within the approximate minimum search distances as described within the Regulatory Review Section 6.0 of this report. A copy of the Computerized Environmental Report, provided by Environmental Data Resources, Inc. can be referenced in Appendix D.

2.2.2.6 Conducting a visual survey of readily accessible common areas to identify the presence of the most obvious and common types of suspect asbestos containing materials (ACM). The basis for "suspect" determination is taken from the materials listed in Appendix G of the United States Environmental protection Agency (USEPA) publication Managing Asbestos in Place (also known as the Green Book). All building materials listed within Appendix G of the Green Book are considered to be suspect ACMs at the Subject. This screening is not intended to be used for demolition, abatement, renovation, or repair work.

THIS LIMITED SURVEY IS NOT TO BE CONSTRUED AS A COMPREHENSIVE ASBESTOS SURVEY, WHICH OFTEN ENTAILS DESTRUCTIVE TESTING OR THE SURVEY OF AREAS BEHIND WALLS, ABOVE CEILINGS, IN TENANT SPACES AND IN OTHER TYPICALLY INACCESSIBLE AREAS. MOREOVER, IVI DOES NOT WARRANT THAT ALL ACMs AT THE SUBJECT HAVE BEEN IDENTIFIED.

2.2.2.7 Reviewing published radon occurrence maps to determine whether the site is located in an area with a propensity for elevated radon concentrations.

2.2.2.8 An analysis of mold and/or mold issues was beyond the scope of this report.

2.2.2.9 Assessing the age of the Subject to determine whether it is predisposed to contain lead-based paint. During our walkthrough survey, IVI noted the condition of the paint observed. Note, a compliance audit for lead paint was not conducted.

2.2.2.10 Testing, if any, was designed solely to meet the requirements of the client's scope of work, not to meet any local, State or Federal regulations and shall not be utilized as such.

2.3 Data Gaps

According to § 3.3.20 of ASTM Standard E 1527-05 a data gap is a lack of or inability to obtain information required by the ASTM Standard despite good faith efforts to gather same. Data gaps may result from incompleteness in any of the activities required by the ASTM Standard. The following data gaps occurred in connection with this report:

Data Gap	Explanation	Significance of Gap
Site History	History not conducted back to a time when the site was undeveloped land (See § 5)	Low - not likely to alter Report's conclusions due to IVI's search of standard historical sources of information such as aerial photographs, historic topographic maps, city directory abstracts, Sanborn Fire Insurance Maps, reviews of previous investigations and interviews with knowledgeable individuals who were familiar with the property.
Site History	Site history not conducted in 5-year intervals (See § 5)	Low - not likely to alter Report's conclusions due to IVI's search of standard historical sources of information such as aerial photographs, historic topographic maps, city directory abstracts, Sanborn Fire Insurance Maps, reviews of previous investigations and interviews with knowledgeable individuals who were familiar with the property.
User Interview	AAI User Questionnaire not returned to IVI	Low - not likely to alter Report's conclusions
Former Owner or Operator Interview	Unable to interview former site owner or operator due to inability to locate	Low - not likely to alter Report's conclusions
Governmental Records	FOIAs not returned (See § 8.6)	Unknown - However, if receipt of FOIAs alters the Report's conclusion, the client will be notified

Salient Assignment Information	
IVI Project No.:	PC2050723
Project Name:	The Berkeley Center
Street Address:	2200-2240 Shattuck Avenue 2065 Kittredge Street 2070 Allston Way
City, State and Zip:	Berkeley, California 94704
Primary Use:	Mixed use office and retail building
Year Built and Age of Improvements:	1910 - 1955; 57 - 102 years-old
Site Area:	1.63 Acres
Building Size:	92,531 SFG
Number of Buildings:	1 (built in three phases)

4.1 Property Location

The site is located at 2200-2240 Shattuck Avenue, 2070 Allston way, and 2065 Kittredge Street in Berkeley, Alameda County, California and is identified on local tax maps as Parcel No. 57-2027-6; 57-2027-7; 57-2027-8; and 57-2027-9. Please refer to the Site Plan and maps provided within Appendix C.

4.2 Surrounding Land Use

The property is located in an urban setting characterized by commercial office development. The following is a tabulation of surrounding property usage:

Direction	Adjacent Properties	Surrounding Properties
North	Allston Way, across which is a building being renovated for a new Walgreens (2194 Shattuck Avenue), and a parking garage (2061 Allston Way).	Commercial properties
South	Kittredge Street, across which is the Berkeley Public Library (2090 Kittredge Street).	Commercial properties
East	Shattuck Avenue, across which are several retail businesses including Burgermeister (2237 Shattuck Avenue), EZ Stop Deli (2231 Shattuck Avenue), Maplight (2223 Shattuck Avenue), Verizon Wireless (2209 Shattuck Avenue), and Fedex (2201 Shattuck Avenue). Walgreens (2187 Shattuck Avenue) is located adjacent to the northeast.	Commercial properties
West	Harold Way, across which is Dharma College (2010 Harold Way).	Commercial properties

The Walgreens store at 2187 Shattuck Avenue is listed as a small quantity generator. No violations were listed, and the site does not appear on any other lists of reported or known releases. Thus, it is not expected to pose a significant environmental concern to the Subject. Please refer to Section 6.2 for a more detailed discussion on same.

4.3 Physical Site Setting

4.3.1 Size and Shape of Parcel

The property is irregular in shape and 1.63-acres in size.

4.3.2 Topography

The site slopes gently from the east to west. The topography of the area is best described as a gently sloping. Properties to the east are at a higher topographic elevation. According to the United States Geological Survey (USGS) *Oakland West, CA* 7.5 Minute Series topographic map, the Subject's topographic elevation is approximately 180' above mean sea level (msl).

4.3.3 Surface Waters and Wetlands

Surface Waters

There are no surface water bodies or streams on or adjacent to the Subject. The closest open surface water to the Subject is the San Francisco Bay, which is located approximately 2 miles to the west.

Wetlands

IVI reviewed a wetlands map of the subject area prepared using the US Department of the Interior, Fish and Wildlife Service's Internet Wetland Interactive Mapper. The source material used to produce the National Wetlands Inventory digital data for these maps was prepared primarily by stereoscopic analysis of high altitude aerial photographs. Based on this review, IVI did not identify any federally regulated wetlands on the subject property. Additionally, IVI did not observe vegetation characteristic of wetlands on the subject site.

4.3.4 Soils, Geology and Groundwater

Soils

According to the *Soil Survey of Alameda County, California,* dated March 1981, issued by the United States Department of Agriculture, Soil Conservation Service, the soils at the site are classified as Urban Land-Tierra Complex with 2 to 5 percent slopes. Urban Land complex are those soils in which the soil's original structure and content have been so altered by human activities it has lost its original characteristics and is thus unidentifiable. Tierra soils are very deep and moderately well drained, formed in weakly consolidated old alluvium. The surface layer is grayish brown, slightly acid loam, underlain by gray, slightly acid loam. Permeability is very slow.

Geology

There are no predominant geological surface features such as rock outcroppings on the Subject. The Subject is in the Coast Range Geomorphic Province, a region characterized by northwest-trending ridges and valleys that generally parallel the major geologic structures, such as the San Andreas and Hayward Fault systems. Bedrock in the Bay Area is composed of highly consolidated and tectonically deformed sedimentary, volcanic, and metamorphic rocks of the Franciscan Assemblage (Jurassic to Cretaceous age). Large bodies of serpentinite are closely associated with the Franciscan rocks. The Franciscan rocks commonly consist of sheared shale and sandstone that include isolated masses of other types of rocks such as chert and greenstone.

Groundwater

Under natural, undisturbed conditions, shallow groundwater flow generally follows the topography of the land surface and on this basis, the topography suggests that groundwater flow across the site is in a westerly direction. However, localized conditions can alter flow direction and thus the presumed flow may not coincide with the actual in the subject area. Shallow groundwater has been recently measured at approximately 10-30' below ground surface at two properties within 3 blocks of the Subject that are undergoing remedial activities.

4.4 Site Improvements

4.4.1 Utilities

The Subject is served with the following utilities:

Water:	East Bay Municipal Utility District
Sanitary Sewer:	City of Berkeley
Storm Sewer:	City of Berkeley
Electric:	Pacific Gas & Electric (PG&E)
Natural Gas:	Pacific Gas & Electric

According to the 2011 Annual Water Quality Report published by the East Bay Municipal Utility District, the water supplied to the Subject meets federal and state water quality standards.

Storm water runoff from building roofs is directed by roof slope to multiple locations of roof drains with adjacent overflow drains and scuppers with leaders, which discharge into the municipal storm water collection system.

4.4.2 Building Description

The Subject is an approximately 92,531 SF, low-rise urban-sited mixed-use office and retail building located in Berkeley, California. More specifically, the Subject property is bounded by Shattuck Avenue on the east side, Allston Way on the north, Kittredge Street to the south, and Harold Way along the west side. The building consists of a basement level, a ground level, a second level, and a partial penthouse. In plan, the Subject best resembles a set of interconnected rectangles that wrap around and are under the Shattuck Plaza Hotel. It consists of three individual, but connected structures that were constructed between 1910 and 1955. The structures are identified as: the Shattuck Building which is the ground floor retail and basement children's museum area along Shattuck Avenue; the Allston Building, a two-story with basement structure located at the corner of Allston Way and Harold Way; and the Kittredge Building, a two-story with basement structure, located at the corner of Kittredge Street and Harold Way. The Shattuck Plaza Hotel portion is not included as part of this asset. There is an open, concrete paved, exterior service corridor accessed from Allston Way that leads to an open area near the center of the complex. The corridor serves both the hotel and the Subject. Subject occupancies include a ten screen theater, a children's museum, restaurants, retail stores, a postal station, and a number of offices.

The Subject is constructed primarily of cast-in-place concrete. Floors are framed with either a concrete pan joist system or structural steel framing with pre-cast concrete decking. Roofing consists of a smooth-surface built-up system with a small area of gravel-surfaced built-up roofing. The shops along the Shattuck Avenue elevation have a tan and white painted wood and glass storefront system with a continuous ornamental terra cotta frieze above the storefronts. Other elevations have punched steel framed industrial windows and typical storefront glass and aluminum entrance doors and side lights set in the beige painted, plaster finished, concrete walls.

Interior finishes include floor coverings of carpet, resilient floor tile, and sheet vinyl; walls of painted gypsumboard and painted plaster and ceilings typically consist of painted drywall and a suspended system with inlaid acoustical ceiling tiles.

Heating and cooling for the offices and retail shops is provided by two-water-source heat pump systems, individual split systems and individual rooftop air conditioning units. Vertical transportation is provided by a single hydraulic elevator and a wheelchair lift.

4.5 Current Property Use

The Subject is developed with a mixed use office and retail building. The following table summarizes the site's tenants and their activities:

Tenant	Description of Operation
Gamestop	Video game store
Tea Fever	Tea store
John's Ice Cream	Ice Cream Store
BART Bike Station	Bicycle storage
Clear Wireless	Cell phone store
Papa John's Pizza	Restaurant
Starbuck's	Coffee store
Shattuck Cinemas	Movie theater
Yogurtland	Yogurt store
The Original	Restaurant
US Post Office	Post office annex
Berkeley City College	Offices
Alan Kropp & Associates	Offices
Arcon, Inc.	Offices
Five Bridges Foundation	Offices
College Internship Program	Offices
UAW Local 5810	Offices
Habitot Children's Museum	Children's museum
Downtown Berkeley Association	Offices
Margaretta H. Bisno	Offices
Berkeley Albany YMCA	Storage

Based on the operations currently conducted at the Subject, significant quantities of hazardous waste are not generated. The current on-site activities are not suspected to have degraded the environmental quality of the subject site.

4.6 Environmental Permits

Based on our research, no environmental permits such as wastewater discharge, National Pollutant Discharge Elimination System (NPDES), air emissions, or petroleum bulk storage (PBS) tank registrations are required at the Subject.

4.7 Plans and Specifications

Neither building drawings nor specifications were provided for our review.

5.1 Historical Summary

Prior to the construction of the existing improvements, the site contained single-family dwellings; and a small 2-story, multi-tenant retail building in the northwestern corner of the property. This retail building was razed in the early-1950s prior to the construction of the current 2-story with basement building in 1955. Previous tenants in the current Subject building were various retail stores and offices. Previous tenants in the former 2-story retail building include various retail shops, offices and dry cleaners.

The address of 2209 Harold Way, within the former 2-story retail building on the northwest corner of the property, was labeled as "pressing" on the 1950 Sanborn map; which is another term for dry cleaning. From cross referencing with city directories it appears that this address and the former address of 2060 Allston Way, which was the adjoining tenant suite to 2209 Harold Way, were occupied by dry cleaning establishments during the 1920-1950s. The building that these dry cleaning establishments were located within did not have a basement and was razed in the early-1950s. The building that was built in this location in 1955 is the current building and has a basement level.

5.2 Topographic Maps

IVI reviewed historic USGS *Oakland West, CA* 7.5 Minute Series topographic maps of the Subject area provided by EDR. The following maps were provided for our review:

Year Revised	Subject Property	Surrounding Properties
1949	The Subject is shaded pink, denoting dense development.	All surrounding areas are shaded pink, denoting dense development.
1959	Similar to the previous topographic map reviewed.	Similar to the previous topographic map reviewed.
1968	Similar to the previous topographic map reviewed.	Similar to the previous topographic map reviewed.
1973	Similar to the previous topographic map reviewed.	Similar to the previous topographic map reviewed.
1980	Similar to the previous topographic map reviewed.	Similar to the previous topographic map reviewed.

The topographic maps do not identify individual buildings or development on the Subject due to the concentration of structures in the highly urbanized Berkeley area, but rather shows the area to be shaded denoting urbanized land use, and identifies only landmarks as distinct structures. Nevertheless, the topographic map does not identify any industrial complexes, landfills or wetlands on or adjacent to the subject site.

5.3 Historical Maps

Sanborn Fire Insurance Maps (Sanborn Maps)

IVI had a search conducted for Sanborn Maps, which reference the property. The findings of this review are summarized below:

Year	Subject Property	Adjacent and Surrounding Properties
1890	There are four structures on the Subject. One of the structures appears to be a residence and the remaining three structures are garages/barns. A portion of Strawberry Creek transects the northern portion of the Subject.	Land to the north is developed with a hay barn, residence, and two small sheds. In addition, an "elevation tank and wind mill." The tank is 10,000 gallons. Strawberry Creek is also located to the north. Land to the east, beyond Shattuck Avenue appears to be vacant. Land to the south is not depicted on the map. Land to the west appears to be vacant.
1894	The Subject appears to be primarily vacant land with two single-family residences and a few smaller outbuildings. A portion of Strawberry Creek appears to cross from east to west along the northern end of the property.	Residences, a small photo shop, the same windmill and elevated tank, and a retail strip building are located to the north. Residences and vacant land are located across Shattuck Avenue to the east. Allston Way and Kittredge Street do not extending westerly across Shattuck Avenue to border the Subject at this time.
1903	Three dwellings are depicted on the Subject, along with several smaller outbuildings. The majority of the Subject property appears to be vacant land.	Allston Way borders the Subject to the north, across which is vacant land and a few dwellings. The area to the north along Shattuck Avenue is densely developed with commercial properties. Dense commercial development is also present to the east along Shattuck Avenue. Vacant land and residential development are also present to the south.
1911	The Shattuck Hotel is depicted on the northeast corner of the site, with the addresses of 2078 through 2096 Allston Way. The hotel included an office, a restaurant, kitchen, and a billiards room. The east end of the building is divided into retail spaces with the addresses of 2200-2208 Shattuck Avenue. The remainder of the Subject contains two dwellings and several smaller outbuildings.	The area to the north is densely developed with commercial properties. The Public Library is depicted adjacent to the south. Numerous retail properties are present to the east across Shattuck Avenue. Vacant land is located adjacent to the west.
1929	The Subject is labeled as the Hotel Whitecotton. A 2-story building with several retail spaces addressed as 2060-2072 Allston Way and 2209 Harold Way, is located on the northwest end of	Harold Way is present along the western border of the property, across which are the Elks Club and the Armstrong School of Business. No other significant changes to the areas were noted.

Year	Subject Property	Adjacent and Surrounding Properties
	the site, adjacent to the hotel. Additional retail spaces at 2210 and 2214 Shattuck Avenue are present to the south of the hotel, in addition to two larger commercial buildings on the south side of the property.	
1950	The Subject is labeled as the Hotel Shattuck. The buildings on the southern end of the property are labeled as J.F. Hink & Son department store. An auto parking lot is located just to the south of the 2-story commercial building in the northwestern portion of the property. The address of 2209 Harold Way, within this 2-story retail building, is labeled as “pressing”.	A parking garage has been added to the property across Harold Way to the west. The City library appears to have been expanded. No other significant changes to the surrounding area were noted.
1980	The retail building on the northwest corner of the Subject appears to have been removed and was replaced with a larger 2-story building with a basement.	A parking garage and large commercial structure are present to the north across Allston Way. No other significant changes to the surrounding area were noted.

The address of 2209 Harold Way, within the former 2-story retail building on the northwest corner of the property, is labeled as “pressing”; which is another term for dry cleaning. From cross referencing with city directories it appears that this address and the former address of 2060 Allston Way, which was the adjoining tenant suite to 2209 Harold Way, were occupied by dry cleaning establishments during the 1920-1950s. From notations on the Sanborn maps it appears that the building that these dry cleaning establishments were located within did not have a basement and was razed in the early-1950s. The building that was built in this location in 1955 is the current building and has a basement level.

5.4 Aerial Photographs

Aerial photographs frequently provide visual documentation of site conditions at the time of the photographs. Activities such as dumping or industrial use of a site can often be discerned through the examination of aerial photographs. IVI reviewed historic aerial photographs provided by EDR and GoogleEarth. The following is a synopsis of the aerial photographs reviewed:

Year	Subject Property	Adjacent and Surrounding Properties
1939	Two large structures are present on the north end of the site. Several smaller structures are located on the remainder of the property.	Several large buildings are located to the north, west, and east of the Subject. A few large buildings are present to the south as well, along with some small residential development.

Year	Subject Property	Adjacent and Surrounding Properties
1946	Numerous buildings appear on the Subject, which is entirely developed at this time.	The surrounding area appears densely developed with large commercial buildings.
1958	The building previously noted at the northwest end of the Subject appears to have been removed and a new structure built in its place. The remainder of the Subject appears relatively unchanged.	Similar to the previous aerial photograph reviewed.
1965	Similar to the previous aerial photograph reviewed.	Similar to the previous aerial photograph reviewed.
1974	Similar to the previous aerial photograph reviewed.	Similar to the previous aerial photograph reviewed.
1982	Similar to the previous aerial photograph reviewed.	Similar to the previous aerial photograph reviewed.
1993	Similar to the previous aerial photograph reviewed.	Similar to the previous aerial photograph reviewed.
1998	Similar to the previous aerial photograph reviewed.	Similar to the previous aerial photograph reviewed.
2005	Similar to the previous aerial photograph reviewed.	Similar to the previous aerial photograph reviewed.
2011	Similar to the previous aerial photograph reviewed.	Similar to the previous aerial photograph reviewed.

5.5 Chain-of-Ownership

IVI reviewed information regarding the ownership of the Subject, obtained from previously assessments of the Subject, which are reviewed in Section 5.6 below. Inasmuch as the chain of ownership only provides the names of the previous owners and little information, if any, about the actual uses or occupancies of the property, this information was consulted in conjunction with other standard historical sources. The title information is summarized below:

Title Holders	Year of Transfer
NFLP Berkeley Center DE LLC	2004
Berkeley Land Center, Owner L.P.	2003
Berkeley Land Center	1995
Berkeley Improvement Center	1995
Transaction Commercial Mortgage Investors	1995
Firmaterr Incorporated	1993
Transaction Commercial Mortgage Investors, Gail Wardel	1990

Transaction Commercial Mortgage Investors, Dolores Stauderrdos	1989
Transaction Commercial Mortgage Investors and Mortgage Investors Limited	1985
Moshe Cukierman	1985
Transaction Commercial Mortgage Investors	1985
Moshe Cukierman	1980
Frontier Investment Company	Prior to 1970
Levi Strauss Realty Company	Prior to 1970

Based upon this review, no previous property owners were identified, which are suspected of impairing the environmental quality of the property.

5.6 Previous Reports

IVI reviewed an environmental assessment on the Subject titled *Phase I Environmental Site Assessment*, *2200 Shattuck Avenue*, *Berkeley*, *California*, dated May 31, 1995, prepared by Geoscience Consultants, Ltd. (GCL), on behalf of Ellis Partners, Inc. The information obtained was not verified for accuracy by IVI and a critique of the report was beyond the scope of this assessment. According to this report, the Subject has been developed with a hotel since at least 1911. The GCL report made the following conclusions and recommendations:

- GCL reported that an asbestos survey had been conducted on the southern and rear section of the building, and that confirmed asbestos had been identified and removed from the building. GCL also identified old insulation on piping in the basement, on the boilers, and on the roof, some of which was in a friable condition. GCL recommended an asbestos survey in these areas.

- GCL also reported the old boiler used by the hotel had used fuel oil for heating, and identified an old fuel oil line leading from the boiler to the basement and then out to Allston Way. GCL did not know if the fuel line was connected to underground storage tanks, or was fed by a central distribution center. GCL attempted to trace the fuel line, but could not conclusively determine whether it was connected to an UST. GCL recommended that the area be further investigated with soil borings to attempt to locate a possible UST.

- Despite the suspected presence of a fuel oil UST, GCL found no evidence to indicate that the Subject had been contaminated by on-site sources, and determined that the nature of the businesses on the property were unlikely to have impacted the site. GCL therefore concluded that the Subject had not been contaminated by on-site activities.

IVI previously prepared an environmental assessment on the Subject titled *Phase I Environmental Site Assessment, Berkeley Center, 2200-2240 Shattuck Avenue, 2070 Allston Way,and 2065 Kittredge Street, Berkeley, California*, dated November 12, 2007, on behalf of Legg Mason Real Estate Investors. This report revealed no evidence of recognized environmental conditions in connection with the Subject; however, the following item of environmental concern was identified which warranted mention:

- Asbestos-Containing Material (ACM) - Based on our review, the majority of previously identified ACM have been abated from the Subject. However, suspect non-friable asbestos containing materials remain at the Subject. These materials include 1’ x 1’ acoustical ceiling tiles, textured ceiling finish, 9”x9” resilient floor tile, 1’x 1’ resilient floor tile, gypsumboard, and built-up roofing system. Since these materials were observed to be in good condition, no further action is recommended at this time other than maintaining these suspect materials in good condition under the existing Asbestos Operations and Maintenance (O&M) Program.

As part of our previous 2007 assessment of the Subject, several additional assessments of the Subject were reviewed. These assessments are as followed:

Hink’s Building. Shattuck Avenue, Berkeley, Phase III, prepared by Robert E. Gills and Associates on behalf of TransAction Companies Ltd. and dated December 1987.

- The report includes the procedures for abatement and identified the areas of the building mezzanine where the asbestos containing materials (ACM) will be abated.

Hink’s Building. Shattuck Avenue, Berkeley, Phase IV, prepared by Robert E. Gills and Associates on behalf of TransAction Companies Ltd. and dated December 1987.

- The report includes the procedures for abatement and identified the areas of the building basement where the ACM will be abated.

Hink’s Building. Shattuck Avenue, Berkeley, Phase V, prepared by Robert E. Gills and Associates on behalf of TransAction Companies Ltd. and dated December 1987.

- The report includes the procedures for abatement and identified the areas of the piping which contains ACM located in the building that will be abated.

Hink's Building. Shattuck Avenue, Berkeley, Phase I and II, prepared by Robert E. Gills and Associates on behalf of TransAction Companies Ltd. and dated February 1988.

- The report discusses the abatement of asbestos containing pipe insulation, floor tile, and wall plaster from the basement area located at the Subject.

Hink's Building Abatement Survey, prepared by Robert E. Gills and Associates on behalf of TransAction Companies Ltd. and dated March 1988.

- The report discusses the abatement of the ACM at the Subject. ACM was removed from the second floor mezzanine, the second floor fan room, and the corner of the basement between Allston Way and Harold Way. In addition, small amounts of ACM pipe and pipe joints were removed from the second floor, the corner of the first floor between Allston Way and Harold Way, and around the stairwell on the northwest portion of the building.

Soil Borings to the East of the Shattuck Hotel for an UST, prepared by Geoscience Consultants, Limited (GCL), prepared on behalf of Ellis Partners, and dated June 1995.

- GCL advanced a boring through the sidewalk on the north side of Shattuck Hotel (an area which is not part of the Subject). An empty underground vault was found and GCL concluded that this was likely a fuel oil UST that was removed from the vault when the hotel was converted from fuel oil and natural gas. No odors or sludge were noted by GCL in the vault. GCL determines that no subsurface contamination was present in the area of the vault.

No Further Action Letter from the City of Berkeley – Toxic Management Division (TMD) to John DeClercq, dated June 1996.

- The letter discusses the TMDs review of the site investigation and remedial action for the empty UST vault that was found at the Subject. The two soil borings showed no presence of contamination. The vault was subsequently inspected by TMD staff on June 19, 1995, and found to be in good condition with no evidence of sludge, hydrocarbon or septic odor. Based on this information, the TMD stated that no further action related to the UST was required.

Asbestos Abatement, Berkeley Center, Berkeley, California, prepared by IVI on behalf of Transaction Companies, Ltd. and dated October 1996.

- The report indicated that friable asbestos containing pipe insulation was removed from the basement of the Subject. At that time, this area was occupied by Frank Lee Jewelers and Huston Shoes.

Operation and Maintenance Program for Asbestos-Containing Materials at the Berkeley Center, Berkeley, California, prepared by IVI and dated October 1996.

- This O&M Program is the plan that is currently in place at the Subject.

Preliminary Indoor Air Quality Survey, Berkeley Center, 2065 Kittredge Street, Berkeley, California, prepared by Marina Mechanical (MM), and dated 2002.

- This survey was actually conducted at the Lyris Technologies office, Suite 2 situated at 2070 Allston Way, as a result of complaints from workers in the office who were complaining of headaches, stuffiness, and allergies. The survey concluded that carbon dioxide, formaldehyde, ozone, thermal analysis levels and a dust sample were all normal and no significant findings were reported.

Phase I Environmental Site Assessment of Berkeley Center, 2200-2240 Shattuck Avenue, 2065 Kittredge Street, and 2060-2070 Allston Way, Berkeley, California 94704 dated October 31, 2003 prepared by EMG on behalf of CDC Mortgage Capital.

- The report indicated that Subject was constructed between 1910 and 1955 and is currently developed with various commercial businesses. Historically, the Subject was developed with residences and a garage/stable. The EMG report did not identify any recognized environmental conditions in connection with the subject site.

5.7 City Directories

A Historical City Directory Abstract obtained from EDR was reviewed. This Abstract provides site occupant listings by address. Subject site addresses included in this review were: 2200-2240 Shattuck Avenue, 2060-2096 Allston Way, 2065-2099 Kittredge Street, and 2209 Harold Way. Due to the dense concentration of commercial/office properties on and surrounding the Subject, only the most significant listings are detailed below:

Subject	Surrounding Properties
2200 Shattuck Avenue – Berkeley Pharmacy (1920-1933); Frank Lee Jewelers (1970-2000)	2067 Allston Way – Carpenters Tailoring & Cleaning Shop (1938-1955)

Subject	Surrounding Properties
2216 Shattuck Avenue – Huston's Shoes (1925-1996)	2071 Allston Way – Allston Way Cleaners (1920-1925)
2068 Allston Way – Berkeley Seed Testing Laboratory (1945-1955)	2090 Kittredge Street – Berkeley Public Library (1938-2006)
2060 Allston Way – Perfection Cleaners (1925)	2205 Shattuck Avenue – Presto Prints (1986-1996)
2209 Harold Way – Whitecotton Tailors & Cleaners (1938); Wyands Tailors & Cleaners (1943-1955)	

Please refer to Section 5.1, 5.3 & 6.3 for a more detailed discussion the former onsite dry cleaners.

The building that the former off-site northern dry cleaners (2067 and 2071 Allston Way) were located in has been razed and redeveloped since these establishments were in operation. Based on the subsequent redevelopment of this adjacent property and the amount of time that has passed since these businesses were in operation (over 85 years) these former adjacent establishments are not suspected to be of a significant environmental concern to the Subject.

5.8 Interviews

According to Darrin Nee, the property owner, who has been involved with the property for the past 8 years, the Subject was developed in stages between 1910 and 1955.

5.9 Municipal Records

Tax Assessor Records

According to the tax assessor records reviewed, the Subject building(s) were constructed on a 1.63-acre parcel.

5.10 Internet Search

IVI conducted a cursory internet search for the Subject's name and address using the Google search engine on June 6, 2012. No environmentally related information was identified on the first page of the Google search engine.

A copy of regulatory database information contained within a Computerized Environmental Report (CER) provided by Environmental Data Resources, Inc. (EDR) appears in Appendix D. The CER is a listing of sites identified on select federal and state standard source environmental databases within the approximate minimum search distance specified by ASTM Standard Practice for Environmental Site Assessments E 1527-05. IVI reviewed each environmental database to determine if certain sites identified in the CER are suspected to represent a material negative environmental impact to the Subject. The following table lists the number of sites by regulatory database within the prescribed minimum search distance appearing in the CER.

Databases Reviewed	Approximate Minimum Search Distance (AMSD)	Number of Sites Within AMSD
Federal National Priorities List (NPL) Site List	One-Mile	0
Federal Delisted NPL Site List	One-Half Mile	0
Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)	One-Half Mile	0
Federal CERCLIS No Further Remedial Action Planned (NFRAP) Sites	One-Half Mile	0
Federal Resource Conservation and Recovery Information System (RCRIS) Treatment, Storage, and Disposal (TSD) List	One-Half Mile	0
Federal RCRIS Generators List	On-Site and Adjoining Properties	1
Federal Corrective Action Tracking System (CORRACTS)	One-Mile	0
Federal Emergency Response Notification System (ERNS) List	On-Site	0
Federal Institutional/Engineering Control Registries	On-Site	0
California and Tribal Lists of NPL Equivalent Hazardous Waste Sites Identified for Investigation and/or Remediation	One-Mile	1
California and Tribal Lists of CERCLIS Equivalent Hazardous Waste Sites Identified for Investigation and/or Remediation	One-Half Mile	0
California and Tribal Landfills or Solid Waste Facilities List	One-Half Mile	0
California and Tribal Registered Underground Storage Tank (RUST) Facility List	On-Site and Adjoining Properties	0
California and Tribal Leaking UST/Spill List	One-Half Mile	55
California and Tribal Institutional/Engineering Control	On-Site	0

Databases Reviewed	Approximate Minimum Search Distance (AMSD)	Number of Sites Within AMSD
Registries		
California and Tribal Voluntary Cleanup Sites	One-Half Mile	0
California and Tribal Brownfields Sites	One-Half Mile	0

The CER identified 20 "Orphan Sites". "Orphan Sites" are those sites that could not be mapped or "geocoded" due to inadequate address information. Refer to the CER for a list of these "Orphan Sites". IVI attempted to locate these sites via a review of street maps, vehicular reconnaissance and/or interviews with people familiar with the area. "Orphan Sites" that were identified in this manner were analyzed in their respective regulatory database below.

A description of the databases reviewed by IVI and an analysis of sites identified within the prescribed search area are presented below.

6.1 Federal Databases

NPL

The NPL database is a listing of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or "Superfund"). A site must be on the NPL to receive money from the Trust Fund for Remedial Action.

Analysis/Comment: The CER did not identify NPL sites within the AMSD.

Delisted NPL Site List

The EPA may delete a final NPL site if it determines that no further response is required to protect human health or the environment. Under Section 300.425(e) of the National Contingency Plan (55 FR 8845, March 8, 1990). Sites that have been deleted from the NPL remain eligible for further Superfund-financed remedial action in the unlikely event that conditions in the future warrant such action. Partial deletions can also be conducted at NPL sites.

Analysis/Comment: The CER did not identify Delisted NPL sites within the AMSD.

CERCLIS

CERCLIS is the USEPA's system for tracking potential hazardous-waste sites within the Superfund program. A site's presence on CERCLIS does not imply a level of federal activity or progress at a site, nor does it indicate that hazardous conditions necessarily exist at the location. Within one year of being entered into CERCLIS, the USEPA performs a preliminary assessment of a site. Based upon the results of the preliminary assessment, the USEPA may conduct additional investigation, which could lead to a site being listed on the NPL.

Analysis/Comment: The CER did not identify CERCLA sites within the AMSD.

CERCLIS No Further Remedial Action Planned (NFRAP) Sites

As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from the CERCLIS list. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to warrant Federal Superfund Action or NPL consideration.

Analysis/Comment: The CER did not identify CERCLA NFRAP sites within the AMSD.

RCRIS TSD

The RCRIS TSD contains information pertaining to those facilities that treat, store, or dispose of hazardous waste. While these facilities represent some form of hazardous waste activity, they are most significant if determined to be out of compliance or to have violations.

Analysis/Comment: The CER did not identify RCRIS TSD facilities within the AMSD.

RCRIS Generators

IVI reviewed the list of sites, which have filed notification with the USEPA in accordance with RCRA requirements. These sites include generators of hazardous waste regulated under RCRA. Under RCRA, hazardous waste generators are classified by the quantity of hazardous waste generated in a calendar month into the following categories: Large Quantity Generator (LQG), greater than 1,000 kilograms (kg); Small Quantity Generator (SQG), 100 to 1,000 kg; and Conditionally-Exempt Small Quantity Generator (CESQG), less than 100 kg. RCRA Generators, while they represent some form of hazardous waste activity, are most significant if they are determined to have Class I Violations or to be non-compliant.

Analysis/Comment: The CER identified the following RCRA Generator located within the AMSD:

Property Name/ Address	Distance (Mile)	Direction	Presumed Hydrogeologic Relationship	Regulatory Status
Walgreens/ 2187 Shattuck Avenue	Adjacent	NE	Crossgradient	Compliant/ No Violations

This site is listed as a small quantity generator. Inclusion of a site on the RCRA Generator list does not necessarily constitute environmental contamination, but instead merely indicates that a hazardous waste stream was or is generated. This facility was not cross-referenced on any regulatory databases that report releases or contamination conditions, such as the CERCLIS, state hazardous waste sites (SHWS) or SLIC databases. In addition, no violations or compliance infractions were identified in connection with the above-referenced RCRA site. Based on this information, this facility is not suspected to be of a significant environmental concern to the Subject.

Corrective Action Tracking System (CORRACTS)

CORRACTS is a list of facilities that are found to have had hazardous waste releases and require RCRA corrective action activity, which can range from site investigations to remediation.

Analysis/Comment: The CER did not identify CORRACTS sites within the AMSD.

ERNS

The ERNS is a database of notifications of oil discharges and hazardous substance releases made to the Federal government. These notifications are used by “On-Scene Coordinators” to determine an emergency response and release prevention. When a call is made to the National Response Center or one of the 10 USEPA Regions, a report is created containing all of the release information that the caller provided. This report is transferred to an appropriate agency to evaluate the need for a response and the records are electronically transferred to the ERNS database. As such, if a reported release of oil or a hazardous substance is deemed to require a response, it should also be listed in the appropriate federal or state environmental database such as CERCLIS, state equivalent CERCLIS, or state leaking underground storage tank or spills lists.

Analysis/Comment: The CER did not identify the Subject on the ERNS database.

Federal Institutional Control/Engineering Control Registries

These Federal registries contain listings of those sites which have either engineering and/or institutional controls in place. Engineering controls include various physical control devices such as fences, caps, building slabs, paved areas, liners and treatment methods to eliminate pathways for regulated substances to enter the environment or affect human health. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions (Activity and Use Limitations) are generally required as part of institutional controls.

Analysis/Comment: The CER did not identify the Subject on the Federal Institutional or Engineering Control registries.

6.2 California Environmental Protection Agency (Cal/EPA) Databases

Response and Tribal NPL Equivalent Hazardous Waste Sites (HWS)

The Response database is a list of confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Analysis/Comment: The CER identified the following site within the AMSD:

Property Name/ Address	Distance (Mile)	Direction	Presumed Hydrogeologic Relationship	Regulatory Status
Virginia Cleaners/ 1667 Shattuck Avenue	0.52 (corrected)	N	Crossgradient	NFA

The site was occupied by Virginia Cleaners from March 1937 to November 1981. The buildings were destroyed as a result of a fire. In July 1986, construction of a commercial/residential complex detected elevated levels of hydrocarbons. The site was subsequently remediated, and granted a no further action status in 1987. A No Further Action (NFA) designation indicates that the site has been remediated to the satisfaction of the lead environmental regulatory agency and no longer poses a threat to human health or the environment. Based on its status, it is unlikely that contamination originating at this site has a significant negative environmental impact to the Subject. In addition, this site is located a sufficient distance from the Subject so as not to be reasonably suspected of having impacted the same.

Envirostor, HIST Cal-Sites, and Tribal CERCLIS Equivalent Hazardous Waste Sites (HWS)

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal

Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

The HIST Cal-Sites database is a list of facilities subject to investigation concerning likely or threatened releases of hazardous substances. These sites are either being actively remediated, or are currently under evaluation for further action, if necessary. This database has been replaced by Envirostor and is no longer being updated.

Tribal CERCLIS Equivalent HWS list is an inventory of toxic sites listed by Tribal Environmental and Health Authorities. These sites are either under remediation, or are currently under evaluation for further action, if necessary.

Analysis/Comment: The CER did not identify California and/or Tribal CERCLIS Equivalent Hazardous Waste sites within the AMSD (0.5-mile).

California and/or Tribal Solid Waste Facilities (SWF) List

The SWF list is an inventory of active, closed and inactive landfills and other sites that manage solid wastes.

Analysis/Comment: The CER did not identify SWF sites within the AMSD.

California and/or Tribal Registered Underground Storage Tanks (UST), HIST USTs and SWEEPS UST Facility Lists

The UST facility list is an inventory of registered liquid bulk storage tanks. The HIST UST database, aka the Hazardous Substance Storage Container Database, is a historical listing of UST sites. The SWEEPS UST database, aka the Statewide Environmental Evaluation and Planning System, is a list of USTs that was updated and maintained by a company contacted by the State Regional Water Quality Control Board in the early 1980’s. This listing is no longer updated or maintained but has historical significance.

Inclusion of a site on these lists does not necessarily constitute environmental contamination, but instead merely indicates the presence of registered bulk storage tanks.

Analysis/Comment: The CER did not identify sites within the AMSD.

California and Tribal Leaking Underground Storage Tanks (LUST) List and Spills, Leaks, Investigations and Cleanups (SLIC) Records

The LUST list is an inventory of reported spills and leaks, both active and inactive maintained by the various California Regional Water Quality Control Boards. It includes stationary and non-stationary source spills reported to state and federal agencies, including remediated and contaminated leaking UST sites. SLIC records, which are maintained by the various Regional Water Quality Control Boards, document unauthorized discharges from spills and leaks from sources other than UST and other regulated sites.

Analysis/Comment: The CER identified 55 LUST/SLIC cases within the AMSD. Of those 55 cases, 44 have been granted a Case Closed status. A Case Closed status is granted to those sites that do not exhibit levels of contamination requiring clean-up, have been remediated to the satisfaction of the lead regulatory agency, or are not suspected to represent a significant threat to human health or the environment. As such, absent additional information to the contrary, it is unlikely that contamination originating at sites with a Case Closed status have had a significant negative environmental impact on the Subject.

All of the 11 open cases are located a sufficient distance from the Subject (>0.20-mile) and/or are located in a crossgradient to downgradient direction so as not to be reasonably suspected of having impacted same.

California Deed Restriction Listing and Tribal Institutional Control/Engineering Control Registries

The DTSC SMBRP list includes sites remediated under the program's oversight that have active deed restrictions. The DTSC Hazardous Waste Management Program Facility Sites (HWMP) list includes current and former hazardous waste facilities with deed/Land Use Restrictions that have been recorded with the County. The type of land use restrictions includes deed notices, deed restrictions, or a land use restriction that binds current and future owners.

The Tribal Institutional Control/Engineering Control Registries contain listings of those sites which have either engineering and/or institutional controls in place. Engineering controls include various physical control devices such as fences, caps, building slabs, paved areas, liners and treatment methods to eliminate pathways for regulated substances to enter the environment or effect human health. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions (Activity and Use Limitations) are generally required as part of institutional controls.

Analysis/Comment: The CER did not identify the Subject on the SMBRP, HWMP or Tribal Institutional or Engineering Control registries.

California and Tribal Voluntary Cleanup Program (VCP) Sites

The California VCP properties list includes "low" threat level properties with either confirmed or unconfirmed releases and the project proponents have requested that the DTSC oversee the investigation and cleanup.

Analysis/Comment: The CER did not identify VCP sites within the AMSD

California and Tribal Brownfield Sites

A Brownfield site was defined in the 2002 Small Business Liability Relief and Brownfields Revitalization Act (Brownfields Law) as "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant". In connection with the passage of the Brownfields Law, the Environmental Protection Agency grants awards to states and tribes for activities under Section 128 (a).

Analysis/Comment: The CER did not identify Brownfield sites within the AMSD.

6.3 EDR Proprietary Databases

EDR Historic Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc.

Analysis/Comment: The CER did not identify the Subject or any adjacent properties on the historical auto stations database.

EDR Historic Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc.

Analysis/Comment: The CER identified the Subject and an adjacent property on the historical cleaners database. Harry Jacobs, listed at 2060 Allston Way, a portion of the Subject, was listed under the heading of cleaners, dyers, and pressers in 1925. From cross referencing with Sanborn maps it appears that this address and the former address of 2209 Harold Way, which was the adjoining tenant suite to 2060 Allston Way, were occupied by dry cleaning establishments during the 1920-1950s.

These former cleaners were not identified on any regulatory databases that report releases, spills or contamination conditions, such as the CERCLIS or SHWS lists. Nevertheless, these facilities operated prior to the promulgation of RCRA in 1980 (with amendments for small quantity generators in 1984), the legislation that regulates the handling and disposal of hazardous materials and wastes. As such, these facilities operated virtually unregulated while at the Subject property. IVI attempted to obtain any additional information regarding subsurface conditions at the Subject; however, none was available.

Of note, the building that these dry cleaning establishments were located within did not have a basement and was razed in the early-1950s. The building that was built in this location in 1955 is the current building and has a basement level. It is suspected that any near-surface soil contamination (approximately 0-10’ depth) associated with the former onsite dry cleaners would have been removed during site excavation activities prior to the construction of the current building’s basement. Nevertheless, based on the type of chemicals utilized, lack of regulatory oversight at the time and the amount of time these cleaners were in operation (at least 30 years), the potential still exists for adverse impact to the Subject; mainly as a vapor intrusion concern from any potentially remaining contamination not removed during construction of the current building’s basement level.

Of note, in 2002 a limited indoor air quality survey was performed in a basement office tenant suite of the current building after complaints were received stating that workers in the office were experiencing headaches, stuffiness and allergies. The survey concluded that carbon dioxide, formaldehyde, ozone, thermal analysis levels and a dust sample were all normal and no significant findings were reported. However, the survey did not sample for volatile organic compounds (VOCs) which would be the constituents of concern associated with dry cleaning facilities.

In addition, Allston Way Cleaners at 2071 Allston Way, adjacent to the north of the Subject, was listed under the heading of cleaners, dyers, and pressers in 1925. The building that the former off-site northern dry cleaner was located in has been razed and redeveloped since this establishment was in operation. Based on the subsequent redevelopment of the adjacent property and the amount of time that has passed since this business was in operation (over 85 years) this former adjacent property is not suspected to be of a significant environmental concern to the Subject. In addition, this adjacent property was not identified on any regulatory databases that report releases or contamination conditions, such as the CERCLIS, SHWS or SLIC databases.

EDR Manufactured Gas Plants

This database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to the 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of wastes. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Analysis/Comment: The CER did not identify the Subject or any adjacent properties on the manufactured gas plant database.

7.1 Chemical Storage and Usage

With the exception of chemicals customarily used for routine building maintenance and cleaning, IVI did not observe any hazardous chemicals stored on-site. For the most part, the maintenance chemicals are stored in the janitorial room in the basement. Of note, floor drains were not observed in the vicinity of the chemical storage areas. In addition, housekeeping was generally considered satisfactory. The chemicals, which are stored in their original containers, do not appear to represent an impact to the environmental quality of the site provided that they are used as intended, properly handled, and the regulations pertaining to their usage are followed.

7.2 Bulk Storage Tanks

Underground Storage Tanks (USTs)

No USTs were identified on the subject property and no common indicators of USTs such as vent pipes, fill ports, manways, pavement cuts, fuel gauges or dispensers were observed. In addition, according to Darrin Nee, there are no USTs on-site. Furthermore, the Subject was not identified on the California list of registered UST facilities.

No underground storage tanks were reportedly removed, closed-in-place or abandoned at the site and no common indicators of closed tanks were observed.

However, according to a previous Phase I ESA conducted in 1995, a boiler was present on the hotel site which reportedly had used fuel oil for heating. This previous Phase I speculated that the fuel oil may have been stored in underground tanks, although this was not confirmed at that time. The previous Phase I ESA also reported that a fuel oil line had lead from the old boiler to the basement and then out to Allston Way. Following completion of the 1995 Phase I, an investigation was conducted at the site in an attempt to locate any USTs, if present, at the site. In May 1995, two soil borings were drilled on Allston Way near the entrance to the Shattuck Hotel. While coring through the sidewalk, an empty underground vault was encountered, which was believed to have been the previous location of an UST used for the boiler at the Shattuck Hotel. It was believed that the UST was removed sometime after the boiler was converted from fuel oil to natural gas in the 1950s. The concrete vault was found to be in good condition with no evidence of cracking. No hydrocarbon or septic odors were identified and no sludge was located at the bottom of the vault. In June 1995, an inspector from the City of Berkeley Toxics Management Division inspected the vault and found no issues. The department issued a letter in June 1996 requiring no further action regarding the potential UST at the site.

Aboveground Storage Tanks (ASTs)

No ASTs were observed and IVI did not identify any equipment, which should require such tanks. Moreover, visual indicators of former site ASTs, such as tank cradles, secondary containment structures, tank pedestals, etc., were not observed. In addition, according to the site contact, there are no ASTs on-site.

7.3 Site Waste and Wastewater

Solid Waste

Non-hazardous solid waste is disposed of in dumpsters and a compactor and is removed from the Subject on a regular basis by the municipality. Potential sources of contamination, such as waste oil or automobile batteries, were not observed in the vicinity of the dumpsters or compactor.

Sanitary Sewage

Sanitary sewage disposal is provided by the City of Berkeley. IVI did not observe any sources of wastewater or liquid discharge into the sewer other than sanitary sewage.

Hazardous Waste

No hazardous waste was observed or reported to be generated on the Subject. Furthermore, IVI's review of the USEPA's database of sites regulated under RCRA did not identify the Subject as a generator of hazardous waste.

7.4 Stained Soil, Stained Pavement, or Stressed Vegetation

There was no evidence of significant soil staining, stained pavement, or stressed vegetation observed on-site.

7.5 Liquid Discharges

No visible evidence of liquid discharges, suspected to represent an environmental concern were observed during our survey.

7.6 Pools of Liquid

IVI did not observe significant standing surface water or pools containing liquids likely to be hazardous substances or petroleum products.

7.7 Pits, Ponds, or Lagoons

No pits, ponds or lagoons suspected of containing hazardous substances or petroleum products were identified on-site.

7.8 Wells

IVI did not identify on-site dry wells, irrigation wells, injection wells, observation wells, monitoring wells, potable water wells, recovery wells or abandoned wells.

7.9 On-Site Fill

Based on our observations, other than typical engineered fill used in foundation construction, it does not appear that a significant amount of fill has been imported onto the Subject.

7.10 Drums and Containers for Storing Waste

With the exception of non-hazardous solid waste containers and drums for kitchen grease, IVI did not identify containers suspected of storing waste. With respect to the non-hazardous solid waste containers, no significant environmental concerns were noted.

7.11 Floor Drains and Sumps

IVI did not identify any floor drains or sumps that were stained, emitting foul odors, or connected to an on-site sewage disposal system, or located adjacent to chemical storage areas. A sewage ejector was noted in the elevator equipment room located in the basement. The presence of this equipment is not suspected to be of a significant environmental concern to the Subject.

7.12 Odors

IVI did not identify strong, pungent, or noxious odors suspected to represent an environmental concern.

7.13 Air Emissions

IVI did not identify processes or equipment that emit noticeable vapors or fumes.

7.14 Polychlorinated Biphenyls (PCBs)

Hydraulic Lifts

There is an aboveground wheelchair lift at the southwest corner of the building. Inasmuch as the lift was installed after the 1979 ban on the manufacturing of PCBs, the hydraulic fluid is unlikely to contain PCBs. Since the lift is an aboveground unit and no significant leakage was identified in connection with same, the potential for subsurface contamination is unlikely.

Another lift was noted in the post office annex loading dock area. The lift was reportedly installed after the 1979 ban on the manufacturing of PCBs, thus, the hydraulic fluid is unlikely to contain PCBs. Since the lift is an aboveground unit and no significant leakage was identified in connection with same, the potential for subsurface contamination is unlikely.

Elevators

IVI identified one hydraulic elevator at the Subject. Although Mr. Nee did not know the date of installation of the elevator equipment, he did not believe it was original to the building. According to an *Elevator Acquisition Survey Report*, dated June 5, 2012, the current onsite elevator was manufactured and installed by Otis Elevator Company in 1969. Although the elevator may have been installed prior to the 1979 ban on the manufacturing of PCB-containing hydraulic fluid, the hydraulic fluid currently used in the elevator equipment is unlikely to contain PCBs since it has likely been serviced since 1979; it was noted in the elevator report that the hydraulic control valve was not original, and presumably when this was replaced the elevator hydraulic fluid was drained and replaced. Nevertheless, no significant staining or pools of hydraulic fluid were observed around the hydraulic equipment or in the elevator pit.

Trash Compactor

A hydraulic trash compactor is located on the west end of the Subject. The compactor was installed after the 1979 ban on the manufacturing of PCBs, thus, the hydraulic fluid is unlikely to contain PCBs. Since the lift is an aboveground unit and no significant leakage was identified in connection with same, the potential for subsurface contamination is unlikely.

7.15 Asbestos-Containing Material (ACM)

Documents provided by the client included a letter dated May 20, 1991 from Robert Gils Associates regarding suspect ACM at the site. The letter indicates that abatement of certain ACM was completed in 1988, as detailed below:

Material	Location	Status
Linoleum	Throughout the Building	Abated
Pipe insulation	Under floor in penthouse	Enclosed during remodeling
Water pipe	Above ceiling of Shattuck & lobby	Abated
Pipe insulation	Roof	Abated
Corrugated material in cooing unit	Roof	Entire cooing unit removed
Pipe insulation	Tunnel	Tunnel enclosed
Floor tile	Mezzanine	Abated
Floor tile	Basement	Encased with gypcrete

An environmental assessment on the Subject titled Phase I Environmental Site Assessment, 2200 Shattuck Avenue, Berkeley, California, prepared on May 31, 1995, by Geoscience Consultants, Ltd. (GCL), reported that an asbestos survey had been conducted on the southern and rear section of the building, and that confirmed asbestos had been identified and removed from the building. GCL also identified old insulation on piping in the basement, on the boilers, and on the roof, some of which was in a friable condition. GCL recommended an asbestos survey in these areas.

Also in documents provided by the client was a letter dated October 1, 1996, from IVI Environmental, Inc. verifying the removal of friable asbestos-containing pipe insulation identified in the cellar of Frank Lee Jewelers and Huston Shoes (2200 and 2216 Shattuck Avenue). Approximately 150 linear feet of the material was removed in August 1996 by Marfield Company, and was disposed of off-site at the California asbestos monofill in Copperopolis, California. Final air clearance monitoring was conducted by CTL Environmental Services.

Subsequent to the removal of the friable pipe insulation, IVI completed an Asbestos Operations & Maintenance Program, dated October 1, 1996. According to the O&M, suspect non-friable materials at the Subject include:

Material	Location	Condition	Quantity	Asbestos Containing?
1’x1’ acoustical ceiling tile	Unit 2200	Good	Not estimated	Suspect
Textured ceiling finish	Unit 2200	Good	Not estimated	Suspect
9”x9” resilient floor tile	Unit 2200	Good	Not estimated	Suspect
1’x1’ resilient floor tile	Throughout the building	Good	Not estimated	Suspect
Gysumboard	Units 2200 and	Good	Not estimated	Suspect

	2216			
Built-up roofing system	Roof	Good	Not estimated	Suspect

As noted, all current building materials appeared to be in good condition.

7.16 Lead-in-Drinking Water

Based on our conversations with utility personnel, the water at the Subject is not expected to contain elevated levels of lead.

7.17 Radon

Based on statistical information maintained within the U.S. Department of the Interior and U.S. Geological Survey's *Geologic Radon Potential,* dated 1993, radon concentrations in Alameda County average 1.0 picocuries per liter (pCi/L), which is below the 4.0 pCi/L action level established by the USEPA. Based solely on this data, it is unlikely that radon represents an environmental concern at this time.

7.18 Lead-Based Paint (LBP)

Since the Subject was constructed prior to the Consumer Product Safety Commission's 1978 ban on the sale of LBP to consumers and the use of LBP in residences, there is a potential that LBP may have been applied at the Subject. Testing would be required in order to determine whether LBP exists. Painted surfaces observed were in generally good condition.

8.0 INTERVIEWS

8.1 Questionnaires

IVI sent a Pre-Survey Questionnaire and an AAI User Questionnaire to the site contact and the User, respectively. The purpose of these questionnaires was to disclose any previous or existing hazardous waste or toxic material conditions, which may not have been apparent at the time of our site reconnaissance and to satisfy the User interview all appropriate inquiry requirements.

The completed Pre-Survey Questionnaire is attached hereto as Appendix B. The questionnaire did not identify any recognized environmental conditions in connection with the Subject. The User has yet to return the AAI User Questionnaire.

8.2 User

8.2.1 Title Records

A copy of the Subject's Chain-of-Title has not been provided to IVI for review; however, some ownership history was provided as part of previous assessments of the Subject. Please refer to Section 5.5 for a more detailed discussion on same.

8.2.2 Environmental Clean Up Liens and Activity and Use Limitations (AULs)

The User has not returned the AAI User Questionnaire. Of note, according to the EDR Environmental LienSearch Report dated November 7, 2007, no environmental liens or AULs were identified for the Subject parcels at the Alameda County Recorder.

8.2.3 Specialized Knowledge

The User has not returned the AAI User Questionnaire.

8.2.4 Relationship of Purchase Price to Fair Market Value Due to Contamination in Connection with the Subject

The User has not returned the AAI User Questionnaire.

8.2.5 Common Knowledge or Reasonably Ascertainable Information

The User has not returned the AAI User Questionnaire.

8.2.6 Purpose for Conducting the Phase I Environmental Site Assessment

The User has not returned the AAI User Questionnaire.

8.2.7 Proceedings Involving the Property

The User has not returned the AAI User Questionnaire.

8.3 Key Site Manager

8.3.1 Historic Site Use

According to Darrin Nee, the property owner, who has been involved with the property for the past 8 years, the Subject was developed in stages between 1910 and 1955.

8.3.2 Proceedings Involving the Property

Mr. Nee had no knowledge of pending, threatened, or past litigation, administrative proceedings, or notices from governmental agencies regarding violations of environmental laws regarding hazardous substances or petroleum products.

8.4 Occupants

None of the other site occupants were interviewed.

8.5 Past Owners

IVI was unable to locate the site's former owner.

8.6 Local Regulatory Agency Interviews and/or File Reviews

Fire Department

IVI has sent a request to the Berkeley Fire Department for environmental information pertaining to the subject property. As of this writing, the Fire Department has not responded to our request. Should receipt of a response from the Fire Department change the conclusions of this report, the Client will be notified in writing by IVI.

Health Department

IVI has sent a request to the Berkeley Toxics Management Department for environmental information pertaining to the subject property. As of this writing, the Department has not responded to our request. Should receipt of a response from the Department change the conclusions of this report, the Client will be notified in writing by IVI.

Tax Assessor

A cursory review of property tax files did not identify any environmental liens with respect to the subject property.

Department of Planning and Zoning

Review of available zoning records maintained by the City of Berkeley Planning Department indicates that the Subject is currently zoned C-2 Commercial. According to the planning and zoning records, no additional zoning changes were listed for the Subject.

9.0 FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

IVI has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Standard Practice E1527-05 of The Berkeley Center, located at 2200-2240 Shattuck Avenue, Berkeley, California. Any exceptions to, or deletions from, the standard practice are described within Section 2.0 of this report.

This assessment has revealed no evidence of recognized environmental conditions (REC) in connection with the Subject except for the following:

Previous On-Site Operations

The address of 2209 Harold Way, within the former 2-story retail building on the northwest corner of the property, was labeled as “pressing” on the 1950 Sanborn map; which is another term for dry cleaning. From cross referencing with city directories it appears that this address and the former address of 2060 Allston Way, which was the adjoining tenant suite to 2209 Harold Way, were occupied by dry cleaning establishments during the 1920-1950s. These former cleaners were not identified on any regulatory databases that report releases, spills or contamination conditions, such as the CERCLIS, state hazardous waste sites (SHWS) or SLIC lists. Nevertheless, these facilities operated prior to the promulgation of RCRA in 1980 (with amendments for small quantity generators in 1984), the legislation that regulates the handling and disposal of hazardous materials and wastes. As such, these facilities operated virtually unregulated while at the Subject property. IVI attempted to obtain any additional information regarding subsurface conditions at the Subject; however, none was available.

Of note, the building that these dry cleaning establishments were located within did not have a basement and was razed in the early-1950s. The building that was built in this location in 1955 is the current building and has a basement level. It is suspected that any near-surface soil contamination (approximately 0-10’ depth) associated with the former onsite dry cleaners would have been removed during site excavation activities prior to the construction of the current building’s basement. Nevertheless, based on the type of chemicals utilized, lack of regulatory oversight at the time and the amount of time these cleaners were in operation (at least 30 years), the potential still exists for adverse impact to the Subject; mainly as a vapor intrusion concern from any potentially remaining contamination not removed during construction of the current building’s basement level.

Of note, in 2002 a limited indoor air quality survey was performed in a basement office tenant suite of the current building after complaints were received stating that workers in the office were experiencing headaches, stuffiness and allergies. The survey concluded that carbon dioxide, formaldehyde, ozone, thermal analysis levels and a dust sample were all normal and no significant findings were reported. However, the survey did not sample for volatile organic compounds (VOCs) which would be the constituents of concern associated with dry cleaning facilities.

In addition, the following historical REC was also identified:

Possible Former Underground Storage Tanks (USTs)

According to a previous Phase I ESA conducted in 1995, a boiler was present on the hotel site which reportedly had used fuel oil for heating. This previous Phase I speculated that the fuel oil may have been stored in underground tanks, although this was not confirmed at that time. The previous Phase I ESA also reported that a fuel oil line had lead from the old boiler to the basement and then out to Allston Way. Following completion of the 1995 Phase I, an investigation was conducted at the site in an attempt to locate any USTs, if present, at the site. In May 1995, two soil borings were drilled on Allston Way near the entrance to the Shattuck Hotel. While coring through the sidewalk, an empty underground vault was encountered, which was believed to have the previous location of an UST used for the boiler at the Shattuck Hotel. It was believed that the UST was removed sometime after the boiler was converted from fuel oil to natural gas in the 1950s. The concrete vault was found to be in good condition with no evidence of cracking. No hydrocarbon or septic odors were identified and no sludge was located at the bottom of the vault. In June 1995, an inspector from the City of Berkeley Toxics Management Division (TMD) inspected the vault and found no issues. The TMD subsequently issued a letter in June 1996 requiring no further action regarding the potential UST at the site. IVI concurs with the TMD and no further action or investigation appears warranted at this time.

In addition, the following item of environmental concern was identified, which warrants mention:

Asbestos-Containing Material (ACM)

Based on our review of several previous assessments and abatement reports, the majority of previously identified ACM have been abated from the Subject. However, suspect asbestos containing materials remain at the Subject. These materials include 1’ x 1’ acoustical ceiling tiles, textured ceiling finish, 9”x 9” resilient floor tile, 1’x 1’ resilient floor tile, gypsumboard, and built-up roofing system. Since these materials were observed to be in good condition, no further action is recommended at this time other than maintaining these suspect materials in good condition under the existing Asbestos Operations and Maintenance (O&M) Program. All activities involving ACM should be conducted in accordance with governmental regulations.

10.0 LIMITING CONDITIONS

10.1 This report has been prepared in compliance with the ASTM standard entitled "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" E1527-05.

10.2 The observations described in this report were made under the conditions stated herein. The conclusions presented in the report were based solely upon the services described therein, and not on scientific tasks or procedures beyond the scope of described services within the constraints imposed by the client. The work described in this report was carried out in accordance with the Terms and Conditions of the contract.

10.3 In preparing this report, IVI has relied on certain information provided by federal, state, and local officials and other parties referenced therein, and on information contained in the files of governmental agencies, that were readily available to IVI at the time of this assessment. Although there may have been some degree of overlap in the information provided by these various sources, IVI did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this site assessment. Observations were made of the site and of the structures on the site as indicated in this report. Where access to portions of the site or to structures on the site was unavailable or limited, IVI renders no opinion as to the presence of direct or indirect evidence relating to petroleum substances, hazardous substances, or both, in that portion of the site and structure. In addition, IVI renders no opinion as to the presence of indirect evidence relating to hazardous material or oil, where direct observation of the ground surface, interior walls, floors, ceiling or a structure is obstructed by objects or materials, including snow, covering on or over these surfaces.

10.4 As part of this assessment, IVI submitted requests for information via the Freedom of Information Act (FOIA) to various governmental agencies. As of the preparation of this report these requests may not have been fulfilled. The conclusions of this report are subject to change upon receipt of a response from these FOIA requests.

10.5 IVI does not represent that the site referred to herein contains no petroleum or hazardous or toxic substances or other conditions beyond those observed by IVI during the site walkthrough.

10.6 IVI has produced this document under an agreement between IVI and Hill Street Realty. All terms and conditions of that agreement are included within this document by reference. Any reliance upon this document, or upon IVI's performance of services in preparing this document, is conditioned upon the relying party's acceptance and acknowledgement of the limitations, qualifications, terms, conditions and indemnities set forth in that agreement, and property ownership/management disclosure limitations, if any. It is not to be relied upon by any party other than Hill Street Realty nor used for any purpose other than that specifically stated in our Agreement or within this Report's Introduction section without IVI's advance and express written consent. The Phase I report is only valid if completed within 180 days of an acquisition or the transaction necessitating the report.

10.7 TIME LIMITATION TO ENACT CLAIM AGAINST IVI If in the opinion of the client, or any third party claiming reliance on IVI's report or services, that IVI was negligent or in breach of contract, such aforementioned parties shall have one year from the date of IVI's site visit to make a claim.

10.8 Unless specifically identified within Section 2, Chinese drywall, indoor air quality and any other non-ASTM scope issues as identified in ASTM E1527-05, Section 13.1.5, are excluded from the scope of this assessment.

Appendix E

Storm Water Discharge Calculations

TELAMON
ENGINEERING CONSULTANTS, INC.

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MEMORANDUM

Date:	2/06/2013	**Pages:**	4
To:	Luis Arambula	**From:**	Paul Boumann
Company:	MVEI	**Company:**	Telamon Engineering Consultants Inc.
Phone No:	(949) 809-3380	**Phone No:**	(415) 837-1336
CC:	Mennor Chan		
Project:	The Residences At Berkeley Plaza		
Subject:	C3 Storm Water Discharge Calculations		

I. Background:

Telamon Engineering Consultants (TECI) calculated the area and volume required to treat storm water run-off for 80% of the annual runoff from the project site. The calculations were based on the Alameda County Clean Water Program, "C.3 Storm Water Technical Guidance". Since the roof areas will be treated separately from the court yard areas, these two areas were evaluated independently of each other.

II. Evaluation:

The following tables show the Roof area and Court Yard area requirements along with the flow rates and volumes generated by a 2 year storm (0.2 inches/hour) for the bio-treatment areas of the subject conceptual designs. The volumes were calculated using Table 5-3, " Unit Basin Storage Volumes in Inches for 80 Percent Capture Using 48-hour Drawdowns". The "Volume Treatment Value" was calculated using Region 5 San Francisco, with a mean annual precipitation of 21 inches/year and using 22.5 inches/year for the City of Berkeley. See attached Table 5-3 and "Mean Seasonal Isohyets" map in Appendices. The "Volume Treatment Value" calculated to 0.78 inches for net areas to be treated. See "Volume Treatment Calculations" in Appendices.

Treatment Areas:

AREA	AREA TREATED sf	AREA TREATED Acres	REQUIRED TREATEMENT AREA Sf	PROPOSED TREATEMENT AREA sf
Roof	24,193	0.56	968	
Roof Landscape Area				2,900
Court Yard	12,822	0.29	513	
Flow Through Planters				1,196

Flow Rates and Volumes:

AREA	TOTAL AREA Sf	LANDSCAPE AREA sf	NET AREA Sf	AREA Acres	C	CA	SUM CA	UNIT INTENSITY	FLOW Q cfs	Vol. cf	AVG Depth
Roof	24,193	2,900	21,193	0.49	0.7	0.34					
Roof Landscape		2,900	2,900	0.07	0.1	.007					
Total							0.35	0.2	**0.07**	**1,384**	**0.48+/-**
Court Yard	12,822	1,196	11,626	0.27	0.7	0.19					
Flow Through		1,196	1,196	0.03	0.1	0.003					
Total							0.19	0.2	**0.04**	**756**	**0.63+/-**

III. Assumptions:

The following assumptions were made when generating the calculations above:

1. The landscape areas on the roof will be used as bio-treatment areas. See Exhibit “A” in Appendices.
2. The flow through planters within the court yard area will be used as bio-treatment areas. See Exhibit “B” in Appendices.

IV. Conclusion:

Based on the above calculations and assumptions, the Conceptual designs for “The Residences At Berkeley Plaza” should be able to meet the C3 Storm Water Discharge requirements. The Required Treatment Area for the roof is 968 square feet and Exhibit “A” shows roughly 2,900 square feet of landscape area that can potentially be used for bio-treatment area. The required Treatment Area for the court yard is 513 square feet and Exhibit “B” shows roughly 1,196 square feet of flow through planter area that can potentially be used for bio-treatment area. The average depth, based on volume, for the bio-treatment areas are reasonable.

The above calculations, assumptions and conclusions are based on Conceptual design plans and therefore the above results may vary as the design plans become more refined during the design process.

REFERENCES

1. **Table 5-3**
2. **Mean Seasonal Isohyets map**
3. **Exhibit "A"**
4. **Exhibit "B"**
5. **Volume Treatment Calculation**

inches. The 0.55 composite runoff coefficient is one-fifth of the way between the table's 0.5 and 0.75 composite runoff coefficient

5. Calculate the ***required capture volume*** by multiplying the drainage area from step 2 by the unit basin storage volume value. Due to the mixed units that result, such as acre-inches, it is recommended that the resulting volume be converted to cubic feet for use during design.

Table 5-3
Unit Basin Storage Volumes in Inches for 80 Percent Capture Using 48-Hour Drawdowns

		Unit basin storage volumes (inches) based on composite runoff coefficient for area tributary to the volume-based treatment measure (varies with percentage of impervious surface)			
Region[1]	**Meteorological Station, and Mean Annual Precipitation (Inches)**	**25% impervious**	**50% impervious**	**75% impervious**	**100% impervious**
1	Boulder Creek, 55.9"	0.51 inches	1.02	1.53	2.04
2	La Honda, 24.4"	0.21	0.42	0.64	0.86
3	Half Moon Bay, 25.92"	0.20	0.41	0.60	0.82
4	Palo Alto, 14.6"	0.16	0.32	0.49	0.64
5	San Francisco, 21.0"	0.18	0.36	0.54	0.73
6	San Francisco airport, 20.1"	0.21	0.42	0.63	0.85
7	San Francisco Oceanside, 19.3"	0.18	0.35	0.53	0.72

Source: CDM memo dated May 14, 2004

[1] See Appendix C to locate the applicable Treatment Measure Design Criteria Region.

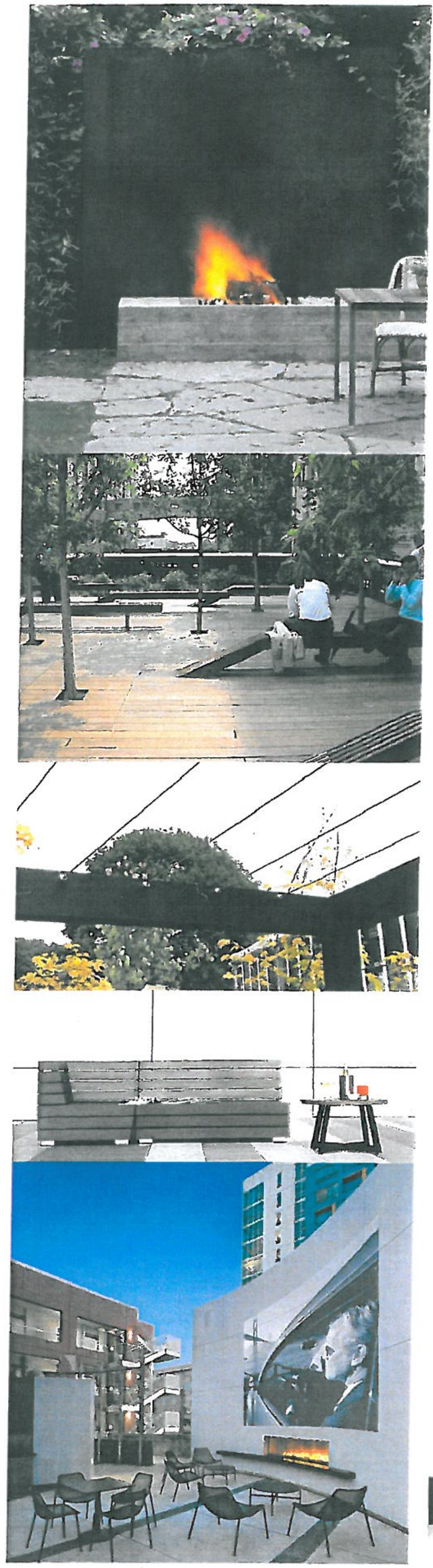
The other critical issue for the design of volume-based stormwater treatment measures that temporarily pond water is the ***drawdown time***. The outlet structure's orifices should be designed to draw down the stormwater flow being treated within 48 hours. Forty-eight hours of drawdown time is the minimum acceptable drawdown time for stormwater treatment. A longer drawdown time is acceptable, up to a maximum of 5 days. Drawdown time may not exceed five days, to avoid creating conditions for mosquito breeding.

Figure 5-2: Bioretention area, Daly City (example of a flow-based treatment measure)

Flow-Based Sizing Criteria

The Municipal Regional Stormwater Permit specifies three alternative methods for hydraulically sizing flow-based stormwater treatment control measures, such as vegetated swales, flow through planter boxes, and media filters. The percentile rainfall intensity method is based on ranking the hourly depth of rainfall from


ISOHYETS SHOWN IN INCHES
ISOHYETS SHOWN IN MILLIMETERS
CONTRA COSTA COUNTY
PUBLIC WORKS DEPARTMENT
CONTRA COSTA COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
MEAN SEASONAL ISOHYETS
COMPILED FROM PRECIPITATION RECORDS
1879 - 1973
DESIGNED: P. W.
CHECKED: L. H.
DRAWING NUMBER:
DRAWN: L. L. H.
DATE: 12-77
B-166
Pablo Bay
Suisun Bay
CONTRA COSTA
N
122°15′
122°00′
121°45′
38°00′
37°45′



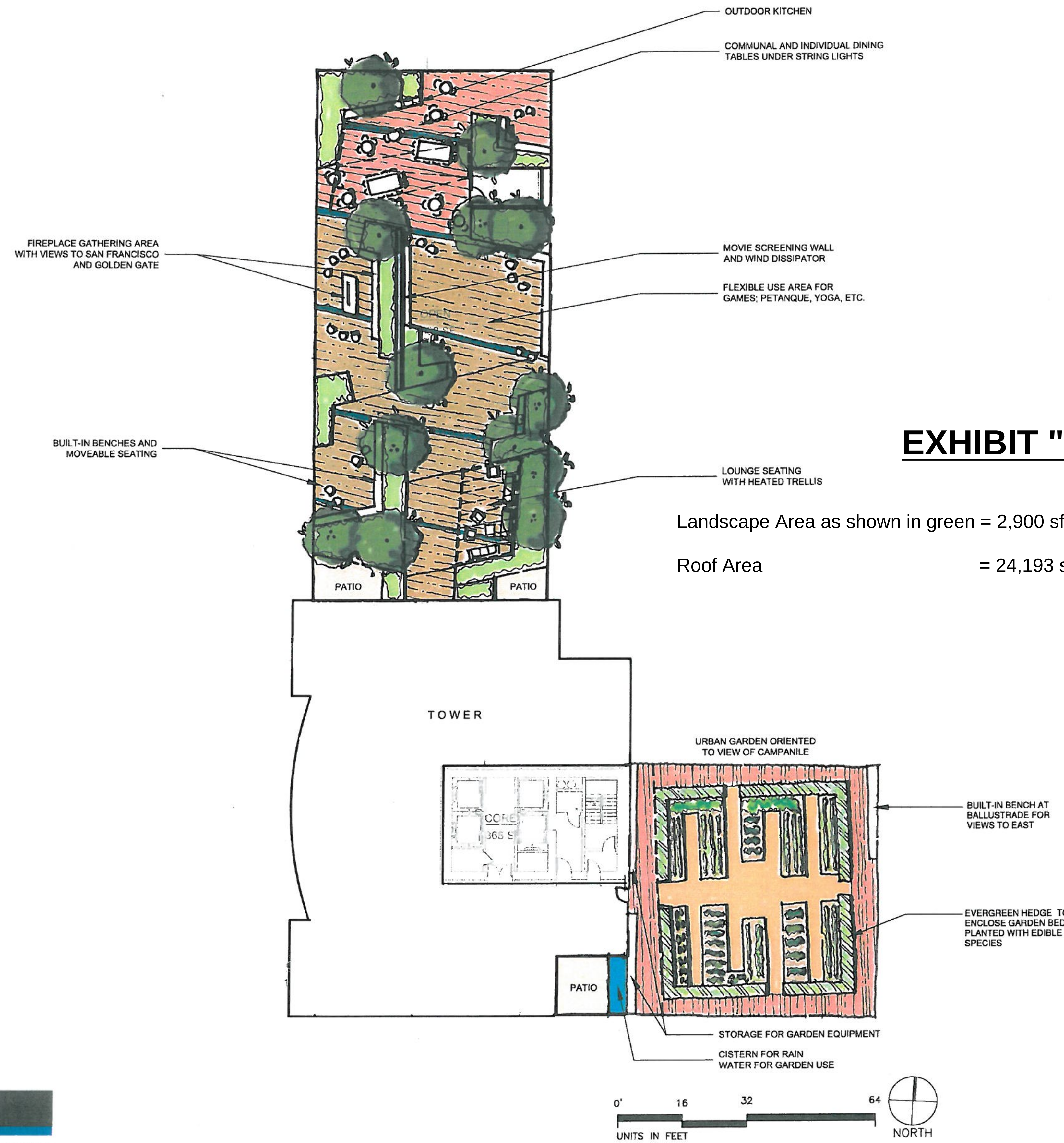
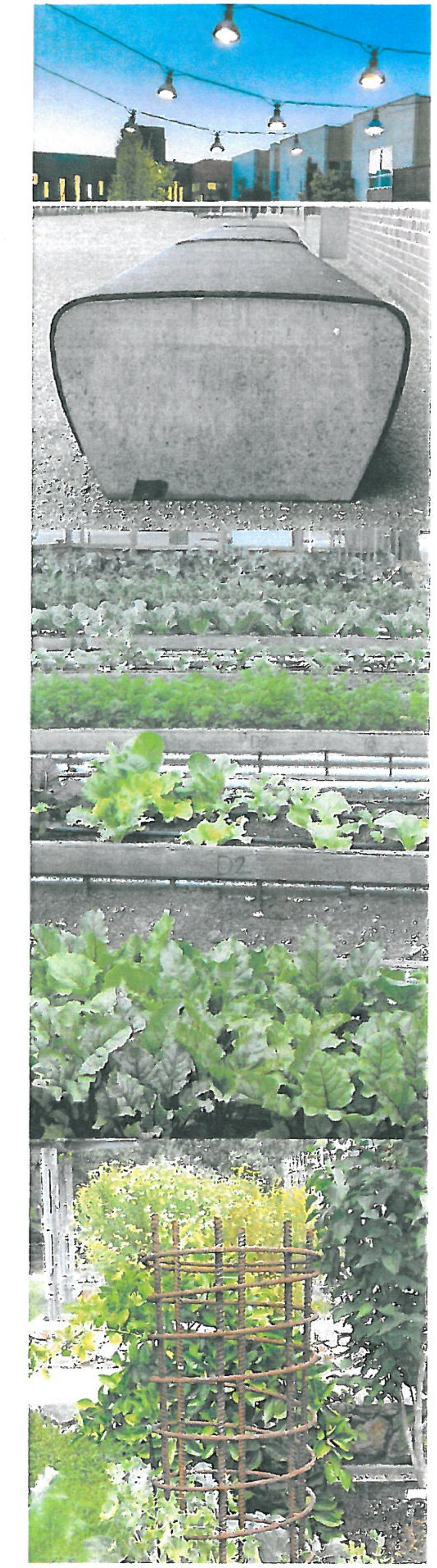


EXHIBIT "A"

Landscape Area as shown in green = 2,900 sf +/-

Roof Area = 24,193 sf



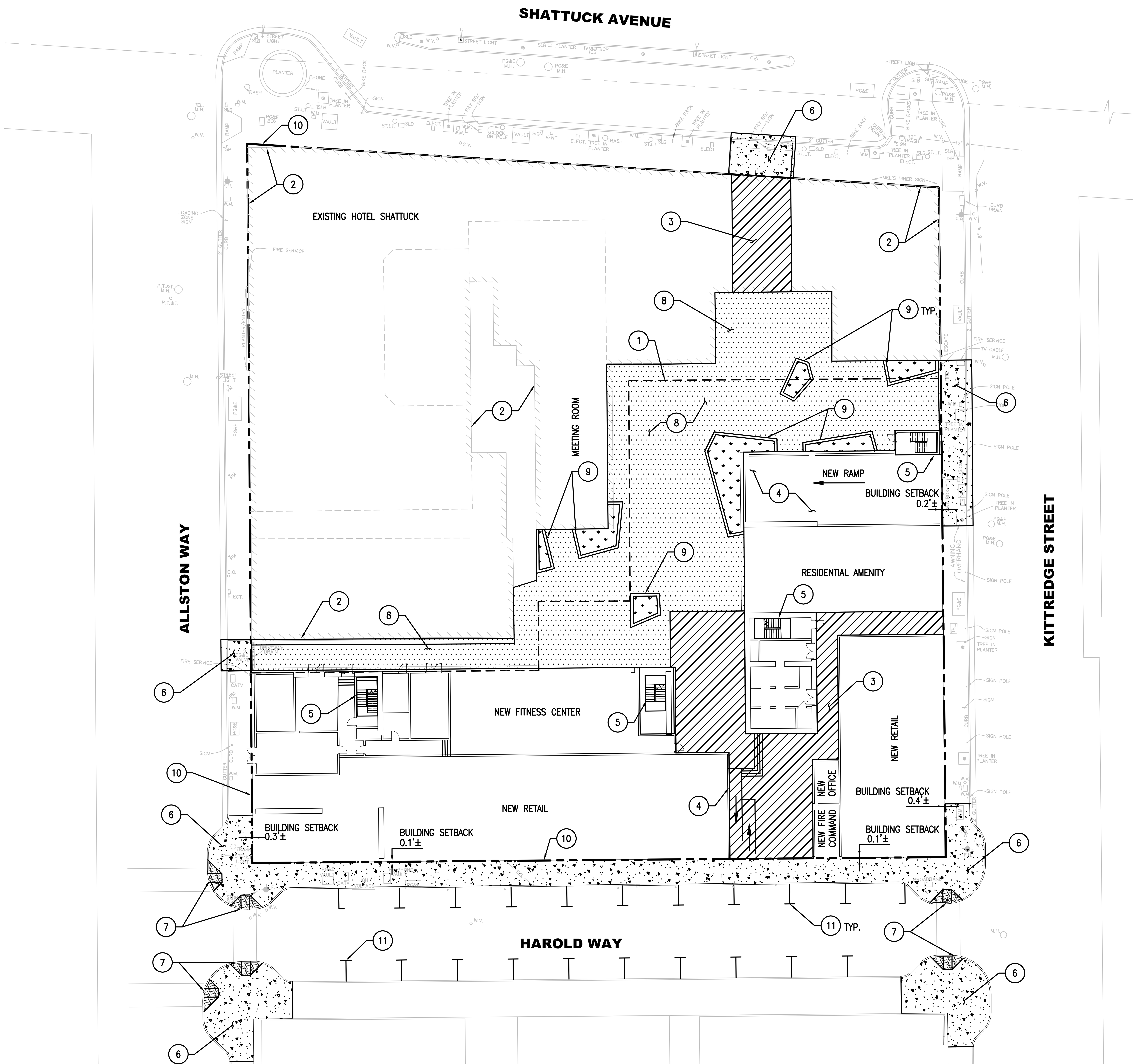
PGA design INC
LANDSCAPE ARCHITECTS

Hill Street Realty

THE RESIDENCES AT BERKELEY PLAZA
13TH FLOOR TERRACES

DECEMBER 20, 2012

MVEI Architecture Planning Interiors Graphics



LEGENDS

A. FINISH AND INSTALL THE FOLLOWINGS, AS SHOWN ON PLAN.

ITEM	SYMBOL	DESCRIPTION	DETAILS
1		LIMIT OF UNDERGROUND PARKING GARAGE	
2		EXISTING BUILDING LIMITS	
3		NEW COVERED PEDESTRIAN ACCESS	
4		NEW RAMP DOWN	
5		(N) STAIRWAY	
6		NEW CURB, GUTTER & SIDEWALK	
7		NEW HCR	
8		OPEN SPACE AREA NEW HARDSCAPE	
9		NEW FLOW THROUGH PLANTER	
10		EXISTING PROPERTY LINE	
11		PROPOSED PARKING SPACE	

EXHIBIT "B"

Flow Through Planters = 1,196 sf

Court Yard Area = 12,822 sf

REFERENCE:

20 10 0 20 40

SCALE: 1" = 20'

THE RESIDENCES AT BERKELEY PLAZA

HSR BERKELEY INVESTMENTS, LLC

2811 HAROLD WAY
BERKELEY, CA 94707

TELAMON ENGINEERING CONSULTANTS, INC.
855 FOLSOM STREET, SUITE 142
SAN FRANCISCO, CA 94107
TEL: 415-837-1336 FAX: 415-837-1354

DATE: 1/31/13

PROJECT #: 13010

SCALE: NONE

0

NORTH

SHEET #: C-4.01

CONCEPTUAL SITE IMPROVEMENT PLAN

MVEI

MVE Institutional, Inc.
3 MacArthur Place, Suite 850
Santa Ana, California 92707
T 949-809-3380
www.mve-institutional.com

Telamon Engineering Consultants, Inc.
445 Grant Ave., Suite 600, San Francisco, CA 94108 Tel: (415) 837-1336 Fax: (415) 837-1354
211 Tenth Street, Suite 238, Oakland, CA 94607 Tel: (510) 893-1668 Fax: (510) 893-1669

Project BERKELEY PLAZA
Designed PB Checked ______ Date 2/6/13 Page 1 of 1

VOLUME TREATMENT CALCULATION

80% CAPTURED VOLUME USING 48-HOUR DRAWDOWN USING TABLE 5-3 ATTACHED.

GIVENS:

REGION - SAN FRANCISCO

USE: 100% IMPERVIOUS AREA

MEAN ANNUAL PRECIPITATION FOR BERKELEY = 22.5 INCHES/YEAR (SEE ATTACHED ISOHYETAL MAP)

VOLUME TREATMENT VALUE = $(0.73 \cdot 22.5''/21'') = 0.78''$

WATER QUALITY DESIGN VOLUME

ROOF AREA LANDSCAPE BIO-TREATMENT

$21,293 \times 0.78'' \times \frac{1\ FT}{12\ IN} = 1,384\ FT^3$

AVG DEPTH = $\frac{1,384\ FT^3}{2,900\ FT^2} = \underline{\underline{0.48\ FEET\pm}}$

FLOW THROUGH PLANTERS.

$11,626 \times 0.78'' \times \frac{1\ FT}{12\ IN} = 756\ FT^3$

AVG DEPTH = $\frac{756\ FT^3}{1,196\ FT^2} = \underline{\underline{0.63\ FT\pm}}$

Appendix F

Wind and Comfort Impact Analysis

Donald Ballanti
Consulting Meteorologist

1424 Scott Street
El Cerrito, CA 94530
(510) 234-6087

January 20, 2014

Abe Leider
Rincon Consultants
180 Grand Avenue, Suite 400
Oakland, CA. 94612

Subject: Wind and Comfort Impact Analysis of the Proposed 2211 Harold Way Project, Berkeley

Dear Mr. Leider:

This letter-report summarizes my findings concerning potential wind and comfort impacts of the proposed 2211 Harold Way Project in Berkeley. I have based this analysis on a review of project plans and sections, a site visit, and my knowledge of comfort conditions and basic building aerodynamics gained from nearly 40 years of wind tunnel studies and analysis of building-generated wind problems throughout the Bay Area.

Wind is an important factor in determing pedestrian comfort and safety. The Bay Area is noted for its cool, windy climate that, combined with frequent stratus clouds, can make outdoor space uncomfortably cool. The usability of outdoor space, parks and even the success of retail space is partially determined by wind conditions.

The following analysis examines wind qualitatively. The proposed project is examined to determine where the most important factors that determine wind exposure combine to accelerate winds that can adversely affect pedestrians and users of outdoor space.

PROJECT DESCRIPTION

The project site is a generally flat, roughly "L"-shaped portion of the city block defined by Shattuck Avenue, Kittredge Street, Harold Way and Allston Way. The project site fronts on Harold Way for its full length, and on portions of Allston Way and Kittredge

Street. The site is fully urbanized, and generally level, sloping slightly downward towards the west. The site is currently occupied by two structures. The larger existing structure is an 76,254 gross square-foot square foot building known as the Shattuck Cinemas building. The smaller building is 32,390 gross square feet in size and is known as the Postal Annex building. It has frontage on Allston Way and Harold Way, and houses office space and an area of US Post Office boxes. Both buildings are two stories in height with a partial third story and a basement level. Both buildings would be demolished to accommodate the project.

The proposed building would have components of various heights, the highest portion reaching 180 feet in 18 stories. The building would step down at the street fronts to generally match the height of the adjacent Hotel Shattuck Plaza and exceed the height of the public library across Kittredge Street from the project by approximately two stories. The ground floor would provide commercial space, in addition to residential lobby and amenity areas. A new movie theater would be located on the ground floor and below-ground levels. Parking would be provided in a three-level subterranean garage.

The residential component would be accommodated on floors 2 through 18 of the proposed project. Residential units would be accessed primarily from a residential lobby on Harold Way. The project would include 298 residential units ranging from studio units to 3 bedroom units. Open space would be provided by private balconies for many of the units, and 15,400 square feet of “community” open space on the first floor and on terraces on the 13th floor and roof.

The proposed project includes a six screen 660-seat movie theater that would be accessed from Shattuck Avenue. The cinema space would occupy portions of the first two below-grade levels and the first floor level, with primary concession level and main theater entrances on the first below-grade level

Commercial space would all be on the first level and would be located primarily along Harold Way.

WIND SETTING

Wind Climatology

The project site is located directly east of the Golden Gate. As the only sea-level gap in the coastal mountains, the Golden Gate is the site of strong westerly winds for much of the year as cool marine air is brought inland by lowered atmospheric pressure created by warm temperatures in the Sacramento/San Joaquin Valley to the east.

Berkeley is located at the base of the Oakland-Berkeley Hills running north-south and having a ridge line height of approximately 1500 feet. The Oakland-Berkeley Hills are a significant barrier to air flow. The Oakland-Berkeley Hills cause the westerly flow of air to split off to the north and south of Oakland.

The closest source of long-term wind data to the project site is the former Alameda Naval Air Station, located about 6 miles southwest of the project site. Records from this site shows that westerly winds are the most frequent and strongest winds during all seasons.[1] This is the primary wind direction during the spring and summer months when sea breezes predominate. A secondary maxima in wind direction frequency is evident for southerly winds. This the wind direction associated with winter storms. While the average wind speed for southerly winds is not the highest of all wind directions, this is a likely wind direction of peak winds measured over the year. Calm winds occur about 9% of the time. The annual average wind speed at Alameda Naval Air Station is 7.7 miles per hour and annual average wind speed at the project site would be somewhat less than this.

Site Analysis

The project site is generally surrounded by commercial, public and institutional land uses. Directly adjacent on the same block is the Hotel Shattuck Plaza, a City of Berkeley historic landmark building, whose main lobby and entrance are on Allston Way.

Commercial uses are located cross Shattuck Avenue from the project site. South of the project site across Kittredge Street is the Berkeley Public Library's Central branch. West of the project site across Harold Way are the Dharma College and the Mangalam Center. Commercial land uses and a public parking structure are located north of the project site across Allston Way.

Building heights in the vicinity range from single-story construction to the 12-story (173 and 180 feet, respectively) office towers at Center Street and Shattuck Avenue. The adjacent Hotel Shattuck Plaza is five stories in height. Most buildings around the project site are in the two- to five-story range.

The project area has no significant terrain features and gently slopes to the west.. The project is partially wind-sheltered by existing structures for the important westerly and southeasterly wind directions.

---

[1]Wind direction refers to the direction from which the wind is moving. Thus, a westerly or west wind moves from west to east.

REGULATORY FRAMEWORK

CEQA guidance does not list any specific criterion for the evaluation of wind effects of a project. Two cities in the Bay Area (City of San Francisco and City of Oakland) have established both standards and criteria for the evaluation of wind impacts. CEQA significance levels in San Francisco and Oakland are based on pedestrian hazard. For the purposes of CEQA, San Francisco and Oakland have established a pedestrian wind hazard criterion of 1 occurrence per year of winds greater than 36 mph as representing a significant adverse impact.

The above wind hazard criterion developed by San Francisco and adopted by Oakland is based on research conducted in several locations and would be appropriate for a project located in Berkeley. Since the ambient wind (undisturbed by buildings) in Berkeley seldom exceeds 36 mph, a project must substantially increase winds at pedestrian levels for this threshold to be exceeded. For this analysis, the project is considered to have a potentially significant climate impact if the exposure, orientation and massing of the structure can be expected to substantially increase ground-level winds in pedestrian corridors or public spaces near the project site.

IMPACTS

Generalized Effects of Buildings

The construction of a building or buildings results in severe distortions of the wind field because the building acts as an obstacle to wind flow. The deceleration of wind on the upwind side of the structure creates an area of increased atmospheric pressure, while an area of decreased atmospheric pressure develops on the downwind side. Accelerated winds generally occur on the upwind face of the building, particularly near the upwind corners. The downwind site has generally light, variable winds. Where two buildings are close together, the areas of accelerated wind may overlap within the gap between the two structures.

The strength of ground-level wind accelerations near buildings is controlled by exposure, massing and orientation. The potential for accelerated winds was evaluated based on a review of site exposure, building heights and building orientations to identify locations where exposure, massing or orientation to the prevailing winds would suggest that increased winds would affect pedestrian spaces.

Exposure is a measure of the extent that the building extends above surrounding structures or terrain into the wind stream. A building that is surrounded by taller structures or sheltered by terrain is not likely to cause adverse wind accelerations at ground level, while even a comparatively small building could cause wind effects if it is freestanding and exposed.

Massing is important in determining wind impact because it controls how much wind is intercepted by the structure and whether building-generated wind accelerations occur above-ground or at ground level. In general, slab-shaped buildings have the greatest potential for wind acceleration effects. Buildings that have an unusual shape, rounded faces or utilize set-backs have a lesser wind effect. A general rule is that the more complex the building is geometrically, the lesser the probable wind impact at ground level.

Building orientation determines how much wind is intercepted by the structure, a factor that directly determines wind acceleration. In general, buildings that are oriented with the wide axis across the prevailing wind direction will have a greater impact on ground-level winds than a building oriented with the long axis along the prevailing wind direction.

Project Impact Analysis

The Harold Street facade of the building would face west which is the prevailing wind direction. The Kittredge Street facade of the building would face south which is historically the direction of the strongest winds in the Bay Area. Strong westerly winds generally occur during late spring through early fall and typically peak in the afternoon. Strong southerly winds occur in winter and are associated with winter storms, and can occur at any time during the day.

The Harold Way facade of the building would be partially sheltered by existing structures of from 1 to the equivalent of four stories in height. The Kittredge Street facade would be partially sheltered by the Berkeley Public Library and residential structures of 4 to 5 stories in height.

The massing of the proposed project is complex. An L-shaped base of 5 stories would extend along all of the Harold Way and Kittredge Street frontage. This base structure would be largely sheltered from westerly or southerly winds by existing structures, such that only the top floor would extend above the surrounding buildings. Because of the limited exposure of this lower base of the building, any pedestrian wind accelerations generated by the base structure building faces would be minor.

From the 6th to 12 floors, the structure would also be L-shaped, but with substantial setbacks along the Harold Way and Kittredge Street frontages that would form outdoor decks along the west and south side of the tower. At the north end the tower would also be set back, creating outdoor decks. Although this portion of the building is expose to both westerly and southerly winds, the presence of the set backs at the 6th level would mean that wind accelerations created by these building faces would be elevated well above pedestrian levels.

Levels 13 to 18 of the project consist of an essentially square tower located at the corner of Harold Way and Kittredge Streets. This portion of the building is completely exposed to westerly and southerly winds, as it is well above the height of surrounding buildings. However, due to the presence of the low-rise base, any wind accelerations generated by this portion of the building occur at levels well above pedestrian levels.

In summary, the lower tower would only be partially exposed to prevailing winds and would not be expected to significantly affect ground level winds. The upper portions of the building would be exposed to prevailing winds, but the massing of the project is such that the wind accelerations generated would be located over rooftops of adjacent buildings or at decks/terraces within the project itself.

Mitigation

The project has a complex design that avoids pedestrian impacts by elevating wind accelerations above ground level. Some of these wind accelerations will occur within decks and terraces created by the project. All rooftop decks would be windy for some wind directions and would need to be carefully landscaped to reduce wind and improve usability. Porous materials or structures (vegetation, hedges, screens, latticework, perforated or expanded metal) offer superior wind shelter compared to a solid surface, and should be used to create pockets of shelter where the most sensitive uses are proposed (sitting and dining areas, for example). Vegetation, sculptures, planter boxes, fences and hedges can all be used to reduce winds. For safety, outdoor furniture used on terraces should be anchored.

I hope you find this analysis useful. Please call me if you have any questions.

Sincerely,

Donald Ballanti

Donald Ballanti
Consulting Meteorologist

Appendix G

Vibration Assessment and Noise Modeling Data

Eugene Y. Tuan, S.E.
Alan Robinson, S.E.
Timothy C. Mathison, P.E.
Steven Lew, S.E.

March 26, 2014

Rincon Consultants, Inc.
180 Grand Avenue, Suite 400
Oakland, CA 94612

Attn: Mr. Abe Leider

Re: 2211 Harold Way EIR
Berkeley, California

TRSE Reference Number: 2013.152.00

Dear Abe,

Per your request, we have reviewed the available documentation and made a site visit to the existing Shattuck Hotel building at 2086 Allston Way and retail shops on Shattuck Avenue between Allston Way and Kittredge Street in Berkeley, California, in order to determine if vibrations from the new construction at 2211 Harold Way will affect the existing building structure.

The original hotel building, constructed at the corner of Allston Way and Shattuck Avenue in 1910, consists of a five story reinforced concrete structure, with a basement level below street grade. A one story dining room addition was completed to the west along Allston Way in 1912. Another five story addition, constructed in 1913, extended the hotel south along Shattuck Avenue to Kittredge Street. According to available drawings from the 1910 construction, the structural system consists of reinforced concrete ribbed floor diaphragms supported by reinforced concrete beams and girders. The beams and girders frame to reinforced concrete columns. In addition, the space between the ribs in the floor diaphragms is filled with hollow clay tile. The depth of the hollow clay tile was indicated as four inches in some of the available drawings, and the concrete topping slab ranged between one and two inches thick. The ribs of the floor diaphragms are approximately 12 inches on center. The hollow clay tile forms a level surface at the bottom of the floors in addition to providing a form for the concrete ribs of the floors during the original construction.

Of greatest concern for potential structural damage due to vibrations from adjacent construction are the hollow clay tiles and thin concrete topping slab. There is the possibility of cracking and spalling of the concrete, cracking of the hollow clay tiles and a potential falling hazard if a hollow clay tile is dislodged. The hollow clay tile is a concern as it is a brittle material which can crack and lose its structural integrity. The California Department of Transportation (Caltrans) indicates a continuous vibration threshold of 0.20 inches/second of vertical movement where damage to plaster walls and ceiling may occur[1]. We expect the threshold for damage to the hollow clay tile will be similar. Vibrations greater than that level can be caused by pile driving and breaking of existing pavement or foundation concrete using large hoe-rams. Vibration is attenuated with distance, and is of most concern when the source is within 25 to 50 feet. Caltrans indicates that they have not measured significant vibrations from construction activities or equipment other than pile drivers and hoe-rams greater than the threshold when at least 10 feet from the source.

Based on a review of available materials, there does not appear to be any observable way to economically strengthen the hollow clay tile and thin concrete topping slabs to mitigate structural damage from significant vibrations. We therefore recommend that vibrations during construction of the 2211 Harold Way project be limited as follows.

1. A survey of the hotel building noting existing damage to the hollow clay tile should be performed to enable monitoring of the hotel building for structural damage due to vibrations during construction.
2. Foundation and shoring should not use driven or vibration piles. Only cast-in-place or auger piles or micropiles should be used for shoring, underpinning and/or new foundations.
3. The existing structure should be shored at each side of the location where the western portion is to be demolished. After the existing structure is shored, an air gap should be cut between the building to remain and the portion of the building to be demolished at the roof, floor levels and through the above grade walls prior to the demolition of the western portion of the building. The air gap should be wide enough that no debris can lodge in the gap and transfer vibrations into the portion of the building to remain. This will prevent the transmission of vibrations from the demolition through the existing structural members and, therefore, limit the potential for structural damage due to the vibrations from the demolition.
4. Vibrations should also be limited during demolition of the existing below grade wall and foundation concrete so as not to transmit significant vibrations to the remaining structures. The use of jackhammers or smaller hoe-rams with lower impact force should be used wherever possible to limit the vibrations. Larger hoe-rams (> 2000 ft-lbs) should not be used without determining vibrations will be less than the threshold at the existing hotel by measuring vibrations prior to use. The areas where the demolition will be closest to the existing building and therefore most likely to propagate vibrations to the remaining structures are; the demolition of the eastern end of the existing cinema building along Kittredge Street, the demolition for the new construction below the hotel at the corner of Shattuck Avenue and Kittredge Street, and the eastern portion of the former Hinks' Department Store addition at Allston Way and Harold Way. At these areas where the demolition of the below grade concrete will be close to the remaining structures, the

1 Transportation Related Earthborne Vibrations (Caltrans Experiences), Technical Advisory, Vibration TAV-02-01-R9601, California Department of Transportation, February 20, 2002.

concrete should be demolished using methods which limit vibrations, such as the use of jackhammers or smaller hoe-rams with lower impact force as described above.

We have not visited or reviewed any documents for any of the other buildings surrounding the construction site at 2111 Harold Way to see if there are any other structures that may be susceptible to structural damage from construction vibrations. We have also not made any site visit to the Strawberry Creek culvert to see if the concrete box culvert could be damaged by excessive vibrations. The buildings on the opposite side of Allston Way and Harold Way are all approximately 60 feet from the edges of the 2211 construction site and the structures on the opposite side of Kittredge Street are at least 50 feet from the construction site. With the exception of the hotel which is immediately adjacent to the proposed construction, the closest structure to the construction site is the Strawberry Creek culvert which runs approximately down the center of Allston Way at about 30 feet from site. The recommended mitigation measures outlined above should be sufficient to prevent damage to other structures as they are further from the sources of the vibrations and are mostly of later construction.

We trust this is the information you were seeking. Please do not hesitate to call us if you have any questions or require additional information.

Very Truly Yours,
Tuan and Robinson, Structural Engineers, Inc.

Alan Robinson
Vice President
License No. S3971, Exp. 12-31-2015

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Allston Way Existing AM

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	525.0
Average automobile speed (mph):	25.0
Medium truck volume (v/h):	102.0
Average medium truck speed (mph):	25.0
Heavy truck volume (v/h):	44.0
Average heavy truck speed (mph):	25.0
Bus volume (v/h):	4.0
Average bus speed (mph):	25.0
Motorcycle volume (v/h):	4.0
Average Motorcycle speed (mph):	25.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

Distance from center of 12-ft wide, single lane roadway (ft): 32.8
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 67.1

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Allston Way Existing PM

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	476.0
Average automobile speed (mph):	25.0
Medium truck volume (v/h):	93.0
Average medium truck speed (mph):	25.0
Heavy truck volume (v/h):	40.0
Average heavy truck speed (mph):	25.0
Bus volume (v/h):	3.0
Average bus speed (mph):	25.0
Motorcycle volume (v/h):	3.0
Average Motorcycle speed (mph):	25.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

Distance from center of 12-ft wide, single lane roadway (ft): 32.8
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 66.6

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Kittrege Street Existing AM

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	370.0
Average automobile speed (mph):	25.0
Medium truck volume (v/h):	72.0
Average medium truck speed (mph):	25.0
Heavy truck volume (v/h):	31.0
Average heavy truck speed (mph):	25.0
Bus volume (v/h):	3.0
Average bus speed (mph):	25.0
Motorcycle volume (v/h):	2.0
Average Motorcycle speed (mph):	25.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

Distance from center of 12-ft wide, single lane roadway (ft): 32.8
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 65.5

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Kittrege Street Existing PM

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	347.0
Average automobile speed (mph):	25.0
Medium truck volume (v/h):	68.0
Average medium truck speed (mph):	25.0
Heavy truck volume (v/h):	29.0
Average heavy truck speed (mph):	25.0
Bus volume (v/h):	2.0
Average bus speed (mph):	25.0
Motorcycle volume (v/h):	2.0
Average Motorcycle speed (mph):	25.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

Distance from center of 12-ft wide, single lane roadway (ft): 32.8
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 65.2

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Allston Way 2020 Plus Project AM

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	551.0
Average automobile speed (mph):	25.0
Medium truck volume (v/h):	104.0
Average medium truck speed (mph):	25.0
Heavy truck volume (v/h):	51.0
Average heavy truck speed (mph):	25.0
Bus volume (v/h):	4.0
Average bus speed (mph):	25.0
Motorcycle volume (v/h):	4.0
Average Motorcycle speed (mph):	25.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

Distance from center of 12-ft wide, single lane roadway (ft): 32.8
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 67.4

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Allston Way 2020 Plus Project PM

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	486.0
Average automobile speed (mph):	25.0
Medium truck volume (v/h):	92.0
Average medium truck speed (mph):	25.0
Heavy truck volume (v/h):	45.0
Average heavy truck speed (mph):	25.0
Bus volume (v/h):	4.0
Average bus speed (mph):	25.0
Motorcycle volume (v/h):	3.0
Average Motorcycle speed (mph):	25.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

Distance from center of 12-ft wide, single lane roadway (ft): 32.8
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 66.9

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Kittrege Street 2020 Plus Project AM

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h): 452.0
Average automobile speed (mph): 25.0
Medium truck volume (v/h): 85.0
Average medium truck speed (mph): 25.0
Heavy truck volume (v/h): 42.0
Average heavy truck speed (mph): 25.0
Bus volume (v/h): 3.0
Average bus speed (mph): 25.0
Motorcycle volume (v/h): 3.0
Average Motorcycle speed (mph): 25.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

Distance from center of 12-ft wide, single lane roadway (ft): 32.8
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 66.6

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Kittrege Street 2020 Plus Project PM

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	468.0
Average automobile speed (mph):	25.0
Medium truck volume (v/h):	88.0
Average medium truck speed (mph):	25.0
Heavy truck volume (v/h):	44.0
Average heavy truck speed (mph):	25.0
Bus volume (v/h):	3.0
Average bus speed (mph):	25.0
Motorcycle volume (v/h):	3.0
Average Motorcycle speed (mph):	25.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

Distance from center of 12-ft wide, single lane roadway (ft): 32.8
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 66.7

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Allston Way 2035 Plus Project AM

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	632.0
Average automobile speed (mph):	25.0
Medium truck volume (v/h):	119.0
Average medium truck speed (mph):	25.0
Heavy truck volume (v/h):	72.0
Average heavy truck speed (mph):	25.0
Bus volume (v/h):	5.0
Average bus speed (mph):	25.0
Motorcycle volume (v/h):	4.0
Average Motorcycle speed (mph):	25.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

Distance from center of 12-ft wide, single lane roadway (ft): 32.8
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 68.5

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Allston Way 2035 Plus Project PM

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	559.0
Average automobile speed (mph):	25.0
Medium truck volume (v/h):	106.0
Average medium truck speed (mph):	25.0
Heavy truck volume (v/h):	64.0
Average heavy truck speed (mph):	25.0
Bus volume (v/h):	4.0
Average bus speed (mph):	25.0
Motorcycle volume (v/h):	4.0
Average Motorcycle speed (mph):	25.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

Distance from center of 12-ft wide, single lane roadway (ft): 32.8
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 68.0

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Kittrege Street 2035 Plus Project AM

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	505.0
Average automobile speed (mph):	25.0
Medium truck volume (v/h):	95.0
Average medium truck speed (mph):	25.0
Heavy truck volume (v/h):	57.0
Average heavy truck speed (mph):	25.0
Bus volume (v/h):	4.0
Average bus speed (mph):	25.0
Motorcycle volume (v/h):	3.0
Average Motorcycle speed (mph):	25.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

Distance from center of 12-ft wide, single lane roadway (ft): 32.8
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 67.5

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Kittrege Street 2035 Plus Project PM

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	518.0
Average automobile speed (mph):	25.0
Medium truck volume (v/h):	98.0
Average medium truck speed (mph):	25.0
Heavy truck volume (v/h):	59.0
Average heavy truck speed (mph):	25.0
Bus volume (v/h):	4.0
Average bus speed (mph):	25.0
Motorcycle volume (v/h):	3.0
Average Motorcycle speed (mph):	25.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

Distance from center of 12-ft wide, single lane roadway (ft): 32.8
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 67.6

Appendix H

CEQA Guidelines Section 15183.3

Code, and contains specific development policies and implementation measures which will apply those policies to each involved parcel.

(2) For purposes of this section, "consistent" means that the density of the proposed project is the same or less than the standard expressed for the involved parcel in the general plan, community plan or zoning action for which an EIR has been certified, and that the project complies with the density-related standards contained in that plan or zoning. Where the zoning ordinance refers to the general plan or community plan for its density standard, the project shall be consistent with the applicable plan.

(j) This section does not affect any requirement to analyze potentially significant offsite or cumulative impacts if those impacts were not adequately discussed in the prior EIR. If a significant offsite or cumulative impact was adequately discussed in the prior EIR, then this section may be used as a basis for excluding further analysis of that offsite or cumulative impact.

Note: Authority cited: Section 21083, 21083.05, Public Resources Code; Reference: Section 21083.3, 21083.05, Public Resources Code.

15183.3 STREAMLINING FOR INFILL PROJECTS

(a) Purpose. The purpose of this section is to streamline the environmental review process for eligible infill projects by limiting the topics subject to review at the project level where the effects of infill development have been addressed in a planning level decision or by uniformly applicable development policies.

(b) Eligibility. To be eligible for the streamlining procedures prescribed in this section, an infill project must:

(1) Be located in an urban area on a site that either has been previously developed or that adjoins existing qualified urban uses on at least seventy-five percent of the site's perimeter. For the purpose of this subdivision "adjoin" means the infill project is immediately adjacent to qualified urban uses, or is only separated from such uses by an improved public right-of-way;

(2) Satisfy the performance standards provided in Appendix M; and

(3) Be consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in either a sustainable communities strategy or an alternative planning strategy, except as provided in subdivisions (b)(3)(A) or (b)(3)(B) below.

(A) Only where an infill project is proposed within the boundaries of a metropolitan planning organization for which a sustainable communities strategy or an alternative planning strategy will be, but is not yet, in effect, a residential infill project must have a density of at least 20 units per acre, and a retail or commercial infill project must have a floor area ratio of at least 0.75.

(B) Where an infill project is proposed outside of the boundaries of a metropolitan planning organization, the infill project must meet the definition of a small walkable community project in subdivision (f)(5), below.

(c) Streamlined Review. CEQA does not apply to the effects of an eligible infill project under two circumstances. First, if an effect was addressed as a significant effect in a prior EIR for a planning level decision, then, with some exceptions, that effect need not be analyzed again for an individual infill project even when that effect was not reduced to a less than significant level in the prior EIR. Second, an effect need not be analyzed, even if it was not analyzed in a prior EIR or is more significant than previously analyzed, if the lead agency makes a finding that uniformly applicable development policies or standards, adopted by the lead agency or a city or county, apply to the infill project and would substantially mitigate that effect. Depending on the effects addressed in the prior EIR and the availability of uniformly applicable development policies or standards that apply to the eligible infill project, streamlining under this section will range from a complete exemption to an obligation to prepare a narrowed, project-specific environmental document. A prior EIR will be most helpful in dealing with later infill projects if it deals with the effects of infill development as specifically and comprehensively as possible. With a good and detailed analysis of such development, the effects of many infill projects could be found to have been addressed in the prior EIR, and no further environmental documents would be required.

(d) Procedure. Following preliminary review of an infill project pursuant to Section 15060, the lead agency must examine an eligible infill project in light of the prior EIR to determine whether the infill project will cause any effects that require additional review under CEQA. Determinations pursuant to this section are questions of fact to be resolved by the lead agency. Such determinations must be supported with enough relevant information and reasonable inferences from this information to support a conclusion, even though other conclusions might also be reached. (See Section 15384.)

(1) Evaluation of the lnfill Project. A lead agency should prepare a written checklist or similar device to document the infill project's eligibility for streamlining and to assist in making the determinations required by this section. The sample written checklist provided in Appendix N may be used for this purpose. A written checklist prepared pursuant to this section should do all of the following:

(A) Document whether the infill project satisfies the applicable performance standards in Appendix M.

(B) Explain whether the effects of the infill project were analyzed in a prior EIR. The written checklist should cite the specific portions of the prior EIR, including page and section references, containing the analysis of the infill project's significant effects. The written checklist should also indicate whether the infill project incorporates all applicable mitigation measures from the prior EIR.

(C) Explain whether the infill project will cause new specific effects. For the purposes of this section, a new specific effect is an effect that was not addressed in the prior EIR and that is specific to the infill project or the infill project site. A new specific effect may result if, for example, the prior EIR stated that sufficient site-specific information was not available to analyze the significance of that effect. Substantial changes in circumstances following certification of a prior EIR may also result in a new specific effect.

(D) Explain whether substantial new information shows that the adverse environmental effects of the infill project are more significant than described in the prior EIR. For the purpose of this section, "more significant" means an effect will be substantially more severe than described in the prior EIR. More significant effects include those that result from changes in circumstances or changes in the development assumptions underlying the prior EIR's analysis. An effect is also more significant if substantial new information shows that: (1) mitigation measures that were previously rejected as infeasible are in fact feasible, and such measures are not included in the project; (2) feasible mitigation measures considerably different than those previously analyzed could substantially reduce a significant effect described in the prior EIR, but such measures are not included in the project; or (3) an applicable mitigation measure was adopted in connection with a planning level decision, but the lead agency determines that it is not feasible for the infill project to implement that measure.

(E) If the infill project will cause new specific effects or more significant effects, the written checklist should indicate whether uniformly applicable development policies or standards will substantially mitigate those effects. For the purpose of this section, "substantially mitigate" means that the policy or standard will substantially lessen the effect, but not necessarily below the level of significance. The written checklist should specifically identify the uniformly applicable development policy or standard and explain how it will substantially mitigate the effects of the infill project. The explanation in the written checklist may be used to support the finding required in subdivision (d)(2)(D) below.

(2) Environmental Document. After examining the effects of the infill project in light of the analysis in any prior EIR and uniformly applicable development policies or standards, the lead agency shall determine what type of environmental document shall be prepared for the infill project.

(A) No Further Review. No additional environmental review is required if the infill project would not cause any new specific effects or more significant effects, or if uniformly applicable development policies or standards would substantially mitigate such effects. Where the lead agency determines that no additional environmental review of the effects of the infill project is required, the lead agency shall file a Notice of Determination as provided in Section 15094. Where the lead agency finds that uniformly applicable development policies substantially mitigate a significant effect of an infill project, the lead agency shall make the finding described in subdivision (d)(2)(D).

(B) Negative Declaration, Mitigated Negative Declaration or Sustainable Communities Environmental Assessment. If the infill project would result in new specific effects or more significant effects, and uniformly applicable development policies or standards would not substantially mitigate such effects, those effects shall be subject to CEQA. If a new specific effect is less than significant, the lead agency may prepare a negative declaration. If new specific effects or more significant effects can be mitigated to a less than significant level through project changes agreed to prior to circulation of the written checklist, the lead agency may prepare a mitigated negative declaration. In these circumstances, the lead agency shall follow the procedure set forth in Sections 15072 to 15075. Alternatively, if the infill project is a transit priority project, the lead agency may follow the procedures in Section 21155.2 of the Public Resources Code. In either instance, the written checklist should clearly state which effects are new or more significant, and are subject to CEQA, and which effects have been previously analyzed and are not subject to further environmental review. Where the lead agency finds that uniformly applicable development policies or standards substantially mitigate a significant effect of an infill project, the lead agency shall make the finding described in subdivision (d)(2)(D).

(C) Infill EIR. If the infill project would result in new specific effects or more significant effects, and uniformly applicable development policies or standards would not substantially mitigate such effects, those effects are subject to CEQA. With respect to those effects that are subject to CEQA, the lead agency shall prepare an infill EIR if the written checklist shows that the effects of the infill project would be potentially significant. In this circumstance, the lead agency shall prepare an infill EIR as provided in subdivision (e) and, except as otherwise provided in this section, shall follow the procedures in Article 7. Where the lead agency finds that uniformly applicable development policies or standards substantially mitigate a significant effect of an infill project, the lead agency shall make the finding described in subdivision (d)(2)(D).

(D) Findings. Any findings or statement of overriding considerations required by Sections 15091 or 15093 shall be limited to those effects analyzed in an infill EIR. Findings for such effects should incorporate by reference any such findings made in connection with a planning level decision. Where uniformly applicable development policies or standards substantially mitigate the significant effects of an infill project, the lead agency shall also make a written finding, supported with substantial evidence, providing a brief explanation of the rationale for the finding.

(e) Infill EIR Contents. An infill EIR shall analyze only those significant effects that uniformly applicable development policies or standards do not substantially mitigate, and that are either new specific effects or are more significant than a prior EIR analyzed. All other effects of the infill project should be described in the written checklist as provided in subdivision (d)(1), and that written checklist should be circulated for public review along with the infill EIR. The written checklist should clearly set forth those effects that are new specific effects, and are subject to CEQA, and those effects which have been previously analyzed and are not subject to further environmental review. The analysis of alternatives in an infill EIR need not address alternative locations, densities, or building intensities. An infill EIR need not analyze growth inducing impacts. Except as provided in this subdivision, an infill EIR shall contain all elements described in Article 9.

(f) Terminology. The following definitions apply to this section:

(1) "lnfill project" includes the whole of an action consisting of residential, commercial, retail, transit station, school, or public office building uses, or any combination of such uses that meet the eligibility requirements set forth in subdivision (b). For retail and commercial projects, no more than one half of the project area may be used for parking. "Transit station" means a rail or light-rail station, ferry terminal, bus hub, bus transfer station, or bus stop, and includes all streetscape improvements constructed in the public right-of-way within one-quarter mile of such facility to improve multi-modal access to the facility, such as pedestrian and bicycle safety improvements and traffic-calming design changes that support pedestrian and bicycle access.

(2) "Planning level decision" means the enactment or amendment of a general plan or any general plan element, community plan, specific plan, or zoning code.

(3) "Prior EIR" means the environmental impact report certified for a planning level decision, as supplemented by any subsequent or supplemental environmental impact reports, negative declarations, or addenda to those documents.

(4) "Qualified urban use" is defined in Public Resources Code Section 21072.

(5) "Small walkable community project" means a project that is all of the following:

(A) In an incorporated city that is not within the boundary of metropolitan planning organization;

(B) Within an area of approximately one-quarter mile diameter of contiguous land that includes a residential area adjacent to a retail downtown area and that is designated by the city for infill development consisting of residential and commercial uses. A city may designate such an area within its general plan, zoning code, or by any legislative act creating such a designation, and may make such designation concurrently with project approval; and

(C) Either a residential project that has a density of at least eight units to the acre or a commercial project with a floor area ratio of at least 0.5, or both.

(6) The terms "sustainable communities strategy" and "alternative planning strategy" refer to a strategy for which the State Air Resources Board, pursuant to subparagraph (H) of paragraph (2) of subdivision (b) of Section 65080 of the Government Code, has accepted a metropolitan planning organization's determination that the sustainable communities strategy or the alternative planning strategy would, if implemented, achieve its greenhouse gas emission reduction targets.

(7) "Uniformly applicable development policies or standards" are policies or standards adopted or enacted by a city or county, or by a lead agency, that reduce one or more adverse

environmental effects. Examples of uniformly applicable development policies or standards include, but are not limited to:

(A) Regulations governing construction activities, including noise regulations, dust control, provisions for discovery of archeological and paleontological resources, stormwater runoff treatment and containment, protection against the release of hazardous materials, recycling of construction and demolition waste, temporary street closure and traffic rerouting, and similar regulations.

(B) Requirements in locally adopted building, grading and stormwater codes.

(C) Design guidelines.

(D) Requirements for protecting residents from sources of air pollution including high volume roadways and stationary sources.

(E) Impact fee programs to provide public improvements, police, fire, parks and other open space, libraries and other public services and infrastructure, including transit, bicycle and pedestrian infrastructure and traffic calming devices.

(F) Traffic impact fees.

(G) Requirements for reducing greenhouse gas emissions, as set forth in adopted land use plans, policies, or regulations.

(H) Ordinances addressing protection of urban trees and historic resources.

(8) "Urban area" is defined in Public Resources Code Section 21094.5(e)(5).

Note: Authority cited: Sections 21083, 21094.5.5, Public Resources Code. Reference: Sections 21094.5 and 21094.5.5, Public Resources Code.

15183.5. TIERING AND STREAMLINING THE ANALYSIS OF GREENHOUSE GAS EMISSIONS

(a) Lead agencies may analyze and mitigate the significant effects of greenhouse gas emissions at a programmatic level, such as in a general plan, a long range development plan, or a separate plan to reduce greenhouse gas emissions. Later project-specific environmental documents may tier from and/or incorporate by reference that existing programmatic review. Project-specific environmental documents may rely on an EIR containing a programmatic analysis of greenhouse gas emissions as provided in section 15152 (tiering), 15167 (staged EIRs) 15168 (program EIRs), 15175–15179.5 (Master EIRs), 15182 (EIRs Prepared for Specific Plans), and 15183 (EIRs Prepared for General Plans, Community Plans, or Zoning).

(b) Plans for the Reduction of Greenhouse Gas Emissions. Public agencies may choose to analyze and mitigate significant greenhouse gas emissions in a plan for the reduction of greenhouse gas emissions or similar document. A plan to reduce greenhouse gas emissions may be used in a cumulative impacts analysis as set forth below. Pursuant to sections 15064(h)(3) and 15130(d), a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project complies with the requirements in a previously adopted plan or mitigation program under specified circumstances.

(1) Plan Elements. A plan for the reduction of greenhouse gas emissions should:

(A) Quantify greenhouse gas emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area;

(B) Establish a level, based on substantial evidence, below which the contribution to greenhouse gas emissions from activities covered by the plan would not be cumulatively considerable;

(C) Identify and analyze the greenhouse gas emissions resulting from specific actions or categories of actions anticipated within the geographic area;

Appendix B

Historic Resources Technical Report

Historic Resources Technical Report

2211 Harold Way

Berkeley, California

prepared for

Rincon Consultants

Oakland, California

prepared by

Architectural Resources Group

San Francisco, California

REVISED DRAFT, DEIR

September 2014

ARCHITECTURAL RESOURCES GROUP, INC.
Architects, Planners & Conservators

2211 Harold Way
Berkeley, CA

Historical Resources Technical Report
REVISED DRAFT, DEIR • September 2014

TABLE OF CONTENTS

1. Introduction and Methodology

At the request of Rincon Consultants, Inc., Architectural Resources Group (ARG) has prepared a Historical Resources Technical Report (HRTR) for The Residences at Berkeley Plaza project at 2211 Harold Way project in downtown Berkeley. HSR Berkeley Investments, Inc. (HSR) proposes the demolition of the western portion of the Shattuck Hotel property and construction of a new mixed-use development on the site. The proposed project entails 302 new residential units, ground-floor retail and restaurant spaces, and upgraded cinema facilities.

The subject block (Block Number 2027) is bound by Allston Way to the north, Kittredge Street to the south, Shattuck Avenue to the east, and Harold Way to the west. The Shattuck Hotel and associated additions occupy the block. The entire block was designated a City of Berkeley Historic Landmark by the Landmarks Preservation Commission in 1987. The Shattuck Hotel is not listed in the National Register of Historic Places or the California Register of Historical Resources.

The Shattuck Hotel is a significant landmark in Berkeley's commercial and architectural history. Completed in 1910, the building was Berkeley's first grand hotel constructed during the city's post-earthquake building boom, and was one of the first reinforced concrete structures built in the downtown area. The hotel was conceived by Rosa Shattuck in honor of her late husband, Francis Kittredge Shattuck, a prominent civic leader and Berkeley developer, and was constructed on a portion of the family's nineteenth-century estate. Noted California architect Benjamin Geer McDougall designed the original hotel and 1913 addition in the popular Mission Revival Style. As the success of the hotel's main commercial tenant (Hink's Department Store) grew, the building was further expanded in 1926 by Walter H. Ratcliff Jr., one of Berkeley's most respected and prolific architects.

To prepare the following HRTR, ARG:

- Conducted a site visit to examine and photograph the project site on December 12, 2013.

- Reviewed proposed project drawings prepared by MVE Institutional, Inc., and dated January 3, 2014, as well as other relevant project materials provided by the applicant.

- Reviewed the Historic Preservation and Urban Design chapter of the 2012 City of Berkeley Downtown Area Plan (DAP), the associated DAP Environmental Impact Report, and the 2012 Downtown Berkeley Design Guidelines.

- Reviewed extensive historical documentation and multiple prior evaluations of the Shattuck Hotel and environs, including:

    - "Draft Historic Context Report for the Shattuck Hotel," architecture + history, llc, February 2013

  - City of Berkeley Downtown Area Plan, Historic Resource Evaluation, Architectural Resources Group, November 2008
  - Downtown Berkeley Historic Resources Reconnaissance Survey and Contexts, Architectural Resources Group, August 2007
  - Shattuck Hotel City of Berkeley Landmark Designation Application, Betty Marvin, November 1987
  - California Department of Parks and Recreation Historic Resources Inventory form for the Shattuck Hotel, Carol Raiskin (Berkeley Architectural Heritage Association), February 1979
  - Available building permit records and historical photographs
  - Sanborn Fire Insurance maps
  - *Landscape Heritage Plan, University of California, Berkeley*, 2004.

- Conducted supplementary additional research to confirm previous findings and supplement existing historical documentation for the subject property. Repositories consulted as part of the research process include:

  - Berkeley Architectural Heritage Association archives
  - Berkeley Historical Society archives
  - City of Berkeley Permit Service Center microfiche files
  - California Historical Resources Information System (CHRIS)

As part of the evaluation process, ARG was asked to review the technical historical report entitled "The Residences at Berkeley Plaza Draft Historic Context Report for the Shattuck Hotel" that was prepared by architecture + history, llc in February 2013. ARG referenced this report for historical and developmental background information, and supplemented its findings with additional research where necessary to complete the significance evaluation and impact assessment portions of this HRTR.

ARG also completed a CHRIS records request for the subject property and limited surrounding area. The boundaries of the CHRIS records search are shown in Figure 6-1 below. The CHRIS search addressed properties immediately adjacent to the subject block as well as properties in the immediate vicinity in the Shattuck Avenue Commercial Corridor.

2. Summary of Findings

The Shattuck Hotel, a designated City Landmark, retains sufficient integrity to convey its significance and should be considered a historical resource for purposes of the California Environmental Quality Act (CEQA). In ARG's professional opinion, the Shattuck Hotel complex (including the original 1910 building and additions constructed in 1912, 1913 and 1926) also appears eligible for listing on the California Register of Historical Resources and the National Register of Historic Places at the local level of significance. The Shattuck Hotel and former Hink's Department Store satisfy Criterion A/1 of the NRHP/CRHR at the local level of significance for their association with Berkeley's early commercial development. The property also satisfies NRHP/CRHR Criterion C/3 at the local level of significance as a distinctive example of the Mission Revival style in Berkeley's downtown, and for its association with master architect Benjamin Geer McDougall. The 1959 Hink's building on the property does not appear to contribute to the historical or architectural significance of the Shattuck Hotel complex.

The proposed project, which includes removal of portions of a designated City of Berkeley Landmark, would have significant impacts on historical resources. This report closes with specification of mitigation measures that would reduce the project's impacts on historical resources. Some of those impacts, however, would remain significant.

A note about construction dates: Previous studies on the subject property have discussed the hotel's additions using a variety of date formats. For example, the original hotel has been referred to as the 1909-1910 portion, referencing both the year construction began and ended. Similarly, the Hink's Building at the northwest corner of the subject block is variously referred to as the 1957 addition or the 1957-58 addition, though the building was actually completed (and the store opened) in 1959. To simplify the discussion, throughout this HRTR we will refer to the various portions of the Shattuck Hotel property by date of completion.

3. Site and Building Description

The following descriptive information is based on ARG's site reconnaissance as well as "The Residences at Berkeley Plaza Draft Historic Context Report for the Shattuck Hotel," by architecture + history, llc, dated February 27, 2013.

3.1 Site Description

The Shattuck Hotel (2200-20 Shattuck Avenue/2060-80 Allston Way) is located in downtown Berkeley on the block bound by Allston Way to the north, Kittredge Street to the south, Shattuck Avenue to the east, and Harold Way to the west. The building sits along the Shattuck Avenue Commercial Corridor, which extends along Shattuck Avenue from Durant to University Avenue and includes a cluster of commercial buildings built during the first half of the twentieth century that share similar historic contexts, physical attributes, and characteristics.

3.2 Building Description

The Shattuck Hotel is a five-story, reinforced concrete, Mission Revival style hotel building in downtown Berkeley. The hotel comprises four stories of hotel rooms over ground floor retail and commercial spaces, with the principal retail frontage facing Shattuck Avenue and the hotel lobby entrance facing Allston Way. Built in several stages, the first iteration of the Shattuck Hotel was completed in December 1910 at the northeast corner of Shattuck Avenue and Allston Way; a one-story restaurant addition was constructed along Allston Way in 1912. A major expansion in 1913 extended the hotel and commercial spaces south along Shattuck to Kittredge Avenue, with Hink's Department Store as the principal commercial tenant. Hink's later expanded in two major building campaigns in 1926 and 1959. These additions filled in the rear portions of the block with the 1926 addition extending along Kittredge Street to the west, and the 1959 building replacing an earlier structure at the northwest corner of the block.

Shattuck Hotel (East Elevation)
The 1910 and 1913 portions of the Shattuck Hotel together extend the full length of Shattuck Avenue between Allston Way and Kittredge Street. Rising five stories and approximately 60 feet in height, this 260-foot-wide façade is distinguished by four square towers topped by pyramidal hipped roofs. Six windows separate the towers at both the north and south ends of the building; thirteen windows separate the two inner towers. As with other elevations, red clay tiles clad the roof and parapet surfaces. The towers rise a half story above the sloping parapets, their eaves decorates by exposed rafters. A relief frieze elaborates the wall surface below the eave line of each tower.

The fifth-floor windows are arched and extend to the underside of the overhanging eave. These windows are connected vertically to the fourth-floor windows by molded frames and recessed spandrel panels, creating a two-story arcade. The windows on the lower floors are not arched, and all of the hotel level windows on this elevation have been replaced with vinyl sash. Additionally, the original balconies, set at both the fourth-floor windows of the towers and the intervening hotel windows on this elevation, were removed sometime in the 1960s.

The original 1910 building included five small retail spaces facing Shattuck Avenue at the ground level. These spaces were reconfigured as part of the 1913 expansion to include two small stores at the north end, and the remainder of the retail space was developed to accommodate Hink's Department Store. All storefront spaces along Shattuck Avenue have been altered, including the storefront configuration, windows, doors, transoms, and signage. The original retail storefronts comprised a series of bays with plate glass showcase windows, recessed entries, and multi-pane prism glass transoms.

In 1988, following the closure of Hink's Department Store, the ground-floor retail space, including the areas within the 1926 addition, was reconfigured to accommodate a new movie theater and other retail space. Storefront improvements were completed at this time to unify the storefronts using common base materials. A decorative frieze stretches along the elevation above the transom windows, and the letter "S" appears at the cap of each major pilaster (these elements appear to be original, but may have been restored over time). In 2009, the movie theaters were upgraded again with new lighting, carpet, theater seating, and a new lobby and concession area.

Shattuck Hotel (North Elevation)
The original 1910 hotel, the 1912 restaurant addition, and the 1959 Hink's building compose the Allston Way side of the block. The north elevation of the original hotel has three squared towers, with the central tower rising higher than the other two. This central tower marks the current hotel lobby entrance at the ground floor, though historically this entry was secondary to the main entry on Shattuck. Just west of the tower bay, a rusticated wall treatment elaborates the remainder of the hotel wall surface and extends through to the 1912 restaurant addition, which matches the original design.

The corner and end tower on this elevation both have two windows, while the central tower has four windows. Like the Shattuck elevation, the fifth-floor windows are arched and the fourth- and fifth-floor windows of the three central bays are connected vertically by molded frames and recessed spandrel panels. At the two end towers, the (non-arched) fifth-floor windows are joined by a decorative swag ornament, and a relief frieze elaborates the wall surface below the eave line of each tower. Balconies also originally graced this elevation, including one set over the entrance. Decorative tile and plaster work, arched windows, and a shallow overhang now ornament the second-story wall face above this entrance (the tile, plasterwork, and arched window openings are original). This entrance was altered in 1947, including insertion of a modern, all glass lobby entrance along Allston Way designed by Raymond Loewy Associates of New York. The entry awning and other features were reintroduced in 1997 based on their historic appearance.

Courtyard and Mid-block Elements
Though not visible from the street, a small courtyard is located behind the restaurant and lobby area. Hotel guests now use the former boiler room space as a small conference facility. Hotel room windows overlook the mid-block space, and some original windows remain in this area.

Shattuck Hotel (South Elevation)
The eastern half of this elevation is part of the 1913 hotel addition, and the easternmost bays rise to the full five-story height of the original hotel. A tower marks the corner of the hotel building at Kittredge and Shattuck and three hotel bays extend west from the tower, after which the building steps down to a one-story height. This one-story height is continued by the 1926 addition, which extends westward to Harold Way.

1926 Hink's Department Store Addition
To accommodate Hink's growth during the 1920s, the company commissioned Walter H. Ratcliff Jr. to design a one-story addition with a mezzanine level and basement. Like the hotel, the addition is reinforced concrete clad in a stucco finish. This simple addition was designed for compatibility with both the existing hotel building and with the Armstrong College (now Dharma Institute) building across Harold Way, which was also designed by Ratcliff and completed in 1923. The 1926 addition's most prominent features are the large double and tripartite industrial sash windows that dominate both street-facing elevations. Spanish clay tiles cap the raised parapet walls, which are finished at either end with decorative volutes and wrought iron grilles.

The 1926 addition attached to the 1913 hotel addition about halfway between Shattuck Avenue and Harold Way.[1] The exterior location of the addition is evidenced by the shift from double to triple sash industrial windows that occurs at roughly the midpoint of the Kittredge Street elevation, and by a crack in the exterior stucco running the full height of the building in this location. An original secondary store entrance is located near this mid-block location and is

[1] "Enlarged Hotel Shattuck Will Be a Great Credit to Berkeley, Showing a City's Prosperity and Development," *Berkeley: A Journal of a City's Progress* (vol. 3, no. 2, page 5), late 1912.

sheltered by a fixed overhanging awning. The entry facing Kittredge at Harold Way is a later alteration. A pedestrian entry, also with a fixed awning, and a service vehicle entrance with a rollup metal door punctuate the Harold Way elevation.

1959 Hink's Building

The 1959 Hink's building sits at the northwest corner of the subject block and is a two-story concrete box with street frontages at both Allston Way and Harold Way. Topped by a flat roof, the building is rectangular in plan and its concrete exterior walls are clad in a smooth stucco finish. The principal entrance faces Allston and is set at the northwest corner. This building is separated from the 1912 hotel addition by a ten-foot-wide alley, and abuts the 1926 Ratcliff addition along Harold Way. Built to house the new men's department, this building was designed in a simplified modern style and does not relate to the other buildings on the subject block in design or aesthetic.

The building has two rectangular storefront windows on the Allston Way elevation. A flat awning, which is still intact, shelters the corner entrance, though the distinctive "Hink's of Berkeley" signage lettering was removed in 1987. Four small windows punctuate the second story of this elevation; only three windows existed in this location originally. All original window sashes and storefront assemblies have been replaced, though the openings remain in their same location.

A series of small, rectangular, multi-pane windows line the first and second stories of the Harold Way wall of the 1959 building. Only five window openings at the second level existed originally, the rest are later additions. An original storefront window at the south end of the ground level has been infilled at this elevation, though the storefront opening at the north end remains. All original windows have been replaced.

4. Historical Background

4.1 Historical Overview

Except where noted, the following descriptive information is summarized from "The Residences at Berkeley Plaza Draft Historic Context Report for the Shattuck Hotel," by architecture + history, llc, dated February 27, 2013.

Downtown Berkeley

Berkeley's development into a thriving town is largely credited to the extension of transportation routes in the East Bay and the establishment of UC Berkeley in 1868. Francis Kittredge Shattuck, a notable business and civic leader, played a prominent role in extending a Central Pacific (later Southern Pacific) spur line from Oakland to Berkeley in 1876. The line ran along present-day Shattuck Avenue. The increased transportation brought commercial growth and a thriving downtown area began to develop. At the time of Berkeley's incorporation in 1878, Shattuck Avenue was already established as the town's principal commercial area.

According to the 2007 Downtown Berkeley Historic Resources Survey, the bulk of construction in Berkeley's downtown area occurred between the late 1870s, when the construction of the area commenced, and the 1930s, when the pace of building construction diminished due to the Great Depression and other economic pressures. Many of the nineteenth-century, wood-frame buildings in the Downtown were replaced in the early twentieth century by more substantial masonry buildings. When the Shattuck Hotel was completed in 1910, it was one of the first reinforced concrete structures constructed in the Downtown area, and it remains one of the few historic buildings in downtown Berkeley designed in the Mission Revival style.[2]

Shattuck Hotel

Prominent civic leader and local developer Francis Shattuck began to develop his Berkeley estate in the late 1860s, constructing his first house – a wood-framed, French Second Empire style structure – on land between Allston and Bancroft Ways in 1868. In 1891, he built a large Queen Anne-style home on the property, and rented out the older residence. Francis died in 1898 and his widow Rosa remained in the Queen Anne-style estate. She continued to rent the older residence to the Delta Kappa Epsilon fraternity. When the fraternity moved south of campus, Rosa started to consider constructing a hotel or resort cottages on the property – an idea that did not come to fruition until after the 1906 earthquake and fire.

In the wake of the 1906 earthquake and fire, many San Francisco residents seeking to escape the city moved to the East Bay. As a result, Berkeley's population increased by over 25,000 people from 1900 to 1910. During the post-earthquake years, the area surrounding the Shattuck estate became increasingly commercialized. In 1907, seeing her opportunity to build a hotel, Rosa formed the Shattuck Hotel Association with William E. Woolsey, her niece's husband, acting as president. The original plans for the hotel called for a grand building, containing 400 guestrooms and costing nearly $500,000; the plans, however, were scaled down and completed in two phases.

The corner of Shattuck and Allston Way was selected as the site for the new hotel, but Rosa Shattuck died on September 12, 1908 before plans for the hotel were completed. Following her death, the Shattuck Hotel Association continued with plans for a hotel and held a competition for the best design. The winner was Benjamin Geer McDougall, who proposed a Mission Revival style design constructed of reinforced concrete. The firm of Kidder & McCullough was awarded the construction contract. McDougall was an early proponent of reinforced concrete, which became an increasingly popular construction method after the 1906 earthquake.

Construction on the 115-room, $125,000 hotel building began around April 1909 and was completed in December 1910, with a large addition designed by McDougall already planned for

[2] Architectural Resources Group, *Downtown Berkeley Historic Resources Reconnaissance Survey and Contexts,* (prepared for the City of Berkeley, August 2007), 27. See also the Department of Parks and Recreation Historic Resources Inventory Form for the Shattuck Hotel, by Carol Raiskin (Berkeley Architectural Heritage Association, February 1979).

the future.[3] Issuance of the Shattuck Hotel building permit was the first act of the City of Berkeley's building department in 1909.[4] A one-story restaurant along Allston Way was added in 1912.[5] The second phase of McDougall's design was completed in 1913 and consisted of an addition that almost tripled the size of the hotel. The expansion also included retail space – most notably occupied by the dry-goods merchant J.F. Hink and Sons – on the ground floor along Shattuck Avenue.

In 1920, Woolsey sold the hotel to William W. Whitecotton of Los Angeles, who changed the hotel's name to the Whitecotton Hotel. The following year, Whitecotton commissioned architect James Placheck to build an office building at 2060-2074 Allston Way behind the hotel; this building was replaced by the Hink's addition in 1959 and is no longer extant. Whitecotton continued to operate the hotel through the 1930s, selling the building around 1941 to the Levi Strauss Realty Company. Under the Company's ownership, Wallace and Joan Miller leased the hotel beginning in 1947. At that time, the couple made improvements to the building, most notably to the ground floor. A major component of these improvements was the relocation of the hotel lobby entrance from Shattuck Avenue to Allston Way. A modern, glass lobby entrance designed by Raymond Loewy Associates was installed at the new entrance, and the redesigned lobby featured "highly polished Italian travertine…growing plants and special lighting effects."[6]

In 1968, the Shattuck Hotel Management Company purchased the hotel and operated it until 1980.[7] Firmateer, Inc. remodeled the hotel in the early 1980s and it became a tourist hotel once again. An independent hotel company purchased the hotel in 1999 and instituted a two-year renovation. The current owners, BPR Properties, purchased the hotel in 2007.[8] At that time, the building was separated into two sections, "with one entity (BPR Properties) owning the Shattuck Hotel (lobby, restaurant, courtyard, and hotel rooms)"… and [earlier] owner Roy Nee "retaining ownership of the basement, retail shops along Shattuck, the Kittredge wing (to Harold Way), and the building at the corner of Allston Way and Harold Way."[9]

Hink's Department Store

Originally established in 1904, J.F. Hink and Sons (Hink's) was located at the corner of Shattuck Avenue and Kittredge Street across the street from the Shattuck Estate. Hink's was a "spacious and modern dry goods store" founded by J.F. Hink, a German immigrant, who, according to a contemporary newspaper, was considered one of the "best business men of the Pacific Coast,

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[3] Daniella Thompson. "The Shattuck Hotel: Berkeley's Once and Future Jewel?" Berkeley Architectural Heritage Association website at: http://berkeleyheritage.com/berkeley_landmarks/shattuck_hotel.html (accessed January 2014).
[4] "Big Building Permit is Issued by New City," *Berkeley Reporter*, July 1, 1909.
[5] While it is assumed that McDougall designed the 1912 addition, archival verification of his involvement has not been found. The building permit indicates that A.H. Broad led construction of the addition.
[6] "Shattuck is At Once City's Oldest Yet Newest Hotel," Berkeley: *Berkeley Daily Gazette*, May 12, 1948.
[7] architecture + history, llc, *The Residences at Berkeley Plaza Draft Historic Context Report for the Shattuck Hotel,* (prepared for HSR Berkeley Investments, Inc., February 27, 2013), 5.
[8] The Residences at Berkeley Plaza Draft Historic Context Report for the Shattuck Hotel, 5.
[9] Ibid., 1.

being one of the founders and a large stock holder in the Emporium in San Francisco, and the proprietor of a large store in Eureka."[10]

Lester Hink, J.F.'s son, assumed control of the business in 1912 and negotiated with the Shattuck Hotel to become the building's first floor tenant. Hink's prominent new location with larger retail space was included in McDougall's designs for the 1913 hotel expansion. By 1916, Hink's was the "largest exclusive dry goods store west of Chicago," and the store expanded again in 1926.[11] Walter H. Ratcliff, Jr. (who had recently completed the building across Harold Way for the Armstrong School of Business) designed the $100,000 project, which included improvements to the existing store and an addition. His design included a Tudor-style oak interior, a front arcade with ornamental plaster ceiling, a free-standing display case, a decorative marquee on the Shattuck Avenue façade, and a mezzanine for more shopping area. A few years later, Ratcliff also designed a rooftop garden space (with interior and exterior components) where Hink's employees could congregate during their breaks; it contained restrooms on the interior, and a fountain and several areas for seating on the exterior. The roof garden is no longer extant, and the interior arcade was significantly altered in 1988 to accommodate movie theaters. The small rooftop structure containing the restroom still remains.

At the end of WWII, Hink considered another expansion, but waited until building conditions normalized to proceed.[12] Expansion finally occurred in 1959, and included demolition of Whitecotton's 1921 office building designed by James Placheck at the corner of Allston Way and Harold Way. For the new construction, Schubart and Freidman designed a modern building, which housed the boys' and men's departments on the main floor and a beauty salon on the second that was finished in a pink and black motif. The basement of the new wing contained storage. Hink's celebrated its grand re-opening on April 30, 1959.[13]

By the 1970s, Hink's was struggling to maintain a successful retail presence in downtown Berkeley. Lester Hink stepped down in 1975 and his son Robert took over the business for a short time. Hink's was sold to the Modesto-based department store Dunlap Company in 1977 and went out of business in 1985.

[10] "Modern Dry Goods Emporium," in *The Berkeley Gazette*, June 18, 1904, quoted in "The Residences at Berkeley Plaza Draft Historic Context Report for the Shattuck Hotel," 6.
[11] "Largest Retailers in Berkeley," *Berkeley Chamber of Commerce Courier*, March 14, 1916, quoted in "The Residences at Berkeley Plaza Draft Historic Context Report for the Shattuck Hotel," 6.
[12] "Hink's Store Addition Will Replace Whitecotton Building," Berkeley Gazette, May 20, 1947, quoted in The Residences at Berkeley Plaza Draft Historic Context Report for the Shattuck Hotel, 7.
[13] "City Forges Ahead – Hink's To Open New Wing," *Berkeley Gazette*, April 29, 1959.

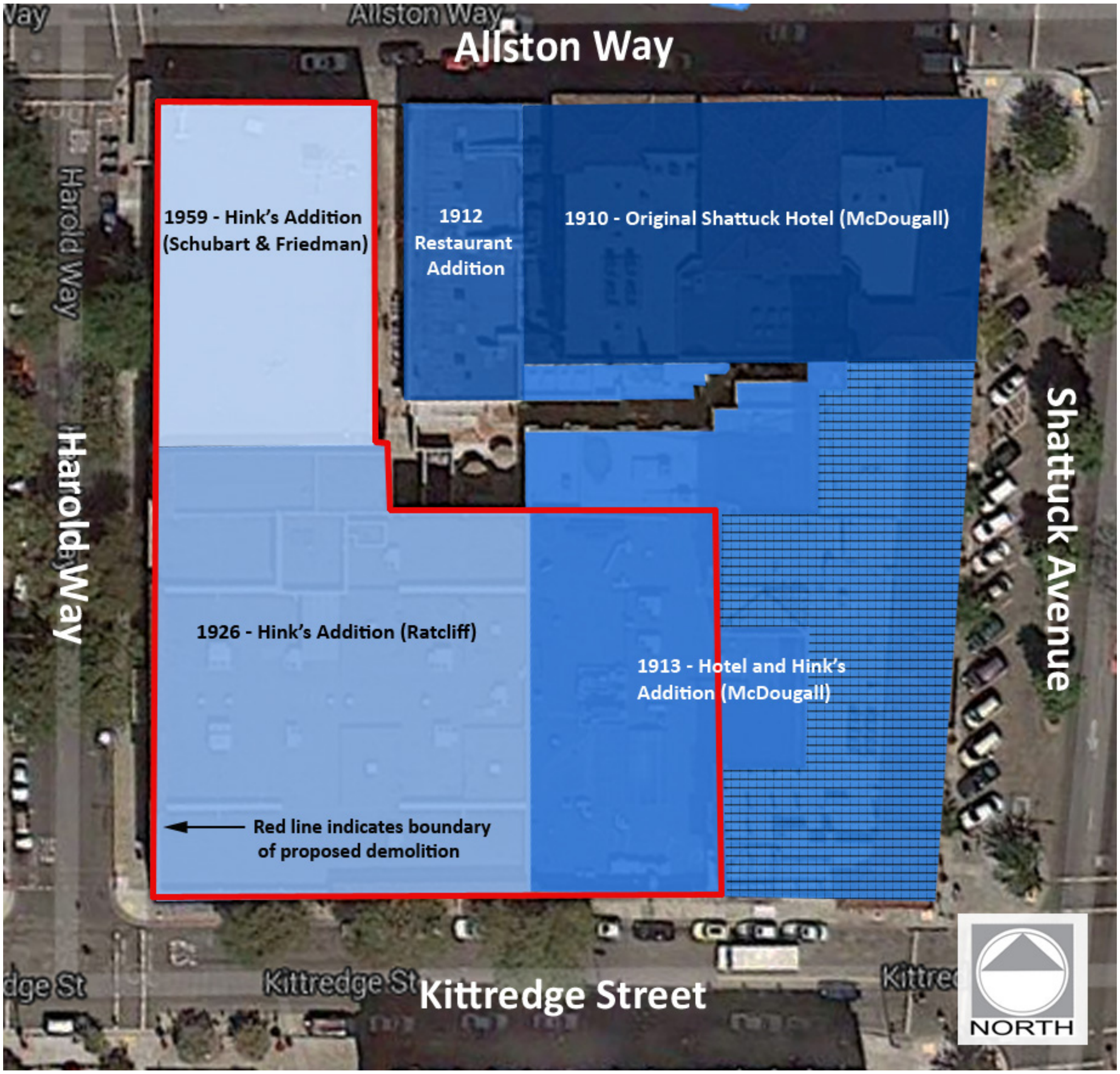

Figure 4-1. Google Aerial view of project block showing construction chronology and area of proposed demolition. The cross-hatched area of the 1913 addition is five stories in height; the remainder of the addition is one story. Note that though the architect of the 1912 addition was likely McDougall, this was not confirmed by archival research. (Google Aerial amended by author, February 2014.)

Construction Chronology

The following construction chronology has been developed primarily from "The Residences at Berkeley Plaza Draft Historic Context Report for the Shattuck Hotel," by architecture + history, llc, dated February 27, 2013. Additional information has been added where necessary to clarify the property's historical and physical development.

1909	Shattuck Hotel began construction.
1910	Construction completed, Shattuck Hotel opened for business in December.
1912	One-story restaurant addition completed.
1913	Large-scale addition completed along Shattuck Avenue to Kittredge adding 120 additional rooms (for a total of 235)[14] and extensive commercial space for Hink's Dry Goods Store.
1920	Woolsey sold the hotel to William W. Whitecotton; name changed to Whitecotton Hotel.
1921	Whitecotton built office building behind hotel (James Plachek, architect).
1926	Hink's expanded along Kittredge to Harold Way with one-story mezzanine addition designed by Walter Ratcliff, Jr. The addition was attached to the rear of the 1913 addition at roughly the mid-block point along Kittredge.[15]
1931	Ratcliff-designed roof garden/employee rest area on roof of 1926 addition was completed; roof garden no longer extant, one-story rooftop structure with restroom facilities remains.
1947 (c.)	Wallace and Joan Miller (also managers of Berkeley's Durant Hotel) assumed ownership of the hotel, changing the name to the Hotel Shattuck. The Millers made some improvements, including the insertion of a modern, all glass lobby entrance along Allston Way designed by Raymond Loewy Associates of New York (June 1947).

[14] "Enlarged Hotel Shattuck Will Be A Great Credit to Berkeley, Showing a City's Prosperity and Development," *Berkeley: A Journal of a City's Progress* (vol. 3, no. 2, page 5), late 1912.

[15] The article entitled "Enlarged Hotel Shattuck Will Be a Great Credit to Berkeley, Showing a City's Prosperity and Development" shows a rendering of the 1913 extension including the extension along Kittredge. The article states that the "southern 130 feet of the building will extend back along Kittredge Street 125 feet. The central 50 feet will be more shallow, allowing for lawn and gardens in the rearm as well as a tennis court and a plunge bath 20x50 feet in size."

1959	Construction finished on Hink's new building at corner of Allston Way and Harold Way (necessitating demolition of Whitecotton building), designed by San Francisco architects Schubart and Friedman. Grand opening of new Hink's wing on April 30.
1960s	Balconies removed.
1960s (c.)	Original wood windows replaced with aluminum.
Early 1980s	Hotel remodeled by Firmateer, Inc. and returned to use as tourist hotel.
1985	Hink's department store closes.
1987	Subject block designated City of Berkeley Landmark by Landmarks Preservation Commission (Approved at Landmarks Preservation Commission meeting on November 9, 1987).
1988	Front arcade of Hink's (part of alterations designed by Ratcliff in 1926) significantly altered to accommodate movie theater; Shattuck Ave storefronts upgraded/unified. Multi-pane steel sash windows along Kittredge and Harold elevations painted over as part of theater alterations.
1997	Entry awning at Allston Way with second-floor windows above reintroduced based on their historic appearance (replacing 1947 alteration by Raymond Loewy).
1999	Hotel purchased by independent hotel company and renovated.
2007	BPR Properties took ownership of hotel portion of the property.
2009	Theater at former Hink's storefront receives new lighting, carpet, seating, and concession/lobby upgrades. Entrance marquee added at this time.
Recent	Replacement aluminum windows replaced with vinyl sash.

Additional notes on alterations:

- As part of the 1913 expansion, the original five small ground floor retail stores facing Shattuck Avenue were reconfigured into two small stores at the north end (corner of Shattuck and Allston) and a large department store (Hink's) at the south end of the first story.

- All storefronts along Shattuck Avenue have been repeatedly altered, including changes to the entries, windows, materials, transoms, and signage. All components of the original storefronts have been replaced, including the storefront bays with plate glass showcase windows, recessed entries, and multi-pane prism glass transoms.

- The original (1910) arched hotel entrance and cantilevered awning/marquee at Shattuck Street has been removed. The current main hotel entrance along Allston Way originally provided access to a different portion of the lobby.

- The entrance to the 1926 addition at the corner of Kittredge and Harold (facing Kittredge) was a later addition. The mid-block entrance with awning was originally a secondary entrance to Hink's.

- The 1959 Hink's building has been altered since originally constructed: additional second floor windows have been added, the Allston entrance has been reconfigured, the aluminum sash plate glass storefront windows have been replaced, and "Hink's of Berkeley" signage lettering has been removed from Allston-facing entry overhang.

Architect Information

Benjamin G. McDougall
Benjamin G. McDougall was born in San Francisco on January 10, 1865. His father was architect/builder Barnett McDougall. After studying architecture at the California School of Design in the early 1880s, Benjamin began working with his father and brothers at B. McDougall & Sons. Benjamin and his brothers, Charles (1857-1930) and George (1868-1957), later formed the firm McDougall Bros. Benjamin moved to Bakersfield in 1896 and operated one of the firm's two offices there; the other was located in San Francisco. While in Bakersfield, McDougall was responsible for many municipal buildings, schools, banks, business blocks, hotels, and homes in the area. A few years later, he moved the office to Fresno where the firm designed the Kings County Jail (1898), the Hanford Carnegie Library (1905), the Merced Security Savings Bank (1905), the Visalia First National Bank (1905), and many residences.[16]

Following the 1906 earthquake, McDougall Bros. closed their Fresno office and Benjamin left the firm to work for himself, focusing on work in the San Francisco Bay Area. He designed the first phase of the Shattuck Hotel in 1909-1910, and a large extension in 1913. *The Architect and Engineer* praised the design as "[a]nother Berkeley building of a freer and more picturesque type…, originally designed in the garden city spirit but finally assuming a more urban aspect, as though Berkeley aspired to be something more than just a university town."[17]

[16] John Edward Powell, "A Guide to Historic Architecture in Fresno, California. Biographies of Architects, Designers, and Builders: McDougall Bros." http://historicfresno.org/bio/mcdougal.htm (accessed January 2014).
[17] B.J.S. Cahill, "The Work of Benjamin G. McDougall, Architect," *The Architect and Engineer of California* (November 1916): 67.

Benjamin G. McDougall died on June 11, 1937. In addition to the Shattuck Hotel, some of his most important commissions include: the Carnegie Library (Hanford, 1905); the Security Savings Bank (Merced, 1905); the Sheldon Building (San Francisco, 1907); the YMCA Building (Berkeley, 1910); St. Luke's Episcopal Church (San Francisco, 1910); the Federal Realty Building (the Cathedral Building, Oakland, 1913); St. Paul's Church (Oakland, 1917); and the Standard Oil Building (San Francisco, 1922).

Walter H. Ratcliff, Jr.
Walter Harris Ratcliff, Jr. was born February 2, 1881 outside of London, England. In 1894, Ratcliff and his family moved to Southern California, first to San Diego and then Pasadena, to seek a more amenable climate for his sickly mother. The family eventually settled in Berkeley so Ratcliff's older sisters could attend UC Berkeley. Ratcliff attended Berkeley High and then studied chemistry at UC Berkeley, where he graduated in 1903.

His interest in architecture began during his time at UC Berkeley, where he built houses with his friend and business partner Charles Louis McFarland. After graduation, he apprenticed with John Galen Howard, the University Architect. Wishing to pursue the study of architecture further, Ratcliff embarked on a tour of Europe, studying at the British School in Rome and traveling through Italy, France, Germany, and England. Ratcliff returned to Berkeley in 1908 and opened an office in San Francisco, which he relocated to Berkeley by the end of that year. By 1913, Ratcliff was named the City Architect for Berkeley; this position existed for only eight years (1913-1921) and Ratcliff was the sole occupant.[18] Ratcliff designed the 1926 addition to the Shattuck Hotel as part of the Hink's Department store expansion.

Over the course of his lengthy career, which spanned almost fifty years, Ratcliff became one of Berkeley's most prolific architects, designing nearly 100 buildings. He is most well known for his civic, ecclesiastical, and educational buildings, though he also designed residential, institutional, and commercial buildings, including auto showrooms, industrial shops and banks. Although most of his work was within Berkeley, he did produce the Master Plan for Mills College campus in Oakland. One of his greatest achievements is the Chamber of Commerce building (1925), perhaps "Berkeley's most visible commercial architectural landmark."[19]

Schubart and Friedman
One half of the firm Schubart and Freidman Architects, Henry Schubart was born in New York City on August 15, 1916. Schubart spent his teenage years in France and studied art in Paris, taking classes at the Ecole des Beaux-Arts. He earned an apprenticeship with Frank Lloyd Wright at his studio in Taliesin, Wisconsin and the experience would have a profound impact on his future career and architectural style. Schubart's obituary stated, "Wright's influence was

[18] Daniella Thompson, "When Walter Ratcliff Was City Architect," http://berkeleyheritage.com/eastbay_then-now/ratcliff.html (accessed January 2014).
[19] The Residences at Berkeley Plaza Draft Historic Context Report for the Shattuck Hotel, 9.

evident in the style that became Mr. Schubart's own – in which natural light and the building's siting in its environment were of prime importance."[20]

After his year at Taliesin, Schubart became an artist for archaeological expeditions in Iraq. During the 1930s, he worked for the WPA teaching art to children and was an exhibition designer for the 1939 World's Fair held at San Francisco's Treasure Island. As an engineer for the U.S. Marine Service, Schubart designed cable systems for degaussing ships during World War II.

Schubart settled in the Bay Area in 1948 and began his career as an architect with the firm of Wurster, Bernardi and Emmons. While there, Schubert "earned a reputation as a talented designer of churches (St. Louis Bertrand in Oakland, Holy Names in San Francisco), schools (Santa Catalina School in Monterey) and master plans -- especially the master plan and buildings for the Dominican College in San Rafael (including library, dining room and residence halls)."[21]

In 1953, Schubart formed a firm with Howard Freidman. Their partnership lasted until 1968, when Schubart and his family immigrated to Salt Spring Island, British Columbia. While there Schubert was "the only architect in the area and quickly made his mark on the island. He introduced a unique style of architecture, and his influence is seen in many of the island's most striking homes."[22] Schubart died on Salt Spring Island on February 8, 1998.

Schubart's partner, Howard Friedman, was born in New York City on June 26, 1919. He attended Saunders Technical High School in Yonkers and after graduation he worked as a junior drafter in an architecture office in Manhattan.

Like Schubart, Friedman served in WWII, joining the U.S. Navy Seabees in 1942. Following the war, Friedman studied at UC Berkeley, graduating in 1949 with an A.B. degree in Architecture. Friedman worked in San Francisco at different architecture firms, and eventually began a partnership with Schubart. After Schubart left for Canada, the firm became Howard A. Friedman and Associates. Friedman continued to work as an architect and planner until 1982 and retired from private practice in 1984. In addition to being a practicing architect, Freidman was a Lecturer in the UC Berkeley Department of Architecture beginning in 1966. He earned the title Professor in 1980 and became department chair in 1987. Friedman died suddenly on October 28, 1988.[23]

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[20] J.L. Pimsleur, "Obituary– Henry Schubart," February 20, 1998 at: http://www.sfgate.com/news/article/OBITUARY-Henry-Schubart-3012800.php (accessed January 2014)
[21] Ibid.
[22] Ibid.
[23] Online Archive of California, Inventory of the Howard A. Friedman Collection at http://www.oac.cdlib.org/findaid/ark:/13030/hb5t1nb7b4/ (accessed January 2014).

Schubart and Freidman's major commissions included:

- the Master Plan and Buildings for San Domenico School, San Anselmo c. 1965
- several commissions at San Rafael's Dominican College including the Library, which won numerous architectural awards (late 1950s-early 1960s)
- Mt. Zion Medical Center Outpatient Building, San Francisco, c. 1965
- Jewish Home for the Aged, San Francisco c. 1962
- Many residences in Marin, San Francisco and Lake Tahoe
- Friedman's own house in Hillsborough
- the I. Magnin Store, San Rafael[24]

5. Federal, State, and Local Significance Criteria

The regulatory background provided below offers an overview of local, state, and federal criteria used to assess historic significance.

5.1 Federal Criteria

The National Register of Historic Places is the Nation's master inventory of known historic resources and includes listings of buildings, structures, sites, objects and districts that possess historic, architectural, engineering, archaeological or cultural significance at the national, state or local level. As described in National Register Bulletin Number 15, *How to Apply the National Register Criteria for Evaluation*, a property must have both historical significance and integrity to be eligible for listing in the National Register of Historic Places.

To be significant, a property must be "associated with an important historic context."[25] The National Register identifies four possible context types, of which at least one must be applicable to the property at the national, state, or local level. As listed under Section 8, "Statement of Significance," of the National Register of Historic Places Registration Form, these are:

A. Property is associated with events that have made a significant contribution to the broad patterns of our history.

B. Property is associated with the lives of persons significant in our past.

C. Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

[24] The Residences at Berkeley Plaza Draft Historic Context Report for the Shattuck Hotel, 10.
[25] National Park Service, *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*, Washington, DC: National Park Service, updated 1997, 3.

D. Property has yielded, or is likely to yield, information important to prehistory or history.[26]

Second, for a property to qualify under the National Register's Criteria for Evaluation, it must also retain "historic integrity of those features necessary to convey its significance."[27] While a property's significance relates to its role within a specific historic context, its integrity refers to "a property's physical features and how they relate to its significance."[28] To determine if a property retains the physical characteristics corresponding to its historic context, the National Register has identified seven aspects of integrity:

Location is the place where the historic property was constructed or the place where the historic event occurred.

Setting is the physical environment of a historic property.

Design is the combination of elements that create the form, plan, space, structure, and style of a property.

Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.

Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.

Feeling is a property's expression of the aesthetic or historic sense of a particular period of time.

Association is the direct link between an important historic event or person and a historic property.[29]

Since integrity is based on a property's significance within a specific historic context, an evaluation of a property's integrity can only occur after historic significance has been established.[30]

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[26] National Park Service, *National Register Bulletin: How to Complete the National Register Registration Form*, Washington, DC: National Park Service, updated 1997, 75.
[27] National Park Service, *How to Apply the National Register Criteria for Evaluation*, 44.
[28] Ibid., 44.
[29] Ibid., 44-45.
[30] Ibid., 45.

5.2 State Criteria
The California Register of Historical Resources is the authoritative guide to the State's significant historical and archeological resources. It serves to identify, evaluate, register and protect California's historical resources. The California Register program encourages public recognition and protection of resources of architectural, historical, archeological and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for historic preservation grant funding and affords certain protections under the California Environmental Quality Act. All resources listed on or formally determined eligible for the National Register are eligible for the California Register. In addition, properties designated under municipal or county ordinances are also eligible for listing in the California Register.

The California Register criteria are modeled on the National Register criteria discussed above. An historical resource must be significant at the local, state, or national level under one or more of the following criteria:

1. It is associated with events or patterns of events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.

2. It is associated with the lives of persons important to local, California, or national history.

3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values.

4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, state or the nation.

The California Historic Resource Status Codes (CHRSCs) are a series of ratings created by the California Office of Historic Preservation (SHPO) to quickly and easily identify the historic status of resources listed in the state's historic properties database. These codes were revised in August 2003 to better reflect the many historic status options available to evaluators. The following are the seven major status code headings:

1. Properties listed in the National Register or the California Register.
2. Properties determined eligible for listing in the National Register or the California Register.
3. Appears eligible for National Register or California Register through Survey Evaluation.
4. Appears eligible for National Register or California Register through other evaluation.
5. Properties recognized as historically significant by local government.
6. Not eligible for listing or designation.
7. Not evaluated for National Register or California Register or needs revaluation.

5.3 Local Criteria

Berkeley's Landmarks Preservation Ordinance (LPO) was enacted in 1974 and is set forth in Chapter 3.24 of the Berkeley Municipal Code. The LPO authorized the creation of a Landmark Preservation Commission to implement the ordinance, which sought to protect historically and/or architecturally significant sites, structures, or areas. The ordinance authorizes the Landmarks Preservation Commission (LPC) to designate properties as Landmarks, Structures of Merit, or Historic Districts and gives it regulatory power over designated properties. The criteria for designation are as follows:

Berkeley Landmarks Preservation (3.24.110)

A. Landmarks and historic districts. General criteria which the commission shall use when considering structures, sites and areas for landmark or historic district designation are as follows:

1. Architectural merit:

    a. Property that is the first, last, only or most significant architectural property of its type in the region;
    b. Properties that are prototypes of or outstanding examples of periods, styles, architectural movements or construction, or examples of the more notable works of the best surviving work in a region of an architect, designer or master builder; or
    c. Architectural examples worth preserving for the exceptional values they add as part of the neighborhood fabric.

2. Cultural value: Structures, sites and areas associated with the movement or evolution of religious, cultural, governmental, social and economic developments of the City;

3. Educational value: Structures worth preserving for their usefulness as an educational force;

4. Historic value: Preservation and enhancement of structures, sites and areas that embody and express the history of Berkeley/Alameda County/California/United States. History may be social, cultural, economic, political, religious or military;

5. Any property which is listed on the National Register described in Section 470A of Title 16 of the United States Code.

B. Structures of merit. Criteria which the commission shall use when considering structure for structure of merit designation are as follows:

1. General criteria shall be architectural merit and/or cultural, educational, or historic interest or value. If upon assessment of a structure, the commission finds that the structure does not currently meet the criteria as set out for a landmark, but it is worthy of preservation as part of a neighborhood, a block or a street frontage, or as part of a group of buildings which includes landmarks, that structure may be designated a structure of merit.

2. Specific criteria include, but are not limited to one or more of the following:

    a. The age of the structure is contemporary with (1) a designated landmark within its neighborhood, block, street frontage, or group of buildings, or (2) an historic period or event of significance to the City, or to the structure's neighborhood, block, street frontage, or group of buildings.
    b. The structure is compatible in size, scale, style, materials or design with a designated landmark structure within its neighborhood, block, street frontage, or group of buildings.
    c. The structure is a good example of architectural design.
    d. The structure has historical significance to the City and/or to the structure's neighborhood, block, street frontage, or group of buildings. (Ord. 5686-NS § 1 (part), 1985: Ord. 4694-NS § 3.1, 1974)

Any resource that meets the eligibility criteria under the National Register, California Register, or City of Berkeley preservation standards is considered a historical resource under CEQA.

6. Evaluation of Historic Significance and Integrity

Because it is a designated Berkeley City Landmark, the Shattuck Hotel complex is considered a historical resource for purposes of the California Environmental Quality Act (CEQA).

6.1 Prior Evaluations of the Project Site

1987 Landmark Designation

The Shattuck Hotel was listed as a City of Berkeley Landmark in 1987 and the following significance statement is provided in the application:

> The flagship building of downtown Berkeley, the Shattuck Hotel is the largest and grandest of a number of urban hotels built in Berkeley during the post-earthquake/pre-PPIE[31] building boom. It is connected with Berkeley's founding Shattuck family in more than just name, being developed by Shattuck heirs on the Shattuck home site. It was designed in 1909/1912 by regionally prominent architect Benjamin Geer McDougall, and

[31] "PPIE" is an abbreviation for the Panama-Pacific International Exhibition, which was held in San Francisco in 1915.

> expanded in 1926 by Walter H. Ratcliff Jr., Berkeley's premier architect of the 1920s. Its style and its massive reinforced concrete construction make it a fine example of California's Mission/Mediterranean grand hotel genre. Two of its current business occupants, the Shattuck Hotel and Huston's Shoes, have been there from the beginning, as had Hink's department store which closed in 1985; the Hink family in particular were prominent downtown merchants, and as the leading downtown hotel the Shattuck has been the site of major civic, cultural, and commercial functions.[32]

According to the Notice of Decision, the designation boundary includes the 1926 addition and the 1959 building; however, separate statements in the Landmark Designation itself appear to exclude the 1959 building from the property's significance.[33] According to the Landmark nomination form:

> Owners contemplate closing off the interior connection of the [1959] building from the rest of the store and selling it as a separate parcel sometime in the future: they would like it understood that in that case it would not become an independent landmark or remain included within a landmark designation.[34]

Section 11 of the nomination form states:

> In style and structure the [1959] wing is virtually a separate building, as its predecessor on the site was, and is not contributory of the early 20th century character of the Shattuck Hotel; owners contemplate closing off the interior wall and selling it as a separate property.[35]

2007 Downtown Survey

Completed in support of the Downtown Area Plan, the 2007 Downtown Berkeley Historic Resources Reconnaissance Survey (Survey) provides detailed background information on historic structures within Downtown Berkeley. The survey considered all properties within the Downtown Area, and included properties immediately adjacent to the Downtown Area.[36]

As part of the 2007 effort, ARG conducted a reconnaissance-level survey of properties within the Downtown Area Plan boundaries, and developed a matrix of property information including parcel number, address, date of construction, previous historic designation or survey ratings,

[32] Betty Marvin, "City of Berkeley Department of Housing and Development, Application Requesting Designation for Landmark Status [for the Shattuck Hotel]," (Application prepared for Trans-Action Commercial Investors Ltd., Oakland, CA, 1987), 1.
[33] "City of Berkeley, Notice of Decision for Meeting of November 9, 1987, Shattuck Hotel" (2220 Shattuck Avenue).
[34] "City of Berkeley Department of Housing and Development, Application Requesting Designation for Landmark Status [for the Shattuck Hotel]," 1987.
[35] Ibid.
[36] The Downtown Area Plan boundary includes properties on the blocks roughly by Hearst Street to the north, Oxford Street to the east, Dwight Way to the south, and MLK Jr. Way to the west.

preliminary integrity assessments, and other information.[37] The information developed for the survey matrix was integrated into the City of Berkeley's GIS system, and a number of maps were produced to communicate the survey findings. ARG also developed several contexts that identify important historical themes related to Downtown Berkeley's built environment. Individual properties were not evaluated for historical significance.

According to the Survey report, the Shattuck Hotel is most closely identified with the historic contexts "Commerce" and "Commercial Architecture," and the building is significant for its associations with the early twentieth century commercial and architectural development of downtown Berkeley. The reconnaissance matrix indicates that the property is a local Landmark with a generally high degree of integrity. The building was documented in a 1987 survey by Berkeley Architectural Heritage Association, and was included as part of the Design Guidelines adopted by the City for the Downtown area in 1997. The Hotel was assigned an "excellent" rating in the Berkeley Design Advocates survey in the early 1980s.

2013 Historic Context Report
A historic context report entitled "The Residences at Berkeley Plaza, Draft Historic Context Report for the Shattuck Hotel" was prepared by architecture + history, llc for HSR Berkeley Investments, Inc. (the project sponsor) in February 2013. The report provides historical background information on the Shattuck Hotel, but does not provide an evaluation of the subject property's eligibility for listing on the National, California, or local registers.

To complete the eligibility evaluation for this HRTR, ARG used the background information provided in architecture + history, llc's Draft Historic Context Report and supplemented this information with additional research. Using the archival holdings of the Berkeley Architectural Heritage Society, Berkeley Historical Society, the City of Berkeley Permit Services Center, and other resources, ARG conducted additional research on the building's construction chronology and historical development over time.

6.2 Summary of Significance
In ARG's professional opinion, the Shattuck Hotel and former Hink's Department Store (built in stages between 1910 and 1926) satisfy Criterion A/1 of the NRHP/CRHR at the local level of significance for their association with Berkeley's early commercial development. The property also satisfies NRHP/CRHR Criterion C/3 at the local level of significance as a distinctive example of the Mission Revival style in Berkeley's downtown, and for its association with master architect Benjamin Geer McDougall. The 1959 Hink's building does not contribute to the historical or architectural significance of the property.

NRHP Criterion A/CRHR Criterion 1 [Association with Significant Events]
The Shattuck Hotel and former Hink's Department Store appear to qualify for listing under Criterion A/1 for their association with the early commercial development of Downtown

[37] Appendix C below was adapted from this matrix.

Berkeley. Built on the site of the former Shattuck estate, the Hotel was one of the first reinforced concrete buildings in Downtown Berkeley, and, upon completion, was immediately recognized as the City's finest hotel. Hink's Department Store, a prominent commercial presence in Downtown Berkeley for over 70 years, was housed in the Shattuck Hotel building from 1913 to 1985. The Downtown Berkeley Historic Resources Reconnaissance Survey notes that the bulk of construction in Berkeley's downtown area occurred between the late 1870s and the 1930s, establishing the early twentieth century character of Berkeley's existing commercial core. The Shattuck Hotel and its early additions (1910-1926) were completed during this period and are strong visual and historical contributors to this pattern of development.

Though connected to the 1926 Hink's addition through an interior passage, the 1959 Hink's building at the corner of Allston and Harold Ways is structurally and aesthetically separate from the original Shattuck Hotel building and its early additions. Built in 1959, it does not relate to the early twentieth-century character established by the Shattuck Hotel and its early additions and does not contribute to the historical significance of the property as related to the early commercial development of Downtown Berkeley and the Shattuck Avenue commercial cluster.

NRHP Criterion B/CRHR Criterion 2 [Association with Significant Persons]
The Shattuck Hotel does not appear to qualify for listing under Criterion B/2 for association with persons significant to local, state or national history. While the building was built on former Shattuck estate lands with funding from the family's estate, this criterion usually applies to properties associated with the productive life of a significant person. Both Francis and Rosa Shattuck were deceased when the hotel was constructed, so the property does not qualify for listing as a property significantly associated with Rosa or Francis Shattuck under this Criterion.

Because the Hink family is associated with the commercial history of Berkeley as well as other cities in northern California, the Shattuck Hotel's association with the Hink family in relation to the early commercial development of Berkeley's downtown is more properly addressed under Criterion A/1 above.

NRHP Criterion C/CRHR Criterion 3 [Architectural Significance]
The original Shattuck Hotel and 1912-1913 additions appear to qualify for listing under Criterion C/3 for their architectural significance and association with prominent architect Benjamin Geer McDougall. McDougall was a regionally notable architect with significant buildings constructed throughout the Bay Area. Following the 1906 earthquake, McDougall focused his efforts on commissions in the San Francisco Bay Area, and he was one of the first architects to use reinforced concrete in his work.

The hotel is a unique example of the Mission Revival style in the Downtown area and exhibits many representative features of the style, including stuccoed walls, decorative tilework, wall surface ornamentation, squared towers, hipped roof forms, arched or arcaded wall openings, varied roof heights, red clay tile roof cladding, and broad eave overhangs with exposed rafter tails. The 1926 addition, which was designed in the Spanish Revival style by Berkeley architect Walter Ratcliff, Jr., does not appear to be eligible under this criterion. The addition is modest in design and detail, is profoundly subordinate to the pre-existing Shattuck Hotel buildings, and does not appear to be significant as a notable example of Ratcliff's work. The 1926 addition, however, is significant for its association with Hink's Department Store and as a portion of the Shattuck Hotel complex that was completed during Berkeley's early Downtown development period. It is therefore included in the significance discussion under Criterion A/1 above.

The 1959 Hink's building departed stylistically from its predecessors on the block, and reflected the more streamlined aesthetics of the post World War II period. While it has the simple form and flat, cantilevered overhang associated with the Midcentury Modern style, it does not display many of the other features that characterize the style. These features include projecting eaves and exposed rafters, stacked Roman brick or stone accents, expressed post and beam construction, projecting vertical elements, large steel or wood framed windows, canted windows, or atrium or courtyard entryways.[38] As such, the building does not represent a strong example of the Midcentury Modern style. Further, alterations completed in recent decades have removed or covered original materials and added new elements to the building exterior, reducing the building's material integrity. Research does not indicate that the building is a major commission of architects Schubart and Friedman, who were better known for their campus planning and residential commissions; therefore, it is not significant as the representative work of a master architect. For these reasons, the 1959 Hink's building does not appear to qualify for listing under this criterion.

NRHP Criterion D/CRHR Criterion 4 [Potential to Yield Information]
Criterion D/4 is generally applied to archeological resources and evaluation of the Shattuck Hotel for eligibility under this criterion was beyond the scope of this evaluation.

Significance Summary
Because it appears to satisfy NRHP and CRHR significance criteria, ARG has assigned the Shattuck Hotel (built 1910-1926) a California Historical Resource Status Code of 3S, which indicates that the property was found eligible for both the National and California Registers through survey evaluation. As discussed above, the 1959 Hink's building does not contribute to the historical significance of the Shattuck Hotel Property.

Though not expressly stated in the City of Berkeley Landmark nomination, the Shattuck Hotel appears to be significant under the following City criteria for Landmark eligibility: (1) Architectural Merit (sub criteria a-c), and (4) Historic Value.

Period of Significance
The identified period of significance for the Shattuck Hotel under NRHP/CRHR Criterion A/1 extends from 1910, the date of the original hotel's completion, until the Hink's addition was

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[38] Mary Brown, *San Francisco Modern Architecture and Landscape Design (1935-1970) Historic Context Statement* – Final Draft, (San Francisco City and County Planning Department, September 2010), 181-182.

completed in 1926. This time span encompasses the building's association with the early commercial development of Downtown Berkeley. The identified period of significance for the Shattuck Hotel under NRHP/CRHR Criterion C/3 extends from 1910 to 1913, corresponding to the building's association with prominent architect Benjamin Geer McDougall.

6.3 Character-defining Features

A character-defining feature is an aspect of a building's design, construction, or detail that is representative of the building's function, type, or architectural style. Generally, character-defining features include specific building systems, architectural ornament, construction details, massing, materials, craftsmanship, site characteristics and landscaping within the period of significance. In order for an important historic resource to retain its significance, its character-defining features must be retained to the greatest extent possible. An understanding of a building's character-defining features is a crucial step in developing a rehabilitation plan that incorporates an appropriate level of restoration, rehabilitation, maintenance, and protection.

The following character defining features contribute to the Shattuck Hotel property's ability to convey its significance.

Overall massing, configurations, and volumes

- Five story height at Shattuck Street façade and portions of Allston and Kittredge
- Hip-roofed towers along Shattuck and Allston
- Varied roof heights
- Symmetrical façade arrangement at Shattuck Street
- One-story 1912 restaurant addition along Allston
- One-story 1926 addition at southwest corner of lot

Mission Revival style and detailing – Shattuck Hotel (1910, 1912 and 1913 portions)

- Red clay tile roofs
- Hip roofed, square towers separating hotel bays
- Smooth stucco/plaster finish on exterior walls, painted in light colored tones
- Arched window and entrance openings along Shattuck and Allston elevations
- Decorative tile work above main hotel entrance on Allston
- Deep, open eave overhangs with exposed rafters
- Decorative frieze panels and wall surface ornament
- Rusticated base of 1910 and 1912 portions of hotel along Allston Way

1926 Hink's Addition

- Large multi-pane steel windows
- Spanish style, red tile roof parapets with decorative volutes and wrought iron details
- Stucco cladding
- Molded cornice

Interior

- Soffit plasterwork at former Hink's entrance arcade
- Shattuck Hotel lobby and dining room[39]

6.4 Evaluation of Integrity

The Shattuck Hotel appears to retain sufficient integrity to convey its significance. Since it has not been moved, the complex retains integrity of location. While Berkeley's downtown has changed over time, the property's overall setting within an early twentieth century commercial corridor has been well preserved. The overall design of the complex, including the building massing, proportions, fenestration patterns, and architectural style and details are generally intact, and thus the Shattuck Hotel retains integrity of design and workmanship. Integrity of materials has been partially reduced by (1) replacement of original wood sash windows with steel and later vinyl sash, (2) removal and alteration of original storefront features and configurations, and (3) removal of balconies. However, the stucco cladding, Allston Way tilework, decorative friezes, clay roof tiles, parapet detailing, and raised surface ornament of the 1910-1913 hotel and 1926 addition remain intact, as do the multi-pane steel sash windows of the 1926 addition. Finally, though Hink's Department store is no longer a commercial tenant, the building retains integrity of feeling and association as a functioning retail property related to the early development of Berkeley's downtown commercial corridor.

6.5 Nearby Historic Resources

Shattuck Avenue Commercial Corridor

The 2007 downtown Berkeley Historic Resources Reconnaissance Survey identifies subareas within the Downtown Area containing significant clusters of historic resources that may qualify for future consideration as potential historic districts at the local, state, or federal levels. The Shattuck Hotel sits within the "Shattuck Avenue Commercial Corridor," which is described in the Downtown Area Plan Draft Environmental Impacts Report (DEIR) as follows:

> The Shattuck Avenue Commercial Corridor runs along Shattuck Avenue, with the area of highest commercial activity from about Durant to University Avenue. This area includes a significant concentration of historic commercial buildings that share historic contexts, themes, physical attributes, and characteristics. The historic resources present in this concentration reflect the following historic contexts including commercial development, transportation, recreation, and cultural groups. The earliest buildings date from the 1890s extending to a building campaign after World War II that included an increase in student population at the University.

[39] For purposes of the California Environmental Quality Act (CEQA), modifications to character-defining interior features are typically not considered to constitute impacts to a historical resource unless those features are expressly identified in the documentation supporting the resource's local, CRHR, or NRHP designation. These interior features were not called out in the Shattuck Hotel's 1987 Berkeley Landmark Designation.

This potential historic district includes some commercial buildings that face intersecting streets just off of Shattuck Avenue including Bancroft Way, Kittredge Street, Allston Way, Center Street, and Addison Street. With further study, the potential historic district may also include portions of University Avenue to form an overall L- or T -shape, depending on the potential historic district boundary. The Shattuck Avenue Commercial Corridor might also be comprised of one or more smaller districts, each with its own theme and/or period of significance, such as at Shattuck Square.[40]

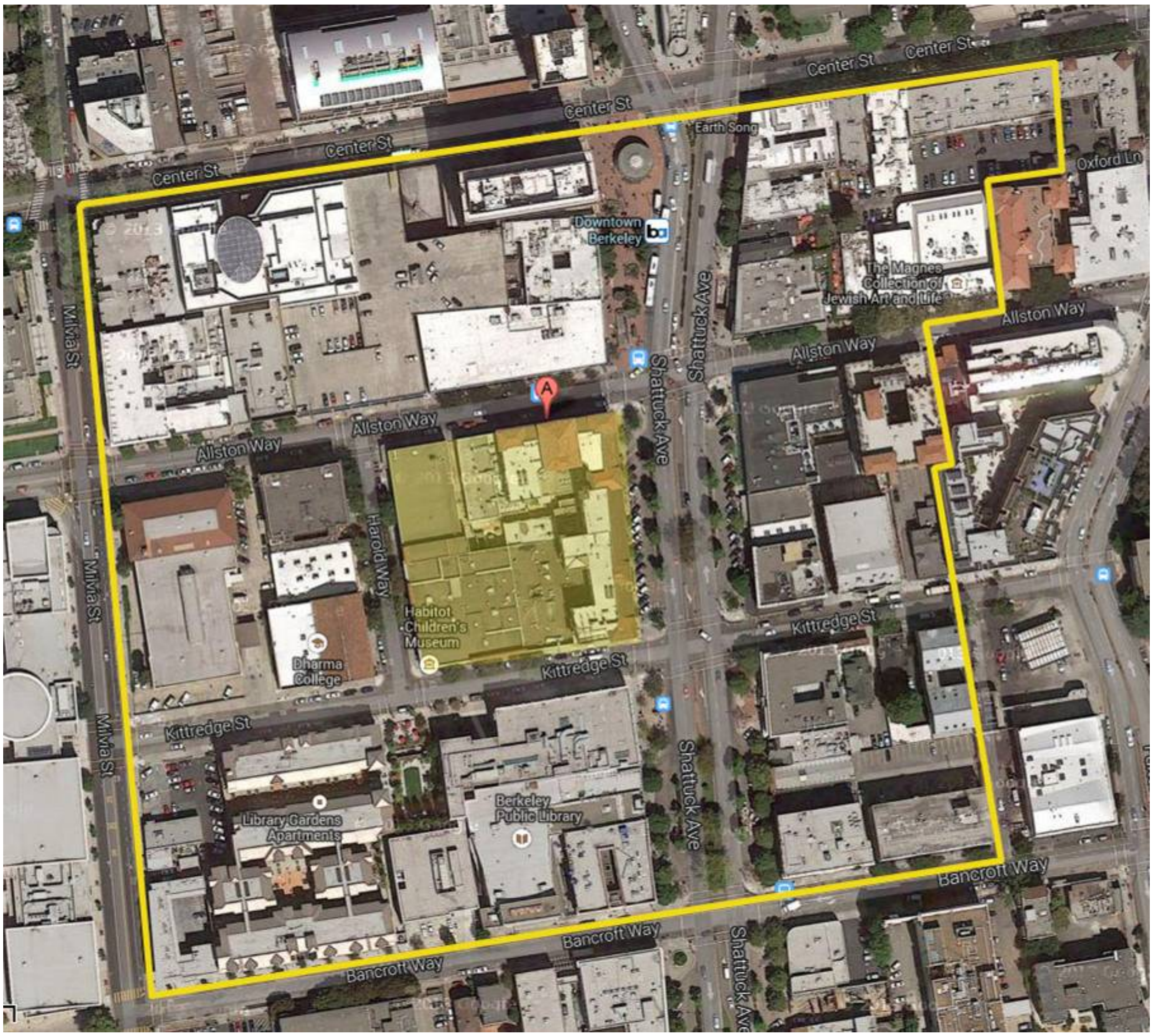

Figure 6-1. Google Aerial view of project block (shaded in yellow) and vicinity. The area outlined in yellow was used to as the relevant domain of inquiry for the California Historical Resources Information System records search discussed below, as well as for the project impacts analysis included in Chapter 8.

[40] Lamphier-Gregory, *Berkeley Downtown Area Plan, Draft Environmental Impact Report* (prepared for the City of Berkeley, January 2009), 95.

2211 Harold Way Project Vicinity

To focus the impact analysis of the larger project vicinity, ARG worked with the City of Berkeley to define the boundary shown in Figure 6-1, which was used to delineate the scope of the California Historical Resources Information System records search conducted for the project. This project vicinity is bound by Center Street on the north, Milvia Street on the east, Bancroft Way on the south, and on the east by a line generally running mid-block between Shattuck Avenue and Oxford Street/Fulton Street. Historical resources outside this boundary are considered to be too far from the project site to conceivably be impacted by the proposed project. (Analysis of potential impacts to historical resources within this boundary is included below in Chapter 8.)

Photographs of buildings within the project vicinity boundary are included below in Appendices B1 and B2. Appendix C consists of a table with summary information for each parcel within the project vicinity.

The project vicinity includes a wide array of designated and potential historic resources, including 14 City of Berkeley landmarks and portions of 2 landmark districts:

- 2000 Allston Way, Berkeley Post Office (1914/1931)
- 2001 Allston Way, Berkeley YMCA (1910) [designed by Benjamin G. McDougall]
- 2016 Allston Way, Elks Lodge (1913)
- 2105 Bancroft Way, Masonic Temple (1905)
- 2124 Center Street, Mikkelsen & Berry Building (1902)
- 2128 Center Street (1923)
- 2222 Harold Way, Armstrong College (1923) [designed by Walter H. Ratcliff, Jr.]
- 2065 Kittredge Street/2200 Shattuck Avenue, Shattuck Hotel (1910-1926)
- 2090 Kittredge Street, Berkeley Public Library (1930)
- 2151 Shattuck Avenue, Wright Block (1906)
- 2231 Shattuck Avenue, Brooks Apartment Building (1906) [designed by Walter H. Ratcliff, Jr.]
- 2271 Shattuck Avenue, Tupper & Reed Building (1925)
- 2276 Shattuck Avenue, Morse Block (1906)
- 2277 Shattuck Avenue, Hezlett's Silk Store (1925)
- Civic Center Historic District
- Berkeley High School Historic District

Six these properties, including the Berkeley Post Office, the Berkeley YMCA, the Masonic Temple, the Berkeley Public Library, the Tupper & Reed Building and the Morse Block, as well as the two historic districts, are also listed on both the National and California Registers. In addition, the A.H. Broad House (1895) at 2117 Kittredge Street is a City of Berkeley Structure of Merit.

The following ten properties that are not City Landmarks have been found through previous survey evaluation to be eligible for individual listing on the National Register:

- 2132 Center Street, Thomas Black Building (1904)
- 2113 Kittredge Street, Fox Theatre (1914)
- 2124 Kittredge Street, Robert Elder House (1895)
- 2138 Kittredge Street, John C. Fitzpatrick House (1904)
- 2150 Shattuck Avenue, First Savings Bank (1969)
- 2177 Shattuck Avenue (1895)
- 2201 Shattuck Avenue, Hinkel Block (1895)
- 2225 Shattuck Avenue (1913)
- 2270 Shattuck Avenue, Homestead Loan Association Building (1905)
- 2274 Shattuck Avenue (1932)

Four additional properties not addressed above were identified by the Landmarks Preservation Commission (LPC) in 1993 as eligible for landmark designation:

- 2121 Allston Way (1938)
- 2168 Shattuck Avenue, Constitution Square (1906)
- 2255 Shattuck Avenue, Wanger Block (1903)
- 2281 Shattuck Avenue (1904)

Finally, the 1990 Downtown Plan and Downtown Plan EIR identified historic properties as “Landmark,” “Significant” or “Contributing.” The 1938 building at 2210 Harold Way was deemed “contributing” in the 1990 Downtown Plan and Downtown Plan EIR. The 1940 building at 2219 Shattuck Avenue was deemed “significant” in the 1990 Downtown Plan and Downtown Plan EIR. The 1955 building at 2190 Shattuck Avenue was deemed “significant” in the Downtown Plan and “contributing” in the Downtown Plan EIR.

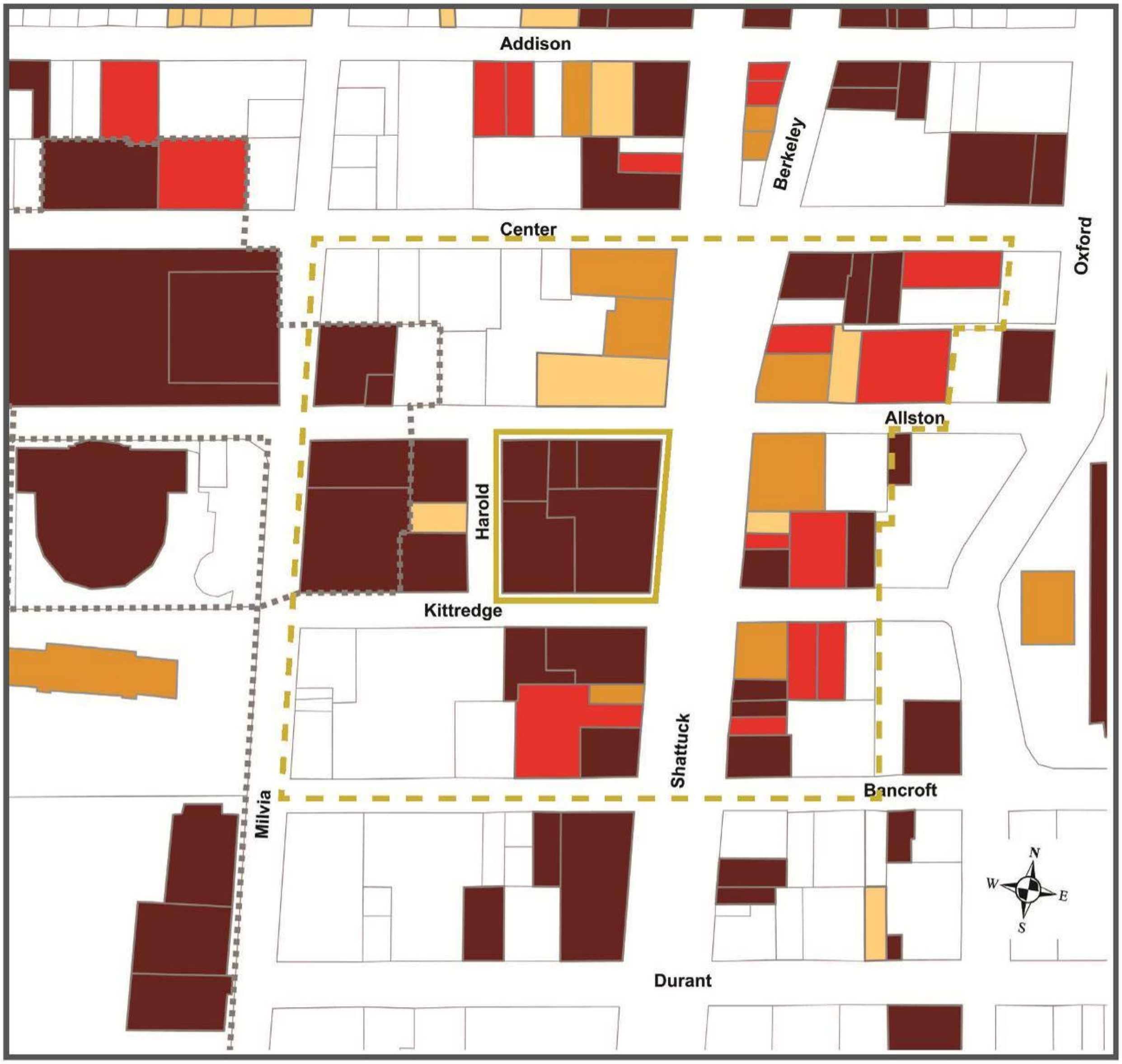

Figure 6-2. 2211 Harold Way Project Site and Vicinity

- Designated Landmark or Structure of Merit
- Significant per both 1993 LPC List and 1994 Design Guidelines
- Building on SHRI
- Contributing or Significant per BAHA Report, Downtown Area Plan (DAP), LPC List, Design Guidelines, or School EIR
- 2211 Harold Way Project Area
- CHRIS Records Search Radius
- Civic Center and Berkeley High School Historic Districts

Campanile Way
A portion of the proposed project at 2211 Harold Way would be visible from Campanile Way, the pathway that extends approximately one-quarter-mile west from UC Berkeley's Sather Tower (the Campanile).

In 2004, the University of California, Berkeley completed a *Landscape Heritage Plan*, which "examines the key characteristics of the [Campus's] historic Classical Core and provides guidance for its continued development in a manner that respects and builds upon its unique landscape legacy."[41] The main body of the Plan is divided into three chapters: Historical Significance (a summary of the historical development and significance of the campus), Implementation Concepts (a summary of the cultural landscape assessment process), and Landscape Guidelines (guidelines for site planning and landscape design within the Classical Core).

According to the *Landscape Heritage Plan*, the Classical Core of the UC Berkeley campus is a "cultural landscape."[42] The *Landscape Heritage Plan* includes assessment of nine study areas within the Classical Core that include significant and iconic landscape elements on campus:

- Campanile Esplanade
- Campanile Way
- Central Glade Interface
- Creek Bridges
- Faculty Glade
- Harmon Way
- Mining Circle/Oppenheimer Way
- Sather Gate
- Sather Road[43]

As one of the nine study areas, Campanile Way is a contributing element to the cultural landscape. As explained in Section 3 of the *Landscape Heritage Plan* ("Implementation Concepts"), Campanile Way is a historically significant component of the campus:

> Developed during the picturesque period, [Campanile Way] was the first centrally-located, campus street (from Sather Road eastward). Campanile Way's strength is its important role as a major pedestrian access in the heart of the Classical Core and its strong visual axis and view, connecting the tower with the Golden Gate. A remnant of an

[41] *Landscape Heritage Plan, University of California, Berkeley*. i.
[42] According to the National Park Service, a cultural landscape as "a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with an historic event, activity, or person, or exhibiting other cultural or aesthetic values. There are four general types of cultural landscapes, not mutually exclusive: historic sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes" (Page et al., 12). UC Berkeley's Classical Core is an example of a historic designed landscape.
[43] *Landscape Heritage Plan, University of California, Berkeley*. 6.

> earlier functional era, Campanile Way was re-confirmed by [John Galen] Howard as a design element of the Classical Core.[44]

According to the analysis included in the *Landscape Heritage Plan*, "Campanile Way's axial power and historic views to the Campanile and the Golden Gate retain a high level of integrity."[45] East-west views along Campanile Way are identified in the *Landscape Heritage Plan* as one of six primary character-defining features "for the Campanile Way and Sather Road environs."[46] These six character-defining features are:

1. East-west views along Campanile Way
2. Pollarded London Plane Trees along Campanile Way
3. Brick gutter along Campanile Way
4. Major cross-axis of the central campus
5. Thomas Church plaza
6. Thomas Church sitting area

Within this context, it should be noted that the views along Campanile Way are not a fixed character-defining feature, but have instead changed over time. The *Landscape Heritage Plan* divides the history of the development of the UC Berkeley campus into three eras: the Picturesque Era (1866-1900), the Beaux-Arts Era (1900-WWII), and the Modern Era (WWII-mid-1970s). Not surprisingly, the setting of Campanile Way has changed within and across each of these three eras, with consequent changes to the Way's associated views.

Frederick Law Olmsted's 1865 Plan for the College of California (UC Berkeley's predecessor) did not include an east-west corridor corresponding to today's Campanile Way. Instead, Olmsted's picturesque plan was organized around a central east-west axis that was located further north and passed through the campus' Central Glade. That said, a Center Street axial path, the predecessor to Campanile Way, had been established as a secondary east-west axis by the late 1800s. The eastern terminus of this axis was a central flagpole and formal landscape framed by North Hall, South Hall and Bacon Hall.[47]

In the first years of the twentieth century, campus architect John Galen Howard implemented a bold Beaux-Arts plan for the new UC Berkeley campus. This plan reinforced the Central Glade axis, which terminated at the 1902 Hearst Mining Building, and significantly increased the prominence of the former Central Street axis, which became Campanile Way with completion of the Campanile (Sather Tower) in 1914. The westerly views from Campanile Way to San

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[44] *Landscape Heritage Plan, University of California, Berkeley*. 44. Discussion of Howard's reinforcement of the Campanile Way axis is included in Woodbridge, *John Galen Howard and the University of California: The Design of a Great Public University Campus*, 65-66. Sather Tower was completed in 1914.
[45] Ibid., 46. The other historic east-west axis discussed in the Plan, namely the axis that extends westward from the Mining Circle, has long been interrupted by intervening development (most recently Evans Hall).
[46] Ibid., 53.
[47] *Landscape Heritage Plan, University of California, Berkeley*. 17-20.

Francisco Bay were soon framed by Wheeler Hall and Doe Memorial Library, which were both completed in 1917. The Valley Life Sciences Building was added west of the Library in 1930. Other notable developments from the Beaux-Arts Era include the completion of the Golden Gate Bridge in 1937, and extensive construction in downtown Berkeley, a portion of which was visible from Campanile Way (e.g., the Berkeley Community Theater located on the Berkeley High School campus).

Changes to Campanile Way views during the Modern Era derived from two sources: the addition of new campus buildings, most notably the Doe Library Annex (1950) and Dwinelle Hall (1952); and substantial growth of the trees and associated vegetation that lines the Way. Together these elements have given the westerly views from Campanile Way their current, somewhat confined, configuration.

7. CEQA and Historical Resources

When a proposed project may cause a substantial adverse change in the significance of an historical resource, the California Environmental Quality Act (CEQA) requires a city or county to carefully consider the possible impacts before proceeding (Public Resources Code Section 21084.1). CEQA equates a substantial adverse change in the significance of a historical resource with a significant effect on the environment (Section 21084.1). The Act explicitly prohibits the use of a categorical exemption within the CEQA Guidelines for projects which may cause such a change (Section 21084).

CEQA Guidelines section 15064.5(b) defines a “substantial adverse change” in the significance of a historical resource as “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.” Further, that the significance of an historical resource is “materially impaired” when a project:

- “demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in the California Register of Historical Resources; or

- “demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources... or its identification in an historical resources survey..., unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

- “demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.” (Guidelines Section 15064.5(b))

For the purposes of CEQA (Guidelines Section 15064.5), the term "historical resources" shall include the following:

1. A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in, the California Register of Historical Resources (Pub. Res. Code Section 5024.1, Title 14 CCR, Section 4850 et.seq.).

2. A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

3. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing in the California Register of Historical Resources (Public Resources Code Section 5024.1, Title 14 CCR, Section 4852) as follows:

    A. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

    B. Is associated with the lives of persons important in our past;

    C. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

    D. Has yielded, or may be likely to yield, information important in prehistory or history. (Guidelines Section 15064.5)

8. Evaluation of Proposed Project

8.1 Description of Proposed Project

The following project description is based on architectural drawings and supporting narrative description supplied by the project applicant to the City of Berkeley in January 2014.

The proposed project – the Residences at Berkeley Plaza – entails construction of an 18-story, residential and commercial mixed-use development on much of the western and southern portions of the downtown Berkeley block bound by Shattuck Avenue, Allston Way, Harold Way and Kittredge Street. The remainder of the block is occupied by the Shattuck Hotel, which is a designated City of Berkeley Landmark and was originally constructed in 1910. The proposed project entails demolition of the 1959 Hink's building, total removal of the 1926 addition, and removal of most of the one-story portion of the 1913 addition.

Retail and restaurant uses in the new development will be located at the first story, with 302 residential units above. Retail uses will include six new movie theaters to replace the existing ten-screen movie theater. In addition, the development will include 171 parking spaces dispersed among three levels of underground parking, as well as an entry plaza at the northeast corner of Kittredge Street and Harold Way.

The existing retail spaces at the northwest corner of Kittredge and Shattuck Streets will be modified in conjunction with development of the new movie theaters which, like the existing theater, will be accessed from Shattuck Avenue. Specifically, a new two-story entry lobby will be constructed and the basement floor will be lowered to accommodate two new theaters. In addition, four concrete shear walls extending from the basement to the underside of the second story will be inserted to seismically strengthen the area directly affected by the new construction.

8.2 Project Impacts and Mitigation Measures

The following impact analysis is based on architectural drawings and supporting narrative description supplied by the project applicant to the City of Berkeley in January 2014. In ARG's professional opinion, the mitigation measures proposed below are feasible and reasonable in light of the environmental impact brought on by the proposed project. If implemented, the measures would reduce the proposed project's impact on historical resources, though that impact would remain significant.

Berkeley Historic Permit Process and Downtown Area Plan Design Guidelines

Because the proposed project entails alteration and partial demolition of a designated landmark, the 2211 Harold Way project will be subject to the historic permit process as specified in Sections 200-290 of Chapter 3.24 of Berkeley's Municipal Code. As part of this process, the Landmarks Preservation Commission (LPC) would review the proposed project. Prior to issuing a permit, the LPC would need to make two findings:

- For construction, alteration and repair work: the proposed work shall not adversely affect the exterior architectural features of the landmark and, where specified in the designation for a publicly owned landmark, its major interior architectural features; nor shall the proposed work adversely affect the special character or special historical, architectural or aesthetic interest or value of the landmark and its site, as viewed both in themselves and in their setting (Section 3.24.260(C)(1)(a)).

- For demolition work: the commission shall find that the designated landmark or portion thereof is in such condition that it is not feasible to preserve or restore it, taking into consideration the economic feasibility of alternatives to the proposal, and balancing the interest of the public in preserving the designated landmark or portion thereof and the interest of the owner of the landmark site in its utilization (Section 3.24.260(C)(2)).

In addition, because it is located within Downtown Berkeley, the 2211 Harold Way project should be evaluated for consistency with the Downtown Area Plan (DAP) and the Downtown Berkeley Design Guidelines. The Historic Preservation and Urban Design chapter of the DAP establishes the importance of design review with Berkeley's historic downtown:

> Policies of the Downtown Area Plan seek to harmonize and balance the twin goals of preserving and enhancing historic resources, and encouraging new and complementary development. It is fundamental to this Plan that, with appropriate design guidelines and regulations, both goals can be achieved and complement each other. The character of new development must be considered through the lens of good urban design and consideration for Downtown's historic settings. Context – geographic and cultural – presents critical design considerations that help lead to projects that fit the place. In addition, through continued care and investment, historic buildings and good urban design will continue to contribute continuity and character to Downtown's changing yet principled cityscape.[48]

The Downtown Berkeley Design Guidelines are based on the *Secretary of the Interior's Standards for the Treatment of Historic Properties* and were developed in conjunction with the Downtown Area Plan. Specifically, the Design Guidelines were identified in the DAP Environmental Impact Report (EIR) as a mitigation measure for Impact CUL-2:

> **Substantial Adverse Changes in Character-Defining Features in Portions of the Downtown Area that may have the Potential for Future Designation as Historic Districts.** Implementation of the DAP may cause substantial adverse changes in the character-defining features of structures in areas within the Downtown Area that may have the potential for future designation as historic districts. Because implementation of the DAP could result in a cumulative impact on the existing character-defining features in those portions of the Downtown Area that may be formally designated as

[48] City of Berkeley, *Downtown Area Plan*, 2012, page HD-1.

> historic districts at some point in the future, any significant adverse change to those features would represent a potentially significant impact.[49]

As a result, the Downtown Berkeley Design Guidelines served as a key reference for Architectural Resources Group in assessing impacts to historical resources that are related to the design of the proposed 2211 Harold Way project. Specific design guidelines are referenced in the design impacts discussion below (Section 8.2.2).

In addition, demolition of historic resources is identified in the Downtown Area Plan EIR as an impact associated with implementation of the DAP. As stated in the DAP EIR,

> Demolition of any historic resources within the Downtown Area would represent a ***significant and unavoidable*** environmental impact, which could not be mitigated to a level of less than significant. However, should demolition be proposed, a separate, site-specific environmental review would be required, requiring an analysis of alternatives and potential project-specific mitigation measures.[50]

The 2211 Harold Way EIR, including ARG's Historical Resources Technical Report, is precisely the site-specific environmental review called for in the DAP.

Summary of Impact Types

The following impact analysis is divided into three sections, based on the types of impacts to historical resources posed by the 2211 Harold Way project:

1. **Demolition of a Historical Resource**: Impacts deriving from the partial removal of the 1913 addition to the Shattuck Hotel and complete removal of the 1926 addition.

2. **Design**: Impacts related to the design of the proposed project, including potential impacts to the setting of nearby historical resources.

3. **Construction**: Impacts related to the construction of the proposed project, including demolition and excavation work in the immediate vicinity of the Shattuck Hotel.

As described below, the demolition-related impacts are significant and unavoidable, while the design and construction impacts can be reduced to less than significant with mitigation.

[49] City of Berkeley, *Berkeley Downtown Area Plan, Final Environmental Impact Report*, April 2009, page 4-120.
[50] Impact CUL-1, City of Berkeley, *Berkeley Downtown Area Plan, Final Environmental Impact Report*, April 2009, page 4-117.

8.2.1 Impacts Related to Demolition of a Historical Resource

The significance of an historic resource is considered to be "materially impaired" when a project demolishes or materially alters the physical characteristics that justify the determination of a historic resource's significance (*CEQA Guidelines* §15064.5(b)). The proposed project entails:

- removal of most of the one-story portion of the 1913 addition to the Shattuck Hotel;
- removal of the entire 1926 addition to the hotel; and
- demolition of the 1959 Hink's building.

As explained above in Chapter 6, the local landmark designation bestowed on the Shattuck Hotel property in 1987 includes the original building and immediate additions designed by Benjamin Geer McDougall, as well as the 1926 Ratcliff addition. As a result, the 1913 and 1926 additions are considered historical resources for purposes of CEQA. The total removal of the 1926 addition constitutes a significant impact to historical resources. The partial removal of the 1913 addition also constitutes a significant impact to historical resources. Though the eastern portion of the 1913 addition would remain, the addition would be substantially altered.

As also explained above in Chapter 6, the 1959 Hink's building does not appear to contribute to the property's historic and architectural significance. As a result, the proposed demolition of this building does not constitute a significant impact to historical resources. (Though, as discussed in the next impacts section, care need be taken during the demolition process so as not to adversely affect adjacent historical resources.)

The project also entails extensive interior reconfiguration of the retail spaces at the northwest corner of Kittredge and Shattuck Streets. No changes to the building's exterior at this location would be made. These interior spaces have been altered before, and they are not considered contributory to the property's historic significance, nor are they subject to CEQA. Thus their further alteration does not constitute a significant impact to historical resources.

<u>Impact 1.</u> The proposed 2211 Harold Way project entails partial removal of the 1913 addition to the Shattuck Hotel, and total removal of the 1926 addition to the hotel, both of which contribute to the hotel's historical significance and are included in the property's local landmark designation. (Significant and Unavoidable)

> <u>Mitigation Measure 1a – Documentation</u>. In consultation with the City of Berkeley Planning and Development Department, the project applicant shall complete Historic American Building Survey (HABS) Level II documentation of the Shattuck Hotel and its setting. This documentation shall include drawings, photographs and a historical narrative.
>
> - Drawings: Existing historic drawings of the Shattuck Hotel (including the original 1910 building and 1912, 1913 and 1926 additions), if available, shall be

photographed with large-format negatives or photographically reproduced on Mylar. In the absence of existing drawings, full-measured drawings of the complex's plan, exterior elevations, and courtyard elevations should be prepared.

- Photographs: Photo-documentation of the Shattuck Hotel (including the original 1910 building and the 1912, 1913 and 1926 additions) shall be prepared to Historic American Buildings Survey (HABS) standards for archival photography. HABS standards require large-format black-and-white photography, with the original negatives having a minimum size of 4"x5". Digital photography, roll film, film packs, and electronic manipulation of images are not acceptable. All film prints, a minimum of 4"x5", must be hand-processed according to the manufacturer's specifications and printed on fiber base single weight paper and dried to a full gloss finish. A minimum of twelve photographs must be taken, detailing the site, building exteriors, and building interiors. Photographs must be identified and labeled using HABS standards.

  Color 35mm non-archival photographs of the historical building and grounds shall be taken to supplement the limited number of archival photographs required under the HABS standards described above. Photographs should include overall views of the site; individual views of important building features; exterior elevations of each façade of the complex; views of interior courtyard spaces; and detail views of specific materials or elements.

- Historical Overview: In consultation with the City of Berkeley Planning and Development Department, a qualified historian or architectural historian shall assemble historical background information relevant to the Shattuck Hotel and its setting. Much of this information may be drawn from the Historic Context Report that architecture + history, llc has prepared for the property.

The project applicant shall submit three hard copies and six electronic copies of the drawings and historical overview, along with two sets of photographic negatives, to the City of Berkeley. To ensure its public accessibility, the City of Berkeley will distribute the documentation to the Berkeley Public Library, UC Berkeley's Environmental Design Archives, Berkeley Architectural Heritage Association, the Berkeley Historical Society, and the Northwest Information Center of the California Historical Resources Information System (CHRIS).

<u>Mitigation Measure 1b – Salvage.</u> The project applicant shall give local historical societies the opportunity to salvage materials from the 1913 and 1926 additions to the Shattuck Hotel for public information or reuse in other locations. This effort is expected to focus on the additions' multi-pane, metal-sash windows (currently painted over) as well as the ornate ceiling plasterwork in the entry arcade. If, after 30 days, none of the societies is able and willing to salvage the materials, the materials shall be offered to

local architectural salvage companies by placing an advertisement in a website and newspaper of general circulation for 30 days. Demolition may proceed only after any significant historic features or materials have been identified (at the applicant's cost) and their removal completed, unless none of the above organizations are interested in salvaging the materials.

Mitigation Measure 1c – On-site Interpretation. The project applicant shall incorporate a wall display featuring historic photos of the Shattuck Hotel property and a description of its historical significance into the publicly accessible portion of any subsequent development on the site. This display shall be developed with the assistance of City of Berkeley planning staff or other professionals meeting the Secretary of the Interior's Professional Qualification Standards (as verified by City of Berkeley planning staff) and experienced in creating such historical exhibits.

Mitigation Measure 1d – Contribution to the Historic Preservation Fund. The project applicant shall contribute funds to the City to be applied to future historic preservation activities within Downtown Berkeley, including survey work; property research and evaluation; and rehabilitation of historic resources in accordance with the *Secretary of the Interior's Standards*. Contribution to the preservation fund would be made only after Mitigation Measures 1a, 1b and 1c have been completed.

While mitigation measures 1a, 1b, 1c and 1d would reduce impacts to historical resources, those impacts would remain significant.

8.2.2 Design-related Impacts

Nearby Historic Resources
Based on the project drawings, the proposed new construction incorporates several design elements that are in keeping with the *Secretary of the Interior's Standards* and the Downtown Berkeley Design Guidelines and that serve to enhance the compatibility of the proposed project with the Shattuck Hotel and other nearby historical resources:

1. The new construction is kept visually and physically separate from the Shattuck Hotel. On the Allston Way elevation, the existing alley is retained and separates new construction from the 1912 restaurant addition to the hotel. On the Kittredge Street elevation, a two-story "hyphen" (corresponding to one of the new movie theater spaces) separates the Shattuck Hotel from the 12-story portion of the new construction. These separations reduce the extent of direct contact between the new construction and the adjacent hotel, and serve to distinguish the new construction from the historic building.

2. On the Allston Way, Harold Way, and Kittredge Street elevations, floors six and higher are set back approximately 15 feet from floors below. The height of this setback directly

references the existing roof line of the former Elks Lodge (2016 Allston Way) across Harold Way, and establishes a five-story base for the proposed construction that is in keeping with the massing and scale of other historical resources in the vicinity, including the Shattuck Hotel, the Post Office (2000 Allston Way), the YMCA (2001 Allston Way), and the Public Library (2090 Kittredge Street). In particular, the setback helps prevent the new construction from overwhelming the adjacent Shattuck Hotel.

This setback is directly in keeping with the Downtown Berkeley Design Guidelines pertaining to building height, including:

- "Respect the height of neighboring buildings, and provide a sense of continuity and enclosure which avoids abrupt changes in height."

- "New buildings should step down to respect the height of existing residential buildings where they are on parcels with a residential zoning designation."[51]

3. The massing is broken up by varied rooflines and materials, which prevents the new construction from presenting a monolithic appearance.

4. A large portion of the proposed exterior elevations consist of brick veneer walls with punched windows. The size and rhythm of these windows, and the overall relationship of void to wall in this portion of the new construction, echoes the walls and windows of nearby historic buildings.

Project Vicinity
As part of the assessment of design-related impacts to nearby historical resources, we evaluated potential impacts the proposed 2211 Harold Way project may have on Campanile Way, identified as a contributing element to the Classical Core of the UC Berkeley Campus. The proposed project at 2211 Harold Way would partially obscure the view of Alcatraz Island and San Francisco Bay, as seen from the right edge of the base of UC Berkeley's Sather Tower (the Campanile), and from Campanile Way, the pathway that extends approximately one-quarter-mile west from the Campanile, through a cluster of beaux-arts, neoclassical era buildings, many of which are designated historical resources.[52] Further background on policies applicable to view impacts is provided in the Aesthetics section of the Appendix N Checklist.

[51] City of Berkeley. Downtown Berkeley Design Guidelines. 2012, 63. The height of the proposed project is also addressed in the Aesthetics and Zoning Compliance sections of the 2211 Harold Way EIR. The maximum height (180 feet) of the proposed project complies with the City of Berkeley's Zoning Ordinance.
[52] Note, however, that, unlike Sather Tower itself, Campanile Way is not a designated Berkeley Landmark.

Visual Simulations

The visual simulations (completed by Environmental Vision) included in Appendix F show how the proposed project would alter the westerly view from four locations:

- the north side of the top stair immediately west of the Campanile (Figure 1);
- the middle of the top stair immediately west of the Campanile (Figure 2);
- the north side of Campanile Way, approximately 300 feet west of the Campanile, near the south entrance to Doe Library (Figure 3); and
- the south side of the top stair immediately west of the Campanile (Figure 4). (Note that this view is not technically a simulation, since the proposed project would not be visible from this vantage point.)

A key map showing these locations is provided in Appendix F. Note that the rooftop trees shown in the simulations have since been removed from the proposed project.

From the viewpoint at the north side of the top stair immediately west of the Campanile (Figure 1 in Appendix F), the proposed project would partially obscure Alcatraz Island, and would block most of the portion of San Francisco Bay appearing below (i.e. to the east of) Alcatraz. The project would not block the Golden Gate (i.e. the strait that connects San Francisco Bay to the Pacific Ocean) or the Golden Gate Bridge from this location. It should be noted that these simulations were based on an earlier project design that included rooftop trees, and the trees on the north portion of the roof have since been removed. With this change, the actual obstruction of Alcatraz Island from this location would be minimal.

From the viewpoint at the middle of the top stair west of the Campanile (Figure 2in Appendix F), the project would block a smaller portion of the Bay than it would from the previous viewpoint shown on page 42. The simulation shows that Alcatraz Island would be partially obstructed by rooftop trees, although, as noted above, these trees have been removed from project and the project would not actually block Alcatraz from this location. The portion of the Bay blocked by the project would constitute a relatively small portion of the currently visible portion of the Bay. This view point at the middle of the top stair west of the Campanile, is identified as a "formal" viewpoint in the *Landscape Heritage Plan*.[55]

Due to its lower elevation relative to the other viewpoints, the view from Campanile Way (Figure 3 in Appendix F) is more constrained by the trees to the west, and the project appears taller in relation to Alcatraz Island and the Golden Gate Bridge. Therefore, the project would block a larger portion of this view than the views in Figures 1 and 2 in Appendix F. The project would extend vertically to the deck of the Golden Gate Bridge (not including the rooftop trees shown in the simulation but removed from the project), and horizontally it would extend

[55] *Landscape Heritage Plan, University of California, Berkeley*. 60-61. The *Plan* differentiates between formal views (which "orient the viewer from a specific vantage point to discreet objects in the landscape") and dynamic views (which "are experienced as one moves through the landscape"). The viewpoint at the middle of the top stair west of the Campanile, is identified as a "formal" viewpoint.

northward across about two thirds of the visible portion of Alcatraz. The south tower of the Golden Gate Bridge and the north portion of Alcatraz would remain visible.

As noted earlier, the project would not be visible from the south side of the top stair west of the Campanile (Figure 4).

View Impact Findings
As noted above, the westerly views from Campanile Way are not historical resources in their own right; instead, they are a character-defining feature of a landscape element (Campanile Way) that has been identified as a contributor to a cultural landscape (the Classical Core of the UC Berkeley campus). As such, the view impacts associated with the proposed project constitute a change to a character-defining feature of a contributing landscape element. Because this change would not materially impair Campanile Way or the Classical Core of the UC Berkeley campus such that they would no longer be eligible for listing as historical resources, the impact is less than significant.

The project does not involve physical demolition, destruction, relocation, or alteration of Campanile Way and its immediate surroundings (the project is located about 700 feet from the western boundary of the campus, and over 0.5 miles from the upland portions of Campanile Way shown in the simulations) and therefore it would not cause a substantial adverse change to a historical resource.

While the proposed project would change the existing view of the Golden Gate from Campanile Way, it would not materially impair the significance of Campanile Way (or the Classical Core) because: the existing setting is such that the view down Campanile Way and over downtown Berkeley's urban skyline has already changed substantially over time due to development and landscape growth both on campus and in downtown Berkeley; and enough of the view of the Golden Gate would remain to convey Campanile Way's significance. Specifically, the project would not entirely block the existing view of the Golden Gate, and the project would block a minor portion of the existing view from the middle of the top stair immediately west of the Campanile, which is identified as the formal viewpoint in the *Landscape Heritage Plan*.

Impact 2. The proposed project could cause substantial adverse changes in various historical resources by enabling new construction that would compromise the historic setting of those resources, including the Shattuck Hotel, the Public Library and the former Elks Lodge and Armstrong College buildings. (Less than Significant with Mitigation)

Design Mitigations
In several instances the design of the proposed project should be modified to increase its compatibility with the Shattuck Hotel and other nearby historical resources and bring the project into compliance with the *Secretary of The Interior's Standards*. These measures are identified below as Mitigation Measures 2a, 2b, 2c and 2d. The central reference in developing this impact analysis is the Secretary of the Interior's Rehabilitation Standard 9, which explains

that new construction must be distinct from, yet consistent with, the design of adjacent historic resources:

> 9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.[56]

In addition, we identify below which specific Downtown Berkeley Design Guidelines each mitigation measure is designed to satisfy.

> Mitigation Measure 2a. On the Allston Street elevation, new construction shall incorporate horizontal façade elements that reference the roofline of the adjacent 1912 restaurant addition to the Shattuck Hotel. Specifically, new construction shall incorporate a horizontal belt course along its Allston Way façade that corresponds to the cornice and parapet of the 1912 addition. This belt course shall include a cornice element or other horizontal embellishment that projects from the face of the building. (This element could consist of a simple projecting molding, for example, that is stylistically in keeping with the contemporary design of the proposed project.) By incorporating this belt course, the proposed project, despite being considerably taller than the Shattuck Hotel, would better maintain the scale and feel of the historic building frontage along Allston Way.

Relevant Downtown Berkeley Design Guideline(s):

- "Reflect and reinforce the scale, massing, proportions, rhythm and attention to detailing which are established by the facades of Landmark and Significant buildings" (Design Guideline 1, page 27).

- "Incorporate elements which break up façade planes and create a visual play of light and shadow. Avoid long, uninterrupted horizontal surfaces. Consider the use of bay windows, balconies and architectural projections" (Design Guideline 31, page 27).

- "Vertical divisions of ground and upper floors should be consistent. Generally maintain a cornice that projects horizontally between the ground floor (and its mezzanines) and upper stories. Align the cornice and other horizontal ground floor elements (like awnings and sign bands) with similar features on neighboring buildings and storefronts, if feasible" (Design Guideline 4, page 27).

> Mitigation Measure 2b. At the Kittredge Street elevation, the proposed project includes a two-story "hyphen" that separates the Shattuck Hotel from the 12- and 18-story

[56] See Appendix E for a discussion of the *Secretary of the Interior's Standards for Rehabilitation*.

portions of the project to the west. Project drawings show the Kittredge Street façade of this portion of the project as a blank wall, potentially covered in vegetation. Such wall treatment is incompatible with the historic setting. Perforations (such as a door or windows) or other architectural elements shall be incorporated into the design of this wall so as to maintain an active street frontage that is more in keeping with the ground floors of the nearby historical resources and the larger Shattuck Avenue Commercial Corridor.

Relevant Downtown Berkeley Design Guideline(s):

- "Articulate side and rear facades in a manner compatible with the design of the front façade. Avoid large blank wall surfaces on side and rear facades which are visible from public areas. In these locations, display windows, store entrances, and upper windows are encouraged. When this is not feasible, consider the use of ornament, murals, or landscaping along large blank walls" (Design Guideline 8, page 28).

Mitigation Measure 2c. While the glazed aluminum window wall systems proposed for much of the project would clearly differentiate the proposed project from nearby historical resources, the design of these wall systems needs to be modified to make them more compatible with those resources. (See Standard 9 in Appendix E, which addresses the need to balance differentiation and compatibility.) Specifically, the proportion and pattern of void to wall in the wall treatments of the proposed project shall be modified to more closely match that exhibited in the Shattuck Hotel, the Public Library, the former Elks Lodge and the former Armstrong College building. Potential ways to achieve this include replacing the window wall systems with punched curtain wall systems similar to those used elsewhere in the project, or breaking up the window wall systems with windowless bays.

Relevant Downtown Berkeley Design Guideline(s):

- "The facades of Downtown's historic buildings are comprised of load-bearing walls and frames, the limits of which give similar scale and expression. Maintain the typical rhythm of structural bays and enframed storefronts of 15-30 feet spacing at ground level, in order to enhance visual continuity with existing buildings and pedestrian scale. Curtain walls, if used, should be designed with rhythm, patterns and modulation to be visually interesting" (Design Guideline 7, page 28).

- "Window should comprise 25-50% of upper facades visible from public areas, and should reflect the rhythm, scale, proportion, and detailing of upper windows of Landmark and Significant buildings" (Design Guideline 13, page 29).

- "Frame windows and use light shelves and other articulation to emulate the rhythm, scale, and reveal (shadow) of traditional buildings" (Design Guideline 20, page 30).

Mitigation Measure 2d. The recessed entry plaza at the corner of Harold Way and Kittredge Street shall be replaced with an entry design that maintains the zero lot-line setback characteristic of the nearby historical resources and the larger Shattuck Avenue Commercial Corridor.

Relevant Downtown Berkeley Design Guideline(s):

- "Buildings should frame and define the street as an active public space. Throughout Downtown, buildings are typically built to street-facing property line(s). This historic 'streetwall' of facades should be preserved, and extended through new construction" (Section Introduction, page 57).

- "Maintain a continuous zero-setback 'build-to line' at the ground floor at the edge of all Downtown streets where commercial and higher levels of activity is anticipated….The only exceptions to this may be to: provide suitably defined, usable open space; create a special corner feature; provide recessed storefront entrances; create an arcade; to provide a narrow band of landscaping…; or to give emphasis to a civic building" (Design Guideline 1, page 57).

In addition, Policy LU-4.2 in the Downtown Area Plan, which addresses development compatibility, stipulates that "[t]he size and placement of new buildings should: reduce street-level shadow, view, and wind impacts to acceptable levels; and maintain compatible relationships with historic resources (such as streetwall continuity in commercial areas).[57]

If implemented, Mitigation Measures 2a, 2b, 2c and 2d would reduce to less than significant impacts to historical resources that are associated with the design of the new construction.

8.2.3 Construction-related Impacts

Depending on the methods employed, demolition, excavation and construction activities can cause a substantial adverse change in the significance of historical resources in the immediate vicinity of a given project area. Demolition, excavation and construction activities may result in substantial ground vibration and/or soil movement under or adjacent to the existing foundation of a historical resource. In some cases, resources may be physically damaged by inadvertent contact with materials or machinery associated with demolition.

The following historical resources are within 200 feet of the 2211 Harold Way project site (the radius typically used for monitoring vibration impacts from pile-driving).

[57] City of Berkeley, *Downtown Area Plan*, LU-16.

Table 8-1: Historic Structures within 200 Feet of Proposed Construction Area

Address	Historic Name	Date of Construction	Approximate feet from project site
2000 Allston Way	Post Office	1914/1931	190
2016 Allston Way	Elks Lodge	1913	55
2210 Harold Way		1938	55
2222 Harold Way	Armstrong College	1922	55
2090 Kittredge St.	Public Library	1930	60
2065 Kittredge Ave./ 2200 Shattuck Ave.	Shattuck Hotel	1910-1926	0
2190 Shattuck Ave.		1955	60
2270 Shattuck Ave.	Homestead Loan Assoc Bldg	1905	160
2274 Shattuck Ave.		1932	190

Construction
According to information provided by the project applicant, the foundation of the 2211 Harold Way project would consist of mat slab construction. This approach would not require pile driving and is not anticipated to generate substantial ground vibration. As a result, the proposed project is not anticipated to have any construction-related impacts on historical resources beyond the demolition- and excavation-related impacts discussed below.

Demolition/Excavation
The proposed project entails demolition of the 1959 Hink's building, total removal of the 1926 addition to the Shattuck Hotel, and partial removal of the 1913 addition. In addition, the project includes excavation under most of the proposed project area to a depth of 30 feet. Because they are located away from Shattuck Avenue and do not directly abut the original 1910 building, the demolitions proposed as part of the 2211 Harold Way project do not appear likely to endanger the character-defining features (see Section 6.3) of the remaining portions of the Shattuck Hotel through inadvertent contact. Excavation-related soil movement and ground vibration, however, is a possibility given the scale of removal.

Impact 3. The proposed demolition of the 1959 Hink's building, total removal of the 1926 addition to the Shattuck Hotel, and partial removal of the 1913 addition – including removal of building foundations and associated substantial excavation – could impact historical resources by producing significant ground vibration or soil movement under or adjacent to the Shattuck Hotel's existing foundation, thereby compromising the historic building's structural stability. (Less than Significant with Mitigation)

> Mitigation Measure 3a – Foundations Investigation. A registered structural engineer, with a minimum of five years of experience in the rehabilitation and restoration of historic buildings, as determined by the City of Berkeley Planning and Development Department, shall investigate the existing relationship of the foundations of the various portions of the Hotel Shattuck property. Any required test excavations shall be

performed only in the presence of the structural engineer. The structural engineer shall prepare a report of findings that specifies modifications to the project design and/or associated construction activities that are necessary to retain the structural integrity of the Shattuck Hotel (including the original 1910 building, the 1912 addition, and the portion of the 1913 addition proposed for retention).

In consultation with a historic preservation architect meeting the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, Professional Qualifications Standards*, the structural engineer (with geotechnical consultation as necessary) shall determine whether, due to the nature of the excavations, soils, method of soil removal and the existing foundations of the Shattuck Hotel, the potential for settlement would require underpinning and/or shoring. If underpinning and/or shoring is determined to be necessary, appropriate designs shall be prepared. All documents prepared in accordance with this Measure shall be submitted to the City of Berkeley Planning and Development Department for approval.

<u>Mitigation Measure 3b – Construction Monitoring</u>. Prior to demolition, the historic preservation architect and structural engineer referenced in Mitigation Measure 3a shall undertake an existing condition study of the Shattuck Hotel to establish the baseline condition of the resource prior to construction, including the location and extent of any visible cracks or spalls. The documentation shall take the form of written descriptions and photographs, and shall include those physical characteristics of the resource that conveys its historic significance and that justify its inclusion on the local register. The documentation shall be submitted to the City of Berkeley Planning and Development Department for approval.

The historical architect and structural engineer shall monitor the Shattuck Hotel during construction and report any changes to existing conditions, including, but not limited to, expansion of existing cracks, new spalls, or other exterior deterioration. Monitoring reports shall be submitted to the City of Berkeley Planning and Development Department on a periodic basis. The structural engineer would consult with the historic preservation architect, especially if any problems with character-defining features of a historic resource are discovered. If in the opinion of the structural engineer, in consultation with the historic preservation architect, substantial adverse impacts to historic resources related to construction activities are found during construction, the historical architect and structural engineer shall so inform the project sponsor or sponsor's designated representative responsible for construction activities.

The project sponsor shall adhere to the monitoring team's recommendations for corrective measures, including halting construction or using methods that cause less vibration, in situations where construction activities would imminently endanger historic resources. The City of Berkeley Planning and Development Department shall establish the frequency of monitoring and reporting. The project sponsor would respond to any claims of damage by inspecting the affected property promptly, but in no case more than five working days after the claim was filed and received by the project sponsor's designated representative. Any new cracks or other changes in the Shattuck Hotel will be compared to pre-construction conditions and a determination made as to whether the proposed project could have caused such damage. In the event that the project is demonstrated to have caused any damage, such damage would be repaired to the pre-existing condition.

Site visit reports and documents associated with claims processing would be provided to the City of Berkeley Planning and Development Department.

<u>Mitigation Measure 3c – Training Program</u>. The historic preservation architect referenced in Mitigation Measure 3a shall establish a training program for construction workers involved in the project that emphasizes the importance of protecting historic resources. This program shall include information on recognizing historic fabric and materials, and directions on how to exercise care when working around and operating equipment near the Shattuck Hotel, including storage of materials away from the historic building. It will also include information on means to reduce vibrations from demolition and construction, and monitoring and reporting any potential problems that could affect the historic resource. A provision for establishing this training program shall be incorporated into the general contractor's contract with the project applicant regarding construction of the project, and the contract provisions would be reviewed and approved by the City of Berkeley Planning and Development Department.

In addition, Tuan and Robinson Structural Engineers have identified a series of mitigation measures pertaining specifically to the treatment of the Shattuck Hotel's hollow clay tile walls and thin concrete topping slabs. The letter to Rincon Consultants (dated May 7, 2014) in which they set forth these mitigations is included below as Appendix G.

If implemented in conjunction with the mitigation measures identified by Tuan and Robinson (see Appendix G), Mitigation Measures 3a, 3b and 3c would reduce to less than significant project-related impacts to historical resources that are associated with demolition and excavation activities. In particular, with incorporation of Mitigation Measures 3a, 3b and 3c, the project is not anticipated to have any vibration-related impacts to any of the historical resources identified in Table 8-1. The mitigations would reduce to less-than-significant vibration impacts to the Shattuck Hotel, which directly abuts the construction site. As a result, vibration impacts to the other properties identified in Table 8-1, which are further afield from the construction site, are not anticipated.

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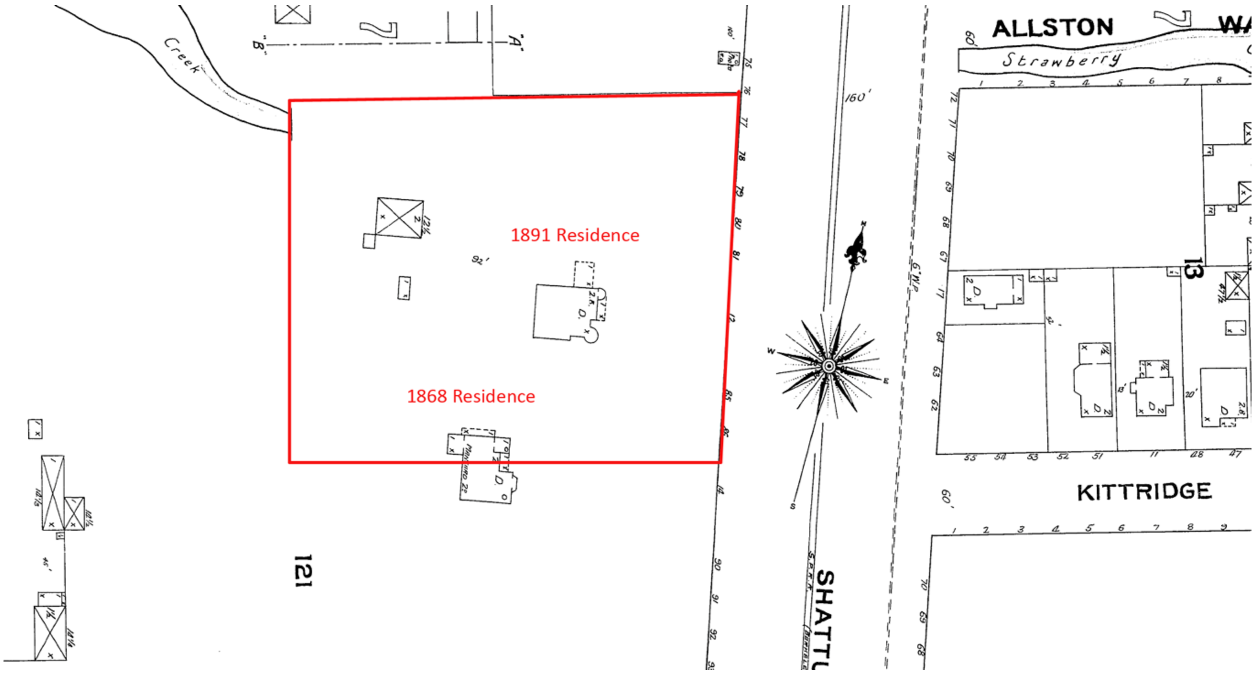
Appendix A
Historic Photographs and Maps of the Project Site

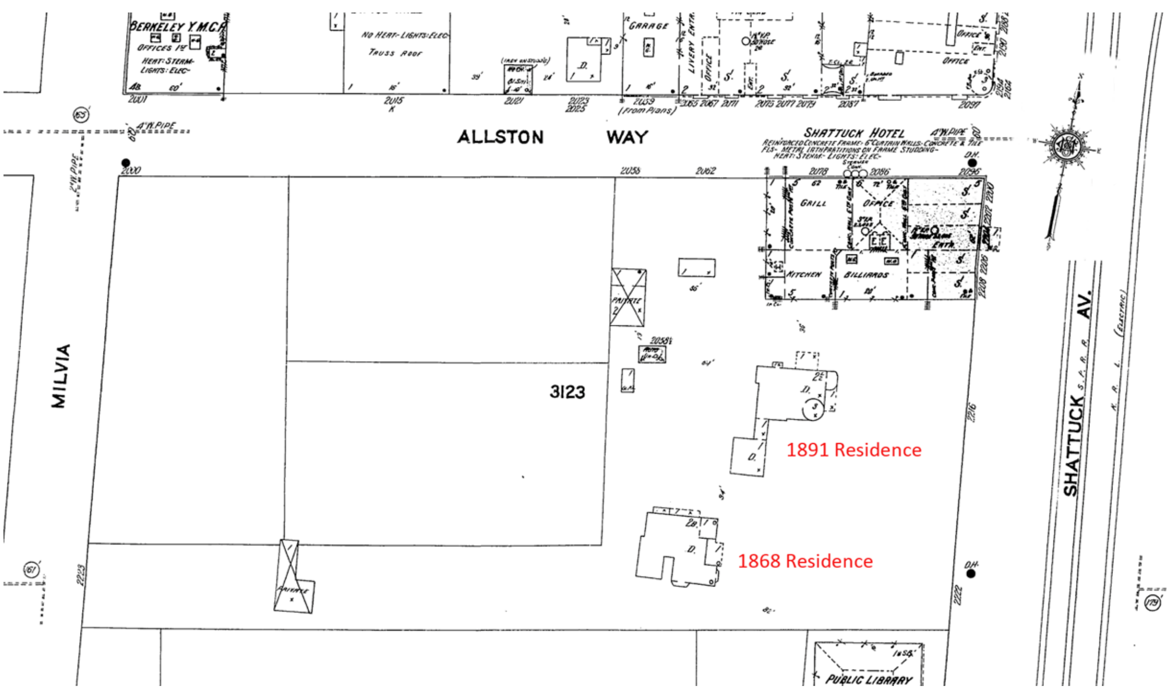
2211 Harold Way EIR
Historic Resources Technical Report, Architectural Resources Group



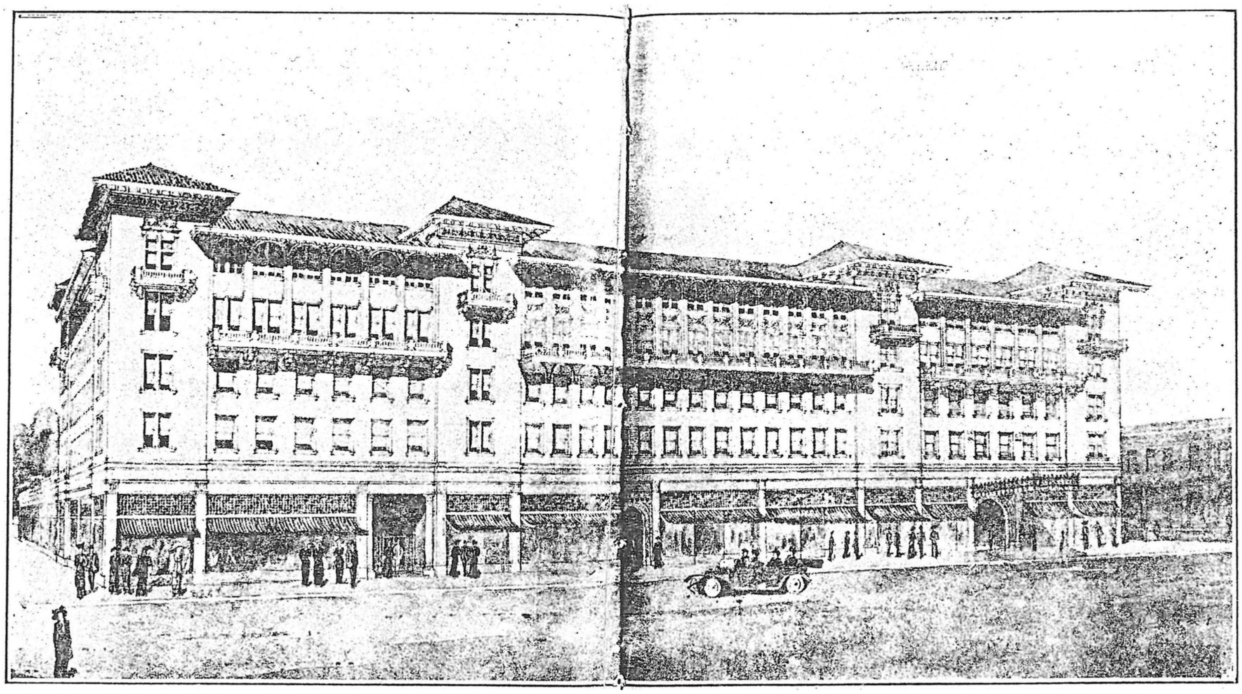
1894 Sanborn Fire Insurance Map detail, amended by author. Red line indicates approximate boundary of subject block. (Source: San Francisco Public Library, Digital Sanborn Maps), accessed February 2014.

Original south side of the hotel, facing the old Shattuck estate gardens. Shattuck Hotel postcard, c. 1909 (Source: Berkeley Historical Plaque Project website, Sarah Wikander collection; http://www.berkeleyplaques.org/index.php?page=shattuck-hotel), accessed February 2014.

Original Shattuck Hotel upon completion, c. 1910
(Source: Berkeley Historical Plaque Project website, Sarah Wikander collection;
http://www.berkeleyplaques.org/index.php?page=shattuck-hotel), accessed February 2014.



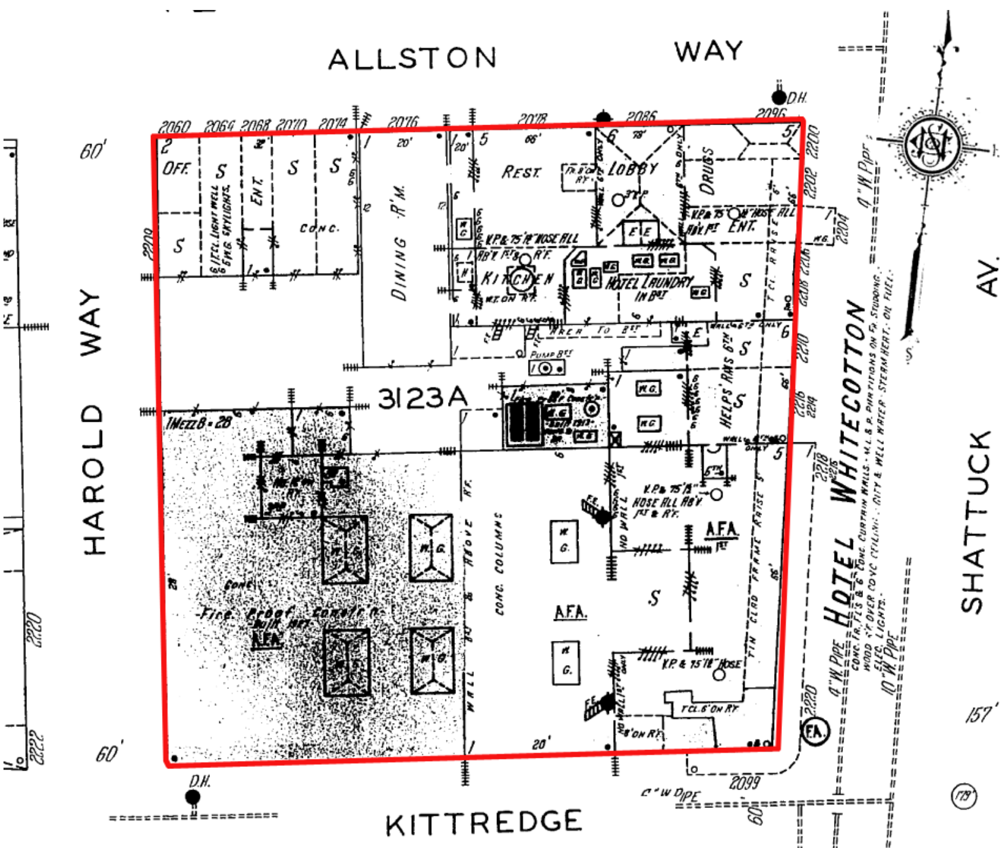
1911 Sanborn Fire Insurance Map detail, amended by author. Red line indicates approximate boundary of subject block. Note original Shattuck Hotel building at northeast corner. (Source: San Francisco Public Library, Digital Sanborn Maps), accessed February 2014.



Shattuck Hotel rendering, late 1912, showing soon to be completed 1913 addition. (Source: From article in *Berkeley: A Journal of A City's Progress,* Berkeley Architectural Heritage Association archives), accessed February 2014.

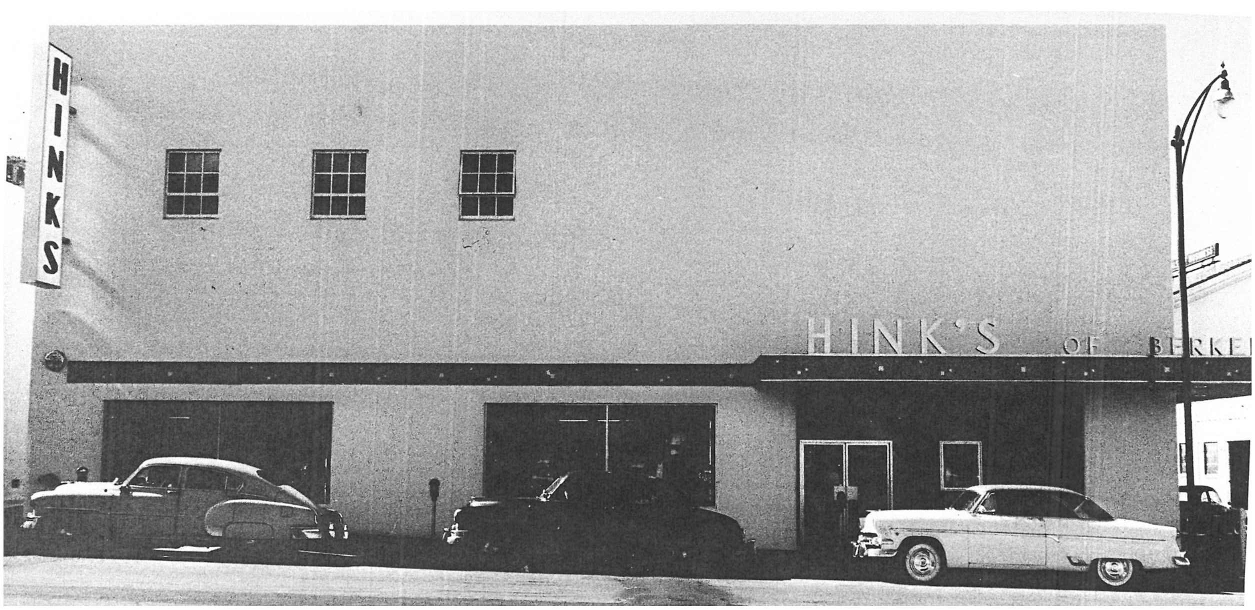
Expanded Shattuck Hotel, c.1915 (Source: Berkeley Architectural Heritage Association, "The Shattuck Hotel: Berkeley's Once and Future Jewel?" by Daniella Thompson at http://berkeleyheritage.com/berkeley_landmarks/shattuck_hotel.html), accessed February 2014.

Shattuck Hotel, c.1914 (Source: Berkeley Historical Plaque Project website, Berkeley Public Library photograph, http://www.berkeleyplaques.org/index.php?page=shattuck-hotel), accessed February 2014.



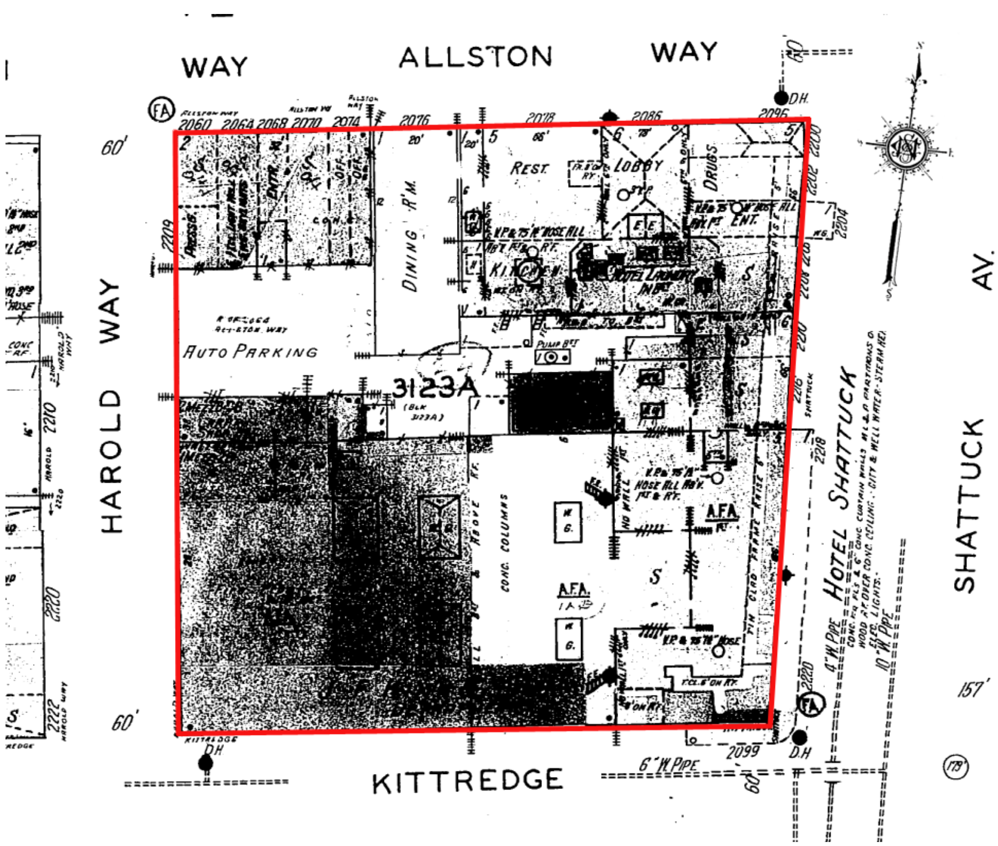
1929 Sanborn Fire Insurance Map detail, amended by author. Red line indicates boundary of subject block. Note 1912 addition behind original hotel, 1913 addition in southeast quadrant, 1926 addition at southwest quadrant, and Whitecotton office building at northwest corner. (Source: San Francisco Public Library, Digital Sanborn Maps), accessed February 2014.

Shattuck Hotel, c. 1930, showing rear 1926 addition to hotel
(Source: Berkeley Historical Society).



1959 Hink's Department Store Building at northwest corner of subject block, c. 1960
(Source: Berkeley Historical Society).

Hink's Arcade, looking out toward Shattuck Avenue, no date. This entrance is now the cinema entrance and only small portions of the ceiling plaster remain near the street entrance and in the theater lobby. All storefronts and other features from Hink's Department Store have been removed. (Source: Berkeley Architectural Heritage Association website, http://berkeleyheritage.com/berkeley_landmarks/shattuck_hotel.html), accessed February 2014.



1950 Sanborn Fire Insurance Map detail, amended by author. Red line indicates boundary of subject block. Note Whitecotton office building still at northwest corner. (Source: San Francisco Public Library, Digital Sanborn Maps), accessed February 2014.

Appendix B1

Existing Conditions Photographs of the Project Site

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Historic Resources Technical Report, Architectural Resources Group

B1.1 Photographs of Subject Block

East (Shattuck Avenue) elevation and north (Allston Way) elevations, view looking southwest across Shattuck
(Architectural Resources Group, December 2013)

East (Shattuck Avenue) and partial south (Kittredge Street) elevations, view looking northwest across Shattuck
(Architectural Resources Group, December 2013)

Detail of northeast corner, Shattuck Hotel
(Architectural Resources Group, December 2013)

Street view of Shattuck Avenue facade, looking south from Allston Way
(Architectural Resources Group, December 2013)

Current cinema entrance at south end of east elevation, former Hink's Department Store entrance
(Architectural Resources Group, December 2013)

Portion of decorative plaster ceiling remaining from original Hink's Department Store entry arcade (now entrance to cinema)
(Architectural Resources Group, December 2013)

South (Kittredge Street) elevation, view looking roughly northwest from Shattuck
(Architectural Resources Group, December 2013)

South elevation, view looking roughly northeast from across Kittredge
(Architectural Resources Group, December 2013)

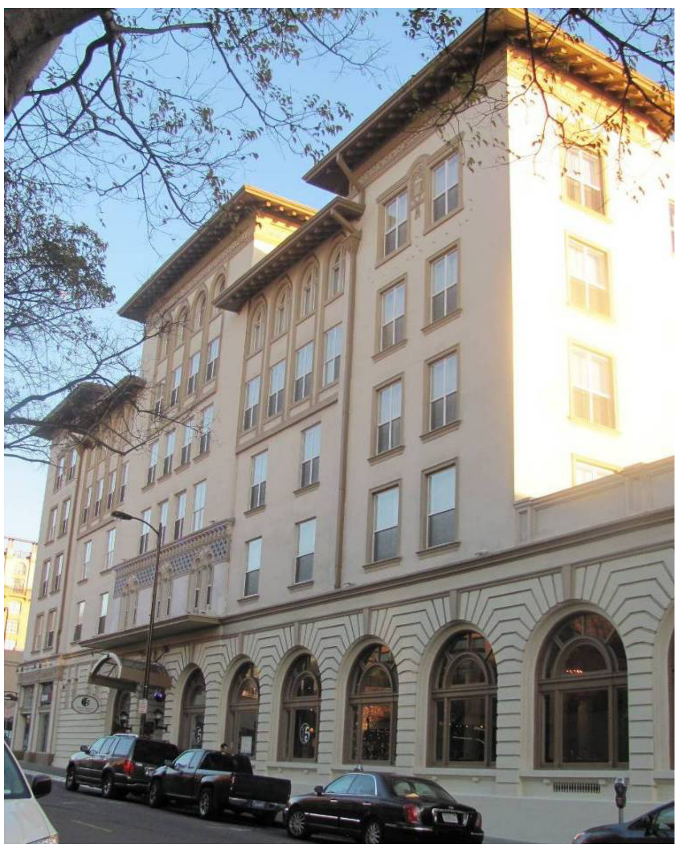
South elevation, view looking northwest across Kittredge. Note full height crack in wall where 1913 and 1926 additions meet.
(Architectural Resources Group, December 2013)

West (Harold Way) elevation, view looking northeast from Kittredge
(Architectural Resources Group, December 2013)

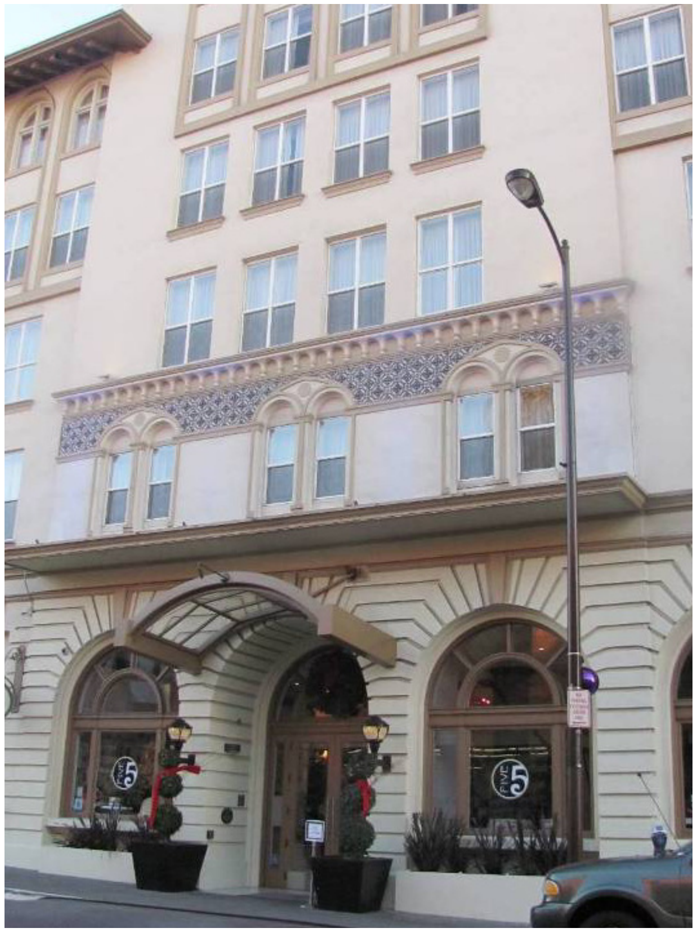
West (Harold Way) elevation, view looking southeast from Allston Way, 1959 addition in foreground
(Architectural Resources Group, December 2013)

North elevation, view looking east across Allston Way, 1959 addition in foreground
(Architectural Resources Group, December 2013)

North elevation, 1912 dining room addition
(Architectural Resources Group, December 2013)

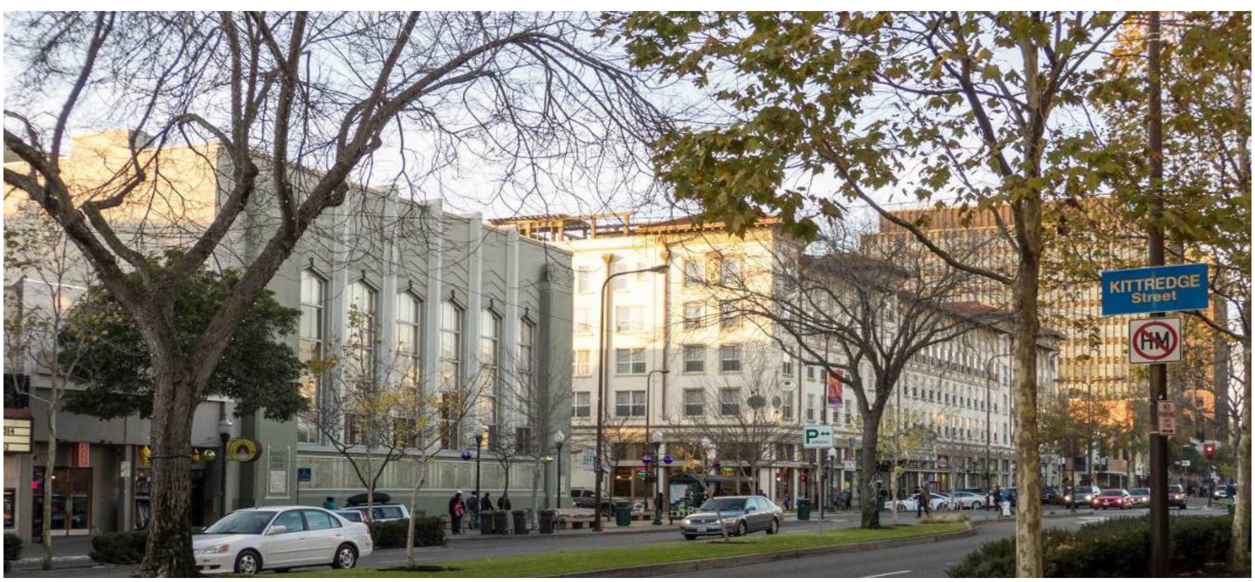


North (Allston Way) elevation, Shattuck Hotel
(Architectural Resources Group, December 2013)



North elevation, hotel entrance detail
(Architectural Resources Group, December 2013)

B1.2 Subject Block Setting



View toward Shattuck Hotel looking northwest up Shattuck Avenue from Bancroft Way
(Architectural Resources Group, December 2013)

Looking southwest across Shattuck Avenue toward Kittredge Street and Berkeley Public Library
(Architectural Resources Group, December 2013)

Looking southeast from Allston Way and Shattuck Hotel block at buildings along east side of Shattuck Avenue (2200 block)
(Architectural Resources Group, December 2013)

Berkeley Library, 2090 Kittredge St. (photo composite), looking southwest from Shattuck
(Architectural Resources Group, December 2013)

Dharma Institute, 2222 Harold Way, looking southwest across Harold Way
(Architectural Resources Group, December 2013)

Tibetan Aid Project/Dharma Publishing Bookstore, 2210 Harold Way, looking roughly west across Harold Way
(Architectural Resources Group, December 2013)

Elks Club Building, 2018 Allston Way, Harold Way elevation looking northwest
(Architectural Resources Group, December 2013)

Elks Club Building, 2018 Allston Way, looking southeast at Allston Way elevation
(Architectural Resources Group, December 2013)

Walgreen's building, 2190 Shattuck Avenue, looking roughly west across Shattuck
(Architectural Resources Group, December 2013)

Appendix B2

Existing Conditions Photographs of Shattuck Avenue Commercial Corridor

2211 Harold Way EIR

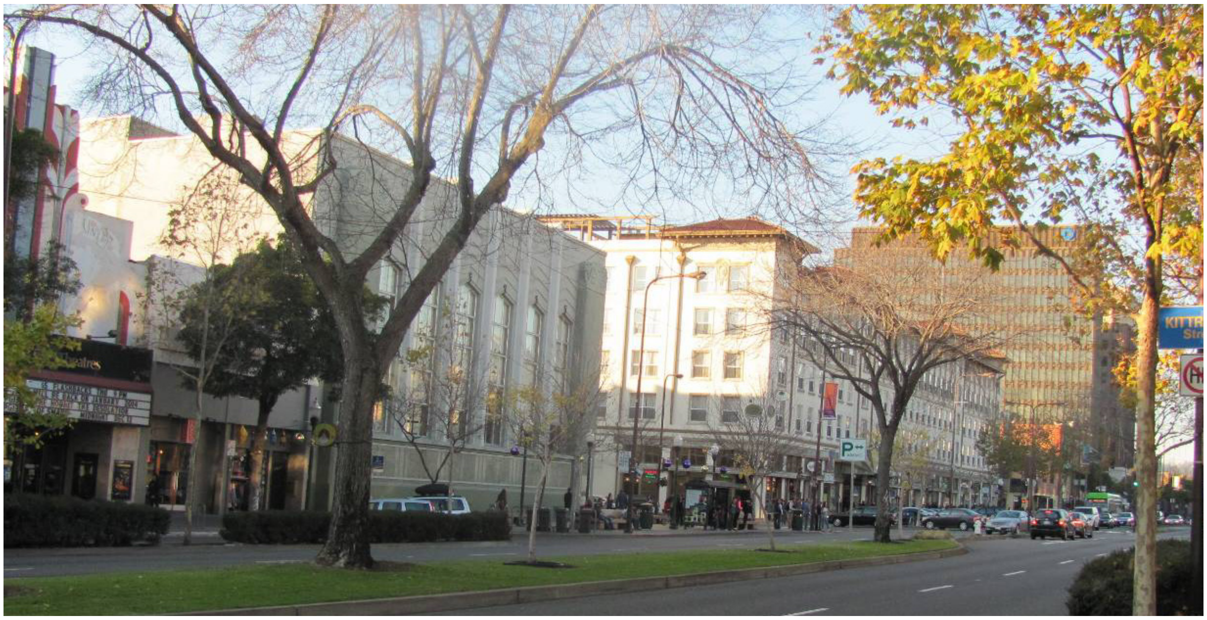
Historic Resources Technical Report, Architectural Resources Group

Looking south down Shattuck Avenue from Center Street, Shattuck Hotel at right
(Architectural Resources Group, December 2013)

East side of Shattuck Avenue (2100 block), between Center and Allston
(Architectural Resources Group, December 2013)

Looking north on Shattuck from Kittredge
(Architectural Resources Group, December 2013)

2200 block of Shattuck (east side), looking northeast from Kittredge
(Architectural Resources Group, December 2013)



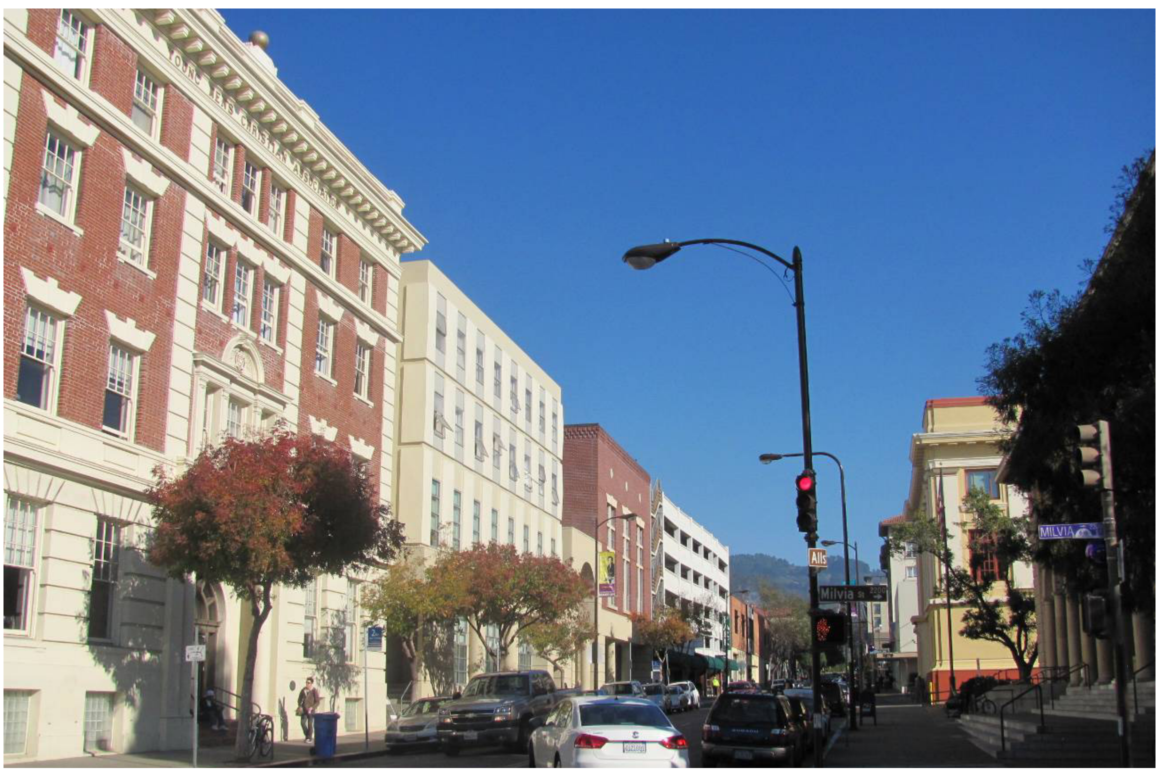
Looking northwest on Shattuck toward Kittredge Street intersection
(Architectural Resources Group, December 2013)

2100 block of Shattuck Avenue (west side), looking northwest
(Architectural Resources Group, December 2013)

2100 Block of Center Street, looking southwest toward Shattuck Avenue intersection
(Architectural Resources Group, December 2013)

2000 block of Center Street (north side) from Shattuck Avenue
(Architectural Resources Group, December 2013)

2000 block of Center Street (south side) from Shattuck Avenue
(Architectural Resources Group, December 2013)



2000 block of Allston Way (north side) from Milvia Street
(Architectural Resources Group, December 2013)

2000 block of Allston Way (south side) from Milvia Street
(Architectural Resources Group, December 2013)

Looking east on Kittredge Street from Milvia Street
(Architectural Resources Group, December 2013)

2100 block of Kittredge (north Side) from Shattuck Avenue
(Architectural Resources Group, December 2013)

2100 block of Kittredge, looking east toward Shattuck Avenue intersection
(Architectural Resources Group, December 2013)

2000 block of Bancroft (north side), looking roughly east toward Shattuck Avenue intersection
(Architectural Resources Group, December 2013)

Appendix C

Spreadsheet of Parcels within the Project Vicinity

2211 Harold Way EIR

Historic Resources Technical Report, Architectural Resources Group

Appendix C: Properties within the Project Vicinity

Parcel Identification				Architecture		Condition		Registered/Designated			Inventories/Other Surveys							
APE	Address	Year Built	Historic Name	Architect	Style	Major Alteration	Integrity	NRHP	CRHR	Local	CHRSC	Dtn Plan Map 1990	Dtn Plan EIR 1990	LPC Dtn List 1993	Design Gdlns 1994	LMK/SIG BAHA 1987	BAHA Contrib. 1987	BDA Rating 1980s
057 202700500B	2000 ALLSTON WAY	1931	Berkeley Post Office	Oscar Wenderoth	Italian Renaissance		High	Indi, Dist	Indi, Dist	Landmark, Dist	1D	Landmrk	Landmrk	Yes	Landmrk	Yes		1
057 202700500A	2000 ALLSTON WAY	1914	Berkeley Post Office	Oscar Wenderoth	Italian Renaissance		High	Indi, Dist	Indi, Dist	Landmark, Dist	1D	Landmrk	Landmrk	Yes	Landmrk	Yes		1
057 202601500A	2001 ALLSTON WAY	1910	Berkeley YMCA	Benjamin McDougall	Colonial Revival		High	Dist	Dist	Landmark, Dist	1D	Signif	Signif	Yes	Landmrk	Yes		2
057 202601500B	2001 ALLSTON WAY	1990	YMCA Addition					Dist	Dist	Landmark, Dist								
057 202601500C	2001 ALLSTON WAY	1910	YMCA Addition				High	Dist	Dist	Landmark, Dist	1D			Yes				2
057 202700203	2016 ALLSTON WAY	1913	BPOE Lodge/Elks Club	Walter H. Ratcliff	Beaux Arts		High			Landmark	3S	Signif	Signif	Yes	Landmrk	Yes		3
057 202600501	2043 ALLSTON WAY	1970																
057 203100500	2115 ALLSTON WAY	1995										Signif	Signif	Yes			Yes	
057 203100400	2121 ALLSTON WAY	1938	Lederer St./Zeus Bldg	Masten & Hurd	Moderne		High				7N	Signif	Signif	Yes	Signif	Yes		
057 202801100	2001 BANCROFT WAY	2006																
057 202800500	2031 BANCROFT WAY	1998																
057 202900900	2105 BANCROFT WAY	1905	Masonic Temple	William Wharff	Classical Revival	Storefront remodel	High	Indi	Indi	Landmark	1S	Landmrk	Landmrk	Yes	Landmrk	Yes		2
057 202900702	2113 BANCROFT WAY	1959				Berkeley Career Center	High											
057 202601000	2016 CENTER ST	2006	Brk City College	Ratcliff Arch.	Modern													
057 202601400	2048 CENTER ST	2006	Brk City College	Ratcliff Arch.														
057 202601203	2052 CENTER ST	1970																
057 202600412	2068 CENTER ST	1960			Commercial Style		Poor											
057 203101000	2124 CENTER ST	1902	Mikkelsen & Berry Bldg	Stone and Smith	Mission Revival		Good			Landmark		Landmrk	Landmrk	Yes	Landmrk	Yes		1
057 203101100	2128 CENTER ST	1923	Ennor's/Act 1-2	James W. Plachek	Commercial Style/ Col. Rev.	First floor modified	Good			Landmark	7N	Signif	Signif	Yes	Signif	Yes		
057 203100102A	2132 CENTER ST	1904	Thomas Black Bldg/Laloma Apart	Wharff / McWethy	Mediterranean		Good				3S	Signif	Signif	Yes	Signif	Yes		
057 203100102B	2132 CENTER ST	N/A																
057 202700202	2210 HAROLD WAY	1938			International Style	1964 remodel	Poor					Contrib	Contrib				Yes	
057 202700400	2222 HAROLD WAY	1923	Armstrong College	Walter H. Ratcliff	Spanish Colonial Revival		High			Landmark		Signif	Signif	Yes	Signif	Yes		3
057 202801300	2000 KITTREDGE ST	1972	Former Gas Station			Doesn't match Sanborn;												
057 202801402	2020 KITTREDGE ST	2006	Library Gardens															
057 202700900D	2065 KITTREDGE ST	1913	Shattuck Hotel/Hink's				Good			Landmark		Landmrk	Landmrk	Yes	Landmrk	Yes		1
057 202700900B	2065 KITTREDGE ST	1912	Shattuck Hotel			New awning, windows	Good			Landmark		Landmrk	Landmrk	Yes	Landmrk	Yes		1
057 202801701B	2090 KITTREDGE ST	1930	Central Library	James W. Plachek	Art Deco	1968 southern wing	High	Indi	Indi	Landmark	1S	Landmrk	Landmrk	Yes	Landmrk	Yes		1
057 202801701A	2090 KITTREDGE ST	1998	Central Library	SMWM	Art Deco	c2000 addition replaced				Landmark								
057 203000900	2113 KITTREDGE ST	1914	Fox Theatre/Calif. Theater	Balch & Stanbery	Moderne	remodeled 1929	High				3S	Signif	Signif	Yes	Signif	Yes		3
057 203000800	2117 KITTREDGE ST	1895	A.H. Broad House	A.H. Broad	Shingle Style/Commercial	c1925 storefront	High			SOM	3S	Landmrk	Signif	Yes	Signif	Yes		
057 202901400	2124 KITTREDGE ST	1895	Robert Elder House	E. F. Henderson builder	Shingle Style/Commercial	storefront add'n c1925;	Good				3S	Signif	Signif	Yes	Signif	Yes		
057 202901500	2138 KITTREDGE ST	1904	John C. Fitzpatrick House	W. Wharff / V. Carlson	Colonial Revival	major remodel 1935	Good				3S	Signif	Signif	Yes	Signif	Yes		
057 202600702	2175 MILVIA ST	1969																
057 202801200B	2237 MILVIA ST	1929				Complete remodel	Fair											
057 202801200A	2237 MILVIA ST	1930			Mission Revival	Complete remodel	Fair											
057 202600201	2150 SHATTUCK AVE	1969	First Savings Bank /Powerbar	David H. Termohlen	International Style						3S	Signif	Signif			Yes		
057 203100900	2151 SHATTUCK AVE	1906	Wright Block	William Knowles	Classical Revival	Some storefront	Good			Landmark	7N	Signif	Signif	Yes	Signif	Yes		
057 202601300	2168 SHATTUCK AVE	1906	Constitution Square	A. H. Broad	Commercial Style (altered)	Major remodel 1984	Poor				7N	Landmrk	Contrib	Yes		Yes	Yes	
057 203100800	2171 SHATTUCK AVE	1980				Major remodel 1969	Poor				6Z							
057 203100700	2177 SHATTUCK AVE	1895	FW Foss Co/Martino's Rest	F. W. Foss Co.	Commercial Style	Major remodel 1982	Fair				3S	Signif	Signif	Yes	Signif	Yes		3
057 203100600	2187 SHATTUCK AVE	1990				Major remodel 1987	Poor				6Z	Signif	Signif	Yes		Yes	Yes	
057 202600405	2190 SHATTUCK AVE	1955				1980s remodel	Fair					Signif	Contrib				Yes	
057 202700800A	2200 SHATTUCK AVE	1957	Shattuck Hotel/Hink's				High			Landmark				Yes	Landmrk	Yes		1
057 202700800C	2200 SHATTUCK AVE	1909	Shattuck Hotel	Benjamin McDougall	Mediterranean Revival		High			Landmark		Landmrk	Landmrk	Yes	Landmrk	Yes		1
057 202700800E	2200 SHATTUCK AVE	1927	Shattuck Hotel/Hink's		Mediterranean Revival		High			Landmark				Yes	Landmrk	Yes		1
057 203000100	2201 SHATTUCK AVE	1895	Hinkel Block	William Koenig	Streamline Moderne	Remodel 1941 & 1990s	Fair/Poor				3S	Signif	Signif	Yes		Yes		
057 203001200	2219 SHATTUCK AVE	1940		Koenig / Bliss	Commercial Style		Fair/Poor				6Z	Signif	Signif					
057 203001100	2225 SHATTUCK AVE	1913	Alko Stationery	William Porter	Classical Revival		High				3S	Signif	Signif	Yes	Signif	Yes		
057 203001000	2231 SHATTUCK AVE	1906	Brooks Apts/Amherst Hotel	Meyers and Ward	Classical Revival	Storefront altered	Good			Landmark	3S	Signif	Signif	Yes	Signif	Yes		3
057 202901300	2255 SHATTUCK AVE	1903	Wanger Block	W. Wharff / H. Ostwald	Commercial Style	Façade complete	Poor				7N			Yes		Yes		
057 202800200	2270 SHATTUCK AVE	1905	Homestead Loan Assoc Bldg	C. W. Dickey / F. J. Wal	Moderne	Façade complete	Poor				3S			Yes		Yes		
057 202901200	2271 SHATTUCK AVE	1925	Tupper & Reed/Metropol	William R. Yelland	Mother Goose Renaissance		High	Indi	Indi	Landmark		Landmrk	Landmrk	Yes	Landmrk	Yes		1
057 202800300	2274 SHATTUCK AVE	1932	United Artists Theater	C. A. Balch	Art Deco	Windows&entrance	Good				3S	Signif	Signif	Yes	Signif	Yes		3
057 202800400	2276 SHATTUCK AVE	1906	Morse Block, Donogh Arms	Dickey and Reed	Classical Revival		High	Dist	Dist	Landmark	3S	Landmrk	Landmrk	Yes	Landmrk	Yes		2
057 202901100	2277 SHATTUCK AVE	1925	Tupper & Reed/Hezletts	Masten & Hurd	Mediterranean Revival		High			Landmark	1S			Yes	Signif	Yes		2
057 202901002	2281 SHATTUCK AVE	1904	Cardevilles Univ French Laundry	Joseph Leonard	Moderne	Storefront remodel	High				7N	Signif	Signif	Yes	Signif	Yes		

Appendix D

DPR 523A and 523B forms for Shattuck Hotel

2211 Harold Way EIR

Historic Resources Technical Report, Architectural Resources Group

State of California--- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI
Trinomial #
NRHP Status Code

Other Listings
Review Code Reviewer Date

***Resource Name or #** (Assigned by recorder) 2200 Shattuck Avenue/2065 Kittredge Street

P1. Other Identifier: Shattuck Hotel / Hink's Department Store

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County** Alameda

and (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad** Date T ;R ; ¼of ¼ of Sec ; B.M.

c. Address 2200 Shattuck Ave./2065 Kittredge St. City Berkeley Zip 94704

d. UTM: (Give more than one for large and/or linear resources) Zone ; mE/ mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) APN:

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The Shattuck Hotel (2200-20 Shattuck Avenue/2060-80 Allston Way) is located in downtown Berkeley on the block bound by Allston Way to the north, Kittredge Street to the south, Shattuck Avenue to the east, and Harold Way to the west. The building sits along the Shattuck Avenue Commercial Corridor, which extends along Shattuck Avenue from Durant to University Avenue and includes a cluster of commercial buildings built during the first half of the twentieth century that share similar historic contexts, physical attributes, and characteristics.

The Shattuck Hotel is a five-story, reinforced concrete, Mission Revival style hotel building in downtown Berkeley. The hotel comprises four stories of hotel rooms over ground floor retail and commercial spaces, with the principal retail frontage facing Shattuck Avenue and the hotel lobby entrance facing Allston Way. Built in several stages, the first iteration of the Shattuck Hotel was completed in December 1910 at the northeast corner of Shattuck Avenue and Allston Way; a one-story restaurant addition was constructed along Allston Way in 1912. A major expansion in 1913 extended the hotel and commercial spaces south along Shattuck to Kittredge Avenue, with Hink's Department Store as the principal commercial tenant. Hink's later expanded in two major building campaigns in 1926 and 1959. These additions filled in the rear portions of the block with the 1926 addition extending along Kittredge Street to the west, and the 1959 building replacing an earlier structure at the northwest corner of the block.

(continued on page 3)

***P3b. Resource Attributes:** (List attributes and codes) HP5. Hotel/motel

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.):

*P5a. Photograph or Drawing (Photograph required for buildings, structures or objects)

(Architectural Resources Group, December 2013)

P5b. Description of Photo: (view, East (Shattuck Ave) and north (Allston Way) elevations, view looking southwest across Shattuck

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1910, 1913, 1926, 1959

***P7. Owner and Address:**
undisclosed

***P8. Recorded by:**
affiliation, and address)
Sarah Hahn
Architectural Resources Group
Pier 9, The Embarcadero
San Francisco, CA

***P9. Date Recorded:**

***P10. Survey Type:** (Describe)
☒ Intensive
☐ Reconnaissance

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") Architectural Resources Group, "2211 Harold Way Historical Resources Technical Report"

***Attachments:** NONE ☐ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure & Object Record ☐Archaeological Record ☐ District Record ☐Linear Feature Record ☐ Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photographic Record ☐ Other (List)

Primary #
HRI

BUILDING, STRUCTURE AND OBJECT RECORD

*NRHP Status Code

B1. Historic Name: Shattuck Hotel / Hink's Department Store
B2. Common Name:
B3. Original Use: B4. Present Use:
***B5. Architectural Style** Mission Revival
***B6. Construction History:** (Construction date, alterations, and date of alterations)
See page 4.
***B7. Moved?** ☒No ☐Yes ☐Unknown **Date:** **Original Location:**
***B8. Related Features:** Swimming pools, hockey rink, surface parking

B9a. Architect: Benjamin Greer McDougall b. Builder:
***B10. Significance: Theme:** Commercial development **Area:** Berkeley
Period of Significance: 1910-1926 (Crit. A/1); 1910-1913(Crit. C/3) **Property Type:** Hotel **Applicable Criteria:** 1, 3
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

Summary Statement of Significance

In ARG's professional opinion, the Shattuck Hotel and former Hink's Department Store (built in stages between 1910 and 1926) satisfy Criterion A/1 of the NRHP/CRHR at the local level of significance for their association with Berkeley's early commercial development. The property also satisfies NRHP/CRHR Criterion C/3 at the local level of significance as a distinctive example of the Mission Revival style in Berkeley's downtown, and for its association with master architect Benjamin Geer McDougall. The 1959 Hink's building does not contribute to the historical or architectural significance of the property.

(Continued page 6.)

(continued page 4)

B11. Additional Resource Attributes: (List attributes and codes)
***B12. References:** See page 10.

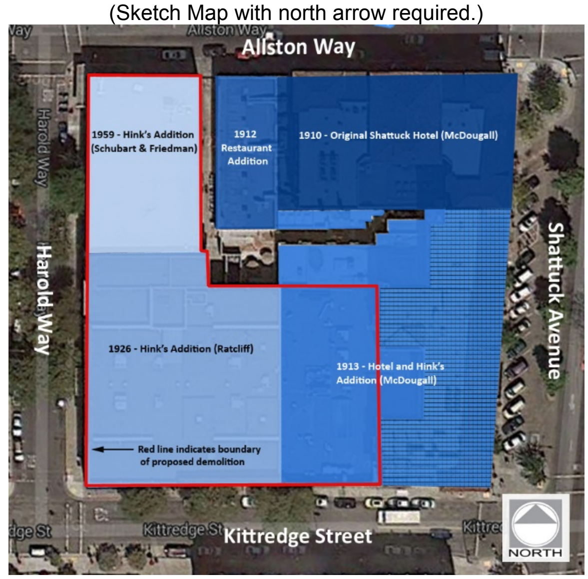
B13. Remarks:

***B14. Evaluator:**
Architectural Resources Group
Pier 9, The Embarcadero
San Francisco, CA 94111

***Date of Evaluation:** June 2014

(This space reserved for official comments.)

(Sketch Map with north arrow required.)



ARG, 2014

***Resource Name or #** (Assigned by recorder) 2211 Harold Way
Recorded By: Architectural Resources Group **Date:** June 2014 ☒ Continuation ☐ Update

***P3a. Description** (continued from page 1)

Shattuck Hotel (East Elevation)
The 1910 and 1913 portions of the Shattuck Hotel together extend the full length of Shattuck Avenue between Allston Way and Kittredge Street. Rising five stories and approximately 60 feet in height, this 260-foot-wide façade is distinguished by four square towers topped by pyramidal hipped roofs. Six windows separate the towers at both the north and south ends of the building; thirteen windows separate the two inner towers. As with other elevations, red clay tiles clad the roof and parapet surfaces. The towers rise a half story above the sloping parapets, their eaves decorates by exposed rafters. A relief frieze elaborates the wall surface below the eave line of each tower.

The fifth-floor windows are arched and extend to the underside of the overhanging eave. These windows are connected vertically to the fourth-floor windows by molded frames and recessed spandrel panels, creating a two-story arcade. The windows on the lower floors are not arched, and all of the hotel level windows on this elevation have been replaced with vinyl sash. Additionally, the original balconies, set at both the fourth-floor windows of the towers and the intervening hotel windows on this elevation, were removed sometime in the 1960s.

The original 1910 building included five small retail spaces facing Shattuck Avenue at the ground level. These spaces were reconfigured as part of the 1913 expansion to include two small stores at the north end, and the remainder of the retail space was developed to accommodate Hink's Department Store. All storefront spaces along Shattuck Avenue have been altered, including the storefront configuration, windows, doors, transoms, and signage. The original retail storefronts comprised a series of bays with plate glass showcase windows, recessed entries, and multi-pane prism glass transoms.

In 1988, following the closure of Hink's Department Store, the ground-floor retail space, including the areas within the 1926 addition, was reconfigured to accommodate a new movie theater and other retail space. Storefront improvements were completed at this time to unify the storefronts using common base materials. A decorative frieze stretches along the elevation above the transom windows, and the letter "S" appears at the cap of each major pilaster (these elements appear to be original, but may have been restored over time). In 2009, the movie theaters were upgraded again with new lighting, carpet, theater seating, and a new lobby and concession area.

Shattuck Hotel (North Elevation)
The original 1910 hotel, the 1912 restaurant addition, and the 1959 Hink's building compose the Allston Way side of the block. The north elevation of the original hotel has three squared towers, with the central tower rising higher than the other two. This central tower marks the current hotel lobby entrance at the ground floor, though historically this entry was secondary to the main entry on Shattuck. Just west of the tower bay, a rusticated wall treatment elaborates the remainder of the hotel wall surface and extends through to the 1912 restaurant addition, which matches the original design.

The corner and end tower on this elevation both have two windows, while the central tower has four windows. Like the Shattuck elevation, the fifth-floor windows are arched and the fourth- and fifth-floor windows of the three central bays are connected vertically by molded frames and recessed spandrel panels. At the two end towers, the (non-arched) fifth-floor windows are joined by a decorative swag ornament, and a relief frieze elaborates the wall surface below the eave line of each tower. Balconies also originally graced this elevation, including one set over the entrance. Decorative tile and plaster work, arched windows, and a shallow overhang now ornament the second-story wall face above this entrance (the tile, plasterwork, and arched window openings are original). This entrance was altered in 1947, including insertion of a modern, all glass lobby entrance along Allston Way designed by Raymond Loewy Associates of New York. The entry awning and other features were reintroduced in 1997 based on their historic appearance.

Courtyard and Mid-block Elements
Though not visible from the street, a small courtyard is located behind the restaurant and lobby area. Hotel guests now use the former boiler room space as a small conference facility. Hotel room windows overlook the mid-block space, and some original windows remain in this area.

Shattuck Hotel (South Elevation)
The eastern half of this elevation is part of the 1913 hotel addition, and the easternmost bays rise to the full five-story height of the original hotel. A tower marks the corner of the hotel building at Kittredge and Shattuck and three hotel bays extend west from the tower, after which the building steps down to a one-story height. This one-story height is continued by the 1926 addition, which extends westward to Harold Way.

1926 Hink's Department Store Addition
To accommodate Hink's growth during the 1920s, the company commissioned Walter H. Ratcliff Jr. to design a one-story addition with a mezzanine level and basement. Like the hotel, the addition is reinforced concrete clad in a stucco finish. This simple addition was designed for compatibility with both the existing hotel building and with the Armstrong College (now Dharma Institute) building across Harold Way, which was also designed by Ratcliff and completed in 1923. The 1926 addition's most prominent features are the large double and tripartite industrial sash windows that dominate both street-facing elevations. Spanish clay tiles cap the raised parapet walls, which are finished at either end with decorative volutes and wrought iron grilles.

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The 1926 addition attached to the 1913 hotel addition about halfway between Shattuck Avenue and Harold Way.[1] The exterior location of the addition is evidenced by the shift from double to triple sash industrial windows that occurs at roughly the midpoint of the Kittredge Street elevation, and by a crack in the exterior stucco running the full height of the building in this location. An original secondary store entrance is located near this mid-block location and is sheltered by a fixed overhanging awning. The entry facing Kittredge at Harold Way is a later alteration. A pedestrian entry, also with a fixed awning, and a service vehicle entrance with a rollup metal door punctuate the Harold Way elevation.

1959 Hink's Building

The 1959 Hink's building sits at the northwest corner of the subject block and is a two-story concrete box with street frontages at both Allston Way and Harold Way. Topped by a flat roof, the building is rectangular in plan and its concrete exterior walls are clad in a smooth stucco finish. The principal entrance faces Allston and is set at the northwest corner. This building is separated from the 1912 hotel addition by a ten-foot-wide alley, and abuts the 1926 Ratcliff addition along Harold Way. Built to house the new men's department, this building was designed in a simplified modern style and does not relate to the other buildings on the subject block in design or aesthetic.

The building has two rectangular storefront windows on the Allston Way elevation. A flat awning, which is still intact, shelters the corner entrance, though the distinctive "Hink's of Berkeley" signage lettering was removed in 1987. Four small windows punctuate the second story of this elevation; only three windows existed in this location originally. All original window sashes and storefront assemblies have been replaced, though the openings remain in their same location.

A series of small, rectangular, multi-pane windows line the first and second stories of the Harold Way wall of the 1959 building. Only five window openings at the second level existed originally, the rest are later additions. An original storefront window at the south end of the ground level has been infilled at this elevation, though the storefront opening at the north end remains. All original windows have been replaced.

B6. Construction History (continued from page 2)

Construction Chronology

The following construction chronology has been developed primarily from "The Residences at Berkeley Plaza Draft Historic Context Report for the Shattuck Hotel," by architecture + history, llc, dated February 27, 2013. Additional information has been added where necessary to clarify the property's historical and physical development.

1909 Shattuck Hotel began construction.

1910 Construction completed, Shattuck Hotel opened for business in December.

1912 One-story restaurant addition completed.

1913 Large-scale addition completed along Shattuck Avenue to Kittredge adding 120 additional rooms (for a total of 235)[2] and extensive commercial space for Hink's Dry Goods Store.

1920 Woolsey sold the hotel to William W. Whitecotton; name changed to Whitecotton Hotel.

1921 Whitecotton built office building behind hotel (James Plachek, architect).

1926 Hink's expanded along Kittredge to Harold Way with one-story mezzanine addition designed by Walter Ratcliff, Jr. The addition was attached to the rear of the 1913 addition at roughly the mid-block point along Kittredge.[3]

1931 Ratcliff-designed roof garden/employee rest area on roof of 1926 addition was completed; roof garden no longer extant, one-story rooftop structure with restroom facilities remains.

[1] "Enlarged Hotel Shattuck Will Be a Great Credit to Berkeley, Showing a City's Prosperity and Development," *Berkeley: A Journal of a City's Progress* (vol. 3, no. 2, page 5), late 1912.
[2] "Enlarged Hotel Shattuck Will Be A Great Credit to Berkeley, Showing a City's Prosperity and Development," *Berkeley: A Journal of a City's Progress* (vol. 3, no. 2, page 5), late 1912.
[3] The article entitled "Enlarged Hotel Shattuck Will Be a Great Credit to Berkeley, Showing a City's Prosperity and Development" shows a rendering of the 1913 extension including the extension along Kittredge. The article states that the "southern 130 feet of the building will extend back along Kittredge Street 125 feet. The central 50 feet will be more shallow, allowing for lawn and gardens in the rearm as well as a tennis court and a plunge bath 20x50 feet in size."

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c. 1947 Wallace and Joan Miller (also managers of Berkeley's Durant Hotel) assumed ownership of the hotel, changing the name to the Hotel Shattuck. The Millers made some improvements, including the insertion of a modern, all glass lobby entrance along Allston Way designed by Raymond Loewy Associates of New York (June 1947).

1959 Construction finished on Hink's new building at corner of Allston Way and Harold Way (necessitating demolition of Whitecotton building), designed by San Francisco architects Schubart and Friedman. Grand opening of new Hink's wing on April 30.

1960s Balconies removed.

c. 1960s Original wood windows replaced with aluminum.

Early 1980s Hotel remodeled by Firmateer, Inc. and returned to use as tourist hotel.

1985 Hink's department store closes.

1987 Subject block designated City of Berkeley Landmark by Landmarks Preservation Commission (Approved at Landmarks Preservation Commission meeting on November 9, 1987).

1988 Front arcade of Hink's (part of alterations designed by Ratcliff in 1926) significantly altered to accommodate movie theater; Shattuck Ave storefronts upgraded/unified. Multi-pane steel sash windows along Kittredge and Harold elevations painted over as part of theater alterations.

1997 Entry awning at Allston Way with second-floor windows above reintroduced based on their historic appearance (replacing 1947 alteration by Raymond Loewy).

1999 Hotel purchased by independent hotel company and renovated.

2007 BPR Properties took ownership of hotel portion of the property.

2009 Theater at former Hink's storefront receives new lighting, carpet, seating, and concession/lobby upgrades. Entrance marquee added at this time.

Recent Replacement aluminum windows replaced with vinyl sash.

Additional notes on alterations:

- As part of the 1913 expansion, the original five small ground floor retail stores facing Shattuck Avenue were reconfigured into two small stores at the north end (corner of Shattuck and Allston) and a large department store (Hink's) at the south end of the first story.

- All storefronts along Shattuck Avenue have been repeatedly altered, including changes to the entries, windows, materials, transoms, and signage. All components of the original storefronts have been replaced, including the storefront bays with plate glass showcase windows, recessed entries, and multi-pane prism glass transoms.

- The original (1910) arched hotel entrance and cantilevered awning/marquee at Shattuck Street has been removed. The current main hotel entrance along Allston Way originally provided access to a different portion of the lobby.

- The entrance to the 1926 addition at the corner of Kittredge and Harold (facing Kittredge) was a later addition. The mid-block entrance with awning was originally a secondary entrance to Hink's.

The 1959 Hink's building has been altered since originally constructed: additional second floor windows have been added, the Allston entrance has been reconfigured, the aluminum sash plate glass storefront windows have been replaced, and "Hink's of Berkeley" signage lettering has been removed from Allston-facing entry overhang.

***Resource Name or #** (Assigned by recorder) 2211 Harold Way
Recorded By: Architectural Resources Group **Date:** June 2014 ☒ Continuation ☐ Update

B10. Significance (continued from page 2)

Significance Summary
Because it appears to satisfy NRHP and CRHR significance criteria, ARG has assigned the Shattuck Hotel (built 1910-1926) a California Historical Resource Status Code of 3S, which indicates that the property was found eligible for both the National and California Registers through survey evaluation. As discussed above, the 1959 Hink's building does not contribute to the historical significance of the Shattuck Hotel Property.

Though not expressly stated in the City of Berkeley Landmark nomination, the Shattuck Hotel appears to be significant under the following City criteria for Landmark eligibility: (1) Architectural Merit (sub criteria a-c), and (4) Historic Value.

Downtown Berkeley
Berkeley's development into a thriving town is largely credited to the extension of transportation routes in the East Bay and the establishment of UC Berkeley in 1868. Francis Kittredge Shattuck, a notable business and civic leader, played a prominent role in extending a Central Pacific (later Southern Pacific) spur line from Oakland to Berkeley in 1876. The line ran along present-day Shattuck Avenue. The increased transportation brought commercial growth and a thriving downtown area began to develop. At the time of Berkeley's incorporation in 1878, Shattuck Avenue was already established as the town's principal commercial area.
According to the 2007 Downtown Berkeley Historic Resources Survey, the bulk of construction in Berkeley's downtown area occurred between the late 1870s, when the construction of the area commenced, and the 1930s, when the pace of building construction diminished due to the Great Depression and other economic pressures. Many of the nineteenth-century, wood-frame buildings in the Downtown were replaced in the early twentieth century by more substantial masonry buildings. When the Shattuck Hotel was completed in 1910, it was one of the first reinforced concrete structures constructed in the Downtown area, and it remains one of the few historic buildings in downtown Berkeley designed in the Mission Revival style.[4]

Shattuck Hotel
Prominent civic leader and local developer Francis Shattuck began to develop his Berkeley estate in the late 1860s, constructing his first house – a wood-framed, French Second Empire style structure – on land between Allston and Bancroft Ways in 1868. In 1891, he built a large Queen Anne-style home on the property, and rented out the older residence. Francis died in 1898 and his widow Rosa remained in the Queen Anne-style estate. She continued to rent the older residence to the Delta Kappa Epsilon fraternity. When the fraternity moved south of campus, Rosa started to consider constructing a hotel or resort cottages on the property – an idea that did not come to fruition until after the 1906 earthquake and fire.

In the wake of the 1906 earthquake and fire, many San Francisco residents seeking to escape the city moved to the East Bay. As a result, Berkeley's population increased by over 25,000 people from 1900 to 1910. During the post-earthquake years, the area surrounding the Shattuck estate became increasingly commercialized. In 1907, seeing her opportunity to build a hotel, Rosa formed the Shattuck Hotel Association with William E. Woolsey, her niece's husband, acting as president. The original plans for the hotel called for a grand building, containing 400 guestrooms and costing nearly $500,000; the plans, however, were scaled down and completed in two phases.

The corner of Shattuck and Allston Way was selected as the site for the new hotel, but Rosa Shattuck died on September 12, 1908 before plans for the hotel were completed. Following her death, the Shattuck Hotel Association continued with plans for a hotel and held a competition for the best design. The winner was Benjamin Geer McDougall, who proposed a Mission Revival style design constructed of reinforced concrete. The firm of Kidder & McCullough was awarded the construction contract. McDougall was an early proponent of reinforced concrete, which became an increasingly popular construction method after the 1906 earthquake.

Construction on the 115-room, $125,000 hotel building began around April 1909 and was completed in December 1910, with a large addition designed by McDougall already planned for the future.[5] Issuance of the Shattuck Hotel building permit was the first act of the City of Berkeley's building department in 1909.[6] A one-story restaurant along Allston Way was added in 1912.[7] The second phase of

[4] Architectural Resources Group, *Downtown Berkeley Historic Resources Reconnaissance Survey and Contexts,* (prepared for the City of Berkeley, August 2007), 27. See also the Department of Parks and Recreation Historic Resources Inventory Form for the Shattuck Hotel, by Carol Raiskin (Berkeley Architectural Heritage Association, February 1979).
[5] Daniella Thompson. "The Shattuck Hotel: Berkeley's Once and Future Jewel?" Berkeley Architectural Heritage Association website at: http://berkeleyheritage.com/berkeley_landmarks/shattuck_hotel.html (accessed January 2014).
[6] "Big Building Permit is Issued by New City," *Berkeley Reporter*, July 1, 1909.

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McDougall's design was completed in 1913 and consisted of an addition that almost tripled the size of the hotel. The expansion also included retail space – most notably occupied by the dry-goods merchant J.F. Hink and Sons – on the ground floor along Shattuck Avenue.

In 1920, Woolsey sold the hotel to William W. Whitecotton of Los Angeles, who changed the hotel's name to the Whitecotton Hotel. The following year, Whitecotton commissioned architect James Placheck to build an office building at 2060-2074 Allston Way behind the hotel; this building was replaced by the Hink's addition in 1959 and is no longer extant. Whitecotton continued to operate the hotel through the 1930s, selling the building around 1941 to the Levi Strauss Realty Company. Under the Company's ownership, Wallace and Joan Miller leased the hotel beginning in 1947. At that time, the couple made improvements to the building, most notably to the ground floor. A major component of these improvements was the relocation of the hotel lobby entrance from Shattuck Avenue to Allston Way. A modern, glass lobby entrance designed by Raymond Loewy Associates was installed at the new entrance, and the redesigned lobby featured "highly polished Italian travertine…growing plants and special lighting effects."[8]

In 1968, the Shattuck Hotel Management Company purchased the hotel and operated it until 1980.[9] Firmateer, Inc. remodeled the hotel in the early 1980s and it became a tourist hotel once again. An independent hotel company purchased the hotel in 1999 and instituted a two-year renovation. The current owners, BPR Properties, purchased the hotel in 2007.[10] At that time, the building was separated into two sections, "with one entity (BPR Properties) owning the Shattuck Hotel (lobby, restaurant, courtyard, and hotel rooms)"… and [earlier] owner Roy Nee "retaining ownership of the basement, retail shops along Shattuck, the Kittredge wing (to Harold Way), and the building at the corner of Allston Way and Harold Way."[11]

Hink's Department Store
Originally established in 1904, J.F. Hink and Sons (Hink's) was located at the corner of Shattuck Avenue and Kittredge Street across the street from the Shattuck Estate. Hink's was a "spacious and modern dry goods store" founded by J.F. Hink, a German immigrant, who, according to a contemporary newspaper, was considered one of the "best business men of the Pacific Coast, being one of the founders and a large stock holder in the Emporium in San Francisco, and the proprietor of a large store in Eureka."[12]

Lester Hink, J.F.'s son, assumed control of the business in 1912 and negotiated with the Shattuck Hotel to become the building's first floor tenant. Hink's prominent new location with larger retail space was included in McDougall's designs for the 1913 hotel expansion. By 1916, Hink's was the "largest exclusive dry goods store west of Chicago," and the store expanded again in 1926.[13] Walter H. Ratcliff, Jr. (who had recently completed the building across Harold Way for the Armstrong School of Business) designed the $100,000 project, which included improvements to the existing store and an addition. His design included a Tudor-style oak interior, a front arcade with ornamental plaster ceiling, a free-standing display case, a decorative marquee on the Shattuck Avenue façade, and a mezzanine for more shopping area. A few years later, Ratcliff also designed a rooftop garden space (with interior and exterior components) where Hink's employees could congregate during their breaks; it contained restrooms on the interior, and a fountain and several areas for seating on the exterior. The roof garden is no longer extant, and the interior arcade was significantly altered in 1988 to accommodate movie theaters. The small rooftop structure containing the restroom still remains.

At the end of WWII, Hink considered another expansion, but waited until building conditions normalized to proceed.[14] Expansion finally occurred in 1959, and included demolition of Whitecotton's 1921 office building designed by James Placheck at the corner of Allston Way and Harold Way. For the new construction, Schubart and Freidman designed a modern building, which housed the boys' and men's

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[7] While it is assumed that McDougall designed the 1912 addition, archival verification of his involvement has not been found. The building permit indicates that A.H. Broad led construction of the addition.
[8] "Shattuck is At Once City's Oldest Yet Newest Hotel," Berkeley: *Berkeley Daily Gazette*, May 12, 1948.
[9] architecture + history, llc, *The Residences at Berkeley Plaza Draft Historic Context Report for the Shattuck Hotel,* (prepared for HSR Berkeley Investments, Inc., February 27, 2013), 5.
[10] The Residences at Berkeley Plaza Draft Historic Context Report for the Shattuck Hotel, 5.
[11] Ibid., 1.
[12] "Modern Dry Goods Emporium," in *The Berkeley Gazette*, June 18, 1904, quoted in "The Residences at Berkeley Plaza Draft Historic Context Report for the Shattuck Hotel," 6.
[13] "Largest Retailers in Berkeley,*" Berkeley Chamber of Commerce Courier*, March 14, 1916, quoted in "The Residences at Berkeley Plaza Draft Historic Context Report for the Shattuck Hotel," 6.
[14] "Hink's Store Addition Will Replace Whitecotton Building," Berkeley Gazette, May 20, 1947, quoted in The Residences at Berkeley Plaza Draft Historic Context Report for the Shattuck Hotel, 7.

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departments on the main floor and a beauty salon on the second that was finished in a pink and black motif. The basement of the new wing contained storage. Hink's celebrated its grand re-opening on April 30, 1959.[15]

By the 1970s, Hink's was struggling to maintain a successful retail presence in downtown Berkeley. Lester Hink stepped down in 1975 and his son Robert took over the business for a short time. Hink's was sold to the Modesto-based department store Dunlap Company in 1977 and went out of business in 1985.

Period of Significance

The identified period of significance for the Shattuck Hotel under NRHP/CRHR Criterion A/1 extends from 1910, the date of the original hotel's completion, until the Hink's addition was completed in 1926. This time span encompasses the building's association with the early commercial development of Downtown Berkeley. The identified period of significance for the Shattuck Hotel under NRHP/CRHR Criterion C/3 extends from 1910 to 1913, corresponding to the building's association with prominent architect Benjamin Geer McDougall.

Character-defining Features

A character-defining feature is an aspect of a building's design, construction, or detail that is representative of the building's function, type, or architectural style. Generally, character-defining features include specific building systems, architectural ornament, construction details, massing, materials, craftsmanship, site characteristics and landscaping within the period of significance. In order for an important historic resource to retain its significance, its character-defining features must be retained to the greatest extent possible. An understanding of a building's character-defining features is a crucial step in developing a rehabilitation plan that incorporates an appropriate level of restoration, rehabilitation, maintenance, and protection.

The following character defining features contribute to the Shattuck Hotel property's ability to convey its significance.

Overall massing, configurations, and volumes

- Five story height at Shattuck Street façade and portions of Allston and Kittredge
- Hip-roofed towers along Shattuck and Allston
- Varied roof heights
- Symmetrical façade arrangement at Shattuck Street
- One-story 1912 restaurant addition along Allston
- One-story 1926 addition at southwest corner of lot

Mission Revival style and detailing – Shattuck Hotel (1910, 1912 and 1913 portions)

- Red clay tile roofs
- Hip roofed, square towers separating hotel bays
- Smooth stucco/plaster finish on exterior walls, painted in light colored tones
- Arched window and entrance openings along Shattuck and Allston elevations
- Decorative tile work above main hotel entrance on Allston
- Deep, open eave overhangs with exposed rafters
- Decorative frieze panels and wall surface ornament
- Rusticated base of 1910 and 1912 portions of hotel along Allston Way

1926 Hink's Addition

- Large multi-pane steel windows
- Spanish style, red tile roof parapets with decorative volutes and wrought iron details
- Stucco cladding
- Molded cornice

Interior

- Soffit plasterwork at former Hink's entrance arcade
- Shattuck Hotel lobby and dining room

[15] "City Forges Ahead – Hink's To Open New Wing," *Berkeley Gazette*, April 29, 1959.

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Eligibility Criteria

NRHP Criterion A/CRHR Criterion 1 [Association with Significant Events]
The Shattuck Hotel and former Hink's Department Store appear to qualify for listing under Criterion A/1 for their association with the early commercial development of Downtown Berkeley. Built on the site of the former Shattuck estate, the Hotel was one of the first reinforced concrete buildings in Downtown Berkeley, and, upon completion, was immediately recognized as the City's finest hotel. Hink's Department Store, a prominent commercial presence in Downtown Berkeley for over 70 years, was housed in the Shattuck Hotel building from 1913 to 1985. The Downtown Berkeley Historic Resources Reconnaissance Survey notes that the bulk of construction in Berkeley's downtown area occurred between the late 1870s and the 1930s, establishing the early twentieth century character of Berkeley's existing commercial core. The Shattuck Hotel and its early additions (1910-1926) were completed during this period and are strong visual and historical contributors to this pattern of development.
Though connected to the 1926 Hink's addition through an interior passage, the 1959 Hink's building at the corner of Allston and Harold Ways is structurally and aesthetically separate from the original Shattuck Hotel building and its early additions. Built in 1959, it does not relate to the early twentieth-century character established by the Shattuck Hotel and its early additions and does not contribute to the historical significance of the property as related to the early commercial development of Downtown Berkeley and the Shattuck Avenue commercial cluster.

NRHP Criterion B/CRHR Criterion 2 [Association with Significant Persons]
The Shattuck Hotel does not appear to qualify for listing under Criterion B/2 for association with persons significant to local, state or national history. While the building was built on former Shattuck estate lands with funding from the family's estate, this criterion usually applies to properties associated with the productive life of a significant person. Both Francis and Rosa Shattuck were deceased when the hotel was constructed, so the property does not qualify for listing as a property significantly associated with Rosa or Francis Shattuck under this Criterion.

Because the Hink family is associated with the commercial history of Berkeley as well as other cities in northern California, the Shattuck Hotel's association with the Hink family in relation to the early commercial development of Berkeley's downtown is more properly addressed under Criterion A/1 above.

NRHP Criterion C/CRHR Criterion 3 [Architectural Significance]
The original Shattuck Hotel and 1912-1913 additions appear to qualify for listing under Criterion C/3 for their architectural significance and association with prominent architect Benjamin Geer McDougall. McDougall was a regionally notable architect with significant buildings constructed throughout the Bay Area. Following the 1906 earthquake, McDougall focused his efforts on commissions in the San Francisco Bay Area, and he was one of the first architects to use reinforced concrete in his work.

The hotel is a unique example of the Mission Revival style in the Downtown area and exhibits many representative features of the style, including stuccoed walls, decorative tilework, wall surface ornamentation, squared towers, hipped roof forms, arched or arcaded wall openings, varied roof heights, red clay tile roof cladding, and broad eave overhangs with exposed rafter tails. The 1926 addition, which was designed in the Spanish Revival style by Berkeley architect Walter Ratcliff, Jr., does not appear to be eligible under this criterion. The addition is modest in design and detail, is profoundly subordinate to the pre-existing Shattuck Hotel buildings, and does not appear to be significant as a notable example of Ratcliff's work. The 1926 addition, however, is significant for its association with Hink's Department Store and as a portion of the Shattuck Hotel complex that was completed during Berkeley's early Downtown development period. It is therefore included in the significance discussion under Criterion A/1 above.

The 1959 Hink's building departed stylistically from its predecessors on the block, and reflected the more streamlined aesthetics of the post-World War II period. While it has the simple form and flat, cantilevered overhang associated with the Midcentury Modern style, it does not display many of the other features that characterize the style. These features include projecting eaves and exposed rafters, stacked Roman brick or stone accents, expressed post and beam construction, projecting vertical elements, large steel or wood framed windows, canted windows, or atrium or courtyard entryways. As such, the building does not represent a strong example of the Midcentury Modern style. Further, alterations completed in recent decades have removed or covered original materials and added new elements to the building exterior, reducing the building's material integrity. Research does not indicate that the building is a major commission of architects Schubart and Friedman, who were better known for their campus planning and residential commissions; therefore, it is not significant as the representative work of a master architect. For these reasons, the 1959 Hink's building does not appear to qualify for listing under this criterion.

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NRHP Criterion D/CRHR Criterion 4 [Potential to Yield Information]
Criterion D/4 is generally applied to archeological resources and evaluation of the Shattuck Hotel for eligibility under this criterion was beyond the scope of this evaluation.

Integrity Analysis

The Shattuck Hotel appears to retain sufficient integrity to convey its significance. Since it has not been moved, the complex retains integrity of location. While Berkeley's downtown has changed over time, the property's overall setting within an early twentieth century commercial corridor has been well preserved. The overall design of the complex, including the building massing, proportions, fenestration patterns, and architectural style and details are generally intact, and thus the Shattuck Hotel retains integrity of design and workmanship. Integrity of materials has been partially reduced by (1) replacement of original wood sash windows with steel and later vinyl sash, (2) removal and alteration of original storefront features and configurations, and (3) removal of balconies. However, the stucco cladding, Allston Way tilework, decorative friezes, clay roof tiles, parapet detailing, and raised surface ornament of the 1910-1913 hotel and 1926 addition remain intact, as do the multi-pane steel sash windows of the 1926 addition. Finally, though Hink's Department store is no longer a commercial tenant, the building retains integrity of feeling and association as a functioning retail property related to the early development of Berkeley's downtown commercial corridor.

B12. References: (continued from page 2)

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Recorded By: Architectural Resources Group **Date:** June 2014 ☒ Continuation ☐ Update

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Recorded By: Architectural Resources Group **Date:** June 2014 ☒ Continuation ☐ Update

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Primary #
HRI

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East (Shattuck Avenue) and partial south (Kittredge Street) elevations, view looking northwest across Shattuck
(Architectural Resources Group, December 2013)

Current cinema entrance at south end of east elevation, former Hink's Department Store entrance
(Architectural Resources Group, December 2013)

Portion of decorative plaster ceiling remaining from original Hink's Department Store entry arcade (now entrance to cinema) (Architectural Resources Group, December 2013)

Detail of northeast corner, Shattuck Hotel
(Architectural Resources Group, December 2013)

Street view of Shattuck Avenue facade, looking south from Allston Way
(Architectural Resources Group, December 2013)

South (Kittredge Street) elevation, view looking roughly northwest from Shattuck
(Architectural Resources Group, December 2013)

South elevation, view looking roughly northeast from across Kittredge
(Architectural Resources Group, December 2013)

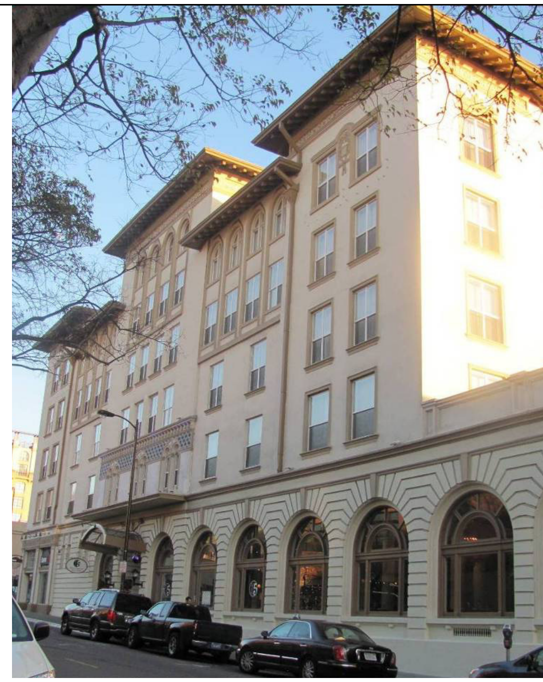
South elevation, view looking northwest across Kittredge. Note full height crack in wall where 1913 and 1926 additions meet.
(Architectural Resources Group, December 2013)

West (Harold Way) elevation, view looking northeast from Kittredge
(Architectural Resources Group, December 2013)

West (Harold Way) elevation, view looking southeast from Allston Way, 1959 addition in foreground
(Architectural Resources Group, December 2013)

North elevation, view looking east across Allston Way, 1959 addition in foreground
(Architectural Resources Group, December 2013)

North elevation, 1912 dining room addition
(Architectural Resources Group, December 2013)


North (Allston Way) elevation, Shattuck Hotel
(Architectural Resources Group, December 2013)


North elevation, hotel entrance detail
(Architectural Resources Group, December 2013)

Appendix E

The Secretary of the Interior's Standards for Rehabilitation

2211 Harold Way EIR

Historic Resources Technical Report, Architectural Resources Group

Appendix E: The Secretary of the Interior's Standards for Rehabilitation

The Secretary of the Interior is responsible for establishing standards for all programs under Departmental authority and for advising Federal agencies on the preservation of historic properties listed in or eligible for listing in the National Register of Historic Places. The *Standards for Rehabilitation* (codified in 36 CFR 67 for use in the Federal Historic Preservation Tax Incentives program) address the most prevalent treatment. "Rehabilitation" is defined as "the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values."

Initially developed by the Secretary of the Interior to determine the appropriateness of proposed project work on registered properties within the Historic Preservation Fund grant-in-aid program, the *Standards for Rehabilitation* (the *Standards*) have been widely used over the years—particularly to determine if a rehabilitation qualifies as a Certified Rehabilitation for Federal tax purposes. In addition, the *Standards* have guided Federal agencies in carrying out their historic preservation responsibilities for properties in Federal ownership or control; and State and local officials in reviewing both Federal and nonfederal rehabilitation proposals. They have also been adopted by historic district and planning commissions across the country.

The intent of the *Standards* is to assist the long-term preservation of a property's significance through the preservation of historic materials and features. The *Standards* pertain to historic buildings of all materials, construction types, sizes, and occupancy and encompass the exterior and interior of the buildings. They also encompass related landscape features and the building's site and environment, as well as attached, adjacent, or related new construction. To be certified for Federal tax purposes, a rehabilitation project must be determined by the Secretary of the Interior to be consistent with the historic character of the structure(s), and where applicable, the district in which it is located.

The *Standards* are to be applied to specific rehabilitation projects in a reasonable manner, taking into consideration economic and technical feasibility.

The ten *Standards* are:

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.

2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.

3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.

4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.

5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.

6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.

8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

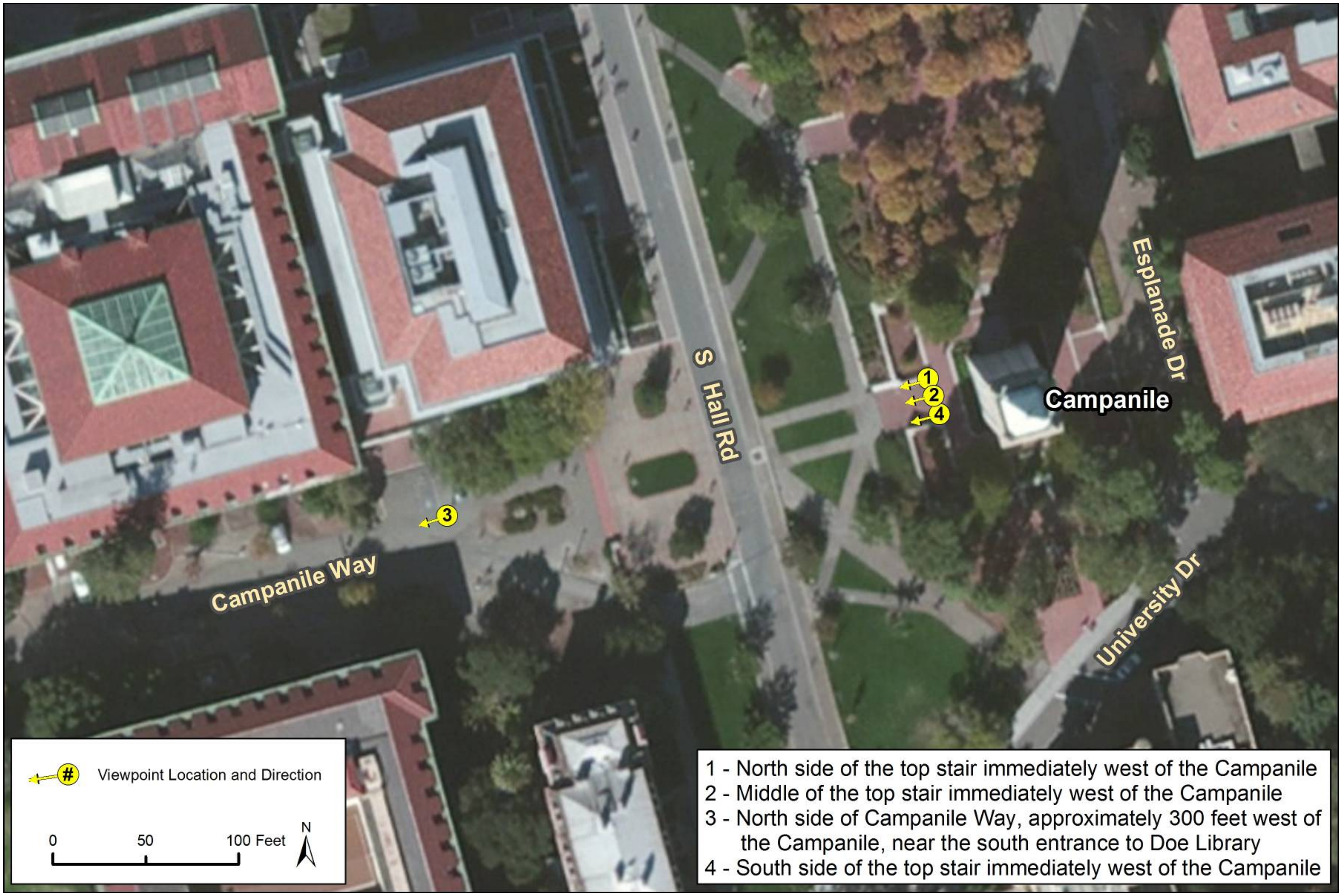
9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

In general, projects that are in compliance with the *Standards* are considered under CEQA to have a less-than-significant impact on historic resources.

Appendix F
Visual Simulations of Views from Campanile Way, Environmental Vision

2211 Harold Way EIR
Historic Resources Technical Report, Architectural Resources Group



Key map identifying the location and orientation of the visual simulations shown below. (Map prepared by Rincon Consultants.)

Figure 1. Existing view (top) and proposed view (bottom) from the north side of the top stair immediately west of the Campanile (Environmental Vision).

Figure 2. Existing view (top) and proposed view (bottom) from the middle of the top stair immediately west of the Campanile (Environmental Vision).

Figure 3. Existing view (top) and proposed view (bottom) from the north side of Campanile Way, approximately 300 feet west of the Campanile, near the south entrance to Doe Library (Environmental Vision).

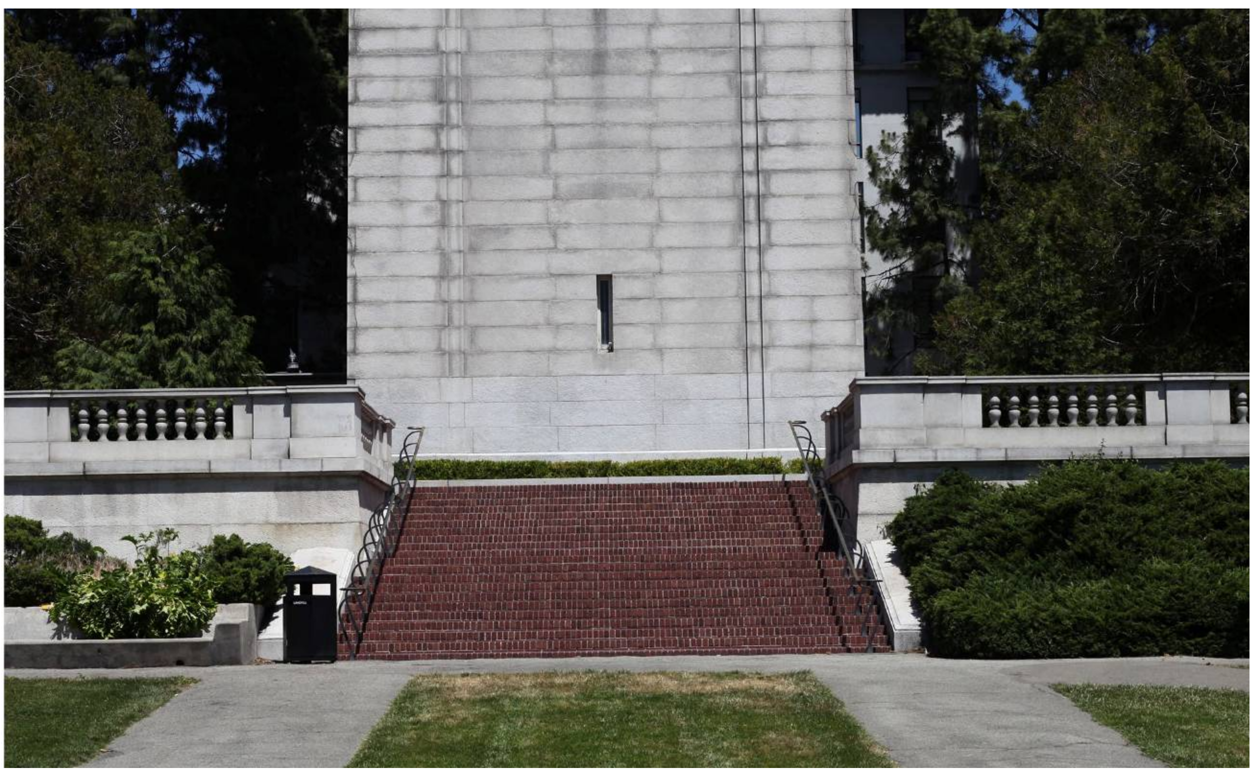


Figure 4. View (top) from the south side of the top stair immediately west of the Campanile (Environmental Vision). (Note that this view is not technically a simulation, since the proposed project would not be visible from this vantage point.) The bottom photograph shows the stairs immediately west of the Campanile, looking east (Environmental Vision).

Appendix G

Mitigations Identified by Tuan and Robinson Structural Engineers

2211 Harold Way EIR

Historic Resources Technical Report, Architectural Resources Group

Tuan and Robinson
Structural Engineers, Inc.

Eugene Y. Tuan, S.E.
Alan Robinson, S.E.
Timothy C. Mathison, P.E.
Steven Lew, S.E.

May 7, 2014

Rincon Consultants, Inc.
180 Grand Avenue, Suite 400
Oakland, CA 94612

Attn: Mr. Abe Leider

Re: 2211 Harold Way EIR
Berkeley, California

TRSE Reference Number: 2013.152.00

Dear Abe,

Per your request, we have reviewed the available documentation and made a site visit to the existing Shattuck Hotel building at 2086 Allston Way and retail shops on Shattuck Avenue between Allston Way and Kittredge Street in Berkeley, California, in order to determine if vibrations from the new construction at 2211 Harold Way will affect the existing building structure.

The original hotel building, constructed at the corner of Allston Way and Shattuck Avenue in 1910, consists of a five story reinforced concrete structure, with a basement level below street grade. A one story dining room addition was completed to the west along Allston Way in 1912. Another five story addition, constructed in 1913, extended the hotel south along Shattuck Avenue to Kittredge Street. According to available drawings from the 1910 construction, the structural system consists of reinforced concrete ribbed floor diaphragms supported by reinforced concrete beams and girders. The beams and girders frame to reinforced concrete columns. In addition, the space between the ribs in the floor diaphragms is filled with hollow clay tile. The depth of the hollow clay tile was indicated as four inches in some of the available drawings, and the concrete topping slab ranged between one and two inches thick. The ribs of the floor diaphragms are approximately 12 inches on center. The hollow clay tile forms a level surface at the bottom of the floors in addition to providing a form for the concrete ribs of the floors during the original construction.

Of greatest concern for potential structural damage due to vibrations from adjacent construction are the hollow clay tiles and thin concrete topping slab. There is the possibility of cracking and spalling of the concrete, cracking of the hollow clay tiles and a potential falling hazard if a hollow clay tile is dislodged. The hollow clay tile is a concern as it is a brittle material which can crack and lose its structural integrity. The California Department of Transportation (Caltrans) indicates a continuous vibration threshold of 0.20 inches/second of vertical movement where damage to plaster walls and ceiling may occur[1].We expect the threshold for damage to the hollow clay tile will be similar. Vibrations greater than that level can be caused by pile driving and breaking of existing pavement or foundation concrete using large hoe-rams. Vibration is attenuated with distance, and is of most concern when the source is within 25 to 50 feet. Caltrans indicates that they have not measured significant vibrations from construction activities or equipment other than pile drivers and hoe-rams greater than the threshold when at least 10 feet from the source.

Based on a review of available materials, there does not appear to be any observable way to economically strengthen the hollow clay tile and thin concrete topping slabs to mitigate structural damage from significant vibrations. We therefore recommend that vibrations during construction of the 2211 Harold Way project be limited as follows.

1. A survey of the hotel building noting any existing damage to the hollow clay tile should be performed to enable monitoring of the hotel building for structural damage due to vibrations during construction. This initial survey will serve as a baseline to determine if any damage occurs during the demolition and construction of the new building.
2. Foundation and shoring should not use driven or vibration piles. Only cast-in-place or auger piles or micropiles should be used for shoring, underpinning and/or new foundations.
3. The existing structure should be shored at each side of the location where the western portion is to be demolished. After the existing structure is shored, an air gap should be cut between the building to remain and the portion of the building to be demolished at the roof, floor levels and through the above grade walls prior to the demolition of the western portion of the building. The air gap shall be a minimum of 12 inches wide and also be wide enough that no debris can lodge in the gap and transfer vibrations into the portion of the building to remain. The contractor may elect to demolish an entire bay of the existing structure between two column lines so that additional shoring may be minimized or eliminated. This will prevent the transmission of vibrations from the demolition through the existing structural members and, therefore, limit the potential for structural damage due to the vibrations from the demolition. Any debris that becomes lodged in the gap shall be removed as soon as safely possible.
4. Vibrations should also be limited during demolition of the existing below grade wall and foundation concrete so as not to transmit significant vibrations to the remaining structures. The use of jackhammers or smaller hoe-rams with lower impact force should be used wherever possible to limit the vibrations. Larger hoe-rams (rated at greater than 2,000 ft-lbs) should not be used without determining vibrations will be less than the threshold of 0.20 inches per second of vertical movement at the existing hotel by measuring vibrations prior to use under similar conditions and similar distances. The testing agency used for this shall be experienced with measuring vibrations. The areas where the demolition will be closest to the existing building and therefore most likely to

[1] Transportation Related Earthborne Vibrations (Caltrans Experiences), Technical Advisory, Vibration TAV-02-01-R9601, California Department of Transportation, February 20, 2002.

propagate vibrations to the remaining structures are; the demolition of the eastern end of the existing cinema building along Kittredge Street, the demolition for the new construction below the hotel at the corner of Shattuck Avenue and Kittredge Street, and the eastern portion of the former Hinks' Department Store addition at Allston Way and Harold Way. At these areas where the demolition of the below grade concrete will be close to the remaining structures, the concrete should be demolished using methods which limit vibrations, such as the use of jackhammers or smaller hoe-rams with lower impact force as described above even if it is determined that larger hoe-rams can be used elsewhere on the site.

We have not visited or reviewed any documents for any of the other buildings surrounding the construction site at 2111 Harold Way to see if there are any other structures that may be susceptible to structural damage from construction vibrations. We have also not made any site visit to the Strawberry Creek culvert to see if the concrete box culvert could be damaged by excessive vibrations. The buildings on the opposite side of Allston Way and Harold Way are all approximately 60 feet from the edges of the 2211 construction site and the structures on the opposite side of Kittredge Street are at least 50 feet from the construction site. With the exception of the hotel which is immediately adjacent to the proposed construction, the closest structure to the construction site is the Strawberry Creek culvert which runs approximately down the center of Allston Way at about 30 feet from site. The recommended mitigation measures outlined above should be sufficient to prevent damage to other structures as they are further from the sources of the vibrations and are mostly of later construction.

We trust this is the information you were seeking. Please do not hesitate to call us if you have any questions or require additional information.

Very Truly Yours,
Tuan and Robinson, Structural Engineers, Inc.

Alan Robinson
Vice President
License No. S3971, Exp. 12-31-2015

Appendix C

Traffic and Parking Study

Report
35572

2211 Harold Way Traffic and Parking Study

Prepared for City of Berkeley
by IBI Group

Revised July 7, 2014

Document Control Page

CLIENT:	City of Berkeley
PROJECT NAME:	2211 Harold Way Traffic and Parking Study
REPORT TITLE:	2211 Harold Way Traffic and Parking Study
IBI REFERENCE:	35572
VERSION:	
DIGITAL MASTER:	
ORIGINATOR:	Colleen Hsieh
REVIEWER:	Bill Delo
AUTHORIZATION:	
CIRCULATION LIST:	
HISTORY:	

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Executive Summary

The 2211 Harold Way Mixed Use Project is a proposed residential and commercial mixed-use development in Downtown Berkeley. The project's primary street frontage would be along Harold Way, although it would also front on portions of Allston Way and Kittredge Street. Much of the existing structures on the project site would be demolished to accommodate the project, as detailed further below under Site Preparation and Construction. The proposed project would have components of various heights, the highest portion reaching 180 feet in 18 stories. The ground floor is proposed to accommodate retail and/or restaurant uses, in addition to residential lobby and amenity areas. A six-theater cinema complex would be located on the ground floor and below-ground levels. Parking would be provided in a three-level subterranean garage with 171 spaces provided.

Traffic Impact Analysis Summary

The traffic impact analysis was completed for the project consistent with the City of Berkeley's guidelines for the preparation of traffic impact studies. The existing conditions analysis was based on 2013 traffic volumes obtained through new traffic counts conducted in December 2013. Future conditions traffic volumes were obtained through the Alameda County Transportation Commission (ACTC) regional traffic model forecasts for 2020 and 2035. Specific intersection turning movement volumes were obtained by applying an annual growth factor obtained from the model forecasts to existing traffic volumes.

The following traffic conditions were analyzed:

Existing Conditions

- Year 2013 No Project
- Year 2013 With Project

Future Year 2020 Analysis

- Year 2020 No Project
- Year 2020 With Project

Future Year 2035 Analysis

- Year 2035 No Project
- Year 2035 With Project

The Future Year 2020 and Year 2035 analyses utilize the current street network configurations along Shattuck Avenue between University Avenue and Durant Avenue, but include the approved plan to convert the west leg of Shattuck Avenue between University Avenue and Center Street from one-way to two-way traffic.

Existing Conditions

The results of the existing conditions analysis are summarized in detail in Section 5.2 of this report. Under the existing conditions, all study intersections are forecast to operate at LOS C or better. There are no project impacts under the existing conditions scenario.

Future Year 2020 Analysis

The results of the Year 2020 plus project analysis are summarized in detail in Section 5.3 of this report. All study intersections are forecast to operate at acceptable levels of service during both peak periods. No project-related impacts are forecast for any study intersections.

Future Year 2035 Analysis

The results of the Year 2035 analysis are summarized in detail in Section 5.4 of this report. Significant traffic impacts forecast to occur in the Future Year 2035 scenario is described below in the Project Impacts and Mitigations Section.

Additional Analyses

Transit Analysis – No significant impacts are anticipated on the transit lines providing service to Downtown Berkeley. Detail is provided in Section 5.6 of this report.

Pedestrian Analysis – The results of the Pedestrian Environmental Quality Index (PEQI) analysis are provided in Section 7.0 of this report. The project is anticipated to contribute positively to the pedestrian environment surrounding the project site.

Bicycle Analysis – The results of the Bicycle Environmental Quality Index (BEQI) analysis are provided in Section 8.0 of this report. The project is anticipated to contribute positively to the bicycle environment surrounding the project site.

Parking Analysis – Consistent with City of Berkeley direction, an estimate of potential project parking demand was developed using the UREBMIS model. The model forecasts the estimated peak parking demand generated by the project to be 262 vehicles. This forecast is higher than the minimum parking requirements as set forth by the City of Berkeley for the project. The minimum number of parking spaces required by the City of Berkeley is 146 spaces. The project proposes to provide 171 parking spaces.

While the UREBMIS model estimates that parking demand could exceed the number of spaces provided for the project, there are project features that cannot be accounted for in the UREBMIS model. One such project feature is the unbundling of parking from the rental of the apartment unit. This factor is anticipated to substantially reduce the residential parking demand from 171 spaces identified in Table 9-5. Additionally, the parking demand generated by the non-residential uses could be accommodated in other public parking facilities (both on-street and off-street) in the vicinity of the project site. As such, no impacts are anticipated to result from the parking demand generated by the project.

Site Access – Section 10 of this report summarizes the results of the site access analysis and assessment of sight distances from the project access driveway. The project driveway configuration is anticipated to provide for adequate traffic operations during both the AM and PM peak hours. Adequate site distance is also provided.

Congestion Management Plan (CMP) Requirements

The proposed project is not forecast to generate more than 100 net new automobile trips during the PM peak hour. Projects below this threshold are not required to conduct an analysis of traffic conditions on roadways designated as part of the Metropolitan Transportation System (MTS) roadway network.

Project Impacts and Mitigations

No project-related impacts were identified for the Existing Year 2013 and Future Year 2020 intersection level of services analyses. In the Year 2035, the project is forecast to be responsible for a significant impact at the intersection of Shattuck Avenue and Durant Avenue (#9).

The impact results from the forecast increase in average delay at the intersection, which is anticipated to operate at LOS E in both the no project and with project condition. In order to mitigate the impact at this location, improvements must be made to reduce the project-related increase in PM peak hour average delay from 3.2 seconds to less than 3 seconds. This impact could be mitigated by restriping the northbound outside lane to provide a dedicated right turn pocket. The pocket would be limited in length due to presence of buffered on-street parking on Shattuck Avenue, but this change would improve the with project condition to LOS C. The project would be responsible for the cost of striping and appropriate signage.

1 Introduction

This report documents the results of the traffic impact and parking analysis conducted in support of an Environmental Impact Report (EIR) for a proposed mixed-use project at 2211 Harold Way in Berkeley, California.

1.1 Report Sections

The information contained in this report is presented in the following sections:

Executive Summary

1 Introduction

2 Existing Conditions

3 Future Baseline (No Project) Conditions

4 Project Conditions

5 Intersection Level of Service Analysis

6 CMP Roadway Analysis

7 Pedestrian Environmental Quality Index (PEQI) Analysis

8 Bicycle Environmental Quality Index (BEQI) Analysis

9 Parking Analysis

10 Site Circulation Analysis

11 Project Impacts and Mitigation Measures

Section 1 introduces the report, identifies the main sections, and provides a general overview of the project area. The existing transportation conditions are presented in Section 2. Section 3 describes the forecast transportation conditions for future year 2020 and horizon year 2035 without the proposed project. The project and the transportation conditions associated with the project are discussed in Section 4. The intersection level of service methodology and the analysis results for all existing and future forecast scenarios are presented in Section 5. The roadway level of service for study area facilities that are a part of the CMP and/or MTS networks is calculated in Section 6. Section 7 contains the Pedestrian Environmental Quality Index (PEQI) analysis results, and the results of the Bicycle Environmental Quality Index (BEQI) analysis are presented in Section 8. Section 9 includes a parking analysis for the proposed project. The site circulation analysis is presented in Section 10, including an assessment of access and egress, driveway locations, loading capacity and potential construction impacts. Section 11 contains the recommended mitigation measures to address traffic impacts anticipated to occur within the study area and the project's fair share contribution to specific impacts.

1.2 Project Description

The 2211 Harold Way Mixed Use Project is a proposed residential and commercial mixed-use development in Downtown Berkeley. The project's primary street frontage would be along Harold Way, although it would also front on portions of Allston Way and Kittredge Street. Much of the existing structures on the project site would be demolished to accommodate the project, as detailed further below under Site Preparation and Construction. The proposed project would have components of various heights, the highest portion reaching 180 feet in 18 stories. The ground floor is proposed to accommodate retail and/or restaurant uses, in addition to residential lobby and amenity areas. A six-theater cinema complex would be located on the ground floor and below-ground levels. Parking would be provided in a three-level subterranean garage. The proposed project includes the following components:

- 302 apartment/condominium units (including 28 affordable units)
- 2,902 square feet of ground floor common area for project residents, including 1,499 square feet of lobby area and a 1,403 square-foot community room available to be reserved by the residents for parties and other social events
- Residential open space, consisting of 14,535 square feet of shared rooftop terraces and 11,045 square feet of private balconies and decks
- An AC Transit pass would be provided for each apartment/condominium unit
- Six new movie theaters to replace the existing Shattuck cinemas, totaling 19,460 square feet
- 10,535 square feet of retail and/or restaurant commercial floor area fronting Allston and Harold Ways and Kittredge Street
- 1,872 square feet of privately owned, publicly accessible open space at the corner of Kittredge Street and Harold Way with improvements including special paving and amenities, and street improvements along Harold and Allston Ways (please see the discussion below under Offsite Public Improvements for further details)
- 171 parking spaces in a three–level, subterranean parking structure accessed from Kittredge Street, including 11 electric vehicle charging stations and 6 spaces reserved for carsharing vehicles
- 100 secured bicycle storage spaces within the building, including spaces on the first level as well as in the parking garage

Existing site uses to be removed include:

- The existing Shattuck Cinema facility, which occupies 23,474 square feet and includes 10 theaters with a total of 855 seats
- The Habitot children's museum, which currently occupies 7,056 square feet
- A 263 square foot medical office
- 32,626 square feet of occupied general office space
- 8,281 square feet of leasable office space that is currently vacant

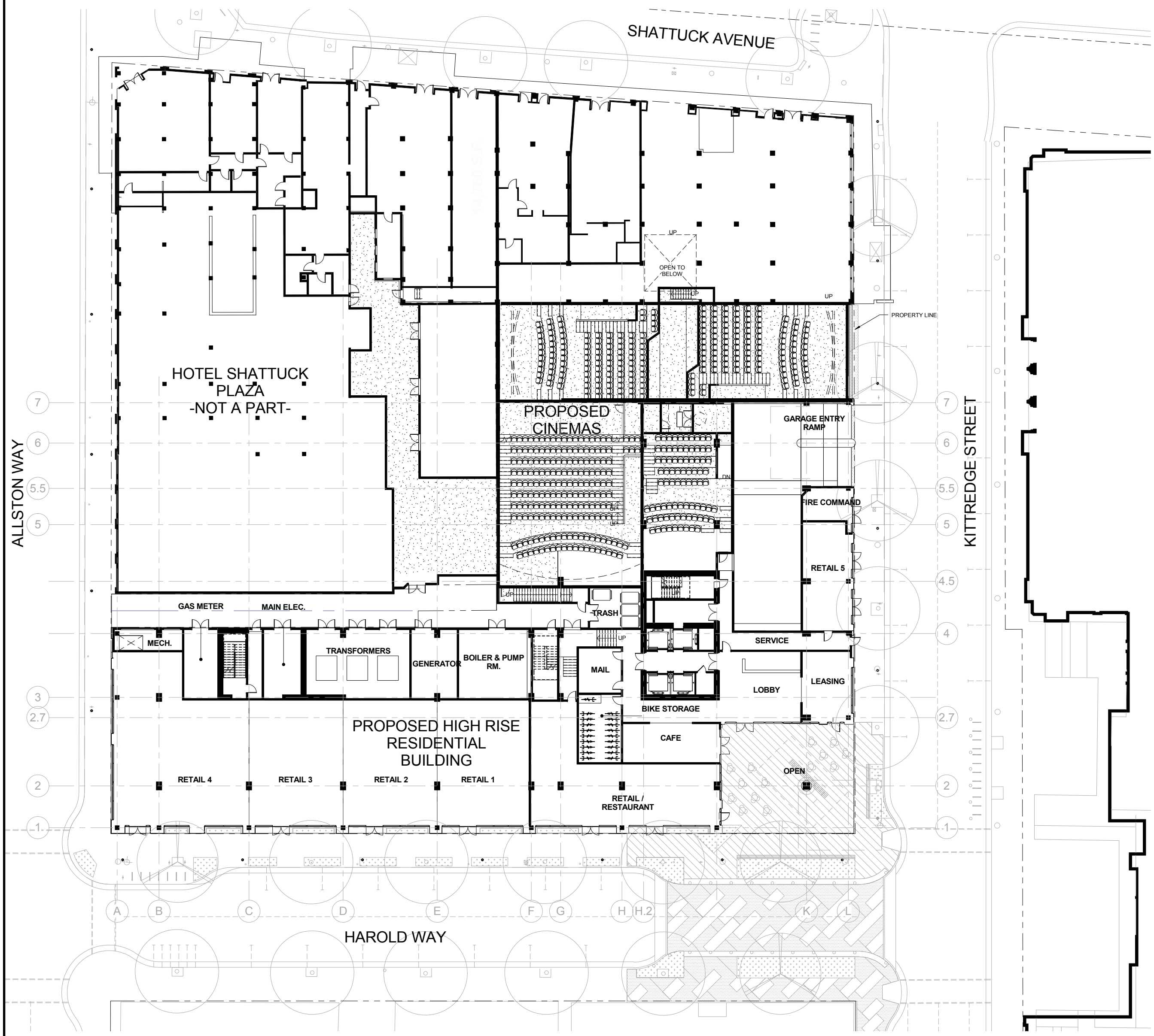
1.2.1 Study Area

The project is located in Downtown Berkeley, one block west of the University of California campus. The project site is bordered by Allston Way to the north, Kittredge Street to the south, Harold Way to the west, and Shattuck Avenue to the east. The existing use of the site consists of leasable office, research and development, restaurant and entertainment space. The Hotel Shattuck Plaza and the retail land uses with frontage on Shattuck Avenue are not part of this project. The project location and study area boundaries are shown in Figure 1.1, and the project site plan is shown in Figure 1.2.

The site is part of the Downtown Berkeley Core Area and is zoned for commercial downtown mixed-use (C-DMU Core). In this area, uses are encouraged that allow people who live, work and learn in Downtown to meet daily needs on foot. Allowable uses include commercial (retail, restaurant, office, cinema, hotel, and personal and professional services), multifamily residential, cultural and community uses, educational uses and public and private open space.

FIGURE 1.1 PROJECT LOCATION AND STUDY AREA

FIGURE 1.2 SITE PLAN



1.2.2 Analysis Years

The traffic analysis conducted for 2211 Harold Way includes an assessment of traffic conditions at 10 intersections for the following analysis timeframes:

- Existing Year (2013)
- Future Year (2020)
- Future Year (2035)

1.2.3 Study Intersections

Ten existing intersections have been identified for analysis in this study. The list of study intersections has been approved by the City and includes:

1. Martin Luther King Jr. Way & Allston Way
2. Milvia Street & Center Street
3. Milvia Street & Allston Way
4. Milvia Street & Kittredge Street
5. Shattuck Avenue & Center Street
6. Shattuck Avenue & Allston Way
7. Shattuck Avenue & Kittredge Street
8. Shattuck Avenue & Bancroft Way
9. Shattuck Avenue & Durant Avenue
10. Oxford Street & Allston Way

2 Existing Conditions

2.1 Study Area

The project study area is bounded by Center Street to the north, Durant Avenue to the south, Martin Luther King Jr. Way to the west, and Oxford Street to the east.

2.2 Study Area Roadway Network

The roadway network in the study area is laid out in a grid formation. The main roadways that serve the study area in the north-south direction are Martin Luther King Jr. Way, Shattuck Avenue, and Oxford Street. In the east-west direction, there is one main arterial roadway, University Avenue, which provides a connection from the study area to Interstate 80 (I-80). There are several smaller secondary east-west local and collector streets in the study area, such as Center Street, Allston Way, Bancroft Way and Durant Avenue. Other streets complement the lists presented above, but primarily serve as local access streets. The existing configuration of selected arterial roadways and streets that serve or cross the study area are described here.

- **Shattuck Avenue** is a four-lane divided major street that runs north and south in the project area. Between University Avenue and Center Street, Shattuck Avenue branches into two separate one-way streets. The west branch has three southbound lanes, and the east branch has three northbound lanes. Shattuck Avenue has retail and commercial property along the east and west sides. On-street parking is available, and is separated from through traffic lanes by parking bays with landscaped buffers along some segments.
- **Oxford/Fulton Street** is a north-south divided major street that runs along the west side of the University of California at Berkeley (UCB) campus. The four-lane roadway is named Oxford Street north of Kittredge Street, and becomes Fulton Street south of Kittredge. South of Durant Avenue, Fulton transitions into a one-way street with two southbound lanes. Metered on-street parking is available on both sides of the street.
- **Martin Luther King Jr. Way** is a four-lane undivided major street that runs north and south in the project area. Parking is permitted on both sides of the street. Land uses to the west of MLK Jr. Way are primarily residential. Land uses on the east side of the street include residential, commercial, institutional and open space.
- **Center Street** is an east-west local street with one lane in each direction. Ground floor retail and restaurants line the street, and there is high pedestrian activity between UC Berkeley and Shattuck Avenue. Center Street is a heavily-used bicycle route with a Class II bike lane from Milvia to Shattuck.
- **Allston Way** is an east-west local street with one lane in each direction. Metered on-street parking is provided on both sides of the street. Adjacent land uses include commercial, hotel, institutional and open space.
- **Kittredge Street** is an east-west local street with one lane in each direction that extends from Milvia Street to Oxford Street. Metered on-street parking is provided on both sides of the street. Land uses with frontage on Kittredge Street include public (post office, library), institutional, commercial and residential.
- **Bancroft Way** is a two-lane, east-west Collector Street with one lane in each direction west of Shattuck Avenue. East of Shattuck Avenue, Bancroft is one-way street with two westbound lanes. Metered on-street parking is provided on both sides of the street.

- **Durant Avenue** is a two-lane, east-west Collector Street with one lane in each direction west of Shattuck Avenue. East of Shattuck Avenue, Durant is a one-way street with two eastbound lanes. Metered on-street parking is provided on both sides of the street.
- **Harold Way** is a north-south local street that extends between Allston Way and Kittredge Street. It has one lane in each direction. Metered on-street parking stalls are located along both sides of the street and parking is limited to 90 minutes between the hours of 9:00 AM and 6:00 PM. There are sidewalks with street trees planted along the curb on both sides of the street. There are bike racks along the west side of the street, and a designated motorcycle parking space at the north end.
- **Milvia Street** is a north-south collector street with one lane in each direction, and is designated as Alameda County Bicycle Route 35. South of Allston Way, there is a bike lane in each direction outboard of on-street parking. North of Allston Way, Milvia Street is a Bicycle Boulevard. Metered on-street parking stalls are located on both sides of the street, except along the west side of the street between Allston Way and Bancroft Way, which is a loading zone area adjacent to Berkeley High School. There are sidewalks with street trees planted along the curb on both sides of the street.

The study intersection and roadway lane geometry is shown in Figure 2.1.

2.3 Traffic Counts

Peak period turning movement counts were taken at the ten study intersections from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM on Tuesday, December 3rd, 2013. The AM and PM peak hour count volumes are illustrated in Figure 2.2.

FIGURE 2.1 EXISTING STUDY INTERSECTION & ROADWAY LANE GEOMETRY

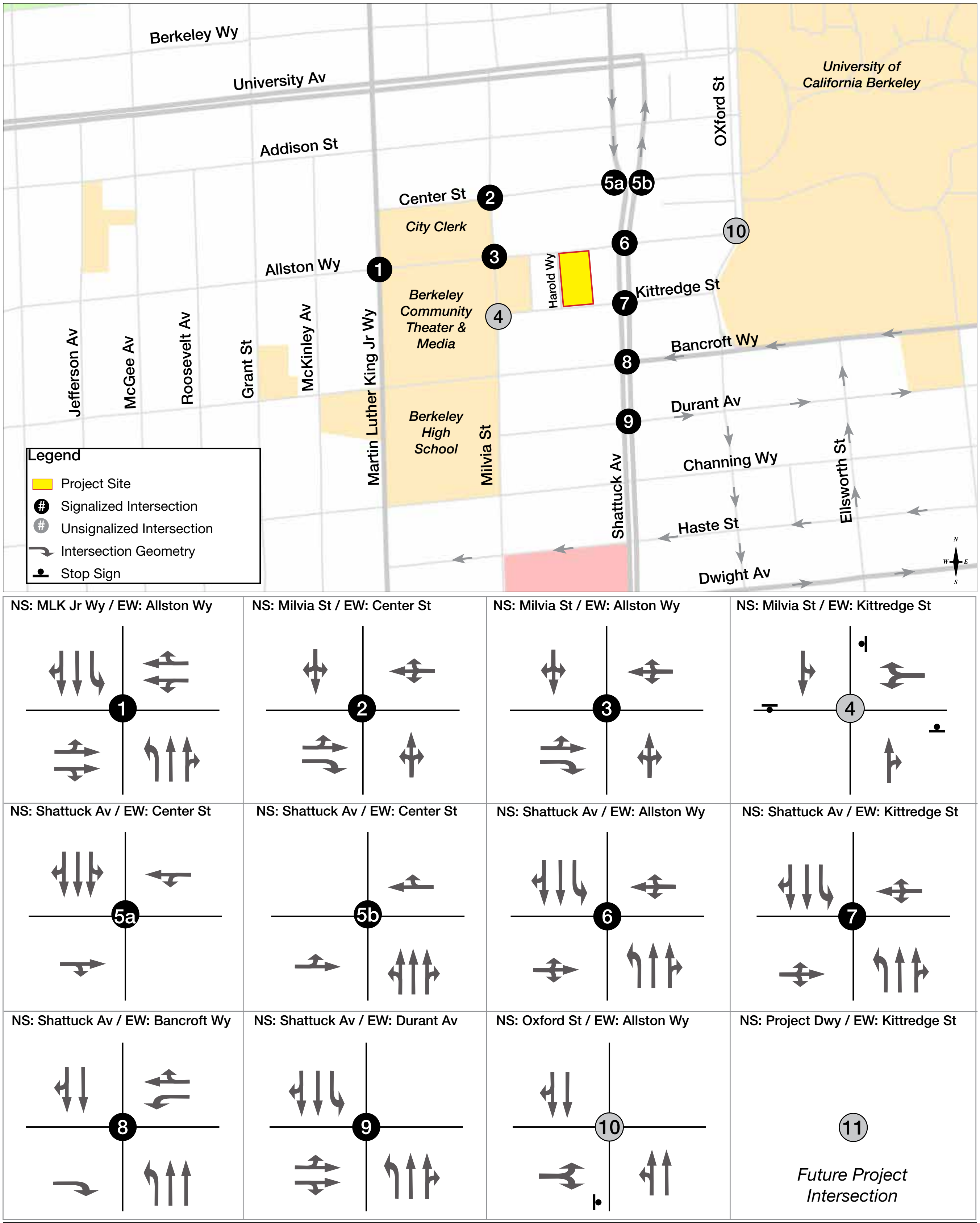
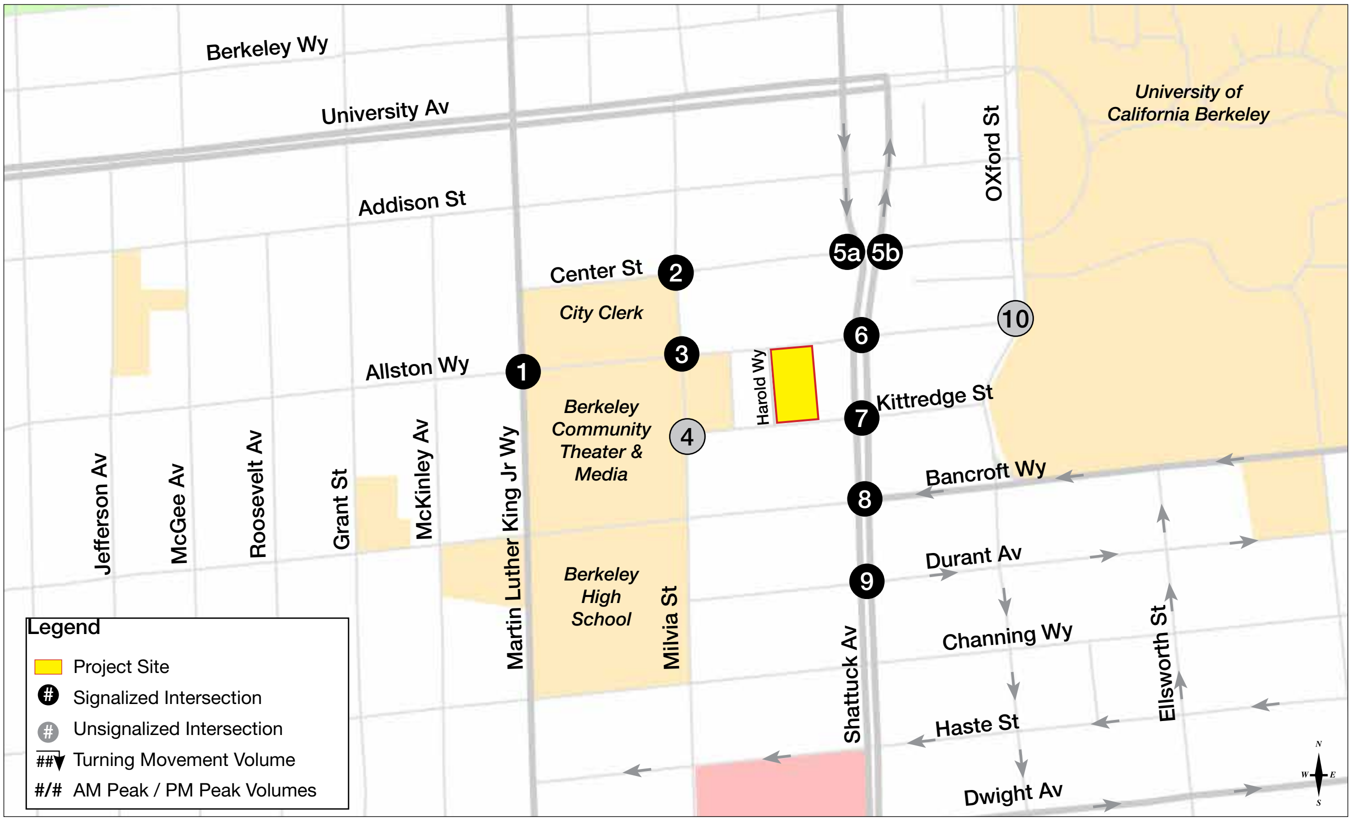
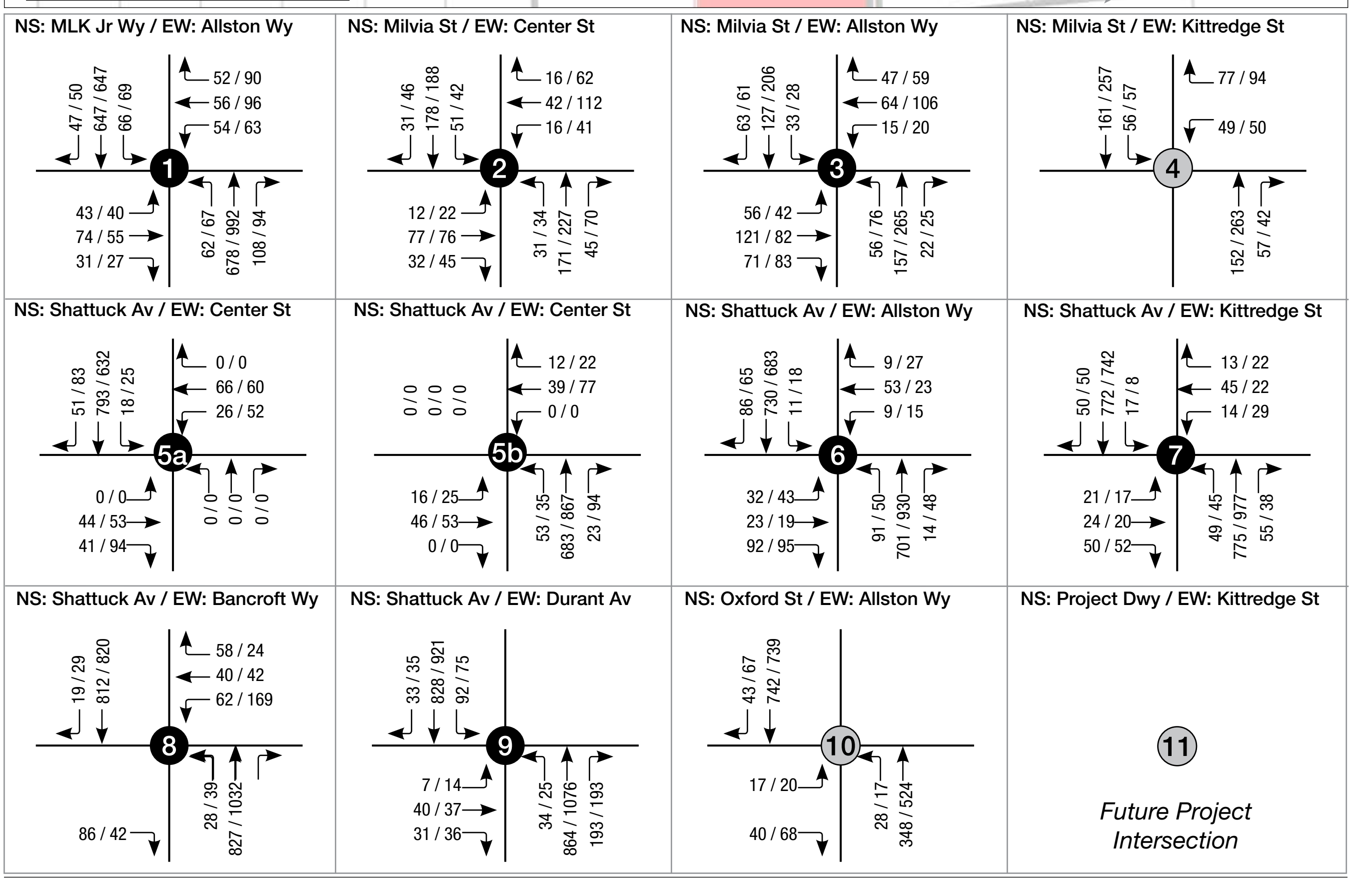


FIGURE 2.2 EXISTING TURNING MOVEMENT COUNTS





2.4 Collision History

Collision data at the ten study intersections were provided by the City of Berkeley for the time period from July 2007 to March 2012. The collision data consisted of a list of collisions and their characteristics, including:

- Date of Collision (Day, Month, and Year)
- Collision Type (Broadside, Head-On, Rear-End, Sideswipe, Hit Object)
- Involved Parties (Vehicle to Vehicle, Vehicle to Bicyclist, Vehicle to Pedestrian, Vehicle to Object)
- Number of Injuries

2.4.1 Overall Collision Summary

Based on the provided data, there were a total of 84 collisions and 47 injuries at the 10 study intersections between 2007 and 2012, as illustrated in Table 2-1.

Table 2-1 Overall Collision Summary

#	Intersection	Number of Injuries			Number of Collisions
		Property Damage	Injury	Fatal	
1	MLK Jr. Wy & Allston Wy	4	4	0	8
2	Milvia St & Center St	2	8	0	10
3	Milvia St & Allston Wy	5	4	0	9
4	Milvia St & Kittredge St	2	1	0	3
5	Shattuck Ave & Center St	5	3	0	8
6	Shattuck Ave & Allston Wy	2	2	0	4
7	Shattuck Ave & Kittredge St	7	4	0	11
8	Shattuck Ave & Bancroft Wy	5	8	0	13
9	Shattuck Ave & Durant Ave	2	9	0	11
10	Oxford St & Allston Wy	3	4	0	7
Total		**37**	**47**	**0**	**84**

Source: City of Berkeley, July 2007-March 2012

2.4.2 Primary Collision Type

The type of collisions include broadside, rear-end, sideswipe, vehicle-pedestrian, vehicle-bicycle, and other (which encompasses head-on collisions and collisions involving a fixed object) Within the study area, rear-end collisions were the leading collision type with 22 collisions; followed by 21 broadside collisions, 20 sideswipe collisions, 10 vehicle-bicycle/pedestrian collisions, and 11 involving head-on collisions or a fixed object. The number of collisions by type within the study area is summarized in Table 2-2.

Table 2-2 Collision Summary by Type

#	Intersection	Collision Type				
		Broadside	**Rear End**	**Sideswipe**	**Vehicle-Ped/Bike**	**Other**
1	MLK Jr. Wy & Allston Wy	3	3	1	1	0
2	Milvia St & Center St	4	2	1	0	3
3	Milvia St & Allston Wy	3	1	4	1	0
4	Milvia St & Kittredge St	0	2	0	0	1
5	Shattuck Ave & Center St	1	3	3	1	1
6	Shattuck Ave & Allston Wy	0	1	1	1	1
7	Shattuck Ave & Kittredge St	5	2	2	3	2
8	Shattuck Ave & Bancroft Wy	2	3	3	1	0
9	Shattuck Ave & Durant Ave	2	4	2	1	2
10	Oxford St & Allston Wy	1	1	3	1	1
Total		**21**	**22**	**20**	**10**	**11**

Source: City of Berkeley, July 2007-March 2012

2.4.3 Collision by Time of Day

Within the study corridor, collisions were categorized into five time periods between:

- Midnight to 5:59 a.m. (AM off peak period)
- 6:00 a.m. to 9:59 a.m. (AM peak period)
- 10:00 a.m. to 2:59 p.m. (Noon peak period)
- 3:00 p.m. to 6:59 p.m. (PM peak period)
- 7:00 p.m. to 11:59 p.m. (PM off peak period)

The data shows that collisions at the ten study intersections typically occur during the PM peak periods, with 30 reported collisions. There are 19 reported collisions during the PM off peak period, 15 collisions during the AM peak period, 14 collisions during the Noon peak period, and 6 collisions during the AM off peak period. Table 2-3 provides a summary of the number of collisions by time of day.

Table 2-3 Collision Summary by Time of Day

#	Intersection	Collision by Time of Day				
		AM off peak	AM peak	Noon peak	PM peak	PM off peak
1	MLK Jr. Wy & Allston Wy	0	3	1	3	1
2	Milvia St & Center St	0	2	0	4	4
3	Milvia St & Allston Wy	0	1	2	5	1
4	Milvia St & Kittredge St	0	1	1	1	0
5	Shattuck Ave & Center St	1	2	2	2	1
6	Shattuck Ave & Allston Wy	0	0	0	4	0
7	Shattuck Ave & Kittredge St	1	0	1	3	6
8	Shattuck Ave & Bancroft Wy	3	2	3	3	2
9	Shattuck Ave & Durant Ave	1	3	3	3	1
10	Oxford St & Allston Wy	0	1	1	2	3
Total		**6**	**15**	**14**	**30**	**19**

Source: City of Berkeley, July 2007-March 2012

2.5 Pedestrian Facilities

The project study area consists of 9 signalized intersections and 1 unsignalized intersection. The most basic elements of the pedestrian network are sidewalks, pathways, crosswalks, and curb ramps. All study streets provide sidewalks and all study intersections provide crosswalks with curb ramps. Push buttons are available at each leg of the signalized intersections and range from mushroom shaped to thumb sized.

Improvements to pedestrian facilities that are featured in the City's Pedestrian Master Plan (and not associated with the Harold Way project) include:

- **Milvia from Allston to Dwight:** Remove free right-turn at Allston
- **Martin Luther King Jr. Way from Allston Way to University Avenue:** Construct bulbouts, install pedestrian-actuated flashing beacon, and install audible pedestrian signals.
- **Bancroft Way at Oxford/Fulton Streets**: Install countdown signals and consider bringing free-right-turn-lane under stop or signal control.

See Section 7 for a description of the pedestrian enhancements that are proposed as part of this project.

2.6 Bicycle Facilities

The existing bicycle network in Berkeley consists of more than 15 miles of designated bike routes, lanes, and paths, as well as over a hundred miles of low-traffic residential streets. Parking for bicycles includes bicycle racks and lockers located at bus stops, city-owned parking lots, churches, office garages, local businesses and apartment buildings. Other amenities include bicycle traffic signals and bicycle detector loops. The bicycle classifications as designated in the City of Berkeley Bicycle Plan are:

- **Bike Path (Class 1):** Dedicated paved facilities designated for bicycle use that are physically separated from roadways by space or a physical barrier.
- **Bike Lane (Class II):** Striped lanes on the outside edge of roadways reserved for the exclusive use of bicycles, and designated with special signing and pavement markings.

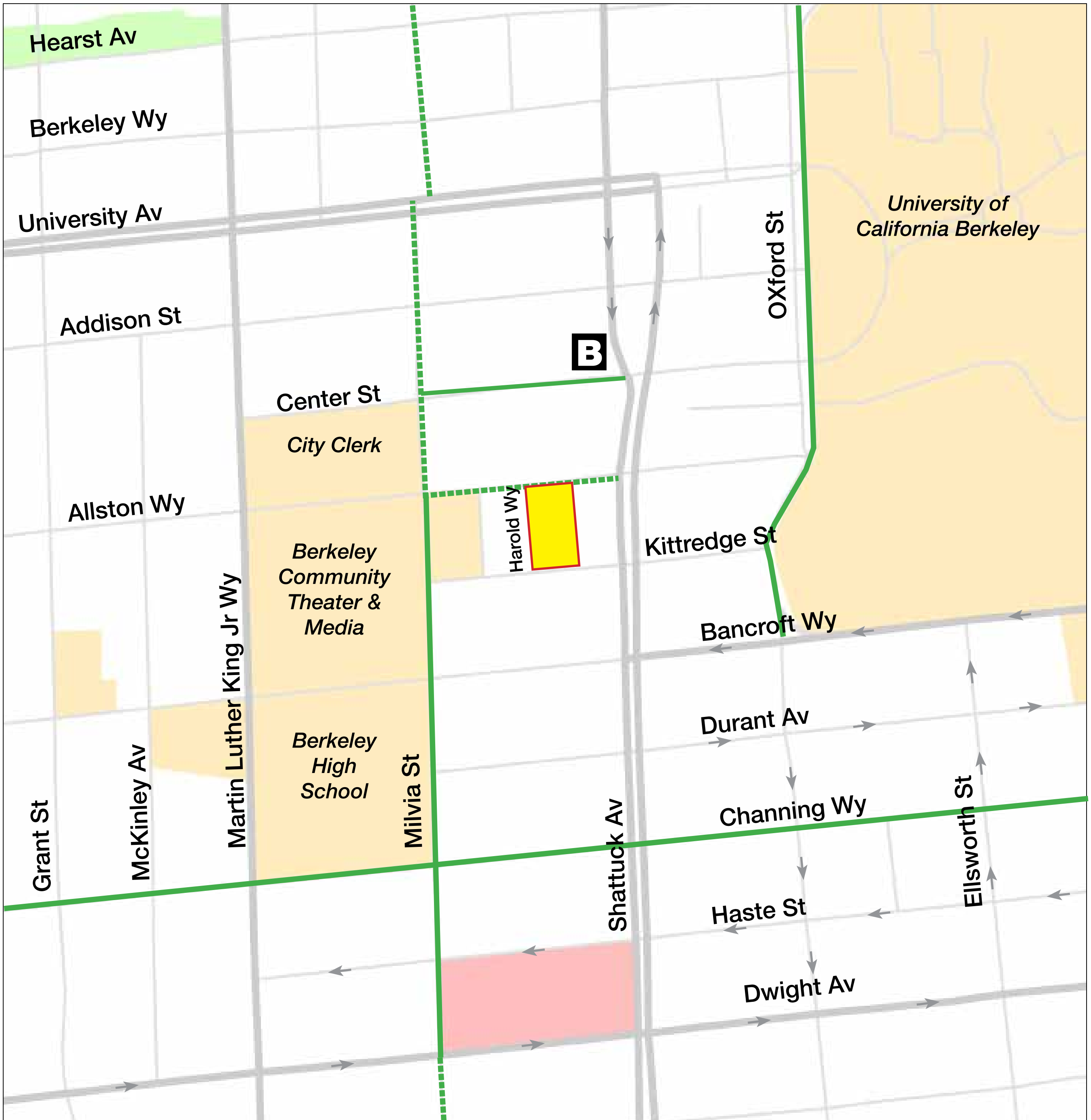
- **Bike Route (Class III):** Roadways that are signed as a bikeway because it provides continuity in the overall bikeway network or it identifies as a route which is somehow preferable to immediately adjacent streets.

The City of Berkeley also categorizes two additional classifications of bikeway types:

- **Shared Roadway (Class 2.5):** Roadways that are signed and improved as a bikeway because it provides direct access and connections to major destinations in Berkeley.
- **Bike Boulevard:** Roadways that have been modified as needed to enhance bicyclists' safety and convenience.

Figure 2.3 illustrates the existing bicycle facilities within the study area.

FIGURE 2.3 EXISTING BICYCLE MAP



Legend

- Project Site
- Bike Lane (Class II)
- Bike Route (Class III)
- B Berkeley BART Station & Bicycle Station

2.7 Transit Services

The City of Berkeley is served by regional transit routes operated by the Bay Area Rapid Transit (BART), as well as intercity rail routes operated by Amtrak. Bus transit and shuttle service providers include AC Transit and Bear Transit. The Berkeley BART Station is located within the study area at the intersection of Shattuck Avenue and Center Street. Within the study area, the following transit providers include:

- BART – A rapid transit system (heavy-rail public transit) serving the San Francisco Bay Area.
- AC Transit – Public transit agency that serves the western portions of Alameda and Contra Costa counties in the East Bay portion of the San Francisco Bay Area.

Bear Transit – A UC Berkeley shuttle system, servicing the campus and vicinity and open to the public. Services provide connections around campus to Downtown Berkeley. The daily activity at transit stops (ons and offs) in the project study area is approximately 39,175 passengers. Of these, about 35% are AC Transit users and 65% are BART users.

Bay Area Rapid Transit

The Bay Area Rapid Transit (BART) network provides service to the downtown area through the Downtown Berkeley Station. This station has the eighth highest ridership volume in the BART system. The average number of weekday passengers at the Downtown Berkeley Station is estimated to be 25.367[1] people, with 12,469 entries (ons) and 12,898 exits (offs). The top three BART stations in terms of activity to and from Downtown Berkeley are El Cerrito del Norte (1,962 trips/day), Montgomery Street (1,907 trips/day), and Embarcadero (2,203 trips/day).

The Downtown Berkeley Station, located near the corner of Center Street and Shattuck Avenue, is served by two lines. The Richmond/Fremont train runs seven days a week between the hours of 4:00 AM and 1:30 AM (weekday), 6:00 AM and 1:30 AM (Saturday), and 8:00 AM and 1:30 AM (Sunday). The Richmond/Daly City/Millbrae train runs six days a week from 4:00 AM to 9:00 PM (weekday), and 8:45 AM to 7:45 PM (Saturday). The train lines operating between Richmond-Daly City/Millbrae and Richmond-Fremont run with 15-minute headways on weekdays and 20-minute headways on weekends, for a total of 16 stops per hour (8 in each direction) at this station during the weekday peak periods.

The maximum number of cars per train during the weekday AM and PM peak hours is 10 for the Richmond-Millbrae line and 8 for the Richmond-Fremont line. It was considered that the proportion between maximum loads during peak hours and daily passengers on the line does not vary throughout the years, and the load values observed for the two lines that serve the Downtown Berkeley station in November and December 2012 were scaled to represent the station volumes for 2013. The expected maximum loads for each of the peak periods are included in Table 2-4.

[1] BART, average for the months of August-December 2013, weekday OD

Table 2-4 BART 2013 AM and PM Maximum Load Factors

Line	Year 2013 AM Maximum Load[2]	Year 2013 AM Load Factor	Year 2013 PM Maximum Load[3]	Year 2013 PM Load Factor
Richmond-Millbrae	120	1.12	117	1.09
Richmond-Fremont	106	0.99	102	0.95

Note: Load factors calculated considering car capacity of 107 passengers (60 seated and 47 standees)

AC Transit

Alameda County Transit (AC Transit) provides bus service to Downtown Berkeley seven days a week, 24 hours a day. A total of 15 routes (12 local, one Transbay, and two all-night services) link the vicinity of the project site to the rest of Alameda County and into San Francisco. Individual route descriptions are provided below. Headways range significantly between the different routes, with all-night routes typically running in less frequently (60-minute headways). The line descriptions are outlined below, and the average weekday headway for peak hours on the local service is approximately 10 to 40 minutes.

AC Transit Local Service

- AC Transit Line 1: Line 1 runs on weekdays and weekends between Bay Fair BART and Berkeley BART station. It loops around the Berkeley BART station using Bancroft Way, Oxford Street, Center Street, Shattuck Avenue and Durant Avenue.
- AC Transit Line 1R: Line 1R runs on weekdays between Bay Fair BART to the West Entrance of UC Berkeley, and provides service to the Berkeley BART station. It loops around the Berkeley BART station using Bancroft Way, Shattuck Avenue, Berkeley Way, Oxford Street, University Avenue, Shattuck Avenue and Durant Avenue.
- AC Transit Line 7: Line 7 runs on weekdays and weekend between Berkeley BART station and El Cerrito Del Norte BART station. The line approaches the study area from the north on Shattuck Avenue, and loops around the Berkeley BART station using Hearst Avenue, Oxford Street, Allston Way, Shattuck Avenue and University Avenue, heading back north through Shattuck Avenue.
- AC Transit Line 12: Line 12 runs on weekdays and weekend between Berkeley BART station and Downtown Oakland. The line approaches the study area from the south on Martin Luther King Jr. Way, and loops around the Berkeley BART station using Center Street, Shattuck Avenue and Allston Way, exiting south through Martin Luther King Way.
- AC Transit Line 18: Line 18 runs on both weekdays and weekends, traversing the downtown area on Shattuck Avenue.
- AC Transit Line 25: Line 25 runs on both weekdays and weekends, and is composed by a clockwise loop and a counter-clockwise loop in Albany. The line's

[2] Estimated average number of on-board passengers for the entire segment of one trip of each bus line during the AM Peak Hour
[3] Estimated average number of on-board passengers for the entire segment of one trip of each bus line during the AM Peak Hour

termini are the El Cerrito Plaza BART station, and both loops serve the Berkeley downtown area The line approaches the study area from the north on Martin Luther King Jr. Way, and loops around the Berkeley BART station using Center Street, Shattuck Avenue and Allston Way, exiting north through Martin Luther King Way.

- AC Transit Line 49: Line 49 runs on both weekdays and weekends, and is composed by a clockwise loop and a counter-clockwise loop in Berkeley. The line's termini are the Rockridge BART station, and both loops serve the Berkeley downtown area. The clockwise loop approaches the downtown area from the south on Shattuck Avenue, serves the Berkeley BART station, and exits using Addison Avenue, Oxford Way and Durant Avenue. The counter-clockwise loop enters the study area through Bancroft Way, proceeds north on Oxford Street, west on Center Street and then south on Shattuck Avenue, exiting the downtown area through Haste Street.
- AC Transit Lone 51B: Line 51B runs both on weekdays and weekends and traverses the downtown area on Shattuck Avenue, as part of the itinerary connecting the Rockridge BART station to the Berkeley Amtrak station. When serving the Amtrak destination, the route enters the study area through Bancroft Way, and exits through University Avenue. In the opposite direction, the route enters through University Avenue and exits through Durant Avenue.
- AC Transit Line 52: Line 52 runs on weekdays and weekend. The route has an eastern terminus near the Berkeley downtown area (Bancroft Way/Telegraph Avenue) and the western terminus id located in the vicinity of Albany City Hall (Jackson Street /Monroe Street). The line enters the downtown area from the east through Bancroft Way, heads north on Shattuck Avenue and then west on University Avenue. In the opposite direction, the line runs slightly north of the area of interest, on University Avenue, north on Oxford Street and then east on Hearst Avenue.
- AC Transit Line 65: Line 65 runs on weekdays and weekends, and the Berkeley BART station is the line's southern terminus. It approaches the station from the north on Oxford Street, loops around the station using Center Street, Shattuck Avenue, University Avenue and heads north on Oxford Street in direction to the Lawrence Hall of Science.
- AC Transit Line 67: Line 67 runs on weekdays and weekends, with slight variations to the itinerary on the northern portion of the line. It approaches the downtown area from the north on Oxford Street, loops around the Berkeley BART station using Allston Way, Shattuck Avenue, University Avenue and heads north on Oxford Street in direction to Spruce Street, and the northern termini (Spruce Street/Grizzly Peak Boulevard on weekdays and Tilden Park on weekends).
- AC Transit Line 88: Line 88 runs both weekdays and weekends between Lake Merritt BART and Berkeley BART. The line approaches the downtown area from the west on University Avenue, reaches the BART station through Shattuck Avenue. The line leaves the station on Center Street, then heads north on Martin Luther King Jr. Way until University Avenue, exiting the downtown area.

AC Transit All Nighter Service

- AC Transit Line 800 All Nighter: Line 800 is a daily service (including holidays) and connects Market Street/Van Ness Avenue to the Richmond BART station, running on Shattuck Avenue and University Avenue in the downtown Berkeley area.
- AC Transit Line 851 All Nighter: Line 851 is a daily service and runs between the Fruitvale BART and Berkeley BART stations. It approaches the downtown area from

the southeast on Bancroft Way, heads north on Shattuck Avenue until the BART station. In the opposite direction, heads south from the BART station on Shattuck Avenue, and exits the area to the east on Durant Avenue.

AC Transit Transbay Service

- AC Transit Line F Adeline: Line F runs on weekdays and weekends between San Francisco (Transbay Temporary Terminal) and the UC Berkeley Campus. The line enters the downtown area from the east through Bancroft Way, heads north on Oxford Street, west on Center street and exits the area to the south through Shattuck Avenue. In the opposite direction, the line enters the downtown area through Shattuck Avenue, and exits on Hearst Avenue in order to serve the UC Berkeley Campus.
- AC Transit Line FS: Line FS runs only on weekdays between Francisco (Transbay Temporary Terminal) and Solano Avenue /Colusa Avenue. In the downtown area, the itinerary runs on Shattuck Avenue and on University Avenue, north of the project site, and has not been considered as impacted by the project.

AC Transit School Service

Two AC Transit School Lines run within the limits of the project study area. These lines are Line 604 and 605. They both loop around the Berkeley BART station in the downtown area, but are not further considered in the analysis of the impacts generated by the project as they are not intended to serve the general public.

Table 2-5 shows a line by line and directional breakdown for a typical weekday on the AC Transit lines that service the project study area. The data presented for the Study Area is specific to the limits of the area bound by Center Street, Oxford Street/Fulton Street, Durant Avenue and Martin Luther King Jr. Way.

Table 2-5 AC Transit Study Area Serving Route Ridership

Route	# of Stops in Project Study Area	Direction	ON	OFF	Study Area Stop Activity	Total Study Area Activity	% of Total Route's Ridership
1	2	NB	3	726	729	1517	6%
	4	SB	774	14	788		6%
1R	1	NB	9	642	651	1155	6%
	1	SB	493	11	504		5%
7	2	NB	186	0	186	344	26%
	1	SB	0	158	158		21%
12	4	NB	5	400	405	765	17%
	3	SB	358	2	360		14%
18	3	NB	620	460	1080	2254	13%
	3	SB	575	599	1174		14%
25	2	CW	116	100	216	482	26%
	2	CCW	131	135	266		29%
49	5	CW	294	147	441	770	19%
	4	CCW	155	174	329		15%
51B	2	NB	615	1027	1642	3731	16%
	3	SB	1412	677	2089		19%
52	2	NB	252	145	397	397	19%
	0	SB	0	0	0		0%
65	1	EB	371	0	371	601	33%
	1	WB	0	230	230		32%
67	2	EB	128	0	128	200	35%
	1	WB	0	72	72		26%
	1	SB	307	0	307		12%
800	3	EB	9	13	22	43	4%
	3	WB	16	5	21		8%
851	3	NB	0	20	20	47	14%
	3	SB	27	0	27		15%
F	3	EB	174	371	545	878	13%
	4	WB	222	111	333		14%

Source: AC Transit, Automatic Passenger Counters, Fall 2013 Signup (August-December 2013).
Note: Data based on 100% of all scheduled trips, with the exception of Route 1R, which is based on 97.7% of all scheduled trips.
Note: Routes 800 and 851 are not analyzed regarding impacts as they do not operate during peak hours.

Bear Transit - UC Berkeley Shuttles

Bear Transit is UC Berkeley's shuttle system, and provides service between the campus, the BART station in Downtown Berkeley, parking lots and Richmond Field Station, among other. The system has 5 daytime lines, and two of them run in proximity of the project site. Due to the nature of these routes (connect students, faculty and staff to and within the campus), they were considered not to be impacted by the project. Figure 2.4 illustrates the transit routes that serve the study area.

FIGURE 2.4 EXISTING TRANSIT MAP

3 Future Baseline (No Project) Conditions

Consistent with the Alameda County Congestion Management Agency (ACCMA) travel demand model, the future analysis covers forecast Year 2020 and Year 2035 conditions.

3.1 Future Traffic Volume Forecasting Methodology

The volumes for the future years are forecast using the latest available version of the ACCMA travel demand model. The ACCMA model is a regional travel demand model that is based on and consistent with the larger Metropolitan Transportation Commission (MTC) regional model. The ACCMA model is focused on Alameda County and is intended for use by the ACCMA and local agencies in Alameda County to forecast future travel demand for automobile, transit, and non-motorized transportation modes.

An analysis of the AM peak 1-hour and PM peak 1-hour ACCMA model plots for year 2020 and year 2035 revealed that traffic volumes are forecast to grow in the study area at a cumulative rate of approximately 1% per year. All planned improvements and cumulative projects have been incorporated in the ACCMA model. A growth factor of 1.0721 was applied to the year 2013 turning movement counts to derive the year 2020 future without project volumes, and a growth factor of 1.2447 was applied to the year 2013 turning movement counts to derive the year 2035 future without project volumes.

3.2 Future Baseline Turning Movement Volumes

The future study intersection and roadway lane geometry for the Future Year 2020 and Future Year 2035 is shown in Figure 3.1. This figure depicts intersection geometry consistent with the existing condition, but includes the approved plan to convert the west leg of Shattuck Avenue between University Avenue and Center Street from one-way to two-way traffic. The Future Year 2020 No Project Volumes are shown in Figure 3.2 and the Future Year 2035 No Project Volumes are shown in Figure 3.3.

FIGURE 3.1 FUTURE STUDY INTERSECTION & ROADWAY LANE GEOMETRY

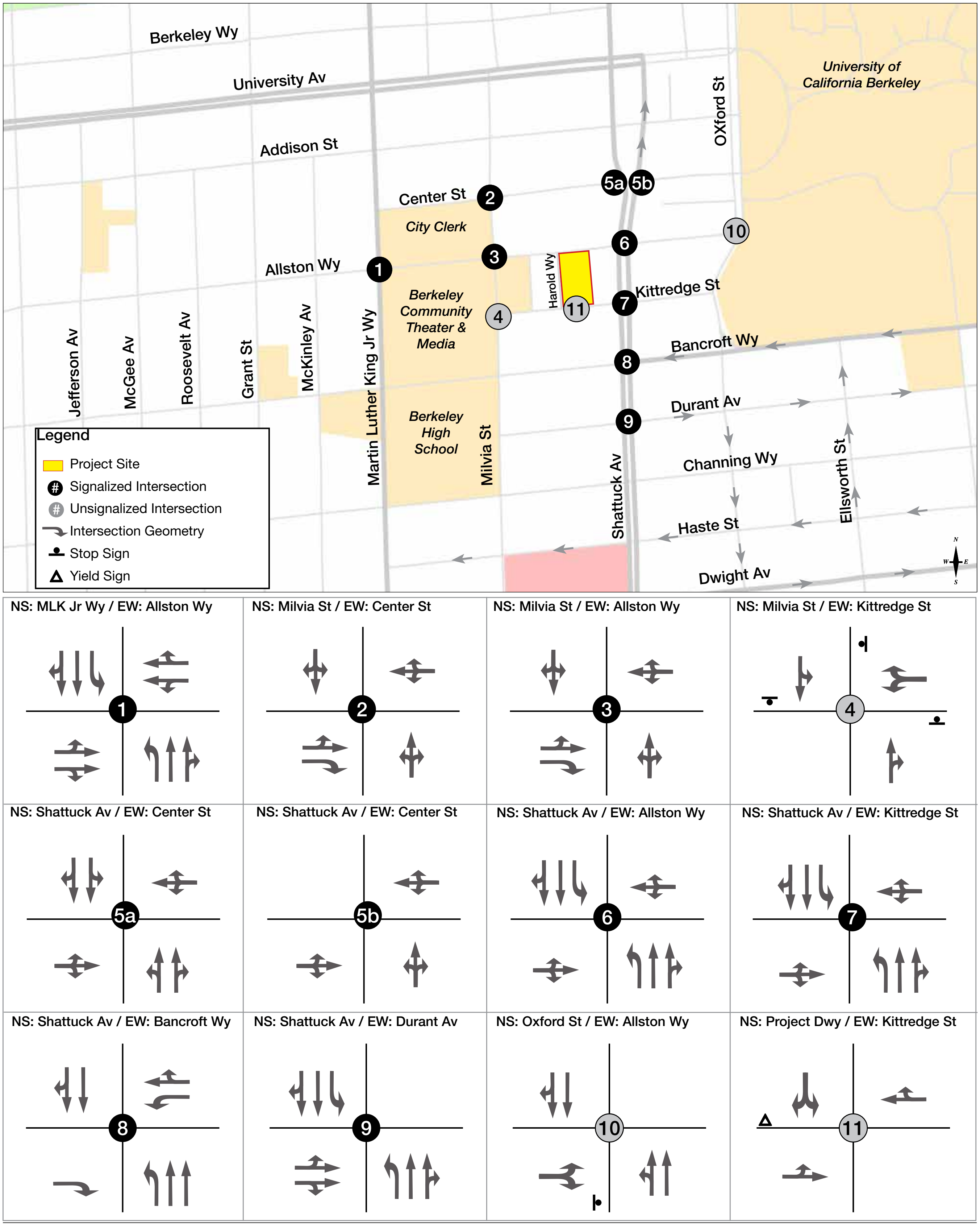


FIGURE 3.2 FUTURE YEAR (2020) NO PROJECT VOLUMES

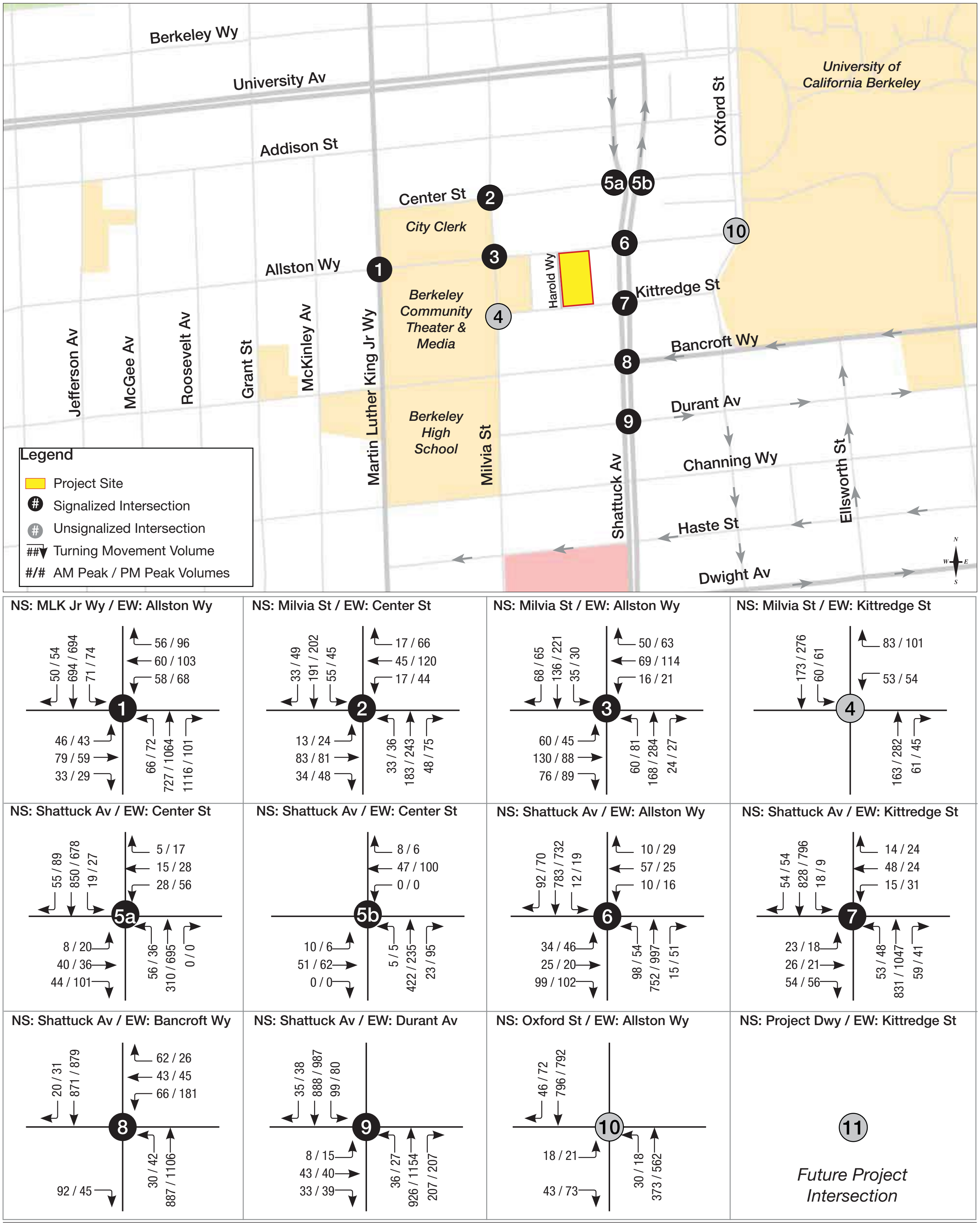
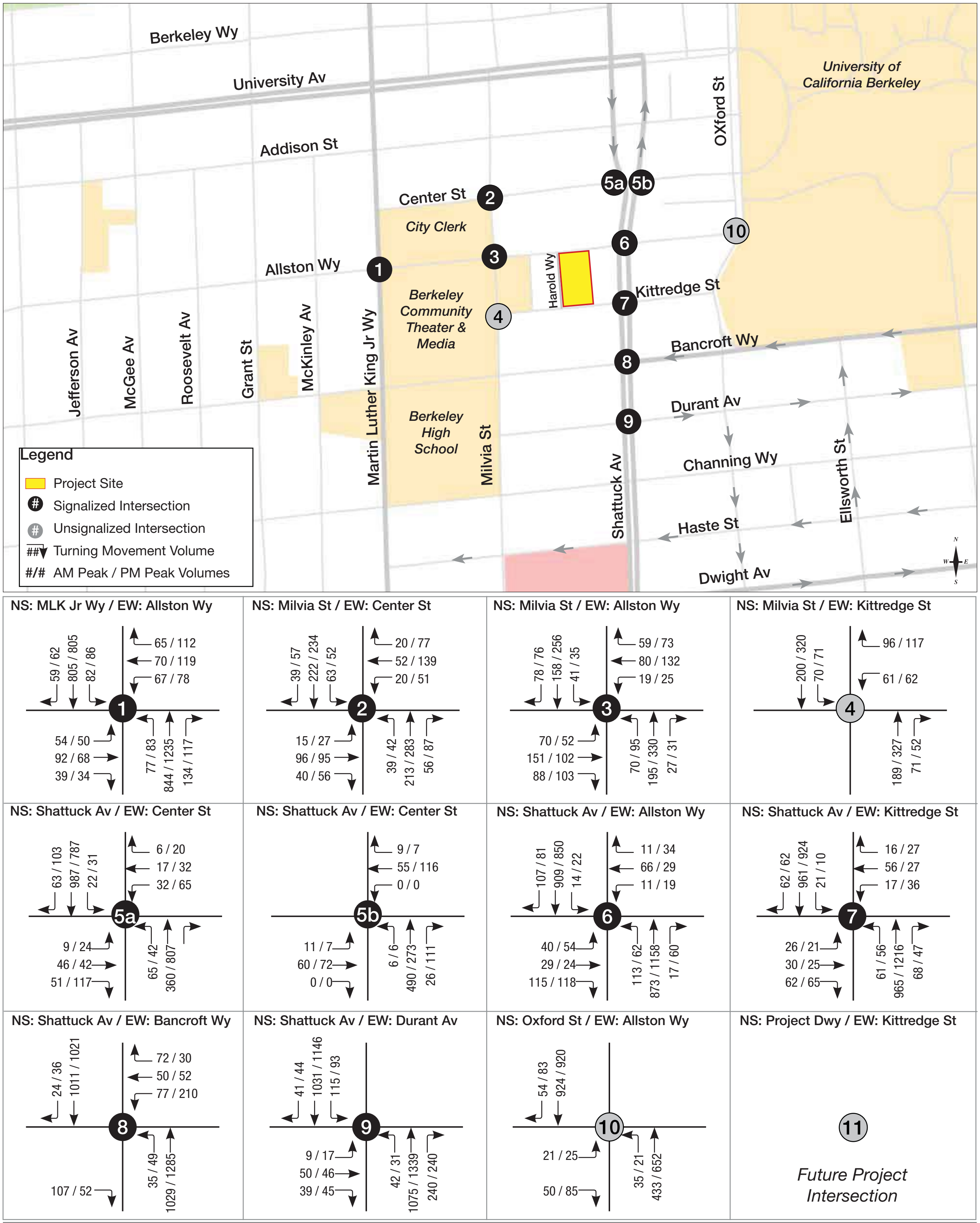


FIGURE 3.3 FUTURE YEAR (2035) NO PROJECT VOLUMES



4 Project Conditions

4.1 Project Description

The proposed project at 2211 Harold Way would demolish portions of the existing Shattuck Hotel building (which is a City landmark), and construct on the same site an 18-story mixed-use building with the following components:

- 302 apartment/condominium units
- Six new state of the art movie theaters to replace the old Shattuck cinemas, totaling 19,460 square feet and 665 seats
- 8,081 square feet of commercial retail floor area fronting Allston Way, Harold Way and Kittredge Street
- 2,454 square feet of ground floor commercial space available for full service restaurant with beer, wine, distilled spirits and low-amplified live music
- 171 parking spaces in a three-level underground parking structure accessed from Kittredge Street
- 100 secured bicycle storage spaces within the building, including spaces on the first level as well as in the parking garage

The Hotel Shattuck Plaza and existing retail, fast food and restaurant uses on Shattuck Avenue would remain in place and are not included as part of this project.

4.2 Site Access and Egress

Vehicular access to the project's proposed parking garage would be provided via a two-way driveway from Kittredge Street down to a proposed three-level subterranean parking garage accommodating 171 parking spaces. Bicyclists would also be able to access the parking garage via the same driveway to 100 secure bicycle parking spaces on the ground level and first level of the parking garage.

Pedestrian access would be incorporated from all four fronting street sidewalks. The main entrance to the proposed movie theater would be from Shattuck Avenue; the primary residential access would be through the lobby on Harold Way; and retail access would be to each storefront along Allston Way, Harold Way, and Kittredge Street. The existing private alley from Allston Way would remain as a service entrance for the hotel and the proposed project.

4.3 Trip Generation

The number of vehicle trips generated by the proposed project has been estimated using a two-step process. First, the total number of peak hour trips generated by the existing and proposed site uses was estimated using rates published in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 9th Edition. The ITE rates for each land use type used in this study are compiled in Table 4-1.

Table 4-1 ITE Trip Generation Rates for Existing and Proposed Uses

Land Use	ITE Code	Units	Daily	AM	In (%)	Out (%)	PM	In (%)	Out (%)
Apartment	220	DU	6.65	0.51	20%	80%	0.62	65%	35%
Movie Theater	444	SEATS	2.24	N/A	N/A	N/A	0.07	39%	61%
Community Center	495	TSF	33.82	2.05	66%	34%	2.74	49%	51%
General Office	710	TSF	11.03	1.56	88%	12%	1.49	17%	83%
Medical Office	720	TSF	36.13	2.39	79%	21%	3.57	28%	72%
Retail	820	TSF	42.70	0.96	62%	38%	3.71	48%	52%
Quality Restaurant	931	TSF	89.95	0.81	50%	50%	7.49	67%	33%

Source: ITE *Trip Generation Manual*, 9th Edition
DU – dwelling units; TSF – thousand square feet

The ITE rates represent the estimated number of peak hour automobile trips that would be generated by a specific land use in a suburban non-transit-oriented environment. Due to the availability of BART, AC Transit and Bear Transit service as well as pedestrian and bicycle facilities, Downtown Berkeley has a lower auto mode share than the areas represented by the ITE trip rates. The second step in the trip generation process is to apply mode split percentages to the ITE trip generation values. Based on US Census data for Downtown Berkeley, it is estimated that 33% of trips generated by residential uses and 58% of non-residential trips utilize an automobile. To be conservative, an Auto Mode Factor of 0.58 has been applied to all existing and proposed (residential and non-residential) land uses. This mode split factor is based on mode split information obtained from the 2000 Census and the Alameda County Transportation Analysis Model. The net project generated trips is the number of proposed new trips minus the number of trips generated by existing uses at the site that will be removed.

4.4 Existing On-site Uses

A total of 71,700 square feet of existing site uses would be replaced by the project include Shattuck Cinemas, the Habitot children's museum, a medical office, and 40,907 square feet of leasable office space, including 8,281 square feet of office space that is currently vacant. The number of trips generated by these uses based on ITE rates is summarized in Table 4-2, and the adjusted number of vehicle trips is calculated in Table 4-3. This adjustment uses the same 0.58 mode factor described above.

Table 4-2 ITE Trip Generation for Existing Uses to be Removed

Land Use	ITE Code	Qty	Units	Daily	AM			PM		
					IN	OUT	Total	IN	OUT	Total
Shattuck Cinemas	444	855	SEATS	1,915	0	0	0	23	37	60
Habitot Museum	495	7.056	TSF	239	10	5	15	9	10	19
General Office	710	32.626	TSF	360	45	6	51	8	40	48
Medical Office	720	0.263	TSF	10	0	0	0	0	1	1
Office – Vacant		8.281	TSF	0	0	0	0	0	0	0
Total		71.700	TSF	**2,524**	**55**	**11**	**66**	**40**	**88**	**128**

TSF – thousand square feet

Table 4-3 Auto Mode Trip Adjustment for Existing Uses to be Removed

Land Use	Unadjusted Trip Generation					Auto Mode Factor	Adjusted Trip Generation				
	Daily	AM IN	AM OUT	PM IN	PM OUT		Daily	AM IN	AM OUT	PM IN	PM OUT
Shattuck Cinemas	1,915	0	0	23	37	0.580	1,111	0	0	14	21
Habitot Museum	239	10	5	9	10	0.580	138	6	3	5	6
General Office	360	45	6	8	40	0.580	209	26	4	5	23
Medical Office	10	0	0	0	1	0.580	6	0	0	0	0
Vacant	0	0	0	0	0	0.580	0	0	0	0	0
TOTAL	**2,524**	**55**	**11**	**40**	**88**		**1,464**	**32**	**7**	**24**	**50**

The mode split reduction factor is based on data from the Alameda County Regional Model for Zone 733 and 2000 US Census data.

4.5 Proposed Uses

The proposed project at 2211 Harold Way includes 302 rental dwelling units in an 18-story apartment building, a 6-theater cinema, 8,081 square feet of commercial retail floor area, and 2,454 square feet of full service restaurant space. The number of trips generated by these uses based on ITE rates is presented in Table 4-4, and the number of vehicle trips adjusted for mode split is calculated in Table 4-5.

Table 4-4 ITE Trip Generation for Proposed Uses

Land Use	ITE Code	Qty	Units	Daily	AM			PM		
					IN	OUT	Total	IN	OUT	Total
Apartment	220	302	DU	2,008	31	123	154	122	66	188
Cinema	444	665	SEATS	1,490	0	0	0	18	28	46
Retail	820	8.081	TSF	345	5	3	8	14	16	30
Quality Restaurant	931	2.454	TSF	221	1	1	2	12	6	18
Total				**4,064**	**37**	**127**	**164**	**166**	**116**	**282**

Note: DU – dwelling units; TSF – thousand square feet

Table 4-5 Auto Mode Trip Adjustment for Proposed Uses

Land Use	Unadjusted Trip Generation					Auto Mode Factor	Adjusted Trip Generation				
	Daily	AM IN	AM OUT	PM IN	PM OUT		Daily	AM IN	AM OUT	PM IN	PM OUT
Apartment	2,008	31	123	122	66	0.580	1,165	18	71	71	38
Cinema	1,490	0	0	18	28	0.580	864	0	0	11	16
Retail	345	5	3	14	16	0.580	200	3	2	8	9
Quality Restaurant	221	1	1	12	6	0.580	128	1	1	7	4
TOTAL	**4,064**	**37**	**127**	**166**	**116**		**2,357**	**22**	**74**	**97**	**67**

Note: The mode split reduction factor is based on data from the Alameda County Regional Model for Zone 733 and 2000 US Census data. To be conservative, the higher Auto Mode Factor of 0.58 has been applied to all land uses.

The net number of vehicle trips generated by the project site is equal to the number of trips generated by the proposed new uses minus the number of trips generated by the existing uses to be removed. The net adjusted project trip generation is calculated in Table 4-6.

Table 4-6 Net Adjusted Project Trip Generation

Condition	Daily	AM In	AM Out	AM Total	PM In	PM Out	PM Total
Proposed Uses	2,357	22	74	96	97	67	164
Existing Uses	1,464	32	7	39	24	50	74
Net	**893**	**-10**	**67**	**57**	**73**	**17**	**90**

4.6 Trip Distribution

The regional distribution of trips is based on the Alameda County Transportation Commission (ACTC) Countywide Travel Demand Model daily plots for forecast Year 2020 and forecast Year 2035. Based on these plots, the daily regional distribution of traffic is assumed to be:

- 24% to/from the north
- 42% to/from the south
- 15% to/from the east
- 19% to/from the west

Trip distribution assumptions were developed from the plots for the AM peak and PM peak hours, as follows:

AM Peak Hour, INBOUND:

- 26% from the north
- 30% from the south
- 14% from the east
- 30% from the west

AM Peak Hour, OUTBOUND:

- 14% to the north
- 37% to the south
- 30% to the east
- 19% to the west

PM Peak Hour, INBOUND:

- 21% from the north
- 42% from the south
- 23% from the east
- 14% from the west

PM Peak Hour, OUTBOUND:

- 30% to the north
- 34% to the south
- 16% to the east
- 21% to the west

The existing site does not provide on-site parking. It is assumed that half of the vehicle trips generated by the existing uses park on Allston Way between Milvia Street and Shattuck Avenue, either on the street or in the public garage located at 2061 Allston Way. The other half of the existing trips are assumed to park on Kittredge Street, either on the street or in the public garage at 2020 Kittredge Street. The AM and PM peak trip distribution for existing uses to be removed is based on these origin and destination locations, and is illustrated in Figures 4.1 and 4.2. To be conservative, any parking search trips that may currently be generated by the existing uses to be removed are not considered in this analysis.

The entrance to the subterranean parking garage will be located on Kittredge Street, approximately 150 feet east of Harold Way. The garage will be open to the public, and may be used by surrounding land uses, but the presence of this new garage is not expected to significantly change existing parking patterns. Project trips were dispersed onto the network using ambient traffic distribution and the ACTC travel demand model forecast regional distribution noted above.

To capture the project generated trips that may not park in the on-site garage, it is assumed that 90% of the inbound trips will enter the project driveway, and the remaining 10% will pass the driveway and search for an alternative parking site. Of that 10%, it is assumed that 4% will park on Harold Way, or on the street or in one of the garages on Kittredge Street or Allston Way between Milvia Street and Shattuck Avenue. These trips would not pass through another study intersection. Two percent (2%) of the inbound project trips are assumed to park on Bancroft Way west of Shattuck Avenue, and 2% of the inbound project trips are assumed to park on Shattuck Avenue between Allston Way and Bancroft Way. These assumptions are based on the number of parking spaces available on the streets surrounding the project site.

The AM and PM peak hour distribution assumptions for new project trips are illustrated in Figures 4.3 and 4.4. The existing AM and PM peak hour trips to be removed are shown in Figures 4.5 and 4.6, and the proposed new project trips are shown in Figures 4.7 and 4.8. The net project trips through study intersections are presented in Figures 4.9 and 4.10.

The existing (Year 2013) intersection turning movement volumes with the proposed project are presented in Figure 4.11. The future (Year 2020) volumes with the project are shown in Figure 4.12, and the future (Year 2035) volumes with the project are shown in Figure 4.13.

FIGURE 4.1 TRIP DISTRIBUTION (EXISTING USES TO BE REMOVED) - AM

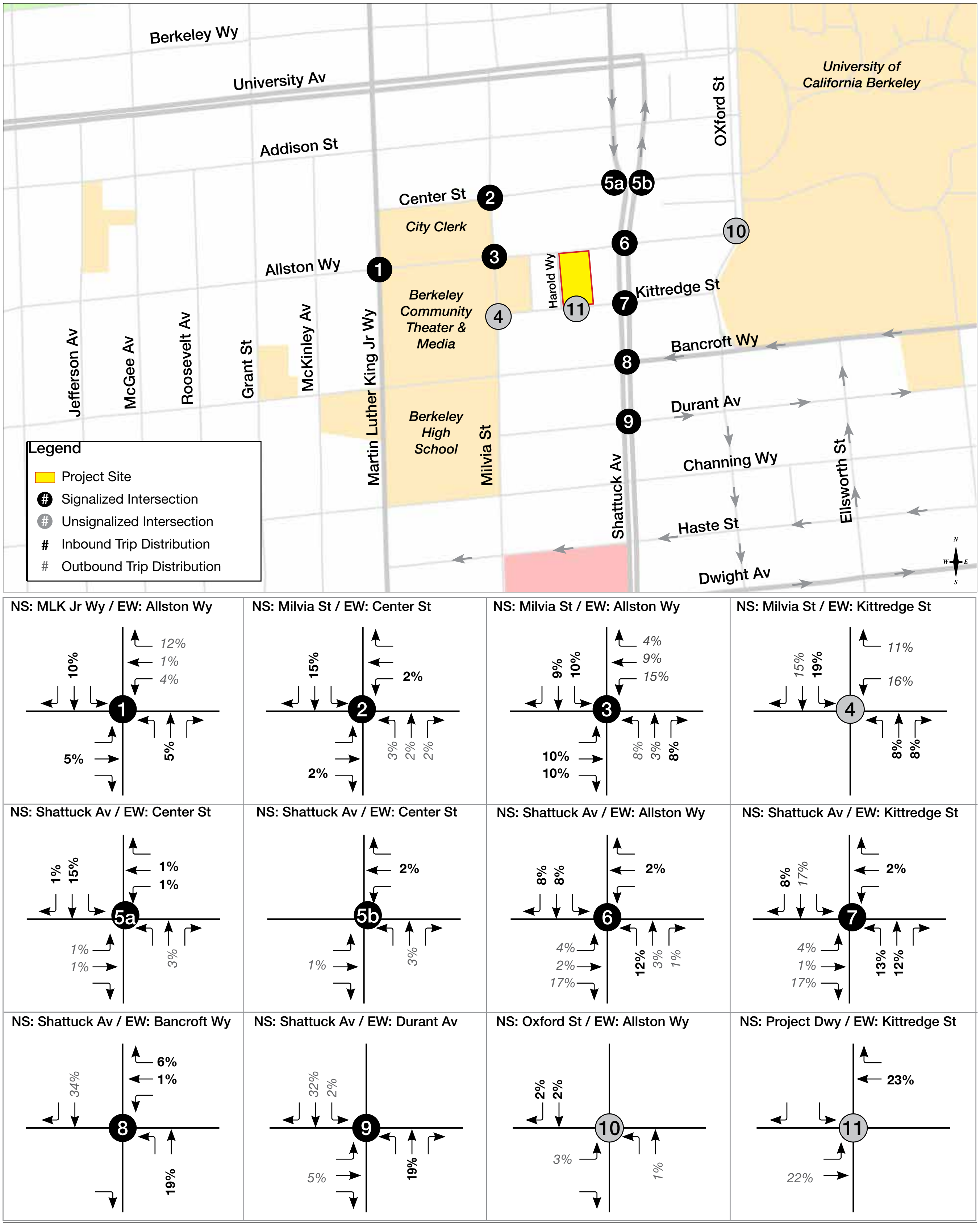


FIGURE 4.2 TRIP DISTRIBUTION (EXISTING USES TO BE REMOVED) - PM

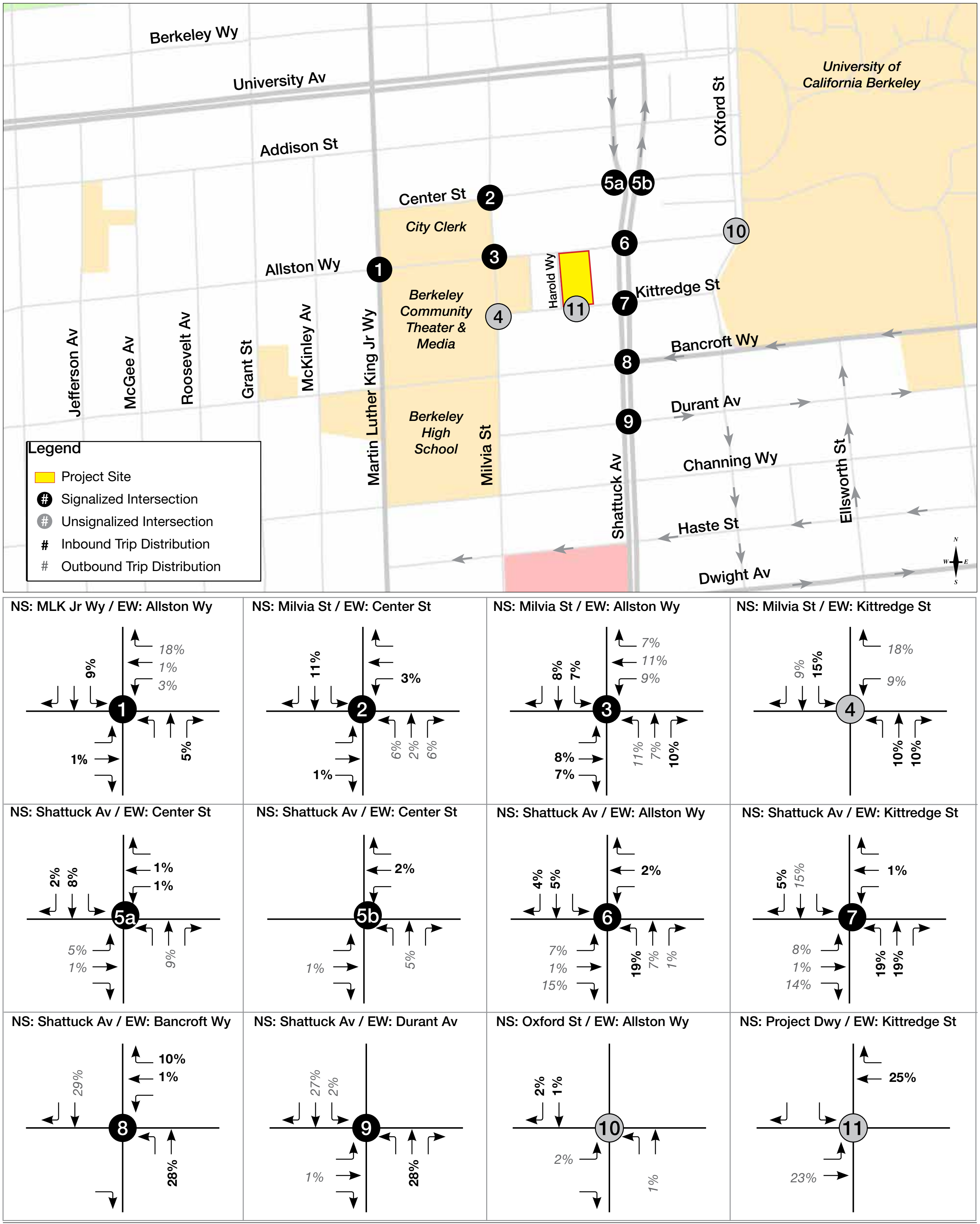


FIGURE 4.3 TRIP DISTRIBUTION (PROPOSED USES) - AM PEAK

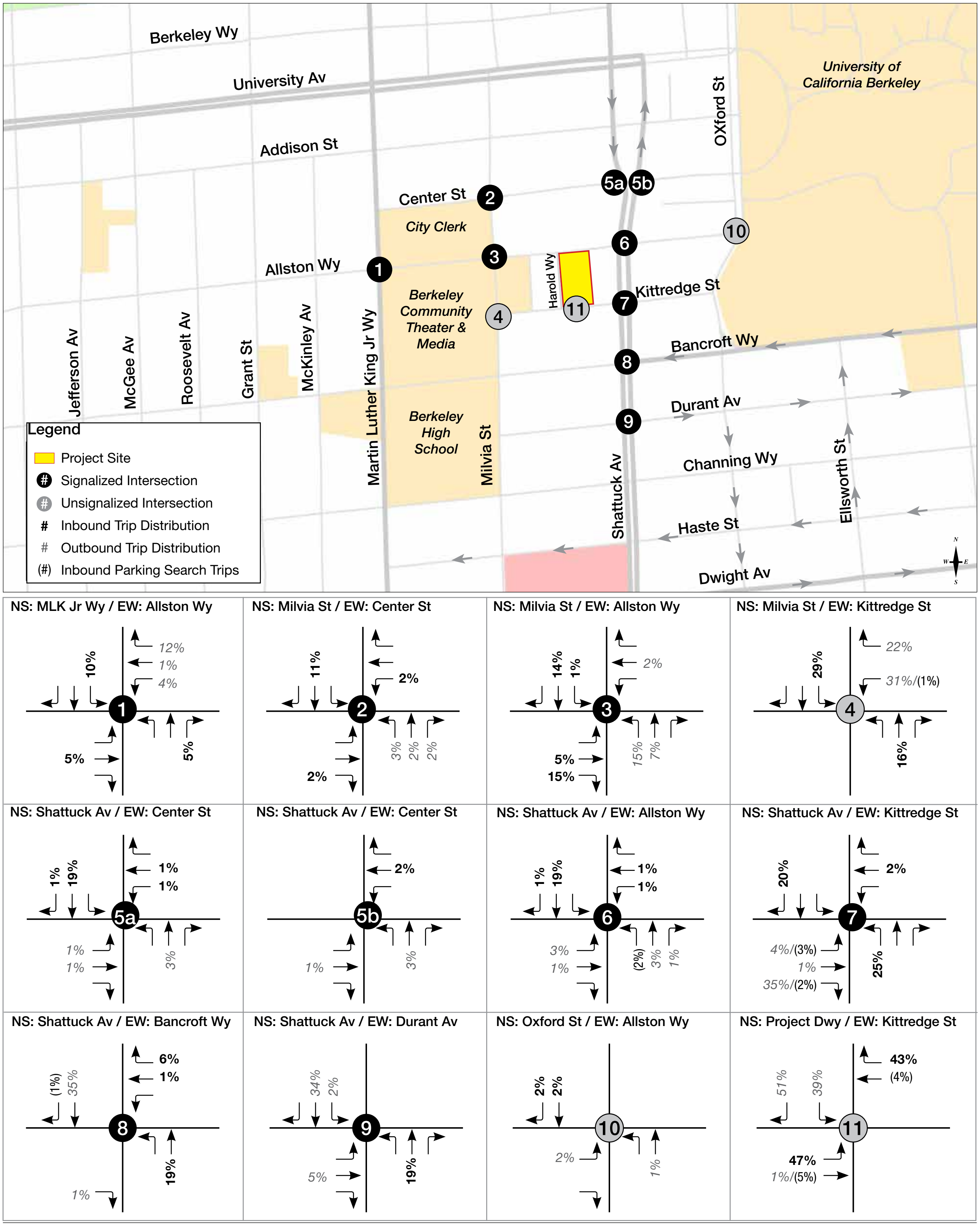


FIGURE 4.4 TRIP DISTRIBUTION (PROPOSED USES) - PM PEAK

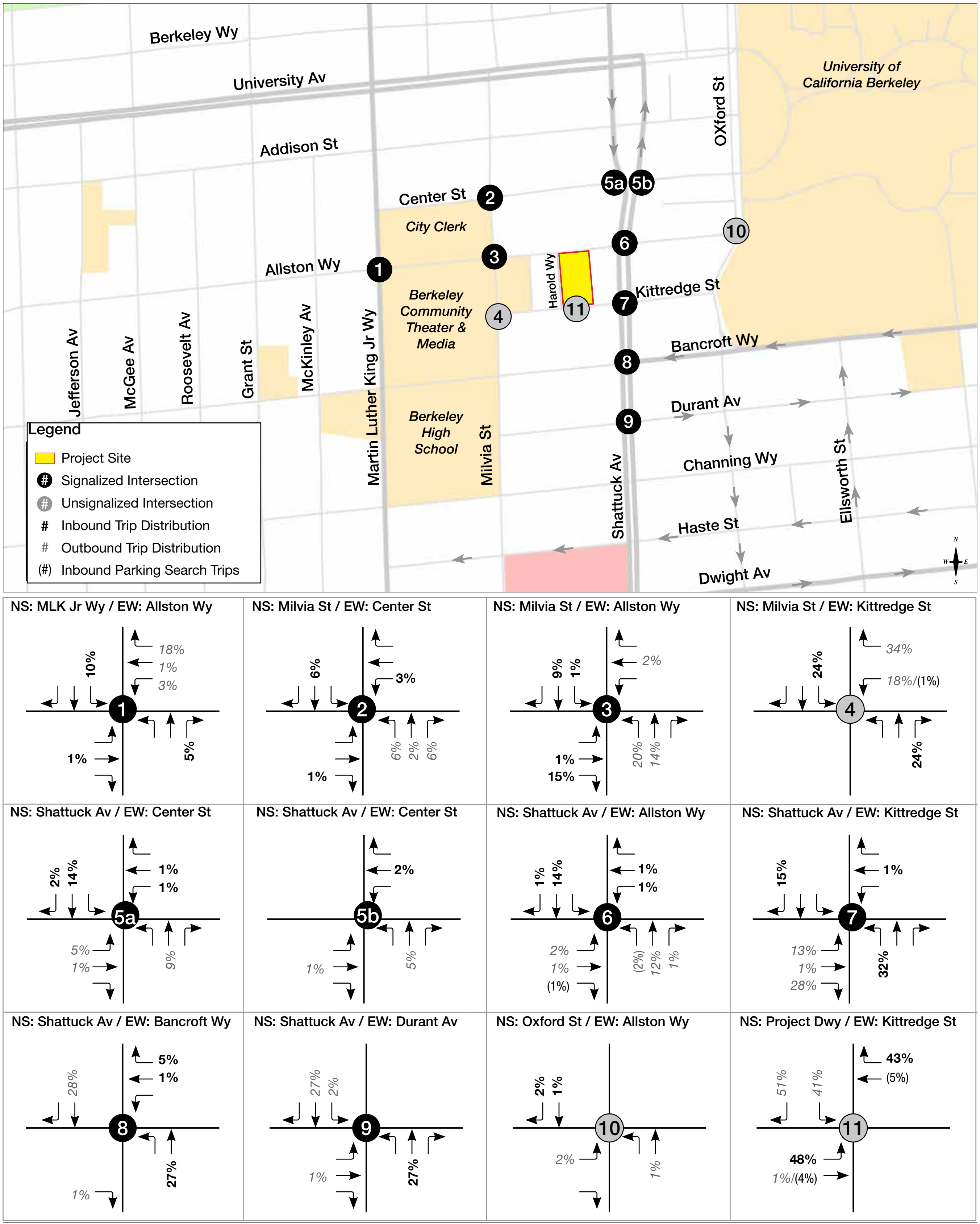
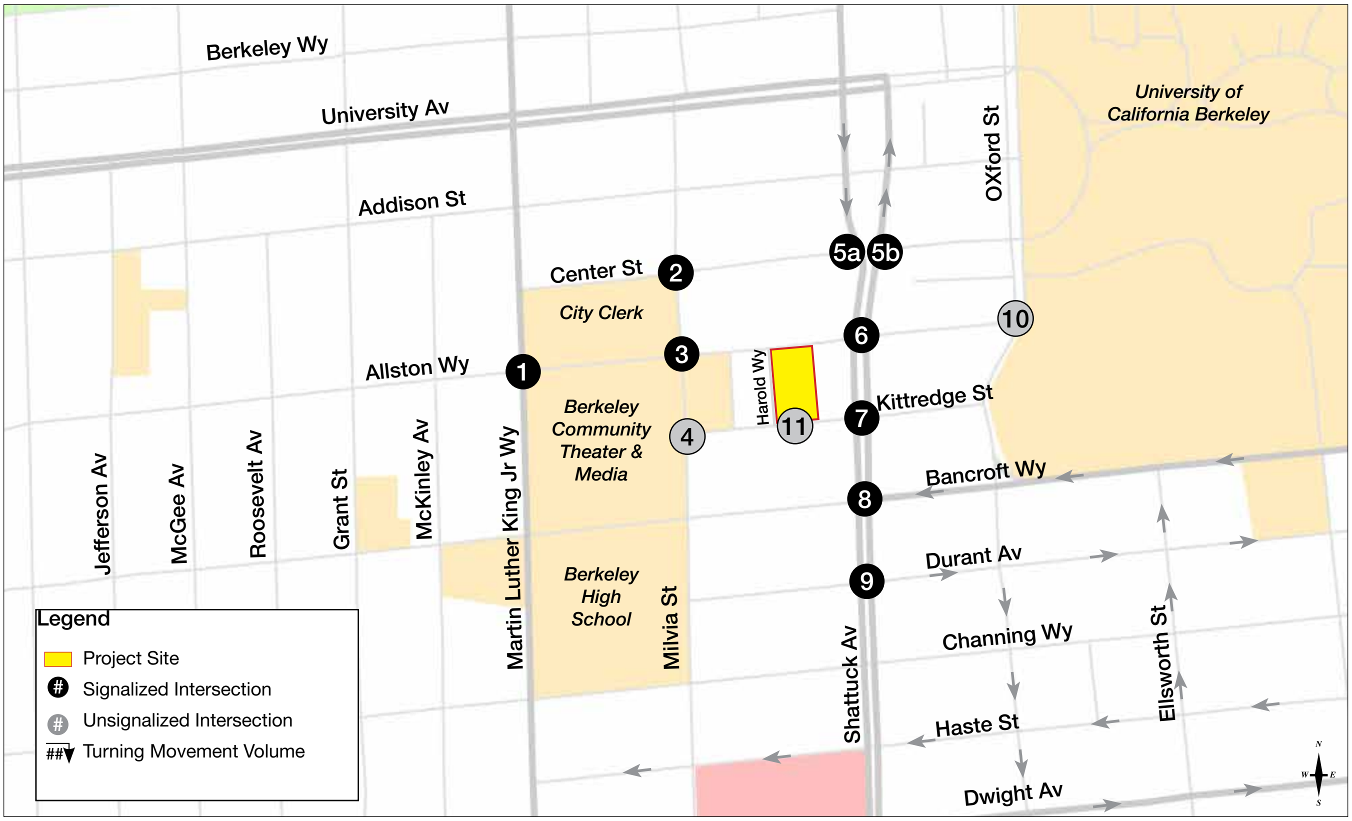


FIGURE 4.5 EXISTING TRIPS TO BE REMOVED - AM PEAK



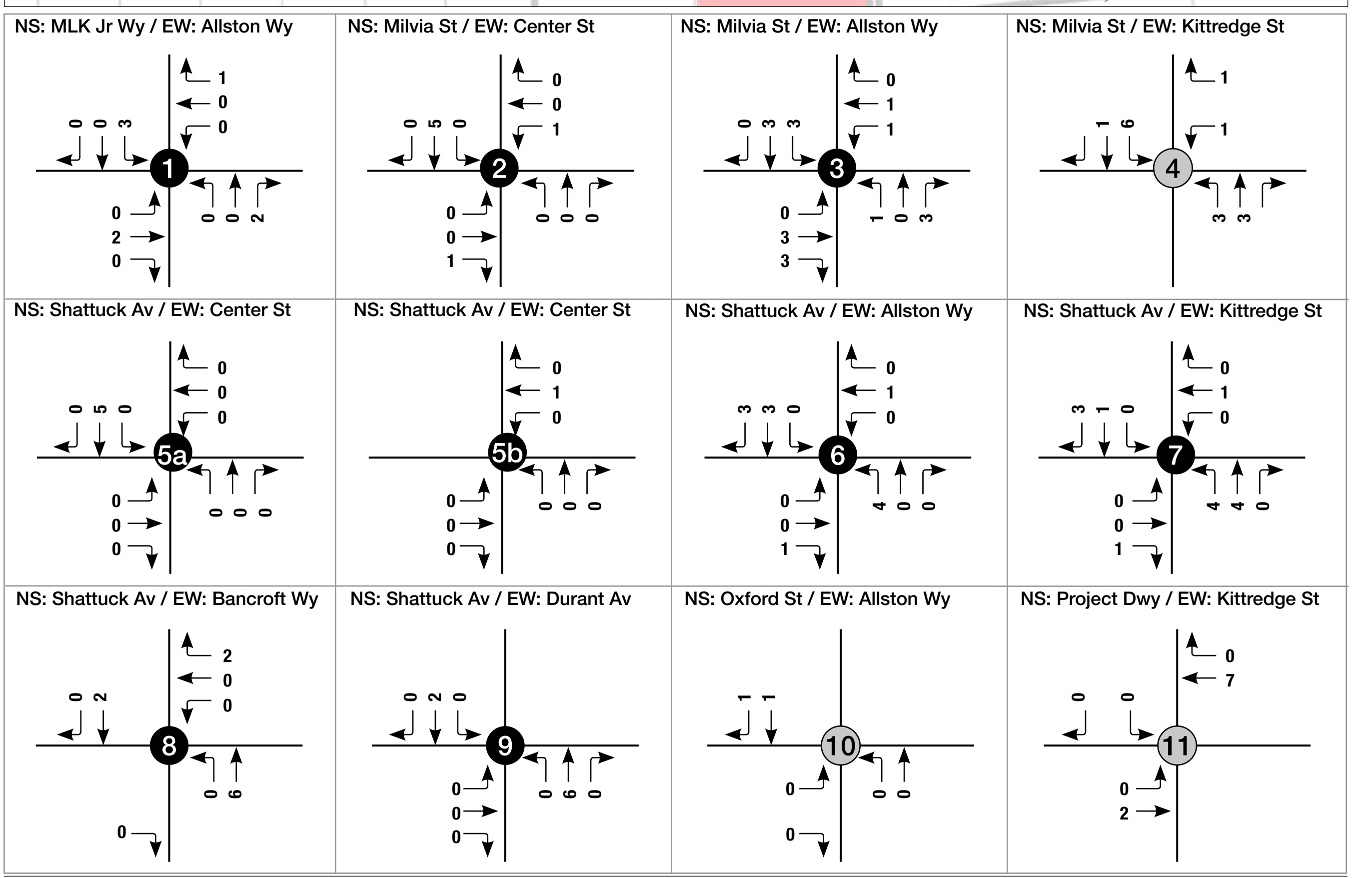


FIGURE 4.6 EXISTING TRIPS TO BE REMOVED - PM PEAK

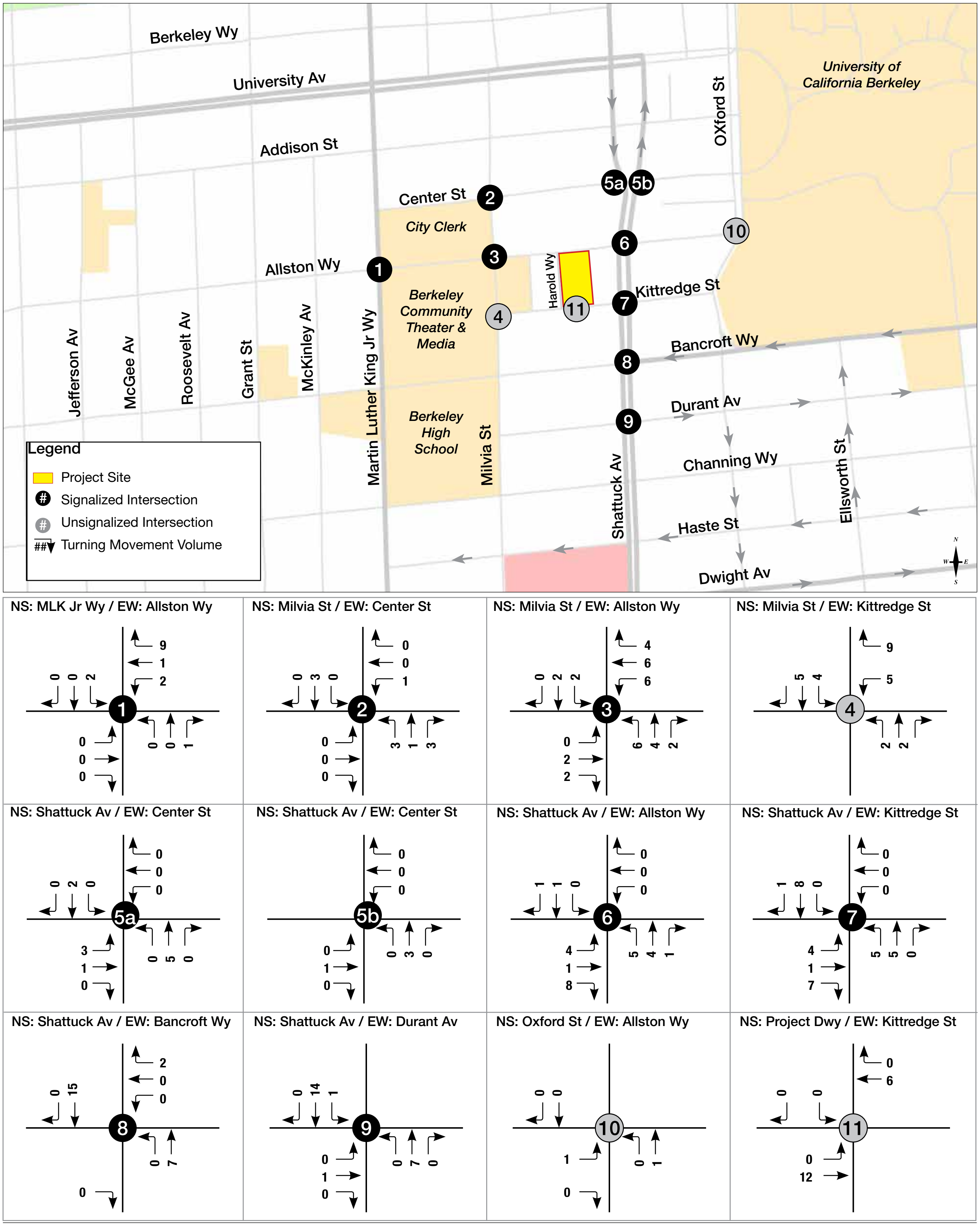


FIGURE 4.7 NEW PROJECT GENERATED TRIPS - AM PEAK

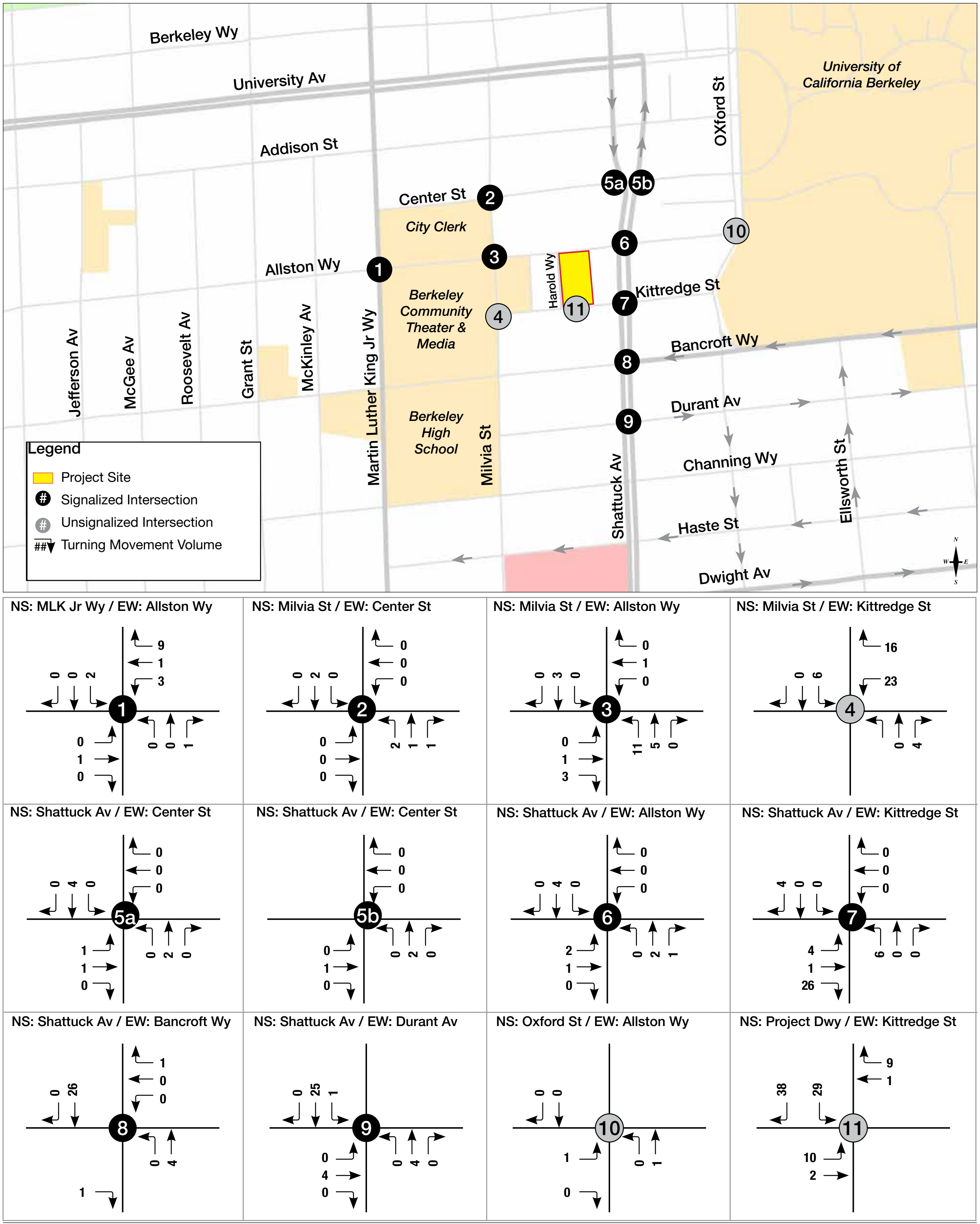


FIGURE 4.8 NEW PROJECT GENERATED TRIPS - PM PEAK

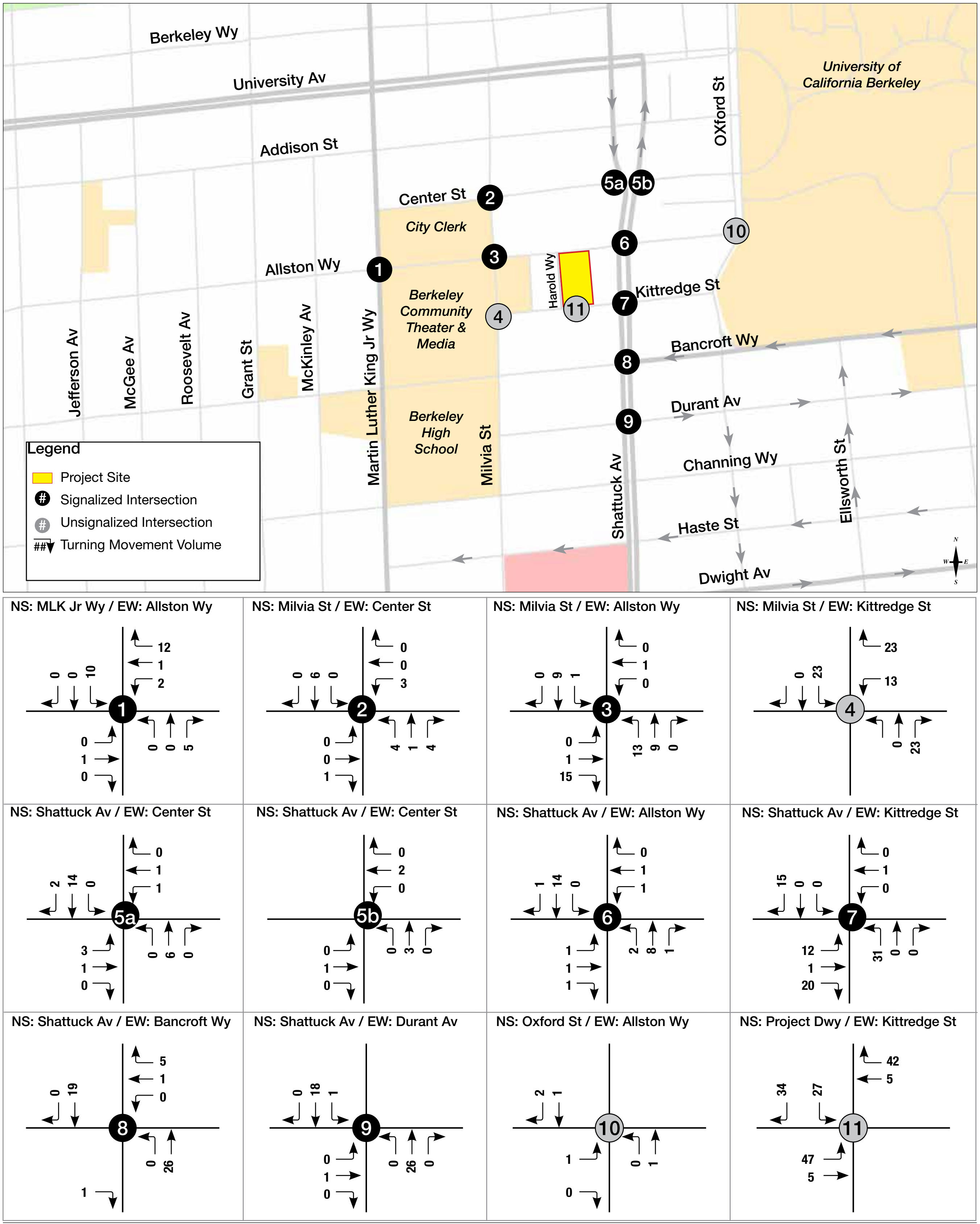


FIGURE 4.9 NET PROJECT TRIPS - AM PEAK

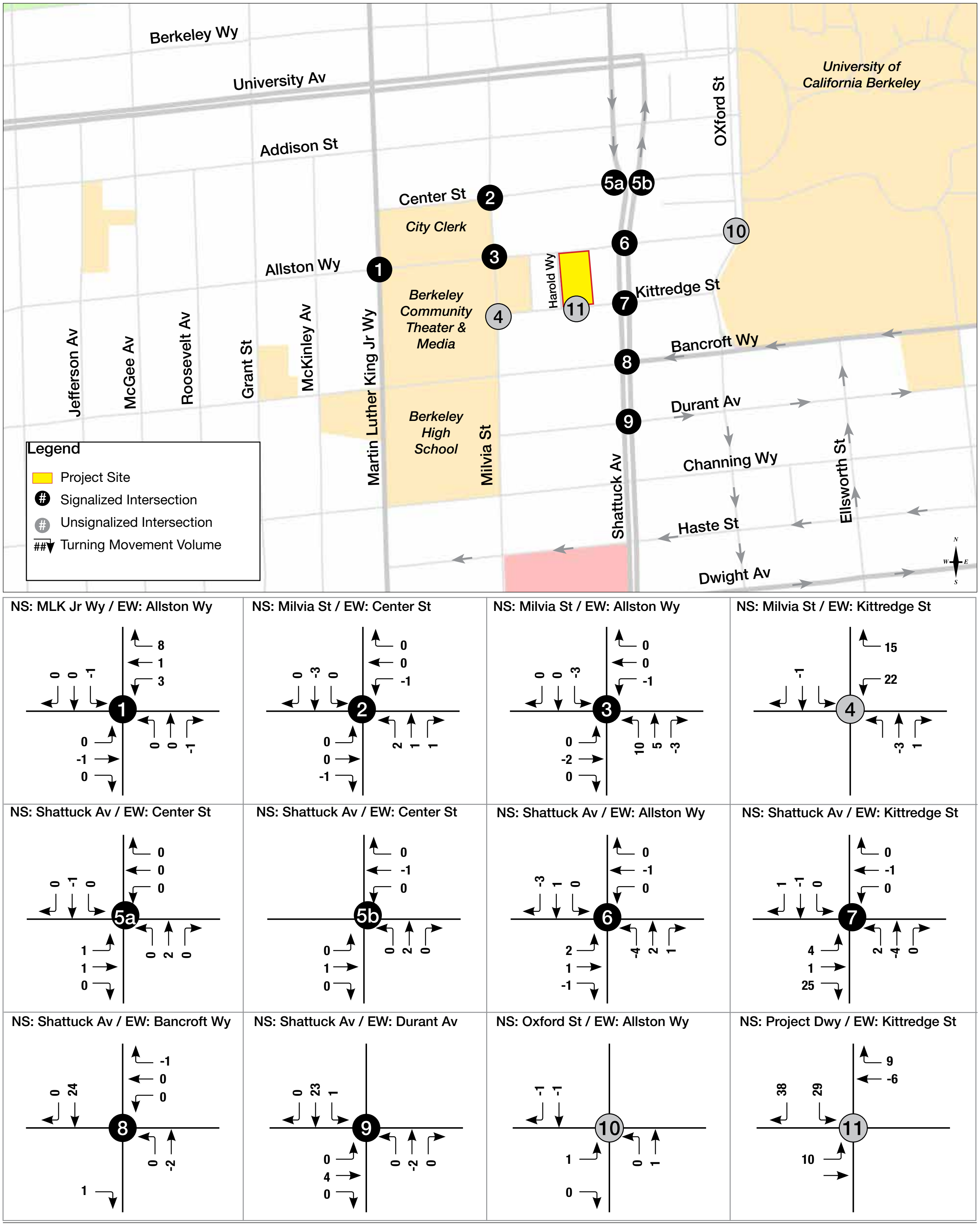


FIGURE 4.10 NET PROJECT TRIPS - PM PEAK

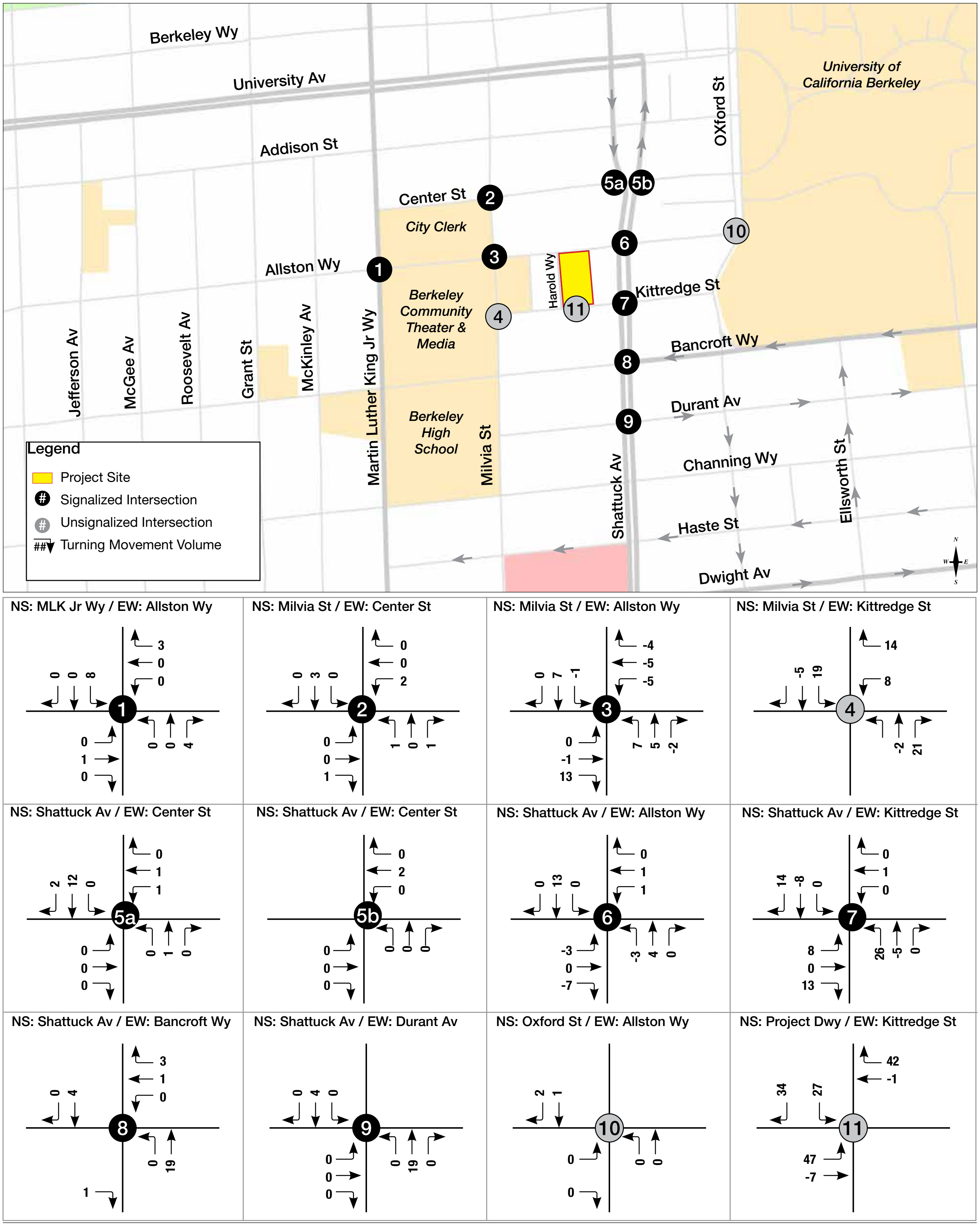


FIGURE 4.11 EXISTING YEAR (2013) WITH PROJECT VOLUMES

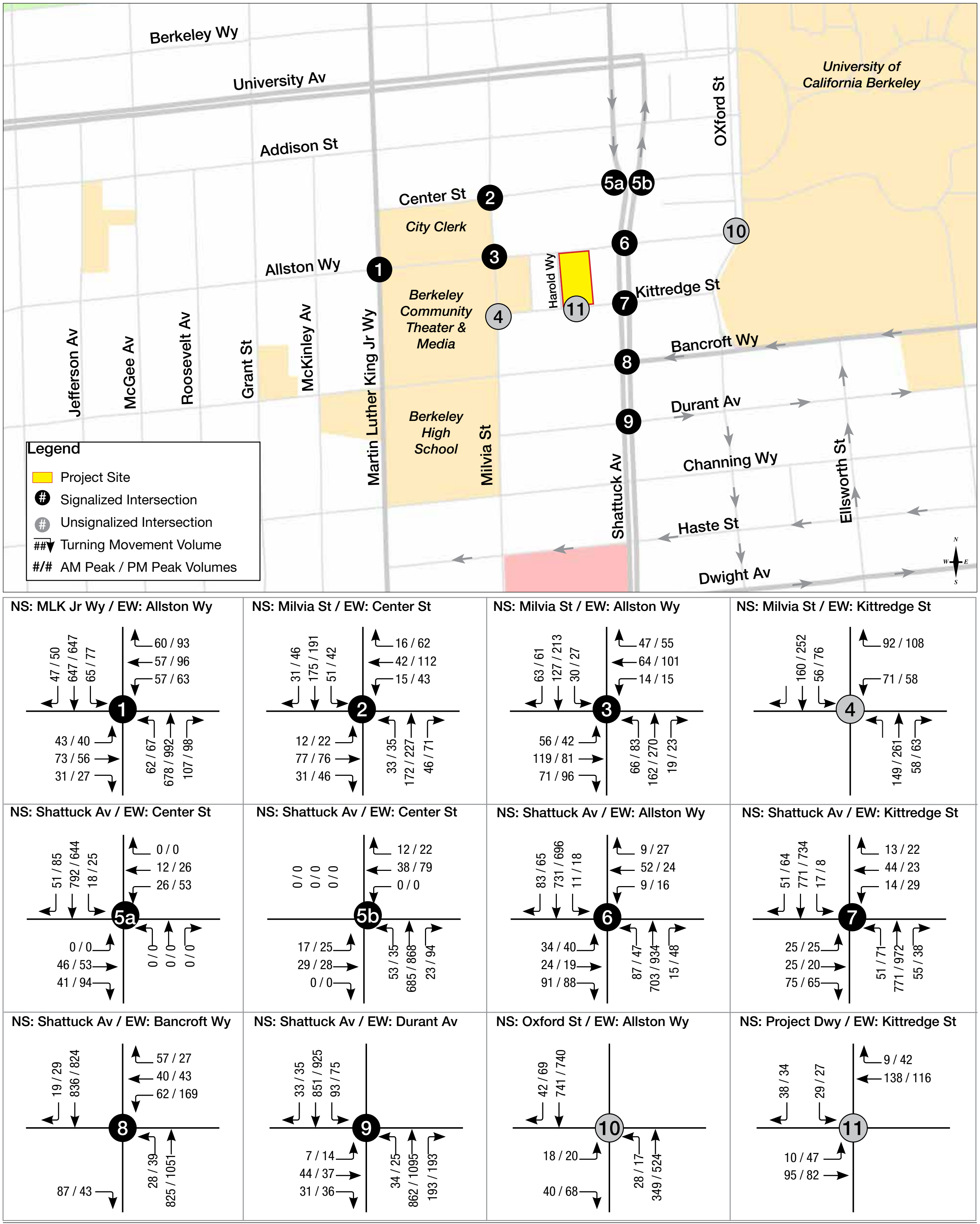
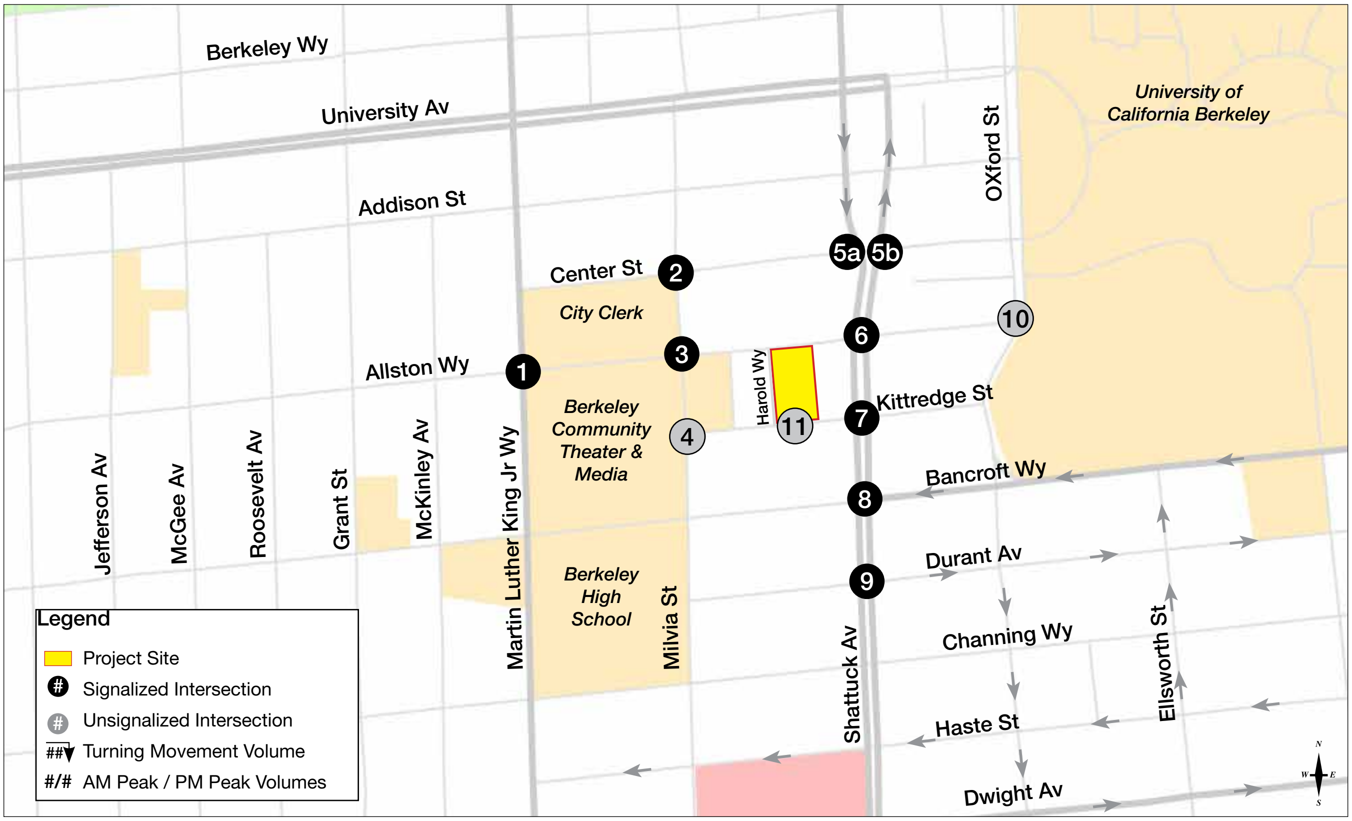


FIGURE 4.12 FUTURE YEAR (2020) WITH PROJECT VOLUMES



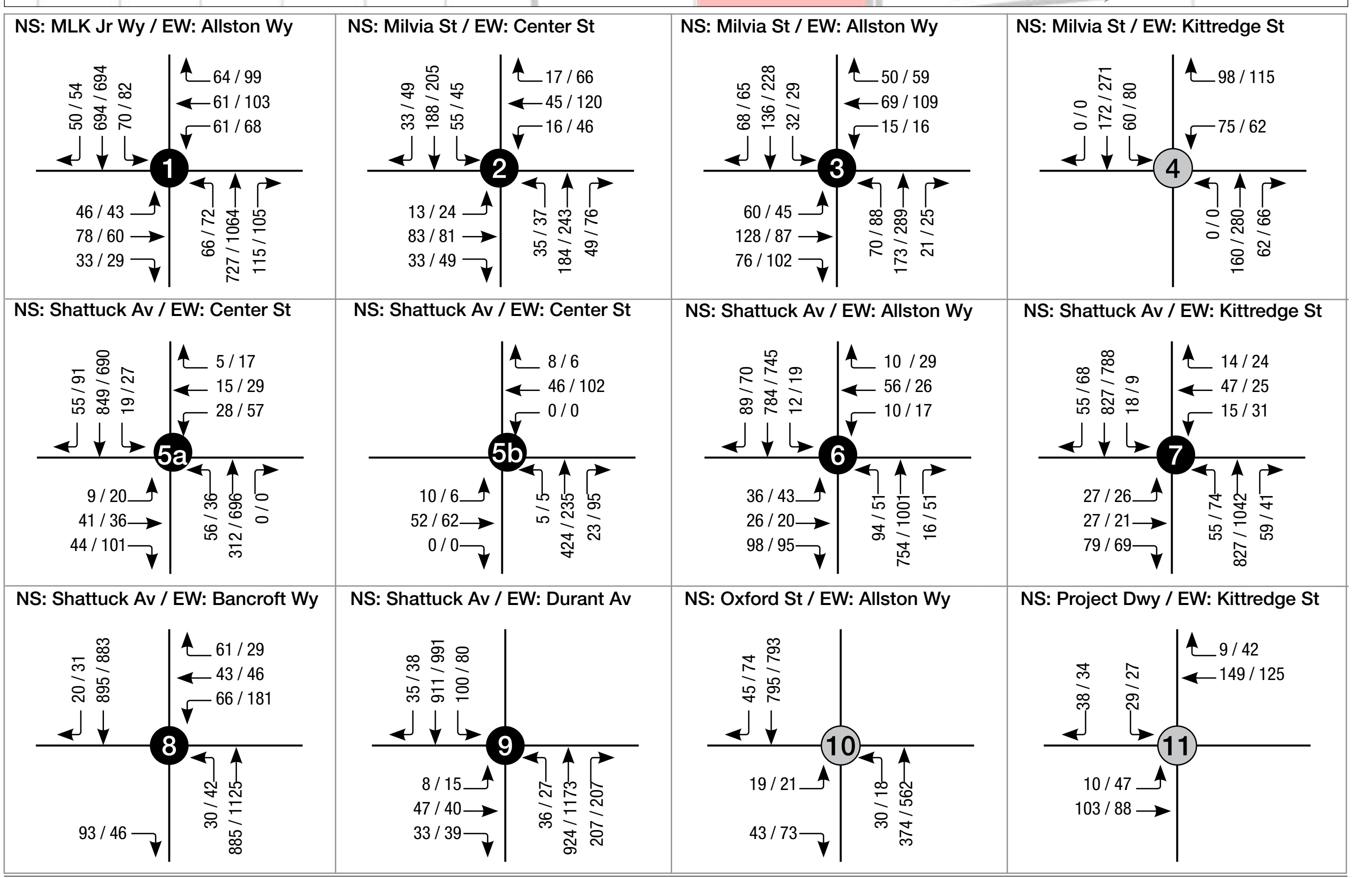


FIGURE 4.13 FUTURE YEAR (2035) WITH PROJECT VOLUMES

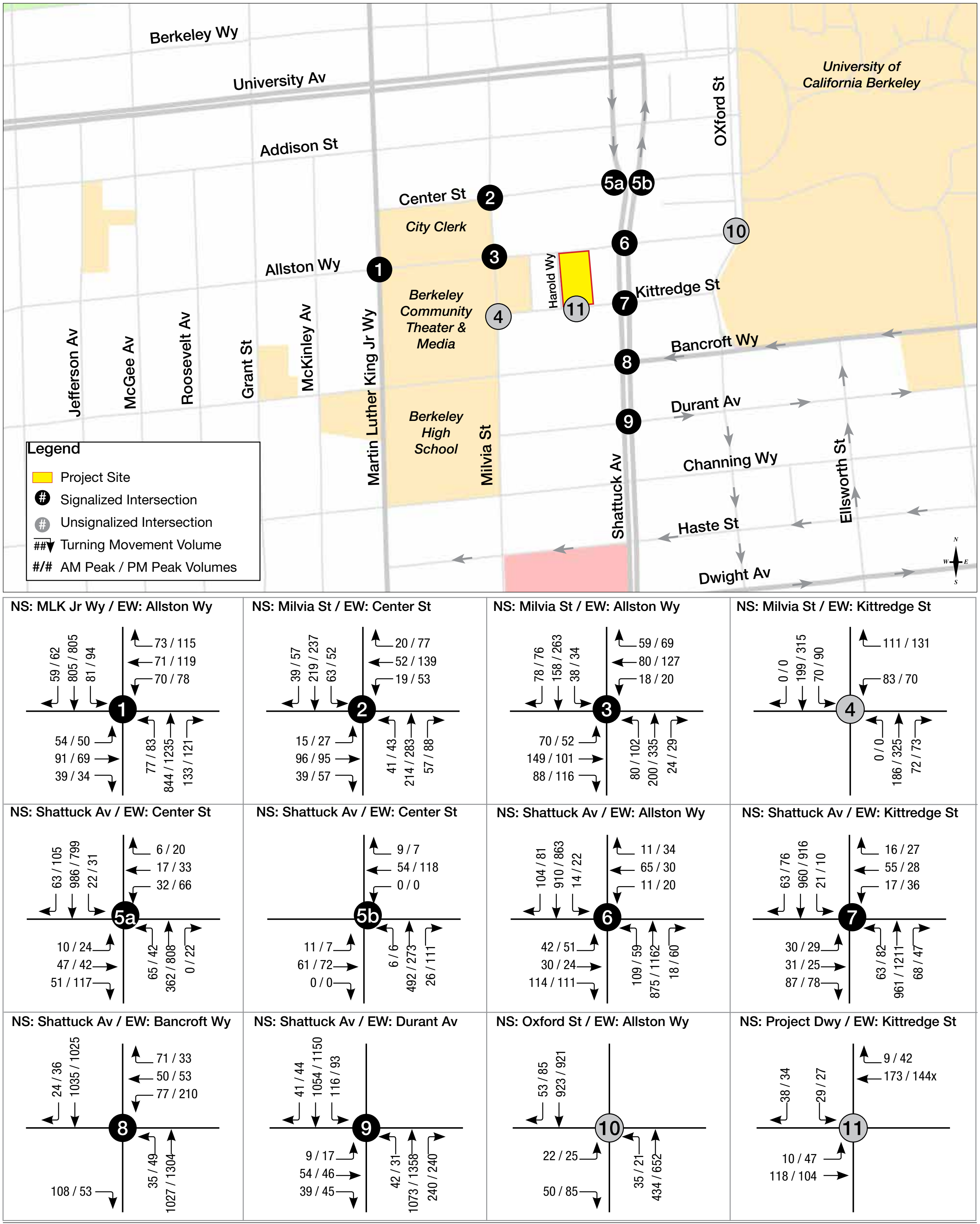


FIGURE 10.1 PROJECT SITE PLAN AND DRIVEWAY LOCATION

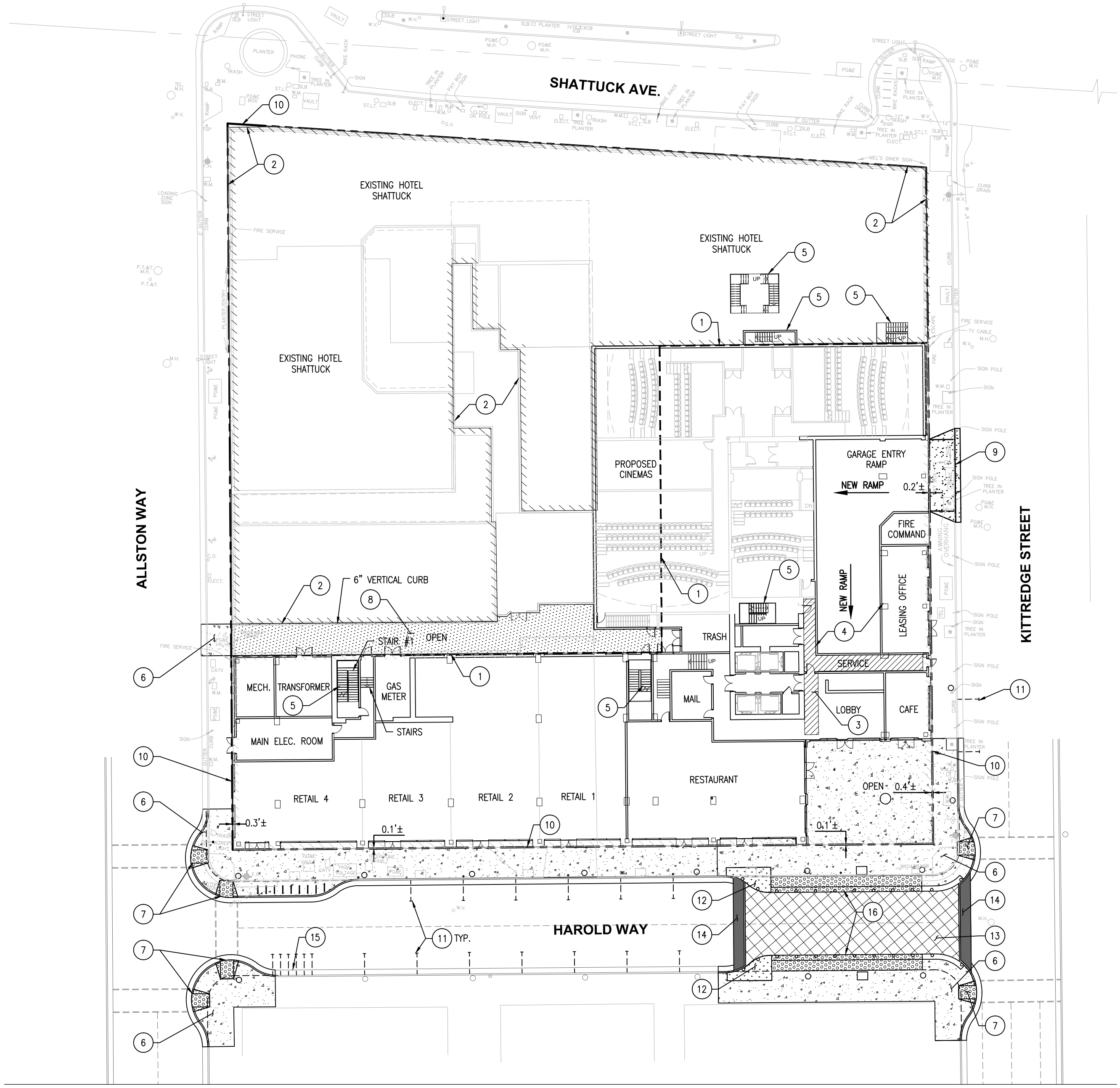
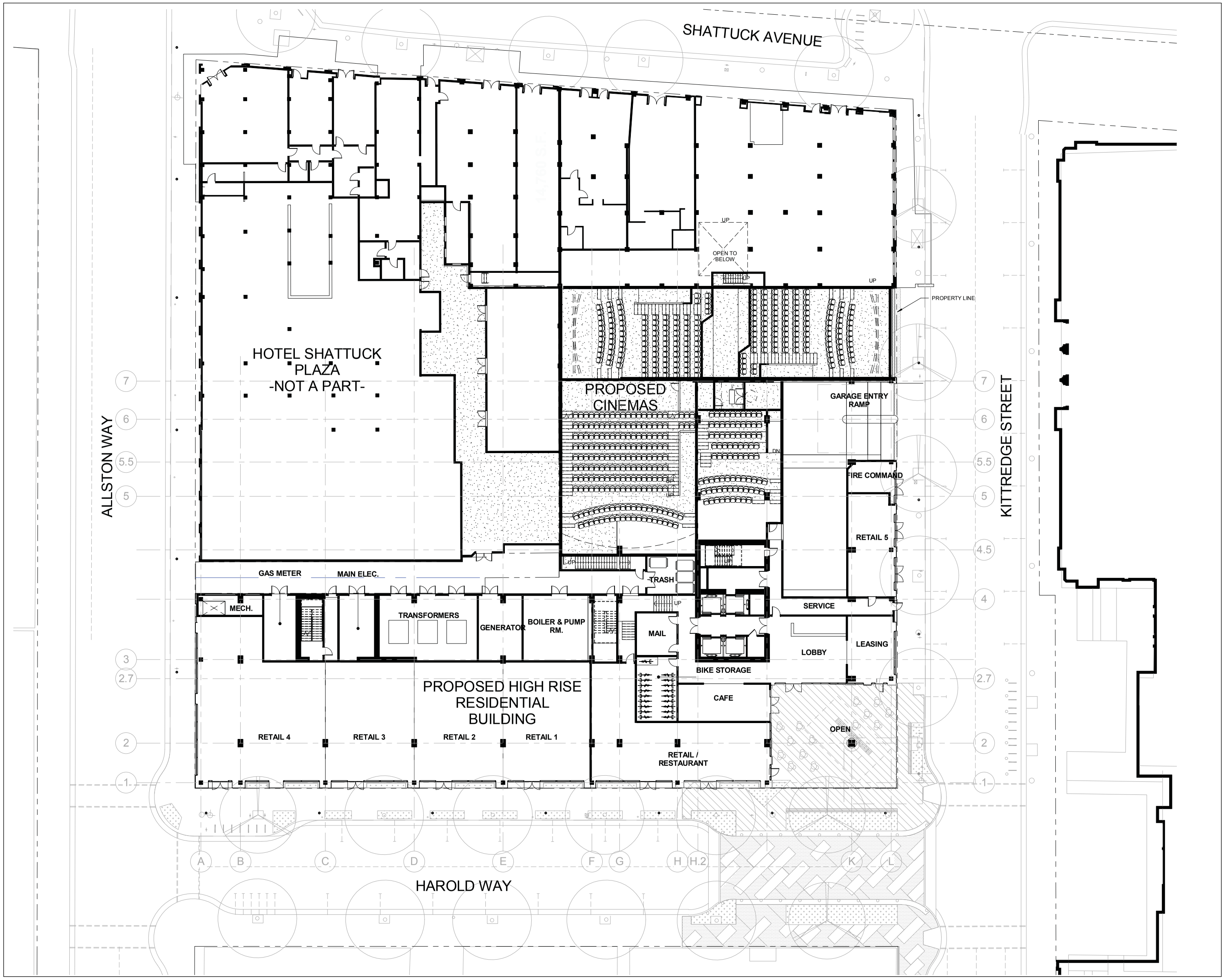


FIGURE 1.2 SITE PLAN



4.6.1 Transit Trip Generation

The number of transit net trips expected to be generated by the project site is contained in Table 4-7. Similar as auto mode, a mode split reduction factor is applied to the number of trips expected to be generated by the uses to be removed as well as to the uses to be added by the project, This factor's numerical value is 0.13, and is based on data related to the means of transportation reported by the journey to work tables from the US Census 2000 for TAZ 4229, and the adjustment factor for non-auto modes.

Table 4-7 Net Adjusted Project Transit Trip Generation

Condition	Daily	AM In	AM Out	AM Total	PM In	PM Out	PM Total
Proposed Uses	529	5	16	21	22	16	38
Existing Uses	328	7	2	9	5	11	16
Net	**201**	**-2**	**14**	**12**	**17**	**5**	**22**

4.6.1 Transit Trip Distribution

Project trip distribution is considered to follow the general pattern expected for the Auto Mode trips entering and exiting the project study area. It is assumed that the proportion of AC Transit users and BART users will remain the same as observed in the existing conditions. With these assumptions, it is anticipated that the peak hour transit project trips will be distributed according to the pattern illustrated in Table 4-8, with distributed trips shown in Table 4-9.

Table 4-8 Project Transit Trip Distribution

Direction	AM Peak Hour						PM Peak Hour					
	Total		BART		AC Transit		Total		BART		AC Transit	
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
North	44%	21%	29%	14%	15%	7%	33%	46%	21%	30%	12%	16%
South	40%	68%	26%	44%	14%	24%	56%	47%	36%	31%	20%	16%
East	11%	10%	0%	0%	11%	10%	10%	6%	0%	0%	10%	6%
West	5%	1%	0%	0%	5%	1%	1%	1%	0%	0%	1%	1%

Table 4-9 Net Project Transit Trip Distribution

Direction	AM Peak Hour						PM Peak Hour					
	Total		BART		AC Transit		Total		BART		AC Transit	
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
North	0	3	0	2	0	1	6	2	4	1	2	1
South	0	10	0	7	0	3	9	2	6	2	3	0
East	0	1	0	0	0	1	2	1	0	0	2	1
West	0	0	0	0	0	0	0	0	0	0	0	0

Note: In trips are trips entering the study area and out trips are trips exiting the study area

5 Intersection Level of Service Analysis

5.1 Analysis Methodology and Assumptions

The traffic impact analysis is performed in accordance with the City of Berkeley standards. The analysis examines weekday AM peak hour and PM peak hour traffic conditions in the study area.

5.1.1 Traffic Analysis

The project traffic impact analysis is performed in accordance with City of Berkeley Guidelines for Development of Traffic Impact Reports. Study intersection future forecast traffic conditions are analyzed with the Synchro traffic analysis software using the capacity analysis methodology published in the Transportation Research Board – Highway Capacity Manual (HCM) 2000 update.

City of Berkeley defines Level of Service (LOS) “D” or better as acceptable. LOS “E” and “F” are considered to be unacceptable or deficient. Traffic conditions at signalized intersections were evaluated using the 2000 HCM operations methodology for signalized intersections (Operational Method described in Chapter 16, Section II of the HCM), which evaluates capacity in terms of the volume-to-capacity (v/c) ratio and evaluates LOS based on controlled delay per vehicle. Controlled delay is defined as the portion of the total delay attributed to the traffic signal operation including deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The relationship between controlled delay per vehicle and LOS for signalized intersections is summarized in Table 5-1.

Table 5-1 Level of Service for Signalized Intersections

Level of Service	Description of Traffic Conditions	Controlled Delay (sec/veh)
A	Insignificant delays: no approach phase is fully utilized and no vehicle waits longer than one red indication.	≤ 10
B	Minimal delays: an occasional approach phase is fully utilized. Drivers begin to feel restricted.	> 10 – 20
C	Acceptable delays: major approach phase may become fully utilized. Most drivers feel somewhat restricted.	> 20 – 35
D	Tolerable delays: drivers may wait through more than one red indication. Queues may develop but dissipate rapidly, without excessive delays.	> 35 – 55
E	Significant delays: volumes approaching capacity. Vehicles may wait through several cycles and long vehicle queues form upstream.	> 55 – 80
F	Excessive delays: represents conditions at capacity, with extremely long delays. Queues may block upstream intersections.	> 80

Source: Highway Capacity Manual, Transportation Research Board, 2000

Conditions at unsignalized intersections were evaluated using the methodology described in Chapter 17 of the HCM. The criteria for unsignalized intersections have different threshold values than do those for signalized intersections because drivers expect signalized intersections to carry higher traffic volumes, so higher levels of control delay are acceptable. The relationship between controlled delay per vehicle and LOS for unsignalized intersections is summarized in Table 5-2.

Table 5-2 Level of Service for Unsignalized Intersections

Level of Service	Control Delay (sec/veh)
A	≤ 10
B	> 10 – 15
C	> 15 – 25
D	> 25 – 35
E	> 35 – 50
F	> 50

Source: Highway Capacity Manual, Transportation Research Board, 2000. Exhibit 17-22

5.1.2 Determination of Significance

5.1.2.1 Traffic Impacts

Per the City's Traffic Impact Report Guidelines (City of Berkeley, September 2005), level of service for signalized intersections and the determination of the threshold for significant impacts are assessed using the following standards:

- The Highway Capacity Manual (2000) defines levels of service based on average seconds of delay per vehicle. The upper threshold for LOS D is 55 sec/veh and for LOS E is 80 seconds/vehicle. The average delay can be significantly affected by signal timing at a signalized intersection. In general, traffic impact analyses should retain cycle lengths, phase minimums, and phasing that occur for existing conditions. Phase lengths can be adjusted but should not adversely affect signal coordination. Any major changes need to be documented and fully justified.

- The City has established significance thresholds based on the fact that for a given level of traffic on critical movements, the delay increases at a greater rate as LOS F is approached. The following average delay thresholds have been established: LOS D to E=2 seconds; LOS E and LOS E to F=3 seconds.
- The volume-to-capacity ratio (v/c) is also an important indicator of capacity and should be included as part of all Level of Service tables. It can indicate the extent to which the signal timing is optimal and provides a useful indicator for over-saturated conditions. However, v/c's are not utilized for identifying level of service. As the delay can increase dramatically with small increases of traffic after LOS F has been reached, a threshold of an increase of 0.01 in the volume-to-capacity ratio will be used.
- Intersection level of service is dependent on a variety of factors. In general, existing timing and phasing should be retained for scenarios with and without the project. In this way, the only variable is the traffic volume, which ensures a valid comparison of project impacts. Nevertheless, with the approval of City staff, mitigations can include changes in signal timing; but care must be taken to ensure that these changes do not affect operations at adjacent signals. Finally, where closely spaced signals exist, estimated queue lengths should be provided to demonstrate whether or not there are potential impacts on upstream intersections or on access to turn lanes.

The level of service for unsignalized intersections and the determination of the threshold for significant impacts are assessed using the following standards:

- The level of service thresholds for LOS D and E, respectively, are 35 and 50 seconds, for unsignalized intersections. For all-way stop intersections, the results of the level of service analysis provide a meaningful overall delay that can be presented similar to that for a signalized intersection. However, for two-way stop intersections, levels of service are established separately for each movement with conflicting movements that pass through the intersection. As a result, an unfavorable level of service can occur for a small number of vehicles, and a large increase in delay can occur for a small increase in traffic volume.
- Unlike for signalized intersections, it is difficult to establish fixed significance thresholds for unsignalized intersections, particularly those with only side-street stop control. In general, mitigations are required if a movement is at LOS F, the peak hour signal warrant is met, and a minimum of 10 vehicles is added to the critical movement. Nevertheless, as delays increase dramatically once LOS F is reached, consideration should be given to the number of new trips added by a project and other factors, such as the feasibility of alternative routes and the proximity of adjacent traffic signals.

5.1.2.2 Transit Impacts

Significant impacts to ridership capacity on Alameda County (AC) Transit and Bay Area Rapid Transit (BART) services are defined as follows:

- Increase average ridership on AC Transit lines by 3% at bus stops where the average load factor with the project in place would exceed 125% over a peak 30-minute period.
- Increase peak hour ridership on BART by 3% where the passenger volume would exceed the standing capacity of BART trains.

5.2 Existing Conditions

A summary of the level of service analysis results under Existing Conditions is included in Table 5-3 for the AM peak hour and Table 5-4 for the PM peak hour. All intersections are forecast to operate at acceptable levels of service and there are no significant impacts associated with project generated traffic.

Table 5-3 Level of Service Results – Existing (Year 2013) Conditions – AM Peak Hour

No.	Intersection	Control	No Project			With Project			Change in Delay (sec)	Change in V/C	Impact
			Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C			
1	MLK Jr. Wy & Allston Wy	S	10.2	B	0.45	10.5	B	0.45	0.3	0.00	
2	Milvia St & Center St	S	11.0	B	0.32	11.0	B	0.32	0.0	0.00	
3	Milvia St & Allston Wy	S	12.0	B	0.41	12.1	B	0.42	0.1	0.01	
4	Milvia St & Kittredge St	U	9.2	A	N/A	9.4	A	N/A	0.2	0.00	
5a	Shattuck Ave & Center St	S	12.5	B	0.31	12.6	B	0.31	0.1	0.00	
5b	Shattuck Ave (East Leg) & Center St	S	5.2	A	0.24	5.3	A	0.24	0.1	0.00	
6	Shattuck Ave & Allston Wy	S	10.8	B	0.57	10.6	B	0.57	-0.2	0.00	
7	Shattuck Ave & Kittredge St	S	6.2	A	0.38	6.5	A	0.38	0.3	0.00	
8	Shattuck Ave & Bancroft Wy	S	6.9	A	0.37	6.8	A	0.38	-0.1	0.01	
9	Shattuck Ave & Durant Ave	S	24.8	C	0.50	25.1	C	0.50	0.3	0.00	
10	Oxford St & Allston Wy	U	1.3	A	N/A	1.4	A	N/A	0.1	0.00	
11	Project Dwy & Kittredge St	U	0.0	A	N/A	2.3	A	N/A	2.3	0.00	

Table 5-4 Level of Service Results – Existing Conditions – PM Peak Hour

No.	Intersection	Control	No Project			With Project			Change in Delay (sec)	Change in V/C	Impact
			Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C			
1	MLK Jr. Wy & Allston Wy	S	11.5	B	0.52	11.5	B	0.52	0.0	0.00	
2	Milvia St & Center St	S	13.0	B	0.50	12.9	B	0.50	-0.1	0.00	
3	Milvia St & Allston Wy	S	13.6	B	0.50	13.6	B	0.50	0.0	0.00	
4	Milvia St & Kittredge St	U	11.2	B	N/A	11.8	B	N/A	0.6	0.00	
5a	Shattuck Ave & Center St	S	16.5	B	0.39	16.5	B	0.40	0.0	0.01	
5b	Shattuck Ave (East Leg) & Center St	S	6.5	A	0.33	6.5	A	0.34	0.0	0.01	
6	Shattuck Ave & Allston Wy	S	9.4	A	0.55	9.3	A	0.55	-0.1	0.00	
7	Shattuck Ave & Kittredge St	S	5.4	A	0.42	5.7	A	0.44	0.3	0.02	
8	Shattuck Ave & Bancroft Wy	S	8.7	A	0.50	8.6	A	0.51	-0.1	0.01	
9	Shattuck Ave & Durant Ave	S	25.9	C	0.55	26.3	C	0.56	0.4	0.01	
10	Oxford St & Allston Wy	U	2.5	A	N/A	2.6	A	N/A	0.1	0.00	
11	Project Dwy & Kittredge St	U	0.0	A	N/A	2.9	A	N/A	2.9	0.00	

Control: S – signalized intersection; U – stop control or driveway yield
Significant impact occurs if: the With Project LOS is "D" and the change in delay is 2 seconds or more; OR the With Project LOS is "E" and the change in delay is 3 seconds or more; OR the With Project LOS is "F" and the change in V/C is 0.01 or more.

Intersections 5a and 5b are shown in the Appendix as intersections 51 and 52.

5.3 Future Year (2020) Conditions

A summary of the level of service analysis results in the Future Year (2020) is included Table 5-5 for the AM peak hour and Table 5-6 for the PM peak hour. In the Year 2020, all study intersections are forecast to operate at LOS “D” or better. There are no significant impacts associated with the project generated traffic in the Year 2020 scenario.

Table 5-5 Level of Service Results – Future Year (2020) – AM Peak Hour

No.	Intersection	Control	No Project			With Project			Change in Delay (sec)	Change in V/C	Impact
			Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C			
1	MLK Jr. Wy & Allston Wy	S	10.7	B	0.48	11.0	B	0.49	0.3	0.01	
2	Milvia St & Center St	S	12.3	B	0.35	12.2	B	0.35	-0.1	0.00	
3	Milvia St & Allston Wy	S	12.3	B	0.44	12.5	B	0.46	0.2	0.02	
4	Milvia St & Kittredge St	U	9.5	A	N/A	9.7	A	N/A	0.2	0.00	
5a	Shattuck Ave & Center St	S	12.9	B	0.49	12.9	B	0.49	0.0	0.00	
5b	Shattuck Ave (East Leg) & Center St	S	12.2	B	0.35	12.2	B	0.36	0.0	0.01	
6	Shattuck Ave & Allston Wy	S	15.4	B	0.61	15.1	B	0.61	-0.3	0.00	
7	Shattuck Ave & Kittredge St	S	6.2	A	0.41	6.4	A	0.41	0.2	0.00	
8	Shattuck Ave & Bancroft Wy	S	8.6	A	0.40	8.9	A	0.41	0.3	0.01	
9	Shattuck Ave & Durant Ave	S	30.0	C	0.54	30.0	C	0.55	0.0	0.01	
10	Oxford St & Allston Wy	U	1.4	A	N/A	1.5	A	N/A	0.1	0.00	
11	Project Dwy & Kittredge St	U	0.0	A	N/A	2.2	A	N/A	2.2	0.00	

Control: S – signalized intersection; U – stop control or driveway yield
Significant impact occurs if: the With Project LOS is “D” and the change in delay is 2 seconds or more; OR the With Project LOS is “E” and the change in delay is 3 seconds or more; OR the With Project LOS is “F” and the change in V/C is 0.01 or more.
Intersections 5a and 5b are shown in the Appendix as intersections 51 and 52.

Table 5-6 Level of Service Results – Future Year (2020) – PM Peak Hour

No.	Intersection	Control	No Project			With Project			Change in Delay (sec)	Change in V/C	Impact
			Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C			
1	MLK Jr. Wy & Allston Wy	S	12.0	B	0.56	12.0	B	0.56	0.0	0.00	
2	Milvia St & Center St	S	13.4	B	0.53	13.3	B	0.54	-0.1	0.01	
3	Milvia St & Allston Wy	S	14.0	B	0.54	14.0	B	0.54	0.0	0.00	
4	Milvia St & Kittredge St	U	11.9	B	N/A	12.7	B	N/A	0.8	0.00	
5a	Shattuck Ave & Center St	S	12.4	B	0.59	12.5	B	0.60	0.1	0.01	
5b	Shattuck Ave (East Leg) & Center St	S	11.7	B	0.35	11.8	B	0.35	0.1	0.00	
6	Shattuck Ave & Allston Wy	S	12.0	B	0.60	12.1	B	0.59	0.1	-0.01	
7	Shattuck Ave & Kittredge St	S	5.7	A	0.46	5.9	A	0.48	0.2	0.02	
8	Shattuck Ave & Bancroft Wy	S	11.8	B	0.53	11.9	B	0.54	0.1	0.01	
9	Shattuck Ave & Durant Ave	S	37.2	D	0.60	39.0	D	0.61	1.8	0.01	
10	Oxford St & Allston Wy	U	3.1	A	N/A	3.1	A	N/A	0.0	0.00	
11	Project Dwy & Kittredge St	U	0.0	A	N/A	2.8	A	N/A	2.8	0.00	

Control: S – signalized intersection; U – stop control or driveway yield
Significant impact occurs if: the With Project LOS is "D" and the change in delay is 2 seconds or more; OR the With Project LOS is "E" and the change in delay is 3 seconds or more; OR the With Project LOS is "F" and the change in V/C is 0.01 or more.
Intersections 5a and 5b are shown in the Appendix as intersections 51 and 52.

5.4 Future Year (2035) Conditions

A summary of the level of service analysis results in the Future Year (2035) is included Table 5-7 for the AM peak hour and Table 5-8 for the PM peak hour. By the Year 2035, the intersection of Shattuck Avenue and Durant Avenue (#9) is expected to operate at LOS "E" during the PM peak hour. The project is forecast to generate 19 northbound trips through intersection #9 during the PM peak hour, increasing the delay by more than three seconds, which meets the criteria for significant impact established in the City of Berkeley Guidelines for the Development of Traffic Impact Reports.

Table 5-7 Level of Service Results – Future Year (2035) – AM Peak Hour

No.	Intersection	Control	No Project			With Project			Change in Delay (sec)	Change in V/C	Impact
			Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C			
1	MLK Jr. Wy & Allston Wy	S	12.7	B	0.58	12.9	B	0.58	0.2	0.00	
2	Milvia St & Center St	S	13.3	B	0.41	13.4	B	0.40	0.1	-0.01	
3	Milvia St & Allston Wy	S	13.6	B	0.52	13.9	B	0.54	0.3	0.02	
4	Milvia St & Kittredge St	U	10.3	B	N/A	10.6	B	N/A	0.3	0.00	
5a	Shattuck Ave & Center St	S	14.7	B	0.58	14.7	B	0.58	0.0	0.00	
5b	Shattuck Ave (East Leg) & Center St	S	13.2	B	0.41	13.2	B	0.41	0.0	0.00	
6	Shattuck Ave & Allston Wy	S	27.1	C	0.97	25.6	C	0.94	-1.5	-0.03	
7	Shattuck Ave & Kittredge St	S	7.2	A	0.47	7.4	A	0.48	0.2	0.01	
8	Shattuck Ave & Bancroft Wy	S	9.8	A	0.48	10.2	B	0.49	0.4	0.01	
9	Shattuck Ave & Durant Ave	S	51.2	D	0.64	50.8	D	0.64	-0.4	0.00	
10	Oxford St & Allston Wy	U	2.0	A	N/A	2.0	A	N/A	0.0	0.00	
11	Project Dwy & Kittredge St	U	0.0	A	N/A	2.1	A	N/A	2.1	0.00	

Table 5-8 Level of Service Results – Future Year (2035) – PM Peak Hour

No.	Intersection	Control	No Project			With Project			Change in Delay (sec)	Change in V/C	Impact
			Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C			
1	MLK Jr. Wy & Allston Wy	S	13.7	B	0.65	13.9	B	0.68	0.2	0.03	
2	Milvia St & Center St	S	14.7	B	0.63	14.7	B	0.64	0.0	0.01	
3	Milvia St & Allston Wy	S	15.7	B	0.65	15.7	B	0.65	0.0	0.00	
4	Milvia St & Kittredge St	U	14.4	B	N/A	15.7	C	N/A	1.3	0.00	
5a	Shattuck Ave & Center St	S	15.4	B	0.69	15.6	B	0.70	0.2	0.01	
5b	Shattuck Ave (East Leg) & Center St	S	11.8	B	0.41	11.8	B	0.41	0.0	0.00	
6	Shattuck Ave & Allston Wy	S	13.9	B	0.70	13.9	B	0.69	0.0	-0.01	
7	Shattuck Ave & Kittredge St	S	7.3	A	0.54	7.7	A	0.55	0.4	0.01	
8	Shattuck Ave & Bancroft Wy	S	14.2	B	0.62	14.6	B	0.62	0.4	0.00	
9	Shattuck Ave & Durant Ave	S	68.2	E	0.70	71.4	E	0.71	3.2	0.01	YES
10	Oxford St & Allston Wy	U	6.2	A	N/A	6.2	A	N/A	0.0	0.00	
11	Project Dwy & Kittredge St	U	0.0	A	N/A	2.6	A	N/A	2.6	0.00	

Control: S – signalized intersection; U – stop control or driveway yield
Significant impact occurs if: the With Project LOS is “D” and the change in delay is 2 seconds or more; OR the With Project LOS is “E” and the change in delay is 3 seconds or more; OR the With Project LOS is “F” and the change in V/C is 0.01 or more.

5.5 Transit Analysis

5.5.1 Existing Conditions with Project

Bay Area Rapid Transit

Considering the number of trips generated by the project and the split between BART and AC Transit, the maximum peak hour ridership on BART trains is expected to be increased by a maximum of 7 passengers in the southbound direction (AM Peak Hour) and by a maximum of 6 passengers in the northbound direction (PM Peak Hour). As passengers riding BART can use either of the lines that serve the Downtown Berkeley station, the increase to each line is expected to be at most, 4 passengers in the AM Peak Hour and 3 passengers in the PM Peak Hour. Considering the current load for each line during the peak period, the increase in ridership due to project trips is expected to a maximum of 1 trip per car.

The average load carried by each train during peak hours can be estimated as to be 990 passengers for the Richmond-Millbrae line and about 760 passengers for the Richmond-Fremont line. This is a conservative proxy for ridership, and the trips added by the project to the lines listed above is less than 3%, and therefore no impact is anticipated on the BART system in Year 2013.

AC Transit

The total increase in boardings expected to occur on AC Transit routes during peak hours is under 15 passengers (4 in the AM Peak Hour and 9 PM Peak Hour). Given the magnitude of this increase, and the number of lines that serve the project study area, it is not anticipated that these trips would cause significant impact on the AC Transit routes that serve Downtown Berkeley.

5.5.2 Future Year (2020) Conditions

The growth assumptions utilized to forecast the transit demand for the project future year 2020 is based on the latest data available from the ACCMA model.

The model documentation provides high level forecasts that estimate that local AC Transit lines would grow at an annual average of 1.3% per year, while AC Transbay and BART would grow at slightly higher rates, 2.3% and 2.1% per year for the period ending in Year 2020.

Bay Area Rapid Transit

The growth assumptions above increase the average load carried by each train during peak hours to be 1150 passengers for the Richmond-Millbrae line and about 880 passengers for the Richmond-Fremont line in 2020, and the cars are forecast to operate over standing capacity. The addition of the project trips to the ridership has the same behavior as for the existing conditions, and does not reach the threshold, even though vehicles are likely to be operating above or at standing capacity.

AC Transit

The demand on AC Transit routes is expected to increase by 9% from 2013 to 2020. For purposes of this analysis, it was assumed that no changes to existing service are implemented, and therefore, some routes might experience seating capacity during peak hours. Under the assumption that the peak hour demand for the lines is up to 20% of the daily demand, the demand added by the project (4 passengers in the AM Peak Hour and 9 in the PM Peak Hour) it is not anticipated that these trips would cause significant impact on the AC Transit routes that serve Downtown Berkeley.

5.5.3 Future Year (2035) Conditions

The growth assumptions utilized to forecast the transit demand for the project horizon year 2035 is based on the latest data available from the ACCMA model.

The model documentation provides high level forecasts that estimate that local AC Transit and Transbay lines would grow at an annual average of 2% per year, while BART would grow at slightly higher rate, at 3% per year for the period ending in Year 2035.

Bay Area Rapid Transit

The growth assumptions above increase the average load carried by each train during peak hours to be 1810 passengers for the Richmond-Millbrae line and about 1392 passengers for the Richmond-Fremont line in 2035, and the cars are forecast to operate over standing capacity. The addition of the project trips to the ridership has the same behavior as for the existing and year 2020 conditions, and does not reach the threshold, even though vehicles are likely to be operating above standing capacity, if headways are maintained.

AC Transit

The demand on AC Transit routes is expected to increase by 41% from 2013 to 2035. For purposes of this analysis, it was assumed that no changes to existing service are implemented, and therefore, some routes might experience seating capacity during peak hours. Under the assumption that the peak hour demand for the lines is up to 20% of the daily demand, the demand added by the project (4 passengers in the AM Peak Hour and 9 in the PM Peak Hour) it is not anticipated that these trips would cause significant impact on the AC Transit routes that serve Downtown Berkeley.

6 CMP Roadway Analysis

The Alameda County Congestion Management Program roadway network (CMP-network) is used to monitor performance in relation to established level of service (LOS) standards. It is a subset of the broader Metropolitan Transportation System (MTS), which is used in the Alameda County Transportation Commission's (ACTC's) Land Use Analysis Program. The CMP-network was developed in 1991 and includes state highways and principal arterials that meet all minimum criteria (carry 30,000 vehicles per day; have four or more lanes; is a major cross-town connector; and connects at both ends to another CMP route or major activity center). No Caltrans facilities pass directly through the project study area. The following study area roadways are part of the CMP and/or MTS networks:

CMP Network Tier 1 Roadways

- Shattuck Avenue – between University Avenue and Haste Street
- University Avenue – between Interstate 80 and Shattuck Avenue
- Martin Luther King Jr. Way – between north city limits and Adeline Street

CMP Network Tier 2 Roadways

- Bancroft Way – between College Avenue and Shattuck Avenue

MTS Routes

- Dwight Way – between 6th Street and Telegraph Avenue

Per the requirements of the ACTC 2013 Congestion Management Program Guidelines, new development projects are required to conduct an analysis of the effect of project trips on the MTS roadway network when a project is forecast to generate more than 100 automobile trips in the PM peak hour. As shown in Table 4.6, the anticipated net automobile trip generation for this project during the PM peak hour is 90 trips. Therefore, the analysis of MTS roadways consistent with the CMP Land Use Analysis Program is not required within this traffic study.

7 Pedestrian Environmental Quality Index (PEQI) Analysis

The Pedestrian Environmental Quality Index (PEQI) is a spatial index to quantify street and intersection environmental factors. The PEQI was developed by the San Francisco Department of Public Health (SFDPH) to assess the quality of the physical pedestrian environment and inform pedestrian planning needs. The analysis involves an observational survey that quantifies street and intersection factors empirically known to affect people's travel behaviors and to encourage or discourage walking.

7.1 Methodology

The PEQI consists of 21 street segment and 9 intersection factors associated with pedestrian environmental quality and safety, grouped into six domains:

- Intersection Safety
- Traffic
- Street Design
- Land Use
- Perceived Safety
- Perceived Walkability

Intersection Safety

The Intersection Safety domain measures intersection features that provide access and mobility for pedestrians while providing awareness to oncoming traffic at pedestrian crossings. Pedestrian accommodations at intersections include signalization, pavement marking, various signage and features to slow traffic and increase visibility.

Traffic

The Vehicle Traffic domain measures factors that are predictive of exposure distance for pedestrians, conflict points, pedestrian injury severity, and pedestrian mobility. Vehicle collisions involving pedestrians pose significant public health problems, especially in urban areas where the number of vehicle-pedestrian conflicts are high.

Street Design

The Street Design domain measures sidewalk features – sidewalks are generally the only pathway for pedestrians. Sidewalks are an important component of a public right-of-way and neighborhood walkability and, if designed correctly and maintained, can provide pedestrians a safe walking experience.

Land Use

The Land Use domain measures commercial uses and street aesthetics. Mixed land use among other variables (density and connectivity) is associated with more people walking and less vehicle emissions. Mixed land use along with the presence of historical or unique architecture can improve aesthetic quality for pedestrians and encourage walking.

Perceived Safety

The Perceived Safety domain is informed by how physical features of an environment shape people's perceptions of safety and therefore their comfort level and willingness to walk. Crime prevention is often tied to design strategies which incorporate street lighting and commercial uses, which contributes to pedestrian safety by providing "eyes on the street."

Perceived Walkability

The Perceived Walkability domain is informed by how physical features of an environment shape people's perceptions of walkability and therefore their comfort level and willingness to walk. The attractiveness of the sidewalk, along with safety, noise, and smell can increase or decrease the perceived walkability of a corridor.

7.2 Data Collection

An aerial analysis using Google Earth was conducted to collect data for the PEQI analysis. Intersection and segment data were then entered into a PEQI analysis spreadsheet developed by SFPDH. The analysis spreadsheets are provided in the Appendix.

7.3 Scoring

PEQI scores reflect the degree to which environmental factors supportive of walking and pedestrian safety has been incorporated into street segment and intersection design. The PEQI scores street segments and intersections separately, on a scale from 0 to 100. Table 7-1 summarizes the PEQI scoring system.

Table 7-1: PEQI Scoring System

Grade	Description of Pedestrian Condition	Score
Red	Environment not suitable for pedestrians.	0-20
Orange	Poor pedestrian conditions exist.	21-40
Yellow	Basic pedestrian conditions exist.	41-60
Light Green	Reasonable pedestrian conditions exist.	61-80
Dark Green	Ideal pedestrian conditions exist.	81-100

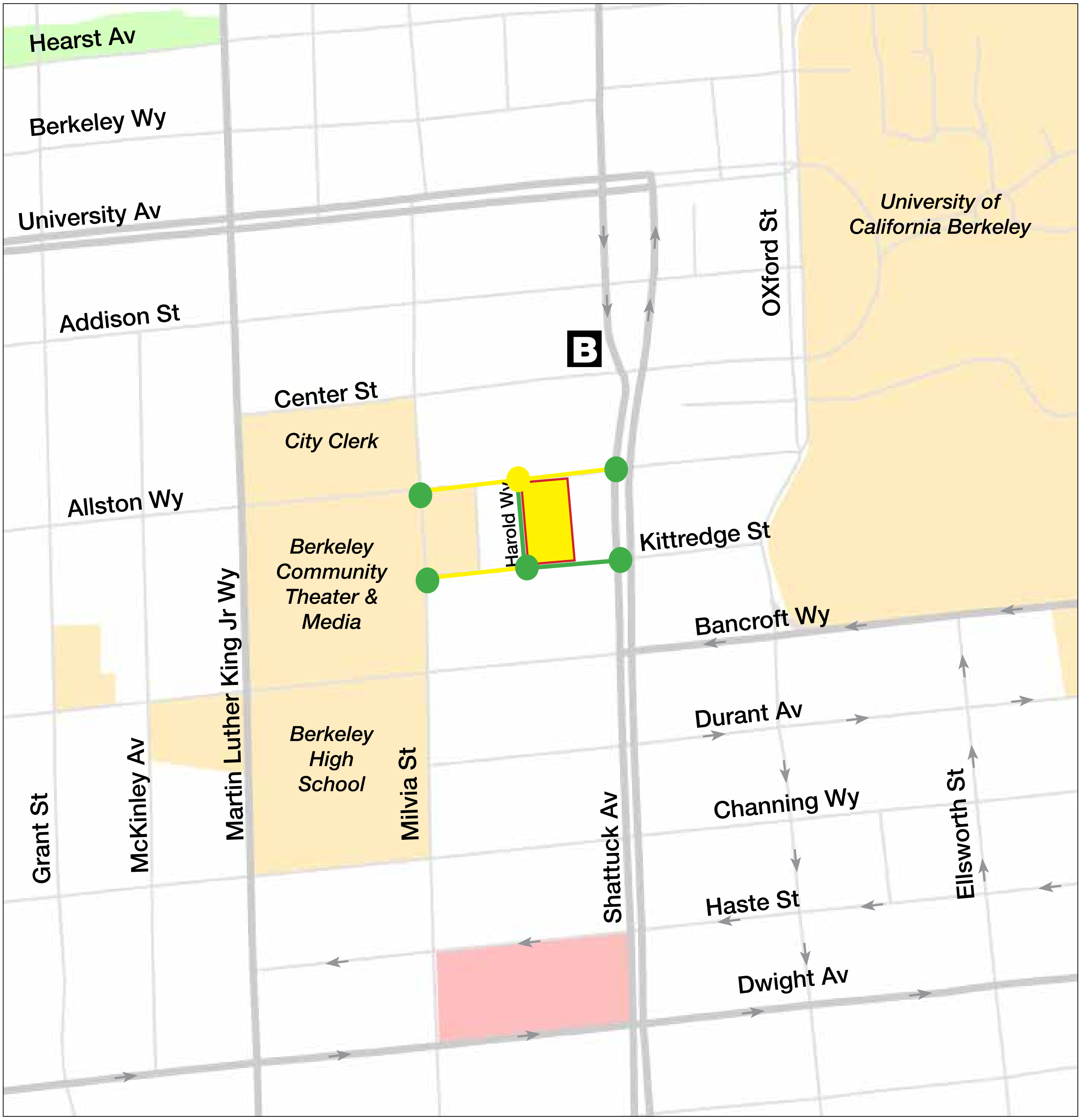
7.4 PEQI Analysis Results

The results of the PEQI analysis for the existing year 2014 condition are summarized in Table 7-2. The intersection and average segment scores are illustrated in Figure 7.1.

Table 7-2: PEQI Scores – No Project

No.	Street Name	Cross Section 1	Cross Section 2	EB/NB Segment Score	WB/SB Segment Score	Average Segment Score
1	Allston Wy					
		Milvia St	Harold Wy	62	56	59
2	Allston Wy					
		Harold Wy	Shattuck Av	60	59	60
3	Kittredge St					
		Milvia St	Harold Wy	58	62	60
4	Kittredge St					
		Harold Wy	Shattuck Av	61	71	66
5	Harold Wy					
		Allston Wy	Kittredge St	70	67	69

FIGURE 7.1 PEQI ANALYSIS SUMMARY - NO PROJECT



Legend
- Project Site
- 0-20 Environment not suitbale for peds
- 21-40 Poor pedestrian conditions
- 41-60 Basic pedestrian conditions
- 61-80 Reasonable pedestrian conditions
- 80-100 Ideal pedestrian conditions

7.5 Planned Improvements

A number of offsite, public streetscape and mobility improvements are proposed as part of the project that would improve the pedestrian walking experience. These include bulb-outs on both sides of Harold Way that would be constructed at the intersections of Allston Way and Kittredge Street. One of these would accommodate public bicycle racks. Approximately 11 new street trees along Harold Way and Kittredge Street would be installed to replace the seven that would be removed. Selected tall street lights would be replaced with shorter pedestrian-scaled lights, and additional pedestrian scaled lights would be installed.

A new exterior plaza area is planned at the Corner of Harold Way and Kittredge Street. This area would serve as the formal entry to the project site and provide public space for seating and proposed restaurant and café spaces. Enhanced crossings with textured or colored paving, landscape pockets, and bollards are planned at the intersection of Harold Way and Kittredge Street.

Surrounding sidewalks and crossings would be treated with decorative paving. Other improvements would include installation of speed table to calm traffic and to enhance the public right-of-way providing access to nearby buildings. Installation of street furniture such as benches, planters with seat walls, and additional bike racks are also proposed.

The addition of these planned improvements as part of the project would increase the PEQI score along the study segments and intersections. The proposed improvements as part of this project would enhance the overall pedestrian environment and experience along the three study segments and associated intersections.

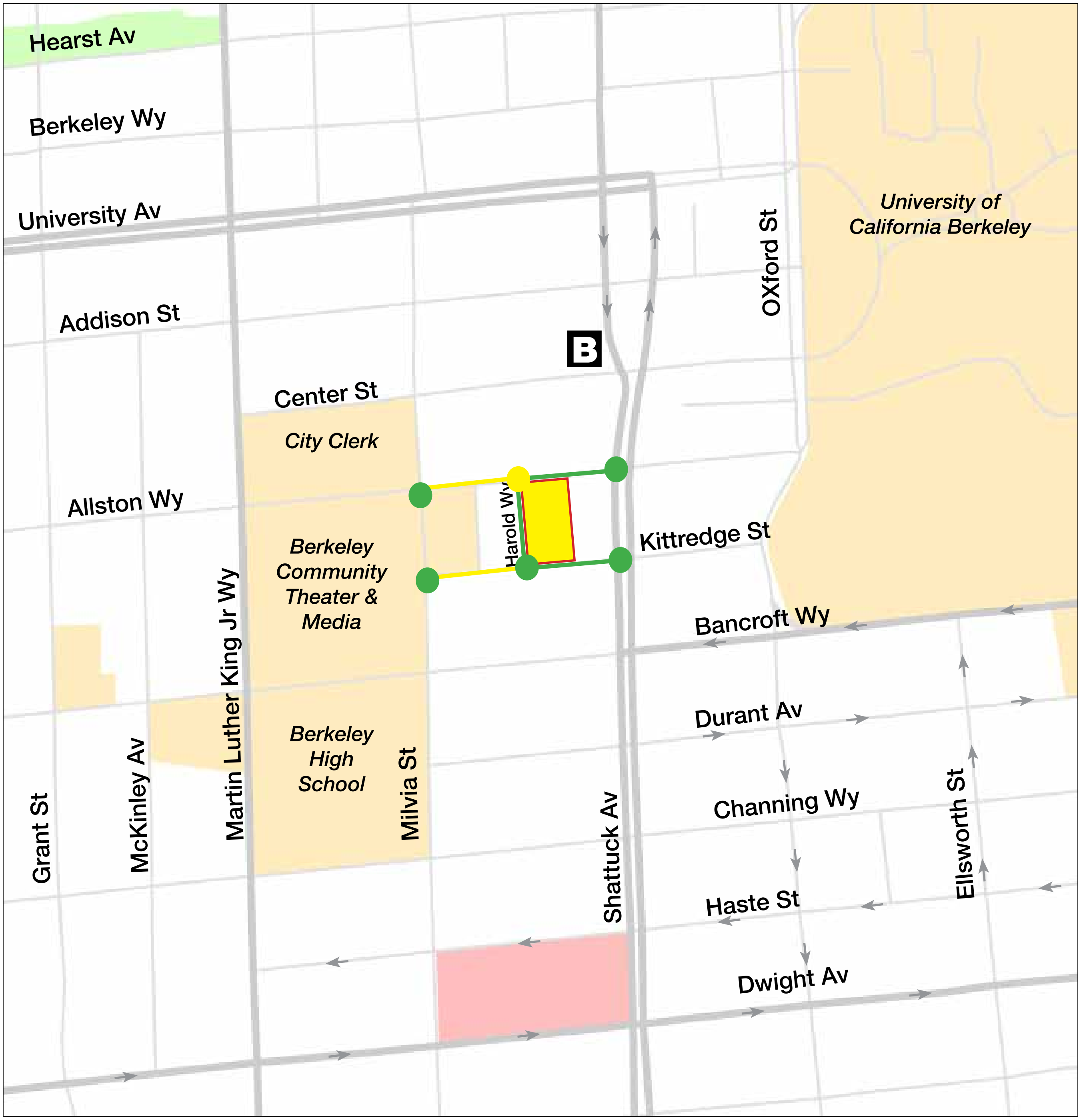
The results of the PEQI analysis for the with project conditions is summarized in Table 7-3. The intersection and average segment scores are illustrated in Figure 7.2.

Table 7-3: PEQI Scores – With Project

No.	Street Name	Cross Section 1	Cross Section 2	EB/NB Segment Score	WB/SB Segment Score	Average Segment Score
1	Allston Wy					
		Milvia St	Harold Wy	62	56	59
2	Allston Wy					
		Harold Wy	Shattuck Av	60	65	63
3	Kittredge St					
		Milvia St	Harold Wy	58	62	60
4	Kittredge St					
		Harold Wy	Shattuck Av	66	71	69
5	Harold Wy					
		Allston Wy	Kittredge St	75	67	71

For all studied segments, the PEQI analysis shows that the project would either maintain the score of the pedestrian environment or result in a small improvement. No significant impacts to pedestrian facilities or pedestrian mobility are anticipated due to the project.

FIGURE 7.2 PEQI ANALYSIS SUMMARY - WITH PROJECT



Legend

- Project Site
- 0-20 Environment not suitbale for peds
- 21-40 Poor pedestrian conditions
- 41-60 Basic pedestrian conditions
- 61-80 Reasonable pedestrian conditions
- 80-100 Ideal pedestrian conditions

8 Bicycle Environmental Quality Index (BEQI) Analysis

The Bicycle Environmental Quality Index (BEQI) is a quantitative observational survey to assess the bicycle environment on roadways and evaluate what streetscape improvements could be made to promote bicycling in San Francisco. The BEQI was developed by the San Francisco Department of Public Health (SFDPH) to assess the quality of the physical pedestrian environment and inform bicycle planning needs. The analysis involves an observational survey that quantifies street and intersection factors empirically known to affect people's travel behaviors and to encourage or discourage walking.

8.1 Methodology

Similar to the PEQI, the BEQI consists of 21 street segment and 9 intersection factors associated with pedestrian environmental quality and safety, grouped into five domains:

- Intersection Safety
- Traffic
- Street Design
- Safety/Other
- Land Use

Intersection Safety

The Intersection Safety domain measures intersection features that provide access and mobility for bicyclists while providing awareness to oncoming traffic at bicycle crossings. Bicycle accommodations at intersections include dashed intersection Bicycle Lane, No Turn On Red Signs, and Bicycle Pavement Treatments and Amenities.

Traffic

The Vehicle Traffic domain measures factors that include number of vehicle lanes, vehicle speed, traffic calming features, parallel parking adjacent to bicycle lanes/routes, traffic volumes, and percentage of heavy vehicles.

Street Design

The Street Design domain measures bicycle features including presence of marked area for bicycle traffic, width of bicycle lane, trees, connectivity of marked bicycle network, pavement condition, driveway cuts, and street grade.

Safety/Other

The Safety/Other domain measures other safety features not covered in the intersection domain. Factors in this domain include the presence of street lighting and presence of bicycle lanes or shared roadway signs.

Land Use

The Land Use domain measures commercial uses and street aesthetics. Mixed land use among other variables (density and connectivity) is associated with more non-motorized transportation activities and less vehicle emissions.

8.2 Scoring

The survey responses were used to devise numerical scores and weights for the BEQI. The total score for each segment and intersection will reflect the bicycle quality for the area the BEQI is applied to. The BEQI street segments and intersection both receive a score on a scale from 0-130[i]. Table 8-1 summarizes the BEQI scoring system.

Table 8-1: BEQI Scoring System

Grade	Description of Pedestrian Condition	Score
Red	Poor quality, bicycle conditions absent.	0-25
Orange	Low quality, minimal bicycle conditions.	26-52
Yellow	Average quality, bicycle conditions present but room for improvement.	53-78
Light Green	High quality, some important bicycle conditions present.	79-104
Dark Green	Highest quality, many important bicycle conditions present.	105-130

[1] Per the BEQI Manual, the score is scaled from 0-100 using software designed specifically for the City of San Francisco. Since this study area is located outside of the City, a manual calculation of the BEQI score was conducted using the values shown in Table 3: The BEQI Indicator, Domain, and Overall Street Segment Score Values of the BEQI Manual. The range based on the values given in this table is 58-188, which was rescaled to 0-130 and given equal intervals of 26 points for all categories for consistency with the 0-100 scale system.

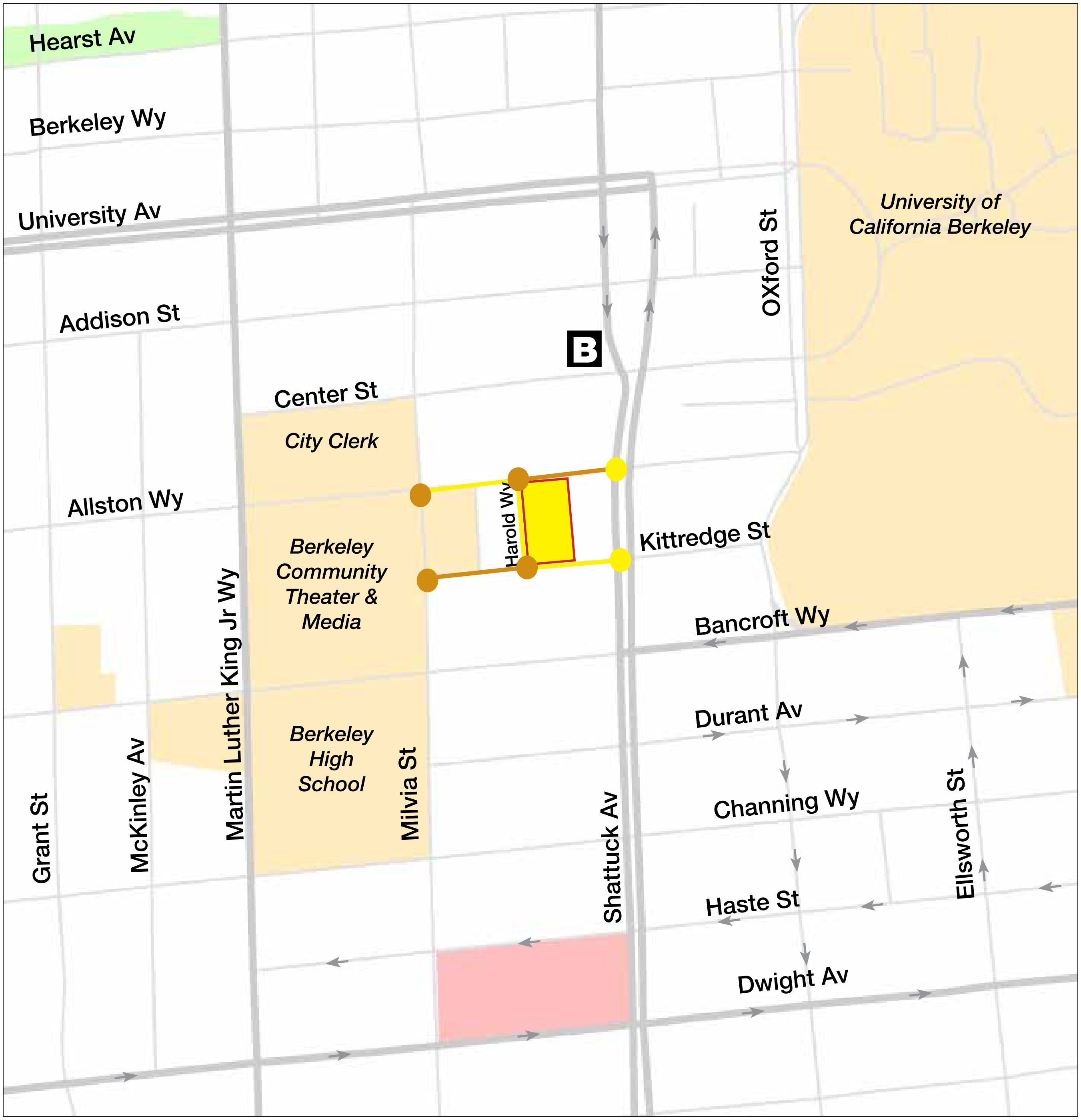
8.3 BEQI Analysis Results – Existing Condition

The results of the BEQI analysis for the existing Year 2014 condition are summarized in Table 8-2. The intersection and average segment scores are illustrated in Figure 8.1.

Table 8-2: BEQI Scores – No Project

No.	Street Name	Cross Section 1	Cross Section 2	EB/NB Segment Score	WB/SB Segment Score	Average Segment Score
1	Allston Wy					
		Milvia St	Harold Wy	56	50	53
2	Allston Wy					
		Harold Wy	Shattuck Av	52	50	51
3	Kittredge St					
		Milvia St	Harold Wy	48	56	52
4	Kittredge St					
		Harold Wy	Shattuck Av	50	56	53
5	Harold Wy					
		Allston Wy	Kittredge St	54	53	54

FIGURE 8.1 BEQI ANALYSIS SUMMARY - NO PROJECT



Legend

- Project Site
- 0-25 Poor quality, bicycle conditions absent
- 26-52 Low quality, minimal bicycle conditions
- 53-78 Average quality, bicycle conditions present but room for improvement
- 79-104 High quality, some important bicycle conditions present
- 105-130 Highest quality, many important bicycle conditions present

8.4 Planned Improvements

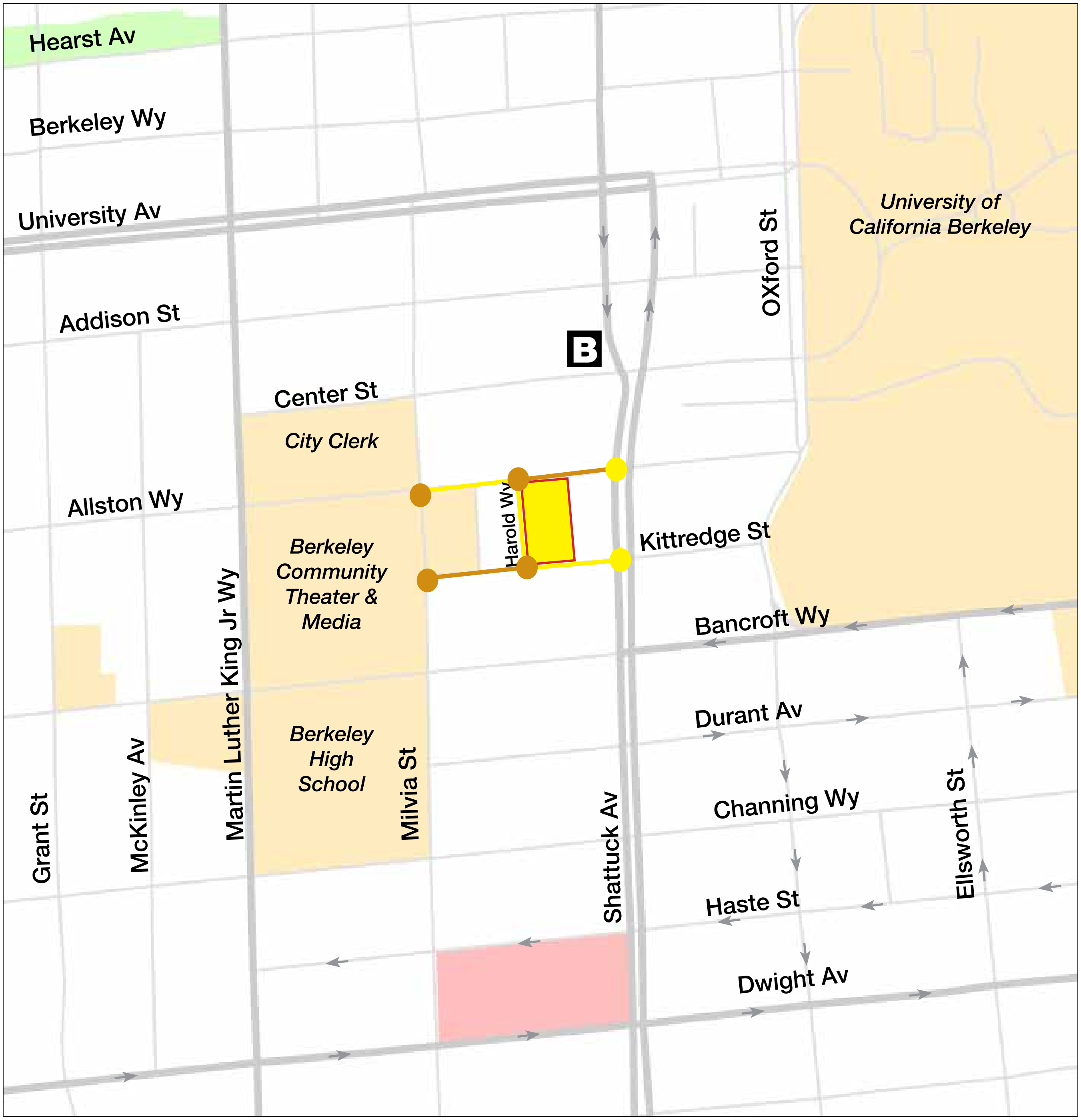
The planned improvements are the same improvements described in Section 7.5 of the PEQI analysis. Factors that would affect BEQI scores include the presence of bicycle parking, street trees, storefront retail, and pedestrian scale lighting. The project is proposing to add the above elements as described in Section 7.5 of this report. There is currently no significant new bicycle infrastructure being planned for the study segments. The results of the BEQI analysis for the with project conditions is summarized in Table 8-3. The intersection and average segment scores are illustrated in Figure 8.2.

Table 8-3: BEQI Scores – With Project

No.	Street Name	Cross Section 1	Cross Section 2	EB/NB Segment Score	WB/SB Segment Score	Average Segment Score
1	Allston Wy					
		Milvia St	Harold Wy	56	50	53
2	Allston Wy					
		Harold Wy	Shattuck Av	52	52	52
3	Kittredge St					
		Milvia St	Harold Wy	48	56	52
4	Kittredge St					
		Harold Wy	Shattuck Av	52	56	54
5	Harold Wy					
		Allston Wy	Kittredge St	56	53	55

For all studied segments, the BEQI analysis shows that the project would either maintain the score of the bicycling environment or result in a small improvement. No significant impacts to bicycle facilities or bicyclist mobility are anticipated due to the project.

FIGURE 8.2 BEQI ANALYSIS SUMMARY - WITH PROJECT



Legend
- Project Site
- 0-25 Poor quality, bicycle conditions absent
- 26-52 Low quality, minimal bicycle conditions
- 53-78 Average quality, bicycle conditions present but room for improvement
- 79-104 High quality, some important bicycle conditions present
- 105-130 Highest quality, many important bicycle conditions present

9 Parking Analysis

The project is proposing to provide 171 parking spaces in a three-level, subterranean parking structure accessible from Kittredge Street. The subterranean parking structure would include 11 electric vehicle charging stations and six spaces reserved for carsharing vehicles. In addition, 100 secure bicycle storage spaces will be provided within the building, including spaces on the first level as well as in the parking garage.

9.1 Parking Requirements

According to Section 23E.68.080 of the Berkeley Municipal Code, residential land uses are required to provide one off-street parking space per three dwelling units, and all other uses are required to provide one and one half spaces per 1,000 square feet of gross floor area. The project is required to provide 146 spaces, as shown in Table 9-1. In addition, 25 small car spaces (such as for "Smart Cars" and electric vehicles) are provided, including 6 car sharing spaces. A total of 100 secured bicycle storage spaces will be provided within the building, on the first level and in the underground garage.

Table 9-1: Project Parking Requirements and Supply

Use	Quantity	Units	Parking Spaces Required	Parking Spaces Provided
Residential Apartments	302	DU	101	101
Retail/Restaurant & Cinema	29.995	TSF	45	45
Additional (Public Use or Hotel)			0	25
Total Auto Parking			**146**	**171**
Bike Parking	29.995	TSF	15	100

Source: Berkeley Municipal Code Section 23E.68.080
DU – dwelling units; TSF – thousand square feet

The requirements of BMC Sections 23E.68.080 B (vehicle parking spaces) and C (bike parking are addressed in Table 9-1. Additional applicable requirements from BMC Section 23E.68.080 are summarized in Table 9-2.

Table 9-2: Other Applicable Requirements from Berkeley Municipal Code Sec. 23E.68.080

Item	Requirement	Project Compliance
E	New construction that results in an on-site total of more than 25 publicly available parking spaces shall install dynamic signage to Transportation Division specifications, including, but not limited to, real-time garage occupancy signs at the entries and exits to the parking facility with vehicle detection capabilities and enabled for future connection to the regional 511 Travel Information System or equivalent, as determined by the Zoning Officer in consultation with the Transportation Division Manager.	Dynamic signage will be installed as required.
G	For any new building with residential units or structures converted to a residential use, required parking spaces shall be leased or sold separate from the rental or purchase of dwelling units for the life of the dwelling unit, unless the Board grants a Use Permit to waive this requirement for projects which include financing for affordable housing subject to the finding in section 23E.68.090.I.	Parking spaces in the garage will be leased or sold separate from the rental or purchase of dwelling units.

Item	Requirement	Project Compliance
H	For new structures or additions over 20,000 square feet, the property owner shall provide at least one of the following transportation benefits at no cost to every employee, residential unit, and/or GLA resident. A notice describing these transportation benefits shall be posted in a location or locations visible to employees and residents. 1. A pass for unlimited local bus transit service; or 2. A functionally equivalent transit benefit in an amount at least equal to the price of a non-discounted unlimited monthly local bus pass. Any benefit proposed as a functionally equivalent transportation benefit shall be approved by the Zoning Officer in consultation with the Transportation Division Manager.	A transit pass will be provided for each residential dwelling unit.
I	For residential structures that require 61 or more vehicle parking spaces under Section 23E.68.080.B, 3 spaces must be designated as vehicle sharing spaces, plus one additional vehicle sharing space for every 60 required parking spaces over 61. With a total of 146 parking spaces required for this project, 5 of those spaces must be designated for vehicle sharing. 1. The required vehicle sharing spaces shall be offered to vehicle sharing service providers at no cost. 2. The vehicle sharing spaces required by this Section shall remain available to a vehicle sharing service provider as long as providers request the spaces. If no vehicle sharing service provider requests a space, the space may be leased for use by other vehicles. When a vehicle sharing service provider requests such space, the property owner shall make the space available within 90 days.	At least 5 parking spaces in the on-site garage will be designated as vehicle sharing spaces. If a vehicle sharing service provider requests a space, it will be made available within 90 days and offered to at no cost to the provider.
J	For residential structures constructed or converted from a non-residential use subject to Sections 23E.68.080.G, 23E.68.080.H, and 23E.68.080.I, prior to issuance of a Certificate of Occupancy, the property owner shall submit to the Department of Transportation a completed Parking and Transportation Demand Management (PTDM) compliance report on a form acceptable to the City, which demonstrates that the project is in compliance with the applicable requirements of 23E.68.080.G, 23E.68.080.H, and 23E.68.080.I. Thereafter, the property owner shall submit to the Department of Transportation an updated PTDM compliance report on an annual basis.	A PTDM compliance report will be submitted to the Department of Transportation prior to occupancy, and updated PTDM compliance reports will be submitted annually.

9.2 Parking Demand

Forecast peak period parking generation per the Institute of Transportation Engineers (ITE) Parking Generation Manual is 634 parking spaces. Table 9-3 summarizes the peak period forecast parking demand for the project.

Table 9-3: ITE Parking Manual Forecast Parking Demand

Use Classification	ITE Code	Unit	Quantity	ITE Rate (Spaces/Unit)	Peak Parking Generation
Apartment	220	DU	302	1.37	414
Cinema	665	Seats	665	0.26	173
Retail	820	SF	8,081	2.55	21
Restaurant	931	SF	2,454	10.60	26
Total					634

Source: Institute of Transportation Engineers Parking Generation Manual, 4th Edition

Based on the forecast parking generation and proposed parking supply, the forecast peak period parking demand using standard ITS rates would exceed proposed parking supply.

Based on the ITE Parking Manual, forecast peak period parking demand is expected to exceed proposed parking supply. There are selected ITE generation rates that are based largely on observations made at single-use sites in suburban locations with free parking, little or no transit service, and no transportation demand management programs. In order to better analyze parking demand, the analysis utilizes the URBEMIS software model. The URBEMIS model is a program developed for the California Air Resources Board to calculate emissions resulting from new developments. This program is an industry standard air emissions calculator for California Environmental Quality Act (CEQA) documents. The URBEMIS model uses extensive research findings to adjust the parking generation that can be expected when locating high-density development in mixed-use high-density areas with alternative transportation modes available and transportation demand management programs in place.

Study Area Setting

Study area conditions can have a significant impact on overall parking trends. A development located in a dense, compact, multi-use neighborhood with abundant transit service will most likely generate significantly less auto demand than a development located in a suburban surrounding. As noted in the previous section, the parking rates published in the ITE Parking Generation Manual are typically representative of single-use sites in suburban settings, which is inconsistent with the 2211 Harold Way project study environment. Elements that impact parking demand as determined by the URBEMIS model and an appropriate level of trip and parking reduction from each element are summarized below:

- **Mix of Uses.** Many references point to the impact of “diversity” or mix of uses on parking behavior. The mix of uses is measured by calculating the jobs-housing balance in the area to gauge the potential for employees to take alternative modes of transportation to work. The jobs-housing balance has been derived from information in the City of Berkeley General Plan Land Use Element about the Downtown core area. The balance of housing and jobs surrounding the project site can contribute up to a 9% reduction in demand.
- **Local Retail.** The presence of local serving retail can be expected to further encourage alternative modes as nearby residents can simply access retail on foot, with URBEMIS providing a credit of 2%. This is towards the lower end of the range given in published research in order to avoid double counting with the Mix of Uses mitigation measure described above.
- **Transit Service.** In examining local transit service, it is important to consider both the amount of service (i.e., frequency and service span), and quality of service (particularly speed), which have a strong relationship with ridership. The index used by URBEMIS

places an emphasis on frequency, but gives greater weight to rail service (in view of greater speed and comfort). It considers the quantity of bus service within one-quarter mile, and rail service within one-half mile. Frequent rail transit in the area combined with commuter bus service can reduce trips and parking demand by up to 15%.

- **Pedestrian/Bicycle Environment.** Research for the Florida Department of Transportation, the Federal Highway Administration (FHWA) and other organizations has shown that there are numerous statistically significant factors that can assess the quality of the bicycle and pedestrian environment. URBEMIS uses three of the most important variables that are identified in the literature to calculate the quality of the bicycle and pedestrian environment – intersection density, (which measures street connectivity), sidewalk completeness, and bike network completeness.
- **Transportation Demand Management.** There are number of reductions that fall under the category of Transportation Demand Management (TDM).
  - **Parking Price.** There is a considerable difference in demand between a free, unconstrained supply of parking, and paid parking. Parking pricing has been demonstrated to be one of two tools available (the other road tolling) to influence long-term travel behavior. The existing adjacent parking garages on Allston Way and Kittredge Street charge $14 to $15 per day, and it is assumed that the project parking garage would charge similar market rates. At this rate, the non-residential parking demand could be reduced by up to 25%.
  - **Transit Passes.** As part of the project, a transit pass will be provided with each residential unit. This could reduce the residential parking demand by up to 25%.
  - **Secure Bike Parking/Carshare/Info.** Other TDM measures that are applicable to the project include the provision of 100 secure bike parking spaces, alternative transportation information such as bike and transit maps, and reserved parking spaces for carpool, vanpool and carshare vehicles. These measures could result in a 2.2% reduction in total parking demand.
  - Transportation demand measures for employees, such as telecommuting, compressed work schedules, guaranteed ride home programs, and carpool matching programs are not applicable to the proposed commercial uses, so no additional reductions are assumed for these measures.

Taken together, these measures lead to significant reductions in parking demand. It is important to note, however, that these factors cannot simply be summed to arrive at a total demand reduction. Several of these factors may “overlap” or reinforce one another. For example, a motorist who opts to use transit due to parking pricing will not be influenced by a free transit pass as he has already stopped driving.

Analysis

An analysis of the project was prepared using the URBEMIS 2007 software package. The operational data and assumptions entered into the program are summarized in Table 9-4.

Table 9-4: Project Operational Inputs

Mitigation	Characteristic	Value
Mix of Uses	Housing units within ½ mile radius	1,600
	Jobs within ½ mile radius	2,400
Local Serving Retail	Retail uses present	Yes
Transit	Daily weekday buses stopping within ¼ mile	1,010
	Daily rail stopping within ¼ mile	270
	Dedicated daily shuttles stopping within ¼ mile	47
Bike and Pedestrian	Intersection approach legs per square mile	500
	% of streets with sidewalk on ONE side	0%
	% of streets with sidewalk on BOTH sides	100%
	% of arterials w/bike lanes or parallel bike facilities	50%
Affordable Housing	% below market rate (BMR) units	9.3%
Transportation Demand Management	Daily parking charge	Yes
	Parking price (non-residential only)	$14/day
	Free transit passes	Yes
	Employee telecommuting	No
	Compressed work schedule	No
	Secure bike parking	Yes
	Showers/ changing facilities	No
	Guaranteed Ride Home program	No
	Car-sharing services	No
	Alternative transportation information available	Yes
	Dedicated Transportation Coordinator	No
	Carpool matching program	No
	Car/vanpool parking	Yes

Based on the trip generation assessment developed earlier in this traffic study, the project is expected to generate about 58.8% less daily vehicle trips than estimated using the ITE Trip Generation Manual rates, resulting in 58.8% less emissions. It follows that this reduction in vehicle trips is correlated to a reduction in peak parking demand estimated by the ITE Parking Generation manual as well.

A reduction of 58.8% was applied to the ITE Parking Generation rates as shown in Table 9-5. The resulting estimated parking demand is 262 parking spaces.

Table 9-5: Reduced Forecast Parking Demand

Use Classification	Peak Parking Generation	Reduction	Adjusted Peak Parking Demand
Apartment	414	58.8%	171
Cinema	173	58.8%	71
Retail	21	58.8%	9
Restaurant	26	58.8%	11
Total	634		262

While the URBEMIS model forecast of parking demand for both residential and non-residential land uses does exceed the proposed on-site project supply of 171 spaces, there are further project features and elements of the project study area that will likely contribute to reducing the anticipated demand for parking on-site to a level that is at or below the proposed parking supply.

One key element of the project is the proposal to unbundle the cost of a parking space from the lease (or purchase) price of the residential units. This configuration presents the "true" price for parking to the resident and typically results in substantial reductions in residential parking demand. Assuming a monthly cost of $100 per parking space, an unbundled parking program for the project would be anticipated to reduce automobile ownership by 15% to 30%[4]. While this would not be a fully cumulative addition to the reductions in Table 9-4, it would be anticipated that the residential parking demand would be further lowered from the 171 spaces identified in the table.

Additionally, while the non-residential uses are anticipated to generate a peak parking demand of 91 spaces, the parking demand for these uses can be accommodate on the project site, as well as through existing on and off-street parking supply already present in Downtown Berkeley.

Year 2000 Census data collected for Census Tract No. 4229 shows that the auto mode split in the project study area is 33% for trips generated by residential uses and 58% for non-residential uses. The Census data is consistent with the URBEMIS-based reduction in parking demand of 58.8% for non-residential uses, but suggests that residential demand for parking in this neighborhood is even lower, Unbundled parking policies, and abundance of transit options, the reduced number of off-street parking spaces required by the Berkeley Municipal Code, and other related factors encourage residents to utilize non-auto modes for most of their trips.

Given these conditions, it is anticipated that the typical peak parking demand generated by the project on-site would be below the 171 spaces provided in the proposed underground parking facility.

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[4] Litman, Todd. "Parking Requirement Impacts on Housing Affordability." Victoria Transport Policy Institute, 2004.

10 Site Circulation Analysis

10.1 Driveways

Access to the project site is proposed via one unsignalized access driveway located along Kittredge Street. Tables 10-1 and 10-2 show the average delay for the access driveway for each scenario and the AM and PM peak hour.

Table 10-1: Level of Service – Site Access Driveway – AM Peak Hour

No.	Intersection	Signal	2013		2020		2035	
			Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
11	Project Dwy & Kittredge St	U	10.0	A	10.2	A	10.4	A

Table 10-2: Level of Service – Site Access Driveway – PM Peak Hour

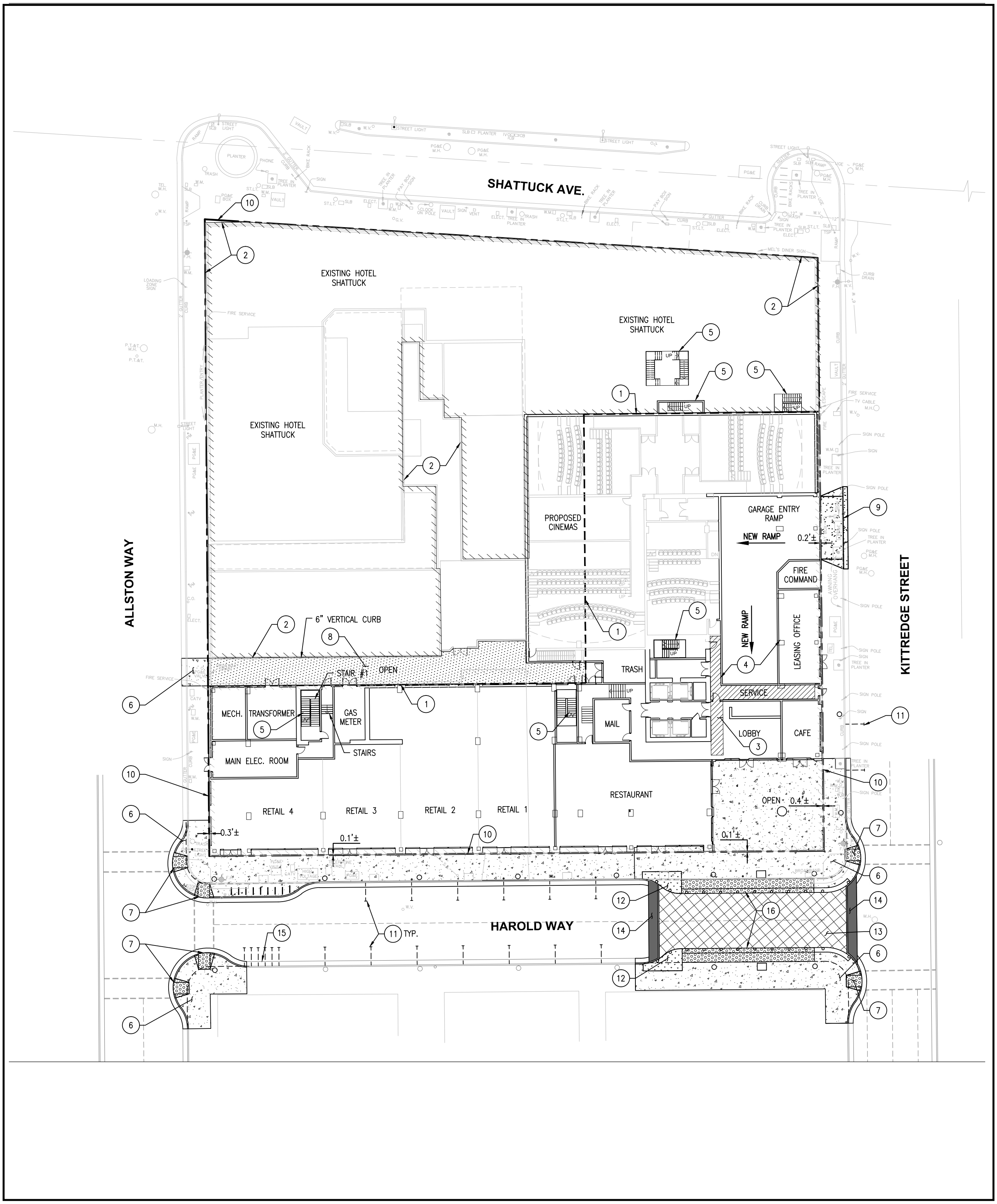
No.	Intersection	Signal	2013		2020		2035	
			Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
11	Project Dwy & Kittredge St	U	10.2	A	10.3	A	10.5	A

Because this garage facility will be gated, the driver entrance to the underground parking garage will include gates and entry and exit kiosks for either card reading or dispensing and collecting of parking tickets. As shown in Figure 10.1, the driveway includes a 90 degree turn immediately north of the entryway from Kittredge Street. In order to provide for sufficient off-street queuing of vehicles entering the garage and accessing the entry kiosk, the card reader and gate should be located on the ramp parallel to Kittredge Street. This configuration would allow for a minimum of two vehicles to be able to enter the driveway and queue without blocking the sidewalk or the street.

10.2 Line of Sight

The driver of a vehicle approaching or departing from an intersection should have an unobstructed view of the intersection, including any traffic control devices, and sufficient lengths along the intersecting roadway to permit the driver to anticipate and avoid potential collisions. These unobstructed views form triangular areas known as sight triangles.

FIGURE 10.1 PROJECT SITE PLAN AND DRIVEWAY LOCATION



The proposed project would have a single access driveway located along Kittredge Street, about mid-block between Shattuck Avenue and Harold Way. There would be a minimum of 120 feet from the edge of the project driveway to the nearest street in either direction. Additionally, no proposed building design features or elements are anticipated to impact sight distance from vehicles exiting the on-street parking garage.

As shown in Figure 10.1, the proposed site driveway would be about 30 feet in width along the north side of the sidewalk along Kittredge Street. Assuming 15 feet would be allocated for the outbound direction, it is recommended that the outbound driveway be striped to force existing vehicles to the east side of the outbound lane in order to provide sufficient site distance for drivers to see pedestrians to the west of the driveway. This treatment could be accomplished by striping or by a raised curb that would channel traffic to the east side of the outbound lane. With this measure, no audible pedestrian warning systems are recommended. However, there should be static, non-audible signage in place to warn pedestrians walking on Kittredge about the potential presence of an exiting vehicle from the project driveway.

10.3 Loading Capacity

On-street parking spaces marked with white curb are reserved for passenger loading and unloading. Spaces marked with yellow curb are reserved for commercial and freight loading and unloading. The project does not include any manufacturing, wholesale trade or warehouse use, so there are no passenger or commercial/freight loading requirements associated with the project.

There are currently six passenger loading spaces located on Allston Way between Milvia Street and Shattuck Avenue. There are two commercial/freight loading spaces on Kittredge Street between Milvia Street and Shattuck Avenue. The two commercial/freight loading spaces and five general parking spaces on Harold Way just north of Kittredge Street would be removed as part of the project and replaced with widened sidewalks.

11 Project Impacts and Mitigation Measures

Project Impacts and Mitigations

No project-related impacts were identified for the Existing Year 2013 and Future Year 2020 intersection level of services analyses. Project impacts and mitigations identified for the Future Year 2035 are summarized in this section.

The project results in one significant traffic impact, forecast to occur at the intersection of Shattuck Avenue and Durant Avenue (#9) for the Future Year 2035 scenario. The impact results from the forecast increase in average delay at the intersection, which is anticipated to operate at LOS E in both the no project and with project condition. In order to mitigate the impact at this location, improvements must be made to reduce the project-related increase in PM peak hour average delay from 3.2 seconds to less than 3 seconds. Signal modifications would affect a network of over 30 signalized intersections, so timing modifications are not recommended as a mitigation measure for this project impact. This impact could be mitigated by restriping the northbound outside lane to provide a dedicated right turn pocket.

In the existing condition, the northbound intersection approach consists of an 11-foot wide left turn lane, a 12-foot wide through lane, and a 23-foot wide outside through lane. The outside lane could be restriped to provide a 12-foot wide through lane and an 11-foot wide right turn pocket. The length of the pocket would be limited to about 40 feet due to presence of buffered on-street parking on Shattuck Avenue, but this change would improve the with project condition to LOS C. The project would be responsible for the cost of striping and appropriate signage.

A comparison of the AM and PM peak hour level of service analysis results without the project and with mitigation – restriping to provide a northbound right turn lane at the intersection of Shattuck Avenue and Durant Avenue (#9) – is included in Table 11-1.

Table 11-1: LOS Results with Mitigation, NBR Lane on Shattuck Ave at Durant Ave (#9)

Peak	No Project			With Project and Mitigation			Change in Delay (sec)	Change in V/C	Impact
	Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C			
AM	51.2	D	0.64	24.9	C	0.52	-26.3	-0.12	
PM	68.2	E	0.70	28.4	C	0.58	-39.8	-0.12	

Significant impact occurs if: the With Project LOS is "D" and the change in delay is 2 seconds or more; OR the With Project LOS is "E" and the change in delay is 3 seconds or more; OR the With Project LOS is "F" and the change in V/C is 0.01 or more.

Appendices

Appendix A: Traffic Counts

Appendix B: Synchro Reports

Appendix C: PEQI Audit Forms

Appendix D: BEQI Street Surveys

Appendix E: Urbemis Summary Report

Appendix F: Synchro Reports – Mitigation Measures

Appendix A: Traffic Counts

Peak Period Intersection Vehicle, Pedestrian and Bicycle Volumes

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 951 249 3226 pacific@aimtd.com

DATE:	LOCATION:	Berkeley	PROJECT #:	SC0201
Tue, Dec 3, 13	NORTH & SOUTH:	Martin Luther King Jr	LOCATION #:	1
	EAST & WEST:	Allston	CONTROL:	SIGNAL

NOTES:

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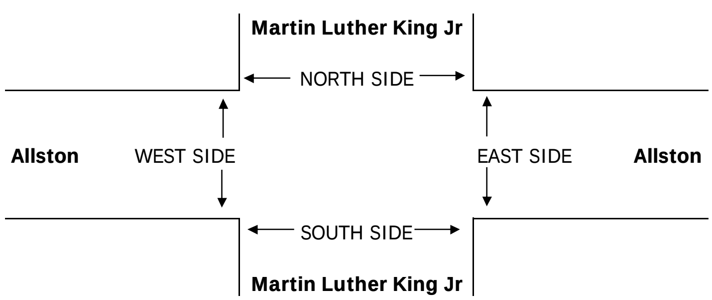
	NORTHBOUND Martin Luther King Jr			SOUTHBOUND Martin Luther King Jr			EASTBOUND Allston			WESTBOUND Allston			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	0.5	1	0.5	0.5	1	0.5	
AM 7:00 AM	7	46	7	17	71	3	0	7	4	3	8	7	180
7:15 AM	7	74	25	32	103	5	7	10	5	8	3	11	290
7:30 AM	7	96	10	11	141	4	0	5	5	8	11	9	307
7:45 AM	13	138	18	22	136	4	8	15	4	4	9	8	379
8:00 AM	14	148	34	24	154	11	7	22	8	14	15	16	467
8:15 AM	15	186	25	17	170	14	13	19	9	17	14	15	514
8:30 AM	21	172	28	15	165	13	12	22	8	14	16	11	497
8:45 AM	12	172	21	10	158	9	11	11	6	9	11	10	440
VOLUMES	96	1,032	168	148	1,098	63	58	111	49	77	87	87	3,075
APPROACH %	7%	80%	13%	11%	84%	5%	27%	51%	22%	31%	35%	35%	
APP/DEPART	1,296	/	1,178	1,310	/	1,224	218	/	427	251	/	246	0
BEGIN PEAK HR		8:00 AM											
VOLUMES	62	678	108	66	647	47	43	74	31	54	56	52	1,918
APPROACH %	7%	80%	13%	9%	85%	6%	29%	50%	21%	33%	35%	32%	
PEAK HR FACTOR		0.938			0.945			0.881			0.880		0.933
APP/DEPART	848	/	773	760	/	732	148	/	248	162	/	165	0
PM 4:00 PM	8	232	11	24	173	12	5	13	6	21	23	13	541
4:15 PM	4	217	18	16	141	6	12	12	7	14	20	22	489
4:30 PM	16	215	25	21	139	13	10	12	10	16	17	12	506
4:45 PM	6	207	23	18	168	8	3	10	5	14	24	22	508
5:00 PM	15	241	21	19	166	15	10	11	6	17	23	24	568
5:15 PM	22	231	26	20	169	15	14	14	9	15	19	27	581
5:30 PM	19	247	24	19	154	7	9	14	5	18	33	16	565
5:45 PM	11	273	23	11	158	13	7	16	7	13	21	23	576
VOLUMES	101	1,863	171	148	1,268	89	70	102	55	128	180	159	4,335
APPROACH %	5%	87%	8%	10%	84%	6%	31%	45%	24%	27%	39%	34%	
APP/DEPART	2,136	/	2,092	1,505	/	1,452	227	/	421	467	/	370	0
BEGIN PEAK HR		5:00 PM											
VOLUMES	67	992	94	69	647	50	40	55	27	63	96	90	2,290
APPROACH %	6%	86%	8%	9%	84%	7%	33%	45%	22%	25%	39%	36%	
PEAK HR FACTOR		0.939			0.939			0.824			0.929		0.985
APP/DEPART	1,153	/	1,122	766	/	737	122	/	218	249	/	213	0

U-TURNS

	NB	SB	EB	WB	TTL
	X	X	X	X	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	1	0	0	1
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
VOLUMES	0	1	0	0	1
4:00 PM	1	0	0	0	1
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
VOLUMES	1	0	0	0	1



	PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM 7:00 AM	14	11	6	6	37	7	10	4	5	26	7	1	2	1	11
7:15 AM	28	14	8	8	58	20	12	6	8	46	8	2	2	0	12
7:30 AM	23	14	9	7	53	17	12	7	7	43	6	2	2	0	10
7:45 AM	46	26	10	14	96	31	24	9	11	75	15	2	1	3	21
8:00 AM	77	37	35	34	183	52	35	32	34	153	25	2	3	0	30
8:15 AM	127	58	49	56	290	111	56	46	54	267	16	2	3	2	23
8:30 AM	71	31	22	13	137	61	30	22	11	124	10	1	0	2	13
8:45 AM	47	47	22	21	137	26	45	19	20	110	21	2	3	1	27
TOTAL	433	238	161	159	991	325	224	145	150	844	108	14	16	9	147
PM 4:00 PM	30	39	13	30	112	28	35	12	29	104	2	4	1	1	8
4:15 PM	34	35	10	27	106	33	29	8	25	95	1	6	2	2	11
4:30 PM	37	49	17	57	160	32	41	15	53	141	5	8	2	4	19
4:45 PM	35	57	13	32	137	30	50	12	31	123	5	7	1	1	14
5:00 PM	46	38	17	23	124	41	33	15	19	108	5	5	2	4	16
5:15 PM	52	68	16	23	159	49	56	15	18	138	3	12	1	5	21
5:30 PM	33	41	21	16	111	29	30	18	11	88	4	11	3	5	23
5:45 PM	36	34	22	24	116	28	30	14	22	94	8	4	8	2	22
TOTAL	303	361	129	232	1,025	270	304	109	208	891	33	57	20	24	134

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 951 249 3226 pacific@aimtd.com

DATE:	LOCATION:	Berkeley	PROJECT #:	SC0201
Tue, Dec 3, 13	NORTH & SOUTH:	Milvia	LOCATION #:	2
	EAST & WEST:	Center	CONTROL:	SIGNAL

NOTES:

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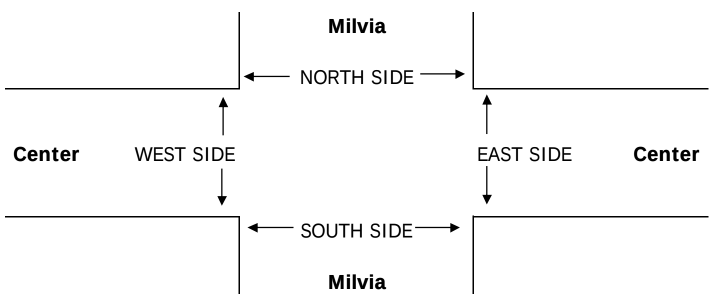
		NORTHBOUND Milvia			SOUTHBOUND Milvia			EASTBOUND Center			WESTBOUND Center			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	0	1	0	0	1	0	0	2	0	0	1	0	
AM	7:00 AM	4	13	5	3	12	0	1	7	4	2	5	2	58
	7:15 AM	8	30	6	6	17	4	2	12	2	1	4	1	93
	7:30 AM	6	21	10	12	15	5	2	11	0	4	9	3	98
	7:45 AM	0	25	6	11	20	7	1	22	5	0	8	5	110
	8:00 AM	6	37	6	13	38	6	3	17	14	4	13	6	163
	8:15 AM	10	66	17	19	74	9	1	17	11	6	14	5	249
	8:30 AM	10	35	10	10	43	11	4	27	2	3	5	2	162
	8:45 AM	5	33	12	9	23	5	4	16	5	3	10	3	128
	VOLUMES	49	260	72	83	242	47	18	129	43	23	68	27	1,061
	APPROACH %	13%	68%	19%	22%	65%	13%	9%	68%	23%	19%	58%	23%	
	APP/DEPART	381	/	305	372	/	308	190	/	284	118	/	164	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	31	171	45	51	178	31	12	77	32	16	42	16	702
	APPROACH %	13%	69%	18%	20%	68%	12%	10%	64%	26%	22%	57%	22%	
	PEAK HR FACTOR		0.664			0.637			0.890			0.740		0.705
	APP/DEPART	247	/	199	260	/	226	121	/	173	74	/	104	0
PM	4:00 PM	7	52	15	9	49	5	5	16	7	11	14	12	202
	4:15 PM	8	48	15	16	42	11	2	21	12	5	9	15	204
	4:30 PM	12	59	19	11	49	9	3	13	2	8	9	19	213
	4:45 PM	11	61	12	10	43	16	2	19	12	7	26	13	232
	5:00 PM	7	57	13	13	55	11	5	23	14	9	33	22	262
	5:15 PM	9	51	23	9	47	9	10	17	10	12	28	13	238
	5:30 PM	7	58	22	10	43	10	5	17	9	13	25	14	233
	5:45 PM	9	43	14	8	43	14	6	21	13	8	21	17	217
	VOLUMES	70	429	133	86	371	85	38	147	79	73	165	125	1,804
	APPROACH %	11%	68%	21%	16%	68%	16%	14%	56%	30%	20%	45%	34%	
	APP/DEPART	633	/	592	542	/	524	265	/	367	364	/	321	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	34	227	70	42	188	46	22	76	45	41	112	62	965
	APPROACH %	10%	69%	21%	15%	68%	17%	15%	53%	31%	19%	52%	29%	
	PEAK HR FACTOR		0.951			0.873			0.851			0.840		0.921
	APP/DEPART	331	/	311	276	/	274	143	/	188	215	/	192	0

U-TURNS

	NB	SB	EB	WB	TTL
	X	X	X	X	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
VOLUMES	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	1	1
5:00 PM	0	0	0	0	0
5:15 PM	0	0	1	0	1
5:30 PM	1	0	0	0	1
5:45 PM	0	0	0	0	0
VOLUMES	1	0	1	1	3



		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	9	10	18	8	45	9	9	14	3	35	0	1	4	5	10
	7:15 AM	23	13	18	21	75	23	13	15	14	65	0	0	3	7	10
	7:30 AM	17	24	22	16	79	17	24	19	11	71	0	0	3	5	8
	7:45 AM	32	39	30	41	142	32	37	22	25	116	0	2	8	16	26
	8:00 AM	27	33	22	41	123	27	29	15	27	98	0	4	7	14	25
	8:15 AM	37	43	43	57	180	35	41	37	43	156	2	2	6	14	24
	8:30 AM	35	34	32	17	118	34	31	26	14	105	1	3	6	3	13
	8:45 AM	48	46	54	36	184	47	44	40	28	159	1	2	14	8	25
	TOTAL	228	242	239	237	946	224	228	188	165	805	4	14	51	72	141
PM	4:00 PM	43	41	69	39	192	38	40	58	33	169	5	1	11	6	23
	4:15 PM	29	42	52	37	160	24	41	34	28	127	5	1	18	9	33
	4:30 PM	36	56	51	45	188	35	52	42	38	167	1	4	9	7	21
	4:45 PM	39	52	62	34	187	36	50	47	25	158	3	2	15	9	29
	5:00 PM	54	67	53	44	218	50	64	40	33	187	4	3	13	11	31
	5:15 PM	37	53	47	33	170	30	51	36	17	134	7	2	11	16	36
	5:30 PM	36	75	43	56	210	31	68	33	37	169	5	7	10	19	41
	5:45 PM	35	64	47	38	184	32	58	37	23	150	3	6	10	15	34
	TOTAL	309	450	424	326	1,509	276	424	327	234	1,261	33	26	97	92	248

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 951 249 3226 pacific@aimtd.com

DATE:				
Tue, Dec 3, 13	LOCATION:	Berkeley	PROJECT #:	SC0201
	NORTH & SOUTH:	Milvia	LOCATION #:	3
	EAST & WEST:	Allston	CONTROL:	SIGNAL

NOTES:

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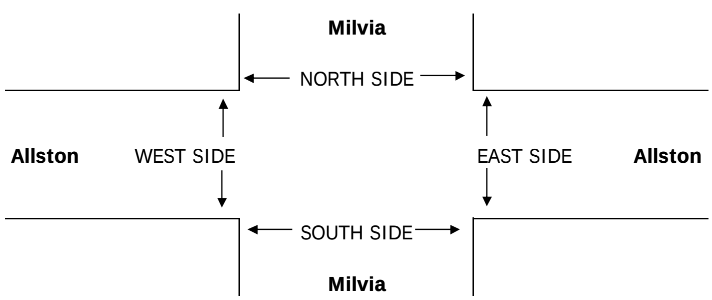
		NORTHBOUND Milvia			SOUTHBOUND Milvia			EASTBOUND Allston			WESTBOUND Allston				U-TURNS				
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	0	2	0	0	1	0	0	1	0	0	1	0		X	X	X	X	
AM	7:00 AM	4	13	4	5	11	5	6	13	9	2	5	2	79	0	0	0	0	0
	7:15 AM	6	20	6	3	11	5	20	10	29	5	12	8	135	0	0	0	0	0
	7:30 AM	3	21	6	2	15	6	6	8	11	1	13	6	98	0	0	0	0	0
	7:45 AM	4	26	8	5	20	6	5	15	23	2	8	3	125	0	0	0	0	0
	8:00 AM	12	29	1	10	39	7	14	28	21	6	21	10	198	0	0	0	0	0
	8:15 AM	15	57	12	7	42	42	29	33	21	4	17	15	294	0	0	0	0	0
	8:30 AM	16	32	6	12	27	10	9	34	21	5	14	12	198	0	0	0	0	0
	8:45 AM	13	39	3	4	19	4	4	26	8	0	12	10	142	0	0	0	0	0
	VOLUMES	73	237	46	48	184	85	93	167	143	25	102	66	1,269	0	0	0	0	0
	APPROACH %	21%	67%	13%	15%	58%	27%	23%	41%	35%	13%	53%	34%						
	APP/DEPART	356	/	396	317	/	352	403	/	261	193	/	260	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	56	157	22	33	127	63	56	121	71	15	64	47	832					
	APPROACH %	24%	67%	9%	15%	57%	28%	23%	49%	29%	12%	51%	37%						
	PEAK HR FACTOR		0.699			0.613			0.747			0.851		0.707					
	APP/DEPART	235	/	260	223	/	213	248	/	176	126	/	183	0					
PM	4:00 PM	17	51	5	9	48	13	7	19	17	2	30	19	237	0	1	0	0	1
	4:15 PM	19	44	9	5	38	12	7	21	20	2	22	18	217	0	0	0	0	0
	4:30 PM	16	73	11	14	34	7	13	24	16	6	27	9	250	0	1	0	1	2
	4:45 PM	21	69	5	4	54	16	12	19	23	5	25	11	264	0	0	0	0	0
	5:00 PM	19	64	7	7	53	20	7	19	25	7	28	10	266	0	0	0	0	0
	5:15 PM	23	63	5	9	50	15	13	23	19	3	23	20	266	0	0	0	0	0
	5:30 PM	13	69	8	8	49	10	10	21	16	5	30	18	257	0	0	0	0	0
	5:45 PM	16	50	11	11	42	10	6	15	20	7	25	16	229	0	0	0	0	0
	VOLUMES	144	483	61	67	368	103	75	161	156	37	210	121	1,989	0	2	0	1	3
	APPROACH %	21%	70%	9%	12%	68%	19%	19%	41%	40%	10%	57%	33%						
	APP/DEPART	688	/	681	540	/	561	392	/	290	369	/	457	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	76	265	25	28	206	61	42	82	83	20	106	59	1,053					
	APPROACH %	21%	72%	7%	9%	70%	21%	20%	40%	40%	11%	57%	32%						
	PEAK HR FACTOR		0.963			0.922			0.941			0.873		0.990					
	APP/DEPART	366	/	366	295	/	309	207	/	135	185	/	243	0					



		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	26	26	10	16	78	24	21	8	13	66	2	5	2	3	12
	7:15 AM	25	33	31	22	111	23	28	27	20	98	2	5	4	2	13
	7:30 AM	24	28	20	20	92	23	26	16	17	82	1	2	4	3	10
	7:45 AM	53	50	40	49	192	51	43	26	42	162	2	7	14	7	30
	8:00 AM	86	141	77	117	421	86	135	64	110	395	0	6	13	7	26
	8:15 AM	132	165	56	218	571	129	159	48	210	546	3	6	8	8	25
	8:30 AM	61	51	52	40	204	60	43	39	35	177	1	8	13	5	27
	8:45 AM	35	55	50	30	170	33	36	27	20	116	2	19	23	10	54
	TOTAL	442	549	336	512	1,839	429	491	255	467	1,642	13	58	81	45	197
PM	4:00 PM	47	66	63	28	204	43	65	49	18	175	4	1	14	10	29
	4:15 PM	51	65	58	49	223	44	63	35	36	178	7	2	23	13	45
	4:30 PM	94	103	69	85	351	85	101	57	70	313	9	2	12	15	38
	4:45 PM	54	55	61	42	212	50	52	47	31	180	4	3	14	11	32
	5:00 PM	59	63	67	60	249	51	56	56	40	203	8	7	11	20	46
	5:15 PM	100	82	67	49	298	89	80	47	30	246	11	2	20	19	52
	5:30 PM	78	49	45	53	225	70	43	32	32	177	8	6	13	21	48
	5:45 PM	46	36	52	44	178	42	29	38	18	127	4	7	14	26	51
	TOTAL	529	519	482	410	1,940	474	489	361	275	1,599	55	30	121	135	341

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 951 249 3226 pacific@aimtd.com

DATE:				
Tue, Dec 3, 13	LOCATION: Berkeley		PROJECT #:	SC0201
	NORTH & SOUTH: Milvia		LOCATION #:	4
	EAST & WEST: Kittredge		CONTROL:	Stop 3-way

NOTES:

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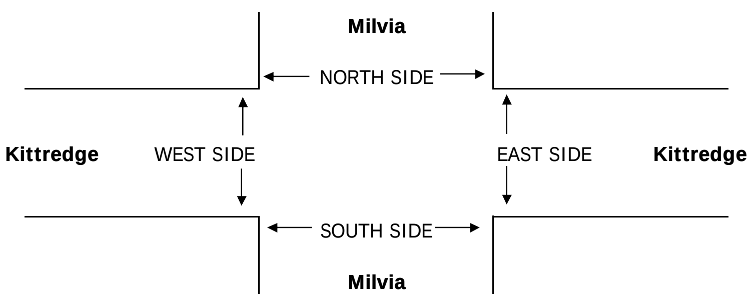
		NORTHBOUND Milvia			SOUTHBOUND Milvia			EASTBOUND Kittredge			WESTBOUND Kittredge			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	X	2	0	0	2	X	X	X	X	0	X	0	
AM	7:00 AM	0	13	7	5	18	0	0	0	0	3	0	8	54
	7:15 AM	0	25	7	12	35	0	0	0	0	4	0	8	91
	7:30 AM	0	25	4	5	19	0	0	0	0	6	0	8	67
	7:45 AM	0	20	7	6	39	0	0	0	0	13	0	13	98
	8:00 AM	0	27	13	16	40	0	0	0	0	12	0	13	121
	8:15 AM	0	48	26	19	55	0	0	0	0	21	0	39	208
	8:30 AM	0	32	6	15	40	0	0	0	0	11	0	14	118
	8:45 AM	0	45	12	6	26	0	0	0	0	5	0	11	105
	VOLUMES	0	235	82	84	272	0	0	0	0	75	0	114	864
	APPROACH %	0%	74%	26%	24%	76%	0%	0%	0%	0%	40%	0%	60%	
	APP/DEPART	318	/	350	357	/	348	0	/	166	189	/	0	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	0	152	57	56	161	0	0	0	0	49	0	77	552
	APPROACH %	0%	73%	27%	26%	74%	0%	0%	0%	0%	39%	0%	61%	
	PEAK HR FACTOR		0.706			0.733			0.000			0.525		0.663
	APP/DEPART	209	/	229	217	/	210	0	/	113	126	/	0	0
PM	4:00 PM	0	46	10	8	61	0	0	0	0	7	0	23	155
	4:15 PM	0	52	11	10	48	0	0	0	0	9	0	13	143
	4:30 PM	0	63	6	11	49	0	0	0	0	16	0	30	175
	4:45 PM	0	71	10	10	64	0	0	0	0	9	0	15	179
	5:00 PM	0	61	10	13	72	0	0	0	0	13	0	30	199
	5:15 PM	0	64	9	13	67	0	0	0	0	13	0	24	190
	5:30 PM	0	67	13	21	54	0	0	0	0	15	0	25	195
	5:45 PM	0	51	14	14	57	0	0	0	0	16	0	21	173
	VOLUMES	0	475	83	100	472	0	0	0	0	98	0	181	1,416
	APPROACH %	0%	85%	15%	17%	83%	0%	0%	0%	0%	35%	0%	65%	
	APP/DEPART	562	/	659	575	/	574	0	/	183	279	/	0	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	0	263	42	57	257	0	0	0	0	50	0	94	763
	APPROACH %	0%	86%	14%	18%	82%	0%	0%	0%	0%	35%	0%	65%	
	PEAK HR FACTOR		0.941			0.924			0.000			0.837		0.959
	APP/DEPART	305	/	357	314	/	307	0	/	99	144	/	0	0

U-TURNS

	NB	SB	EB	WB	TTL
	X	X	X	X	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	1	0	0	1
8:00 AM	1	0	0	0	1
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
VOLUMES	1	1	0	0	2
4:00 PM	0	2	0	0	2
4:15 PM	0	0	0	0	0
4:30 PM	1	0	0	0	1
4:45 PM	1	0	0	0	1
5:00 PM	1	1	0	0	2
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	1	0	0	0	1
VOLUMES	4	3	0	0	7



		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	8	2	8	3	21	8	2	3	0	13	0	0	5	3	8
	7:15 AM	15	15	10	2	42	15	15	4	0	34	0	0	6	2	8
	7:30 AM	3	14	19	2	38	3	14	14	0	31	0	0	5	2	7
	7:45 AM	11	31	37	4	83	11	30	19	0	60	0	1	18	4	23
	8:00 AM	52	55	33	4	144	52	55	17	0	124	0	0	16	4	20
	8:15 AM	96	66	31	2	195	95	65	15	0	175	1	1	16	2	20
	8:30 AM	19	16	45	4	84	19	16	20	0	55	0	0	25	4	29
	8:45 AM	9	7	68	8	92	7	6	28	0	41	2	1	40	8	51
	TOTAL	213	206	251	29	699	210	203	120	0	533	3	3	131	29	166
PM	4:00 PM	11	19	36	7	73	11	17	22	0	50	0	2	14	7	23
	4:15 PM	13	11	46	7	77	13	8	26	0	47	0	3	20	7	30
	4:30 PM	26	12	54	10	102	25	10	41	0	76	1	2	13	10	26
	4:45 PM	11	14	45	13	83	10	12	29	0	51	1	2	16	13	32
	5:00 PM	5	13	35	19	72	4	12	20	0	36	1	1	15	19	36
	5:15 PM	10	9	41	11	71	5	8	22	0	35	5	1	19	11	36
	5:30 PM	12	6	37	19	74	3	6	20	1	30	9	0	17	18	44
	5:45 PM	7	11	44	19	81	5	11	28	0	44	2	0	16	19	37
	TOTAL	95	95	338	105	633	76	84	208	1	369	19	11	130	104	264

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 951 249 3226 pacific@aimtd.com

DATE:	LOCATION:	Berkeley	PROJECT #:	SC0201
Tue, Dec 3, 13	NORTH & SOUTH:	Shattuck	LOCATION #:	5
	EAST & WEST:	Center	CONTROL:	SIGNAL

NOTES:

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OTHER

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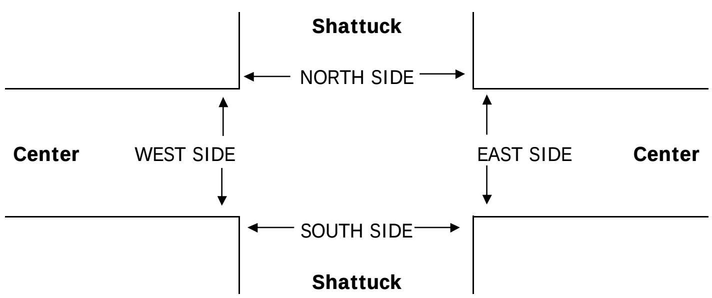
		NORTHBOUND Shattuck			SOUTHBOUND Shattuck			EASTBOUND Center			WESTBOUND Center			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	0	3	0	0	3	0	0	1	0	0	1	0	
AM	7:00 AM	5	79	3	1	71	2	3	2	3	6	3	5	183
AM	7:15 AM	3	82	10	5	101	6	4	2	7	3	1	4	228
AM	7:30 AM	6	74	2	1	150	7	3	4	7	8	2	3	267
AM	7:45 AM	8	147	6	1	160	4	3	2	8	3	4	2	348
AM	8:00 AM	10	157	6	4	197	10	4	5	8	6	3	3	413
AM	8:15 AM	9	198	8	6	244	20	4	9	14	7	6	2	527
AM	8:30 AM	17	146	5	4	176	7	5	8	5	7	3	3	386
AM	8:45 AM	17	182	4	4	176	14	3	6	14	6	1	4	431
AM	VOLUMES	75	1,065	44	26	1,275	70	29	38	66	46	23	26	2,783
AM	APPROACH %	6%	90%	4%	2%	93%	5%	22%	29%	50%	48%	24%	27%	
AM	APP/DEPART	1,184	/	1,120	1,371	/	1,387	133	/	108	95	/	168	0
AM	BEGIN PEAK HR		8:00 AM											
AM	VOLUMES	53	683	23	18	793	51	16	28	41	26	13	12	1,757
AM	APPROACH %	7%	90%	3%	2%	92%	6%	19%	33%	48%	51%	25%	24%	
AM	PEAK HR FACTOR		0.883			0.798			0.787			0.850		0.833
AM	APP/DEPART	759	/	711	862	/	860	85	/	69	51	/	117	0
PM	4:00 PM	4	208	12	6	164	14	14	6	21	6	6	6	467
PM	4:15 PM	13	196	9	11	175	8	12	4	25	16	6	5	480
PM	4:30 PM	5	200	6	8	192	14	7	5	21	11	2	2	473
PM	4:45 PM	7	215	7	29	178	15	2	6	8	21	10	5	503
PM	5:00 PM	7	204	16	6	170	26	10	9	19	19	7	8	501
PM	5:15 PM	6	206	26	9	158	18	5	10	32	10	4	4	488
PM	5:30 PM	9	229	29	3	140	21	5	4	25	14	2	2	483
PM	5:45 PM	13	228	23	7	164	18	5	5	18	9	12	8	510
PM	VOLUMES	64	1,686	128	79	1,341	134	60	49	169	106	49	40	3,905
PM	APPROACH %	3%	90%	7%	5%	86%	9%	22%	18%	61%	54%	25%	21%	
PM	APP/DEPART	1,878	/	1,786	1,554	/	1,616	278	/	256	195	/	247	0
PM	BEGIN PEAK HR		5:00 PM											
PM	VOLUMES	35	867	94	25	632	83	25	28	94	52	25	22	1,982
PM	APPROACH %	4%	87%	9%	3%	85%	11%	17%	19%	64%	53%	25%	22%	
PM	PEAK HR FACTOR		0.933			0.916			0.782			0.728		0.972
PM	APP/DEPART	996	/	914	740	/	778	147	/	147	99	/	143	0

U-TURNS

		NB	SB	EB	WB	TTL
		X	X	X	X	
AM	7:00 AM	0	0	0	0	0
AM	7:15 AM	0	0	0	0	0
AM	7:30 AM	0	0	0	0	0
AM	7:45 AM	0	0	0	0	0
AM	8:00 AM	0	0	0	0	0
AM	8:15 AM	0	0	0	0	0
AM	8:30 AM	0	0	0	0	0
AM	8:45 AM	0	0	0	0	0
AM	VOLUMES	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0
PM	4:15 PM	0	0	0	0	0
PM	4:30 PM	0	0	0	0	0
PM	4:45 PM	0	0	0	0	0
PM	5:00 PM	0	0	0	0	0
PM	5:15 PM	0	0	0	0	0
PM	5:30 PM	0	0	0	0	0
PM	5:45 PM	0	0	0	0	0
PM	VOLUMES	0	0	0	0	0



PEDESTRIAN + BIKE CROSSINGS

		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
AM	7:00 AM	16	58	26	31	131
AM	7:15 AM	26	71	54	43	194
AM	7:30 AM	31	112	41	62	246
AM	7:45 AM	31	123	58	85	297
AM	8:00 AM	64	114	86	102	366
AM	8:15 AM	47	136	82	132	397
AM	8:30 AM	52	148	72	123	395
AM	8:45 AM	86	145	69	134	434
AM	TOTAL	353	907	488	712	2,460
PM	4:00 PM	99	180	129	164	572
PM	4:15 PM	97	156	178	197	628
PM	4:30 PM	109	236	153	207	705
PM	4:45 PM	86	113	59	201	459
PM	5:00 PM	95	348	160	215	818
PM	5:15 PM	156	345	99	232	832
PM	5:30 PM	112	285	86	233	716
PM	5:45 PM	82	244	98	283	707
PM	TOTAL	836	1,907	962	1,732	5,437

PEDESTRIAN CROSSINGS

		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	
AM	7:00 AM	15	49	25	30	119	825
AM	7:15 AM	26	68	53	41	188	1,059
AM	7:30 AM	31	110	38	59	238	1,245
AM	7:45 AM	30	113	58	79	280	1,388
AM	8:00 AM	62	106	84	101	353	1,517
AM	8:15 AM	45	124	77	128	374	
AM	8:30 AM	51	143	72	115	381	
AM	8:45 AM	81	134	68	126	409	
AM	TOTAL	341	847	475	679	2,342	
PM	4:00 PM	97	176	127	156	556	2,285
PM	4:15 PM	94	151	173	189	607	2,533
PM	4:30 PM	106	235	153	198	692	2,747
PM	4:45 PM	78	103	54	195	430	2,760
PM	5:00 PM	90	344	160	210	804	3,008
PM	5:15 PM	154	344	98	225	821	
PM	5:30 PM	110	282	85	228	705	
PM	5:45 PM	81	240	96	261	678	
PM	TOTAL	810	1,875	946	1,662	5,293	

BICYCLE CROSSINGS

		NS	SS	ES	WS	TOTAL
AM	7:00 AM	1	9	1	1	12
AM	7:15 AM	0	3	1	2	6
AM	7:30 AM	0	2	3	3	8
AM	7:45 AM	1	10	0	6	17
AM	8:00 AM	2	8	2	1	13
AM	8:15 AM	2	12	5	4	23
AM	8:30 AM	1	5	0	8	14
AM	8:45 AM	5	11	1	8	25
AM	TOTAL	12	60	13	33	118
PM	4:00 PM	2	4	2	8	16
PM	4:15 PM	3	5	5	8	21
PM	4:30 PM	3	1	0	9	13
PM	4:45 PM	8	10	5	6	29
PM	5:00 PM	5	4	0	5	14
PM	5:15 PM	2	1	1	7	11
PM	5:30 PM	2	3	1	5	11
PM	5:45 PM	1	4	2	22	29
PM	TOTAL	26	32	16	70	144

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 951 249 3226 pacific@aimtd.com

DATE:	LOCATION:	Berkeley	PROJECT #:	SC0201
Tue, Dec 3, 13	NORTH & SOUTH:	Shattuck	LOCATION #:	6
	EAST & WEST:	Allston	CONTROL:	SIGNAL

NOTES:

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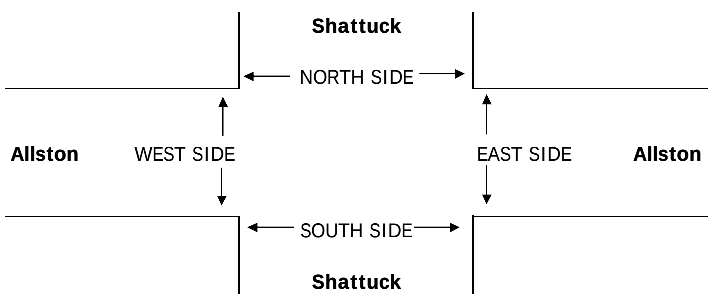
		NORTHBOUND Shattuck			SOUTHBOUND Shattuck			EASTBOUND Allston			WESTBOUND Allston			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	1	2	0	1	2	0	0	1	0	0	1	0	
AM	7:00 AM	5	74	4	3	57	7	2	3	7	3	4	4	173
AM	7:15 AM	7	89	3	2	101	10	4	5	8	1	13	5	248
AM	7:30 AM	20	84	1	2	148	7	0	2	15	1	8	3	291
AM	7:45 AM	19	147	7	2	150	8	7	1	17	2	5	3	368
AM	8:00 AM	20	160	4	1	177	21	6	2	21	1	13	1	427
AM	8:15 AM	18	189	2	2	231	38	16	10	34	2	19	3	564
AM	8:30 AM	26	160	5	5	160	8	6	8	22	3	13	3	419
AM	8:45 AM	27	192	3	3	162	19	4	3	15	3	8	2	441
AM	VOLUMES	142	1,095	29	20	1,186	118	45	34	139	16	83	24	2,950
AM	APPROACH %	11%	86%	2%	2%	90%	9%	21%	16%	64%	13%	67%	20%	
AM	APP/DEPART	1,279	/	1,169	1,329	/	1,354	219	/	83	123	/	344	0
AM	BEGIN PEAK HR		8:00 AM											
AM	VOLUMES	91	701	14	11	730	86	32	23	92	9	53	9	1,851
AM	APPROACH %	11%	87%	2%	1%	88%	10%	22%	16%	63%	13%	75%	13%	
AM	PEAK HR FACTOR		0.908			0.763			0.613			0.740		0.820
AM	APP/DEPART	806	/	742	827	/	831	147	/	48	71	/	230	0
PM	4:00 PM	13	211	10	5	172	21	3	7	17	2	9	6	476
PM	4:15 PM	8	207	7	6	173	25	5	3	17	4	6	5	466
PM	4:30 PM	9	192	13	7	189	16	8	9	40	4	7	9	503
PM	4:45 PM	15	210	8	6	169	11	9	5	26	3	3	7	472
PM	5:00 PM	18	213	7	1	176	19	9	3	35	2	5	5	493
PM	5:15 PM	9	223	10	5	175	19	12	6	22	6	3	2	492
PM	5:30 PM	15	250	16	8	155	13	9	7	17	4	6	12	512
PM	5:45 PM	8	244	15	4	177	14	13	3	21	3	9	8	519
PM	VOLUMES	95	1,750	86	42	1,386	138	68	43	195	28	48	54	3,959
PM	APPROACH %	5%	91%	4%	3%	89%	9%	22%	14%	64%	22%	37%	42%	
PM	APP/DEPART	1,954	/	1,875	1,569	/	1,632	306	/	171	130	/	281	0
PM	BEGIN PEAK HR		5:00 PM											
PM	VOLUMES	50	930	48	18	683	65	43	19	95	15	23	27	2,016
PM	APPROACH %	5%	90%	5%	2%	89%	8%	27%	12%	61%	23%	35%	42%	
PM	PEAK HR FACTOR		0.915			0.962			0.835			0.739		0.971
PM	APP/DEPART	1,028	/	1,000	766	/	793	157	/	85	65	/	138	0

U-TURNS					
	NB	SB	EB	WB	TTL
	X	X	X	X	
7:00 AM	0	0	0	0	0
7:15 AM	4	2	0	0	6
7:30 AM	1	0	0	0	1
7:45 AM	1	1	0	0	2
8:00 AM	0	0	1	0	1
8:15 AM	4	2	0	0	6
8:30 AM	2	0	0	0	2
8:45 AM	1	0	0	0	1
	13	5	1	0	19
4:00 PM	6	1	0	0	7
4:15 PM	3	1	0	0	4
4:30 PM	1	0	0	0	1
4:45 PM	2	0	0	0	2
5:00 PM	3	0	0	0	3
5:15 PM	6	1	0	0	7
5:30 PM	2	0	0	0	2
5:45 PM	0	0	0	0	0
	23	3	0	0	26



		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	11	22	35	48	116	11	18	34	46	109	0	4	1	2	7
AM	7:15 AM	14	11	36	73	134	13	8	30	71	122	1	3	6	2	12
AM	7:30 AM	22	20	54	108	204	21	16	50	105	192	1	4	4	3	12
AM	7:45 AM	30	21	47	142	240	27	17	44	131	219	3	4	3	11	21
AM	8:00 AM	29	41	50	175	295	26	28	43	171	268	3	13	7	4	27
AM	8:15 AM	38	32	25	198	293	33	23	18	191	265	5	9	7	7	28
AM	8:30 AM	41	51	38	150	280	35	44	32	144	255	6	7	6	6	25
AM	8:45 AM	34	48	18	163	263	32	29	8	152	221	2	19	10	11	42
AM	TOTAL	219	246	303	1,057	1,825	198	183	259	1,011	1,651	21	63	44	46	174
PM	4:00 PM	62	31	15	329	437	58	27	10	318	413	4	4	5	11	24
PM	4:15 PM	40	35	27	309	411	35	30	21	295	381	5	5	6	14	30
PM	4:30 PM	52	43	19	315	429	48	36	16	300	400	4	7	3	15	29
PM	4:45 PM	63	36	28	260	387	55	31	18	248	352	8	5	10	12	35
PM	5:00 PM	64	42	19	332	457	60	39	13	321	433	4	3	6	11	24
PM	5:15 PM	63	60	19	347	489	50	55	15	332	452	13	5	4	15	37
PM	5:30 PM	54	38	15	336	443	50	32	12	327	421	4	6	3	9	22
PM	5:45 PM	42	53	13	311	419	36	46	2	297	381	6	7	11	14	38
PM	TOTAL	440	338	155	2,539	3,472	392	296	107	2,438	3,233	48	42	48	101	239

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 951 249 3226 pacific@aimtd.com

DATE:	LOCATION:	Berkeley	PROJECT #:	SC0201
Tue, Dec 3, 13	NORTH & SOUTH:	Shattuck	LOCATION #:	7
	EAST & WEST:	Kittredge	CONTROL:	SIGNAL

NOTES:

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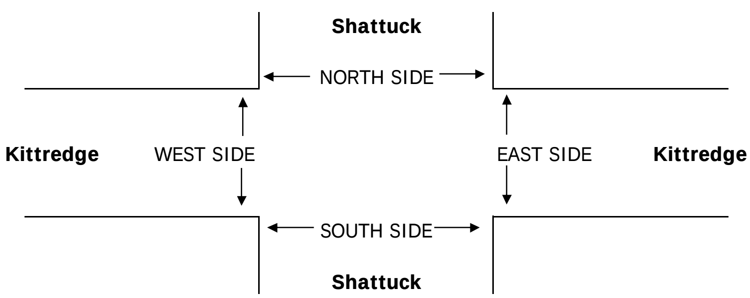
		NORTHBOUND Shattuck			SOUTHBOUND Shattuck			EASTBOUND Kittredge			WESTBOUND Kittredge			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	1	2	0	1	2	0	0	1	0	0	1	0	
AM	7:00 AM	6	77	1	1	66	4	6	2	8	2	4	2	179
AM	7:15 AM	6	96	9	1	113	3	7	6	8	2	2	7	260
AM	7:30 AM	11	114	5	1	156	10	2	2	6	5	0	2	314
AM	7:45 AM	8	163	6	7	149	11	2	1	7	2	6	3	365
AM	8:00 AM	16	180	8	9	182	9	7	4	9	5	10	3	442
AM	8:15 AM	14	192	16	4	239	25	9	11	21	2	25	7	565
AM	8:30 AM	9	188	11	0	179	11	3	4	11	3	7	2	428
AM	8:45 AM	10	215	20	4	172	5	2	5	9	4	3	1	450
AM	VOLUMES	80	1,225	76	27	1,256	78	38	35	79	25	57	27	3,015
AM	APPROACH %	6%	89%	6%	2%	92%	6%	25%	23%	52%	23%	52%	25%	
AM	APP/DEPART	1,390	/	1,293	1,364	/	1,369	152	/	138	109	/	215	0
AM	BEGIN PEAK HR		8:00 AM											
AM	VOLUMES	49	775	55	17	772	50	21	24	50	14	45	13	1,885
AM	APPROACH %	6%	88%	6%	2%	92%	6%	22%	25%	53%	19%	63%	18%	
AM	PEAK HR FACTOR		0.897			0.783			0.579			0.529		0.834
AM	APP/DEPART	879	/	809	839	/	836	95	/	96	72	/	144	0
PM	4:00 PM	9	233	14	4	178	7	2	3	10	5	3	3	471
PM	4:15 PM	10	213	14	2	182	13	4	5	7	5	1	12	468
PM	4:30 PM	7	199	8	1	216	17	8	4	13	8	2	6	489
PM	4:45 PM	3	220	12	3	194	5	6	4	10	6	5	5	473
PM	5:00 PM	13	228	9	1	201	16	5	4	8	3	5	2	495
PM	5:15 PM	9	231	10	1	193	7	1	2	8	8	8	8	486
PM	5:30 PM	13	268	11	3	165	13	4	7	13	11	3	7	518
PM	5:45 PM	10	250	8	3	183	14	7	7	23	7	6	5	523
PM	VOLUMES	74	1,842	86	18	1,512	92	37	36	92	53	33	48	3,937
PM	APPROACH %	4%	92%	4%	1%	93%	6%	22%	22%	56%	40%	25%	36%	
PM	APP/DEPART	2,012	/	1,931	1,626	/	1,667	165	/	140	134	/	199	0
PM	BEGIN PEAK HR		5:00 PM											
PM	VOLUMES	45	977	38	8	742	50	17	20	52	29	22	22	2,022
PM	APPROACH %	4%	92%	4%	1%	93%	6%	19%	22%	58%	40%	30%	30%	
PM	PEAK HR FACTOR		0.908			0.917			0.601			0.760		0.967
PM	APP/DEPART	1,060	/	1,016	800	/	823	89	/	66	73	/	117	0

U-TURNS

	NB	SB	EB	WB	TTL
	X	X	X	X	
7:00 AM	0	0	0	0	0
7:15 AM	0	1	0	0	1
7:30 AM	0	0	0	0	0
7:45 AM	4	0	0	0	4
8:00 AM	2	2	0	0	4
8:15 AM	2	0	0	0	2
8:30 AM	0	0	0	0	0
8:45 AM	1	0	0	0	1
AM VOLUMES	9	3	0	0	12
4:00 PM	0	0	0	0	0
4:15 PM	2	2	0	0	4
4:30 PM	1	0	0	0	1
4:45 PM	2	2	0	0	4
5:00 PM	2	0	0	0	2
5:15 PM	0	0	0	0	0
5:30 PM	3	0	0	0	3
5:45 PM	0	0	0	0	0
PM VOLUMES	10	4	0	0	14



		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	13	2	18	25	58	13	2	17	25	57	0	0	1	0	1
AM	7:15 AM	18	20	28	26	92	18	18	24	24	84	0	2	4	2	8
AM	7:30 AM	14	15	38	13	80	13	14	33	12	72	1	1	5	1	8
AM	7:45 AM	26	59	75	34	194	24	57	66	27	174	2	2	9	7	20
AM	8:00 AM	47	54	74	56	231	44	52	65	53	214	3	2	9	3	17
AM	8:15 AM	25	41	63	37	166	25	37	58	33	153	0	4	5	4	13
AM	8:30 AM	29	33	91	38	191	27	32	76	35	170	2	1	15	3	21
AM	8:45 AM	25	35	105	57	222	24	33	89	51	197	1	2	16	6	25
AM	TOTAL	197	259	492	286	1,234	188	245	428	260	1,121	9	14	64	26	113
PM	4:00 PM	41	48	114	153	356	38	46	100	145	329	3	2	14	8	27
PM	4:15 PM	50	46	121	145	362	45	41	113	130	329	5	5	8	15	33
PM	4:30 PM	84	55	100	134	373	82	51	83	118	334	2	4	17	16	39
PM	4:45 PM	53	69	124	119	365	52	63	102	108	325	1	6	22	11	40
PM	5:00 PM	68	58	139	164	429	59	55	134	156	404	9	3	5	8	25
PM	5:15 PM	36	36	44	74	190	33	32	40	67	172	3	4	4	7	18
PM	5:30 PM	58	55	116	143	372	51	51	94	135	331	7	4	22	8	41
PM	5:45 PM	73	43	126	128	370	68	43	110	119	340	5	0	16	9	30
PM	TOTAL	463	410	884	1,060	2,817	428	382	776	978	2,564	35	28	108	82	253

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 951 249 3226 pacific@aimtd.com

DATE:	LOCATION:	Berkeley	PROJECT #:	SC0201
Tue, Dec 3, 13	NORTH & SOUTH:	Shattuck	LOCATION #:	8
	EAST & WEST:	Bancroft	CONTROL:	SIGNAL

NOTES:

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OTHER

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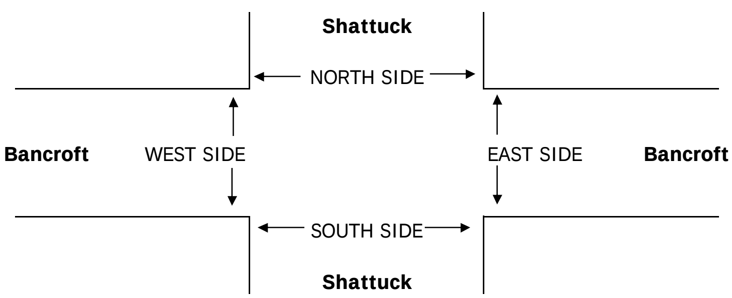
		NORTHBOUND Shattuck			SOUTHBOUND Shattuck			EASTBOUND Bancroft			WESTBOUND Bancroft				U-TURNS				
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	2	0	0	2	0	X	X	1	1	1	0		X	X	X	X	
AM	7:00 AM	1	77	0	0	73	4	0	0	3	5	4	8	175	1	0	0	0	1
	7:15 AM	3	90	0	0	121	2	0	0	5	14	5	11	251	2	0	0	0	2
	7:30 AM	6	120	0	0	165	3	0	0	5	6	3	6	314	0	0	0	0	0
	7:45 AM	6	170	1	0	151	4	0	0	7	18	6	10	373	0	0	0	0	0
	8:00 AM	8	200	0	0	190	7	0	0	21	11	9	10	456	1	0	0	0	1
	8:15 AM	10	204	0	0	253	8	1	0	43	18	21	15	573	1	0	0	0	1
	8:30 AM	6	192	0	0	185	3	0	0	15	17	4	14	436	2	0	0	0	2
	8:45 AM	4	231	0	1	184	1	0	0	7	16	6	19	469	1	0	0	0	1
	VOLUMES	44	1,284	1	1	1,322	32	1	0	106	105	58	93	3,055	8	0	0	0	8
	APPROACH %	3%	97%	0%	0%	98%	2%	1%	0%	99%	41%	23%	36%						
	APP/DEPART	1,337	/	1,378	1,355	/	1,541	107	/	2	256	/	134	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	28	827	0	1	812	19	1	0	86	62	40	58	1,934					
	APPROACH %	3%	97%	0%	0%	98%	2%	1%	0%	99%	39%	25%	36%						
	PEAK HR FACTOR		0.910			0.797			0.494			0.741		0.844					
	APP/DEPART	855	/	886	832	/	960	87	/	1	160	/	87	0					
PM	4:00 PM	6	240	1	1	178	9	0	0	8	28	10	15	496	2	0	0	0	2
	4:15 PM	3	218	0	0	187	5	0	0	11	25	9	11	469	6	0	0	0	6
	4:30 PM	5	203	0	0	243	5	0	0	11	35	10	13	525	2	0	0	0	2
	4:45 PM	8	232	0	1	204	12	0	0	16	32	0	7	512	2	0	0	0	2
	5:00 PM	17	246	2	2	208	3	4	3	13	34	10	2	544	9	0	0	0	9
	5:15 PM	2	243	4	0	215	11	0	0	10	59	13	6	563	0	0	0	0	0
	5:30 PM	3	287	2	2	188	8	0	0	5	42	13	8	558	0	0	0	0	0
	5:45 PM	17	256	2	0	209	7	0	0	14	34	6	8	553	0	0	0	0	0
	VOLUMES	61	1,925	11	6	1,632	60	4	3	88	289	71	70	4,241	21	0	0	0	21
	APPROACH %	3%	96%	1%	0%	96%	4%	4%	3%	93%	67%	17%	16%						
	APP/DEPART	2,018	/	1,999	1,698	/	2,030	95	/	20	430	/	192	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	39	1,032	10	4	820	29	4	3	42	169	42	24	2,218					
	APPROACH %	4%	95%	1%	0%	96%	3%	8%	6%	86%	72%	18%	10%						
	PEAK HR FACTOR		0.926			0.944			0.613			0.753		0.985					
	APP/DEPART	1,081	/	1,060	853	/	1,031	49	/	17	235	/	110	0					



		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	1	2	16	7	26	1	2	13	6	22	0	0	3	1	4
	7:15 AM	7	6	12	9	34	7	6	10	9	32	0	0	2	0	2
	7:30 AM	12	8	15	12	47	11	8	13	11	43	1	0	2	1	4
	7:45 AM	20	9	23	34	86	19	8	17	28	72	1	1	6	6	14
	8:00 AM	6	19	23	19	67	6	19	21	18	64	0	0	2	1	3
	8:15 AM	10	9	33	26	78	7	7	29	22	65	3	2	4	4	13
	8:30 AM	20	19	36	26	101	19	19	29	25	92	1	0	7	1	9
	8:45 AM	18	14	35	35	102	17	14	24	29	84	1	0	11	6	18
	TOTAL	94	86	193	168	541	87	83	156	148	474	7	3	37	20	67
PM	4:00 PM	15	35	16	17	83	15	35	16	15	81	0	0	0	2	2
	4:15 PM	24	27	43	35	129	24	26	41	22	113	0	1	2	13	16
	4:30 PM	15	36	23	22	96	15	36	23	19	93	0	0	0	3	3
	4:45 PM	14	48	26	40	128	10	48	26	34	118	4	0	0	6	10
	5:00 PM	4	43	19	39	105	4	38	13	31	86	0	5	6	8	19
	5:15 PM	24	38	30	45	137	24	35	27	40	126	0	3	3	5	11
	5:30 PM	19	59	15	64	157	19	59	15	60	153	0	0	0	4	4
	5:45 PM	18	16	17	41	92	18	16	17	32	83	0	0	0	9	9
	TOTAL	133	302	189	303	927	129	293	178	253	853	4	9	11	50	74

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 951 249 3226 pacific@aimtd.com

DATE:	LOCATION:	Berkeley	PROJECT #:	SC0201
Tue, Dec 3, 13	NORTH & SOUTH:	Shattuck	LOCATION #:	9
	EAST & WEST:	Durant	CONTROL:	SIGNAL

NOTES:

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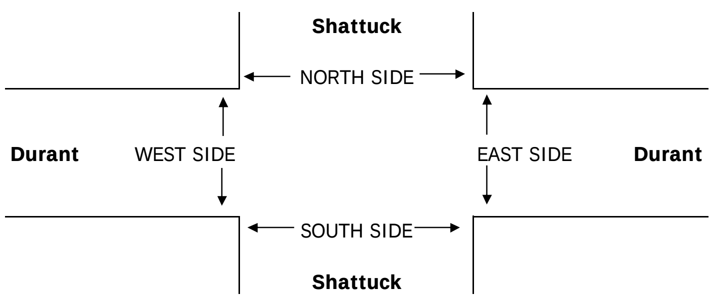
		NORTHBOUND Shattuck			SOUTHBOUND Shattuck			EASTBOUND Durant			WESTBOUND Durant		
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	1	2	0	1	2	0	0	1	0	X	X	X	
AM	7:00 AM	1	80	19	8	70	1	0	6	1	0	0	0	186
	7:15 AM	4	97	30	17	118	3	1	4	3	0	0	0	277
	7:30 AM	5	128	30	20	149	4	0	11	0	0	0	0	347
	7:45 AM	9	178	59	11	155	7	3	6	3	0	0	0	431
	8:00 AM	13	207	44	25	190	6	1	8	7	0	0	0	501
	8:15 AM	5	215	59	29	264	20	2	9	14	0	0	0	617
	8:30 AM	12	203	48	21	192	4	2	17	9	0	0	0	508
	8:45 AM	4	239	42	17	182	3	2	6	1	0	0	0	496
	VOLUMES	53	1,347	331	148	1,320	48	11	67	38	0	0	0	3,377
	APPROACH %	3%	78%	19%	10%	87%	3%	9%	58%	33%	0%	0%	0%	
	APP/DEPART	1,734	/	1,369	1,527	/	1,361	116	/	546	0	/	101	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	34	864	193	92	828	33	7	40	31	0	0	0	2,122
	APPROACH %	3%	79%	18%	10%	87%	3%	9%	51%	40%	0%	0%	0%	
	PEAK HR FACTOR		0.957			0.761			0.696			0.000		0.860
	APP/DEPART	1,091	/	871	953	/	859	78	/	325	0	/	67	0
PM	4:00 PM	11	250	45	14	199	11	3	13	13	0	0	0	559
	4:15 PM	9	218	43	22	196	13	1	7	14	0	0	0	523
	4:30 PM	9	226	42	18	267	7	1	4	9	0	0	0	583
	4:45 PM	6	232	52	18	223	16	5	16	11	0	0	0	579
	5:00 PM	4	264	50	15	235	7	3	13	10	0	0	0	601
	5:15 PM	11	244	43	23	250	7	4	5	14	0	0	0	601
	5:30 PM	6	295	42	16	210	9	4	8	7	0	0	0	597
	5:45 PM	4	273	58	21	226	12	3	11	5	0	0	0	613
	VOLUMES	60	2,002	375	147	1,806	82	24	77	83	0	0	0	4,681
	APPROACH %	2%	82%	15%	7%	89%	4%	13%	42%	45%	0%	0%	0%	
	APP/DEPART	2,452	/	2,036	2,045	/	1,904	184	/	599	0	/	142	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	25	1,076	193	75	921	35	14	37	36	0	0	0	2,412
	APPROACH %	2%	83%	15%	7%	89%	3%	16%	43%	41%	0%	0%	0%	
	PEAK HR FACTOR		0.943			0.921			0.837			0.000		0.984
	APP/DEPART	1,294	/	1,090	1,031	/	957	87	/	305	0	/	60	0

U-TURNS

	NB	SB	EB	WB	TTL
	X	X	X	X	
7:00 AM	0	1	0	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	1	0	0	1
8:00 AM	1	1	0	0	2
8:15 AM	1	4	0	0	5
8:30 AM	1	2	0	0	3
8:45 AM	0	2	0	0	2
VOLUMES	3	11	0	0	14
4:00 PM	2	0	0	0	2
4:15 PM	2	1	0	0	3
4:30 PM	3	2	0	0	5
4:45 PM	0	0	0	0	0
5:00 PM	4	2	0	0	6
5:15 PM	0	0	0	0	0
5:30 PM	2	3	0	0	5
5:45 PM	2	2	0	0	4
VOLUMES	15	10	0	0	25



		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	1	0	16	22	39	1	0	12	21	34	0	0	4	1	5
	7:15 AM	4	4	18	23	49	4	4	13	22	43	0	0	5	1	6
	7:30 AM	5	11	28	20	64	4	9	24	19	56	1	2	4	1	8
	7:45 AM	4	13	44	26	87	3	12	32	21	68	1	1	12	5	19
	8:00 AM	8	15	58	39	120	7	15	45	38	105	1	0	13	1	15
	8:15 AM	1	12	42	30	85	0	11	30	28	69	1	1	12	2	16
	8:30 AM	8	9	57	49	123	7	8	43	49	107	1	1	14	0	16
	8:45 AM	8	23	55	38	124	7	18	37	32	94	1	5	18	6	30
	TOTAL	39	87	318	247	691	33	77	236	230	576	6	10	82	17	115
PM	4:00 PM	15	33	84	70	202	15	32	74	62	183	0	1	10	8	19
	4:15 PM	23	27	82	97	229	20	25	77	84	206	3	2	5	13	23
	4:30 PM	17	27	65	70	179	15	23	55	64	157	2	4	10	6	22
	4:45 PM	16	19	73	64	172	14	18	68	58	158	2	1	5	6	14
	5:00 PM	15	27	65	71	178	14	24	63	69	170	1	3	2	2	8
	5:15 PM	18	23	61	65	167	15	22	56	61	154	3	1	5	4	13
	5:30 PM	15	25	60	71	171	14	25	58	69	166	1	0	2	2	5
	5:45 PM	18	23	66	80	187	15	21	61	78	175	3	2	5	2	12
	TOTAL	137	204	556	588	1,485	122	190	512	545	1,369	15	14	44	43	116

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 951 249 3226 pacific@aimtd.com

DATE:	LOCATION:	Berkeley	PROJECT #:	SC0201
Tue, Dec 3, 13	NORTH & SOUTH:	Oxford	LOCATION #:	10
	EAST & WEST:	Allston	CONTROL:	Stop 1-way E

NOTES:

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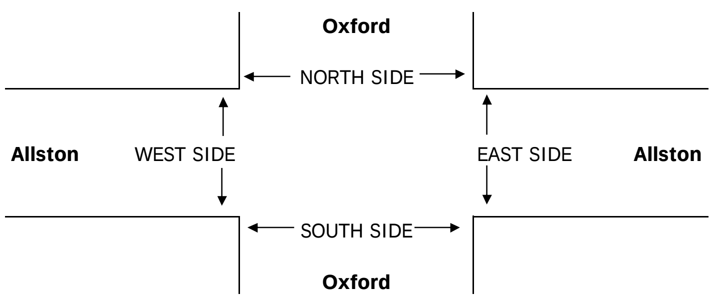
	NORTHBOUND Oxford			SOUTHBOUND Oxford			EASTBOUND Allston			WESTBOUND Allston			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	X	X	2	0	0	X	0	X	X	X	
AM 7:00 AM	2	48	0	0	43	13	1	0	7	0	0	0	114
7:15 AM	7	50	0	0	85	8	3	0	7	0	0	0	160
7:30 AM	1	66	0	0	121	10	4	0	3	0	0	0	205
7:45 AM	1	86	0	0	167	7	1	0	7	0	0	0	269
8:00 AM	5	74	0	0	190	11	3	0	5	0	0	0	288
8:15 AM	13	89	0	0	221	16	4	0	15	0	0	0	358
8:30 AM	6	88	0	0	164	12	6	0	13	0	0	0	289
8:45 AM	4	97	0	0	167	4	4	0	7	0	0	0	283
VOLUMES	39	598	0	0	1,158	81	26	0	64	0	0	0	2,026
APPROACH %	6%	94%	0%	0%	93%	7%	29%	0%	71%	0%	0%	0%	
APP/DEPART	640	/	681	1,296	/	1,225	90	/	0	0	/	120	0
BEGIN PEAK HR		8:00 AM											
VOLUMES	28	348	0	0	742	43	17	0	40	0	0	0	1,218
APPROACH %	7%	93%	0%	0%	95%	5%	30%	0%	70%	0%	0%	0%	
PEAK HR FACTOR		0.922			0.828			0.750			0.000		0.851
APP/DEPART	376	/	365	785	/	782	57	/	0	0	/	71	0
PM 4:00 PM	3	133	0	0	132	17	3	0	12	0	0	0	300
4:15 PM	7	133	0	0	158	11	5	0	21	0	0	0	335
4:30 PM	5	127	0	0	163	13	2	0	17	0	0	0	327
4:45 PM	2	125	0	0	137	9	7	0	14	0	0	0	294
5:00 PM	1	136	0	0	228	15	4	0	9	0	0	0	393
5:15 PM	5	136	0	0	178	18	2	0	19	0	0	0	358
5:30 PM	7	118	0	0	158	16	8	0	21	0	0	0	328
5:45 PM	4	134	0	0	175	18	6	0	19	0	0	0	356
VOLUMES	34	1,042	0	0	1,329	117	37	0	132	0	0	0	2,754
APPROACH %	3%	97%	0%	0%	92%	8%	22%	0%	78%	0%	0%	0%	
APP/DEPART	1,083	/	1,134	1,501	/	1,468	170	/	0	0	/	152	0
BEGIN PEAK HR		5:00 PM											
VOLUMES	17	524	0	0	739	67	20	0	68	0	0	0	1,435
APPROACH %	3%	97%	0%	0%	92%	8%	23%	0%	77%	0%	0%	0%	
PEAK HR FACTOR		0.959			0.829			0.759			0.000		0.913
APP/DEPART	541	/	544	806	/	807	88	/	0	0	/	84	0

U-TURNS				
NB	SB	EB	WB	TTL
X	X	X	X	
0	0	0	0	0
0	3	0	0	3
0	4	0	0	4
0	12	0	0	12
0	10	0	0	10
0	8	0	0	8
1	7	0	0	8
2	13	0	0	15
3	57	0	0	60
0	7	0	0	7
1	7	0	0	8
2	4	0	0	6
1	8	1	0	10
0	13	0	0	13
2	7	0	0	9
0	6	0	0	6
1	3	0	0	4
7	55	1	0	63



	PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM 7:00 AM	7	0	14	2	23	5	0	9	2	16	2	0	5	0	7
7:15 AM	5	0	6	7	18	4	0	6	7	17	1	0	0	0	1
7:30 AM	14	0	13	11	38	13	0	12	10	35	1	0	1	1	3
7:45 AM	27	0	32	30	89	26	0	27	26	79	1	0	5	4	10
8:00 AM	26	0	29	29	84	19	0	19	26	64	7	0	10	3	20
8:15 AM	20	0	14	19	53	13	0	8	14	35	7	0	6	5	18
8:30 AM	15	0	12	21	48	12	0	9	19	40	3	0	3	2	8
8:45 AM	35	0	34	33	102	27	0	20	29	76	8	0	14	4	26
TOTAL	149	0	154	152	455	119	0	110	133	362	30	0	44	19	93
PM 4:00 PM	31	0	22	56	109	27	0	17	42	86	4	0	5	14	23
4:15 PM	17	0	35	40	92	15	0	27	35	77	2	0	8	5	15
4:30 PM	23	0	17	53	93	20	0	10	40	70	3	0	7	13	23
4:45 PM	20	0	21	59	100	19	0	15	49	83	1	0	6	10	17
5:00 PM	40	0	18	70	128	38	0	14	55	107	2	0	4	15	21
5:15 PM	33	0	14	69	116	32	0	11	56	99	1	0	3	13	17
5:30 PM	30	0	10	53	93	26	0	4	44	74	4	0	6	9	19
5:45 PM	32	0	10	62	104	30	0	5	47	82	2	0	5	15	22
TOTAL	226	0	147	462	835	207	0	103	368	678	19	0	44	94	157

Appendix A: Traffic Counts

24-Hour Roadway Segment Counts

Tuesday, December 03, 2013 | CITY: Berkeley | PROJECT: SC0256

ADT1 Allston bwn Milvia and Shattuck | Prepared by: Field Data Services of Arizona, | **AimTD LLC pacific@aimtd.com tel. 951 249 3226**

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:30			3		2			12:00			38		30		
00:15			4		2			12:15			35		34		
00:30			0		3			12:30			43		39		
00:45			0	7	4	11	18	12:45			32	148	30	133	281
01:00			3		1			13:00			25		30		
01:15			0		1			13:15			30		31		
01:30			2		1			13:30			24		35		
01:45			2	7	3	6	13	13:45			25	104	31	127	231
02:00			2		2			14:00			26		31		
02:15			1		1			14:15			26		30		
02:30			0		2			14:30			52		43		
02:45			0	3	0	5	8	14:45			35	139	35	139	278
03:00			0		0			15:00			41		39		
03:15			0		0			15:15			31		37		
03:30			0		0			15:30			40		53		
03:45			0	0	2	2	2	15:45			40	152	44	173	325
04:00			0		0			16:00			47		38		
04:15			1		2			16:15			41		43		
04:30			3		5			16:30			36		48		
04:45			10	14	8	15	29	16:45			45	169	35	164	333
05:00			-2		10			17:00			47		44		
05:15			4		13			17:15			49		37		
05:30			8		7			17:30			69		39		
05:45			9	19	19	49	68	17:45			52	217	36	156	373
06:00			9		6			18:00			30		47		
06:15			14		15			18:15			33		35		
06:30			11		22			18:30			34		47		
06:45			7	41	16	59	100	18:45			45	142	41	170	312
07:00			17		26			19:00			38		39		
07:15			20		22			19:15			62		32		
07:30			14		19			19:30			40		39		
07:45			18	69	36	103	172	19:45			35	175	37	147	322
08:00			45		38			20:00			23		42		
08:15			43		73			20:15			35		39		
08:30			27		51			20:30			42		38		
08:45			19	134	41	203	337	20:45			45	145	31	150	295
09:00			21		33			21:00			24		17		
09:15			28		36			21:15			30		12		
09:30			15		36			21:30			20		10		
09:45			20	84	36	141	225	21:45			19	93	4	43	136
10:00			31		29			22:00			13		7		
10:15			45		28			22:15			12		12		
10:30			24		36			22:30			9		6		
10:45			33	133	27	120	253	22:45			8	42	6	31	73
11:00			42		33			23:00			2		5		
11:15			31		46			23:15			5		5		
11:30			33		49			23:30			5		2		
11:45			20	126	33	161	287	23:45			2	14	2	14	28
Total Vol.				637		875	**1512**					1540		1447	**2987**

Daily Totals

NB	SB	EB	WB	Combined
		2177	2322	**4499**

	AM					PM				
	NB	SB	EB	WB	Combined	NB	SB	EB	WB	Combined
Split %			42.1%	57.9%	**33.6%**			51.6%	48.4%	**66.4%**
Peak Hour	00:30	00:30	10:15	08:00	**08:00**			17:00	15:30	**17:00**
Volume			144	203	**337**			217	178	**373**
P.H.F.			0.80	0.70	**0.73**			0.79	0.84	**0.86**

Tuesday, December 03, 2013 CITY: Berkeley PROJECT: SC0256

ADT2 Harold Way bwn Allston and Kittredge Prepared by: Field Data Services of Arizona, **AimTD LLC tel. 951 249 3226**

AM Period	NB		SB			PM Period	NB		SB		
00:00	2		0			12:00	21		15		
00:15	2		1			12:15	13		9		
00:30	0		1			12:30	11		16		
00:45	0	4	1	3	7	12:45	8	53	11	51	104
01:00	0		3			13:00	16		11		
01:15	0		0			13:15	16		14		
01:30	0		1			13:30	12		13		
01:45	0	0	0	4	4	13:45	10	54	7	45	99
02:00	0		1			14:00	12		9		
02:15	0		1			14:15	12		13		
02:30	0		0			14:30	15		11		
02:45	2	2	0	2	4	14:45	25	64	26	59	123
03:00	0		0			15:00	15		8		
03:15	0		0			15:15	26		19		
03:30	0		0			15:30	16		14		
03:45	0	0	1	1	1	15:45	17	74	18	59	133
04:00	0		0			16:00	17		16		
04:15	0		0			16:15	20		14		
04:30	0		1			16:30	13		17		
04:45	0	0	1	2	2	16:45	22	72	15	62	134
05:00	1		2			17:00	13		12		
05:15	5		3			17:15	11		12		
05:30	6		3			17:30	17		20		
05:45	2	14	3	11	25	17:45	24	65	23	67	132
06:00	6		4			18:00	23		23		
06:15	7		7			18:15	13		12		
06:30	10		5			18:30	12		11		
06:45	10	33	5	21	54	18:45	15	63	19	65	128
07:00	8		6			19:00	25		34		
07:15	14		11			19:15	15		32		
07:30	7		8			19:30	17		15		
07:45	7	36	9	34	70	19:45	12	69	20	101	170
08:00	5		8			20:00	10		18		
08:15	4		8			20:15	6		11		
08:30	20		16			20:30	12		10		
08:45	21	50	14	46	96	20:45	7	35	8	47	82
09:00	11		9			21:00	6		6		
09:15	5		11			21:15	3		8		
09:30	8		9			21:30	11		6		
09:45	8	32	6	35	67	21:45	3	23	10	30	53
10:00	11		10			22:00	3		8		
10:15	13		15			22:15	1		5		
10:30	16		16			22:30	3		4		
10:45	17	57	15	56	113	22:45	1	8	1	18	26
11:00	18		23			23:00	1		0		
11:15	13		17			23:15	0		0		
11:30	14		11			23:30	1		0		
11:45	16	61	15	66	127	23:45	0	2	1	1	3
Total Vol.		289		281	**570**			582		605	**1187**

Daily Totals

NB	SB	Combined
871	886	**1757**

	AM			PM		
Split %	50.7%	49.3%	**32.4%**	49.0%	51.0%	**67.6%**
Peak Hour	10:15	10:30	**10:30**	14:45	19:00	**18:45**
Volume	64	71	**135**	82	101	**172**
P.H.F.	0.89	0.77	**0.82**	0.88	0.74	**0.73**

Tuesday, December 03, 2013 CITY: Berkeley PROJECT: SC0256

ADT3 Kittredge bwn Milvia and Shattuck Prepared by: Field Data Services of Arizona, **AimTD LLC pacific@aimtd.com tel. 951 249 3226**

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:30			6		1			12:00			24		14		
00:15			4		2			12:15			21		22		
00:30			3		2			12:30			18		20		
00:45			2	15	2	7	22	12:45			15	78	16	72	150
01:00			1		0			13:00			21		15		
01:15			4		0			13:15			21		18		
01:30			1		0			13:30			26		22		
01:45			0	6	0	0	6	13:45			14	82	22	77	159
02:00			0		2			14:00			19		18		
02:15			1		0			14:15			20		18		
02:30			3		1			14:30			23		10		
02:45			1	5	0	3	8	14:45			25	87	19	65	152
03:00			2		2			15:00			16		20		
03:15			2		0			15:15			32		25		
03:30			0		0			15:30			33		22		
03:45			0	4	0	2	6	15:45			19	100	27	94	194
04:00			0		1			16:00			26		27		
04:15			0		1			16:15			30		23		
04:30			3		0			16:30			22		19		
04:45			3	6	2	4	10	16:45			21	99	24	93	192
05:00			0		1			17:00			20		22		
05:15			1		2			17:15			13		25		
05:30			5		3			17:30			22		26		
05:45			4	10	2	8	18	17:45			21	76	28	101	177
06:00			4		1			18:00			19		27		
06:15			2		1			18:15			18		14		
06:30			8		6			18:30			19		13		
06:45			9	23	8	16	39	18:45			22	78	32	86	164
07:00			6		6			19:00			30		31		
07:15			17		11			19:15			21		30		
07:30			14		15			19:30			15		12		
07:45			17	54	13	45	99	19:45			14	80	18	91	171
08:00			22		11			20:00			19		17		
08:15			16		25			20:15			12		10		
08:30			22		42			20:30			14		13		
08:45			19	79	27	105	184	20:45			11	56	7	47	103
09:00			12		14			21:00			11		5		
09:15			21		13			21:15			14		9		
09:30			11		15			21:30			9		2		
09:45			13	57	13	55	112	21:45			3	37	3	19	56
10:00			24		12			22:00			6		3		
10:15			22		17			22:15			5		8		
10:30			29		12			22:30			6		4		
10:45			16	91	21	62	153	22:45			5	22	4	19	41
11:00			24		15			23:00			3		0		
11:15			20		15			23:15			2		2		
11:30			29		16			23:30			5		1		
11:45			16	89	20	66	155	23:45			3	13	2	5	18
Total Vol.				439		373	**812**					808		769	**1577**

Daily Totals

NB	SB	EB	WB	Combined
		1247	1142	**2389**

			AM				PM		
Split %			54.1%	45.9%	**34.0%**		51.2%	48.8%	**66.0%**
Peak Hour	00:30	00:30	10:00	08:15	**08:00**		15:15	17:15	**15:15**
Volume			91	108	**184**		110	106	**211**
P.H.F.			0.78	0.64	**0.72**		0.83	0.95	**0.93**

Tuesday, December 03, 2013 CITY: Berkeley PROJECT: SC0256

ADT4 Shattuck bwn Allston and Kittredge Prepared by: Field Data Services of Arizona, **AimTD LLC tel. 951 249 3226**

AM Period	NB		SB			PM Period	NB		SB		
00:00	29		26			12:00	154		180		
00:15	23		27			12:15	143		161		
00:30	25		14			12:30	145		179		
00:45	19	96	20	87	183	12:45	140	582	178	698	1280
01:00	24		14			13:00	171		178		
01:15	22		25			13:15	143		165		
01:30	15		10			13:30	157		187		
01:45	19	80	12	61	141	13:45	170	641	163	693	1334
02:00	9		15			14:00	142		145		
02:15	11		12			14:15	159		161		
02:30	5		7			14:30	148		153		
02:45	6	31	7	41	72	14:45	141	590	174	633	1223
03:00	4		5			15:00	158		192		
03:15	4		9			15:15	162		174		
03:30	5		3			15:30	189		182		
03:45	4	17	6	23	40	15:45	189	698	189	737	1435
04:00	4		4			16:00	159		229		
04:15	8		8			16:15	164		203		
04:30	7		10			16:30	170		227		
04:45	3	22	6	28	50	16:45	186	679	191	850	1529
05:00	5		15			17:00	198		226		
05:15	9		13			17:15	173		232		
05:30	18		10			17:30	191		228		
05:45	16	48	17	55	103	17:45	154	716	269	955	1671
06:00	24		34			18:00	177		249		
06:15	23		29			18:15	163		228		
06:30	34		41			18:30	162		221		
06:45	37	118	53	157	275	18:45	170	672	215	913	1585
07:00	71		56			19:00	173		181		
07:15	60		75			19:15	140		162		
07:30	91		100			19:30	129		167		
07:45	141	363	110	341	704	19:45	142	584	165	675	1259
08:00	144		157			20:00	132		128		
08:15	184		164			20:15	151		129		
08:30	224		213			20:30	126		118		
08:45	178	730	193	727	1457	20:45	114	523	110	485	1008
09:00	158		205			21:00	110		98		
09:15	169		201			21:15	121		87		
09:30	179		178			21:30	110		78		
09:45	151	657	161	745	1402	21:45	82	423	82	345	768
10:00	140		155			22:00	79		86		
10:15	151		167			22:15	92		69		
10:30	134		155			22:30	83		70		
10:45	122	547	143	620	1167	22:45	63	317	51	276	593
11:00	135		184			23:00	54		46		
11:15	128		147			23:15	47		27		
11:30	145		160			23:30	35		42		
11:45	149	557	143	634	1191	23:45	37	173	36	151	324
Total Vol.		3266		3519	**6785**			6598		7411	**14009**

Daily Totals

NB	SB	Combined
9864	10930	**20794**

	AM			PM		
Split %	48.1%	51.9%	**32.6%**	47.1%	52.9%	**67.4%**
Peak Hour	08:15	08:30	**08:30**	16:45	17:15	**17:15**
Volume	744	812	**1541**	748	978	**1673**
P.H.F.	0.83	0.95	**0.88**	0.92	0.91	**0.98**

Appendix B: Synchro Reports

Existing (Year 2013) No Project – AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	43	74	31	54	56	52	62	678	108	66	647	47
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.81		1.00	0.69	1.00	0.96		1.00	0.98	
Flpb, ped/bikes		0.93	1.00		0.94	1.00	0.92	1.00		0.94	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.98	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1609	1221		1611	1036	1535	3160		1574	3259	
Flt Permitted		0.82	1.00		0.74	1.00	0.35	1.00		0.28	1.00	
Satd. Flow (perm)		1349	1221		1215	1036	570	3160		468	3259	
Peak-hour factor, PHF	0.81	0.81	0.81	0.70	0.70	0.70	0.86	0.86	0.86	0.95	0.95	0.95
Adj. Flow (vph)	53	91	38	77	80	74	72	788	126	69	681	49
RTOR Reduction (vph)	0	0	30	0	0	58	0	9	0	0	4	0
Lane Group Flow (vph)	0	144	8	0	157	16	72	905	0	69	726	0
Confl. Peds. (#/hr)	250		166	166		250	119		119	119		119
Confl. Bikes (#/hr)			7			72			9			5
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6		6	8			8		
Actuated Green, G (s)		17.5	17.5		17.5	17.5	63.5	63.5		63.5	63.5	
Effective Green, g (s)		19.0	19.0		19.0	19.0	65.0	65.0		65.0	65.0	
Actuated g/C Ratio		0.21	0.21		0.21	0.21	0.72	0.72		0.72	0.72	
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		285	258		257	219	412	2282		338	2354	
v/s Ratio Prot								c0.29			0.22	
v/s Ratio Perm		0.11	0.01		c0.13	0.02	0.13			0.15		
v/c Ratio		0.51	0.03		0.61	0.07	0.17	0.40		0.20	0.31	
Uniform Delay, d1		31.3	28.2		32.2	28.4	4.0	4.9		4.1	4.5	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5	0.0		3.0	0.1	0.9	0.5		1.4	0.3	
Delay (s)		31.9	28.2		35.2	28.5	4.9	5.4		5.4	4.8	
Level of Service		C	C		D	C	A	A		A	A	
Approach Delay (s)		31.1			33.0			5.3			4.9	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	10.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	77	32	16	42	16	31	171	45	51	178	31
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.75		0.95			0.96			0.97	
Flpb, ped/bikes		0.97	1.00		0.96			0.99			0.98	
Frt		1.00	0.85		0.97			0.98			0.98	
Flt Protected		0.99	1.00		0.99			0.99			0.99	
Satd. Flow (prot)		1708	1128		1389			1624			1641	
Flt Permitted		0.97	1.00		0.95			0.94			0.89	
Satd. Flow (perm)		1667	1128		1329			1529			1480	
Peak-hour factor, PHF	0.75	0.75	0.75	0.88	0.88	0.88	0.80	0.80	0.80	0.78	0.78	0.78
Adj. Flow (vph)	16	103	43	18	48	18	39	214	56	65	228	40
RTOR Reduction (vph)	0	0	26	0	11	0	0	12	0	0	8	0
Lane Group Flow (vph)	0	119	17	0	73	0	0	297	0	0	325	0
Confl. Peds. (#/hr)	143		145	145		143	112		118	118		112
Confl. Bikes (#/hr)			11			4			33			39
Parking (#/hr)					0	0						
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		23.8	23.8		23.8			32.8			32.8	
Effective Green, g (s)		25.0	25.0		25.0			34.0			34.0	
Actuated g/C Ratio		0.38	0.38		0.38			0.52			0.52	
Clearance Time (s)		4.2	4.2		4.2			4.2			4.2	
Lane Grp Cap (vph)		641	434		511			800			774	
v/s Ratio Prot												
v/s Ratio Perm		c0.07	0.01		0.05			0.19			c0.22	
v/c Ratio		0.19	0.04		0.14			0.37			0.42	
Uniform Delay, d1		13.3	12.5		13.0			9.2			9.5	
Progression Factor		1.00	1.00		1.00			0.84			1.00	
Incremental Delay, d2		0.6	0.2		0.6			1.2			1.7	
Delay (s)		13.9	12.7		13.6			8.9			11.2	
Level of Service		B	B		B			A			B	
Approach Delay (s)		13.6			13.6			8.9			11.2	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	121	71	15	64	47	56	157	22	33	127	63
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.47		0.82			0.97			0.84	
Flpb, ped/bikes		0.89	1.00		0.95			0.92			0.97	
Frt		1.00	0.85		0.95			0.99			0.96	
Flt Protected		0.98	1.00		0.99			0.99			0.99	
Satd. Flow (prot)		1545	704		1171			1385			1385	
Flt Permitted		0.88	1.00		0.96			0.88			0.93	
Satd. Flow (perm)		1378	704		1133			1233			1299	
Peak-hour factor, PHF	0.95	0.95	0.95	0.79	0.79	0.79	0.80	0.80	0.80	0.82	0.82	0.82
Adj. Flow (vph)	59	127	75	19	81	59	70	196	28	40	155	77
RTOR Reduction (vph)	0	0	47	0	33	0	0	6	0	0	22	0
Lane Group Flow (vph)	0	186	28	0	126	0	0	288	0	0	250	0
Confl. Peds. (#/hr)	308		373	373		308	375		178	178		375
Confl. Bikes (#/hr)			11			4			33			39
Parking (#/hr)					0	0		0	0			
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		22.7	22.7		22.7			33.7			33.7	
Effective Green, g (s)		24.0	24.0		24.0			35.0			35.0	
Actuated g/C Ratio		0.37	0.37		0.37			0.54			0.54	
Clearance Time (s)		4.3	4.3		4.3			4.3			4.3	
Lane Grp Cap (vph)		509	260		418			664			699	
v/s Ratio Prot												
v/s Ratio Perm		c0.14	0.04		0.11			c0.23			0.19	
v/c Ratio		0.37	0.11		0.30			0.43			0.36	
Uniform Delay, d1		14.9	13.5		14.6			9.0			8.6	
Progression Factor		1.00	1.00		1.00			1.00			0.57	
Incremental Delay, d2		2.0	0.8		1.9			2.1			1.4	
Delay (s)		17.0	14.3		16.4			11.1			6.3	
Level of Service		B	B		B			B			A	
Approach Delay (s)		16.2			16.4			11.1			6.3	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	49	77	152	57	56	161
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	53	84	165	62	61	175

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	137	227	236
Volume Left (vph)	53	0	61
Volume Right (vph)	84	62	0
Hadj (s)	-0.25	-0.13	0.09
Departure Headway (s)	4.7	4.4	4.6
Degree Utilization, x	0.18	0.28	0.30
Capacity (veh/h)	701	787	752
Control Delay (s)	8.7	9.1	9.5
Approach Delay (s)	8.7	9.1	9.5
Approach LOS	A	A	A

Intersection Summary			
Delay	9.2		
HCM Level of Service	A		
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	44	41	26	66	0	0	0	0	18	793	51
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			1.0						3.0	
Lane Util. Factor		1.00			1.00						*0.85	
Frpb, ped/bikes		0.81			1.00						0.96	
Flpb, ped/bikes		1.00			0.91						0.99	
Frt		0.93			1.00						0.99	
Flt Protected		1.00			0.99						1.00	
Satd. Flow (prot)		1205			1419						4096	
Flt Permitted		1.00			0.93						1.00	
Satd. Flow (perm)		1205			1332						4096	
Peak-hour factor, PHF	0.93	0.93	0.93	0.87	0.87	0.87	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	0	47	44	30	76	0	0	0	0	19	844	54
RTOR Reduction (vph)	0	10	0	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	81	0	0	106	0	0	0	0	0	910	0
Confl. Peds. (#/hr)			507	507						301		470
Confl. Bikes (#/hr)			36									21
Parking (#/hr)		0	0	0	0						0	0
Turn Type				Perm						Perm		
Protected Phases		2			2						4	
Permitted Phases				2						4		
Actuated Green, G (s)		31.0			31.0						51.0	
Effective Green, g (s)		32.0			34.0						52.0	
Actuated g/C Ratio		0.36			0.38						0.58	
Clearance Time (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		428			503						2367	
v/s Ratio Prot		0.07										
v/s Ratio Perm					c0.08						0.22	
v/c Ratio		0.19			0.21						0.38	
Uniform Delay, d1		20.0			18.9						10.3	
Progression Factor		1.00			1.02						1.00	
Incremental Delay, d2		1.0			0.9						0.5	
Delay (s)		21.0			20.3						10.8	
Level of Service		C			C						B	
Approach Delay (s)		21.0			20.3			0.0			10.8	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	12.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	46	0	0	39	12	53	683	23	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0			1.0				
Lane Util. Factor		1.00			1.00			0.91				
Frpb, ped/bikes		1.00			0.93			0.98				
Flpb, ped/bikes		0.93			1.00			0.96				
Frt		1.00			0.97			1.00				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1618			1582			4499				
Flt Permitted		0.95			1.00			1.00				
Satd. Flow (perm)		1550			1582			4499				
Peak-hour factor, PHF	0.93	0.93	0.93	0.87	0.87	0.87	0.87	0.87	0.87	0.95	0.95	0.95
Adj. Flow (vph)	17	49	0	0	45	14	61	785	26	0	0	0
RTOR Reduction (vph)	0	0	0	0	9	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	66	0	0	50	0	0	868	0	0	0	0
Confl. Peds. (#/hr)	239					239	470		301			
Confl. Bikes (#/hr)						13			35			
Turn Type	Perm						Perm					
Protected Phases		6			6			8				
Permitted Phases	6						8					
Actuated Green, G (s)		31.0			31.0			51.0				
Effective Green, g (s)		32.0			32.0			54.0				
Actuated g/C Ratio		0.36			0.36			0.60				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		551			562			2699				
v/s Ratio Prot					0.03							
v/s Ratio Perm		c0.04						0.19				
v/c Ratio		0.12			0.09			0.32				
Uniform Delay, d1		19.5			19.3			8.9				
Progression Factor		0.65			1.00			0.37				
Incremental Delay, d2		0.4			0.3			0.3				
Delay (s)		13.2			19.6			3.6				
Level of Service		B			B			A				
Approach Delay (s)		13.2			19.6			3.6			0.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	5.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	32	23	92	9	53	9	91	701	14	11	730	86
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	*0.75	
Frpb, ped/bikes		0.91			0.98		1.00	0.99		1.00	0.92	
Flpb, ped/bikes		0.98			0.99		0.89	1.00		0.93	1.00	
Frt		0.92			0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1286			1512		1490	3324		1564	2281	
Flt Permitted		0.93			0.96		0.17	1.00		0.30	1.00	
Satd. Flow (perm)		1208			1466		260	3324		497	2281	
Peak-hour factor, PHF	0.86	0.86	0.86	0.69	0.69	0.69	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	37	27	107	13	77	13	97	746	15	12	802	95
RTOR Reduction (vph)	0	3	0	0	6	0	0	1	0	0	8	0
Lane Group Flow (vph)	0	168	0	0	97	0	97	760	0	12	889	0
Confl. Peds. (#/hr)	126		124	124		126	658		101	101		658
Confl. Bikes (#/hr)			48			16			30			28
Parking (#/hr)		0	0		0	0					0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		31.5			31.5		48.5	48.5		48.5	48.5	
Effective Green, g (s)		34.0			34.0		50.0	50.0		50.0	50.0	
Actuated g/C Ratio		0.38			0.38		0.56	0.56		0.56	0.56	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		456			554		144	1847		276	1267	
v/s Ratio Prot								0.23			c0.39	
v/s Ratio Perm		c0.14			0.07		0.37			0.02		
v/c Ratio		0.37			0.18		0.67	0.41		0.04	0.70	
Uniform Delay, d1		20.2			18.7		14.2	11.5		9.1	14.6	
Progression Factor		1.00			1.00		0.74	0.22		0.69	0.61	
Incremental Delay, d2		2.3			0.7		20.0	0.6		0.3	3.1	
Delay (s)		22.5			19.4		30.4	3.1		6.6	12.0	
Level of Service		C			B		C	A		A	B	
Approach Delay (s)		22.5			19.4			6.2			11.9	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	82.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	24	50	14	45	13	49	775	55	17	772	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.92			0.98		1.00	0.96		1.00	0.97	
Flpb, ped/bikes		0.98			0.98		0.92	1.00		0.89	1.00	
Frt		0.93			0.98		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1469			1632		1540	3193		1495	3232	
Flt Permitted		0.93			0.94		0.24	1.00		0.24	1.00	
Satd. Flow (perm)		1388			1555		383	3193		384	3232	
Peak-hour factor, PHF	0.93	0.93	0.93	0.57	0.57	0.57	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	23	26	54	25	79	23	52	824	59	19	848	55
RTOR Reduction (vph)	0	32	0	0	9	0	0	6	0	0	5	0
Lane Group Flow (vph)	0	71	0	0	118	0	52	877	0	19	898	0
Confl. Peds. (#/hr)	120		154	154		120	172		288	288		172
Confl. Bikes (#/hr)			9			6			45			16
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		33.5			33.5		46.5	46.5		46.5	46.5	
Effective Green, g (s)		36.0			36.0		48.0	48.0		48.0	48.0	
Actuated g/C Ratio		0.40			0.40		0.53	0.53		0.53	0.53	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		555			622		204	1703		205	1724	
v/s Ratio Prot								0.27			c0.28	
v/s Ratio Perm		0.05			c0.08		0.14			0.05		
v/c Ratio		0.13			0.19		0.25	0.52		0.09	0.52	
Uniform Delay, d1		17.1			17.5		11.3	13.5		10.3	13.6	
Progression Factor		1.00			1.00		0.11	0.08		0.56	0.47	
Incremental Delay, d2		0.5			0.7		2.7	1.0		0.7	0.8	
Delay (s)		17.6			18.2		4.0	2.2		6.4	7.2	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		17.6			18.2			2.3			7.2	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	86	62	40	58	28	827	0	1	812	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)			3.0	3.0	3.0		3.0	3.0			3.0	
Lane Util. Factor			1.00	1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes			0.93	1.00	0.97		1.00	1.00			0.99	
Flpb, ped/bikes			1.00	0.95	1.00		0.96	1.00			1.00	
Frt			0.86	1.00	0.91		1.00	1.00			1.00	
Flt Protected			1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)			1424	1584	1554		1603	3353			3321	
Flt Permitted			1.00	0.95	1.00		0.24	1.00			0.95	
Satd. Flow (perm)			1424	1584	1554		398	3353			3170	
Peak-hour factor, PHF	0.65	0.65	0.65	0.82	0.82	0.82	0.95	0.95	0.95	0.91	0.91	0.91
Adj. Flow (vph)	0	0	132	76	49	71	29	871	0	1	892	21
RTOR Reduction (vph)	0	0	47	0	43	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	85	76	77	0	29	871	0	0	912	0
Confl. Peds. (#/hr)			59	59		49	94					94
Confl. Bikes (#/hr)			3			1						30
Turn Type			custom	Perm			Perm			Perm		
Protected Phases					6			8			8	
Permitted Phases			6	6			8			8		
Actuated Green, G (s)			32.5	32.5	32.5		47.5	47.5			47.5	
Effective Green, g (s)			35.0	35.0	35.0		49.0	49.0			49.0	
Actuated g/C Ratio			0.39	0.39	0.39		0.54	0.54			0.54	
Clearance Time (s)			5.5	5.5	5.5		4.5	4.5			4.5	
Lane Grp Cap (vph)			554	616	604		217	1826			1726	
v/s Ratio Prot					0.05			0.26				
v/s Ratio Perm			c0.06	0.05			0.07				c0.29	
v/c Ratio			0.15	0.12	0.13		0.13	0.48			0.53	
Uniform Delay, d1			17.9	17.7	17.7		10.1	12.6			13.1	
Progression Factor			1.00	1.00	1.00		0.12	0.23			0.40	
Incremental Delay, d2			0.6	0.4	0.4		0.7	0.5			1.0	
Delay (s)			18.5	18.1	18.1		1.9	3.4			6.3	
Level of Service			B	B	B		A	A			A	
Approach Delay (s)		18.5			18.1			3.3			6.3	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	6.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	40	31	0	0	0	34	864	193	92	828	33
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0					2.5	2.5		3.0	3.0	
Lane Util. Factor		0.95					1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.98					1.00	0.96		1.00	0.99	
Flpb, ped/bikes		1.00					0.91	1.00		1.00	1.00	
Frt		0.94					1.00	0.97		1.00	0.99	
Flt Protected		1.00					0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3066					1525	3133		1676	3290	
Flt Permitted		1.00					0.31	1.00		0.10	1.00	
Satd. Flow (perm)		3066					503	3133		170	3290	
Peak-hour factor, PHF	0.52	0.52	0.52	0.95	0.95	0.95	0.89	0.89	0.89	0.98	0.98	0.98
Adj. Flow (vph)	13	77	60	0	0	0	38	971	217	94	845	34
RTOR Reduction (vph)	0	37	0	0	0	0	0	21	0	0	3	0
Lane Group Flow (vph)	0	113	0	0	0	0	38	1167	0	94	876	0
Confl. Peds. (#/hr)	21		52				147		155	155		147
Confl. Bikes (#/hr)			5						21			25
Turn Type	Split						Perm			pm+pt		
Protected Phases	6	6						8		7	4	
Permitted Phases							8			4		
Actuated Green, G (s)		32.5					37.5	37.5		47.5	47.5	
Effective Green, g (s)		35.0					39.5	39.5		48.5	49.0	
Actuated g/C Ratio		0.39					0.44	0.44		0.54	0.54	
Clearance Time (s)		5.5					4.5	4.5		4.0	4.5	
Lane Grp Cap (vph)		1192					221	1375		209	1791	
v/s Ratio Prot		c0.04						c0.37		0.04	c0.27	
v/s Ratio Perm							0.08			0.21		
v/c Ratio		0.10					0.17	0.85		0.45	0.49	
Uniform Delay, d1		17.5					15.3	22.6		15.3	12.7	
Progression Factor		1.00					1.00	1.00		1.85	1.45	
Incremental Delay, d2		0.2					1.7	6.7		6.2	0.9	
Delay (s)		17.6					17.0	29.3		34.5	19.4	
Level of Service		B					B	C		C	B	
Approach Delay (s)		17.6			0.0			28.9			20.8	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM Average Control Delay	24.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	17	40	28	348	742	43
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	43	30	378	807	47
Pedestrians	88				71	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	7				6	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1239	515	941			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1239	515	941			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	91	95			
cM capacity (veh/h)	139	468	671			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	62	157	252	538	316
Volume Left	18	30	0	0	0
Volume Right	43	0	0	0	47
cSH	275	671	1700	1700	1700
Volume to Capacity	0.23	0.05	0.15	0.32	0.19
Queue Length 95th (ft)	21	4	0	0	0
Control Delay (s)	21.9	2.5	0.0	0.0	0.0
Lane LOS	C	A			
Approach Delay (s)	21.9	1.0		0.0	
Approach LOS	C				

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix B: Synchro Reports

Existing (Year 2013) No Project – PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	55	27	63	96	90	67	992	94	69	647	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.81		1.00	0.82	1.00	0.99		1.00	0.99	
Flpb, ped/bikes		0.95	1.00		0.95	1.00	0.95	1.00		0.98	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1647	1211		1639	1226	1597	3262		1643	3273	
Flt Permitted		0.83	1.00		0.84	1.00	0.33	1.00		0.20	1.00	
Satd. Flow (perm)		1389	1211		1409	1226	554	3262		343	3273	
Peak-hour factor, PHF	0.82	0.82	0.82	0.85	0.85	0.85	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	49	67	33	74	113	106	71	1055	100	76	711	55
RTOR Reduction (vph)	0	0	25	0	0	65	0	6	0	0	5	0
Lane Group Flow (vph)	0	116	8	0	187	41	71	1149	0	76	761	0
Confl. Peds. (#/hr)	147		149	149		147	70		62	62		70
Confl. Bikes (#/hr)			32			20			19			16
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6		6	8			8		
Actuated Green, G (s)		22.7	22.7		22.7	22.7	63.3	63.3		63.3	63.3	
Effective Green, g (s)		24.2	24.2		24.2	24.2	64.8	64.8		64.8	64.8	
Actuated g/C Ratio		0.25	0.25		0.25	0.25	0.68	0.68		0.68	0.68	
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		354	308		359	312	378	2225		234	2233	
v/s Ratio Prot								c0.35			0.23	
v/s Ratio Perm		0.08	0.01		c0.13	0.03	0.13			0.22		
v/c Ratio		0.33	0.03		0.52	0.13	0.19	0.52		0.32	0.34	
Uniform Delay, d1		28.8	26.6		30.4	27.3	5.5	7.4		6.2	6.3	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0		0.6	0.1	1.1	0.9		3.7	0.4	
Delay (s)		29.0	26.6		31.0	27.4	6.6	8.3		9.8	6.7	
Level of Service		C	C		C	C	A	A		A	A	
Approach Delay (s)		28.5			29.7			8.2			7.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	76	45	41	112	62	34	227	70	42	188	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.59		0.92			0.94			0.96	
Flpb, ped/bikes		0.97	1.00		0.94			0.99			0.98	
Frt		1.00	0.85		0.96			0.97			0.98	
Flt Protected		0.99	1.00		0.99			0.99			0.99	
Satd. Flow (prot)		1686	886		1306			1580			1617	
Flt Permitted		0.92	1.00		0.93			0.95			0.90	
Satd. Flow (perm)		1565	886		1233			1502			1467	
Peak-hour factor, PHF	0.81	0.81	0.81	0.95	0.95	0.95	0.74	0.74	0.74	0.90	0.90	0.90
Adj. Flow (vph)	27	94	56	43	118	65	46	307	95	47	209	51
RTOR Reduction (vph)	0	0	35	0	21	0	0	14	0	0	10	0
Lane Group Flow (vph)	0	121	21	0	205	0	0	434	0	0	297	0
Confl. Peds. (#/hr)	147		233	233		147	112		156	156		112
Confl. Bikes (#/hr)			14			19			49			55
Parking (#/hr)					0	0						
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		24.8	24.8		24.8			36.8			36.8	
Effective Green, g (s)		26.0	26.0		26.0			38.0			38.0	
Actuated g/C Ratio		0.37	0.37		0.37			0.54			0.54	
Clearance Time (s)		4.2	4.2		4.2			4.2			4.2	
Lane Grp Cap (vph)		581	329		458			815			796	
v/s Ratio Prot												
v/s Ratio Perm		0.08	0.02		c0.17			c0.29			0.20	
v/c Ratio		0.21	0.06		0.45			0.53			0.37	
Uniform Delay, d1		15.0	14.2		16.6			10.3			9.2	
Progression Factor		1.00	1.00		1.00			0.78			1.00	
Incremental Delay, d2		0.8	0.4		3.2			2.2			1.3	
Delay (s)		15.8	14.5		19.7			10.3			10.5	
Level of Service		B	B		B			B			B	
Approach Delay (s)		15.4			19.7			10.3			10.5	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	13.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	82	83	20	106	59	76	265	25	28	206	61
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.59		0.85			0.97			0.94	
Flpb, ped/bikes		0.90	1.00		0.97			0.97			0.99	
Frt		1.00	0.85		0.96			0.99			0.97	
Flt Protected		0.98	1.00		0.99			0.99			1.00	
Satd. Flow (prot)		1570	887		1244			1475			1580	
Flt Permitted		0.86	1.00		0.97			0.88			0.95	
Satd. Flow (perm)		1379	887		1209			1305			1505	
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.89	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	49	96	98	22	116	65	85	298	28	30	224	66
RTOR Reduction (vph)	0	0	63	0	24	0	0	4	0	0	13	0
Lane Group Flow (vph)	0	145	35	0	179	0	0	407	0	0	307	0
Confl. Peds. (#/hr)	260		231	231		260	133		182	182		133
Confl. Bikes (#/hr)			18			31			58			71
Parking (#/hr)					0	0		0	0			
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		23.7	23.7		23.7			37.7			37.7	
Effective Green, g (s)		25.0	25.0		25.0			39.0			39.0	
Actuated g/C Ratio		0.36	0.36		0.36			0.56			0.56	
Clearance Time (s)		4.3	4.3		4.3			4.3			4.3	
Lane Grp Cap (vph)		493	317		432			727			839	
v/s Ratio Prot												
v/s Ratio Perm		0.11	0.04		c0.15			c0.31			0.20	
v/c Ratio		0.29	0.11		0.41			0.56			0.37	
Uniform Delay, d1		16.2	15.1		17.0			10.0			8.6	
Progression Factor		1.00	1.00		1.00			1.00			0.77	
Incremental Delay, d2		1.5	0.7		2.9			3.1			1.2	
Delay (s)		17.7	15.8		19.9			13.1			7.8	
Level of Service		B	B		B			B			A	
Approach Delay (s)		16.9			19.9			13.1			7.8	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	50	94	263	42	57	257
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	102	286	46	62	279

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	157	332	341
Volume Left (vph)	54	0	62
Volume Right (vph)	102	46	0
Hadj (s)	-0.29	-0.05	0.07
Departure Headway (s)	5.2	4.7	4.8
Degree Utilization, x	0.22	0.43	0.46
Capacity (veh/h)	624	737	721
Control Delay (s)	9.7	11.2	11.8
Approach Delay (s)	9.7	11.2	11.8
Approach LOS	A	B	B

Intersection Summary			
Delay	11.2		
HCM Level of Service	B		
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	53	94	52	60	0	0	0	0	25	632	83
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0						3.0	
Lane Util. Factor		1.00			1.00						*0.85	
Frpb, ped/bikes		0.65			1.00						0.90	
Flpb, ped/bikes		1.00			0.81						0.98	
Frt		0.91			1.00						0.98	
Flt Protected		1.00			0.98						1.00	
Satd. Flow (prot)		950			1256						3762	
Flt Permitted		1.00			0.82						1.00	
Satd. Flow (perm)		950			1058						3762	
Peak-hour factor, PHF	0.92	0.92	0.92	0.79	0.79	0.79	0.95	0.95	0.95	0.96	0.96	0.96
Adj. Flow (vph)	0	58	102	66	76	0	0	0	0	26	658	86
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	15	0
Lane Group Flow (vph)	0	159	0	0	142	0	0	0	0	0	755	0
Confl. Peds. (#/hr)			1210	1210		435				439		924
Confl. Bikes (#/hr)			12									39
Parking (#/hr)		0	0	0	0						0	0
Turn Type				Perm						Perm		
Protected Phases		2			2						4	
Permitted Phases				2						4		
Actuated Green, G (s)		42.0			42.0						45.0	
Effective Green, g (s)		43.0			43.0						46.0	
Actuated g/C Ratio		0.45			0.45						0.48	
Clearance Time (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		430			479						1822	
v/s Ratio Prot		c0.17										
v/s Ratio Perm					0.13						0.20	
v/c Ratio		0.37			0.30						0.41	
Uniform Delay, d1		17.1			16.4						15.8	
Progression Factor		1.00			0.69						1.00	
Incremental Delay, d2		2.4			1.5						0.7	
Delay (s)		19.5			12.9						16.5	
Level of Service		B			B						B	
Approach Delay (s)		19.5			12.9			0.0			16.5	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	16.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	53	0	0	77	22	35	867	94	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0			3.0				
Lane Util. Factor		1.00			1.00			0.91				
Frpb, ped/bikes		1.00			0.92			0.94				
Flpb, ped/bikes		0.91			1.00			0.97				
Frt		1.00			0.97			0.99				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1575			1571			4334				
Flt Permitted		0.91			1.00			1.00				
Satd. Flow (perm)		1457			1571			4334				
Peak-hour factor, PHF	0.92	0.92	0.92	0.79	0.79	0.79	0.96	0.96	0.96	0.95	0.95	0.95
Adj. Flow (vph)	27	58	0	0	97	28	36	903	98	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	13	0	0	0	0
Lane Group Flow (vph)	0	85	0	0	122	0	0	1024	0	0	0	0
Confl. Peds. (#/hr)	435					435	924		439			
Confl. Bikes (#/hr)						10			4			
Turn Type	Perm						Perm					
Protected Phases		6			6			8				
Permitted Phases	6						8					
Actuated Green, G (s)		42.0			42.0			45.0				
Effective Green, g (s)		43.0			43.0			46.0				
Actuated g/C Ratio		0.45			0.45			0.48				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		659			711			2099				
v/s Ratio Prot					c0.08							
v/s Ratio Perm		0.06						0.24				
v/c Ratio		0.13			0.17			0.49				
Uniform Delay, d1		15.1			15.4			16.5				
Progression Factor		0.71			1.00			0.26				
Incremental Delay, d2		0.4			0.5			0.7				
Delay (s)		11.2			15.9			5.0				
Level of Service		B			B			A				
Approach Delay (s)		11.2			15.9			5.0			0.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	6.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥		↰	↑↱		↰	↑↱	
Volume (vph)	43	19	95	15	23	27	50	930	48	18	683	65
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	*0.75	
Frpb, ped/bikes		0.89			0.92		1.00	0.99		1.00	0.92	
Flpb, ped/bikes		0.96			0.98		0.83	1.00		0.99	1.00	
Frt		0.92			0.94		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1229			1324		1386	3305		1654	2286	
Flt Permitted		0.91			0.93		0.20	1.00		0.18	1.00	
Satd. Flow (perm)		1134			1243		296	3305		315	2286	
Peak-hour factor, PHF	0.81	0.81	0.81	0.88	0.88	0.88	0.90	0.90	0.90	0.93	0.93	0.93
Adj. Flow (vph)	53	23	117	17	26	31	56	1033	53	19	734	70
RTOR Reduction (vph)	0	0	0	0	19	0	0	4	0	0	6	0
Lane Group Flow (vph)	0	193	0	0	55	0	56	1082	0	19	798	0
Confl. Peds. (#/hr)	196		172	172		196	1277		42	42		1277
Confl. Bikes (#/hr)			21			27			24			49
Parking (#/hr)		0	0		0	0					0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		33.5			33.5		51.5	51.5		51.5	51.5	
Effective Green, g (s)		36.0			36.0		53.0	53.0		53.0	53.0	
Actuated g/C Ratio		0.38			0.38		0.56	0.56		0.56	0.56	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		430			471		165	1844		176	1275	
v/s Ratio Prot								0.33			c0.35	
v/s Ratio Perm		c0.17			0.04		0.19			0.06		
v/c Ratio		0.45			0.12		0.34	0.59		0.11	0.63	
Uniform Delay, d1		22.1			19.2		11.5	13.8		9.9	14.3	
Progression Factor		1.00			1.00		0.21	0.18		0.81	0.73	
Incremental Delay, d2		3.4			0.5		4.7	1.2		1.2	2.3	
Delay (s)		25.4			19.7		7.1	3.6		9.2	12.7	
Level of Service		C			B		A	A		A	B	
Approach Delay (s)		25.4			19.7			3.8			12.6	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	20	52	29	22	22	45	977	38	8	742	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.89			0.94		1.00	0.98		1.00	0.96	
Flpb, ped/bikes		0.97			0.95		0.86	1.00		0.93	1.00	
Frt		0.92			0.96		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1395			1469		1450	3258		1551	3181	
Flt Permitted		0.95			0.88		0.26	1.00		0.19	1.00	
Satd. Flow (perm)		1338			1324		396	3258		305	3181	
Peak-hour factor, PHF	0.89	0.89	0.89	0.83	0.83	0.83	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	19	22	58	35	27	27	48	1039	40	9	815	55
RTOR Reduction (vph)	0	9	0	0	9	0	0	3	0	0	5	0
Lane Group Flow (vph)	0	90	0	0	80	0	48	1076	0	9	865	0
Confl. Peds. (#/hr)	211		181	181		211	477		378	378		477
Confl. Bikes (#/hr)			11			24			47			32
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		32.5			32.5		52.5	52.5		52.5	52.5	
Effective Green, g (s)		35.0			35.0		54.0	54.0		54.0	54.0	
Actuated g/C Ratio		0.37			0.37		0.57	0.57		0.57	0.57	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		493			488		225	1852		173	1808	
v/s Ratio Prot								c0.33			0.27	
v/s Ratio Perm		c0.07			0.06		0.12			0.03		
v/c Ratio		0.18			0.16		0.21	0.58		0.05	0.48	
Uniform Delay, d1		20.3			20.2		10.1	13.2		9.1	12.2	
Progression Factor		1.00			1.00		0.05	0.04		0.64	0.52	
Incremental Delay, d2		0.8			0.7		1.8	1.1		0.5	0.7	
Delay (s)		21.1			20.9		2.3	1.6		6.3	7.0	
Level of Service		C			C		A	A		A	A	
Approach Delay (s)		21.1			20.9			1.6			7.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	5.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	42	169	42	24	39	1032	10	4	820	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)			3.0	3.0	3.0		3.0	3.0			3.0	
Lane Util. Factor			1.00	1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes			0.84	1.00	0.97		1.00	1.00			0.98	
Flpb, ped/bikes			1.00	0.85	1.00		0.93	1.00			1.00	
Frt			0.86	1.00	0.95		1.00	1.00			0.99	
Flt Protected			1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)			1285	1433	1623		1553	3348			3284	
Flt Permitted			1.00	0.95	1.00		0.23	1.00			0.95	
Satd. Flow (perm)			1285	1433	1623		372	3348			3126	
Peak-hour factor, PHF	0.82	0.82	0.82	0.86	0.86	0.86	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	0	0	51	197	49	28	41	1098	11	4	911	32
RTOR Reduction (vph)	0	0	32	0	17	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	0	19	197	60	0	41	1108	0	0	944	0
Confl. Peds. (#/hr)			148	148		65	163					163
Confl. Bikes (#/hr)			8									26
Turn Type			custom	Perm			Perm			Perm		
Protected Phases					6			8			8	
Permitted Phases			6	6			8			8		
Actuated Green, G (s)			33.5	33.5	33.5		51.5	51.5			51.5	
Effective Green, g (s)			36.0	36.0	36.0		53.0	53.0			53.0	
Actuated g/C Ratio			0.38	0.38	0.38		0.56	0.56			0.56	
Clearance Time (s)			5.5	5.5	5.5		4.5	4.5			4.5	
Lane Grp Cap (vph)			487	543	615		208	1868			1744	
v/s Ratio Prot					0.04			c0.33				
v/s Ratio Perm			0.02	c0.14			0.11				0.30	
v/c Ratio			0.04	0.36	0.10		0.20	0.59			0.54	
Uniform Delay, d1			18.6	21.2	19.0		10.4	13.9			13.3	
Progression Factor			1.00	1.00	1.00		0.07	0.14			0.81	
Incremental Delay, d2			0.2	1.9	0.3		0.9	0.6			1.1	
Delay (s)			18.8	23.1	19.3		1.6	2.5			11.9	
Level of Service			B	C	B		A	A			B	
Approach Delay (s)		18.8			22.1			2.5			11.9	
Approach LOS		B			C			A			B	

Intersection Summary			
HCM Average Control Delay	8.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	37	36	0	0	0	25	1076	193	75	921	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0					2.5	2.5		3.0	3.0	
Lane Util. Factor		0.95					1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.96					1.00	0.95		1.00	0.98	
Flpb, ped/bikes		1.00					0.89	1.00		1.00	1.00	
Frt		0.94					1.00	0.98		1.00	0.99	
Flt Protected		0.99					0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2997					1488	3120		1676	3268	
Flt Permitted		0.99					0.25	1.00		0.09	1.00	
Satd. Flow (perm)		2997					391	3120		152	3268	
Peak-hour factor, PHF	0.80	0.80	0.80	0.95	0.95	0.95	0.94	0.94	0.94	0.93	0.93	0.93
Adj. Flow (vph)	18	46	45	0	0	0	27	1145	205	81	990	38
RTOR Reduction (vph)	0	16	0	0	0	0	0	15	0	0	3	0
Lane Group Flow (vph)	0	93	0	0	0	0	27	1335	0	81	1025	0
Confl. Peds. (#/hr)	58		92	92		58	277		238	238		277
Confl. Bikes (#/hr)			6						14			10
Turn Type	Split						Perm			pm+pt		
Protected Phases	6	6						8		7	4	
Permitted Phases							8			4		
Actuated Green, G (s)		32.5					42.5	42.5		52.5	52.5	
Effective Green, g (s)		35.0					44.5	44.5		53.5	54.0	
Actuated g/C Ratio		0.37					0.47	0.47		0.56	0.57	
Clearance Time (s)		5.5					4.5	4.5		4.0	4.5	
Lane Grp Cap (vph)		1104					183	1461		198	1858	
v/s Ratio Prot		c0.03						c0.43		0.03	c0.31	
v/s Ratio Perm							0.07			0.20		
v/c Ratio		0.08					0.15	0.91		0.41	0.55	
Uniform Delay, d1		19.6					14.4	23.5		16.4	12.9	
Progression Factor		1.00					1.00	1.00		1.91	1.14	
Incremental Delay, d2		0.1					1.7	10.3		5.5	1.0	
Delay (s)		19.7					16.1	33.7		36.9	15.7	
Level of Service		B					B	C		D	B	
Approach Delay (s)		19.7			0.0			33.4			17.3	
Approach LOS		B			A			C			B	

Intersection Summary			
HCM Average Control Delay	25.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	20	68	17	524	739	67
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	74	18	570	803	73
Pedestrians	202				126	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	17				10	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1489	640	1078			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1489	640	1078			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	74	79	97			
cM capacity (veh/h)	82	348	534			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	96	208	380	536	341
Volume Left	22	18	0	0	0
Volume Right	74	0	0	0	73
cSH	201	534	1700	1700	1700
Volume to Capacity	0.48	0.03	0.22	0.32	0.20
Queue Length 95th (ft)	58	3	0	0	0
Control Delay (s)	38.3	1.5	0.0	0.0	0.0
Lane LOS	E	A			
Approach Delay (s)	38.3	0.5		0.0	
Approach LOS	E				

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix B: Synchro Reports

Existing (Year 2013) With Project – AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	43	73	31	57	57	60	62	678	107	65	647	47
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.81		1.00	0.69	1.00	0.96		1.00	0.98	
Flpb, ped/bikes		0.93	1.00		0.93	1.00	0.92	1.00		0.94	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.98	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1610	1221		1607	1037	1536	3162		1574	3259	
Flt Permitted		0.82	1.00		0.73	1.00	0.35	1.00		0.28	1.00	
Satd. Flow (perm)		1337	1221		1202	1037	569	3162		469	3259	
Peak-hour factor, PHF	0.81	0.81	0.81	0.70	0.70	0.70	0.86	0.86	0.86	0.95	0.95	0.95
Adj. Flow (vph)	53	90	38	81	81	86	72	788	124	68	681	49
RTOR Reduction (vph)	0	0	30	0	0	68	0	9	0	0	4	0
Lane Group Flow (vph)	0	143	8	0	162	18	72	903	0	68	726	0
Confl. Peds. (#/hr)	250		166	166		250	119		119	119		119
Confl. Bikes (#/hr)			7			72			9			5
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6		6	8			8		
Actuated Green, G (s)		17.7	17.7		17.7	17.7	63.3	63.3		63.3	63.3	
Effective Green, g (s)		19.2	19.2		19.2	19.2	64.8	64.8		64.8	64.8	
Actuated g/C Ratio		0.21	0.21		0.21	0.21	0.72	0.72		0.72	0.72	
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		285	260		256	221	410	2277		338	2346	
v/s Ratio Prot								c0.29			0.22	
v/s Ratio Perm		0.11	0.01		c0.13	0.02	0.13			0.15		
v/c Ratio		0.50	0.03		0.63	0.08	0.18	0.40		0.20	0.31	
Uniform Delay, d1		31.2	28.0		32.2	28.4	4.0	4.9		4.1	4.5	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5	0.0		3.7	0.1	0.9	0.5		1.3	0.3	
Delay (s)		31.7	28.1		35.9	28.4	5.0	5.5		5.5	4.9	
Level of Service		C	C		D	C	A	A		A	A	
Approach Delay (s)		30.9			33.3			5.4			4.9	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	77	31	15	42	16	33	172	46	51	175	31
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.75		0.95			0.96			0.97	
Flpb, ped/bikes		0.97	1.00		0.96			0.99			0.98	
Frt		1.00	0.85		0.97			0.98			0.98	
Flt Protected		0.99	1.00		0.99			0.99			0.99	
Satd. Flow (prot)		1708	1128		1390			1620			1640	
Flt Permitted		0.97	1.00		0.95			0.93			0.89	
Satd. Flow (perm)		1667	1128		1334			1522			1476	
Peak-hour factor, PHF	0.75	0.75	0.75	0.88	0.88	0.88	0.80	0.80	0.80	0.78	0.78	0.78
Adj. Flow (vph)	16	103	41	17	48	18	41	215	58	65	224	40
RTOR Reduction (vph)	0	0	25	0	11	0	0	12	0	0	8	0
Lane Group Flow (vph)	0	119	16	0	72	0	0	302	0	0	321	0
Confl. Peds. (#/hr)	143		145	145		143	112		118	118		112
Confl. Bikes (#/hr)			11			4			33			39
Parking (#/hr)					0	0						
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		23.8	23.8		23.8			32.8			32.8	
Effective Green, g (s)		25.0	25.0		25.0			34.0			34.0	
Actuated g/C Ratio		0.38	0.38		0.38			0.52			0.52	
Clearance Time (s)		4.2	4.2		4.2			4.2			4.2	
Lane Grp Cap (vph)		641	434		513			796			772	
v/s Ratio Prot												
v/s Ratio Perm		c0.07	0.01		0.05			0.20			c0.22	
v/c Ratio		0.19	0.04		0.14			0.38			0.42	
Uniform Delay, d1		13.3	12.5		13.0			9.2			9.5	
Progression Factor		1.00	1.00		1.00			0.82			1.00	
Incremental Delay, d2		0.6	0.2		0.6			1.3			1.7	
Delay (s)		13.9	12.6		13.6			8.8			11.1	
Level of Service		B	B		B			A			B	
Approach Delay (s)		13.6			13.6			8.8			11.1	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	119	71	14	64	47	66	162	19	30	127	63
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.47		0.82			0.97			0.84	
Flpb, ped/bikes		0.89	1.00		0.96			0.91			0.98	
Frt		1.00	0.85		0.95			0.99			0.96	
Flt Protected		0.98	1.00		0.99			0.99			0.99	
Satd. Flow (prot)		1543	704		1172			1381			1386	
Flt Permitted		0.88	1.00		0.96			0.86			0.94	
Satd. Flow (perm)		1374	704		1136			1207			1305	
Peak-hour factor, PHF	0.95	0.95	0.95	0.79	0.79	0.79	0.80	0.80	0.80	0.82	0.82	0.82
Adj. Flow (vph)	59	125	75	18	81	59	82	202	24	37	155	77
RTOR Reduction (vph)	0	0	47	0	33	0	0	5	0	0	22	0
Lane Group Flow (vph)	0	184	28	0	125	0	0	303	0	0	247	0
Confl. Peds. (#/hr)	308		373	373		308	375		178	178		375
Confl. Bikes (#/hr)			11			4			33			39
Parking (#/hr)					0	0		0	0			
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		22.7	22.7		22.7			33.7			33.7	
Effective Green, g (s)		24.0	24.0		24.0			35.0			35.0	
Actuated g/C Ratio		0.37	0.37		0.37			0.54			0.54	
Clearance Time (s)		4.3	4.3		4.3			4.3			4.3	
Lane Grp Cap (vph)		507	260		419			650			703	
v/s Ratio Prot												
v/s Ratio Perm		c0.13	0.04		0.11			c0.25			0.19	
v/c Ratio		0.36	0.11		0.30			0.47			0.35	
Uniform Delay, d1		14.9	13.5		14.5			9.2			8.5	
Progression Factor		1.00	1.00		1.00			1.00			0.57	
Incremental Delay, d2		2.0	0.8		1.8			2.4			1.3	
Delay (s)		16.9	14.3		16.4			11.6			6.2	
Level of Service		B	B		B			B			A	
Approach Delay (s)		16.2			16.4			11.6			6.2	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	71	92	149	58	56	160
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	77	100	162	63	61	174

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	177	225	235
Volume Left (vph)	77	0	61
Volume Right (vph)	100	63	0
Hadj (s)	-0.22	-0.13	0.09
Departure Headway (s)	4.7	4.5	4.7
Degree Utilization, x	0.23	0.28	0.31
Capacity (veh/h)	697	763	729
Control Delay (s)	9.2	9.3	9.8
Approach Delay (s)	9.2	9.3	9.8
Approach LOS	A	A	A

Intersection Summary			
Delay	9.4		
HCM Level of Service	A		
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	46	41	26	65	0	0	0	0	18	792	51
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			1.0						3.0	
Lane Util. Factor		1.00			1.00						*0.85	
Frpb, ped/bikes		0.82			1.00						0.96	
Flpb, ped/bikes		1.00			0.91						0.99	
Frt		0.94			1.00						0.99	
Flt Protected		1.00			0.99						1.00	
Satd. Flow (prot)		1213			1418						4095	
Flt Permitted		1.00			0.92						1.00	
Satd. Flow (perm)		1213			1330						4095	
Peak-hour factor, PHF	0.93	0.93	0.93	0.87	0.87	0.87	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	0	49	44	30	75	0	0	0	0	19	843	54
RTOR Reduction (vph)	0	10	0	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	83	0	0	105	0	0	0	0	0	909	0
Confl. Peds. (#/hr)			507	507						301		470
Confl. Bikes (#/hr)			36									21
Parking (#/hr)		0	0	0	0						0	0
Turn Type				Perm						Perm		
Protected Phases		2			2						4	
Permitted Phases				2						4		
Actuated Green, G (s)		31.0			31.0						51.0	
Effective Green, g (s)		32.0			34.0						52.0	
Actuated g/C Ratio		0.36			0.38						0.58	
Clearance Time (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		431			502						2366	
v/s Ratio Prot		0.07										
v/s Ratio Perm					c0.08						0.22	
v/c Ratio		0.19			0.21						0.38	
Uniform Delay, d1		20.1			18.9						10.3	
Progression Factor		1.00			1.04						1.00	
Incremental Delay, d2		1.0			0.9						0.5	
Delay (s)		21.1			20.7						10.8	
Level of Service		C			C						B	
Approach Delay (s)		21.1			20.7			0.0			10.8	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	12.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	47	0	0	38	12	53	685	23	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0			1.0				
Lane Util. Factor		1.00			1.00			0.91				
Frpb, ped/bikes		1.00			0.92			0.98				
Flpb, ped/bikes		0.93			1.00			0.96				
Frt		1.00			0.97			1.00				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1616			1579			4500				
Flt Permitted		0.94			1.00			1.00				
Satd. Flow (perm)		1545			1579			4500				
Peak-hour factor, PHF	0.93	0.93	0.93	0.87	0.87	0.87	0.87	0.87	0.87	0.95	0.95	0.95
Adj. Flow (vph)	18	51	0	0	44	14	61	787	26	0	0	0
RTOR Reduction (vph)	0	0	0	0	9	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	69	0	0	49	0	0	870	0	0	0	0
Confl. Peds. (#/hr)	239					239	470		301			
Confl. Bikes (#/hr)						13			35			
Turn Type	Perm						Perm					
Protected Phases		6			6			8				
Permitted Phases	6						8					
Actuated Green, G (s)		31.0			31.0			51.0				
Effective Green, g (s)		32.0			32.0			54.0				
Actuated g/C Ratio		0.36			0.36			0.60				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		549			561			2700				
v/s Ratio Prot					0.03							
v/s Ratio Perm		c0.04						0.19				
v/c Ratio		0.13			0.09			0.32				
Uniform Delay, d1		19.6			19.3			8.9				
Progression Factor		0.65			1.00			0.38				
Incremental Delay, d2		0.5			0.3			0.3				
Delay (s)		13.1			19.6			3.7				
Level of Service		B			B			A				
Approach Delay (s)		13.1			19.6			3.7			0.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	5.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	24	91	9	52	9	87	703	15	11	731	83
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	*0.75	
Frpb, ped/bikes		0.91			0.98		1.00	0.99		1.00	0.92	
Flpb, ped/bikes		0.98			0.99		0.89	1.00		0.93	1.00	
Frt		0.92			0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1290			1510		1488	3323		1565	2290	
Flt Permitted		0.92			0.96		0.17	1.00		0.30	1.00	
Satd. Flow (perm)		1206			1463		261	3323		495	2290	
Peak-hour factor, PHF	0.86	0.86	0.86	0.69	0.69	0.69	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	40	28	106	13	75	13	93	748	16	12	803	91
RTOR Reduction (vph)	0	3	0	0	6	0	0	2	0	0	7	0
Lane Group Flow (vph)	0	171	0	0	95	0	93	762	0	12	887	0
Confl. Peds. (#/hr)	126		124	124		126	658		101	101		658
Confl. Bikes (#/hr)			48			16			30			28
Parking (#/hr)		0	0		0	0					0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		31.5			31.5		48.5	48.5		48.5	48.5	
Effective Green, g (s)		34.0			34.0		50.0	50.0		50.0	50.0	
Actuated g/C Ratio		0.38			0.38		0.56	0.56		0.56	0.56	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		456			553		145	1846		275	1272	
v/s Ratio Prot								0.23			c0.39	
v/s Ratio Perm		c0.14			0.07		0.36			0.02		
v/c Ratio		0.37			0.17		0.64	0.41		0.04	0.70	
Uniform Delay, d1		20.3			18.6		13.8	11.5		9.1	14.5	
Progression Factor		1.00			1.00		0.66	0.23		0.69	0.61	
Incremental Delay, d2		2.3			0.7		17.5	0.6		0.3	3.0	
Delay (s)		22.6			19.3		26.6	3.2		6.5	11.9	
Level of Service		C			B		C	A		A	B	
Approach Delay (s)		22.6			19.3			5.8			11.8	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	25	75	14	44	13	51	771	55	17	771	51
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.91			0.98		1.00	0.96		1.00	0.97	
Flpb, ped/bikes		0.98			0.98		0.92	1.00		0.89	1.00	
Frt		0.92			0.98		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1440			1633		1542	3193		1496	3229	
Flt Permitted		0.94			0.94		0.23	1.00		0.24	1.00	
Satd. Flow (perm)		1364			1547		377	3193		380	3229	
Peak-hour factor, PHF	0.93	0.93	0.93	0.57	0.57	0.57	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	27	27	81	25	77	23	54	820	59	19	847	56
RTOR Reduction (vph)	0	29	0	0	9	0	0	6	0	0	5	0
Lane Group Flow (vph)	0	106	0	0	116	0	54	873	0	19	898	0
Confl. Peds. (#/hr)	120		154	154		120	172		288	288		172
Confl. Bikes (#/hr)			9			6			45			16
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		34.5			34.5		45.5	45.5		45.5	45.5	
Effective Green, g (s)		37.0			37.0		47.0	47.0		47.0	47.0	
Actuated g/C Ratio		0.41			0.41		0.52	0.52		0.52	0.52	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		561			636		197	1667		198	1686	
v/s Ratio Prot								0.27			c0.28	
v/s Ratio Perm		c0.08			0.08		0.14			0.05		
v/c Ratio		0.19			0.18		0.27	0.52		0.10	0.53	
Uniform Delay, d1		16.9			16.9		12.0	14.1		10.8	14.2	
Progression Factor		1.00			1.00		0.11	0.08		0.55	0.46	
Incremental Delay, d2		0.7			0.6		3.1	1.1		0.7	0.9	
Delay (s)		17.7			17.5		4.4	2.3		6.7	7.4	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		17.7			17.5			2.4			7.4	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	6.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	87	62	40	57	28	825	0	1	836	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)			3.0	3.0	3.0		3.0	3.0			3.0	
Lane Util. Factor			1.00	1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes			0.93	1.00	0.97		1.00	1.00			0.99	
Flpb, ped/bikes			1.00	0.95	1.00		0.96	1.00			1.00	
Frt			0.86	1.00	0.91		1.00	1.00			1.00	
Flt Protected			1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)			1424	1584	1555		1606	3353			3322	
Flt Permitted			1.00	0.95	1.00		0.23	1.00			0.95	
Satd. Flow (perm)			1424	1584	1555		389	3353			3171	
Peak-hour factor, PHF	0.65	0.65	0.65	0.82	0.82	0.82	0.95	0.95	0.95	0.91	0.91	0.91
Adj. Flow (vph)	0	0	134	76	49	70	29	868	0	1	919	21
RTOR Reduction (vph)	0	0	47	0	44	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	87	76	75	0	29	868	0	0	939	0
Confl. Peds. (#/hr)			59	59		49	94					94
Confl. Bikes (#/hr)			3			1						30
Turn Type			custom	Perm			Perm			Perm		
Protected Phases					6			8			8	
Permitted Phases			6	6			8			8		
Actuated Green, G (s)			31.5	31.5	31.5		48.5	48.5			48.5	
Effective Green, g (s)			34.0	34.0	34.0		50.0	50.0			50.0	
Actuated g/C Ratio			0.38	0.38	0.38		0.56	0.56			0.56	
Clearance Time (s)			5.5	5.5	5.5		4.5	4.5			4.5	
Lane Grp Cap (vph)			538	598	587		216	1863			1762	
v/s Ratio Prot					0.05			0.26				
v/s Ratio Perm			c0.06	0.05			0.07				c0.30	
v/c Ratio			0.16	0.13	0.13		0.13	0.47			0.53	
Uniform Delay, d1			18.6	18.3	18.3		9.6	12.0			12.6	
Progression Factor			1.00	1.00	1.00		0.10	0.19			0.44	
Incremental Delay, d2			0.6	0.4	0.5		0.7	0.4			1.0	
Delay (s)			19.2	18.7	18.8		1.6	2.7			6.6	
Level of Service			B	B	B		A	A			A	
Approach Delay (s)		19.2			18.8			2.6			6.6	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	6.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	44	31	0	0	0	34	862	193	93	851	33
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0					2.5	2.5		3.0	3.0	
Lane Util. Factor		0.95					1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.98					1.00	0.96		1.00	0.99	
Flpb, ped/bikes		1.00					0.91	1.00		1.00	1.00	
Frt		0.94					1.00	0.97		1.00	0.99	
Flt Protected		1.00					0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3080					1532	3133		1676	3291	
Flt Permitted		1.00					0.30	1.00		0.10	1.00	
Satd. Flow (perm)		3080					488	3133		170	3291	
Peak-hour factor, PHF	0.52	0.52	0.52	0.95	0.95	0.95	0.89	0.89	0.89	0.98	0.98	0.98
Adj. Flow (vph)	13	85	60	0	0	0	38	969	217	95	868	34
RTOR Reduction (vph)	0	37	0	0	0	0	0	21	0	0	3	0
Lane Group Flow (vph)	0	121	0	0	0	0	38	1165	0	95	899	0
Confl. Peds. (#/hr)	21		52				147		155	155		147
Confl. Bikes (#/hr)			5						21			25
Turn Type	Split						Perm			pm+pt		
Protected Phases	6	6						8		7	4	
Permitted Phases							8			4		
Actuated Green, G (s)		32.5					37.5	37.5		47.5	47.5	
Effective Green, g (s)		35.0					39.5	39.5		48.5	49.0	
Actuated g/C Ratio		0.39					0.44	0.44		0.54	0.54	
Clearance Time (s)		5.5					4.5	4.5		4.0	4.5	
Lane Grp Cap (vph)		1198					214	1375		209	1792	
v/s Ratio Prot		c0.04						c0.37		0.04	c0.27	
v/s Ratio Perm							0.08			0.21		
v/c Ratio		0.10					0.18	0.85		0.45	0.50	
Uniform Delay, d1		17.5					15.4	22.6		15.3	12.8	
Progression Factor		1.00					1.00	1.00		1.84	1.51	
Incremental Delay, d2		0.2					1.8	6.6		6.3	0.9	
Delay (s)		17.7					17.2	29.2		34.4	20.3	
Level of Service		B					B	C		C	C	
Approach Delay (s)		17.7			0.0			28.8			21.7	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM Average Control Delay	25.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	18	40	28	349	741	42
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	43	30	379	805	46
Pedestrians	88				71	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	7				6	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1238	514	939			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1238	514	939			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	91	95			
cM capacity (veh/h)	140	469	672			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	63	157	253	537	314
Volume Left	20	30	0	0	0
Volume Right	43	0	0	0	46
cSH	271	672	1700	1700	1700
Volume to Capacity	0.23	0.05	0.15	0.32	0.18
Queue Length 95th (ft)	22	4	0	0	0
Control Delay (s)	22.3	2.5	0.0	0.0	0.0
Lane LOS	C	A			
Approach Delay (s)	22.3	0.9		0.0	
Approach LOS	C				

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	10	95	138	9	29	38
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	103	150	10	32	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			358			
pX, platoon unblocked						
vC, conflicting volume	160				280	155
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	160				280	155
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	95
cM capacity (veh/h)	1419				705	891

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	114	160	73
Volume Left	11	0	32
Volume Right	0	10	41
cSH	1419	1700	799
Volume to Capacity	0.01	0.09	0.09
Queue Length 95th (ft)	1	0	7
Control Delay (s)	0.8	0.0	10.0
Lane LOS	A		A
Approach Delay (s)	0.8	0.0	10.0
Approach LOS			A

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	24.9%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix B: Synchro Reports

Existing (Year 2013) With Project – PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	56	27	63	96	93	67	992	98	77	647	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.81		1.00	0.82	1.00	0.99		1.00	0.99	
Flpb, ped/bikes		0.95	1.00		0.95	1.00	0.95	1.00		0.98	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1648	1211		1639	1226	1597	3258		1643	3273	
Flt Permitted		0.83	1.00		0.84	1.00	0.33	1.00		0.20	1.00	
Satd. Flow (perm)		1392	1211		1408	1226	554	3258		342	3273	
Peak-hour factor, PHF	0.82	0.82	0.82	0.85	0.85	0.85	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	49	68	33	74	113	109	71	1055	104	85	711	55
RTOR Reduction (vph)	0	0	25	0	0	68	0	7	0	0	5	0
Lane Group Flow (vph)	0	117	8	0	187	41	71	1152	0	85	761	0
Confl. Peds. (#/hr)	147		149	149		147	70		62	62		70
Confl. Bikes (#/hr)			32			20			19			16
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6		6	8			8		
Actuated Green, G (s)		22.7	22.7		22.7	22.7	63.3	63.3		63.3	63.3	
Effective Green, g (s)		24.2	24.2		24.2	24.2	64.8	64.8		64.8	64.8	
Actuated g/C Ratio		0.25	0.25		0.25	0.25	0.68	0.68		0.68	0.68	
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		355	308		359	312	378	2222		233	2233	
v/s Ratio Prot								c0.35			0.23	
v/s Ratio Perm		0.08	0.01		c0.13	0.03	0.13			0.25		
v/c Ratio		0.33	0.03		0.52	0.13	0.19	0.52		0.36	0.34	
Uniform Delay, d1		28.8	26.6		30.4	27.3	5.5	7.4		6.4	6.3	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0		0.6	0.1	1.1	0.9		4.4	0.4	
Delay (s)		29.0	26.6		31.0	27.4	6.6	8.3		10.8	6.7	
Level of Service		C	C		C	C	A	A		B	A	
Approach Delay (s)		28.5			29.7			8.2			7.1	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	85.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	76	46	43	112	62	35	227	71	42	191	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.59		0.92			0.94			0.96	
Flpb, ped/bikes		0.97	1.00		0.94			0.99			0.98	
Frt		1.00	0.85		0.96			0.97			0.98	
Flt Protected		0.99	1.00		0.99			0.99			0.99	
Satd. Flow (prot)		1686	886		1304			1578			1619	
Flt Permitted		0.92	1.00		0.93			0.94			0.90	
Satd. Flow (perm)		1564	886		1227			1498			1469	
Peak-hour factor, PHF	0.81	0.81	0.81	0.95	0.95	0.95	0.74	0.74	0.74	0.90	0.90	0.90
Adj. Flow (vph)	27	94	57	45	118	65	47	307	96	47	212	51
RTOR Reduction (vph)	0	0	36	0	21	0	0	14	0	0	10	0
Lane Group Flow (vph)	0	121	21	0	207	0	0	436	0	0	300	0
Confl. Peds. (#/hr)	147		233	233		147	112		156	156		112
Confl. Bikes (#/hr)			14			19			49			55
Parking (#/hr)					0	0						
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		24.8	24.8		24.8			36.8			36.8	
Effective Green, g (s)		26.0	26.0		26.0			38.0			38.0	
Actuated g/C Ratio		0.37	0.37		0.37			0.54			0.54	
Clearance Time (s)		4.2	4.2		4.2			4.2			4.2	
Lane Grp Cap (vph)		581	329		456			813			797	
v/s Ratio Prot												
v/s Ratio Perm		0.08	0.02		c0.17			c0.29			0.20	
v/c Ratio		0.21	0.06		0.45			0.54			0.38	
Uniform Delay, d1		15.0	14.2		16.6			10.3			9.2	
Progression Factor		1.00	1.00		1.00			0.74			1.00	
Incremental Delay, d2		0.8	0.4		3.2			2.3			1.4	
Delay (s)		15.8	14.5		19.9			9.9			10.5	
Level of Service		B	B		B			A			B	
Approach Delay (s)		15.4			19.9			9.9			10.5	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	12.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	81	96	15	101	55	83	270	23	27	213	61
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.59		0.85			0.98			0.94	
Flpb, ped/bikes		0.90	1.00		0.97			0.97			0.99	
Frt		1.00	0.85		0.96			0.99			0.97	
Flt Protected		0.98	1.00		1.00			0.99			1.00	
Satd. Flow (prot)		1563	887		1254			1477			1586	
Flt Permitted		0.87	1.00		0.98			0.86			0.95	
Satd. Flow (perm)		1379	887		1229			1290			1514	
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.89	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	49	95	113	16	111	60	93	303	26	29	232	66
RTOR Reduction (vph)	0	0	73	0	24	0	0	4	0	0	13	0
Lane Group Flow (vph)	0	144	40	0	163	0	0	418	0	0	314	0
Confl. Peds. (#/hr)	260		231	231		260	133		182	182		133
Confl. Bikes (#/hr)			18			31			58			71
Parking (#/hr)					0	0		0	0			
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		23.7	23.7		23.7			37.7			37.7	
Effective Green, g (s)		25.0	25.0		25.0			39.0			39.0	
Actuated g/C Ratio		0.36	0.36		0.36			0.56			0.56	
Clearance Time (s)		4.3	4.3		4.3			4.3			4.3	
Lane Grp Cap (vph)		493	317		439			719			844	
v/s Ratio Prot												
v/s Ratio Perm		0.10	0.05		c0.13			c0.32			0.21	
v/c Ratio		0.29	0.13		0.37			0.58			0.37	
Uniform Delay, d1		16.1	15.2		16.7			10.2			8.7	
Progression Factor		1.00	1.00		1.00			1.00			0.77	
Incremental Delay, d2		1.5	0.8		2.4			3.4			1.2	
Delay (s)		17.6	16.0		19.1			13.6			7.9	
Level of Service		B	B		B			B			A	
Approach Delay (s)		16.9			19.1			13.6			7.9	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	58	108	261	63	76	252
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	63	117	284	68	83	274

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	180	352	357
Volume Left (vph)	63	0	83
Volume Right (vph)	117	68	0
Hadj (s)	-0.29	-0.08	0.08
Departure Headway (s)	5.3	4.8	4.9
Degree Utilization, x	0.26	0.47	0.49
Capacity (veh/h)	613	724	702
Control Delay (s)	10.2	11.9	12.5
Approach Delay (s)	10.2	11.9	12.5
Approach LOS	B	B	B

Intersection Summary			
Delay	11.8		
HCM Level of Service	B		
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	53	94	53	61	0	0	0	0	25	644	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0						3.0	
Lane Util. Factor		1.00			1.00						*0.85	
Frpb, ped/bikes		0.65			1.00						0.90	
Flpb, ped/bikes		1.00			0.81						0.98	
Frt		0.91			1.00						0.98	
Flt Protected		1.00			0.98						1.00	
Satd. Flow (prot)		950			1256						3757	
Flt Permitted		1.00			0.82						1.00	
Satd. Flow (perm)		950			1057						3757	
Peak-hour factor, PHF	0.92	0.92	0.92	0.79	0.79	0.79	0.95	0.95	0.95	0.96	0.96	0.96
Adj. Flow (vph)	0	58	102	67	77	0	0	0	0	26	671	89
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	15	0
Lane Group Flow (vph)	0	159	0	0	144	0	0	0	0	0	771	0
Confl. Peds. (#/hr)			1210	1210		435				439		924
Confl. Bikes (#/hr)			12									39
Parking (#/hr)		0	0	0	0						0	0
Turn Type				Perm						Perm		
Protected Phases		2			2						4	
Permitted Phases				2						4		
Actuated Green, G (s)		42.0			42.0						45.0	
Effective Green, g (s)		43.0			43.0						46.0	
Actuated g/C Ratio		0.45			0.45						0.48	
Clearance Time (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		430			478						1819	
v/s Ratio Prot		c0.17										
v/s Ratio Perm					0.14						0.21	
v/c Ratio		0.37			0.30						0.42	
Uniform Delay, d1		17.1			16.5						15.9	
Progression Factor		1.00			0.68						1.00	
Incremental Delay, d2		2.4			1.6						0.7	
Delay (s)		19.5			12.8						16.6	
Level of Service		B			B						B	
Approach Delay (s)		19.5			12.8			0.0			16.6	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	16.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	53	0	0	79	22	35	868	94	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0			3.0				
Lane Util. Factor		1.00			1.00			0.91				
Frpb, ped/bikes		1.00			0.92			0.94				
Flpb, ped/bikes		0.91			1.00			0.97				
Frt		1.00			0.97			0.99				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1576			1576			4335				
Flt Permitted		0.91			1.00			1.00				
Satd. Flow (perm)		1457			1576			4335				
Peak-hour factor, PHF	0.92	0.92	0.92	0.79	0.79	0.79	0.96	0.96	0.96	0.95	0.95	0.95
Adj. Flow (vph)	27	58	0	0	100	28	36	904	98	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	13	0	0	0	0
Lane Group Flow (vph)	0	85	0	0	125	0	0	1025	0	0	0	0
Confl. Peds. (#/hr)	435					435	924		439			
Confl. Bikes (#/hr)						10			4			
Turn Type	Perm						Perm					
Protected Phases		6			6			8				
Permitted Phases	6						8					
Actuated Green, G (s)		42.0			42.0			45.0				
Effective Green, g (s)		43.0			43.0			46.0				
Actuated g/C Ratio		0.45			0.45			0.48				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		659			713			2099				
v/s Ratio Prot					c0.08							
v/s Ratio Perm		0.06						0.24				
v/c Ratio		0.13			0.17			0.49				
Uniform Delay, d1		15.1			15.5			16.5				
Progression Factor		0.71			1.00			0.26				
Incremental Delay, d2		0.4			0.5			0.7				
Delay (s)		11.1			16.0			5.0				
Level of Service		B			B			A				
Approach Delay (s)		11.1			16.0			5.0			0.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	6.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	19	88	16	24	27	47	934	48	18	696	65
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	*0.75	
Frpb, ped/bikes		0.89			0.92		1.00	0.99		1.00	0.92	
Flpb, ped/bikes		0.96			0.97		0.83	1.00		0.99	1.00	
Frt		0.92			0.94		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1232			1327		1391	3305		1654	2290	
Flt Permitted		0.91			0.93		0.20	1.00		0.18	1.00	
Satd. Flow (perm)		1139			1243		294	3305		319	2290	
Peak-hour factor, PHF	0.81	0.81	0.81	0.88	0.88	0.88	0.90	0.90	0.90	0.93	0.93	0.93
Adj. Flow (vph)	49	23	109	18	27	31	52	1038	53	19	748	70
RTOR Reduction (vph)	0	0	0	0	20	0	0	4	0	0	6	0
Lane Group Flow (vph)	0	181	0	0	56	0	52	1087	0	19	812	0
Confl. Peds. (#/hr)	196		172	172		196	1277		42	42		1277
Confl. Bikes (#/hr)			21			27			24			49
Parking (#/hr)		0	0		0	0					0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		32.5			32.5		52.5	52.5		52.5	52.5	
Effective Green, g (s)		35.0			35.0		54.0	54.0		54.0	54.0	
Actuated g/C Ratio		0.37			0.37		0.57	0.57		0.57	0.57	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		420			458		167	1879		181	1302	
v/s Ratio Prot								0.33			c0.35	
v/s Ratio Perm		c0.16			0.05		0.18			0.06		
v/c Ratio		0.43			0.12		0.31	0.58		0.10	0.62	
Uniform Delay, d1		22.5			19.8		10.8	13.2		9.4	13.7	
Progression Factor		1.00			1.00		0.23	0.19		0.80	0.73	
Incremental Delay, d2		3.2			0.6		4.1	1.1		1.1	2.2	
Delay (s)		25.7			20.4		6.6	3.6		8.7	12.2	
Level of Service		C			C		A	A		A	B	
Approach Delay (s)		25.7			20.4			3.8			12.2	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	20	65	29	23	22	71	972	38	8	734	64
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.89			0.94		1.00	0.98		1.00	0.95	
Flpb, ped/bikes		0.96			0.95		0.87	1.00		0.92	1.00	
Frt		0.92			0.96		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1380			1477		1453	3257		1549	3137	
Flt Permitted		0.93			0.88		0.26	1.00		0.19	1.00	
Satd. Flow (perm)		1304			1321		393	3257		307	3137	
Peak-hour factor, PHF	0.89	0.89	0.89	0.83	0.83	0.83	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	28	22	73	35	28	27	76	1034	40	9	807	70
RTOR Reduction (vph)	0	9	0	0	9	0	0	3	0	0	7	0
Lane Group Flow (vph)	0	114	0	0	81	0	76	1071	0	9	870	0
Confl. Peds. (#/hr)	211		181	181		211	477		378	378		477
Confl. Bikes (#/hr)			11			24			47			32
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		32.5			32.5		52.5	52.5		52.5	52.5	
Effective Green, g (s)		35.0			35.0		54.0	54.0		54.0	54.0	
Actuated g/C Ratio		0.37			0.37		0.57	0.57		0.57	0.57	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		480			487		223	1851		175	1783	
v/s Ratio Prot								c0.33			0.28	
v/s Ratio Perm		c0.09			0.06		0.19			0.03		
v/c Ratio		0.24			0.17		0.34	0.58		0.05	0.49	
Uniform Delay, d1		20.8			20.2		11.0	13.2		9.1	12.2	
Progression Factor		1.00			1.00		0.05	0.04		0.66	0.51	
Incremental Delay, d2		1.2			0.7		3.4	1.1		0.5	0.8	
Delay (s)		21.9			20.9		3.9	1.6		6.4	7.1	
Level of Service		C			C		A	A		A	A	
Approach Delay (s)		21.9			20.9			1.8			7.1	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	5.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	43	169	43	27	39	1051	10	4	824	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)			3.0	3.0	3.0		3.0	3.0			3.0	
Lane Util. Factor			1.00	1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes			0.84	1.00	0.97		1.00	1.00			0.98	
Flpb, ped/bikes			1.00	0.85	1.00		0.93	1.00			1.00	
Frt			0.86	1.00	0.94		1.00	1.00			0.99	
Flt Protected			1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)			1285	1433	1616		1553	3348			3285	
Flt Permitted			1.00	0.95	1.00		0.23	1.00			0.95	
Satd. Flow (perm)			1285	1433	1616		375	3348			3126	
Peak-hour factor, PHF	0.82	0.82	0.82	0.86	0.86	0.86	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	0	0	52	197	50	31	41	1118	11	4	916	32
RTOR Reduction (vph)	0	0	33	0	20	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	0	19	197	61	0	41	1128	0	0	949	0
Confl. Peds. (#/hr)			148	148		65	163					163
Confl. Bikes (#/hr)			8									26
Turn Type			custom	Perm			Perm			Perm		
Protected Phases					6			8			8	
Permitted Phases			6	6			8			8		
Actuated Green, G (s)			32.5	32.5	32.5		52.5	52.5			52.5	
Effective Green, g (s)			35.0	35.0	35.0		54.0	54.0			54.0	
Actuated g/C Ratio			0.37	0.37	0.37		0.57	0.57			0.57	
Clearance Time (s)			5.5	5.5	5.5		4.5	4.5			4.5	
Lane Grp Cap (vph)			473	528	595		213	1903			1777	
v/s Ratio Prot					0.04			c0.34				
v/s Ratio Perm			0.01	c0.14			0.11				0.30	
v/c Ratio			0.04	0.37	0.10		0.19	0.59			0.53	
Uniform Delay, d1			19.2	22.0	19.7		9.9	13.3			12.7	
Progression Factor			1.00	1.00	1.00		0.05	0.10			0.86	
Incremental Delay, d2			0.2	2.0	0.3		0.8	0.5			1.1	
Delay (s)			19.4	24.0	20.0		1.3	1.9			12.0	
Level of Service			B	C	C		A	A			B	
Approach Delay (s)		19.4			22.8			1.9			12.0	
Approach LOS		B			C			A			B	

Intersection Summary			
HCM Average Control Delay	8.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	37	36	0	0	0	25	1095	193	75	925	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0					2.5	2.5		3.0	3.0	
Lane Util. Factor		0.95					1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.96					1.00	0.95		1.00	0.98	
Flpb, ped/bikes		1.00					0.89	1.00		1.00	1.00	
Frt		0.94					1.00	0.98		1.00	0.99	
Flt Protected		0.99					0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2997					1490	3124		1676	3268	
Flt Permitted		0.99					0.25	1.00		0.09	1.00	
Satd. Flow (perm)		2997					389	3124		152	3268	
Peak-hour factor, PHF	0.80	0.80	0.80	0.95	0.95	0.95	0.94	0.94	0.94	0.93	0.93	0.93
Adj. Flow (vph)	18	46	45	0	0	0	27	1165	205	81	995	38
RTOR Reduction (vph)	0	16	0	0	0	0	0	15	0	0	3	0
Lane Group Flow (vph)	0	93	0	0	0	0	27	1355	0	81	1030	0
Confl. Peds. (#/hr)	58		92	92		58	277		238	238		277
Confl. Bikes (#/hr)			6						14			10
Turn Type	Split						Perm			pm+pt		
Protected Phases	6	6						8		7	4	
Permitted Phases							8			4		
Actuated Green, G (s)		32.5					42.5	42.5		52.5	52.5	
Effective Green, g (s)		35.0					44.5	44.5		53.5	54.0	
Actuated g/C Ratio		0.37					0.47	0.47		0.56	0.57	
Clearance Time (s)		5.5					4.5	4.5		4.0	4.5	
Lane Grp Cap (vph)		1104					182	1463		198	1858	
v/s Ratio Prot		c0.03						c0.43		0.03	c0.32	
v/s Ratio Perm							0.07			0.20		
v/c Ratio		0.08					0.15	0.93		0.41	0.55	
Uniform Delay, d1		19.6					14.4	23.7		16.7	12.9	
Progression Factor		1.00					1.00	1.00		1.88	1.06	
Incremental Delay, d2		0.1					1.7	11.5		5.5	1.1	
Delay (s)		19.7					16.1	35.2		36.8	14.8	
Level of Service		B					B	D		D	B	
Approach Delay (s)		19.7			0.0			34.8			16.4	
Approach LOS		B			A			C			B	

Intersection Summary			
HCM Average Control Delay	26.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	20	68	17	524	740	69
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	74	18	570	804	75
Pedestrians	202				126	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	17				10	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1492	642	1081			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1492	642	1081			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	74	79	97			
cM capacity (veh/h)	82	347	533			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	96	208	380	536	343
Volume Left	22	18	0	0	0
Volume Right	74	0	0	0	75
cSH	200	533	1700	1700	1700
Volume to Capacity	0.48	0.03	0.22	0.32	0.20
Queue Length 95th (ft)	58	3	0	0	0
Control Delay (s)	38.4	1.5	0.0	0.0	0.0
Lane LOS	E	A			
Approach Delay (s)	38.4	0.5		0.0	
Approach LOS	E				

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	47	82	116	42	27	34
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	51	89	126	46	29	37
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			358			
pX, platoon unblocked						
vC, conflicting volume	172				340	149
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	172				340	149
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				95	96
cM capacity (veh/h)	1405				632	898

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	140	172	66
Volume Left	51	0	29
Volume Right	0	46	37
cSH	1405	1700	757
Volume to Capacity	0.04	0.10	0.09
Queue Length 95th (ft)	3	0	7
Control Delay (s)	3.0	0.0	10.2
Lane LOS	A		B
Approach Delay (s)	3.0	0.0	10.2
Approach LOS			B

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	30.2%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix B: Synchro Reports

Future (Year 2020) No Project – AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	46	79	33	58	60	56	66	727	116	71	694	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.81		1.00	0.69	1.00	0.96		1.00	0.98	
Flpb, ped/bikes		0.93	1.00		0.94	1.00	0.92	1.00		0.95	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.98	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1613	1221		1613	1038	1548	3160		1586	3258	
Flt Permitted		0.79	1.00		0.71	1.00	0.33	1.00		0.26	1.00	
Satd. Flow (perm)		1300	1221		1167	1038	537	3160		433	3258	
Peak-hour factor, PHF	0.81	0.81	0.81	0.70	0.70	0.70	0.86	0.86	0.86	0.95	0.95	0.95
Adj. Flow (vph)	57	98	41	83	86	80	77	845	135	75	731	53
RTOR Reduction (vph)	0	0	32	0	0	63	0	8	0	0	3	0
Lane Group Flow (vph)	0	155	9	0	169	17	77	972	0	75	781	0
Confl. Peds. (#/hr)	250		166	166		250	119		119	119		119
Confl. Bikes (#/hr)			7			72			9			5
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6		6	8			8		
Actuated Green, G (s)		18.0	18.0		18.0	18.0	63.0	63.0		63.0	63.0	
Effective Green, g (s)		19.5	19.5		19.5	19.5	64.5	64.5		64.5	64.5	
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.72	0.72		0.72	0.72	
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		282	265		253	225	385	2265		310	2335	
v/s Ratio Prot								c0.31			0.24	
v/s Ratio Perm		0.12	0.01		c0.14	0.02	0.14			0.17		
v/c Ratio		0.55	0.03		0.67	0.08	0.20	0.43		0.24	0.33	
Uniform Delay, d1		31.3	27.8		32.3	28.1	4.2	5.2		4.4	4.8	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.2	0.0		5.1	0.1	1.2	0.6		1.8	0.4	
Delay (s)		32.5	27.8		37.4	28.1	5.4	5.8		6.2	5.1	
Level of Service		C	C		D	C	A	A		A	A	
Approach Delay (s)		31.5			34.4			5.8			5.2	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	83	34	17	45	17	33	183	48	55	191	33
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.75		0.95			0.96			0.97	
Flpb, ped/bikes		0.97	1.00		0.96			0.99			0.98	
Frt		1.00	0.85		0.97			0.98			0.98	
Flt Protected		0.99	1.00		0.99			0.99			0.99	
Satd. Flow (prot)		1709	1129		1390			1625			1644	
Flt Permitted		0.97	1.00		0.95			0.93			0.88	
Satd. Flow (perm)		1668	1129		1330			1522			1466	
Peak-hour factor, PHF	0.75	0.75	0.75	0.88	0.88	0.88	0.80	0.80	0.80	0.78	0.78	0.78
Adj. Flow (vph)	17	111	45	19	51	19	41	229	60	71	245	42
RTOR Reduction (vph)	0	0	26	0	11	0	0	13	0	0	7	0
Lane Group Flow (vph)	0	128	19	0	78	0	0	317	0	0	351	0
Confl. Peds. (#/hr)	143		145	145		143	112		118	118		112
Confl. Bikes (#/hr)			11			4			33			39
Parking (#/hr)					0	0						
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		26.8	26.8		26.8			29.8			29.8	
Effective Green, g (s)		28.0	28.0		28.0			31.0			31.0	
Actuated g/C Ratio		0.43	0.43		0.43			0.48			0.48	
Clearance Time (s)		4.2	4.2		4.2			4.2			4.2	
Lane Grp Cap (vph)		719	486		573			726			699	
v/s Ratio Prot												
v/s Ratio Perm		c0.08	0.02		0.06			0.21			c0.24	
v/c Ratio		0.18	0.04		0.14			0.44			0.50	
Uniform Delay, d1		11.4	10.7		11.2			11.2			11.7	
Progression Factor		1.00	1.00		1.00			0.78			1.00	
Incremental Delay, d2		0.5	0.2		0.5			1.7			2.6	
Delay (s)		11.9	10.9		11.7			10.5			14.3	
Level of Service		B	B		B			B			B	
Approach Delay (s)		11.7			11.7			10.5			14.3	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	130	76	16	69	50	60	168	24	35	136	68
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.47		0.82			0.97			0.84	
Flpb, ped/bikes		0.89	1.00		0.96			0.93			0.98	
Frt		1.00	0.85		0.95			0.99			0.96	
Flt Protected		0.98	1.00		0.99			0.99			0.99	
Satd. Flow (prot)		1550	705		1174			1392			1386	
Flt Permitted		0.87	1.00		0.96			0.87			0.93	
Satd. Flow (perm)		1377	705		1135			1227			1292	
Peak-hour factor, PHF	0.95	0.95	0.95	0.79	0.79	0.79	0.80	0.80	0.80	0.82	0.82	0.82
Adj. Flow (vph)	63	137	80	20	87	63	75	210	30	43	166	83
RTOR Reduction (vph)	0	0	48	0	32	0	0	6	0	0	22	0
Lane Group Flow (vph)	0	200	32	0	138	0	0	309	0	0	270	0
Confl. Peds. (#/hr)	308		373	373		308	375		178	178		375
Confl. Bikes (#/hr)			11			4			33			39
Parking (#/hr)					0	0		0	0			
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		24.7	24.7		24.7			31.7			31.7	
Effective Green, g (s)		26.0	26.0		26.0			33.0			33.0	
Actuated g/C Ratio		0.40	0.40		0.40			0.51			0.51	
Clearance Time (s)		4.3	4.3		4.3			4.3			4.3	
Lane Grp Cap (vph)		551	282		454			623			656	
v/s Ratio Prot												
v/s Ratio Perm		c0.15	0.05		0.12			c0.25			0.21	
v/c Ratio		0.36	0.11		0.30			0.50			0.41	
Uniform Delay, d1		13.7	12.3		13.3			10.5			10.0	
Progression Factor		1.00	1.00		1.00			1.00			0.53	
Incremental Delay, d2		1.8	0.8		1.7			2.8			1.8	
Delay (s)		15.5	13.1		15.0			13.3			7.0	
Level of Service		B	B		B			B			A	
Approach Delay (s)		14.8			15.0			13.3			7.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	53	83	163	61	60	173
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	58	90	177	66	65	188

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	148	243	253
Volume Left (vph)	58	0	65
Volume Right (vph)	90	66	0
Hadj (s)	-0.25	-0.13	0.09
Departure Headway (s)	4.8	4.4	4.6
Degree Utilization, x	0.20	0.30	0.33
Capacity (veh/h)	687	776	743
Control Delay (s)	8.9	9.3	9.9
Approach Delay (s)	8.9	9.3	9.9
Approach LOS	A	A	A

Intersection Summary			
Delay	9.5		
HCM Level of Service	A		
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	40	44	28	15	5	56	310	0	19	850	55
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			1.0			3.0			3.0	
Lane Util. Factor		1.00			1.00			0.95			*0.85	
Frpb, ped/bikes		0.81			0.97			1.00			0.96	
Flpb, ped/bikes		0.98			0.83			0.98			0.99	
Frt		0.94			0.99			1.00			0.99	
Flt Protected		1.00			0.97			0.99			1.00	
Satd. Flow (prot)		1177			1212			3277			2695	
Flt Permitted		0.98			0.86			0.73			0.94	
Satd. Flow (perm)		1163			1071			2399			2546	
Peak-hour factor, PHF	0.93	0.93	0.93	0.87	0.87	0.87	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	9	43	47	32	17	6	59	326	0	20	904	59
RTOR Reduction (vph)	0	11	0	0	4	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	88	0	0	51	0	0	385	0	0	979	0
Confl. Peds. (#/hr)	239		507	507		239	470		301	301		470
Confl. Bikes (#/hr)			36			10			8			21
Parking (#/hr)		0	0	0	0						0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			8			4	
Permitted Phases	2			2			8			4		
Actuated Green, G (s)		29.0			29.0			53.0			53.0	
Effective Green, g (s)		30.0			32.0			54.0			54.0	
Actuated g/C Ratio		0.33			0.36			0.60			0.60	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		388			381			1439			1528	
v/s Ratio Prot												
v/s Ratio Perm		c0.08			0.05			0.16			c0.38	
v/c Ratio		0.23			0.13			0.27			0.64	
Uniform Delay, d1		21.6			19.6			8.6			11.7	
Progression Factor		1.00			0.22			1.00			1.00	
Incremental Delay, d2		1.4			0.7			0.5			2.1	
Delay (s)		23.0			5.1			9.0			13.8	
Level of Service		C			A			A			B	
Approach Delay (s)		23.0			5.1			9.0			13.8	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM Average Control Delay	12.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	51	0	0	47	8	5	422	23	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0			1.0				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		1.00			0.93			0.97				
Flpb, ped/bikes		0.92			1.00			0.99				
Frt		1.00			0.98			0.99				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1616			1603			1691				
Flt Permitted		0.97			1.00			1.00				
Satd. Flow (perm)		1577			1603			1691				
Peak-hour factor, PHF	0.93	0.93	0.93	0.87	0.87	0.87	0.87	0.87	0.87	0.95	0.95	0.95
Adj. Flow (vph)	11	55	0	0	54	9	6	485	26	0	0	0
RTOR Reduction (vph)	0	0	0	0	6	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	66	0	0	57	0	0	515	0	0	0	0
Confl. Peds. (#/hr)	239		507	507		239	470		301	301		470
Confl. Bikes (#/hr)			36			10			8			
Turn Type	Perm						Perm					
Protected Phases		6			6			8				
Permitted Phases	6						8					
Actuated Green, G (s)		29.0			29.0			53.0				
Effective Green, g (s)		30.0			30.0			56.0				
Actuated g/C Ratio		0.33			0.33			0.62				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		526			534			1052				
v/s Ratio Prot					0.04							
v/s Ratio Perm		c0.04						0.30				
v/c Ratio		0.13			0.11			0.49				
Uniform Delay, d1		20.9			20.7			9.2				
Progression Factor		0.65			1.00			1.00				
Incremental Delay, d2		0.5			0.4			1.6				
Delay (s)		14.0			21.1			10.9				
Level of Service		B			C			B				
Approach Delay (s)		14.0			21.1			10.9			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM Average Control Delay	12.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	25	99	10	57	10	98	752	15	12	783	92
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	*0.75	
Frpb, ped/bikes		0.91			0.98		1.00	0.99		1.00	0.92	
Flpb, ped/bikes		0.98			0.99		1.00	1.00		0.94	1.00	
Frt		0.92			0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1287			1512		1676	3325		1576	2283	
Flt Permitted		0.93			0.96		0.14	1.00		0.28	1.00	
Satd. Flow (perm)		1204			1463		252	3325		462	2283	
Peak-hour factor, PHF	0.86	0.86	0.86	0.69	0.69	0.69	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	40	29	115	14	83	14	104	800	16	13	860	101
RTOR Reduction (vph)	0	2	0	0	6	0	0	1	0	0	8	0
Lane Group Flow (vph)	0	182	0	0	105	0	104	815	0	13	953	0
Confl. Peds. (#/hr)	126		124	124		126	658		101	101		658
Confl. Bikes (#/hr)			48			16			30			28
Parking (#/hr)		0	0		0	0					0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		31.5			31.5		48.5	48.5		48.5	48.5	
Effective Green, g (s)		34.0			34.0		50.0	50.0		50.0	50.0	
Actuated g/C Ratio		0.38			0.38		0.56	0.56		0.56	0.56	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		455			553		140	1847		257	1268	
v/s Ratio Prot								0.25			c0.42	
v/s Ratio Perm		c0.15			0.07		0.41			0.03		
v/c Ratio		0.40			0.19		0.74	0.44		0.05	0.75	
Uniform Delay, d1		20.5			18.8		15.1	11.8		9.1	15.3	
Progression Factor		1.00			1.00		1.03	0.37		1.00	1.00	
Incremental Delay, d2		2.6			0.8		26.3	0.7		0.4	4.1	
Delay (s)		23.1			19.5		41.9	5.0		9.5	19.4	
Level of Service		C			B		D	A		A	B	
Approach Delay (s)		23.1			19.5			9.2			19.3	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	15.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	26	54	15	48	14	53	831	59	18	828	54
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.92			0.98		1.00	0.96		1.00	0.97	
Flpb, ped/bikes		0.98			0.98		0.93	1.00		0.90	1.00	
Frt		0.93			0.97		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1470			1632		1556	3194		1515	3232	
Flt Permitted		0.93			0.94		0.22	1.00		0.23	1.00	
Satd. Flow (perm)		1382			1553		360	3194		363	3232	
Peak-hour factor, PHF	0.93	0.93	0.93	0.57	0.57	0.57	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	25	28	58	26	84	25	56	884	63	20	910	59
RTOR Reduction (vph)	0	32	0	0	9	0	0	6	0	0	5	0
Lane Group Flow (vph)	0	79	0	0	126	0	56	941	0	20	964	0
Confl. Peds. (#/hr)	120		154	154		120	172		288	288		172
Confl. Bikes (#/hr)			9			6			45			16
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		31.5			31.5		48.5	48.5		48.5	48.5	
Effective Green, g (s)		34.0			34.0		50.0	50.0		50.0	50.0	
Actuated g/C Ratio		0.38			0.38		0.56	0.56		0.56	0.56	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		522			587		200	1774		202	1796	
v/s Ratio Prot								0.29			c0.30	
v/s Ratio Perm		0.06			c0.08		0.16			0.06		
v/c Ratio		0.15			0.21		0.28	0.53		0.10	0.54	
Uniform Delay, d1		18.5			19.0		10.5	12.6		9.4	12.7	
Progression Factor		1.00			1.00		0.10	0.08		0.63	0.50	
Incremental Delay, d2		0.6			0.8		3.0	1.0		0.7	0.8	
Delay (s)		19.1			19.8		4.0	2.0		6.6	7.2	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		19.1			19.8			2.1			7.2	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	92	66	43	62	30	887	0	0	871	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)			3.0	3.0	3.0		3.0	3.0			3.0	
Lane Util. Factor			1.00	1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes			0.93	1.00	0.97		1.00	1.00			0.99	
Flpb, ped/bikes			1.00	0.95	1.00		0.97	1.00			1.00	
Frt			0.86	1.00	0.91		1.00	1.00			1.00	
Flt Protected			1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)			1424	1584	1553		1619	3353			3322	
Flt Permitted			1.00	0.95	1.00		0.19	1.00			1.00	
Satd. Flow (perm)			1424	1584	1553		324	3353			3322	
Peak-hour factor, PHF	0.65	0.65	0.65	0.82	0.82	0.82	0.95	0.95	0.95	0.91	0.91	0.91
Adj. Flow (vph)	0	0	142	80	52	76	32	934	0	0	957	22
RTOR Reduction (vph)	0	0	26	0	42	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	116	80	86	0	32	934	0	0	977	0
Confl. Peds. (#/hr)			59	59		49	94					94
Confl. Bikes (#/hr)			3			1						30
Turn Type			custom	Perm			Perm					
Protected Phases					6			8			8	
Permitted Phases			6	6			8					
Actuated Green, G (s)			37.5	37.5	37.5		42.5	42.5			42.5	
Effective Green, g (s)			40.0	40.0	40.0		44.0	44.0			44.0	
Actuated g/C Ratio			0.44	0.44	0.44		0.49	0.49			0.49	
Clearance Time (s)			5.5	5.5	5.5		4.5	4.5			4.5	
Lane Grp Cap (vph)			633	704	690		158	1639			1624	
v/s Ratio Prot					0.06			0.28			c0.29	
v/s Ratio Perm			c0.08	0.05			0.10					
v/c Ratio			0.18	0.11	0.12		0.20	0.57			0.60	
Uniform Delay, d1			15.1	14.6	14.7		13.0	16.3			16.7	
Progression Factor			1.00	1.00	1.00		0.22	0.39			0.39	
Incremental Delay, d2			0.6	0.3	0.4		1.1	0.5			1.4	
Delay (s)			15.8	15.0	15.1		4.0	7.0			7.9	
Level of Service			B	B	B		A	A			A	
Approach Delay (s)		15.8			15.0			6.9			7.9	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	8.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	43	33	0	0	0	36	926	207	99	888	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0					2.5	2.5		3.0	3.0	
Lane Util. Factor		0.95					1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.98					1.00	0.96		1.00	0.99	
Flpb, ped/bikes		1.00					0.92	1.00		1.00	1.00	
Frt		0.94					1.00	0.97		1.00	0.99	
Flt Protected		1.00					0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3071					1539	3133		1676	3290	
Flt Permitted		1.00					0.29	1.00		0.10	1.00	
Satd. Flow (perm)		3071					472	3133		174	3290	
Peak-hour factor, PHF	0.52	0.52	0.52	0.95	0.95	0.95	0.89	0.89	0.89	0.98	0.98	0.98
Adj. Flow (vph)	15	83	63	0	0	0	40	1040	233	101	906	36
RTOR Reduction (vph)	0	34	0	0	0	0	0	21	0	0	3	0
Lane Group Flow (vph)	0	127	0	0	0	0	40	1252	0	101	939	0
Confl. Peds. (#/hr)	21		52				147		155	155		147
Confl. Bikes (#/hr)			5						21			25
Turn Type	Split						Perm			pm+pt		
Protected Phases	6	6						8		7	4	
Permitted Phases							8			4		
Actuated Green, G (s)		32.5					36.5	36.5		47.5	47.5	
Effective Green, g (s)		35.0					38.5	38.5		48.5	49.0	
Actuated g/C Ratio		0.39					0.43	0.43		0.54	0.54	
Clearance Time (s)		5.5					4.5	4.5		4.0	4.5	
Lane Grp Cap (vph)		1194					202	1340		227	1791	
v/s Ratio Prot		c0.04						c0.40		0.04	c0.29	
v/s Ratio Perm							0.08			0.20		
v/c Ratio		0.11					0.20	0.93		0.44	0.52	
Uniform Delay, d1		17.5					16.1	24.5		16.4	13.1	
Progression Factor		1.00					1.00	1.00		2.02	1.56	
Incremental Delay, d2		0.2					2.2	13.2		5.4	1.0	
Delay (s)		17.7					18.3	37.7		38.5	21.3	
Level of Service		B					B	D		D	C	
Approach Delay (s)		17.7			0.0			37.1			22.9	
Approach LOS		B			A			D			C	

Intersection Summary			
HCM Average Control Delay	30.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	18	43	30	373	796	46
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	47	33	405	865	50
Pedestrians	88				71	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	7				6	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1317	546	1003			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1317	546	1003			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	84	90	95			
cM capacity (veh/h)	123	447	636			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	66	168	270	577	338
Volume Left	20	33	0	0	0
Volume Right	47	0	0	0	50
cSH	252	636	1700	1700	1700
Volume to Capacity	0.26	0.05	0.16	0.34	0.20
Queue Length 95th (ft)	26	4	0	0	0
Control Delay (s)	24.3	2.6	0.0	0.0	0.0
Lane LOS	C	A			
Approach Delay (s)	24.3	1.0		0.0	
Approach LOS	C				

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	45.6%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix B: Synchro Reports

Future (Year 2020) No Project – PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	43	59	29	68	103	96	72	1064	101	74	694	54
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.81		1.00	0.82	1.00	0.99		1.00	0.99	
Flpb, ped/bikes		0.95	1.00		0.95	1.00	0.96	1.00		0.98	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1650	1212		1640	1226	1605	3262		1649	3273	
Flt Permitted		0.79	1.00		0.84	1.00	0.31	1.00		0.18	1.00	
Satd. Flow (perm)		1335	1212		1399	1226	518	3262		305	3273	
Peak-hour factor, PHF	0.82	0.82	0.82	0.85	0.85	0.85	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	52	72	35	80	121	113	77	1132	107	81	763	59
RTOR Reduction (vph)	0	0	26	0	0	59	0	7	0	0	5	0
Lane Group Flow (vph)	0	124	9	0	201	54	77	1232	0	81	817	0
Confl. Peds. (#/hr)	147		149	149		147	70		62	62		70
Confl. Bikes (#/hr)			32			20			19			16
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6		6	8			8		
Actuated Green, G (s)		22.9	22.9		22.9	22.9	63.1	63.1		63.1	63.1	
Effective Green, g (s)		24.4	24.4		24.4	24.4	64.6	64.6		64.6	64.6	
Actuated g/C Ratio		0.26	0.26		0.26	0.26	0.68	0.68		0.68	0.68	
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		343	311		359	315	352	2218		207	2226	
v/s Ratio Prot								c0.38			0.25	
v/s Ratio Perm		0.09	0.01		c0.14	0.04	0.15			0.27		
v/c Ratio		0.36	0.03		0.56	0.17	0.22	0.56		0.39	0.37	
Uniform Delay, d1		28.9	26.4		30.6	27.4	5.7	7.8		6.6	6.5	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0		1.1	0.1	1.4	1.0		5.5	0.5	
Delay (s)		29.2	26.4		31.7	27.5	7.1	8.8		12.1	6.9	
Level of Service		C	C		C	C	A	A		B	A	
Approach Delay (s)		28.6			30.2			8.7			7.4	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	81	48	44	120	66	36	243	75	45	202	49
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.59		0.92			0.94			0.96	
Flpb, ped/bikes		0.97	1.00		0.94			0.99			0.98	
Frt		1.00	0.85		0.96			0.97			0.98	
Flt Protected		0.99	1.00		0.99			0.99			0.99	
Satd. Flow (prot)		1687	885		1308			1581			1620	
Flt Permitted		0.91	1.00		0.93			0.94			0.90	
Satd. Flow (perm)		1547	885		1228			1499			1461	
Peak-hour factor, PHF	0.81	0.81	0.81	0.95	0.95	0.95	0.74	0.74	0.74	0.90	0.90	0.90
Adj. Flow (vph)	30	100	59	46	126	69	49	328	101	50	224	54
RTOR Reduction (vph)	0	0	40	0	21	0	0	14	0	0	10	0
Lane Group Flow (vph)	0	130	19	0	220	0	0	464	0	0	318	0
Confl. Peds. (#/hr)	147		233	233		147	112		156	156		112
Confl. Bikes (#/hr)			14			19			49			55
Parking (#/hr)					0	0						
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		21.8	21.8		21.8			39.8			39.8	
Effective Green, g (s)		23.0	23.0		23.0			41.0			41.0	
Actuated g/C Ratio		0.33	0.33		0.33			0.59			0.59	
Clearance Time (s)		4.2	4.2		4.2			4.2			4.2	
Lane Grp Cap (vph)		508	291		403			878			856	
v/s Ratio Prot												
v/s Ratio Perm		0.08	0.02		c0.18			c0.31			0.22	
v/c Ratio		0.26	0.07		0.55			0.53			0.37	
Uniform Delay, d1		17.2	16.1		19.2			8.7			7.7	
Progression Factor		1.00	1.00		1.00			0.80			1.00	
Incremental Delay, d2		1.2	0.4		5.2			2.0			1.2	
Delay (s)		18.4	16.6		24.5			9.0			8.9	
Level of Service		B	B		C			A			A	
Approach Delay (s)		17.9			24.5			9.0			8.9	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	88	89	21	114	63	81	284	27	30	221	65
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.59		0.85			0.97			0.94	
Flpb, ped/bikes		0.91	1.00		0.97			0.97			0.99	
Frt		1.00	0.85		0.96			0.99			0.97	
Flt Protected		0.98	1.00		0.99			0.99			1.00	
Satd. Flow (prot)		1578	885		1248			1477			1581	
Flt Permitted		0.87	1.00		0.96			0.87			0.94	
Satd. Flow (perm)		1393	885		1210			1295			1498	
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.89	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	53	104	105	23	125	69	91	319	30	33	240	71
RTOR Reduction (vph)	0	0	71	0	24	0	0	4	0	0	13	0
Lane Group Flow (vph)	0	157	35	0	193	0	0	436	0	0	331	0
Confl. Peds. (#/hr)	260		231	231		260	133		182	182		133
Confl. Bikes (#/hr)			18			31			58			71
Parking (#/hr)					0	0		0	0			
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		21.7	21.7		21.7			39.7			39.7	
Effective Green, g (s)		23.0	23.0		23.0			41.0			41.0	
Actuated g/C Ratio		0.33	0.33		0.33			0.59			0.59	
Clearance Time (s)		4.3	4.3		4.3			4.3			4.3	
Lane Grp Cap (vph)		458	291		398			759			877	
v/s Ratio Prot												
v/s Ratio Perm		0.11	0.04		c0.16			c0.34			0.22	
v/c Ratio		0.34	0.12		0.48			0.57			0.38	
Uniform Delay, d1		17.8	16.4		18.8			9.1			7.7	
Progression Factor		1.00	1.00		1.00			1.00			0.77	
Incremental Delay, d2		2.0	0.8		4.2			3.2			1.2	
Delay (s)		19.8	17.2		22.9			12.2			7.1	
Level of Service		B	B		C			B			A	
Approach Delay (s)		18.8			22.9			12.2			7.1	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM Average Control Delay	14.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	54	101	282	45	61	276
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	110	307	49	66	300

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	168	355	366
Volume Left (vph)	59	0	66
Volume Right (vph)	110	49	0
Hadj (s)	-0.29	-0.05	0.07
Departure Headway (s)	5.3	4.8	4.9
Degree Utilization, x	0.25	0.47	0.50
Capacity (veh/h)	609	724	709
Control Delay (s)	10.0	12.0	12.6
Approach Delay (s)	10.0	12.0	12.6
Approach LOS	B	B	B

Intersection Summary			
Delay	11.9		
HCM Level of Service	B		
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	36	101	56	28	17	36	695	0	27	678	89
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0			3.0			3.0	
Lane Util. Factor		1.00			1.00			0.95			*0.85	
Frpb, ped/bikes		0.65			0.94			1.00			0.90	
Flpb, ped/bikes		0.97			0.81			0.99			0.99	
Frt		0.91			0.98			1.00			0.98	
Flt Protected		0.99			0.97			1.00			1.00	
Satd. Flow (prot)		907			1150			3309			2501	
Flt Permitted		0.96			0.74			0.87			0.91	
Satd. Flow (perm)		875			877			2895			2287	
Peak-hour factor, PHF	0.92	0.92	0.92	0.79	0.79	0.79	0.95	0.95	0.95	0.96	0.96	0.96
Adj. Flow (vph)	22	39	110	71	35	22	38	732	0	28	706	93
RTOR Reduction (vph)	0	4	0	0	8	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	167	0	0	120	0	0	770	0	0	825	0
Confl. Peds. (#/hr)	435		1210	1210		435	924		439	439		924
Confl. Bikes (#/hr)			12			10			4			39
Parking (#/hr)		0	0	0	0						0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			8			4	
Permitted Phases	2			2			8			4		
Actuated Green, G (s)		23.0			23.0			64.0			64.0	
Effective Green, g (s)		24.0			24.0			65.0			65.0	
Actuated g/C Ratio		0.25			0.25			0.68			0.68	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		221			222			1981			1565	
v/s Ratio Prot												
v/s Ratio Perm		c0.19			0.14			0.27			c0.36	
v/c Ratio		0.75			0.54			0.39			0.53	
Uniform Delay, d1		32.8			30.7			6.5			7.4	
Progression Factor		1.00			0.14			1.00			1.00	
Incremental Delay, d2		20.9			8.8			0.6			1.3	
Delay (s)		53.7			13.2			7.0			8.7	
Level of Service		D			B			A			A	
Approach Delay (s)		53.7			13.2			7.0			8.7	
Approach LOS		D			B			A			A	

Intersection Summary			
HCM Average Control Delay	12.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	62	0	0	100	6	5	235	95	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0			3.0				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		1.00			0.96			0.82				
Flpb, ped/bikes		0.96			1.00			0.99				
Frt		1.00			0.99			0.96				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1680			1687			1382				
Flt Permitted		0.98			1.00			1.00				
Satd. Flow (perm)		1651			1687			1382				
Peak-hour factor, PHF	0.92	0.92	0.92	0.79	0.79	0.79	0.96	0.96	0.96	0.95	0.95	0.95
Adj. Flow (vph)	7	67	0	0	127	8	5	245	99	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	74	0	0	133	0	0	349	0	0	0	0
Confl. Peds. (#/hr)	435		1210	1210		435	924		439			
Confl. Bikes (#/hr)			12			10			4			
Turn Type	Perm						Perm					
Protected Phases		6			6			8				
Permitted Phases	6						8					
Actuated Green, G (s)		23.0			23.0			64.0				
Effective Green, g (s)		24.0			24.0			65.0				
Actuated g/C Ratio		0.25			0.25			0.68				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		417			426			946				
v/s Ratio Prot					c0.08							
v/s Ratio Perm		0.04						0.25				
v/c Ratio		0.18			0.31			0.37				
Uniform Delay, d1		27.8			28.8			6.3				
Progression Factor		0.74			1.00			0.22				
Incremental Delay, d2		0.7			1.9			0.9				
Delay (s)		21.4			30.7			2.3				
Level of Service		C			C			A				
Approach Delay (s)		21.4			30.7			2.3			0.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	46	20	102	16	25	29	54	997	51	19	732	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	*0.75	
Frpb, ped/bikes		0.89			0.92		1.00	0.99		1.00	0.92	
Flpb, ped/bikes		0.96			0.98		0.85	1.00		0.99	1.00	
Frt		0.92			0.94		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1230			1326		1420	3305		1658	2286	
Flt Permitted		0.91			0.92		0.19	1.00		0.17	1.00	
Satd. Flow (perm)		1130			1239		279	3305		288	2286	
Peak-hour factor, PHF	0.81	0.81	0.81	0.88	0.88	0.88	0.90	0.90	0.90	0.93	0.93	0.93
Adj. Flow (vph)	57	25	126	18	28	33	60	1108	57	20	787	75
RTOR Reduction (vph)	0	0	0	0	21	0	0	4	0	0	6	0
Lane Group Flow (vph)	0	208	0	0	58	0	60	1161	0	20	856	0
Confl. Peds. (#/hr)	196		172	172		196	1277		42	42		1277
Confl. Bikes (#/hr)			21			27			24			49
Parking (#/hr)		0	0		0	0					0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		31.5			31.5		53.5	53.5		53.5	53.5	
Effective Green, g (s)		34.0			34.0		55.0	55.0		55.0	55.0	
Actuated g/C Ratio		0.36			0.36		0.58	0.58		0.58	0.58	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		404			443		162	1913		167	1323	
v/s Ratio Prot								0.35			c0.37	
v/s Ratio Perm		c0.18			0.05		0.22			0.07		
v/c Ratio		0.51			0.13		0.37	0.61		0.12	0.65	
Uniform Delay, d1		24.0			20.5		10.7	13.0		9.0	13.5	
Progression Factor		1.00			1.00		0.66	0.52		0.78	0.78	
Incremental Delay, d2		4.6			0.6		5.3	1.2		1.3	2.2	
Delay (s)		28.6			21.2		12.4	8.0		8.4	12.7	
Level of Service		C			C		B	A		A	B	
Approach Delay (s)		28.6			21.2			8.2			12.6	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	21	56	31	24	24	48	1047	41	9	796	54
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.89			0.94		1.00	0.98		1.00	0.96	
Flpb, ped/bikes		0.97			0.95		0.88	1.00		0.94	1.00	
Frt		0.92			0.96		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1395			1471		1478	3255		1573	3181	
Flt Permitted		0.95			0.88		0.24	1.00		0.17	1.00	
Satd. Flow (perm)		1338			1319		372	3255		277	3181	
Peak-hour factor, PHF	0.89	0.89	0.89	0.83	0.83	0.83	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	20	24	63	37	29	29	51	1114	44	10	875	59
RTOR Reduction (vph)	0	9	0	0	8	0	0	3	0	0	5	0
Lane Group Flow (vph)	0	98	0	0	87	0	51	1155	0	10	929	0
Confl. Peds. (#/hr)	211		181	181		211	477		378	378		477
Confl. Bikes (#/hr)			11			24			47			32
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		31.5			31.5		53.5	53.5		53.5	53.5	
Effective Green, g (s)		34.0			34.0		55.0	55.0		55.0	55.0	
Actuated g/C Ratio		0.36			0.36		0.58	0.58		0.58	0.58	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		479			472		215	1884		160	1842	
v/s Ratio Prot								c0.35			0.29	
v/s Ratio Perm		c0.07			0.07		0.14			0.04		
v/c Ratio		0.20			0.18		0.24	0.61		0.06	0.50	
Uniform Delay, d1		21.1			21.0		9.8	13.1		8.7	11.9	
Progression Factor		1.00			1.00		0.19	0.10		0.54	0.48	
Incremental Delay, d2		1.0			0.9		1.6	1.0		0.6	0.8	
Delay (s)		22.1			21.8		3.5	2.3		5.3	6.5	
Level of Service		C			C		A	A		A	A	
Approach Delay (s)		22.1			21.8			2.3			6.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	5.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	45	181	45	26	42	1106	0	0	879	31
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)			3.0	3.0	3.0		3.0	3.0			3.0	
Lane Util. Factor			1.00	1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes			0.84	1.00	0.97		1.00	1.00			0.98	
Flpb, ped/bikes			1.00	0.85	1.00		1.00	1.00			1.00	
Frt			0.86	1.00	0.95		1.00	1.00			0.99	
Flt Protected			1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)			1286	1433	1622		1676	3353			3285	
Flt Permitted			1.00	0.95	1.00		0.16	1.00			1.00	
Satd. Flow (perm)			1286	1433	1622		281	3353			3285	
Peak-hour factor, PHF	0.82	0.82	0.82	0.86	0.86	0.86	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	0	0	55	210	52	30	45	1177	0	0	977	34
RTOR Reduction (vph)	0	0	11	0	15	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	44	210	67	0	45	1177	0	0	1008	0
Confl. Peds. (#/hr)			148	148		65	163					163
Confl. Bikes (#/hr)			8									26
Turn Type			custom	Perm			Perm					
Protected Phases					6			8			8	
Permitted Phases			6	6			8					
Actuated Green, G (s)			43.5	43.5	43.5		41.5	41.5			41.5	
Effective Green, g (s)			46.0	46.0	46.0		43.0	43.0			43.0	
Actuated g/C Ratio			0.48	0.48	0.48		0.45	0.45			0.45	
Clearance Time (s)			5.5	5.5	5.5		4.5	4.5			4.5	
Lane Grp Cap (vph)			623	694	785		127	1518			1487	
v/s Ratio Prot					0.04			c0.35			0.31	
v/s Ratio Perm			0.03	c0.15			0.16					
v/c Ratio			0.07	0.30	0.08		0.35	0.78			0.68	
Uniform Delay, d1			13.1	14.8	13.2		17.0	21.9			20.5	
Progression Factor			1.00	1.00	1.00		0.32	0.47			0.46	
Incremental Delay, d2			0.2	1.1	0.2		1.9	1.0			2.3	
Delay (s)			13.3	15.9	13.4		7.4	11.2			11.6	
Level of Service			B	B	B		A	B			B	
Approach Delay (s)		13.3			15.2			11.1			11.6	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	11.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	40	39	0	0	0	27	1154	207	80	987	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0					2.5	2.5		3.0	3.0	
Lane Util. Factor		0.95					1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.96					1.00	0.95		1.00	0.98	
Flpb, ped/bikes		1.00					0.90	1.00		1.00	1.00	
Frt		0.94					1.00	0.98		1.00	0.99	
Flt Protected		0.99					0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2995					1511	3120		1676	3268	
Flt Permitted		0.99					0.23	1.00		0.09	1.00	
Satd. Flow (perm)		2995					360	3120		155	3268	
Peak-hour factor, PHF	0.80	0.80	0.80	0.95	0.95	0.95	0.94	0.94	0.94	0.93	0.93	0.93
Adj. Flow (vph)	19	50	49	0	0	0	29	1228	220	86	1061	41
RTOR Reduction (vph)	0	14	0	0	0	0	0	15	0	0	3	0
Lane Group Flow (vph)	0	104	0	0	0	0	29	1433	0	86	1099	0
Confl. Peds. (#/hr)	58		92	92		58	277		238	238		277
Confl. Bikes (#/hr)			6						14			10
Turn Type	Split						Perm			pm+pt		
Protected Phases	6	6						8		7	4	
Permitted Phases							8			4		
Actuated Green, G (s)		32.5					41.5	41.5		52.5	52.5	
Effective Green, g (s)		35.0					43.5	43.5		53.5	54.0	
Actuated g/C Ratio		0.37					0.46	0.46		0.56	0.57	
Clearance Time (s)		5.5					4.5	4.5		4.0	4.5	
Lane Grp Cap (vph)		1103					165	1429		215	1858	
v/s Ratio Prot		c0.03						c0.46		0.03	c0.34	
v/s Ratio Perm							0.08			0.19		
v/c Ratio		0.09					0.18	1.00		0.40	0.59	
Uniform Delay, d1		19.6					15.2	25.8		18.0	13.3	
Progression Factor		1.00					1.00	1.00		2.12	1.56	
Incremental Delay, d2		0.2					2.3	24.4		4.5	1.1	
Delay (s)		19.8					17.5	50.2		42.7	22.0	
Level of Service		B					B	D		D	C	
Approach Delay (s)		19.8			0.0			49.6			23.5	
Approach LOS		B			A			D			C	

Intersection Summary			
HCM Average Control Delay	37.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	21	73	18	562	792	72
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	79	20	611	861	78
Pedestrians	202				126	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	17				10	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1573	672	1141			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1573	672	1141			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	68	76	96			
cM capacity (veh/h)	72	331	506			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	102	223	407	574	365
Volume Left	23	20	0	0	0
Volume Right	79	0	0	0	78
cSH	184	506	1700	1700	1700
Volume to Capacity	0.56	0.04	0.24	0.34	0.21
Queue Length 95th (ft)	73	3	0	0	0
Control Delay (s)	46.6	1.6	0.0	0.0	0.0
Lane LOS	E	A			
Approach Delay (s)	46.6	0.6		0.0	
Approach LOS	E				

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix B: Synchro Reports

Future (Year 2020) With Project – AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	46	78	33	61	61	64	66	727	115	70	694	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.81		1.00	0.69	1.00	0.96		1.00	0.98	
Flpb, ped/bikes		0.93	1.00		0.94	1.00	0.92	1.00		0.95	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.98	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1612	1221		1610	1038	1548	3161		1586	3258	
Flt Permitted		0.78	1.00		0.70	1.00	0.33	1.00		0.26	1.00	
Satd. Flow (perm)		1286	1221		1159	1038	537	3161		433	3258	
Peak-hour factor, PHF	0.81	0.81	0.81	0.70	0.70	0.70	0.86	0.86	0.86	0.95	0.95	0.95
Adj. Flow (vph)	57	96	41	87	87	91	77	845	134	74	731	53
RTOR Reduction (vph)	0	0	32	0	0	66	0	8	0	0	3	0
Lane Group Flow (vph)	0	153	9	0	174	25	77	971	0	74	781	0
Confl. Peds. (#/hr)	250		166	166		250	119		119	119		119
Confl. Bikes (#/hr)			7			72			9			5
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6		6	8			8		
Actuated Green, G (s)		18.2	18.2		18.2	18.2	62.8	62.8		62.8	62.8	
Effective Green, g (s)		19.7	19.7		19.7	19.7	64.3	64.3		64.3	64.3	
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.71	0.71		0.71	0.71	
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		281	267		254	227	384	2258		309	2328	
v/s Ratio Prot								c0.31			0.24	
v/s Ratio Perm		0.12	0.01		c0.15	0.02	0.14			0.17		
v/c Ratio		0.54	0.03		0.69	0.11	0.20	0.43		0.24	0.34	
Uniform Delay, d1		31.2	27.7		32.3	28.1	4.3	5.3		4.4	4.8	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.2	0.0		6.0	0.1	1.2	0.6		1.8	0.4	
Delay (s)		32.3	27.7		38.3	28.2	5.5	5.9		6.3	5.2	
Level of Service		C	C		D	C	A	A		A	A	
Approach Delay (s)		31.3			34.8			5.9			5.3	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	83	33	16	45	17	35	184	49	55	188	33
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.75		0.95			0.96			0.97	
Flpb, ped/bikes		0.97	1.00		0.96			0.99			0.98	
Frt		1.00	0.85		0.97			0.98			0.98	
Flt Protected		0.99	1.00		0.99			0.99			0.99	
Satd. Flow (prot)		1708	1129		1392			1623			1643	
Flt Permitted		0.97	1.00		0.95			0.93			0.88	
Satd. Flow (perm)		1668	1129		1335			1513			1462	
Peak-hour factor, PHF	0.75	0.75	0.75	0.88	0.88	0.88	0.80	0.80	0.80	0.78	0.78	0.78
Adj. Flow (vph)	17	111	44	18	51	19	44	230	61	71	241	42
RTOR Reduction (vph)	0	0	25	0	11	0	0	13	0	0	7	0
Lane Group Flow (vph)	0	128	19	0	77	0	0	322	0	0	347	0
Confl. Peds. (#/hr)	143		145	145		143	112		118	118		112
Confl. Bikes (#/hr)			11			4			33			39
Parking (#/hr)					0	0						
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		26.8	26.8		26.8			29.8			29.8	
Effective Green, g (s)		28.0	28.0		28.0			31.0			31.0	
Actuated g/C Ratio		0.43	0.43		0.43			0.48			0.48	
Clearance Time (s)		4.2	4.2		4.2			4.2			4.2	
Lane Grp Cap (vph)		719	486		575			722			697	
v/s Ratio Prot												
v/s Ratio Perm		c0.08	0.02		0.06			0.21			c0.24	
v/c Ratio		0.18	0.04		0.13			0.45			0.50	
Uniform Delay, d1		11.4	10.7		11.2			11.3			11.7	
Progression Factor		1.00	1.00		1.00			0.77			1.00	
Incremental Delay, d2		0.5	0.2		0.5			1.8			2.5	
Delay (s)		11.9	10.9		11.7			10.5			14.2	
Level of Service		B	B		B			B			B	
Approach Delay (s)		11.7			11.7			10.5			14.2	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	12.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	128	76	15	69	50	70	173	21	32	136	68
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.47		0.82			0.97			0.84	
Flpb, ped/bikes		0.89	1.00		0.96			0.92			0.98	
Frt		1.00	0.85		0.95			0.99			0.96	
Flt Protected		0.98	1.00		0.99			0.99			0.99	
Satd. Flow (prot)		1547	705		1175			1387			1386	
Flt Permitted		0.87	1.00		0.96			0.85			0.93	
Satd. Flow (perm)		1373	705		1138			1199			1299	
Peak-hour factor, PHF	0.95	0.95	0.95	0.79	0.79	0.79	0.80	0.80	0.80	0.82	0.82	0.82
Adj. Flow (vph)	63	135	80	19	87	63	88	216	26	39	166	83
RTOR Reduction (vph)	0	0	48	0	33	0	0	5	0	0	23	0
Lane Group Flow (vph)	0	198	32	0	136	0	0	325	0	0	265	0
Confl. Peds. (#/hr)	308		373	373		308	375		178	178		375
Confl. Bikes (#/hr)			11			4			33			39
Parking (#/hr)					0	0		0	0			
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		24.7	24.7		24.7			31.7			31.7	
Effective Green, g (s)		26.0	26.0		26.0			33.0			33.0	
Actuated g/C Ratio		0.40	0.40		0.40			0.51			0.51	
Clearance Time (s)		4.3	4.3		4.3			4.3			4.3	
Lane Grp Cap (vph)		549	282		455			609			659	
v/s Ratio Prot												
v/s Ratio Perm		c0.14	0.05		0.12			c0.27			0.20	
v/c Ratio		0.36	0.11		0.30			0.53			0.40	
Uniform Delay, d1		13.7	12.3		13.3			10.8			9.9	
Progression Factor		1.00	1.00		1.00			1.00			0.53	
Incremental Delay, d2		1.8	0.8		1.7			3.3			1.7	
Delay (s)		15.5	13.1		15.0			14.1			6.9	
Level of Service		B	B		B			B			A	
Approach Delay (s)		14.8			15.0			14.1			6.9	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	12.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	75	98	160	62	60	172
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	82	107	174	67	65	187

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	188	241	252
Volume Left (vph)	82	0	65
Volume Right (vph)	107	67	0
Hadj (s)	-0.22	-0.13	0.09
Departure Headway (s)	4.8	4.6	4.8
Degree Utilization, x	0.25	0.31	0.33
Capacity (veh/h)	684	752	720
Control Delay (s)	9.5	9.6	10.1
Approach Delay (s)	9.5	9.6	10.1
Approach LOS	A	A	B

Intersection Summary			
Delay	9.7		
HCM Level of Service	A		
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	41	44	28	15	5	56	312	0	19	849	55
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			1.0			3.0			3.0	
Lane Util. Factor		1.00			1.00			0.95			*0.85	
Frpb, ped/bikes		0.82			0.97			1.00			0.96	
Flpb, ped/bikes		0.97			0.83			0.98			0.99	
Frt		0.94			0.99			1.00			0.99	
Flt Protected		1.00			0.97			0.99			1.00	
Satd. Flow (prot)		1181			1213			3277			2695	
Flt Permitted		0.98			0.86			0.73			0.94	
Satd. Flow (perm)		1165			1071			2401			2546	
Peak-hour factor, PHF	0.93	0.93	0.93	0.87	0.87	0.87	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	10	44	47	32	17	6	59	328	0	20	903	59
RTOR Reduction (vph)	0	11	0	0	4	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	90	0	0	51	0	0	387	0	0	978	0
Confl. Peds. (#/hr)	239		507	507		239	470		301	301		470
Confl. Bikes (#/hr)			36			10			8			21
Parking (#/hr)		0	0	0	0						0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			8			4	
Permitted Phases	2			2			8			4		
Actuated Green, G (s)		29.0			29.0			53.0			53.0	
Effective Green, g (s)		30.0			32.0			54.0			54.0	
Actuated g/C Ratio		0.33			0.36			0.60			0.60	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		388			381			1441			1528	
v/s Ratio Prot												
v/s Ratio Perm		c0.08			0.05			0.16			c0.38	
v/c Ratio		0.23			0.13			0.27			0.64	
Uniform Delay, d1		21.7			19.6			8.6			11.7	
Progression Factor		1.00			0.23			1.00			1.00	
Incremental Delay, d2		1.4			0.7			0.5			2.1	
Delay (s)		23.1			5.2			9.0			13.8	
Level of Service		C			A			A			B	
Approach Delay (s)		23.1			5.2			9.0			13.8	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM Average Control Delay	12.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	52	0	0	46	8	5	424	23	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0			1.0				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		1.00			0.92			0.97				
Flpb, ped/bikes		0.92			1.00			0.99				
Frt		1.00			0.98			0.99				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1618			1600			1692				
Flt Permitted		0.97			1.00			1.00				
Satd. Flow (perm)		1580			1600			1692				
Peak-hour factor, PHF	0.93	0.93	0.93	0.87	0.87	0.87	0.87	0.87	0.87	0.95	0.95	0.95
Adj. Flow (vph)	11	56	0	0	53	9	6	487	26	0	0	0
RTOR Reduction (vph)	0	0	0	0	6	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	67	0	0	56	0	0	517	0	0	0	0
Confl. Peds. (#/hr)	239		507	507		239	470		301	301		470
Confl. Bikes (#/hr)			36			10			8			
Turn Type	Perm						Perm					
Protected Phases		6			6			8				
Permitted Phases	6						8					
Actuated Green, G (s)		29.0			29.0			53.0				
Effective Green, g (s)		30.0			30.0			56.0				
Actuated g/C Ratio		0.33			0.33			0.62				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		527			533			1053				
v/s Ratio Prot					0.03							
v/s Ratio Perm		c0.04						0.31				
v/c Ratio		0.13			0.11			0.49				
Uniform Delay, d1		20.9			20.7			9.2				
Progression Factor		0.65			1.00			1.00				
Incremental Delay, d2		0.5			0.4			1.6				
Delay (s)		14.0			21.1			10.9				
Level of Service		B			C			B				
Approach Delay (s)		14.0			21.1			10.9			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM Average Control Delay	12.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	26	98	10	56	10	94	754	16	12	784	89
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	*0.75	
Frpb, ped/bikes		0.91			0.98		1.00	0.99		1.00	0.92	
Flpb, ped/bikes		0.98			0.99		1.00	1.00		0.94	1.00	
Frt		0.92			0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1290			1511		1676	3323		1577	2289	
Flt Permitted		0.92			0.96		0.14	1.00		0.28	1.00	
Satd. Flow (perm)		1203			1461		252	3323		460	2289	
Peak-hour factor, PHF	0.86	0.86	0.86	0.69	0.69	0.69	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	42	30	114	14	81	14	100	802	17	13	862	98
RTOR Reduction (vph)	0	2	0	0	6	0	0	2	0	0	7	0
Lane Group Flow (vph)	0	184	0	0	103	0	100	817	0	13	953	0
Confl. Peds. (#/hr)	126		124	124		126	658		101	101		658
Confl. Bikes (#/hr)			48			16			30			28
Parking (#/hr)		0	0		0	0					0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		31.5			31.5		48.5	48.5		48.5	48.5	
Effective Green, g (s)		34.0			34.0		50.0	50.0		50.0	50.0	
Actuated g/C Ratio		0.38			0.38		0.56	0.56		0.56	0.56	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		454			552		140	1846		256	1272	
v/s Ratio Prot								0.25			c0.42	
v/s Ratio Perm		c0.15			0.07		0.40			0.03		
v/c Ratio		0.40			0.19		0.71	0.44		0.05	0.75	
Uniform Delay, d1		20.6			18.7		14.7	11.8		9.1	15.2	
Progression Factor		1.00			1.00		1.01	0.37		1.00	1.00	
Incremental Delay, d2		2.7			0.8		23.6	0.7		0.4	4.1	
Delay (s)		23.2			19.5		38.5	5.0		9.5	19.3	
Level of Service		C			B		D	A		A	B	
Approach Delay (s)		23.2			19.5			8.7			19.2	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	27	79	15	47	14	55	827	59	18	827	55
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.91			0.98		1.00	0.96		1.00	0.97	
Flpb, ped/bikes		0.98			0.98		0.93	1.00		0.90	1.00	
Frt		0.92			0.97		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1442			1633		1556	3194		1514	3230	
Flt Permitted		0.93			0.94		0.22	1.00		0.23	1.00	
Satd. Flow (perm)		1359			1543		360	3194		365	3230	
Peak-hour factor, PHF	0.93	0.93	0.93	0.57	0.57	0.57	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	29	29	85	26	82	25	59	880	63	20	909	60
RTOR Reduction (vph)	0	32	0	0	9	0	0	6	0	0	5	0
Lane Group Flow (vph)	0	111	0	0	124	0	59	937	0	20	964	0
Confl. Peds. (#/hr)	120		154	154		120	172		288	288		172
Confl. Bikes (#/hr)			9			6			45			16
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		31.5			31.5		48.5	48.5		48.5	48.5	
Effective Green, g (s)		34.0			34.0		50.0	50.0		50.0	50.0	
Actuated g/C Ratio		0.38			0.38		0.56	0.56		0.56	0.56	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		513			583		200	1774		203	1794	
v/s Ratio Prot								0.29			c0.30	
v/s Ratio Perm		c0.08			0.08		0.16			0.05		
v/c Ratio		0.22			0.21		0.29	0.53		0.10	0.54	
Uniform Delay, d1		19.0			18.9		10.6	12.6		9.4	12.7	
Progression Factor		1.00			1.00		0.10	0.08		0.61	0.50	
Incremental Delay, d2		1.0			0.8		3.2	1.0		0.7	0.8	
Delay (s)		19.9			19.8		4.2	2.0		6.4	7.1	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		19.9			19.8			2.1			7.1	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	6.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	93	66	43	61	30	885	0	0	895	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)			3.0	3.0	3.0		3.0	3.0			3.0	
Lane Util. Factor			1.00	1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes			0.93	1.00	0.97		1.00	1.00			0.99	
Flpb, ped/bikes			1.00	0.95	1.00		0.97	1.00			1.00	
Frt			0.86	1.00	0.91		1.00	1.00			1.00	
Flt Protected			1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)			1424	1584	1555		1623	3353			3322	
Flt Permitted			1.00	0.95	1.00		0.18	1.00			1.00	
Satd. Flow (perm)			1424	1584	1555		308	3353			3322	
Peak-hour factor, PHF	0.65	0.65	0.65	0.82	0.82	0.82	0.95	0.95	0.95	0.91	0.91	0.91
Adj. Flow (vph)	0	0	143	80	52	74	32	932	0	0	984	22
RTOR Reduction (vph)	0	0	24	0	41	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	119	80	85	0	32	932	0	0	1004	0
Confl. Peds. (#/hr)			59	59		49	94					94
Confl. Bikes (#/hr)			3			1						30
Turn Type			custom	Perm			Perm					
Protected Phases					6			8			8	
Permitted Phases			6	6			8					
Actuated Green, G (s)			37.5	37.5	37.5		42.5	42.5			42.5	
Effective Green, g (s)			40.0	40.0	40.0		44.0	44.0			44.0	
Actuated g/C Ratio			0.44	0.44	0.44		0.49	0.49			0.49	
Clearance Time (s)			5.5	5.5	5.5		4.5	4.5			4.5	
Lane Grp Cap (vph)			633	704	691		151	1639			1624	
v/s Ratio Prot					0.05			0.28			c0.30	
v/s Ratio Perm			c0.08	0.05			0.10					
v/c Ratio			0.19	0.11	0.12		0.21	0.57			0.62	
Uniform Delay, d1			15.2	14.6	14.7		13.1	16.3			16.9	
Progression Factor			1.00	1.00	1.00		0.23	0.39			0.42	
Incremental Delay, d2			0.7	0.3	0.4		1.2	0.5			1.6	
Delay (s)			15.8	15.0	15.1		4.2	6.9			8.7	
Level of Service			B	B	B		A	A			A	
Approach Delay (s)		15.8			15.0			6.8			8.7	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	47	33	0	0	0	36	924	207	100	911	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0					2.5	2.5		3.0	3.0	
Lane Util. Factor		0.95					1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.98					1.00	0.96		1.00	0.99	
Flpb, ped/bikes		1.00					0.92	1.00		1.00	1.00	
Frt		0.94					1.00	0.97		1.00	0.99	
Flt Protected		1.00					0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3082					1545	3132		1676	3292	
Flt Permitted		1.00					0.28	1.00		0.10	1.00	
Satd. Flow (perm)		3082					455	3132		174	3292	
Peak-hour factor, PHF	0.52	0.52	0.52	0.95	0.95	0.95	0.89	0.89	0.89	0.98	0.98	0.98
Adj. Flow (vph)	15	90	63	0	0	0	40	1038	233	102	930	36
RTOR Reduction (vph)	0	32	0	0	0	0	0	21	0	0	3	0
Lane Group Flow (vph)	0	136	0	0	0	0	40	1250	0	102	963	0
Confl. Peds. (#/hr)	21		52				147		155	155		147
Confl. Bikes (#/hr)			5						21			25
Turn Type	Split						Perm			pm+pt		
Protected Phases	6	6						8		7	4	
Permitted Phases							8			4		
Actuated Green, G (s)		32.5					36.5	36.5		47.5	47.5	
Effective Green, g (s)		35.0					38.5	38.5		48.5	49.0	
Actuated g/C Ratio		0.39					0.43	0.43		0.54	0.54	
Clearance Time (s)		5.5					4.5	4.5		4.0	4.5	
Lane Grp Cap (vph)		1199					195	1340		227	1792	
v/s Ratio Prot		c0.04						c0.40		0.04	c0.29	
v/s Ratio Perm							0.09			0.20		
v/c Ratio		0.11					0.21	0.93		0.45	0.54	
Uniform Delay, d1		17.6					16.2	24.5		16.4	13.2	
Progression Factor		1.00					1.00	1.00		2.02	1.57	
Incremental Delay, d2		0.2					2.4	13.0		5.4	1.0	
Delay (s)		17.8					18.5	37.5		38.4	21.7	
Level of Service		B					B	D		D	C	
Approach Delay (s)		17.8			0.0			37.0			23.3	
Approach LOS		B			A			D			C	

Intersection Summary			
HCM Average Control Delay	30.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	19	43	30	374	795	45
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	47	33	407	864	49
Pedestrians	88				71	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	7				6	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1316	545	1001			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1316	545	1001			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	83	90	95			
cM capacity (veh/h)	123	447	637			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	67	168	271	576	337
Volume Left	21	33	0	0	0
Volume Right	47	0	0	0	49
cSH	248	637	1700	1700	1700
Volume to Capacity	0.27	0.05	0.16	0.34	0.20
Queue Length 95th (ft)	27	4	0	0	0
Control Delay (s)	24.9	2.6	0.0	0.0	0.0
Lane LOS	C	A			
Approach Delay (s)	24.9	1.0		0.0	
Approach LOS	C				

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	10	103	149	9	29	38
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	112	162	10	32	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			358			
pX, platoon unblocked						
vC, conflicting volume	172				301	167
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	172				301	167
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				95	95
cM capacity (veh/h)	1405				686	877

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	123	172	73
Volume Left	11	0	32
Volume Right	0	10	41
cSH	1405	1700	783
Volume to Capacity	0.01	0.10	0.09
Queue Length 95th (ft)	1	0	8
Control Delay (s)	0.7	0.0	10.1
Lane LOS	A		B
Approach Delay (s)	0.7	0.0	10.1
Approach LOS			B

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	25.3%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix B: Synchro Reports

Future (Year 2020) With Project – PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	43	60	29	68	103	99	72	1064	105	82	694	54
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.81		1.00	0.82	1.00	0.99		1.00	0.99	
Flpb, ped/bikes		0.96	1.00		0.95	1.00	0.96	1.00		0.98	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1651	1212		1640	1226	1605	3258		1649	3273	
Flt Permitted		0.79	1.00		0.84	1.00	0.31	1.00		0.17	1.00	
Satd. Flow (perm)		1338	1212		1398	1226	518	3258		303	3273	
Peak-hour factor, PHF	0.82	0.82	0.82	0.85	0.85	0.85	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	52	73	35	80	121	116	77	1132	112	90	763	59
RTOR Reduction (vph)	0	0	26	0	0	59	0	7	0	0	5	0
Lane Group Flow (vph)	0	125	9	0	201	57	77	1237	0	90	817	0
Confl. Peds. (#/hr)	147		149	149		147	70		62	62		70
Confl. Bikes (#/hr)			32			20			19			16
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6		6	8			8		
Actuated Green, G (s)		22.9	22.9		22.9	22.9	63.1	63.1		63.1	63.1	
Effective Green, g (s)		24.4	24.4		24.4	24.4	64.6	64.6		64.6	64.6	
Actuated g/C Ratio		0.26	0.26		0.26	0.26	0.68	0.68		0.68	0.68	
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		344	311		359	315	352	2215		206	2226	
v/s Ratio Prot								c0.38			0.25	
v/s Ratio Perm		0.09	0.01		c0.14	0.05	0.15			0.30		
v/c Ratio		0.36	0.03		0.56	0.18	0.22	0.56		0.44	0.37	
Uniform Delay, d1		28.9	26.4		30.6	27.5	5.7	7.8		6.9	6.5	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0		1.1	0.1	1.4	1.0		6.6	0.5	
Delay (s)		29.2	26.4		31.7	27.6	7.1	8.9		13.5	6.9	
Level of Service		C	C		C	C	A	A		B	A	
Approach Delay (s)		28.6			30.2			8.8			7.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	81	49	46	120	66	37	243	76	45	205	49
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.59		0.92			0.94			0.96	
Flpb, ped/bikes		0.97	1.00		0.94			0.99			0.98	
Frt		1.00	0.85		0.96			0.97			0.98	
Flt Protected		0.99	1.00		0.99			0.99			0.99	
Satd. Flow (prot)		1687	885		1306			1579			1622	
Flt Permitted		0.91	1.00		0.93			0.94			0.90	
Satd. Flow (perm)		1547	885		1222			1494			1463	
Peak-hour factor, PHF	0.81	0.81	0.81	0.95	0.95	0.95	0.74	0.74	0.74	0.90	0.90	0.90
Adj. Flow (vph)	30	100	60	48	126	69	50	328	103	50	228	54
RTOR Reduction (vph)	0	0	40	0	20	0	0	14	0	0	10	0
Lane Group Flow (vph)	0	130	20	0	223	0	0	467	0	0	322	0
Confl. Peds. (#/hr)	147		233	233		147	112		156	156		112
Confl. Bikes (#/hr)			14			19			49			55
Parking (#/hr)					0	0						
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		21.8	21.8		21.8			39.8			39.8	
Effective Green, g (s)		23.0	23.0		23.0			41.0			41.0	
Actuated g/C Ratio		0.33	0.33		0.33			0.59			0.59	
Clearance Time (s)		4.2	4.2		4.2			4.2			4.2	
Lane Grp Cap (vph)		508	291		402			875			857	
v/s Ratio Prot												
v/s Ratio Perm		0.08	0.02		c0.18			c0.31			0.22	
v/c Ratio		0.26	0.07		0.55			0.53			0.38	
Uniform Delay, d1		17.2	16.1		19.3			8.7			7.7	
Progression Factor		1.00	1.00		1.00			0.76			1.00	
Incremental Delay, d2		1.2	0.4		5.4			2.0			1.3	
Delay (s)		18.4	16.6		24.7			8.7			9.0	
Level of Service		B	B		C			A			A	
Approach Delay (s)		17.9			24.7			8.7			9.0	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	87	102	16	109	59	88	289	25	29	228	65
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.59		0.85			0.98			0.94	
Flpb, ped/bikes		0.90	1.00		0.97			0.97			0.99	
Frt		1.00	0.85		0.96			0.99			0.97	
Flt Protected		0.98	1.00		1.00			0.99			1.00	
Satd. Flow (prot)		1570	885		1254			1479			1586	
Flt Permitted		0.86	1.00		0.97			0.86			0.94	
Satd. Flow (perm)		1377	885		1225			1281			1505	
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.89	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	53	102	120	18	120	65	99	325	28	32	248	71
RTOR Reduction (vph)	0	0	81	0	24	0	0	3	0	0	13	0
Lane Group Flow (vph)	0	155	39	0	179	0	0	449	0	0	338	0
Confl. Peds. (#/hr)	260		231	231		260	133		182	182		133
Confl. Bikes (#/hr)			18			31			58			71
Parking (#/hr)					0	0		0	0			
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		21.7	21.7		21.7			39.7			39.7	
Effective Green, g (s)		23.0	23.0		23.0			41.0			41.0	
Actuated g/C Ratio		0.33	0.33		0.33			0.59			0.59	
Clearance Time (s)		4.3	4.3		4.3			4.3			4.3	
Lane Grp Cap (vph)		452	291		403			750			882	
v/s Ratio Prot												
v/s Ratio Perm		0.11	0.04		c0.15			c0.35			0.22	
v/c Ratio		0.34	0.14		0.44			0.60			0.38	
Uniform Delay, d1		17.8	16.5		18.5			9.2			7.7	
Progression Factor		1.00	1.00		1.00			1.00			0.77	
Incremental Delay, d2		2.1	1.0		3.5			3.5			1.2	
Delay (s)		19.8	17.5		22.0			12.8			7.2	
Level of Service		B	B		C			B			A	
Approach Delay (s)		18.8			22.0			12.8			7.2	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM Average Control Delay	14.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	62	115	280	66	80	271
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	67	125	304	72	87	295

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	192	376	382
Volume Left (vph)	67	0	87
Volume Right (vph)	125	72	0
Hadj (s)	-0.29	-0.08	0.08
Departure Headway (s)	5.4	4.9	5.0
Degree Utilization, x	0.29	0.51	0.53
Capacity (veh/h)	597	711	690
Control Delay (s)	10.7	12.9	13.6
Approach Delay (s)	10.7	12.9	13.6
Approach LOS	B	B	B

Intersection Summary			
Delay	12.7		
HCM Level of Service	B		
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	36	101	57	29	17	36	696	0	27	690	91
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0			3.0			3.0	
Lane Util. Factor		1.00			1.00			0.95			*0.85	
Frpb, ped/bikes		0.65			0.94			1.00			0.90	
Flpb, ped/bikes		0.97			0.82			0.99			0.99	
Frt		0.91			0.98			1.00			0.98	
Flt Protected		0.99			0.97			1.00			1.00	
Satd. Flow (prot)		908			1155			3310			2501	
Flt Permitted		0.96			0.74			0.87			0.91	
Satd. Flow (perm)		875			880			2891			2288	
Peak-hour factor, PHF	0.92	0.92	0.92	0.79	0.79	0.79	0.95	0.95	0.95	0.96	0.96	0.96
Adj. Flow (vph)	22	39	110	72	37	22	38	733	0	28	719	95
RTOR Reduction (vph)	0	4	0	0	7	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	167	0	0	124	0	0	771	0	0	840	0
Confl. Peds. (#/hr)	435		1210	1210		435	924		439	439		924
Confl. Bikes (#/hr)			12			10			4			39
Parking (#/hr)		0	0	0	0						0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			8			4	
Permitted Phases	2			2			8			4		
Actuated Green, G (s)		23.0			23.0			64.0			64.0	
Effective Green, g (s)		24.0			24.0			65.0			65.0	
Actuated g/C Ratio		0.25			0.25			0.68			0.68	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		221			222			1978			1565	
v/s Ratio Prot												
v/s Ratio Perm		c0.19			0.14			0.27			c0.37	
v/c Ratio		0.75			0.56			0.39			0.54	
Uniform Delay, d1		32.8			30.9			6.5			7.5	
Progression Factor		1.00			0.17			1.00			1.00	
Incremental Delay, d2		20.9			9.4			0.6			1.3	
Delay (s)		53.7			14.5			7.0			8.8	
Level of Service		D			B			A			A	
Approach Delay (s)		53.7			14.5			7.0			8.8	
Approach LOS		D			B			A			A	

Intersection Summary			
HCM Average Control Delay	12.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	62	0	0	102	6	5	235	95	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0			3.0				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		1.00			0.96			0.82				
Flpb, ped/bikes		0.96			1.00			0.99				
Frt		1.00			0.99			0.96				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1680			1688			1382				
Flt Permitted		0.98			1.00			1.00				
Satd. Flow (perm)		1651			1688			1382				
Peak-hour factor, PHF	0.92	0.92	0.92	0.79	0.79	0.79	0.96	0.96	0.96	0.95	0.95	0.95
Adj. Flow (vph)	7	67	0	0	129	8	5	245	99	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	74	0	0	135	0	0	349	0	0	0	0
Confl. Peds. (#/hr)	435		1210	1210		435	924		439			
Confl. Bikes (#/hr)			12			10			4			
Turn Type	Perm						Perm					
Protected Phases		6			6			8				
Permitted Phases	6						8					
Actuated Green, G (s)		23.0			23.0			64.0				
Effective Green, g (s)		24.0			24.0			65.0				
Actuated g/C Ratio		0.25			0.25			0.68				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		417			426			946				
v/s Ratio Prot					c0.08							
v/s Ratio Perm		0.04						0.25				
v/c Ratio		0.18			0.32			0.37				
Uniform Delay, d1		27.8			28.8			6.3				
Progression Factor		0.74			1.00			0.21				
Incremental Delay, d2		0.7			1.9			0.9				
Delay (s)		21.3			30.8			2.3				
Level of Service		C			C			A				
Approach Delay (s)		21.3			30.8			2.3			0.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	11.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	43	20	95	17	26	29	51	1001	51	19	745	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	*0.75	
Frpb, ped/bikes		0.89			0.92		1.00	0.99		1.00	0.92	
Flpb, ped/bikes		0.96			0.98		0.85	1.00		0.99	1.00	
Frt		0.92			0.95		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1234			1332		1431	3305		1658	2290	
Flt Permitted		0.91			0.92		0.18	1.00		0.16	1.00	
Satd. Flow (perm)		1135			1244		273	3305		286	2290	
Peak-hour factor, PHF	0.81	0.81	0.81	0.88	0.88	0.88	0.90	0.90	0.90	0.93	0.93	0.93
Adj. Flow (vph)	53	25	117	19	30	33	57	1112	57	20	801	75
RTOR Reduction (vph)	0	0	0	0	21	0	0	4	0	0	5	0
Lane Group Flow (vph)	0	195	0	0	61	0	57	1165	0	20	871	0
Confl. Peds. (#/hr)	196		172	172		196	1277		42	42		1277
Confl. Bikes (#/hr)			21			27			24			49
Parking (#/hr)		0	0		0	0					0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		31.5			31.5		53.5	53.5		53.5	53.5	
Effective Green, g (s)		34.0			34.0		55.0	55.0		55.0	55.0	
Actuated g/C Ratio		0.36			0.36		0.58	0.58		0.58	0.58	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		406			445		158	1913		166	1326	
v/s Ratio Prot								0.35			c0.38	
v/s Ratio Perm		c0.17			0.05		0.21			0.07		
v/c Ratio		0.48			0.14		0.36	0.61		0.12	0.66	
Uniform Delay, d1		23.6			20.6		10.6	13.0		9.1	13.6	
Progression Factor		1.00			1.00		0.69	0.55		0.78	0.77	
Incremental Delay, d2		4.0			0.6		5.3	1.2		1.3	2.3	
Delay (s)		27.7			21.2		12.6	8.4		8.4	12.8	
Level of Service		C			C		B	A		A	B	
Approach Delay (s)		27.7			21.2			8.6			12.7	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	21	69	31	25	24	74	1042	41	9	788	68
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.89			0.94		1.00	0.98		1.00	0.95	
Flpb, ped/bikes		0.96			0.95		0.88	1.00		0.94	1.00	
Frt		0.92			0.96		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1382			1478		1481	3255		1571	3137	
Flt Permitted		0.93			0.87		0.24	1.00		0.17	1.00	
Satd. Flow (perm)		1304			1316		369	3255		279	3137	
Peak-hour factor, PHF	0.89	0.89	0.89	0.83	0.83	0.83	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	29	24	78	37	30	29	79	1109	44	10	866	75
RTOR Reduction (vph)	0	9	0	0	8	0	0	3	0	0	7	0
Lane Group Flow (vph)	0	122	0	0	88	0	79	1150	0	10	934	0
Confl. Peds. (#/hr)	211		181	181		211	477		378	378		477
Confl. Bikes (#/hr)			11			24			47			32
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		31.5			31.5		53.5	53.5		53.5	53.5	
Effective Green, g (s)		34.0			34.0		55.0	55.0		55.0	55.0	
Actuated g/C Ratio		0.36			0.36		0.58	0.58		0.58	0.58	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		467			471		214	1884		162	1816	
v/s Ratio Prot								c0.35			0.30	
v/s Ratio Perm		c0.09			0.07		0.21			0.04		
v/c Ratio		0.26			0.19		0.37	0.61		0.06	0.51	
Uniform Delay, d1		21.6			21.0		10.7	13.0		8.7	12.0	
Progression Factor		1.00			1.00		0.18	0.12		0.54	0.46	
Incremental Delay, d2		1.4			0.9		3.0	0.9		0.6	0.8	
Delay (s)		23.0			21.9		4.9	2.4		5.3	6.4	
Level of Service		C			C		A	A		A	A	
Approach Delay (s)		23.0			21.9			2.6			6.3	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	5.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	46	181	46	29	42	1125	0	0	883	31
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)			3.0	3.0	3.0		3.0	3.0			3.0	
Lane Util. Factor			1.00	1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes			0.84	1.00	0.97		1.00	1.00			0.98	
Flpb, ped/bikes			1.00	0.85	1.00		1.00	1.00			1.00	
Frt			0.86	1.00	0.94		1.00	1.00			0.99	
Flt Protected			1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)			1286	1433	1613		1676	3353			3285	
Flt Permitted			1.00	0.95	1.00		0.16	1.00			1.00	
Satd. Flow (perm)			1286	1433	1613		279	3353			3285	
Peak-hour factor, PHF	0.82	0.82	0.82	0.86	0.86	0.86	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	0	0	56	210	53	34	45	1197	0	0	981	34
RTOR Reduction (vph)	0	0	11	0	16	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	45	210	71	0	45	1197	0	0	1012	0
Confl. Peds. (#/hr)			148	148		65	163					163
Confl. Bikes (#/hr)			8									26
Turn Type			custom	Perm			Perm					
Protected Phases					6			8			8	
Permitted Phases			6	6			8					
Actuated Green, G (s)			43.5	43.5	43.5		41.5	41.5			41.5	
Effective Green, g (s)			46.0	46.0	46.0		43.0	43.0			43.0	
Actuated g/C Ratio			0.48	0.48	0.48		0.45	0.45			0.45	
Clearance Time (s)			5.5	5.5	5.5		4.5	4.5			4.5	
Lane Grp Cap (vph)			623	694	781		126	1518			1487	
v/s Ratio Prot					0.04			c0.36			0.31	
v/s Ratio Perm			0.04	c0.15			0.16					
v/c Ratio			0.07	0.30	0.09		0.36	0.79			0.68	
Uniform Delay, d1			13.1	14.8	13.2		17.0	22.1			20.6	
Progression Factor			1.00	1.00	1.00		0.32	0.47			0.49	
Incremental Delay, d2			0.2	1.1	0.2		0.7	0.4			2.3	
Delay (s)			13.3	15.9	13.4		6.2	10.9			12.3	
Level of Service			B	B	B		A	B			B	
Approach Delay (s)		13.3			15.2			10.7			12.3	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	40	39	0	0	0	27	1173	207	80	991	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0					2.5	2.5		3.0	3.0	
Lane Util. Factor		0.95					1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.96					1.00	0.95		1.00	0.98	
Flpb, ped/bikes		1.00					0.90	1.00		1.00	1.00	
Frt		0.94					1.00	0.98		1.00	0.99	
Flt Protected		0.99					0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2995					1513	3123		1676	3268	
Flt Permitted		0.99					0.22	1.00		0.09	1.00	
Satd. Flow (perm)		2995					357	3123		155	3268	
Peak-hour factor, PHF	0.80	0.80	0.80	0.95	0.95	0.95	0.94	0.94	0.94	0.93	0.93	0.93
Adj. Flow (vph)	19	50	49	0	0	0	29	1248	220	86	1066	41
RTOR Reduction (vph)	0	14	0	0	0	0	0	15	0	0	3	0
Lane Group Flow (vph)	0	104	0	0	0	0	29	1453	0	86	1104	0
Confl. Peds. (#/hr)	58		92	92		58	277		238	238		277
Confl. Bikes (#/hr)			6						14			10
Turn Type	Split						Perm			pm+pt		
Protected Phases	6	6						8		7	4	
Permitted Phases							8			4		
Actuated Green, G (s)		32.5					41.5	41.5		52.5	52.5	
Effective Green, g (s)		35.0					43.5	43.5		53.5	54.0	
Actuated g/C Ratio		0.37					0.46	0.46		0.56	0.57	
Clearance Time (s)		5.5					4.5	4.5		4.0	4.5	
Lane Grp Cap (vph)		1103					163	1430		215	1858	
v/s Ratio Prot		c0.03						c0.47		0.03	c0.34	
v/s Ratio Perm							0.08			0.19		
v/c Ratio		0.09					0.18	1.02		0.40	0.59	
Uniform Delay, d1		19.6					15.2	25.8		18.3	13.4	
Progression Factor		1.00					1.00	1.00		2.13	1.56	
Incremental Delay, d2		0.2					2.4	27.8		4.5	1.1	
Delay (s)		19.8					17.6	53.6		43.5	22.0	
Level of Service		B					B	D		D	C	
Approach Delay (s)		19.8			0.0			52.9			23.6	
Approach LOS		B			A			D			C	

Intersection Summary			
HCM Average Control Delay	39.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	21	73	18	562	793	74
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	79	20	611	862	80
Pedestrians	202				126	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	17				10	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1575	673	1144			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1575	673	1144			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	68	76	96			
cM capacity (veh/h)	72	331	504			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	102	223	407	575	368
Volume Left	23	20	0	0	0
Volume Right	79	0	0	0	80
cSH	183	504	1700	1700	1700
Volume to Capacity	0.56	0.04	0.24	0.34	0.22
Queue Length 95th (ft)	73	3	0	0	0
Control Delay (s)	46.8	1.6	0.0	0.0	0.0
Lane LOS	E	A			
Approach Delay (s)	46.8	0.6		0.0	
Approach LOS	E				

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	47	88	125	42	27	34
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	51	96	136	46	29	37
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			358			
pX, platoon unblocked						
vC, conflicting volume	182				357	159
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	182				357	159
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				95	96
cM capacity (veh/h)	1394				618	887

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	147	182	66
Volume Left	51	0	29
Volume Right	0	46	37
cSH	1394	1700	744
Volume to Capacity	0.04	0.11	0.09
Queue Length 95th (ft)	3	0	7
Control Delay (s)	2.9	0.0	10.3
Lane LOS	A		B
Approach Delay (s)	2.9	0.0	10.3
Approach LOS			B

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	31.1%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix B: Synchro Reports

Future (Year 2035) No Project – AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	92	39	67	70	65	77	844	134	82	805	59
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.81		1.00	0.69	1.00	0.96		1.00	0.98	
Flpb, ped/bikes		0.93	1.00		0.94	1.00	0.94	1.00		0.96	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.98	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1619	1221		1620	1041	1575	3161		1610	3257	
Flt Permitted		0.72	1.00		0.64	1.00	0.28	1.00		0.21	1.00	
Satd. Flow (perm)		1189	1221		1067	1041	466	3161		355	3257	
Peak-hour factor, PHF	0.81	0.81	0.81	0.70	0.70	0.70	0.86	0.86	0.86	0.95	0.95	0.95
Adj. Flow (vph)	67	114	48	96	100	93	90	981	156	86	847	62
RTOR Reduction (vph)	0	0	37	0	0	44	0	8	0	0	4	0
Lane Group Flow (vph)	0	181	11	0	196	49	90	1129	0	86	905	0
Confl. Peds. (#/hr)	250		166	166		250	119		119	119		119
Confl. Bikes (#/hr)			7			72			9			5
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6		6	8			8		
Actuated Green, G (s)		19.1	19.1		19.1	19.1	61.9	61.9		61.9	61.9	
Effective Green, g (s)		20.6	20.6		20.6	20.6	63.4	63.4		63.4	63.4	
Actuated g/C Ratio		0.23	0.23		0.23	0.23	0.70	0.70		0.70	0.70	
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		272	279		244	238	328	2227		250	2294	
v/s Ratio Prot								c0.36			0.28	
v/s Ratio Perm		0.15	0.01		c0.18	0.05	0.19			0.24		
v/c Ratio		0.67	0.04		0.80	0.21	0.27	0.51		0.34	0.39	
Uniform Delay, d1		31.6	27.0		32.8	28.1	4.9	6.1		5.2	5.4	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.7	0.0		16.3	0.2	2.1	0.8		3.7	0.5	
Delay (s)		36.3	27.0		49.1	28.2	6.9	6.9		8.9	6.0	
Level of Service		D	C		D	C	A	A		A	A	
Approach Delay (s)		34.3			42.4			6.9			6.2	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM Average Control Delay	12.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	96	40	20	52	20	39	213	56	63	222	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.75		0.95			0.96			0.97	
Flpb, ped/bikes		0.98	1.00		0.96			0.99			0.98	
Frt		1.00	0.85		0.97			0.98			0.98	
Flt Protected		0.99	1.00		0.99			0.99			0.99	
Satd. Flow (prot)		1709	1129		1387			1626			1647	
Flt Permitted		0.97	1.00		0.94			0.92			0.88	
Satd. Flow (perm)		1662	1129		1316			1501			1458	
Peak-hour factor, PHF	0.75	0.75	0.75	0.88	0.88	0.88	0.80	0.80	0.80	0.78	0.78	0.78
Adj. Flow (vph)	20	128	53	23	59	23	49	266	70	81	285	50
RTOR Reduction (vph)	0	0	30	0	13	0	0	13	0	0	7	0
Lane Group Flow (vph)	0	148	23	0	92	0	0	372	0	0	409	0
Confl. Peds. (#/hr)	143		145	145		143	112		118	118		112
Confl. Bikes (#/hr)			11			4			33			39
Parking (#/hr)					0	0						
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		26.8	26.8		26.8			29.8			29.8	
Effective Green, g (s)		28.0	28.0		28.0			31.0			31.0	
Actuated g/C Ratio		0.43	0.43		0.43			0.48			0.48	
Clearance Time (s)		4.2	4.2		4.2			4.2			4.2	
Lane Grp Cap (vph)		716	486		567			716			695	
v/s Ratio Prot												
v/s Ratio Perm		c0.09	0.02		0.07			0.25			c0.28	
v/c Ratio		0.21	0.05		0.16			0.52			0.59	
Uniform Delay, d1		11.6	10.7		11.3			11.8			12.4	
Progression Factor		1.00	1.00		1.00			0.78			1.00	
Incremental Delay, d2		0.7	0.2		0.6			2.3			3.6	
Delay (s)		12.2	10.9		11.9			11.6			16.0	
Level of Service		B	B		B			B			B	
Approach Delay (s)		11.9			11.9			11.6			16.0	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	151	88	19	80	59	70	195	27	41	158	78
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.47		0.82			0.97			0.85	
Flpb, ped/bikes		0.90	1.00		0.96			0.93			0.98	
Frt		1.00	0.85		0.95			0.99			0.96	
Flt Protected		0.98	1.00		0.99			0.99			0.99	
Satd. Flow (prot)		1560	705		1173			1402			1393	
Flt Permitted		0.86	1.00		0.95			0.85			0.91	
Satd. Flow (perm)		1361	705		1126			1210			1282	
Peak-hour factor, PHF	0.95	0.95	0.95	0.79	0.79	0.79	0.80	0.80	0.80	0.82	0.82	0.82
Adj. Flow (vph)	74	159	93	24	101	75	88	244	34	50	193	95
RTOR Reduction (vph)	0	0	51	0	33	0	0	6	0	0	22	0
Lane Group Flow (vph)	0	233	42	0	167	0	0	360	0	0	316	0
Confl. Peds. (#/hr)	308		373	373		308	375		178	178		375
Confl. Bikes (#/hr)			11			4			33			39
Parking (#/hr)					0	0		0	0			
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		24.7	24.7		24.7			31.7			31.7	
Effective Green, g (s)		26.0	26.0		26.0			33.0			33.0	
Actuated g/C Ratio		0.40	0.40		0.40			0.51			0.51	
Clearance Time (s)		4.3	4.3		4.3			4.3			4.3	
Lane Grp Cap (vph)		544	282		450			614			651	
v/s Ratio Prot												
v/s Ratio Perm		c0.17	0.06		0.15			c0.30			0.25	
v/c Ratio		0.43	0.15		0.37			0.59			0.49	
Uniform Delay, d1		14.1	12.4		13.7			11.2			10.5	
Progression Factor		1.00	1.00		1.00			1.00			0.58	
Incremental Delay, d2		2.5	1.1		2.3			4.1			2.3	
Delay (s)		16.6	13.6		16.1			15.3			8.3	
Level of Service		B	B		B			B			A	
Approach Delay (s)		15.7			16.1			15.3			8.3	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	61	96	189	71	70	200
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	66	104	205	77	76	217

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	171	283	293
Volume Left (vph)	66	0	76
Volume Right (vph)	104	77	0
Hadj (s)	-0.26	-0.13	0.09
Departure Headway (s)	5.0	4.6	4.8
Degree Utilization, x	0.24	0.36	0.39
Capacity (veh/h)	658	752	721
Control Delay (s)	9.5	10.1	10.8
Approach Delay (s)	9.5	10.1	10.8
Approach LOS	A	B	B

Intersection Summary			
Delay	10.3		
HCM Level of Service	B		
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	46	51	32	17	6	65	360	0	22	987	63
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			1.0			3.0			3.0	
Lane Util. Factor		1.00			1.00			0.95			*0.85	
Frpb, ped/bikes		0.81			0.97			1.00			0.96	
Flpb, ped/bikes		0.98			0.83			1.00			0.99	
Frt		0.93			0.99			1.00			0.99	
Flt Protected		1.00			0.97			0.99			1.00	
Satd. Flow (prot)		1173			1224			3328			2700	
Flt Permitted		0.98			0.85			0.67			0.94	
Satd. Flow (perm)		1158			1067			2238			2544	
Peak-hour factor, PHF	0.93	0.93	0.93	0.87	0.87	0.87	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	10	49	55	37	20	7	68	379	0	23	1050	67
RTOR Reduction (vph)	0	7	0	0	5	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	107	0	0	59	0	0	447	0	0	1136	0
Confl. Peds. (#/hr)	239		507	507		239	470		301	301		470
Confl. Bikes (#/hr)			36			10			8			21
Parking (#/hr)		0	0	0	0						0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			8			4	
Permitted Phases	2			2			8			4		
Actuated Green, G (s)		29.0			29.0			53.0			53.0	
Effective Green, g (s)		30.0			32.0			54.0			54.0	
Actuated g/C Ratio		0.33			0.36			0.60			0.60	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		386			379			1343			1526	
v/s Ratio Prot												
v/s Ratio Perm		c0.09			0.06			0.20			c0.45	
v/c Ratio		0.28			0.16			0.33			0.74	
Uniform Delay, d1		22.0			19.8			9.0			13.0	
Progression Factor		1.00			0.22			1.00			1.00	
Incremental Delay, d2		1.8			0.9			0.7			3.3	
Delay (s)		23.8			5.2			9.7			16.3	
Level of Service		C			A			A			B	
Approach Delay (s)		23.8			5.2			9.7			16.3	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	60	0	0	55	9	6	490	26	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0			1.0				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		1.00			0.93			0.97				
Flpb, ped/bikes		0.93			1.00			0.99				
Frt		1.00			0.98			0.99				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1627			1609			1692				
Flt Permitted		0.97			1.00			1.00				
Satd. Flow (perm)		1587			1609			1692				
Peak-hour factor, PHF	0.93	0.93	0.93	0.87	0.87	0.87	0.87	0.87	0.87	0.95	0.95	0.95
Adj. Flow (vph)	12	65	0	0	63	10	7	563	30	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	77	0	0	66	0	0	598	0	0	0	0
Confl. Peds. (#/hr)	239		507	507		239	470		301	301		470
Confl. Bikes (#/hr)			36			10			8			
Turn Type	Perm						Perm					
Protected Phases		6			6			8				
Permitted Phases	6						8					
Actuated Green, G (s)		29.0			29.0			53.0				
Effective Green, g (s)		30.0			30.0			56.0				
Actuated g/C Ratio		0.33			0.33			0.62				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		529			536			1053				
v/s Ratio Prot					0.04							
v/s Ratio Perm		c0.05						0.35				
v/c Ratio		0.15			0.12			0.57				
Uniform Delay, d1		21.0			20.9			9.9				
Progression Factor		0.61			1.00			1.00				
Incremental Delay, d2		0.5			0.5			2.2				
Delay (s)		13.4			21.3			12.1				
Level of Service		B			C			B				
Approach Delay (s)		13.4			21.3			12.1			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	29	115	11	66	11	113	873	17	14	909	107
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	*0.75	
Frpb, ped/bikes		0.91			0.98		1.00	0.99		1.00	0.92	
Flpb, ped/bikes		0.98			0.99		1.00	1.00		0.96	1.00	
Frt		0.92			0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1288			1514		1676	3325		1602	2282	
Flt Permitted		0.92			0.96		0.09	1.00		0.23	1.00	
Satd. Flow (perm)		1196			1458		165	3325		384	2282	
Peak-hour factor, PHF	0.86	0.86	0.86	0.69	0.69	0.69	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	47	34	134	16	96	16	120	929	18	15	999	118
RTOR Reduction (vph)	0	2	0	0	6	0	0	1	0	0	8	0
Lane Group Flow (vph)	0	213	0	0	122	0	120	946	0	15	1109	0
Confl. Peds. (#/hr)	126		124	124		126	658		101	101		658
Confl. Bikes (#/hr)			48			16			30			28
Parking (#/hr)		0	0		0	0					0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		31.5			31.5		48.5	48.5		48.5	48.5	
Effective Green, g (s)		34.0			34.0		50.0	50.0		50.0	50.0	
Actuated g/C Ratio		0.38			0.38		0.56	0.56		0.56	0.56	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		452			551		92	1847		213	1268	
v/s Ratio Prot								0.28			0.49	
v/s Ratio Perm		c0.18			0.08		c0.73			0.04		
v/c Ratio		0.47			0.22		1.30	0.51		0.07	0.87	
Uniform Delay, d1		21.2			19.0		20.0	12.4		9.3	17.3	
Progression Factor		1.00			1.00		1.11	0.52		1.00	1.00	
Incremental Delay, d2		3.5			0.9		186.5	0.8		0.6	8.6	
Delay (s)		24.7			19.9		208.7	7.3		9.9	25.9	
Level of Service		C			B		F	A		A	C	
Approach Delay (s)		24.7			19.9			29.9			25.7	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM Average Control Delay	27.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	30	62	17	56	16	61	965	68	21	961	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.92			0.98		1.00	0.96		1.00	0.97	
Flpb, ped/bikes		0.98			0.98		0.95	1.00		0.93	1.00	
Frt		0.93			0.98		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1470			1636		1595	3197		1566	3233	
Flt Permitted		0.92			0.94		0.17	1.00		0.18	1.00	
Satd. Flow (perm)		1374			1547		284	3197		292	3233	
Peak-hour factor, PHF	0.93	0.93	0.93	0.57	0.57	0.57	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	28	32	67	30	98	28	65	1027	72	23	1056	68
RTOR Reduction (vph)	0	22	0	0	9	0	0	6	0	0	5	0
Lane Group Flow (vph)	0	105	0	0	147	0	65	1093	0	23	1119	0
Confl. Peds. (#/hr)	120		154	154		120	172		288	288		172
Confl. Bikes (#/hr)			9			6			45			16
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		31.5			31.5		48.5	48.5		48.5	48.5	
Effective Green, g (s)		34.0			34.0		50.0	50.0		50.0	50.0	
Actuated g/C Ratio		0.38			0.38		0.56	0.56		0.56	0.56	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		519			584		158	1776		162	1796	
v/s Ratio Prot								0.34			c0.35	
v/s Ratio Perm		0.08			c0.10		0.23			0.08		
v/c Ratio		0.20			0.25		0.41	0.62		0.14	0.62	
Uniform Delay, d1		18.9			19.3		11.5	13.5		9.7	13.6	
Progression Factor		1.00			1.00		0.25	0.12		0.70	0.53	
Incremental Delay, d2		0.9			1.0		6.1	1.3		1.0	0.9	
Delay (s)		19.7			20.3		8.9	2.9		7.8	8.1	
Level of Service		B			C		A	A		A	A	
Approach Delay (s)		19.7			20.3			3.3			8.1	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM Average Control Delay	7.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	86.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	107	77	50	72	35	1029	0	0	1011	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)			3.0	3.0	3.0		3.0	3.0			3.0	
Lane Util. Factor			1.00	1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes			0.93	1.00	0.97		1.00	1.00			0.99	
Flpb, ped/bikes			1.00	0.95	1.00		1.00	1.00			1.00	
Frt			0.86	1.00	0.91		1.00	1.00			1.00	
Flt Protected			1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)			1424	1584	1554		1676	3353			3321	
Flt Permitted			1.00	0.95	1.00		0.14	1.00			1.00	
Satd. Flow (perm)			1424	1584	1554		242	3353			3321	
Peak-hour factor, PHF	0.65	0.65	0.65	0.82	0.82	0.82	0.95	0.95	0.95	0.91	0.91	0.91
Adj. Flow (vph)	0	0	165	94	61	88	37	1083	0	0	1111	26
RTOR Reduction (vph)	0	0	16	0	31	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	149	94	118	0	37	1083	0	0	1135	0
Confl. Peds. (#/hr)			59	59		49	94					94
Confl. Bikes (#/hr)			3			1						30
Turn Type			custom	Perm			Perm					
Protected Phases					6			8			8	
Permitted Phases			6	6			8					
Actuated Green, G (s)			37.5	37.5	37.5		42.5	42.5			42.5	
Effective Green, g (s)			40.0	40.0	40.0		44.0	44.0			44.0	
Actuated g/C Ratio			0.44	0.44	0.44		0.49	0.49			0.49	
Clearance Time (s)			5.5	5.5	5.5		4.5	4.5			4.5	
Lane Grp Cap (vph)			633	704	691		118	1639			1624	
v/s Ratio Prot					0.08			0.32			c0.34	
v/s Ratio Perm			c0.10	0.06			0.15					
v/c Ratio			0.24	0.13	0.17		0.31	0.66			0.70	
Uniform Delay, d1			15.5	14.8	15.0		13.9	17.4			17.9	
Progression Factor			1.00	1.00	1.00		0.33	0.42			0.45	
Incremental Delay, d2			0.9	0.4	0.5		0.6	0.2			2.1	
Delay (s)			16.4	15.2	15.6		5.2	7.5			10.1	
Level of Service			B	B	B		A	A			B	
Approach Delay (s)		16.4			15.4			7.4			10.1	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	50	39	0	0	0	42	1075	240	115	1031	41
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0					2.5	2.5		3.0	3.0	
Lane Util. Factor		0.95					1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.98					1.00	0.96		1.00	0.99	
Flpb, ped/bikes		1.00					0.94	1.00		1.00	1.00	
Frt		0.94					1.00	0.97		1.00	0.99	
Flt Protected		1.00					0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3066					1575	3133		1676	3290	
Flt Permitted		1.00					0.23	1.00		0.10	1.00	
Satd. Flow (perm)		3066					373	3133		174	3290	
Peak-hour factor, PHF	0.52	0.52	0.52	0.95	0.95	0.95	0.89	0.89	0.89	0.98	0.98	0.98
Adj. Flow (vph)	17	96	75	0	0	0	47	1208	270	117	1052	42
RTOR Reduction (vph)	0	23	0	0	0	0	0	21	0	0	3	0
Lane Group Flow (vph)	0	165	0	0	0	0	47	1457	0	117	1091	0
Confl. Peds. (#/hr)	21		52				147		155	155		147
Confl. Bikes (#/hr)			5						21			25
Turn Type	Split						Perm			pm+pt		
Protected Phases	6	6						8		7	4	
Permitted Phases							8			4		
Actuated Green, G (s)		32.5					36.5	36.5		47.5	47.5	
Effective Green, g (s)		35.0					38.5	38.5		48.5	49.0	
Actuated g/C Ratio		0.39					0.43	0.43		0.54	0.54	
Clearance Time (s)		5.5					4.5	4.5		4.0	4.5	
Lane Grp Cap (vph)		1192					160	1340		227	1791	
v/s Ratio Prot		c0.05						c0.46		0.05	c0.33	
v/s Ratio Perm							0.13			0.23		
v/c Ratio		0.14					0.29	1.09		0.52	0.61	
Uniform Delay, d1		17.8					16.9	25.8		18.2	14.0	
Progression Factor		1.00					1.00	1.00		1.87	1.60	
Incremental Delay, d2		0.2					4.6	51.9		6.5	1.2	
Delay (s)		18.0					21.5	77.6		40.6	23.5	
Level of Service		B					C	E		D	C	
Approach Delay (s)		18.0			0.0			75.9			25.2	
Approach LOS		B			A			E			C	

Intersection Summary			
HCM Average Control Delay	51.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	21	50	35	433	924	54
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	54	38	471	1004	59
Pedestrians	88				71	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	7				6	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1504	620	1151			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1504	620	1151			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	75	86	93			
cM capacity (veh/h)	91	400	559			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	77	195	314	670	393
Volume Left	23	38	0	0	0
Volume Right	54	0	0	0	59
cSH	200	559	1700	1700	1700
Volume to Capacity	0.39	0.07	0.18	0.39	0.23
Queue Length 95th (ft)	43	5	0	0	0
Control Delay (s)	34.0	3.0	0.0	0.0	0.0
Lane LOS	D	A			
Approach Delay (s)	34.0	1.2		0.0	
Approach LOS	D				

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix B: Synchro Reports

Future (Year 2035) No Project – PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	68	34	78	119	112	83	1235	117	86	805	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.81		1.00	0.82	1.00	0.99		1.00	0.99	
Flpb, ped/bikes		0.96	1.00		0.95	1.00	0.97	1.00		0.99	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1655	1212		1644	1226	1621	3262		1659	3274	
Flt Permitted		0.71	1.00		0.79	1.00	0.26	1.00		0.13	1.00	
Satd. Flow (perm)		1192	1212		1332	1226	441	3262		225	3274	
Peak-hour factor, PHF	0.82	0.82	0.82	0.85	0.85	0.85	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	61	83	41	92	140	132	88	1314	124	95	885	68
RTOR Reduction (vph)	0	0	30	0	0	40	0	7	0	0	6	0
Lane Group Flow (vph)	0	144	11	0	232	92	88	1431	0	95	947	0
Confl. Peds. (#/hr)	147		149	149		147	70		62	62		70
Confl. Bikes (#/hr)			32			20			19			16
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6		6	8			8		
Actuated Green, G (s)		23.3	23.3		23.3	23.3	62.7	62.7		62.7	62.7	
Effective Green, g (s)		24.8	24.8		24.8	24.8	64.2	64.2		64.2	64.2	
Actuated g/C Ratio		0.26	0.26		0.26	0.26	0.68	0.68		0.68	0.68	
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		311	316		348	320	298	2204		152	2213	
v/s Ratio Prot								c0.44			0.29	
v/s Ratio Perm		0.12	0.01		c0.17	0.08	0.20			0.42		
v/c Ratio		0.46	0.03		0.67	0.29	0.30	0.65		0.62	0.43	
Uniform Delay, d1		29.5	26.2		31.4	28.0	6.2	8.9		8.6	7.0	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4	0.0		3.7	0.2	2.5	1.5		17.8	0.6	
Delay (s)		29.9	26.2		35.1	28.2	8.7	10.4		26.5	7.6	
Level of Service		C	C		D	C	A	B		C	A	
Approach Delay (s)		29.1			32.6			10.3			9.3	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	93.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	95	56	51	139	77	42	283	87	52	234	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.59		0.92			0.94			0.96	
Flpb, ped/bikes		0.97	1.00		0.94			0.99			0.99	
Frt		1.00	0.85		0.96			0.97			0.98	
Flt Protected		0.99	1.00		0.99			0.99			0.99	
Satd. Flow (prot)		1695	885		1310			1582			1623	
Flt Permitted		0.91	1.00		0.92			0.93			0.88	
Satd. Flow (perm)		1555	885		1219			1486			1434	
Peak-hour factor, PHF	0.81	0.81	0.81	0.95	0.95	0.95	0.74	0.74	0.74	0.90	0.90	0.90
Adj. Flow (vph)	33	117	69	54	146	81	57	382	118	58	260	63
RTOR Reduction (vph)	0	0	46	0	21	0	0	14	0	0	10	0
Lane Group Flow (vph)	0	150	23	0	260	0	0	543	0	0	371	0
Confl. Peds. (#/hr)	147		233	233		147	112		156	156		112
Confl. Bikes (#/hr)			14			19			49			55
Parking (#/hr)					0	0						
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		21.8	21.8		21.8			39.8			39.8	
Effective Green, g (s)		23.0	23.0		23.0			41.0			41.0	
Actuated g/C Ratio		0.33	0.33		0.33			0.59			0.59	
Clearance Time (s)		4.2	4.2		4.2			4.2			4.2	
Lane Grp Cap (vph)		511	291		401			870			840	
v/s Ratio Prot												
v/s Ratio Perm		0.10	0.03		c0.21			c0.37			0.26	
v/c Ratio		0.29	0.08		0.65			0.62			0.44	
Uniform Delay, d1		17.5	16.2		20.1			9.5			8.1	
Progression Factor		1.00	1.00		1.00			0.76			1.00	
Incremental Delay, d2		1.5	0.5		7.9			2.8			1.7	
Delay (s)		18.9	16.7		28.0			10.0			9.8	
Level of Service		B	B		C			A			A	
Approach Delay (s)		18.2			28.0			10.0			9.8	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	102	103	25	132	73	95	330	31	35	256	76
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.59		0.85			0.97			0.94	
Flpb, ped/bikes		0.92	1.00		0.97			0.98			0.99	
Frt		1.00	0.85		0.96			0.99			0.97	
Flt Protected		0.98	1.00		0.99			0.99			1.00	
Satd. Flow (prot)		1590	885		1250			1481			1583	
Flt Permitted		0.85	1.00		0.96			0.85			0.93	
Satd. Flow (perm)		1379	885		1207			1269			1484	
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.89	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	61	120	121	27	145	80	107	371	35	38	278	83
RTOR Reduction (vph)	0	0	81	0	24	0	0	4	0	0	14	0
Lane Group Flow (vph)	0	181	40	0	228	0	0	509	0	0	385	0
Confl. Peds. (#/hr)	260		231	231		260	133		182	182		133
Confl. Bikes (#/hr)			18			31			58			71
Parking (#/hr)					0	0		0	0			
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		21.7	21.7		21.7			39.7			39.7	
Effective Green, g (s)		23.0	23.0		23.0			41.0			41.0	
Actuated g/C Ratio		0.33	0.33		0.33			0.59			0.59	
Clearance Time (s)		4.3	4.3		4.3			4.3			4.3	
Lane Grp Cap (vph)		453	291		397			743			869	
v/s Ratio Prot												
v/s Ratio Perm		0.13	0.04		c0.19			c0.40			0.26	
v/c Ratio		0.40	0.14		0.57			0.69			0.44	
Uniform Delay, d1		18.2	16.5		19.4			10.0			8.1	
Progression Factor		1.00	1.00		1.00			1.00			0.74	
Incremental Delay, d2		2.6	1.0		5.9			5.1			1.5	
Delay (s)		20.8	17.5		25.4			15.1			7.5	
Level of Service		C	B		C			B			A	
Approach Delay (s)		19.5			25.4			15.1			7.5	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM Average Control Delay	15.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	62	117	327	52	71	320
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	67	127	355	57	77	348

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	195	412	425
Volume Left (vph)	67	0	77
Volume Right (vph)	127	57	0
Hadj (s)	-0.29	-0.05	0.07
Departure Headway (s)	5.6	5.0	5.1
Degree Utilization, x	0.31	0.57	0.60
Capacity (veh/h)	574	686	683
Control Delay (s)	11.1	14.6	15.6
Approach Delay (s)	11.1	14.6	15.6
Approach LOS	B	B	C

Intersection Summary			
Delay	14.4		
HCM Level of Service	B		
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	42	117	65	32	20	42	807	0	31	787	103
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0			3.0			3.0	
Lane Util. Factor		1.00			1.00			0.95			*0.85	
Frpb, ped/bikes		0.65			0.94			1.00			0.90	
Flpb, ped/bikes		0.97			0.83			0.99			1.00	
Frt		0.91			0.98			1.00			0.98	
Flt Protected		0.99			0.97			1.00			1.00	
Satd. Flow (prot)		913			1173			3318			2507	
Flt Permitted		0.95			0.68			0.85			0.90	
Satd. Flow (perm)		876			818			2828			2265	
Peak-hour factor, PHF	0.92	0.92	0.92	0.79	0.79	0.79	0.95	0.95	0.95	0.96	0.96	0.96
Adj. Flow (vph)	26	46	127	82	41	25	44	849	0	32	820	107
RTOR Reduction (vph)	0	4	0	0	7	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	195	0	0	141	0	0	893	0	0	957	0
Confl. Peds. (#/hr)	435		1210	1210		435	924		439	439		924
Confl. Bikes (#/hr)			12			10			4			39
Parking (#/hr)		0	0	0	0						0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			8			4	
Permitted Phases	2			2			8			4		
Actuated Green, G (s)		23.0			23.0			64.0			64.0	
Effective Green, g (s)		24.0			24.0			65.0			65.0	
Actuated g/C Ratio		0.25			0.25			0.68			0.68	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		221			207			1935			1550	
v/s Ratio Prot												
v/s Ratio Perm		c0.22			0.17			0.32			c0.42	
v/c Ratio		0.88			0.68			0.46			0.62	
Uniform Delay, d1		34.2			32.0			6.9			8.2	
Progression Factor		1.00			0.20			1.00			1.00	
Incremental Delay, d2		36.4			15.7			0.8			1.9	
Delay (s)		70.6			22.0			7.7			10.1	
Level of Service		E			C			A			B	
Approach Delay (s)		70.6			22.0			7.7			10.1	
Approach LOS		E			C			A			B	

Intersection Summary			
HCM Average Control Delay	15.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	72	0	0	116	7	6	273	111	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0			3.0				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		1.00			0.96			0.82				
Flpb, ped/bikes		0.96			1.00			0.99				
Frt		1.00			0.99			0.96				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1685			1689			1379				
Flt Permitted		0.98			1.00			1.00				
Satd. Flow (perm)		1653			1689			1379				
Peak-hour factor, PHF	0.92	0.92	0.92	0.79	0.79	0.79	0.96	0.96	0.96	0.95	0.95	0.95
Adj. Flow (vph)	8	78	0	0	147	9	6	284	116	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	86	0	0	154	0	0	406	0	0	0	0
Confl. Peds. (#/hr)	435		1210	1210		435	924		439			
Confl. Bikes (#/hr)			12			10			4			
Turn Type	Perm						Perm					
Protected Phases		6			6			8				
Permitted Phases	6						8					
Actuated Green, G (s)		23.0			23.0			64.0				
Effective Green, g (s)		24.0			24.0			65.0				
Actuated g/C Ratio		0.25			0.25			0.68				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		418			427			944				
v/s Ratio Prot					c0.09							
v/s Ratio Perm		0.05						0.29				
v/c Ratio		0.21			0.36			0.43				
Uniform Delay, d1		28.0			29.2			6.7				
Progression Factor		0.73			1.00			0.18				
Incremental Delay, d2		0.8			2.4			1.0				
Delay (s)		21.2			31.5			2.2				
Level of Service		C			C			A				
Approach Delay (s)		21.2			31.5			2.2			0.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	11.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	24	118	19	29	34	62	1158	60	22	850	81
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	*0.75	
Frpb, ped/bikes		0.89			0.92		1.00	0.99		1.00	0.92	
Flpb, ped/bikes		0.96			0.98		1.00	1.00		1.00	1.00	
Frt		0.92			0.94		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1234			1329		1676	3305		1676	2287	
Flt Permitted		0.90			0.91		0.14	1.00		0.12	1.00	
Satd. Flow (perm)		1122			1223		242	3305		205	2287	
Peak-hour factor, PHF	0.81	0.81	0.81	0.88	0.88	0.88	0.90	0.90	0.90	0.93	0.93	0.93
Adj. Flow (vph)	67	30	146	22	33	39	69	1287	67	24	914	87
RTOR Reduction (vph)	0	0	0	0	25	0	0	4	0	0	6	0
Lane Group Flow (vph)	0	243	0	0	69	0	69	1350	0	24	995	0
Confl. Peds. (#/hr)	196		172	172		196	1277		42	42		1277
Confl. Bikes (#/hr)			21			27			24			49
Parking (#/hr)		0	0		0	0					0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		31.5			31.5		53.5	53.5		53.5	53.5	
Effective Green, g (s)		34.0			34.0		55.0	55.0		55.0	55.0	
Actuated g/C Ratio		0.36			0.36		0.58	0.58		0.58	0.58	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		402			438		140	1913		119	1324	
v/s Ratio Prot								0.41			c0.44	
v/s Ratio Perm		c0.22			0.06		0.28			0.12		
v/c Ratio		0.60			0.16		0.49	0.71		0.20	0.75	
Uniform Delay, d1		25.0			20.8		11.8	14.2		9.5	14.9	
Progression Factor		1.00			1.00		0.66	0.58		0.71	0.74	
Incremental Delay, d2		6.6			0.8		9.0	1.7		3.0	3.2	
Delay (s)		31.6			21.5		16.8	10.0		9.8	14.2	
Level of Service		C			C		B	A		A	B	
Approach Delay (s)		31.6			21.5			10.3			14.1	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	25	65	36	27	27	56	1216	47	10	924	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.89			0.94		1.00	0.98		1.00	0.96	
Flpb, ped/bikes		0.97			0.95		0.92	1.00		1.00	1.00	
Frt		0.92			0.96		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1398			1474		1538	3257		1676	3183	
Flt Permitted		0.94			0.87		0.19	1.00		0.12	1.00	
Satd. Flow (perm)		1331			1303		307	3257		209	3183	
Peak-hour factor, PHF	0.89	0.89	0.89	0.83	0.83	0.83	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	24	28	73	43	33	33	60	1294	50	11	1015	68
RTOR Reduction (vph)	0	6	0	0	5	0	0	3	0	0	5	0
Lane Group Flow (vph)	0	119	0	0	104	0	60	1341	0	11	1078	0
Confl. Peds. (#/hr)	211		181	181		211	477		378	378		477
Confl. Bikes (#/hr)			11			24			47			32
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		31.5			31.5		53.5	53.5		53.5	53.5	
Effective Green, g (s)		34.0			34.0		55.0	55.0		55.0	55.0	
Actuated g/C Ratio		0.36			0.36		0.58	0.58		0.58	0.58	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		476			466		178	1886		121	1843	
v/s Ratio Prot								c0.41			0.34	
v/s Ratio Perm		c0.09			0.08		0.20			0.05		
v/c Ratio		0.25			0.22		0.34	0.71		0.09	0.58	
Uniform Delay, d1		21.5			21.3		10.5	14.3		8.9	12.7	
Progression Factor		1.00			1.00		0.35	0.29		0.56	0.46	
Incremental Delay, d2		1.3			1.1		2.3	1.0		1.0	0.9	
Delay (s)		22.8			22.4		6.0	5.1		6.0	6.8	
Level of Service		C			C		A	A		A	A	
Approach Delay (s)		22.8			22.4			5.2			6.8	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	7.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	52	210	52	30	49	1285	0	0	1021	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)			3.0	3.0	3.0		3.0	3.0			3.0	
Lane Util. Factor			1.00	1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes			0.84	1.00	0.97		1.00	1.00			0.98	
Flpb, ped/bikes			1.00	0.85	1.00		1.00	1.00			1.00	
Frt			0.86	1.00	0.94		1.00	1.00			0.99	
Flt Protected			1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)			1286	1433	1621		1676	3353			3284	
Flt Permitted			1.00	0.95	1.00		0.11	1.00			1.00	
Satd. Flow (perm)			1286	1433	1621		186	3353			3284	
Peak-hour factor, PHF	0.82	0.82	0.82	0.86	0.86	0.86	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	0	0	63	244	60	35	52	1367	0	0	1134	40
RTOR Reduction (vph)	0	0	7	0	9	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	56	244	86	0	52	1367	0	0	1171	0
Confl. Peds. (#/hr)			148	148		65	163					163
Confl. Bikes (#/hr)			8									26
Turn Type			custom	Perm			Perm					
Protected Phases					6			8			8	
Permitted Phases			6	6			8					
Actuated Green, G (s)			43.5	43.5	43.5		41.5	41.5			41.5	
Effective Green, g (s)			46.0	46.0	46.0		43.0	43.0			43.0	
Actuated g/C Ratio			0.48	0.48	0.48		0.45	0.45			0.45	
Clearance Time (s)			5.5	5.5	5.5		4.5	4.5			4.5	
Lane Grp Cap (vph)			623	694	785		84	1518			1486	
v/s Ratio Prot					0.05			c0.41			0.36	
v/s Ratio Perm			0.04	c0.17			0.28					
v/c Ratio			0.09	0.35	0.11		0.62	0.90			0.79	
Uniform Delay, d1			13.2	15.2	13.3		19.8	24.0			22.1	
Progression Factor			1.00	1.00	1.00		0.45	0.49			0.53	
Incremental Delay, d2			0.3	1.4	0.3		3.1	0.9			3.7	
Delay (s)			13.5	16.6	13.6		12.0	12.8			15.5	
Level of Service			B	B	B		B	B			B	
Approach Delay (s)		13.5			15.8			12.8			15.5	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	46	45	0	0	0	31	1339	240	93	1146	44
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0					2.5	2.5		3.0	3.0	
Lane Util. Factor		0.95					1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.96					1.00	0.95		1.00	0.98	
Flpb, ped/bikes		1.00					0.93	1.00		1.00	1.00	
Frt		0.94					1.00	0.98		1.00	0.99	
Flt Protected		0.99					0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2997					1565	3120		1676	3269	
Flt Permitted		0.99					0.16	1.00		0.09	1.00	
Satd. Flow (perm)		2997					271	3120		155	3269	
Peak-hour factor, PHF	0.80	0.80	0.80	0.95	0.95	0.95	0.94	0.94	0.94	0.93	0.93	0.93
Adj. Flow (vph)	21	58	56	0	0	0	33	1424	255	100	1232	47
RTOR Reduction (vph)	0	9	0	0	0	0	0	15	0	0	3	0
Lane Group Flow (vph)	0	126	0	0	0	0	33	1664	0	100	1276	0
Confl. Peds. (#/hr)	58		92	92		58	277		238	238		277
Confl. Bikes (#/hr)			6						14			10
Turn Type	Split						Perm			pm+pt		
Protected Phases	6	6						8		7	4	
Permitted Phases							8			4		
Actuated Green, G (s)		32.5					41.5	41.5		52.5	52.5	
Effective Green, g (s)		35.0					43.5	43.5		53.5	54.0	
Actuated g/C Ratio		0.37					0.46	0.46		0.56	0.57	
Clearance Time (s)		5.5					4.5	4.5		4.0	4.5	
Lane Grp Cap (vph)		1104					124	1429		215	1858	
v/s Ratio Prot		c0.04						c0.53		0.04	c0.39	
v/s Ratio Perm							0.12			0.22		
v/c Ratio		0.11					0.27	1.16		0.47	0.69	
Uniform Delay, d1		19.8					15.9	25.8		19.2	14.5	
Progression Factor		1.00					1.00	1.00		1.86	1.59	
Incremental Delay, d2		0.2					5.2	82.0		5.1	1.5	
Delay (s)		20.0					21.1	107.7		40.9	24.6	
Level of Service		B					C	F		D	C	
Approach Delay (s)		20.0			0.0			106.1			25.8	
Approach LOS		B			A			F			C	

Intersection Summary			
HCM Average Control Delay	68.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	25	85	21	652	920	83
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	92	23	709	1000	90
Pedestrians	202				126	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	17				10	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1773	747	1292			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1773	747	1292			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	48	69	95			
cM capacity (veh/h)	52	296	443			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	120	259	472	667	424
Volume Left	27	23	0	0	0
Volume Right	92	0	0	0	90
cSH	144	443	1700	1700	1700
Volume to Capacity	0.83	0.05	0.28	0.39	0.25
Queue Length 95th (ft)	134	4	0	0	0
Control Delay (s)	96.1	1.9	0.0	0.0	0.0
Lane LOS	F	A			
Approach Delay (s)	96.1	0.7		0.0	
Approach LOS	F				

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix B: Synchro Reports

Future (Year 2035) With Project – AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	91	39	70	71	73	77	844	133	81	805	59
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.81		1.00	0.69	1.00	0.96		1.00	0.98	
Flpb, ped/bikes		0.93	1.00		0.94	1.00	0.94	1.00		0.96	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.98	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1619	1221		1617	1042	1575	3162		1610	3257	
Flt Permitted		0.72	1.00		0.64	1.00	0.28	1.00		0.21	1.00	
Satd. Flow (perm)		1184	1221		1069	1042	464	3162		354	3257	
Peak-hour factor, PHF	0.81	0.81	0.81	0.70	0.70	0.70	0.86	0.86	0.86	0.95	0.95	0.95
Adj. Flow (vph)	67	112	48	100	101	104	90	981	155	85	847	62
RTOR Reduction (vph)	0	0	37	0	0	44	0	8	0	0	4	0
Lane Group Flow (vph)	0	179	11	0	201	60	90	1128	0	85	905	0
Confl. Peds. (#/hr)	250		166	166		250	119		119	119		119
Confl. Bikes (#/hr)			7			72			9			5
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6		6	8			8		
Actuated Green, G (s)		19.5	19.5		19.5	19.5	61.5	61.5		61.5	61.5	
Effective Green, g (s)		21.0	21.0		21.0	21.0	63.0	63.0		63.0	63.0	
Actuated g/C Ratio		0.23	0.23		0.23	0.23	0.70	0.70		0.70	0.70	
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		276	285		249	243	325	2213		248	2280	
v/s Ratio Prot								c0.36			0.28	
v/s Ratio Perm		0.15	0.01		c0.19	0.06	0.19			0.24		
v/c Ratio		0.65	0.04		0.81	0.25	0.28	0.51		0.34	0.40	
Uniform Delay, d1		31.2	26.7		32.6	28.1	5.0	6.3		5.3	5.6	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.9	0.0		16.3	0.2	2.1	0.8		3.7	0.5	
Delay (s)		35.1	26.7		48.9	28.3	7.1	7.1		9.1	6.1	
Level of Service		D	C		D	C	A	A		A	A	
Approach Delay (s)		33.3			41.9			7.1			6.4	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM Average Control Delay	12.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	96	39	19	52	20	41	214	57	63	219	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.75		0.95			0.96			0.97	
Flpb, ped/bikes		0.97	1.00		0.96			0.99			0.98	
Frt		1.00	0.85		0.97			0.98			0.98	
Flt Protected		0.99	1.00		0.99			0.99			0.99	
Satd. Flow (prot)		1709	1129		1389			1625			1646	
Flt Permitted		0.97	1.00		0.94			0.92			0.88	
Satd. Flow (perm)		1663	1129		1321			1497			1455	
Peak-hour factor, PHF	0.75	0.75	0.75	0.88	0.88	0.88	0.80	0.80	0.80	0.78	0.78	0.78
Adj. Flow (vph)	20	128	52	22	59	23	51	268	71	81	281	50
RTOR Reduction (vph)	0	0	30	0	13	0	0	13	0	0	8	0
Lane Group Flow (vph)	0	148	22	0	91	0	0	377	0	0	404	0
Confl. Peds. (#/hr)	143		145	145		143	112		118	118		112
Confl. Bikes (#/hr)			11			4			33			39
Parking (#/hr)					0	0						
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		26.8	26.8		26.8			29.8			29.8	
Effective Green, g (s)		28.0	28.0		28.0			31.0			31.0	
Actuated g/C Ratio		0.43	0.43		0.43			0.48			0.48	
Clearance Time (s)		4.2	4.2		4.2			4.2			4.2	
Lane Grp Cap (vph)		716	486		569			714			694	
v/s Ratio Prot												
v/s Ratio Perm		c0.09	0.02		0.07			0.25			c0.28	
v/c Ratio		0.21	0.05		0.16			0.53			0.58	
Uniform Delay, d1		11.6	10.7		11.3			11.9			12.3	
Progression Factor		1.00	1.00		1.00			0.80			1.00	
Incremental Delay, d2		0.7	0.2		0.6			2.4			3.5	
Delay (s)		12.2	10.9		11.9			11.9			15.9	
Level of Service		B	B		B			B			B	
Approach Delay (s)		11.9			11.9			11.9			15.9	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	149	88	18	80	59	80	200	24	38	158	78
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.47		0.82			0.97			0.84	
Flpb, ped/bikes		0.90	1.00		0.96			0.93			0.98	
Frt		1.00	0.85		0.95			0.99			0.96	
Flt Protected		0.98	1.00		0.99			0.99			0.99	
Satd. Flow (prot)		1558	705		1173			1399			1393	
Flt Permitted		0.86	1.00		0.96			0.84			0.92	
Satd. Flow (perm)		1358	705		1129			1188			1289	
Peak-hour factor, PHF	0.95	0.95	0.95	0.79	0.79	0.79	0.80	0.80	0.80	0.82	0.82	0.82
Adj. Flow (vph)	74	157	93	23	101	75	100	250	30	46	193	95
RTOR Reduction (vph)	0	0	51	0	34	0	0	5	0	0	22	0
Lane Group Flow (vph)	0	231	42	0	165	0	0	375	0	0	312	0
Confl. Peds. (#/hr)	308		373	373		308	375		178	178		375
Confl. Bikes (#/hr)			11			4			33			39
Parking (#/hr)					0	0		0	0			
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		24.7	24.7		24.7			31.7			31.7	
Effective Green, g (s)		26.0	26.0		26.0			33.0			33.0	
Actuated g/C Ratio		0.40	0.40		0.40			0.51			0.51	
Clearance Time (s)		4.3	4.3		4.3			4.3			4.3	
Lane Grp Cap (vph)		543	282		452			603			654	
v/s Ratio Prot												
v/s Ratio Perm		c0.17	0.06		0.15			c0.32			0.24	
v/c Ratio		0.43	0.15		0.37			0.62			0.48	
Uniform Delay, d1		14.1	12.4		13.7			11.5			10.4	
Progression Factor		1.00	1.00		1.00			1.00			0.57	
Incremental Delay, d2		2.4	1.1		2.3			4.8			2.2	
Delay (s)		16.5	13.6		16.0			16.3			8.2	
Level of Service		B	B		B			B			A	
Approach Delay (s)		15.7			16.0			16.3			8.2	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	83	111	186	72	70	199
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	90	121	202	78	76	216

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	211	280	292
Volume Left (vph)	90	0	76
Volume Right (vph)	121	78	0
Hadj (s)	-0.22	-0.13	0.09
Departure Headway (s)	5.0	4.7	4.9
Degree Utilization, x	0.29	0.37	0.40
Capacity (veh/h)	655	728	699
Control Delay (s)	10.1	10.4	11.1
Approach Delay (s)	10.1	10.4	11.1
Approach LOS	B	B	B

Intersection Summary			
Delay	10.6		
HCM Level of Service	B		
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	47	51	32	17	6	65	362	0	22	986	63
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			1.0			3.0			3.0	
Lane Util. Factor		1.00			1.00			0.95			*0.85	
Frpb, ped/bikes		0.82			0.97			1.00			0.96	
Flpb, ped/bikes		0.98			0.83			1.00			0.99	
Frt		0.94			0.99			1.00			0.99	
Flt Protected		1.00			0.97			0.99			1.00	
Satd. Flow (prot)		1180			1226			3328			2700	
Flt Permitted		0.98			0.85			0.67			0.94	
Satd. Flow (perm)		1163			1067			2240			2544	
Peak-hour factor, PHF	0.93	0.93	0.93	0.87	0.87	0.87	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	11	51	55	37	20	7	68	381	0	23	1049	67
RTOR Reduction (vph)	0	7	0	0	5	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	110	0	0	59	0	0	449	0	0	1135	0
Confl. Peds. (#/hr)	239		507	507		239	470		301	301		470
Confl. Bikes (#/hr)			36			10			8			21
Parking (#/hr)		0	0	0	0						0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			8			4	
Permitted Phases	2			2			8			4		
Actuated Green, G (s)		29.0			29.0			53.0			53.0	
Effective Green, g (s)		30.0			32.0			54.0			54.0	
Actuated g/C Ratio		0.33			0.36			0.60			0.60	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		388			379			1344			1526	
v/s Ratio Prot												
v/s Ratio Perm		c0.09			0.06			0.20			c0.45	
v/c Ratio		0.28			0.16			0.33			0.74	
Uniform Delay, d1		22.1			19.8			9.0			13.0	
Progression Factor		1.00			0.22			1.00			1.00	
Incremental Delay, d2		1.8			0.9			0.7			3.3	
Delay (s)		23.9			5.2			9.7			16.3	
Level of Service		C			A			A			B	
Approach Delay (s)		23.9			5.2			9.7			16.3	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	61	0	0	54	9	6	492	26	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0			1.0				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		1.00			0.93			0.97				
Flpb, ped/bikes		0.93			1.00			0.99				
Frt		1.00			0.98			0.99				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1629			1607			1692				
Flt Permitted		0.97			1.00			1.00				
Satd. Flow (perm)		1590			1607			1692				
Peak-hour factor, PHF	0.93	0.93	0.93	0.87	0.87	0.87	0.87	0.87	0.87	0.95	0.95	0.95
Adj. Flow (vph)	12	66	0	0	62	10	7	566	30	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	78	0	0	65	0	0	601	0	0	0	0
Confl. Peds. (#/hr)	239		507	507		239	470		301	301		470
Confl. Bikes (#/hr)			36			10			8			
Turn Type	Perm						Perm					
Protected Phases		6			6			8				
Permitted Phases	6						8					
Actuated Green, G (s)		29.0			29.0			53.0				
Effective Green, g (s)		30.0			30.0			56.0				
Actuated g/C Ratio		0.33			0.33			0.62				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		530			536			1053				
v/s Ratio Prot					0.04							
v/s Ratio Perm		c0.05						0.36				
v/c Ratio		0.15			0.12			0.57				
Uniform Delay, d1		21.0			20.8			10.0				
Progression Factor		0.59			1.00			1.00				
Incremental Delay, d2		0.5			0.5			2.2				
Delay (s)		13.0			21.3			12.2				
Level of Service		B			C			B				
Approach Delay (s)		13.0			21.3			12.2			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	30	114	11	65	11	109	875	18	14	910	104
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	*0.75	
Frpb, ped/bikes		0.91			0.98		1.00	0.99		1.00	0.92	
Flpb, ped/bikes		0.98			0.99		1.00	1.00		0.96	1.00	
Frt		0.92			0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1291			1513		1676	3324		1602	2289	
Flt Permitted		0.92			0.96		0.09	1.00		0.23	1.00	
Satd. Flow (perm)		1195			1456		167	3324		382	2289	
Peak-hour factor, PHF	0.86	0.86	0.86	0.69	0.69	0.69	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	49	35	133	16	94	16	116	931	19	15	1000	114
RTOR Reduction (vph)	0	2	0	0	6	0	0	2	0	0	7	0
Lane Group Flow (vph)	0	215	0	0	120	0	116	948	0	15	1107	0
Confl. Peds. (#/hr)	126		124	124		126	658		101	101		658
Confl. Bikes (#/hr)			48			16			30			28
Parking (#/hr)		0	0		0	0					0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		31.5			31.5		48.5	48.5		48.5	48.5	
Effective Green, g (s)		34.0			34.0		50.0	50.0		50.0	50.0	
Actuated g/C Ratio		0.38			0.38		0.56	0.56		0.56	0.56	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		451			550		93	1847		212	1272	
v/s Ratio Prot								0.29			0.48	
v/s Ratio Perm		c0.18			0.08		c0.70			0.04		
v/c Ratio		0.48			0.22		1.25	0.51		0.07	0.87	
Uniform Delay, d1		21.3			19.0		20.0	12.4		9.3	17.2	
Progression Factor		1.00			1.00		1.10	0.52		1.00	1.00	
Incremental Delay, d2		3.6			0.9		164.5	0.8		0.6	8.3	
Delay (s)		24.8			19.9		186.6	7.3		9.9	25.5	
Level of Service		C			B		F	A		A	C	
Approach Delay (s)		24.8			19.9			26.8			25.3	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM Average Control Delay	25.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	31	87	17	55	16	63	961	68	21	960	63
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.91			0.98		1.00	0.96		1.00	0.97	
Flpb, ped/bikes		0.98			0.98		0.95	1.00		0.93	1.00	
Frt		0.92			0.98		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1445			1637		1595	3196		1565	3231	
Flt Permitted		0.93			0.93		0.17	1.00		0.18	1.00	
Satd. Flow (perm)		1354			1538		284	3196		294	3231	
Peak-hour factor, PHF	0.93	0.93	0.93	0.57	0.57	0.57	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	32	33	94	30	96	28	67	1022	72	23	1055	69
RTOR Reduction (vph)	0	22	0	0	9	0	0	6	0	0	5	0
Lane Group Flow (vph)	0	137	0	0	145	0	67	1088	0	23	1119	0
Confl. Peds. (#/hr)	120		154	154		120	172		288	288		172
Confl. Bikes (#/hr)			9			6			45			16
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		31.5			31.5		48.5	48.5		48.5	48.5	
Effective Green, g (s)		34.0			34.0		50.0	50.0		50.0	50.0	
Actuated g/C Ratio		0.38			0.38		0.56	0.56		0.56	0.56	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		512			581		158	1776		163	1795	
v/s Ratio Prot								0.34			c0.35	
v/s Ratio Perm		c0.10			0.09		0.24			0.08		
v/c Ratio		0.27			0.25		0.42	0.61		0.14	0.62	
Uniform Delay, d1		19.4			19.2		11.6	13.5		9.6	13.6	
Progression Factor		1.00			1.00		0.28	0.12		0.70	0.53	
Incremental Delay, d2		1.3			1.0		6.4	1.2		1.0	0.9	
Delay (s)		20.6			20.3		9.7	2.9		7.7	8.1	
Level of Service		C			C		A	A		A	A	
Approach Delay (s)		20.6			20.3			3.3			8.1	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	7.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	108	77	50	71	35	1027	0	0	1035	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)			3.0	3.0	3.0		3.0	3.0			3.0	
Lane Util. Factor			1.00	1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes			0.93	1.00	0.97		1.00	1.00			0.99	
Flpb, ped/bikes			1.00	0.95	1.00		1.00	1.00			1.00	
Frt			0.86	1.00	0.91		1.00	1.00			1.00	
Flt Protected			1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)			1424	1584	1555		1676	3353			3322	
Flt Permitted			1.00	0.95	1.00		0.13	1.00			1.00	
Satd. Flow (perm)			1424	1584	1555		228	3353			3322	
Peak-hour factor, PHF	0.65	0.65	0.65	0.82	0.82	0.82	0.95	0.95	0.95	0.91	0.91	0.91
Adj. Flow (vph)	0	0	166	94	61	87	37	1081	0	0	1137	26
RTOR Reduction (vph)	0	0	15	0	32	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	151	94	116	0	37	1081	0	0	1161	0
Confl. Peds. (#/hr)			59	59		49	94					94
Confl. Bikes (#/hr)			3			1						30
Turn Type			custom	Perm			Perm					
Protected Phases					6			8			8	
Permitted Phases			6	6			8					
Actuated Green, G (s)			37.5	37.5	37.5		42.5	42.5			42.5	
Effective Green, g (s)			40.0	40.0	40.0		44.0	44.0			44.0	
Actuated g/C Ratio			0.44	0.44	0.44		0.49	0.49			0.49	
Clearance Time (s)			5.5	5.5	5.5		4.5	4.5			4.5	
Lane Grp Cap (vph)			633	704	691		111	1639			1624	
v/s Ratio Prot					0.07			0.32			c0.35	
v/s Ratio Perm			c0.11	0.06			0.16					
v/c Ratio			0.24	0.13	0.17		0.33	0.66			0.72	
Uniform Delay, d1			15.5	14.8	15.0		14.0	17.3			18.1	
Progression Factor			1.00	1.00	1.00		0.35	0.42			0.48	
Incremental Delay, d2			0.9	0.4	0.5		0.7	0.2			2.2	
Delay (s)			16.4	15.2	15.5		5.6	7.4			11.0	
Level of Service			B	B	B		A	A			B	
Approach Delay (s)		16.4			15.4			7.4			11.0	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	10.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	54	39	0	0	0	42	1073	240	116	1054	41
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0					2.5	2.5		3.0	3.0	
Lane Util. Factor		0.95					1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.98					1.00	0.96		1.00	0.99	
Flpb, ped/bikes		1.00					0.94	1.00		1.00	1.00	
Frt		0.94					1.00	0.97		1.00	0.99	
Flt Protected		1.00					0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3077					1580	3133		1676	3291	
Flt Permitted		1.00					0.22	1.00		0.10	1.00	
Satd. Flow (perm)		3077					359	3133		174	3291	
Peak-hour factor, PHF	0.52	0.52	0.52	0.95	0.95	0.95	0.89	0.89	0.89	0.98	0.98	0.98
Adj. Flow (vph)	17	104	75	0	0	0	47	1206	270	118	1076	42
RTOR Reduction (vph)	0	22	0	0	0	0	0	21	0	0	3	0
Lane Group Flow (vph)	0	174	0	0	0	0	47	1455	0	118	1115	0
Confl. Peds. (#/hr)	21		52				147		155	155		147
Confl. Bikes (#/hr)			5						21			25
Turn Type	Split						Perm			pm+pt		
Protected Phases	6	6						8		7	4	
Permitted Phases							8			4		
Actuated Green, G (s)		32.5					36.5	36.5		47.5	47.5	
Effective Green, g (s)		35.0					38.5	38.5		48.5	49.0	
Actuated g/C Ratio		0.39					0.43	0.43		0.54	0.54	
Clearance Time (s)		5.5					4.5	4.5		4.0	4.5	
Lane Grp Cap (vph)		1197					154	1340		227	1792	
v/s Ratio Prot		c0.06						c0.46		0.05	c0.34	
v/s Ratio Perm							0.13			0.23		
v/c Ratio		0.15					0.31	1.09		0.52	0.62	
Uniform Delay, d1		17.8					16.9	25.8		18.2	14.1	
Progression Factor		1.00					1.00	1.00		1.87	1.61	
Incremental Delay, d2		0.3					5.1	51.3		6.5	1.3	
Delay (s)		18.1					22.0	77.1		40.6	24.0	
Level of Service		B					C	E		D	C	
Approach Delay (s)		18.1			0.0			75.4			25.6	
Approach LOS		B			A			E			C	

Intersection Summary			
HCM Average Control Delay	50.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	22	50	35	434	923	53
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	54	38	472	1003	58
Pedestrians	88				71	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	7				6	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1503	618	1149			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1503	618	1149			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	74	86	93			
cM capacity (veh/h)	91	400	560			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	78	195	314	669	392
Volume Left	24	38	0	0	0
Volume Right	54	0	0	0	58
cSH	197	560	1700	1700	1700
Volume to Capacity	0.40	0.07	0.18	0.39	0.23
Queue Length 95th (ft)	44	5	0	0	0
Control Delay (s)	34.9	3.0	0.0	0.0	0.0
Lane LOS	D	A			
Approach Delay (s)	34.9	1.2		0.0	
Approach LOS	D				

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	10	118	173	9	29	38
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	128	188	10	32	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			358			
pX, platoon unblocked						
vC, conflicting volume	198				343	193
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	198				343	193
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				95	95
cM capacity (veh/h)	1375				648	849

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	139	198	73
Volume Left	11	0	32
Volume Right	0	10	41
cSH	1375	1700	748
Volume to Capacity	0.01	0.12	0.10
Queue Length 95th (ft)	1	0	8
Control Delay (s)	0.7	0.0	10.3
Lane LOS	A		B
Approach Delay (s)	0.7	0.0	10.3
Approach LOS			B

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix B: Synchro Reports

Future (Year 2035) With Project – PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	69	34	78	119	115	83	1235	121	94	805	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.81		1.00	0.82	1.00	0.99		1.00	0.99	
Flpb, ped/bikes		0.96	1.00		0.95	1.00	0.97	1.00		0.99	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1656	1212		1644	1226	1621	3259		1659	3274	
Flt Permitted		0.71	1.00		0.79	1.00	0.26	1.00		0.13	1.00	
Satd. Flow (perm)		1194	1212		1329	1226	441	3259		224	3274	
Peak-hour factor, PHF	0.82	0.82	0.82	0.85	0.85	0.85	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	61	84	41	92	140	135	88	1314	129	103	885	68
RTOR Reduction (vph)	0	0	30	0	0	40	0	7	0	0	6	0
Lane Group Flow (vph)	0	145	11	0	232	95	88	1436	0	103	947	0
Confl. Peds. (#/hr)	147		149	149		147	70		62	62		70
Confl. Bikes (#/hr)			32			20			19			16
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6		6	8			8		
Actuated Green, G (s)		23.3	23.3		23.3	23.3	62.7	62.7		62.7	62.7	
Effective Green, g (s)		24.8	24.8		24.8	24.8	64.2	64.2		64.2	64.2	
Actuated g/C Ratio		0.26	0.26		0.26	0.26	0.68	0.68		0.68	0.68	
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		312	316		347	320	298	2202		151	2213	
v/s Ratio Prot								0.44			0.29	
v/s Ratio Perm		0.12	0.01		c0.17	0.08	0.20			c0.46		
v/c Ratio		0.46	0.03		0.67	0.30	0.30	0.65		0.68	0.43	
Uniform Delay, d1		29.5	26.2		31.4	28.1	6.2	8.9		9.3	7.0	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4	0.0		3.8	0.2	2.5	1.5		22.1	0.6	
Delay (s)		29.9	26.2		35.2	28.3	8.7	10.4		31.4	7.6	
Level of Service		C	C		D	C	A	B		C	A	
Approach Delay (s)		29.1			32.7			10.3			10.0	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	93.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	95	57	53	139	77	43	283	88	52	237	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.59		0.92			0.94			0.96	
Flpb, ped/bikes		0.97	1.00		0.94			0.99			0.99	
Frt		1.00	0.85		0.96			0.97			0.98	
Flt Protected		0.99	1.00		0.99			0.99			0.99	
Satd. Flow (prot)		1695	885		1308			1582			1624	
Flt Permitted		0.91	1.00		0.92			0.93			0.88	
Satd. Flow (perm)		1556	885		1214			1482			1435	
Peak-hour factor, PHF	0.81	0.81	0.81	0.95	0.95	0.95	0.74	0.74	0.74	0.90	0.90	0.90
Adj. Flow (vph)	33	117	70	56	146	81	58	382	119	58	263	63
RTOR Reduction (vph)	0	0	47	0	21	0	0	14	0	0	10	0
Lane Group Flow (vph)	0	150	23	0	262	0	0	545	0	0	374	0
Confl. Peds. (#/hr)	147		233	233		147	112		156	156		112
Confl. Bikes (#/hr)			14			19			49			55
Parking (#/hr)					0	0						
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		21.8	21.8		21.8			39.8			39.8	
Effective Green, g (s)		23.0	23.0		23.0			41.0			41.0	
Actuated g/C Ratio		0.33	0.33		0.33			0.59			0.59	
Clearance Time (s)		4.2	4.2		4.2			4.2			4.2	
Lane Grp Cap (vph)		511	291		399			868			841	
v/s Ratio Prot												
v/s Ratio Perm		0.10	0.03		c0.22			c0.37			0.26	
v/c Ratio		0.29	0.08		0.66			0.63			0.44	
Uniform Delay, d1		17.5	16.2		20.1			9.5			8.1	
Progression Factor		1.00	1.00		1.00			0.73			1.00	
Incremental Delay, d2		1.5	0.5		8.2			2.8			1.7	
Delay (s)		18.9	16.7		28.3			9.7			9.8	
Level of Service		B	B		C			A			A	
Approach Delay (s)		18.2			28.3			9.7			9.8	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	101	116	20	127	69	102	335	29	34	263	76
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0	3.0		3.0			3.0			3.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frpb, ped/bikes		1.00	0.59		0.85			0.98			0.94	
Flpb, ped/bikes		0.91	1.00		0.97			0.97			0.99	
Frt		1.00	0.85		0.96			0.99			0.97	
Flt Protected		0.98	1.00		1.00			0.99			1.00	
Satd. Flow (prot)		1585	885		1255			1482			1587	
Flt Permitted		0.86	1.00		0.97			0.84			0.93	
Satd. Flow (perm)		1384	885		1220			1255			1491	
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.89	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	61	119	136	22	140	76	115	376	33	37	286	83
RTOR Reduction (vph)	0	0	91	0	24	0	0	3	0	0	13	0
Lane Group Flow (vph)	0	180	45	0	214	0	0	521	0	0	393	0
Confl. Peds. (#/hr)	260		231	231		260	133		182	182		133
Confl. Bikes (#/hr)			18			31			58			71
Parking (#/hr)					0	0		0	0			
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6		6	6			8			8		
Actuated Green, G (s)		21.7	21.7		21.7			39.7			39.7	
Effective Green, g (s)		23.0	23.0		23.0			41.0			41.0	
Actuated g/C Ratio		0.33	0.33		0.33			0.59			0.59	
Clearance Time (s)		4.3	4.3		4.3			4.3			4.3	
Lane Grp Cap (vph)		455	291		401			735			873	
v/s Ratio Prot												
v/s Ratio Perm		0.13	0.05		c0.18			c0.41			0.26	
v/c Ratio		0.40	0.15		0.53			0.71			0.45	
Uniform Delay, d1		18.1	16.6		19.1			10.3			8.2	
Progression Factor		1.00	1.00		1.00			1.00			0.74	
Incremental Delay, d2		2.6	1.1		5.0			5.7			1.5	
Delay (s)		20.7	17.7		24.1			16.0			7.6	
Level of Service		C	B		C			B			A	
Approach Delay (s)		19.4			24.1			16.0			7.6	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM Average Control Delay	15.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	70	131	325	73	90	315
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	142	353	79	98	342

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	218	433	440
Volume Left (vph)	76	0	98
Volume Right (vph)	142	79	0
Hadj (s)	-0.29	-0.08	0.08
Departure Headway (s)	5.8	5.1	5.3
Degree Utilization, x	0.35	0.62	0.64
Capacity (veh/h)	565	674	665
Control Delay (s)	11.8	16.0	17.3
Approach Delay (s)	11.8	16.0	17.3
Approach LOS	B	C	C

Intersection Summary			
Delay	15.7		
HCM Level of Service	C		
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	42	117	66	33	20	42	808	0	31	799	105
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0			3.0			3.0	
Lane Util. Factor		1.00			1.00			0.95			*0.85	
Frpb, ped/bikes		0.65			0.94			1.00			0.90	
Flpb, ped/bikes		0.97			0.83			0.99			1.00	
Frt		0.91			0.98			1.00			0.98	
Flt Protected		0.99			0.97			1.00			1.00	
Satd. Flow (prot)		913			1174			3318			2506	
Flt Permitted		0.95			0.67			0.85			0.90	
Satd. Flow (perm)		876			813			2824			2266	
Peak-hour factor, PHF	0.92	0.92	0.92	0.79	0.79	0.79	0.95	0.95	0.95	0.96	0.96	0.96
Adj. Flow (vph)	26	46	127	84	42	25	44	851	0	32	832	109
RTOR Reduction (vph)	0	3	0	0	7	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	196	0	0	144	0	0	895	0	0	971	0
Confl. Peds. (#/hr)	435		1210	1210		435	924		439	439		924
Confl. Bikes (#/hr)			12			10			4			39
Parking (#/hr)		0	0	0	0						0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			8			4	
Permitted Phases	2			2			8			4		
Actuated Green, G (s)		23.0			23.0			64.0			64.0	
Effective Green, g (s)		24.0			24.0			65.0			65.0	
Actuated g/C Ratio		0.25			0.25			0.68			0.68	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		221			205			1932			1550	
v/s Ratio Prot												
v/s Ratio Perm		c0.22			0.18			0.32			c0.43	
v/c Ratio		0.89			0.70			0.46			0.63	
Uniform Delay, d1		34.2			32.2			6.9			8.3	
Progression Factor		1.00			0.20			1.00			1.00	
Incremental Delay, d2		37.0			17.2			0.8			1.9	
Delay (s)		71.2			23.5			7.7			10.2	
Level of Service		E			C			A			B	
Approach Delay (s)		71.2			23.5			7.7			10.2	
Approach LOS		E			C			A			B	

Intersection Summary			
HCM Average Control Delay	15.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	72	0	0	118	7	6	273	111	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0			3.0				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		1.00			0.97			0.82				
Flpb, ped/bikes		0.96			1.00			0.99				
Frt		1.00			0.99			0.96				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1685			1690			1379				
Flt Permitted		0.98			1.00			1.00				
Satd. Flow (perm)		1653			1690			1379				
Peak-hour factor, PHF	0.92	0.92	0.92	0.79	0.79	0.79	0.96	0.96	0.96	0.95	0.95	0.95
Adj. Flow (vph)	8	78	0	0	149	9	6	284	116	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	86	0	0	156	0	0	406	0	0	0	0
Confl. Peds. (#/hr)	435		1210	1210		435	924		439			
Confl. Bikes (#/hr)			12			10			4			
Turn Type	Perm						Perm					
Protected Phases		6			6			8				
Permitted Phases	6						8					
Actuated Green, G (s)		23.0			23.0			64.0				
Effective Green, g (s)		24.0			24.0			65.0				
Actuated g/C Ratio		0.25			0.25			0.68				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		418			427			944				
v/s Ratio Prot					c0.09							
v/s Ratio Perm		0.05						0.29				
v/c Ratio		0.21			0.36			0.43				
Uniform Delay, d1		28.0			29.2			6.7				
Progression Factor		0.73			1.00			0.17				
Incremental Delay, d2		0.8			2.4			1.0				
Delay (s)		21.2			31.6			2.2				
Level of Service		C			C			A				
Approach Delay (s)		21.2			31.6			2.2			0.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	11.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	24	111	20	30	34	59	1162	60	22	863	81
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	*0.75	
Frpb, ped/bikes		0.89			0.92		1.00	0.99		1.00	0.92	
Flpb, ped/bikes		0.96			0.98		1.00	1.00		1.00	1.00	
Frt		0.92			0.95		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1237			1331		1676	3305		1676	2290	
Flt Permitted		0.90			0.91		0.13	1.00		0.12	1.00	
Satd. Flow (perm)		1127			1225		234	3305		203	2290	
Peak-hour factor, PHF	0.81	0.81	0.81	0.88	0.88	0.88	0.90	0.90	0.90	0.93	0.93	0.93
Adj. Flow (vph)	63	30	137	23	34	39	66	1291	67	24	928	87
RTOR Reduction (vph)	0	0	0	0	25	0	0	4	0	0	5	0
Lane Group Flow (vph)	0	230	0	0	71	0	66	1354	0	24	1010	0
Confl. Peds. (#/hr)	196		172	172		196	1277		42	42		1277
Confl. Bikes (#/hr)			21			27			24			49
Parking (#/hr)		0	0		0	0					0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		31.5			31.5		53.5	53.5		53.5	53.5	
Effective Green, g (s)		34.0			34.0		55.0	55.0		55.0	55.0	
Actuated g/C Ratio		0.36			0.36		0.58	0.58		0.58	0.58	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		403			438		135	1913		118	1326	
v/s Ratio Prot								0.41			c0.44	
v/s Ratio Perm		c0.20			0.06		0.28			0.12		
v/c Ratio		0.57			0.16		0.49	0.71		0.20	0.76	
Uniform Delay, d1		24.6			20.8		11.7	14.3		9.5	15.1	
Progression Factor		1.00			1.00		0.65	0.60		0.72	0.73	
Incremental Delay, d2		5.8			0.8		9.2	1.7		3.0	3.3	
Delay (s)		30.4			21.6		16.9	10.3		9.9	14.3	
Level of Service		C			C		B	B		A	B	
Approach Delay (s)		30.4			21.6			10.6			14.2	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	25	78	36	28	27	82	1211	47	10	916	76
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.89			0.94		1.00	0.98		1.00	0.95	
Flpb, ped/bikes		0.97			0.95		0.92	1.00		1.00	1.00	
Frt		0.92			0.96		1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1386			1480		1541	3257		1676	3144	
Flt Permitted		0.93			0.86		0.19	1.00		0.12	1.00	
Satd. Flow (perm)		1300			1299		303	3257		212	3144	
Peak-hour factor, PHF	0.89	0.89	0.89	0.83	0.83	0.83	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	33	28	88	43	34	33	87	1288	50	11	1007	84
RTOR Reduction (vph)	0	6	0	0	5	0	0	3	0	0	6	0
Lane Group Flow (vph)	0	143	0	0	105	0	87	1335	0	11	1085	0
Confl. Peds. (#/hr)	211		181	181		211	477		378	378		477
Confl. Bikes (#/hr)			11			24			47			32
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			6			8			8	
Permitted Phases	6			6			8			8		
Actuated Green, G (s)		31.5			31.5		53.5	53.5		53.5	53.5	
Effective Green, g (s)		34.0			34.0		55.0	55.0		55.0	55.0	
Actuated g/C Ratio		0.36			0.36		0.58	0.58		0.58	0.58	
Clearance Time (s)		5.5			5.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		465			465		175	1886		123	1820	
v/s Ratio Prot								c0.41			0.34	
v/s Ratio Perm		c0.11			0.08		0.29			0.05		
v/c Ratio		0.31			0.23		0.50	0.71		0.09	0.60	
Uniform Delay, d1		22.0			21.3		11.8	14.3		8.9	12.9	
Progression Factor		1.00			1.00		0.49	0.30		0.58	0.45	
Incremental Delay, d2		1.7			1.1		4.3	1.0		1.0	1.0	
Delay (s)		23.7			22.4		10.1	5.3		6.1	6.8	
Level of Service		C			C		B	A		A	A	
Approach Delay (s)		23.7			22.4			5.6			6.8	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	93.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	53	210	53	33	49	1304	0	0	1025	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)			3.0	3.0	3.0		3.0	3.0			3.0	
Lane Util. Factor			1.00	1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes			0.84	1.00	0.97		1.00	1.00			0.98	
Flpb, ped/bikes			1.00	0.85	1.00		1.00	1.00			1.00	
Frt			0.86	1.00	0.94		1.00	1.00			0.99	
Flt Protected			1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)			1286	1433	1617		1676	3353			3285	
Flt Permitted			1.00	0.95	1.00		0.10	1.00			1.00	
Satd. Flow (perm)			1286	1433	1617		183	3353			3285	
Peak-hour factor, PHF	0.82	0.82	0.82	0.86	0.86	0.86	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	0	0	65	244	62	38	52	1387	0	0	1139	40
RTOR Reduction (vph)	0	0	6	0	9	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	59	244	91	0	52	1387	0	0	1176	0
Confl. Peds. (#/hr)			148	148		65	163					163
Confl. Bikes (#/hr)			8									26
Turn Type			custom	Perm			Perm					
Protected Phases					6			8			8	
Permitted Phases			6	6			8					
Actuated Green, G (s)			43.5	43.5	43.5		41.5	41.5			41.5	
Effective Green, g (s)			46.0	46.0	46.0		43.0	43.0			43.0	
Actuated g/C Ratio			0.48	0.48	0.48		0.45	0.45			0.45	
Clearance Time (s)			5.5	5.5	5.5		4.5	4.5			4.5	
Lane Grp Cap (vph)			623	694	783		83	1518			1487	
v/s Ratio Prot					0.06			c0.41			0.36	
v/s Ratio Perm			0.05	c0.17			0.28					
v/c Ratio			0.09	0.35	0.12		0.63	0.91			0.79	
Uniform Delay, d1			13.2	15.2	13.4		19.9	24.3			22.2	
Progression Factor			1.00	1.00	1.00		0.45	0.50			0.56	
Incremental Delay, d2			0.3	1.4	0.3		3.2	1.1			3.7	
Delay (s)			13.5	16.6	13.7		12.2	13.2			16.1	
Level of Service			B	B	B		B	B			B	
Approach Delay (s)		13.5			15.8			13.2			16.1	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	46	45	0	0	0	31	1358	240	93	1150	44
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0					2.5	2.5		3.0	3.0	
Lane Util. Factor		0.95					1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.96					1.00	0.95		1.00	0.98	
Flpb, ped/bikes		1.00					0.93	1.00		1.00	1.00	
Frt		0.94					1.00	0.98		1.00	0.99	
Flt Protected		0.99					0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2997					1566	3123		1676	3269	
Flt Permitted		0.99					0.16	1.00		0.09	1.00	
Satd. Flow (perm)		2997					269	3123		155	3269	
Peak-hour factor, PHF	0.80	0.80	0.80	0.95	0.95	0.95	0.94	0.94	0.94	0.93	0.93	0.93
Adj. Flow (vph)	21	58	56	0	0	0	33	1445	255	100	1237	47
RTOR Reduction (vph)	0	9	0	0	0	0	0	15	0	0	3	0
Lane Group Flow (vph)	0	126	0	0	0	0	33	1685	0	100	1281	0
Confl. Peds. (#/hr)	58		92	92		58	277		238	238		277
Confl. Bikes (#/hr)			6						14			10
Turn Type	Split						Perm			pm+pt		
Protected Phases	6	6						8		7	4	
Permitted Phases							8			4		
Actuated Green, G (s)		32.5					41.5	41.5		52.5	52.5	
Effective Green, g (s)		35.0					43.5	43.5		53.5	54.0	
Actuated g/C Ratio		0.37					0.46	0.46		0.56	0.57	
Clearance Time (s)		5.5					4.5	4.5		4.0	4.5	
Lane Grp Cap (vph)		1104					123	1430		215	1858	
v/s Ratio Prot		c0.04						c0.54		0.04	c0.39	
v/s Ratio Perm							0.12			0.22		
v/c Ratio		0.11					0.27	1.18		0.47	0.69	
Uniform Delay, d1		19.8					15.9	25.8		19.2	14.5	
Progression Factor		1.00					1.00	1.00		1.85	1.59	
Incremental Delay, d2		0.2					5.3	87.8		5.1	1.5	
Delay (s)		20.0					21.2	113.5		40.7	24.7	
Level of Service		B					C	F		D	C	
Approach Delay (s)		20.0			0.0			111.8			25.8	
Approach LOS		B			A			F			C	

Intersection Summary			
HCM Average Control Delay	71.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	91.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	25	85	21	652	921	85
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	92	23	709	1001	92
Pedestrians	202				126	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	17				10	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1775	749	1295			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1775	749	1295			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	48	69	95			
cM capacity (veh/h)	52	295	441			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	120	259	472	667	426
Volume Left	27	23	0	0	0
Volume Right	92	0	0	0	92
cSH	143	441	1700	1700	1700
Volume to Capacity	0.83	0.05	0.28	0.39	0.25
Queue Length 95th (ft)	134	4	0	0	0
Control Delay (s)	96.9	1.9	0.0	0.0	0.0
Lane LOS	F	A			
Approach Delay (s)	96.9	0.7		0.0	
Approach LOS	F				

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	47	104	144	42	27	34
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	51	113	157	46	29	37
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			358			
pX, platoon unblocked						
vC, conflicting volume	202				395	179
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	202				395	179
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				95	96
cM capacity (veh/h)	1370				587	863

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	164	202	66
Volume Left	51	0	29
Volume Right	0	46	37
cSH	1370	1700	715
Volume to Capacity	0.04	0.12	0.09
Queue Length 95th (ft)	3	0	8
Control Delay (s)	2.6	0.0	10.6
Lane LOS	A		B
Approach Delay (s)	2.6	0.0	10.6
Approach LOS			B

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	33.0%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix C: PEQI Audit Forms

Allston Way – Existing Condition

Pedestrian Environmental Quality Index (PEQI)

Street & Intersection Audit Form

Date entered into database: ___/___/___

Project: 2211 Harold Way Traffic and Parking Study **Survey Date:**

Auditor(s): IBI Group

INTERSECTION

This is the intersection of: Allston Way **and:** Milvia Street

(The street you plan to walk down) (The street you will cross)

Intersection CNN: ______________

Are these two lane or one lane streets and alleys? **Yes** [X] **No** [ ] Street type ________

	All ways	1 missing	2 missing	3 missing	None
1. Crosswalks	[X]	[ ]	[ ]	[ ]	[ ]
2. High visibility crosswalks	[ ]	[ ]	[ ]	[ ]	[X]

	4+ streetlights	3 streetlights	2 streetlights	1 streetlight	None
3. Intersection lighting	[X]	[ ]	[ ]	[ ]	[ ]

	Traffic Signal	Stop All Way	Yield (no roundabout)	Roundabout	Uncontrolled
4. Traffic Control	[X]	[ ]	[ ]	[ ]	[ ]

Skip questions 5-8 unless there is a traffic signal

	All ways	Some ways	None
5a. Is there a signal for pedestrians?	[X]	[ ]	[ ]
5b. If YES does the signal count down?	[X]	[ ]	[ ]

6. Wait time [ ] (seconds) **7. Time to Cross** X (seconds) **8. Crossing Distance** [ ] (feet)

9. Pedestrian Refuge Island [X] None [ ] Yes, 4 ft or narrower [ ] Yes, wider than 4 ft

10. Curb ramps [ ] Missing one or more ramp [X] All corners ramped

11. Intersection traffic calming features

Check all that apply.

TOTAL # 0

- [ ] *a) Raised crosswalks*
- [ ] *b) Pavement treatments*
- [ ] *c) Bike lane thru intersection*
- [ ] *d) Bulb-outs*
- [ ] *e) Diagonal diverter*
- [ ] *f) Partial closure*
- [ ] *g) Traffic calming circle*
- [ ] *h) Mini-circle*

12. Pedestrian Engineering Countermeasures

Check all that apply.

TOTAL # 1

- [ ] *a) Flashing beacon*
- [ ] *b) No Turn on Red Signs*
- [ ] *c) Additional signs*
- [ ] *d) Crosswalk scramble*
- [X] *e) Red visibility curb*
- [ ] *f) Advanced stop/yield lines*
- [ ] *g) Pedestrian leading interval*

STREET SEGMENT

This street is: Allston Wy **between:** Milvia St **and:** Harold Wy

Side A CNN: ____________________ *Side B CNN:* ____________________ *Street type :* ______________

13. Number of lanes: [ ] Shared / pedestrian only street [ ] 1 [X] 2 [ ] 3 [ ] 4+

14. Posted speed limit: [X] 25 mph / none posted [ ] Under 25 mph [ ] Over 25 mph

15. Street traffic calming features

Check all that apply.

TOTAL # 0

- [ ] *a) Trees in median*
- [ ] *b) Speed hump / bump*
- [ ] *c) Speed enforcement*
- [ ] *d) Protected bike lane*
- [ ] *e) Chicane*

Please indicate whether Side A and Side B are North, South, East, or West relative to the street centerline.

SIDE A	SIDE B
N / S / E / W	**N / S / E / W**

For questions 16-22 you will select one answer for ***each*** *side of the street*

Question	Option	Side A	Side B
16. Continuous sidewalk	No	☐	☐
	Yes	☒	☒
17. Width of sidewalk *(if no sidewalk, skip #17-20, this side)*	Less than 5 ft	☐	☐
	5 ft to 8 ft	☐	☐
	8 ft to 12 ft	☒	☒
	12 ft or more	☐	☐
18. Width of throughway *The throughway is the part without furniture, signs, plantings, newspaper or utility boxes.*	Less than 4 ft	☐	☐
	4 ft to 6 ft	☒	☒
	6 ft to 8 ft	☐	☐
	8 ft or more	☐	☐
19. Large sidewalk obstructions: *An obstruction is any object in the throughway.*	None	☒	☒
	Temporary	☐	☐
	Permanent	☐	☐
20. Sidewalk impediments: *Anything that poses a tripping hazard.*	None	☒	☒
	Minor	☐	☐
	Significant	☐	☐
21. Trees	None	☐	☒
	Sporadically lined	☒	☐
	Continuously lined	☐	☐
22. Driveway cuts	None	☒	☐
	1-5	☐	☒
	> 5	☐	☐

For questions 23-26, check Yes or No on each side:

Question	Option	Side A Yes	Side A No	Side B Yes	Side B No
23. Presence of buffers *Check all that apply.*		☒	☐	☒	☐
	Non-peak parallel parking	☐		☐	
	Parallel parking	☒		☒	
	Bike lane	☐		☐	
24. Planters and gardens		☐	☒	☐	☒
25. Public seating		☐	☒	☐	☒
26. Public art/historical sites		☐	☒	☐	☒

For questions 27-28, select one answer for each side of the street:

Question	Option	Side A	Side B
27. Retail use and public places *Retail that covers an entire block counts as three or more.*	None	☐	☐
	1 or 2	☐	☐
	3 or more	☒	☒
28. Pedestrian-scale lighting	None	☒	☒
	Sporadic	☐	☐
	Continuous	☐	☐

For questions 29-31, check Yes or No on each side:

Question	Option	Side A Yes	Side A No	Side B Yes	Side B No
29. Illegal graffiti *Select NO if there is only a little*		☐	☒	☐	☒
30. Litter *Select NO if there is only a little*		☐	☒	☐	☒
31. Empty spaces *Check all that apply*		☐	☒	☐	☒
	Abandoned buildings	☐		☐	
	Vacant lots	☐		☐	
	Parking lots	☐		☐	
	Construction sites	☐		☐	

Perceived Walkability

This street is: Allston Way **between:** Milvia Street **and:** Shattuck Avenue

For questions 32-36, please circle the number that your team thinks best describes this street.

32. Street segment is visually attractive for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
33. Street segment feels safe for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
34. Are there obvious strong odors anywhere on this street segment (e.g. vehicle exhaust, urine stench, rotting garbage, etc.)?	A lot of odors 1	Some odors 2	A little odor 3	No odor 4	Only good odors 5

35. On a scale of 1 to 10, how walkable do you find this street segment?

Not walkable — Very Walkable

1 2 3 4 5 6 7 8 9 10

Notes & Questions:

Pedestrian Environmental Quality Index (PEQI)

Street & Intersection Audit Form

Date entered into database: ___/___/___

Project: 2211 Harold Way Traffic and Parking Study **Survey Date:**

Auditor(s): IBI Group

INTERSECTION

This is the intersection of: Allston Wy (Primary) **and:** Harold Wy (Secondary)

(The street you plan to walk down) **(The street you will cross)**

*Intersection CNN:*______________

Are these two lane or one lane streets and alleys? **Yes** [X] **No** [ ] Street type ______________

	All ways	1 missing	2 missing	3 missing	None
1. Crosswalks	X				
2. High visibility crosswalks					X

	4+ streetlights	3 streetlights	2 streetlights	1 streetlight	None
3. Intersection lighting		X			

	Traffic Signal	Stop All Way	Yield (no roundabout)	Roundabout	Uncontrolled
4. Traffic Control		X			

Skip questions 5-8 unless there is a traffic signal

5a. Is there a signal for pedestrians? All ways [ ] Some ways [ ] None [ ]

5b. If YES does the signal count down? All ways [ ] Some ways [ ] None [ ]

6. Wait time [ ] (seconds) **7. Time to Cross** [ ] (seconds) **8. Crossing Distance** [ ] (feet)

9. Pedestrian Refuge Island [X] None [ ] Yes, 4 ft or narrower [ ] Yes, wider than 4 ft

10. Curb ramps [ ] Missing one or more ramp [X] All corners ramped

11. Intersection traffic calming features

Check all that apply.

TOTAL # 0

- [ ] *a) Raised crosswalks*
- [ ] *b) Pavement treatments*
- [ ] *c) Bike lane thru intersection*
- [ ] *d) Bulb-outs*
- [ ] *e) Diagonal diverter*
- [ ] *f) Partial closure*
- [ ] *g) Traffic calming circle*
- [ ] *h) Mini-circle*

12. Pedestrian Engineering Countermeasures

Check all that apply.

TOTAL # 0

- [ ] *a) Flashing beacon*
- [ ] *b) No Turn on Red Signs*
- [ ] *c) Additional signs*
- [ ] *d) Crosswalk scramble*
- [ ] *e) Red visibility curb*
- [ ] *f) Advanced stop/yield lines*
- [ ] *g) Pedestrian leading interval*

STREET SEGMENT

This street is: Allston Wy (Primary) **between:** Harold Wy (Street 1) **and:** Shattuck Ave (Street 2)

*Side A CNN:*____________________ *Side B CNN:*____________________ *Street type:*______________

13. Number of lanes: [ ] Shared / pedestrian only street [ ] 1 [X] 2 [ ] 3 [ ] 4+

14. Posted speed limit: [X] 25 mph / none posted [ ] Under 25 mph [ ] Over 25 mph

15. Street traffic calming features

Check all that apply.

TOTAL # 0

- [ ] *a) Trees in median*
- [ ] *b) Speed hump / bump*
- [ ] *c) Speed enforcement*
- [ ] *d) Protected bike lane*
- [ ] *e) Chicane*

Please indicate whether Side A and Side B are North, South, East, or West relative to the street centerline.

	SIDE A	SIDE B
	N / S / E / W	N / S / E / W

*For questions 16-22 you will select one answer for **each** side of the street*

Question	Side A		Side B	
16. Continuous sidewalk	No ☐	Yes ☒	Yes ☒	No ☐

Question	Option	Side A	Side B
17. Width of sidewalk *(if no sidewalk, skip #17-20, this side)*	Less than 5 ft	☐	☐
	5 ft to 8 ft	☐	☐
	8 ft to 12 ft	☒	☒
	12 ft or more	☐	☐
18. Width of throughway *The throughway is the part without furniture, signs, plantings, newspaper or utility boxes.*	Less than 4 ft	☐	☐
	4 ft to 6 ft	☒	☒
	6 ft to 8 ft	☐	☐
	8 ft or more	☐	☐
19. Large sidewalk <u>obstructions</u>: *An obstruction is any object in the throughway.*	None	☒	☒
	Temporary	☐	☐
	Permanent	☐	☐
20. Sidewalk impediments: *Anything that poses a tripping hazard.*	None	☒	☒
	Minor	☐	☐
	Significant	☐	☐
21. Trees	None	☐	☒
	Sporadically lined	☒	☐
	Continuously lined	☐	☐
22. Driveway cuts	None	☐	☒
	1-5	☒	☐
	> 5	☐	☐

(if no sidewalk, skip #17-20, this side)

For questions 23-26, check Yes or No on each side:

Question	Option	Side A Yes	Side A No	Side B Yes	Side B No
23. Presence of buffers *Check all that apply.*		☒	☐	☒	☐
	Non-peak parallel parking	☐		☐	
	Parallel parking	☒		☒	
	Bike lane	☐		☐	
24. Planters and gardens		☐	☒	☐	☒
25. Public seating		☒	☐	☐	☒
26. Public art/historical sites		☐	☒	☐	☒

For questions 27-28, select one answer for each side of the street:

Question	Option	Side A	Side B
27. Retail use and public places *Retail that covers an entire block counts as three or more.*	None	☐	☐
	1 or 2	☐	☐
	3 or more	☒	☒
28. Pedestrian-scale lighting	None	☒	☒
	Sporadic	☐	☐
	Continuous	☐	☐

For questions 29-31, check Yes or No on each side:

Question	Option	Side A Yes	Side A No	Side B Yes	Side B No
29. Illegal graffiti *Select NO if there is only a little*		☐	☒	☐	☒
30. Litter *Select NO if there is only a little*		☐	☒	☐	☒
31. Empty spaces *Check all that apply*		☐	☒	☐	☒
	Abandoned buildings	☐		☐	
	Vacant lots	☐		☐	
	Parking lots	☐		☐	
	Construction sites	☐		☐	

Perceived Walkability

This street is: Allston Way **between:** Milvia Street **and:** Shattuck Avenue

For questions 32-36, please circle the number that your team thinks best describes this street.

32. Street segment is visually attractive for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
33. Street segment feels safe for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
34. Are there obvious strong odors anywhere on this street segment (e.g. vehicle exhaust, urine stench, rotting garbage, etc.)?	A lot of odors 1	Some odors 2	A little odor 3	No odor 4	Only good odors 5

35. On a scale of 1 to 10, how walkable do you find this street segment?

Not walkable — Very Walkable

1 2 3 4 5 6 7 8 9 10

Notes & Questions:

Pedestrian Environmental Quality Index (PEQI)

Street & Intersection Audit Form

Date entered into database: ___/___/___

Project: 2211 Harold Way Traffic and Parking Study **Survey Date:**

Auditor(s): IBI Group

INTERSECTION

This is the intersection of: Allston Wy (Primary) **and:** Shattuck Av (Secondary)

(The street you plan to walk down) (The street you will cross)

*Intersection CNN:*______________

Are these two lane or one lane streets and alleys? **Yes** [X] **No** [ ] Street type ________

	All ways	1 missing	2 missing	3 missing	None
1. Crosswalks	[X]	[ ]	[ ]	[ ]	[ ]
2. High visibility crosswalks	[ ]	[ ]	[ ]	[ ]	[X]

	4+ streetlights	3 streetlights	2 streetlights	1 streetlight	None
3. Intersection lighting	[X]	[ ]	[ ]	[ ]	[ ]

	Traffic Signal	Stop All Way	Yield (no roundabout)	Roundabout	Uncontrolled
4. Traffic Control	[X]	[ ]	[ ]	[ ]	[ ]

Skip questions 5-8 unless there is a traffic signal

	All ways	Some ways	None
5a. Is there a signal for pedestrians?	[X]	[ ]	[ ]
5b. If YES does the signal count down?	[X]	[ ]	[ ]

6. Wait time ____ (seconds) **7. Time to Cross** X (seconds) **8. Crossing Distance** ____ (feet)

9. Pedestrian Refuge Island [X] None [ ] Yes, 4 ft or narrower [ ] Yes, wider than 4 ft

10. Curb ramps [ ] Missing one or more ramp [X] All corners ramped

11. Intersection traffic calming features

Check all that apply.

TOTAL # 0

- [ ] *a) Raised crosswalks*
- [ ] *b) Pavement treatments*
- [ ] *c) Bike lane thru intersection*
- [ ] *d) Bulb-outs*
- [ ] *e) Diagonal diverter*
- [ ] *f) Partial closure*
- [ ] *g) Traffic calming circle*
- [ ] *h) Mini-circle*

12. Pedestrian Engineering Countermeasures

Check all that apply.

TOTAL # 1

- [ ] *a) Flashing beacon*
- [ ] *b) No Turn on Red Signs*
- [ ] *c) Additional signs*
- [ ] *d) Crosswalk scramble*
- [X] *e) Red visibility curb*
- [ ] *f) Advanced stop/yield lines*
- [ ] *g) Pedestrian leading interval*

STREET SEGMENT

This street is: Allston Wy **between:** Harold Wy **and:** Shattuck Ave

*Side A CNN:*__________________ *Side B CNN:*__________________ *Street type:*______________

13. Number of lanes: [ ] Shared / pedestrian only street [ ] 1 [X] 2 [ ] 3 [ ] 4+

14. Posted speed limit: [X] 25 mph / none posted [ ] Under 25 mph [ ] Over 25 mph

15. Street traffic calming features

Check all that apply.

TOTAL # 0

- [ ] *a) Trees in median*
- [ ] *b) Speed hump / bump*
- [ ] *c) Speed enforcement*
- [ ] *d) Protected bike lane*
- [ ] *e) Chicane*

Please indicate whether Side A and Side B are North, South, East, or West relative to the street centerline.

	SIDE A	SIDE B
	N / S / E / W	**N / S / E / W**

For questions 16-22 you will select one answer for ***each*** *side of the street*

Question	Side A option	Side A	Side B	Side B option
16. Continuous sidewalk	No	☐	☒	Yes
	Yes	☒	☐	No
17. Width of sidewalk *(if no sidewalk, skip #17-20, this side)*	Less than 5 ft	☐	☐	Less than 5 ft
	5 ft to 8 ft	☐	☐	5 ft to 8 ft *(if no sidewalk, skip #17-20, this side)*
	8 ft to 12 ft	☒	☒	8 ft to 12 ft
	12 ft or more	☐	☐	12 ft or more
18. Width of throughway *The throughway is the part without furniture, signs, plantings, newspaper or utility boxes.*	Less than 4 ft	☐	☐	Less than 4 ft
	4 ft to 6 ft	☒	☒	4 ft to 6 ft
	6 ft to 8 ft	☐	☐	6 ft to 8 ft
	8 ft or more	☐	☐	8 ft or more
19. Large sidewalk obstructions: *An obstruction is any object in the throughway.*	None	☒	☒	None
	Temporary	☐	☐	Temporary
	Permanent	☐	☐	Permanent
20. Sidewalk impediments: *Anything that poses a tripping hazard.*	None	☒	☒	None
	Minor	☐	☐	Minor
	Significant	☐	☐	Significant
21. Trees	None	☐	☒	None
	Sporadically lined	☒	☐	Sporadically lined
	Continuously lined	☐	☐	Continuously lined
22. Driveway cuts	☐ None ☒ 1-5 ☐ > 5			☒ None ☐ 1-5 ☐ > 5

For questions 23-26, check Yes or No on each side:

Question	Side A option	Side A Yes	Side A No	Side B Yes	Side B No	Side B option
23. Presence of buffers		☒	☐	☒	☐	
Check all that apply.	Non-peak parallel parking	☐		☐		Non-peak parallel parking
	Parallel parking	☒		☒		Parallel parking
	Bike lane	☐		☐		Bike lane
24. Planters and gardens		☐	☒	☐	☒	
25. Public seating		☒	☐	☐	☒	
26. Public art/historical sites		☐	☒	☐	☒	

For questions 27-28, select one answer for each side of the street:

Question	Side A option	Side A	Side B	Side B option
27. Retail use and public places *Retail that covers an entire block counts as three or more.*	None	☐	☐	None
	1 or 2	☐	☐	1 or 2
	3 or more	☒	☒	3 or more
28. Pedestrian-scale lighting	None	☒	☒	None
	Sporadic	☐	☐	Sporadic
	Continuous	☐	☐	Continuous

For questions 29-31, check Yes or No on each side:

Question	Side A option	Side A Yes	Side A No	Side B Yes	Side B No	Side B option
29. Illegal graffiti *Select NO if there is only a little*		☐	☒	☐	☒	
30. Litter *Select NO if there is only a little*		☐	☒	☐	☒	
31. Empty spaces		☐	☒	☐	☒	
	Abandoned buildings	☐		☐		Abandoned buildings
Check all that apply	Vacant lots	☐		☐		Vacant lots
	Parking lots	☐		☐		Parking lots
	Construction sites	☐		☐		Construction sites

Perceived Walkability

This street is: Allston Way **between:** Milvia Street **and:** Shattuck Avenue

For questions 32-36, please circle the number that your team thinks best describes this street.

32. Street segment is visually attractive for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
33. Street segment feels safe for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
34. Are there obvious strong odors anywhere on this street segment (e.g. vehicle exhaust, urine stench, rotting garbage, etc.)?	A lot of odors 1	Some odors 2	A little odor 3	No odor 4	Only good odors 5

35. On a scale of 1 to 10, how walkable do you find this street segment?

Not walkable — Very Walkable

1 2 3 4 5 6 7 8 9 10

Notes & Questions:

Appendix C: PEQI Audit Forms

Kittredge Street – Existing Condition

Pedestrian Environmental Quality Index (PEQI)

Street & Intersection Audit Form

Date entered into database: ___/___/___

Project: 2211 Harold Way Traffic and Parking Study **Survey Date:**

Auditor(s): IBI Group

INTERSECTION

This is the intersection of: Kittredge St (Primary) **and:** Milvia St (Secondary)

(The street you plan to walk down) (The street you will cross)

*Intersection CNN:*______________

Are these two lane or one lane streets and alleys? **Yes** [X] **No** [ ] Street type ________

	All ways	1 missing	2 missing	3 missing	None
1. Crosswalks	[X]	[ ]	[ ]	[ ]	[ ]
2. High visibility crosswalks	[ ]	[ ]	[ ]	[ ]	[X]

	4+ streetlights	3 streetlights	2 streetlights	1 streetlight	None
3. Intersection lighting	[ ]	[X]	[ ]	[ ]	[ ]

	Traffic Signal	Stop All Way	Yield (no roundabout)	Roundabout	Uncontrolled
4. Traffic Control	[ ]	[ ]	[ ]	[ ]	[X]

Skip questions 5-8 unless there is a traffic signal

	All ways	Some ways	None
5a. Is there a signal for pedestrians?	[ ]	[ ]	[ ]
5b. If YES does the signal count down?	[ ]	[ ]	[ ]

6. Wait time [ ] (seconds) **7. Time to Cross** [ ] (seconds) **8. Crossing Distance** [ ] (feet)

9. Pedestrian Refuge Island [X] None [ ] Yes, 4 ft or narrower [ ] Yes, wider than 4 ft

10. Curb ramps [ ] Missing one or more ramp [X] All corners ramped

11. Intersection traffic calming features

Check all that apply.

TOTAL # 0

- [ ] *a) Raised crosswalks*
- [ ] *b) Pavement treatments*
- [ ] *c) Bike lane thru intersection*
- [ ] *d) Bulb-outs*
- [ ] *e) Diagonal diverter*
- [ ] *f) Partial closure*
- [ ] *g) Traffic calming circle*
- [ ] *h) Mini-circle*

12. Pedestrian Engineering Countermeasures

Check all that apply.

TOTAL # 1

- [ ] *a) Flashing beacon*
- [ ] *b) No Turn on Red Signs*
- [ ] *c) Additional signs*
- [ ] *d) Crosswalk scramble*
- [X] *e) Red visibility curb*
- [ ] *f) Advanced stop/yield lines*
- [ ] *g) Pedestrian leading interval*

STREET SEGMENT

This street is: Kittredge St (Primary) **between:** Milvia St (Street #1) **and:** Harold Wy (Street #2)

*Side A CNN:*____________________ *Side B CNN:*____________________ *Street type:*______________

13. Number of lanes: [ ] Shared / pedestrian only street [ ] 1 [X] 2 [ ] 3 [ ] 4+

14. Posted speed limit: [X] 25 mph / none posted [ ] Under 25 mph [ ] Over 25 mph

15. Street traffic calming features

Check all that apply.

TOTAL # 0

- [ ] *a) Trees in median*
- [ ] *b) Speed hump / bump*
- [ ] *c) Speed enforcement*
- [ ] *d) Protected bike lane*
- [ ] *e) Chicane*

Please indicate whether Side A and Side B are North, South, East, or West relative to the street centerline.

SIDE A	SIDE B
N / S / E / W	**N / S / E / W**

*For questions 16-22 you will select one answer for **each** side of the street*

Question	Option	Side A	Side B
16. Continuous sidewalk	No	☐	☐
	Yes	☒	☒
17. Width of sidewalk *(if no sidewalk, skip #17-20, this side)*	Less than 5 ft	☐	☐
	5 ft to 8 ft	☒	☒
	8 ft to 12 ft	☐	☐
	12 ft or more	☐	☐
18. Width of throughway *The throughway is the part without furniture, signs, plantings, newspaper or utility boxes.*	Less than 4 ft	☐	☐
	4 ft to 6 ft	☒	☒
	6 ft to 8 ft	☐	☐
	8 ft or more	☐	☐
19. Large sidewalk <u>obstructions</u>: *An obstruction is any object in the throughway.*	None	☒	☒
	Temporary	☐	☐
	Permanent	☐	☐
20. Sidewalk impediments: *Anything that poses a tripping hazard.*	None	☒	☒
	Minor	☐	☐
	Significant	☐	☐
21. Trees	None	☒	☐
	Sporadically lined	☐	☒
	Continuously lined	☐	☐
22. Driveway cuts	None	☐	☐
	1-5	☒	☒
	> 5	☐	☐

(if no sidewalk, skip #17-20, this side)

For questions 23-26, check Yes or No on each side:

Question	Side A Yes	Side A No	Side B Yes	Side B No
23. Presence of buffers	☒	☐	☒	☐
24. Planters and gardens	☐	☒	☐	☒
25. Public seating	☐	☒	☐	☒
26. Public art/historical sites	☐	☒	☐	☒

23. Check all that apply.

Buffer	Side A	Side B
Non-peak parallel parking	☐	☐
Parallel parking	☒	☒
Bike lane	☐	☐

For questions 27-28, select one answer for each side of the street:

Question	Option	Side A	Side B
27. Retail use and public places *Retail that covers an entire block counts as three or more.*	None	☐	☐
	1 or 2	☒	☐
	3 or more	☐	☒
28. Pedestrian-scale lighting	None	☒	☒
	Sporadic	☐	☐
	Continuous	☐	☐

For questions 29-31, check Yes or No on each side:

Question	Side A Yes	Side A No	Side B Yes	Side B No
29. Illegal graffiti *Select NO if there is only a little*	☐	☒	☐	☒
30. Litter *Select NO if there is only a little*	☐	☒	☐	☒
31. Empty spaces	☐	☒	☐	☒

31. Check all that apply

Empty space	Side A	Side B
Abandoned buildings	☐	☐
Vacant lots	☐	☐
Parking lots	☐	☐
Construction sites	☐	☐

Perceived Walkability

This street is: Kittredge Street **between:** Milvia Street **and:** Shattuck Avenue

For questions 32-36, please circle the number that your team thinks best describes this street.

32. Street segment is visually attractive for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
33. Street segment feels safe for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
34. Are there obvious strong odors anywhere on this street segment (e.g. vehicle exhaust, urine stench, rotting garbage, etc.)?	A lot of odors 1	Some odors 2	A little odor 3	No odor 4	Only good odors 5

35. On a scale of 1 to 10, how walkable do you find this street segment?

Not walkable — Very Walkable

1 2 3 4 5 6 7 8 9 10

Notes & Questions:

Pedestrian Environmental Quality Index (PEQI)

Street & Intersection Audit Form

Date entered into database: ___/___/___

Project: 2211 Harold Way Traffic and Parking Study **Survey Date:**

Auditor(s): IBI Group

INTERSECTION

This is the intersection of: Kittredge St (Primary) **and:** Harold Wy (Secondary)

(The street you plan to walk down) (The street you will cross)

*Intersection CNN:*______________

Are these two lane or one lane streets and alleys? **Yes** [X] **No** [ ] Street type ________

	All ways	1 missing	2 missing	3 missing	None
1. Crosswalks	X				
2. High visibility crosswalks					X

	4+ streetlights	3 streetlights	2 streetlights	1 streetlight	None
3. Intersection lighting			X		

	Traffic Signal	Stop All Way	Yield (no roundabout)	Roundabout	Uncontrolled
4. Traffic Control		X			

Skip questions 5-8 unless there is a traffic signal

5a. Is there a signal for pedestrians? All ways [ ] Some ways [ ] None [ ]

5b. If YES does the signal count down? All ways [ ] Some ways [ ] None [ ]

6. Wait time [ ] (seconds) **7. Time to Cross** [ ] (seconds) **8. Crossing Distance** [ ] (feet)

9. Pedestrian Refuge Island [X] None [ ] Yes, 4 ft or narrower [ ] Yes, wider than 4 ft

10. Curb ramps [ ] Missing one or more ramp [X] All corners ramped

11. Intersection traffic calming features

Check all that apply.

TOTAL # 0

- [ ] *a) Raised crosswalks*
- [ ] *b) Pavement treatments*
- [ ] *c) Bike lane thru intersection*
- [ ] *d) Bulb-outs*
- [ ] *e) Diagonal diverter*
- [ ] *f) Partial closure*
- [ ] *g) Traffic calming circle*
- [ ] *h) Mini-circle*

12. Pedestrian Engineering Countermeasures

Check all that apply.

TOTAL # 0

- [ ] *a) Flashing beacon*
- [ ] *b) No Turn on Red Signs*
- [ ] *c) Additional signs*
- [ ] *d) Crosswalk scramble*
- [ ] *e) Red visibility curb*
- [ ] *f) Advanced stop/yield lines*
- [ ] *g) Pedestrian leading interval*

STREET SEGMENT

This street is: Kittredge St (Primary) **between:** Milvia St (Street #1) **and:** Shattuck Ave (Street #2)

*Side A CNN:*____________________ *Side B CNN:*____________________ *Street type:*______________

13. Number of lanes: [ ] Shared / pedestrian only street [ ] 1 [X] 2 [ ] 3 [ ] 4+

14. Posted speed limit: [X] 25 mph / none posted [ ] Under 25 mph [ ] Over 25 mph

15. Street traffic calming features

Check all that apply.

TOTAL # 0

- [ ] *a) Trees in median*
- [ ] *b) Speed hump / bump*
- [ ] *c) Speed enforcement*
- [ ] *d) Protected bike lane*
- [ ] *e) Chicane*

Please indicate whether Side A and Side B are North, South, East, or West relative to the street centerline.

	SIDE A	SIDE B
	N / S / E / W	N / S / E / W

For questions 16-22 you will select one answer for ***each*** *side of the street*

Question	Side A	Side B
16. Continuous sidewalk	No ☐ Yes ☒	Yes ☒ No ☐
17. Width of sidewalk *(if no sidewalk, skip #17-20, this side)*	Less than 5 ft ☐ 5 ft to 8 ft ☒ 8 ft to 12 ft ☐ 12 ft or more ☐	☐ Less than 5 ft ☒ 5 ft to 8 ft ☐ 8 ft to 12 ft ☐ 12 ft or more *(if no sidewalk, skip #17-20, this side)*
18. Width of throughway *The throughway is the part without furniture, signs, plantings, newspaper or utility boxes.*	Less than 4 ft ☐ 4 ft to 6 ft ☒ 6 ft to 8 ft ☐ 8 ft or more ☐	☐ Less than 4 ft ☒ 4 ft to 6 ft ☐ 6 ft to 8 ft ☐ 8 ft or more
19. Large sidewalk <u>obstructions</u>: *An obstruction is any object in the throughway.*	None ☒ Temporary ☐ Permanent ☐	☒ None ☐ Temporary ☐ Permanent
20. Sidewalk impediments: *Anything that poses a tripping hazard.*	None ☒ Minor ☐ Significant ☐	☒ None ☐ Minor ☐ Significant
21. Trees	None ☐ Sporadically lined ☒ Continuously lined ☐	☐ None ☒ Sporadically lined ☐ Continuously lined
22. Driveway cuts	☐ None ☒ 1-5 ☐ > 5	☐ None ☒ 1-5 ☐ > 5

For questions 23-26, check Yes or No on each side:

Question	Side A Yes	Side A No	Side B Yes	Side B No
23. Presence of buffers *Check all that apply.*	☒	☐	☒	☐
Non-peak parallel parking	☐		☐	
Parallel parking	☒		☒	
Bike lane	☐		☐	
24. Planters and gardens	☐	☒	☒	☐
25. Public seating	☐	☒	☒	☐
26. Public art/historical sites	☐	☒	☒	☐

For questions 27-28, select one answer for each side of the street:

Question	Side A	Side B
27. Retail use and public places *Retail that covers an entire block counts as three or more.*	None ☐ 1 or 2 ☒ 3 or more ☐	☐ None ☐ 1 or 2 ☒ 3 or more
28. Pedestrian-scale lighting	None ☒ Sporadic ☐ Continuous ☐	☐ None ☒ Sporadic ☐ Continuous

For questions 29-31, check Yes or No on each side:

Question	Side A Yes	Side A No	Side B Yes	Side B No
29. Illegal graffiti *Select NO if there is only a little*	☐	☒	☐	☒
30. Litter *Select NO if there is only a little*	☐	☒	☐	☒
31. Empty spaces *Check all that apply*	☐	☒	☐	☒
Abandoned buildings	☐		☐	
Vacant lots	☐		☐	
Parking lots	☐		☐	
Construction sites	☐		☐	

Perceived Walkability

This street is: Kittredge Street **between:** Milvia Street **and:** Shattuck Avenue

For questions 32-36, please circle the number that your team thinks best describes this street.

32. Street segment is visually attractive for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
33. Street segment feels safe for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
34. Are there obvious strong odors anywhere on this street segment (e.g. vehicle exhaust, urine stench, rotting garbage, etc.)?	A lot of odors 1	Some odors 2	A little odor 3	No odor 4	Only good odors 5

35. On a scale of 1 to 10, how walkable do you find this street segment?

Not walkable — Very Walkable

1 2 3 4 5 6 7 8 9 10

Notes & Questions:

Pedestrian Environmental Quality Index (PEQI)

Street & Intersection Audit Form

Date entered into database: ___/___/___

Project: 2211 Harold Way Traffic and Parking Study **Survey Date:**

Auditor(s): IBI Group

INTERSECTION

This is the intersection of: Kittredge St **and:** Shattuck Av

(The street you plan to walk down) (The street you will cross)

*Intersection CNN:*______________

Are these two lane or one lane streets and alleys? **Yes** [X] **No** [ ] Street type ____________

	All ways	1 missing	2 missing	3 missing	None
1. Crosswalks	[X]	[ ]	[ ]	[ ]	[ ]
2. High visibility crosswalks	[ ]	[ ]	[ ]	[ ]	[X]

	4+ streetlights	3 streetlights	2 streetlights	1 streetlight	None
3. Intersection lighting	[X]	[ ]	[ ]	[ ]	[ ]

	Traffic Signal	Stop All Way	Yield (no roundabout)	Roundabout	Uncontrolled
4. Traffic Control	[X]	[ ]	[ ]	[ ]	[ ]

Skip questions 5-8 unless there is a traffic signal

	All ways	Some ways	None
5a. Is there a signal for pedestrians?	[X]	[ ]	[ ]
5b. If YES does the signal count down?	[X]	[ ]	[ ]

6. Wait time [ ] (seconds) **7. Time to Cross** [X] (seconds) **8. Crossing Distance** [ ] (feet)

9. Pedestrian Refuge Island [X] None [ ] Yes, 4 ft or narrower [ ] Yes, wider than 4 ft

10. Curb ramps [ ] Missing one or more ramp [X] All corners ramped

11. Intersection traffic calming features
Check all that apply.
TOTAL # 0

- [ ] *a) Raised crosswalks*
- [ ] *b) Pavement treatments*
- [ ] *c) Bike lane thru intersection*
- [ ] *d) Bulb-outs*
- [ ] *e) Diagonal diverter*
- [ ] *f) Partial closure*
- [ ] *g) Traffic calming circle*
- [ ] *h) Mini-circle*

12. Pedestrian Engineering Countermeasures
Check all that apply.
TOTAL # 1

- [ ] *a) Flashing beacon*
- [ ] *b) No Turn on Red Signs*
- [ ] *c) Additional signs*
- [ ] *d) Crosswalk scramble*
- [X] *e) Red visibility curb*
- [ ] *f) Advanced stop/yield lines*
- [ ] *g) Pedestrian leading interval*

STREET SEGMENT

This street is: Kittredge St **between:** Milvia St **and:** Shattuck Ave

*Side A CNN:*____________________ *Side B CNN:*____________________ *Street type :*______________

13. Number of lanes: [ ] Shared / pedestrian only street [ ] 1 [X] 2 [ ] 3 [ ] 4+

14. Posted speed limit: [X] 25 mph / none posted [ ] Under 25 mph [ ] Over 25 mph

15. Street traffic calming features
Check all that apply.
TOTAL # 0

- [ ] *a) Trees in median*
- [ ] *b) Speed hump / bump*
- [ ] *c) Speed enforcement*
- [ ] *d) Protected bike lane*
- [ ] *e) Chicane*

Please indicate whether Side A and Side B are North, South, East, or West relative to the street centerline.

SIDE A **N / S / E / W** | **SIDE B** **N / S / E / W**

Question	Side A option	Side A	Side B	Side B option
*For questions 16-22 you will select one answer for **each** side of the street*				
16. Continuous sidewalk	No	☐	☒	Yes
	Yes	☒	☐	No
17. Width of sidewalk	Less than 5 ft	☐	☐	Less than 5 ft
(if no sidewalk, skip #17-20, this side)	5 ft to 8 ft	☒	☒	5 ft to 8 ft *(if no sidewalk, skip #17-20, this side)*
	8 ft to 12 ft	☐	☐	8 ft to 12 ft
	12 ft or more	☐	☐	12 ft or more
18. Width of throughway	Less than 4 ft	☐	☐	Less than 4 ft
The throughway is the part without furniture, signs, plantings, newspaper or utility boxes.	4 ft to 6 ft	☒	☒	4 ft to 6 ft
	6 ft to 8 ft	☐	☐	6 ft to 8 ft
	8 ft or more	☐	☐	8 ft or more
19. Large sidewalk <u>obstructions</u>:	None	☒	☒	None
An obstruction is any object in the throughway.	Temporary	☐	☐	Temporary
	Permanent	☐	☐	Permanent
20. Sidewalk impediments:	None	☒	☒	None
Anything that poses a tripping hazard.	Minor	☐	☐	Minor
	Significant	☐	☐	Significant
21. Trees	None	☐	☐	None
	Sporadically lined	☒	☒	Sporadically lined
	Continuously lined	☐	☐	Continuously lined
22. Driveway cuts	None	☐	☐	None
	1-5	☒	☒	1-5
	> 5	☐	☐	> 5

For questions 23-26, check Yes or No on each side:		Side A Yes	Side A No	Side B Yes	Side B No	
23. Presence of buffers		☒	☐	☒	☐	
Check all that apply.	Non-peak parallel parking	☐		☐		Non-peak parallel parking
	Parallel parking	☒		☒		Parallel parking
	Bike lane	☐		☐		Bike lane
24. Planters and gardens		☐	☒	☒	☐	
25. Public seating		☐	☒	☒	☐	
26. Public art/historical sites		☐	☒	☒	☐	

For questions 27-28, select one answer for each side of the street:	Side A option	Side A	Side B	Side B option
27. Retail use and public places	None	☐	☐	None
Retail that covers an entire block counts as three or more.	1 or 2	☒	☐	1 or 2
	3 or more	☐	☒	3 or more
28. Pedestrian-scale lighting	None	☒	☐	None
	Sporadic	☐	☒	Sporadic
	Continuous	☐	☐	Continuous

For questions 29-31, check Yes or No on each side:		Side A Yes	Side A No	Side B Yes	Side B No	
29. Illegal graffiti *Select NO if there is only a little*		☐	☒	☐	☒	
30. Litter *Select NO if there is only a little*		☐	☒	☐	☒	
31. Empty spaces		☐	☒	☐	☒	
	Abandoned buildings	☐		☐		Abandoned buildings
Check all that apply	Vacant lots	☐		☐		Vacant lots
	Parking lots	☐		☐		Parking lots
	Construction sites	☐		☐		Construction sites

Perceived Walkability

This street is: Kittredge Street **between:** Milvia Street **and:** Shattuck Avenue

For questions 32-36, please circle the number that your team thinks best describes this street.

32. Street segment is visually attractive for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
33. Street segment feels safe for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
34. Are there obvious strong odors anywhere on this street segment (e.g. vehicle exhaust, urine stench, rotting garbage, etc.)?	A lot of odors 1	Some odors 2	A little odor 3	No odor 4	Only good odors 5

35. On a scale of 1 to 10, how walkable do you find this street segment?

Not walkable — Very Walkable

1 2 3 4 5 6 7 8 9 10

Notes & Questions:

Appendix C: PEQI Audit Forms

Harold Way – Existing Condition

Pedestrian Environmental Quality Index (PEQI)

Street & Intersection Audit Form

Date entered into database: ___/___/___

Project: 2211 Harold Way Traffic and Parking Study **Survey Date:**

Auditor(s): IBI Group

INTERSECTION

This is the intersection of: Harold Wy (Primary) **and:** Allston Wy (Secondary)

(The street you plan to walk down) **(The street you will cross)**

*Intersection CNN:*______________

Are these two lane or one lane streets and alleys? **Yes** [X] **No** [ ] Street type ____________

	All ways	1 missing	2 missing	3 missing	None
1. Crosswalks	[X]	[ ]	[ ]	[ ]	[ ]
2. High visibility crosswalks	[ ]	[ ]	[ ]	[ ]	[X]

	4+ streetlights	3 streetlights	2 streetlights	1 streetlight	None
3. Intersection lighting	[ ]	[X]	[ ]	[ ]	[ ]

	Traffic Signal	Stop All Way	Yield (no roundabout)	Roundabout	Uncontrolled
4. Traffic Control	[ ]	[X]	[ ]	[ ]	[ ]

Skip questions 5-8 unless there is a traffic signal

	All ways	Some ways	None
5a. Is there a signal for pedestrians?	[ ]	[ ]	[ ]
5b. If YES does the signal count down?	[ ]	[ ]	[ ]

6. Wait time [ ] (seconds) **7. Time to Cross** [ ] (seconds) **8. Crossing Distance** [ ] (feet)

9. Pedestrian Refuge Island [X] None [ ] Yes, 4 ft or narrower [ ] Yes, wider than 4 ft

10. Curb ramps [ ] Missing one or more ramp [X] All corners ramped

11. Intersection traffic calming features

Check all that apply.

TOTAL # 0

- [ ] *a) Raised crosswalks*
- [ ] *b) Pavement treatments*
- [ ] *c) Bike lane thru intersection*
- [ ] *d) Bulb-outs*
- [ ] *e) Diagonal diverter*
- [ ] *f) Partial closure*
- [ ] *g) Traffic calming circle*
- [ ] *h) Mini-circle*

12. Pedestrian Engineering Countermeasures

Check all that apply.

TOTAL # 0

- [ ] *a) Flashing beacon*
- [ ] *b) No Turn on Red Signs*
- [ ] *c) Additional signs*
- [ ] *d) Crosswalk scramble*
- [ ] *e) Red visibility curb*
- [ ] *f) Advanced stop/yield lines*
- [ ] *g) Pedestrian leading interval*

STREET SEGMENT

This street is: Harold Wy **between:** Allston St **and:** Kittredge St

*Side A CNN:*____________________ *Side B CNN:*____________________ *Street type:*______________

13. Number of lanes: [ ] Shared / pedestrian only street [ ] 1 [X] 2 [ ] 3 [ ] 4+

14. Posted speed limit: [X] 25 mph / none posted [ ] Under 25 mph [ ] Over 25 mph

15. Street traffic calming features

Check all that apply.

TOTAL # 0

- [ ] *a) Trees in median*
- [ ] *b) Speed hump / bump*
- [ ] *c) Speed enforcement*
- [ ] *d) Protected bike lane*
- [ ] *e) Chicane*

Please indicate whether Side A and Side B are North, South, East, or West relative to the street centerline.

SIDE A N / S / ==E== / W

SIDE B N / S / E / ==W==

For questions 16-22 you will select one answer for ***each*** *side of the street*

Question	Side A option	Side A	Side B	Side B option
16. Continuous sidewalk	No	☐	☐	No
	Yes	☒	☒	Yes
17. Width of sidewalk *(if no sidewalk, skip #17-20, this side)*	Less than 5 ft	☐	☐	Less than 5 ft
	5 ft to 8 ft	☐	☐	5 ft to 8 ft *(if no sidewalk, skip #17-20, this side)*
	8 ft to 12 ft	☒	☒	8 ft to 12 ft
	12 ft or more	☐	☐	12 ft or more
18. Width of throughway *The throughway is the part without furniture, signs, plantings, newspaper or utility boxes.*	Less than 4 ft	☐	☐	Less than 4 ft
	4 ft to 6 ft	☒	☒	4 ft to 6 ft
	6 ft to 8 ft	☐	☐	6 ft to 8 ft
	8 ft or more	☐	☐	8 ft or more
19. Large sidewalk obstructions: *An obstruction is any object in the throughway.*	None	☒	☒	None
	Temporary	☐	☐	Temporary
	Permanent	☐	☐	Permanent
20. Sidewalk impediments: *Anything that poses a tripping hazard.*	None	☒	☒	None
	Minor	☐	☐	Minor
	Significant	☐	☐	Significant
21. Trees	None	☐	☐	None
	Sporadically lined	☒	☒	Sporadically lined
	Continuously lined	☐	☐	Continuously lined
22. Driveway cuts	None	☒	☒	None
	1-5	☐	☐	1-5
	> 5	☐	☐	> 5

For questions 23-26, check Yes or No on each side:

Question	Side A Yes	Side A No	Side B Yes	Side B No
23. Presence of buffers	☒	☐	☒	☐
24. Planters and gardens	☐	☒	☐	☒
25. Public seating	☐	☒	☐	☒
26. Public art/historical sites	☐	☒	☐	☒

23. Presence of buffers — *Check all that apply.*

Option	Side A	Side B
Non-peak parallel parking	☐	☐
Parallel parking	☒	☒
Bike lane	☐	☐

For questions 27-28, select one answer for each side of the street:

Question	Side A option	Side A	Side B	Side B option
27. Retail use and public places *Retail that covers an entire block counts as three or more.*	None	☐	☒	None
	1 or 2	☒	☐	1 or 2
	3 or more	☐	☐	3 or more
28. Pedestrian-scale lighting	None	☒	☒	None
	Sporadic	☐	☐	Sporadic
	Continuous	☐	☐	Continuous

For questions 29-31, check Yes or No on each side:

Question	Side A Yes	Side A No	Side B Yes	Side B No
29. Illegal graffiti *Select NO if there is only a little*	☐	☒	☐	☒
30. Litter *Select NO if there is only a little*	☐	☒	☐	☒
31. Empty spaces	☐	☒	☐	☒

31. Empty spaces — *Check all that apply*

Option	Side A	Side B
Abandoned buildings	☐	☐
Vacant lots	☐	☐
Parking lots	☐	☐
Construction sites	☐	☐

Perceived Walkability

This street is: Kittredge Street **between:** Milvia Street **and:** Shattuck Avenue

For questions 32-36, please circle the number that your team thinks best describes this street.

32. Street segment is visually attractive for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
33. Street segment feels safe for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
34. Are there obvious strong odors anywhere on this street segment (e.g. vehicle exhaust, urine stench, rotting garbage, etc.)?	A lot of odors 1	Some odors 2	A little odor 3	No odor 4	Only good odors 5

35. On a scale of 1 to 10, how walkable do you find this street segment?

Not walkable — Very Walkable

1 2 3 4 5 6 7 8 9 10

Notes & Questions:

Appendix C: PEQI Audit Forms

Proposed Condition

Pedestrian Environmental Quality Index (PEQI)

Street & Intersection Audit Form

Date entered into database: ___/___/___

Project: 2211 Harold Way Traffic and Parking Study **Survey Date:**

Auditor(s): IBI Group

INTERSECTION

This is the intersection of: Allston Wy (Primary) **and:** Harold Wy (Secondary)

(The street you plan to walk down) (The street you will cross)

*Intersection CNN:*______________

Are these two lane or one lane streets and alleys? **Yes** [X] **No** [ ] Street type ____________

	All ways	1 missing	2 missing	3 missing	None
1. Crosswalks	[X]	[ ]	[ ]	[ ]	[ ]
2. High visibility crosswalks	[ ]	[ ]	[ ]	[ ]	[X]

	4+ streetlights	3 streetlights	2 streetlights	1 streetlight	None
3. Intersection lighting	[ ]	[X]	[ ]	[ ]	[ ]

	Traffic Signal	Stop All Way	Yield (no roundabout)	Roundabout	Uncontrolled
4. Traffic Control	[ ]	[X]	[ ]	[ ]	[ ]

Skip questions 5-8 unless there is a traffic signal

5a. Is there a signal for pedestrians? All ways [ ] Some ways [ ] None [ ]

5b. If YES does the signal count down? All ways [ ] Some ways [ ] None [ ]

6. Wait time [ ] (seconds) **7. Time to Cross** [ ] (seconds) **8. Crossing Distance** [ ] (feet)

9. Pedestrian Refuge Island [X] None [ ] Yes, 4 ft or narrower [ ] Yes, wider than 4 ft

10. Curb ramps [ ] Missing one or more ramp [X] All corners ramped

11. Intersection traffic calming features

Check all that apply.

TOTAL # 1

- [ ] *a) Raised crosswalks*
- [ ] *b) Pavement treatments*
- [ ] *c) Bike lane thru intersection*
- [ ] *d) Bulb-outs*
- [ ] *e) Diagonal diverter*
- [ ] *f) Partial closure*
- [ ] *g) Traffic calming circle*
- [ ] *h) Mini-circle*

12. Pedestrian Engineering Countermeasures

Check all that apply.

TOTAL # 0

- [ ] *a) Flashing beacon*
- [ ] *b) No Turn on Red Signs*
- [ ] *c) Additional signs*
- [ ] *d) Crosswalk scramble*
- [ ] *e) Red visibility curb*
- [ ] *f) Advanced stop/yield lines*
- [ ] *g) Pedestrian leading interval*

STREET SEGMENT

This street is: Allston Wy **between:** Harold Wy **and:** Shattuck Ave

*Side A CNN:*____________________ *Side B CNN:*____________________ *Street type:*______________

13. Number of lanes: [ ] Shared / pedestrian only street [ ] 1 [X] 2 [ ] 3 [ ] 4+

14. Posted speed limit: [X] 25 mph / none posted [ ] Under 25 mph [ ] Over 25 mph

15. Street traffic calming features

Check all that apply.

TOTAL # 0

- [ ] *a) Trees in median*
- [ ] *b) Speed hump / bump*
- [ ] *c) Speed enforcement*
- [ ] *d) Protected bike lane*
- [ ] *e) Chicane*

Please indicate whether Side A and Side B are North, South, East, or West relative to the street centerline.

SIDE A **==N== / S / E / W**

SIDE B **N / ==S== / E / W**

For questions 16-22 you will select one answer for ***each*** *side of the street*

Question	Side A		Side B	
16. Continuous sidewalk	No ☐	Yes ☒	Yes ☒	No ☐

Question	Side A option	Side A	Side B	Side B option
17. Width of sidewalk *(if no sidewalk, skip #17-20, this side)*	Less than 5 ft	☐	☐	Less than 5 ft
	5 ft to 8 ft	☐	☐	5 ft to 8 ft *(if no sidewalk, skip #17-20, this side)*
	8 ft to 12 ft	☒	☒	8 ft to 12 ft
	12 ft or more	☐	☐	12 ft or more
18. Width of throughway *The throughway is the part without furniture, signs, plantings, newspaper or utility boxes.*	Less than 4 ft	☐	☐	Less than 4 ft
	4 ft to 6 ft	☒	☒	4 ft to 6 ft
	6 ft to 8 ft	☐	☐	6 ft to 8 ft
	8 ft or more	☐	☐	8 ft or more
19. Large sidewalk <u>obstructions</u>: *An obstruction is any object in the throughway.*	None	☒	☒	None
	Temporary	☐	☐	Temporary
	Permanent	☐	☐	Permanent
20. Sidewalk impediments: *Anything that poses a tripping hazard.*	None	☒	☒	None
	Minor	☐	☐	Minor
	Significant	☐	☐	Significant
21. Trees	None	☐	☒	None
	Sporadically lined	☒	☐	Sporadically lined
	Continuously lined	☐	☐	Continuously lined

Question	Side A	Side B
22. Driveway cuts	☐ None ☒ 1-5 ☐ > 5	☒ None ☐ 1-5 ☐ > 5

For questions 23-26, check Yes or No on each side:

Question	Side A option	Side A Yes	Side A No	Side B Yes	Side B No	Side B option
23. Presence of buffers		☒	☐	☒	☐	
Check all that apply.	Non-peak parallel parking	☐		☐		Non-peak parallel parking
	Parallel parking	☒		☒		Parallel parking
	Bike lane	☐		☐		Bike lane
24. Planters and gardens		☐	☒	☐	☒	
25. Public seating		☒	☐	☐	☒	
26. Public art/historical sites		☐	☒	☐	☒	

For questions 27-28, select one answer for each side of the street:

Question	Side A option	Side A	Side B	Side B option
27. Retail use and public places *Retail that covers an entire block counts as three or more.*	None	☐	☐	None
	1 or 2	☐	☐	1 or 2
	3 or more	☒	☒	3 or more
28. Pedestrian-scale lighting	None	☒	☐	None
	Sporadic	☐	☒	Sporadic
	Continuous	☐	☐	Continuous

For questions 29-31, check Yes or No on each side:

Question	Side A option	Side A Yes	Side A No	Side B Yes	Side B No	Side B option
29. Illegal graffiti *Select NO if there is only a little*		☐	☒	☐	☒	
30. Litter *Select NO if there is only a little*		☐	☒	☐	☒	
31. Empty spaces		☐	☒	☐	☒	
Check all that apply	Abandoned buildings	☐		☐		Abandoned buildings
	Vacant lots	☐		☐		Vacant lots
	Parking lots	☐		☐		Parking lots
	Construction sites	☐		☐		Construction sites

Perceived Walkability

This street is: Allston Way **between:** Milvia Street **and:** Shattuck Avenue

For questions 32-36, please circle the number that your team thinks best describes this street.

32. Street segment is visually attractive for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
33. Street segment feels safe for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
34. Are there obvious strong odors anywhere on this street segment (e.g. vehicle exhaust, urine stench, rotting garbage, etc.)?	A lot of odors 1	Some odors 2	A little odor 3	No odor 4	Only good odors 5

35. On a scale of 1 to 10, how walkable do you find this street segment?

Not walkable — Very Walkable

1 2 3 4 5 6 7 8 9 10

Notes & Questions:

Pedestrian Environmental Quality Index (PEQI)

Street & Intersection Audit Form

Date entered into database:___/___/___

Project: 2211 Harold Way Traffic and Parking Study **Survey Date:**

Auditor(s): IBI Group

INTERSECTION

This is the intersection of: Kittredge St (Primary) **and:** Harold Wy (Secondary)

(The street you plan to walk down) (The street you will cross)

*Intersection CNN:*______________

Are these two lane or one lane streets and alleys? **Yes** [X] **No** [ ] Street type __________

	All ways	1 missing	2 missing	3 missing	None
1. Crosswalks	X				
2. High visibility crosswalks					X

	4+ streetlights	3 streetlights	2 streetlights	1 streetlight	None
3. Intersection lighting			X		

	Traffic Signal	Stop All Way	Yield (no roundabout)	Roundabout	Uncontrolled
4. Traffic Control		X			

Skip questions 5-8 unless there is a traffic signal

5a. Is there a signal for pedestrians? All ways [ ] Some ways [ ] None [ ]

5b. If YES does the signal count down? All ways [ ] Some ways [ ] None [ ]

6. Wait time [ ] (seconds) **7. Time to Cross** [ ] (seconds) **8. Crossing Distance** [ ] (feet)

9. Pedestrian Refuge Island [X] None [ ] Yes, 4 ft or narrower [ ] Yes, wider than 4 ft

10. Curb ramps [ ] Missing one or more ramp [X] All corners ramped

11. Intersection traffic calming features

Check all that apply.

TOTAL # __1____

- [ ] *a) Raised crosswalks*
- [ ] *b) Pavement treatments*
- [ ] *c) Bike lane thru intersection*
- [ ] *d) Bulb-outs*
- [ ] *e) Diagonal diverter*
- [ ] *f) Partial closure*
- [ ] *g) Traffic calming circle*
- [ ] *h) Mini-circle*

12. Pedestrian Engineering Countermeasures

Check all that apply.

TOTAL # __0____

- [ ] *a) Flashing beacon*
- [ ] *b) No Turn on Red Signs*
- [ ] *c) Additional signs*
- [ ] *d) Crosswalk scramble*
- [ ] *e) Red visibility curb*
- [ ] *f) Advanced stop/yield lines*
- [ ] *g) Pedestrian leading interval*

STREET SEGMENT

This street is: Kittredge St **between:** Harold Wy **and:** Shattuck Ave

*Side A CNN:*________________ *Side B CNN:*________________ *Street type:*____________

13. Number of lanes: [ ] Shared / pedestrian only street [ ] 1 [X] 2 [ ] 3 [ ] 4+

14. Posted speed limit: [X] 25 mph / none posted [ ] Under 25 mph [ ] Over 25 mph

15. Street traffic calming features

Check all that apply.

TOTAL # __0____

- [ ] *a) Trees in median*
- [ ] *b) Speed hump / bump*
- [ ] *c) Speed enforcement*
- [ ] *d) Protected bike lane*
- [ ] *e) Chicane*

Please indicate whether Side A and Side B are North, South, East, or West relative to the street centerline.

	SIDE A	SIDE B
	N / S / E / W (N highlighted)	**N / S / E / W** (S highlighted)

For questions 16-22 you will select one answer for ***each*** *side of the street*

Question	Side A		Side B	
16. Continuous sidewalk	No ☐	Yes ☒	Yes ☒	No ☐
17. Width of sidewalk	Less than 5 ft	☐	☐	Less than 5 ft
(if no sidewalk, skip #17-20, this side)	5 ft to 8 ft	☒	☒	5 ft to 8 ft
	8 ft to 12 ft	☐	☐	8 ft to 12 ft
	12 ft or more	☐	☐	12 ft or more *(if no sidewalk, skip #17-20, this side)*
18. Width of throughway	Less than 4 ft	☐	☐	Less than 4 ft
The throughway is the part without furniture, signs, plantings, newspaper or utility boxes.	4 ft to 6 ft	☒	☒	4 ft to 6 ft
	6 ft to 8 ft	☐	☐	6 ft to 8 ft
	8 ft or more	☐	☐	8 ft or more
19. Large sidewalk <u>obstructions</u>:	None	☒	☒	None
An obstruction is any object in the throughway.	Temporary	☐	☐	Temporary
	Permanent	☐	☐	Permanent
20. Sidewalk impediments:	None	☒	☒	None
Anything that poses a tripping hazard.	Minor	☐	☐	Minor
	Significant	☐	☐	Significant
21. Trees	None	☐	☐	None
	Sporadically lined	☒	☒	Sporadically lined
	Continuously lined	☐	☐	Continuously lined
22. Driveway cuts	☐ None ☒ 1-5 ☐ > 5		☐ None ☒ 1-5 ☐ > 5	

For questions 23-26, check Yes or No on each side:

Question		Side A Yes	Side A No	Side B Yes	Side B No	
23. Presence of buffers		☒	☐	☒	☐	
Check all that apply.	Non-peak parallel parking	☐		☐		Non-peak parallel parking
	Parallel parking	☒		☒		Parallel parking
	Bike lane	☐		☐		Bike lane
24. Planters and gardens		☒	☐	☒	☐	
25. Public seating		☐	☒	☒	☐	
26. Public art/historical sites		☐	☒	☒	☐	

For questions 27-28, select one answer for each side of the street:

Question	Side A		Side B	
27. Retail use and public places	None	☐	☐	None
Retail that covers an entire block counts as three or more.	1 or 2	☒	☐	1 or 2
	3 or more	☐	☒	3 or more
28. Pedestrian-scale lighting	None	☐	☐	None
	Sporadic	☒	☒	Sporadic
	Continuous	☐	☐	Continuous

For questions 29-31, check Yes or No on each side:

Question		Side A Yes	Side A No	Side B Yes	Side B No	
29. Illegal graffiti *Select NO if there is only a little*		☐	☒	☐	☒	
30. Litter *Select NO if there is only a little*		☐	☒	☐	☒	
31. Empty spaces		☐	☒	☐	☒	
Check all that apply	Abandoned buildings	☐		☐		Abandoned buildings
	Vacant lots	☐		☐		Vacant lots
	Parking lots	☐		☐		Parking lots
	Construction sites	☐		☐		Construction sites

Perceived Walkability

This street is: Kittredge Street **between:** Milvia Street **and:** Shattuck Avenue

For questions 32-36, please circle the number that your team thinks best describes this street.

32. Street segment is visually attractive for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
33. Street segment feels safe for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
34. Are there obvious strong odors anywhere on this street segment (e.g. vehicle exhaust, urine stench, rotting garbage, etc.)?	A lot of odors 1	Some odors 2	A little odor 3	No odor 4	Only good odors 5

35. On a scale of 1 to 10, how walkable do you find this street segment?

Not walkable — Very Walkable

1 2 3 4 5 6 7 8 9 10

Notes & Questions:

Pedestrian Environmental Quality Index (PEQI)

Street & Intersection Audit Form

Date entered into database: ___/___/___

Project: 2211 Harold Way Traffic and Parking Study **Survey Date:**

Auditor(s): IBI Group

INTERSECTION

This is the intersection of: Harold Wy (Primary) **and:** Allston Wy (Secondary)

(The street you plan to walk down) (The street you will cross)

*Intersection CNN:*______________

Are these two lane or one lane streets and alleys? **Yes** [X] **No** [ ] Street type ____________

	All ways	1 missing	2 missing	3 missing	None
1. Crosswalks	[X]	[ ]	[ ]	[ ]	[ ]
2. High visibility crosswalks	[ ]	[ ]	[ ]	[ ]	[X]

	4+ streetlights	3 streetlights	2 streetlights	1 streetlight	None
3. Intersection lighting	[ ]	[X]	[ ]	[ ]	[ ]

	Traffic Signal	Stop All Way	Yield (no roundabout)	Roundabout	Uncontrolled
4. Traffic Control	[ ]	[X]	[ ]	[ ]	[ ]

Skip questions 5-8 unless there is a traffic signal

	All ways	Some ways	None
5a. Is there a signal for pedestrians?	[ ]	[ ]	[ ]
5b. If YES does the signal count down?	[ ]	[ ]	[ ]

6. Wait time [ ] (seconds) **7. Time to Cross** [ ] (seconds) **8. Crossing Distance** [ ] (feet)

9. Pedestrian Refuge Island [X] None [ ] Yes, 4 ft or narrower [ ] Yes, wider than 4 ft

10. Curb ramps [ ] Missing one or more ramp [X] All corners ramped

11. Intersection traffic calming features

Check all that apply.

TOTAL # __1____

- [ ] *a) Raised crosswalks*
- [ ] *b) Pavement treatments*
- [ ] *c) Bike lane thru intersection*
- [ ] *d) Bulb-outs*
- [ ] *e) Diagonal diverter*
- [ ] *f) Partial closure*
- [ ] *g) Traffic calming circle*
- [ ] *h) Mini-circle*

12. Pedestrian Engineering Countermeasures

Check all that apply.

TOTAL # __0____

- [ ] *a) Flashing beacon*
- [ ] *b) No Turn on Red Signs*
- [ ] *c) Additional signs*
- [ ] *d) Crosswalk scramble*
- [ ] *e) Red visibility curb*
- [ ] *f) Advanced stop/yield lines*
- [ ] *g) Pedestrian leading interval*

STREET SEGMENT

This street is: Harold Wy (Primary) **between:** Allston St (Street #1) **and:** Kittredge St (Street #2)

*Side A CNN:*____________________ *Side B CNN:*____________________ *Street type:*______________

13. Number of lanes: [ ] Shared / pedestrian only street [ ] 1 [X] 2 [ ] 3 [ ] 4+

14. Posted speed limit: [X] 25 mph / none posted [ ] Under 25 mph [ ] Over 25 mph

15. Street traffic calming features

Check all that apply.

TOTAL # __0____

- [ ] *a) Trees in median*
- [ ] *b) Speed hump / bump*
- [ ] *c) Speed enforcement*
- [ ] *d) Protected bike lane*
- [ ] *e) Chicane*

Please indicate whether Side A and Side B are North, South, East, or West relative to the street centerline.

SIDE A N / S / ==E== / W

SIDE B N / S / E / ==W==

For questions 16-22 you will select one answer for ***each*** *side of the street*

Question	Option	Side A	Side B
16. Continuous sidewalk	No	☐	☐
	Yes	☒	☒
17. Width of sidewalk *(if no sidewalk, skip #17-20, this side)*	Less than 5 ft	☐	☐
	5 ft to 8 ft	☐	☐
	8 ft to 12 ft	☒	☒
	12 ft or more	☐	☐
18. Width of throughway *The throughway is the part without furniture, signs, plantings, newspaper or utility boxes.*	Less than 4 ft	☐	☐
	4 ft to 6 ft	☒	☒
	6 ft to 8 ft	☐	☐
	8 ft or more	☐	☐
19. Large sidewalk obstructions: *An obstruction is any object in the throughway.*	None	☒	☒
	Temporary	☐	☐
	Permanent	☐	☐
20. Sidewalk impediments: *Anything that poses a tripping hazard.*	None	☒	☒
	Minor	☐	☐
	Significant	☐	☐
21. Trees	None	☐	☐
	Sporadically lined	☐	☒
	Continuously lined	☒	☐
22. Driveway cuts	None	☒	☒
	1-5	☐	☐
	> 5	☐	☐

(if no sidewalk, skip #17-20, this side)

For questions 23-26, check Yes or No on each side:

Question	Option	Side A	Side B
23. Presence of buffers *Check all that apply.*	Yes	☒	☒
	No	☐	☐
	Non-peak parallel parking	☐	☐
	Parallel parking	☒	☒
	Bike lane	☐	☐
24. Planters and gardens	Yes	☒	☐
	No	☐	☒
25. Public seating	Yes	☒	☐
	No	☐	☒
26. Public art/historical sites	Yes	☐	☐
	No	☒	☒

For questions 27-28, select one answer for each side of the street:

Question	Option	Side A	Side B
27. Retail use and public places *Retail that covers an entire block counts as three or more.*	None	☐	☒
	1 or 2	☐	☐
	3 or more	☒	☐
28. Pedestrian-scale lighting	None	☐	☒
	Sporadic	☒	☐
	Continuous	☐	☐

For questions 29-31, check Yes or No on each side:

Question	Option	Side A	Side B
29. Illegal graffiti *Select NO if there is only a little*	Yes	☐	☐
	No	☒	☒
30. Litter *Select NO if there is only a little*	Yes	☐	☐
	No	☒	☒
31. Empty spaces *Check all that apply*	Yes	☐	☐
	No	☒	☒
	Abandoned buildings	☐	☐
	Vacant lots	☐	☐
	Parking lots	☐	☐
	Construction sites	☐	☐

Perceived Walkability

This street is: Kittredge Street **between:** Milvia Street **and:** Shattuck Avenue

For questions 32-36, please circle the number that your team thinks best describes this street.

32. Street segment is visually attractive for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
33. Street segment feels safe for walking.	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
34. Are there obvious strong odors anywhere on this street segment (e.g. vehicle exhaust, urine stench, rotting garbage, etc.)?	A lot of odors 1	Some odors 2	A little odor 3	No odor 4	Only good odors 5

35. On a scale of 1 to 10, how walkable do you find this street segment?

Not walkable — Very Walkable

1 2 3 4 5 6 7 8 9 10

Notes & Questions:

Appendix D: BEQI Street Surveys

Allston Way – Existing Condition

Bicycle Environmental Quality Index (BEQI):

Neighborhood:	**Surveyed By:** IBI Group	**Survey Date:**
Project: 2211 Harold Way	**Date Entered into Database:**	

INTERSECTIONS

Intersection CNN #:	**Primary Street:** Allston Way
	Secondary Street: Milvia Street

Domain:	Indicator:	Indicator Values:				Comments:
Intersection Design:	**1. Left Turn Bicycle Lane:**	0	X	3		
		1		4		
		2				
	2. Dashed Intersection Bicycle Lane:	0	X	3		
		1		4		
		2				
	3. No Turn on Red Sign(s):	0	X	3		
		1		4		
		2				

STREETS

Street: Allston Way	**CNN #:**
Cross Street #1: Milvia Street	**Cross Street #2:** Harold Way

Domain:	Indicator:	Indicator Values:				Comments:
Vehicle Traffic:	**4. Number of Lanes:** (not including turning only lanes)	4 + Lanes				
		3 Lanes				
		2 Lanes	X			
		1 Lane				
		No Lanes				
	5. Vehicle Speed - Is there a posted speed limit?	Yes				Note: San Francisco default street speed limit is 25 mph.
		No	X			
	Speed Limit:	10 mph		35 mph		
		15 mph		40 mph		
		20 mph		45 mph		
		25 mph		50 mph		
		30 mph		55 mph		
				>55 mph		
	6. Traffic Calming Features:	0 TCF	X			
		1-2 TCFs				
		3-4 TCFs				
		5 or more TCFs				

Check all that apply:*

**** See BEQI manual for illustrations/definitions.***

**** Intersection TCF**

☐ Curb extensions or bulbouts**	☐ Pavement Treatments, Lights**	☐ Street Medians (w/ or without trees)
☐ Partial Closures**	☐ Speed Tables**	☐ Speed Limit
☐ Roundabouts**	☐ Speed Humps**	☐ Chicanes
☐ Semi-diverters**	☐ Mini-Circles **	☐ Rumble Strips

NOTE: From this point on, street conditions on each side of the street are recorded separately.

Northern or Eastern side = N/E; Southern or Western side = S/W.

Indicator	Indicator Values	N/E	S/W	Comments:
7. Parallel Parking Adjacent to Bicycle Lane/Route:	Parallel Parking - not time restricted (PP) < 7ft			Note: Street cleaning restrictions do not count as time-restricted parallel parking.
	Parallel Parking - not time restricted (PP) 7ft - 9ft	X	X	
	Parallel Parking - not time restricted (PP) > 9ft			
	Time-restricted Parallel Parking (TPP) < 7ft			
	Time-restricted Parallel Parking (TPP) 7ft - 9ft			
	Time-restricted Parallel Parking (TPP) > 9ft			
	None			

: should be able to observe while standing in one place

: ssessed while walking along the street

Domain:	Indicator:	Indicator Values:	N/E	S/W	Comments:
Street Design:	**8. Presence of a Marked Area for Bicycle Traffic:**	1.Bike Lane w/ Parking Adjacent to Right			
		2.Bike Lane w/ Sidewalk or Curb Adjacent to Right (without parking)			
		3.Bike Lane w/ HOV or Public Transit Adjacent to Right			
		4.Bike Lane w/ Traffic Lane Adjacent to Right			
		5.Shared Traffic Lane With Sharrow (or Painted Bike Marking on Pavement) — # of Sharrows: N - S -			
		6.Bike Path			
		7.None	X	X	
	9. Width of Bike Lane:	> 6 ft			
		5 - 6 ft			
		<5 ft			
		None	X	X	
	10. Bicycle Lane Markings:	One Stripe, Left Side of Bike Lane			
		Stripes on Both Sides of Bike Lane			
		None	X	X	
	11. Trees:	Continuously Lined			
		Sporadically Lined	X		
		None		X	
	12. Connectivity of Bicycle Lanes: (e.g. bike lane or sharrows)	Yes			
		No	X	X	
	13. Pavement Type/Condition:	Smooth Surface			
		Mild Obstructions (e.g., cracks)	X	X	
		Medium Obstructions (e.g., Raised cracks or raised pavement parallel to street)			
		Large Obstructions (e.g., Potholes or Bumps)			
	14. Driveway Cuts: (Please enter count and check a category)	**Enter Count (#):**			Note: Parking garages count as 2 (i.e., vehicle entry and exit in same driveway = 2 cuts)
		5 or more			
		Few (less than 5)		X	
		None	X		
Safety/Other:	**15. Bicycle/Ped Scale Street Lighting Present:**	Yes, Pedestrian Lighting			
		Yes, Private (business or residential building)			
		Yes, Pedestrian and Private Lighting			
		No	X	X	
	16. Presence of Bicycle Lane Signs:	Yes			
		No	X	X	
Adjacent Land Use:	**17. Line of Site:**	Line of Sight Obstructed or Compromised			
		Adequate Distance			
		Clear Line of Sight	X	X	
	18. Bicycle Parking:	Yes	X	X	
		No			
	19. Storefront/ Retail Use:	3 or More	X	X	Note: This should reflect businesses only. Include ground floor businesses with window treatments, displays and open shades.
		1 or 2			
		0			

: should be able to observe while standing in one place

: assessed while walking along the street

Bicycle Environmental Quality Index (BEQI):

Neighborhood:	**Surveyed By:** IBI Group	**Survey Date:**
Project: 2211 Harold Way	**Date Entered into Database:**	

INTERSECTIONS

Intersection CNN #:	**Primary Street:** Allston Way
	Secondary Street: Harold Way

Domain:	Indicator:	Indicator Values:		Comments:	
Intersection Design:	**1. Left Turn Bicycle Lane:**	0	X	3	
		1		4	
		2			
	2. Dashed Intersection Bicycle Lane:	0	X	3	
		1		4	
		2			
	3. No Turn on Red Sign(s):	0	X	3	
		1		4	
		2			

STREETS

Street: Allston Way	**CNN #:**
Cross Street #1: Harold Way	**Cross Street #2:** Shattuck Avenue

Domain:	Indicator:	Indicator Values:				Comments:
Vehicle Traffic:	**4. Number of Lanes:** (not including turning only lanes)	4 + Lanes				
		3 Lanes				
		2 Lanes	X			
		1 Lane				
		No Lanes				
	5. Vehicle Speed - Is there a posted speed limit?	Yes				Note: San Francisco default street speed limit is 25 mph.
		No	X			
	Speed Limit:	10 mph		35 mph		
		15 mph		40 mph		
		20 mph		45 mph		
		25 mph		50 mph		
		30 mph		55 mph		
				>55 mph		
	6. Traffic Calming Features:	0 TCF	X			
		1-2 TCFs				
		3-4 TCFs				
		5 or more TCFs				

Check all that apply:*
**** See BEQI manual for illustrations/definitions.***
**** Intersection TCF**

☐ Curb extensions or bulbouts**	☐ Pavement Treatments, Lights**	☐ Street Medians (w/ or without trees)
☐ Partial Closures**	☐ Speed Tables**	☐ Speed Limit
☐ Roundabouts**	☐ Speed Humps**	☐ Chicanes
☐ Semi-diverters**	☐ Mini-Circles **	☐ Rumble Strips

NOTE: From this point on, street conditions on each side of the street are recorded separately.
Northern or Eastern side = N/E; Southern or Western side = S/W.

Indicator	Indicator Values	N/E	S/W	Comments:
7. Parallel Parking Adjacent to Bicycle Lane/Route:	Parallel Parking - not time restricted (PP) < 7ft			Note: Street cleaning restrictions do not count as time-restricted parallel parking.
	Parallel Parking - not time restricted (PP) 7ft - 9ft	X	X	
	Parallel Parking - not time restricted (PP) > 9ft			
	Time-restricted Parallel Parking (TPP) < 7ft			
	Time-restricted Parallel Parking (TPP) 7ft - 9ft			
	Time-restricted Parallel Parking (TPP) > 9ft			
	None			

: should be able to observe while standing in one place

: ssessed while walking along the street

Domain:	Indicator:	Indicator Values:	N/E	S/W	Comments:
Street Design:	8. Presence of a Marked Area for Bicycle Traffic:	1.Bike Lane w/ Parking Adjacent to Right			
		2.Bike Lane w/ Sidewalk or Curb Adjacent to Right (without parking)			
		3.Bike Lane w/ HOV or Public Transit Adjacent to Right			
		4.Bike Lane w/ Traffic Lane Adjacent to Right			
		5.Shared Traffic Lane With Sharrow (or Painted Bike Marking on Pavement) — # of Sharrows: N - S -			
		6.Bike Path			
		7.None	X	X	
	9. Width of Bike Lane:	> 6 ft			
		5 - 6 ft			
		<5 ft			
		None	X	X	
	10. Bicycle Lane Markings:	One Stripe, Left Side of Bike Lane			
		Stripes on Both Sides of Bike Lane			
		None	X	X	
	11. Trees:	Continuously Lined			
		Sporadically Lined	X		
		None		X	
	12. Connectivity of Bicycle Lanes: (e.g. bike lane or sharrows)	Yes			
		No	X	X	
	13. Pavement Type/Condition:	Smooth Surface			
		Mild Obstructions (e.g., cracks)	X	X	
		Medium Obstructions (e.g., Raised cracks or raised pavement parallel to street)			
		Large Obstructions (e.g., Potholes or Bumps)			
	14. Driveway Cuts: (Please enter count <u>and</u> check a category)	**Enter Count (#):**			Note: Parking garages count as 2 (i.e., vehicle entry and exit in same driveway = 2 cuts)
		5 or more			
		Few (less than 5)	X		
		None		X	
Safety/Other:	15. Bicycle/Ped Scale Street Lighting Present:	Yes, Pedestrian Lighting			
		Yes, Private (business or residential building)			
		Yes, Pedestrian and Private Lighting			
		No	X	X	
	16. Presence of Bicycle Lane Signs:	Yes			
		No	X	X	
Adjacent Land Use:	17. Line of Site:	Line of Sight Obstructed or Compromised			
		Adequate Distance			
		Clear Line of Sight	X	X	
	18. Bicycle Parking:	Yes	X	X	
		No			
	19. Storefront/ Retail Use:	3 or More	X	X	Note: This should reflect <u>businesses only</u>. Include <u>ground floor</u> businesses with window treatments, displays and open shades.
		1 or 2			
		0			

: should be able to observe while standing in one place

: ssessed while walking along the street

Appendix D: BEQI Street Surveys

Kittredge Street – Existing Condition

Bicycle Environmental Quality Index (BEQI):

Neighborhood:	**Surveyed By:** IBI Group	**Survey Date:**
Project: 2211 Harold Way	**Date Entered into Database:**	

INTERSECTIONS

Intersection CNN #:	**Primary Street:** Kittredge Street
	Secondary Street: Milvia Street

Domain:	Indicator:	Indicator Values:		Comments:		
Intersection Design:	1. Left Turn Bicycle Lane:	0	X	3		
		1		4		
		2				
	2. Dashed Intersection Bicycle Lane:	0	X	3		
		1		4		
		2				
	3. No Turn on Red Sign(s):	0	X	3		
		1		4		
		2				

STREETS

Street: Allston Way	**CNN #:**
Cross Street #1: Milvia Street	**Cross Street #2:** Harold Way

Domain:	Indicator:	Indicator Values:				Comments:
Vehicle Traffic:	**4. Number of Lanes:** (not including turning only lanes)	4 + Lanes				
		3 Lanes				
		2 Lanes	X			
		1 Lane				
		No Lanes				
	5. Vehicle Speed - Is there a posted speed limit?	Yes				Note: San Francisco default street speed limit is 25 mph.
		No	X			
	Speed Limit:	10 mph		35 mph		
		15 mph		40 mph		
		20 mph		45 mph		
		25 mph		50 mph		
		30 mph		55 mph		
				>55 mph		
	6. Traffic Calming Features:	0 TCF	X			
		1-2 TCFs				
		3-4 TCFs				
		5 or more TCFs				

Check all that apply:*
***** See BEQI manual for illustrations/definitions.***
**** Intersection TCF**

☐ Curb extensions or bulbouts**	☐ Pavement Treatments, Lights**	☐ Street Medians (w/ or without trees)
☐ Partial Closures**	☐ Speed Tables**	☐ Speed Limit
☐ Roundabouts**	☐ Speed Humps**	☐ Chicanes
☐ Semi-diverters**	☐ Mini-Circles **	☐ Rumble Strips

NOTE: From this point on, street conditions on each side of the street are recorded separately.

Northern or Eastern side = N/E; Southern or Western side = S/W.

Indicator	Indicator Values	N/E	S/W	Comments:
7. Parallel Parking Adjacent to Bicycle Lane/Route:	Parallel Parking - not time restricted (PP) < 7ft			Note: Street cleaning restrictions do not count as time-restricted parallel parking.
	Parallel Parking - not time restricted (PP) 7ft - 9ft	X	X	
	Parallel Parking - not time restricted (PP) > 9ft			
	Time-restricted Parallel Parking (TPP) < 7ft			
	Time-restricted Parallel Parking (TPP) 7ft - 9ft			
	Time-restricted Parallel Parking (TPP) > 9ft			
	None			

: should be able to observe while standing in one place

: ssessed while walking along the street

Domain:	Indicator:	Indicator Values:	N/E	S/W	Comments:
Street Design:	**8. Presence of a Marked Area for Bicycle Traffic:**	1.Bike Lane w/ Parking Adjacent to Right			
		2.Bike Lane w/ Sidewalk or Curb Adjacent to Right (without parking)			
		3.Bike Lane w/ HOV or Public Transit Adjacent to Right			
		4.Bike Lane w/ Traffic Lane Adjacent to Right			
		5.Shared Traffic Lane With Sharrow (or Painted Bike Marking on Pavement) — # of Sharrows: N - S -			
		6.Bike Path			
		7.None	X	X	
	9. Width of Bike Lane:	> 6 ft			
		5 - 6 ft			
		<5 ft			
		None	X	X	
	10. Bicycle Lane Markings:	One Stripe, Left Side of Bike Lane			
		Stripes on Both Sides of Bike Lane			
		None	X	X	
	11. Trees:	Continuously Lined			
		Sporadically Lined		X	
		None	X		
	12. Connectivity of Bicycle Lanes: (e.g. bike lane or sharrows)	Yes			
		No	X	X	
	13. Pavement Type/Condition:	Smooth Surface			
		Mild Obstructions (e.g., cracks)	X	X	
		Medium Obstructions (e.g., Raised cracks or raised pavement parallel to street)			
		Large Obstructions (e.g., Potholes or Bumps)			
	14. Driveway Cuts: (Please enter count and check a category)	**Enter Count (#):**			Note: Parking garages count as 2 (i.e., vehicle entry and exit in same driveway = 2 cuts)
		5 or more			
		Few (less than 5)	X	X	
		None			
Safety/Other:	**15. Bicycle/Ped Scale Street Lighting Present:**	Yes, Pedestrian Lighting			
		Yes, Private (business or residential building)			
		Yes, Pedestrian and Private Lighting			
		No	X	X	
	16. Presence of Bicycle Lane Signs:	Yes			
		No	X	X	
Adjacent Land Use:	**17. Line of Site:**	Line of Sight Obstructed or Compromised			
		Adequate Distance			
		Clear Line of Sight	X	X	
	18. Bicycle Parking:	Yes	X	X	
		No			
	19. Storefront/ Retail Use:	3 or More		X	
		1 or 2	X		Note: This should reflect businesses only. Include ground floor businesses with window treatments, displays and open shades.
		0			

: should be able to observe while standing in one place

: ssessed while walking along the street

Bicycle Environmental Quality Index (BEQI):

Neighborhood:	**Surveyed By:** IBI Group	**Survey Date:**
Project: 2211 Harold Way	**Date Entered into Database:**	

INTERSECTIONS

Intersection CNN #:	**Primary Street:** Kittredge Street
	Secondary Street: Harold Way

Domain:	Indicator:	Indicator Values:		Comments:	
Intersection Design:	1. Left Turn Bicycle Lane:	0	X	3	
		1		4	
		2			
	2. Dashed Intersection Bicycle Lane:	0	X	3	
		1		4	
		2			
	3. No Turn on Red Sign(s):	0	X	3	
		1		4	
		2			

STREETS

Street: Allston Way	**CNN #:**
Cross Street #1: Harold Way	**Cross Street #2:** Shattuck Avenue

Domain:	Indicator:	Indicator Values:				Comments:
Vehicle Traffic:	**4. Number of Lanes:** (not including turning only lanes)	4 + Lanes				
		3 Lanes				
		2 Lanes	X			
		1 Lane				
		No Lanes				
	5. Vehicle Speed - Is there a posted speed limit?	Yes				Note: San Francisco default street speed limit is 25 mph.
		No	X			
	Speed Limit:	10 mph		35 mph		
		15 mph		40 mph		
		20 mph		45 mph		
		25 mph		50 mph		
		30 mph		55 mph		
				>55 mph		
	6. Traffic Calming Features:	0 TCF	X			
		1-2 TCFs				
		3-4 TCFs				
		5 or more TCFs				

Check all that apply:*

**** See BEQI manual for illustrations/definitions.***

**** Intersection TCF**

☐ Curb extensions or bulbouts**	☐ Pavement Treatments, Lights**	☐ Street Medians (w/ or without trees)
☐ Partial Closures**	☐ Speed Tables**	☐ Speed Limit
☐ Roundabouts**	☐ Speed Humps**	☐ Chicanes
☐ Semi-diverters**	☐ Mini-Circles **	☐ Rumble Strips

NOTE: From this point on, street conditions on each side of the street are recorded separately.

Northern or Eastern side = N/E; Southern or Western side = S/W.

Indicator:	Indicator Values:	N/E	S/W	Comments:
7. Parallel Parking Adjacent to Bicycle Lane/Route:	Parallel Parking - not time restricted (PP) < 7ft			Note: Street cleaning restrictions do not count as time-restricted parallel parking.
	Parallel Parking - not time restricted (PP) 7ft - 9ft	X	X	
	Parallel Parking - not time restricted (PP) > 9ft			
	Time-restricted Parallel Parking (TPP) < 7ft			
	Time-restricted Parallel Parking (TPP) 7ft - 9ft			
	Time-restricted Parallel Parking (TPP) > 9ft			
	None			

: should be able to observe while standing in one place

: ssessed while walking along the street

Domain:	Indicator:	Indicator Values:	N/E	S/W	Comments:
Street Design:	**8. Presence of a Marked Area for Bicycle Traffic:**	1.Bike Lane w/ Parking Adjacent to Right			
		2.Bike Lane w/ Sidewalk or Curb Adjacent to Right (without parking)			
		3.Bike Lane w/ HOV or Public Transit Adjacent to Right			
		4.Bike Lane w/ Traffic Lane Adjacent to Right			
		5.Shared Traffic Lane With Sharrow (or Painted Bike Marking on Pavement) — # of Sharrows: N - S -			
		6.Bike Path			
		7.None	X	X	
	9. Width of Bike Lane:	> 6 ft			
		5 - 6 ft			
		<5 ft			
		None	X	X	
	10. Bicycle Lane Markings:	One Stripe, Left Side of Bike Lane			
		Stripes on Both Sides of Bike Lane			
		None	X	X	
	11. Trees:	Continuously Lined			
		Sporadically Lined			
		None	X	X	
	12. Connectivity of Bicycle Lanes: (e.g. bike lane or sharrows)	Yes			
		No	X	X	
	13. Pavement Type/Condition:	Smooth Surface			
		Mild Obstructions (e.g., cracks)	X	X	
		Medium Obstructions (e.g., Raised cracks or raised pavement parallel to street)			
		Large Obstructions (e.g., Potholes or Bumps)			
	14. Driveway Cuts: (Please enter count and check a category)	**Enter Count (#):**			Note: Parking garages count as 2 (i.e., vehicle entry and exit in same driveway = 2 cuts)
		5 or more			
		Few (less than 5)	X	X	
		None			
Safety/Other:	**15. Bicycle/Ped Scale Street Lighting Present:**	Yes, Pedestrian Lighting			
		Yes, Private (business or residential building)		X	
		Yes, Pedestrian and Private Lighting			
		No	X		
	16. Presence of Bicycle Lane Signs:	Yes			
		No	X	X	
Adjacent Land Use:	**17. Line of Site:**	Line of Sight Obstructed or Compromised			
		Adequate Distance			
		Clear Line of Sight	X	X	
	18. Bicycle Parking:	Yes	X	X	
		No			
	19. Storefront/ Retail Use:	3 or More		X	Note: This should reflect businesses only. Include ground floor businesses with window treatments, displays and open shades.
		1 or 2	X		
		0			

: should be able to observe while standing in one place

: ssessed while walking along the street

Appendix D: BEQI Street Surveys

Harold Way – Existing Condition

Bicycle Environmental Quality Index (BEQI):

Neighborhood:	**Surveyed By:** IBI Group	**Survey Date:**
Project: 2211 Harold Way	**Date Entered into Database:**	

INTERSECTIONS

Intersection CNN #:	**Primary Street:** Harold Way
	Secondary Street: Allston Way

Domain:	Indicator:	Indicator Values:				Comments:
Intersection Design:	**1. Left Turn Bicycle Lane:**	0	X	3		
		1		4		
		2				
	2. Dashed Intersection Bicycle Lane:	0	X	3		
		1		4		
		2				
	3. No Turn on Red Sign(s):	0	X	3		
		1		4		
		2				

STREETS

Street: Harold Way	**CNN #:**
Cross Street #1: Allston Way	**Cross Street #2:** Kittredge Street

Domain:	Indicator:	Indicator Values:				Comments:
Vehicle Traffic:	**4. Number of Lanes:** (not including turning only lanes)	4 + Lanes				
		3 Lanes				
		2 Lanes	X			
		1 Lane				
		No Lanes				
	5. Vehicle Speed - Is there a posted speed limit?	Yes				Note: San Francisco default street speed limit is 25 mph.
		No	X			
	Speed Limit:	10 mph		35 mph		
		15 mph		40 mph		
		20 mph		45 mph		
		25 mph		50 mph		
		30 mph		55 mph		
				>55 mph		
	6. Traffic Calming Features:	0 TCF	X			
		1-2 TCFs				
		3-4 TCFs				
		5 or more TCFs				

Check all that apply:*
**** See BEQI manual for illustrations/definitions.***
**** Intersection TCF**

☐ Curb extensions or bulbouts**	☐ Pavement Treatments, Lights**	☐ Street Medians (w/ or without trees)
☐ Partial Closures**	☐ Speed Tables**	☐ Speed Limit
☐ Roundabouts**	☐ Speed Humps**	☐ Chicanes
☐ Semi-diverters**	☐ Mini-Circles **	☐ Rumble Strips

NOTE: From this point on, street conditions on each side of the street are recorded separately.

Northern or Eastern side = N/E; Southern or Western side = S/W.

		N/E	S/W	Comments:
7. Parallel Parking Adjacent to Bicycle Lane/Route:	Parallel Parking - not time restricted (PP) < 7ft			Note: Street cleaning restrictions do not count as time-restricted parallel parking.
	Parallel Parking - not time restricted (PP) 7ft - 9ft	X	X	
	Parallel Parking - not time restricted (PP) > 9ft			
	Time-restricted Parallel Parking (TPP) < 7ft			
	Time-restricted Parallel Parking (TPP) 7ft - 9ft			
	Time-restricted Parallel Parking (TPP) > 9ft			
	None			

: should be able to observe while standing in one place

: ssessed while walking along the street

Domain:	Indicator:	Indicator Values:	N/E	S/W	Comments:
Street Design:	**8. Presence of a Marked Area for Bicycle Traffic:**	1.Bike Lane w/ Parking Adjacent to Right			
		2.Bike Lane w/ Sidewalk or Curb Adjacent to Right (without parking)			
		3.Bike Lane w/ HOV or Public Transit Adjacent to Right			
		4.Bike Lane w/ Traffic Lane Adjacent to Right			
		5.Shared Traffic Lane With Sharrow (or Painted Bike Marking on Pavement) — # of Sharrows: N - S -			
		6.Bike Path			
		7.None	X	X	
	9. Width of Bike Lane:	> 6 ft			
		5 - 6 ft			
		<5 ft			
		None	X	X	
	10. Bicycle Lane Markings:	One Stripe, Left Side of Bike Lane			
		Stripes on Both Sides of Bike Lane			
		None	X	X	
	11. Trees:	Continuously Lined			
		Sporadically Lined	X	X	
		None			
	12. Connectivity of Bicycle Lanes: (e.g. bike lane or sharrows)	Yes			
		No	X	X	
	13. Pavement Type/Condition:	Smooth Surface			
		Mild Obstructions (e.g., cracks)	X	X	
		Medium Obstructions (e.g., Raised cracks or raised pavement parallel to street)			
		Large Obstructions (e.g., Potholes or Bumps)			
	14. Driveway Cuts: (Please enter count and check a category)	**Enter Count (#):**			Note: Parking garages count as 2 (i.e., vehicle entry and exit in same driveway = 2 cuts)
		5 or more			
		Few (less than 5)			
		None	X	X	
Safety/Other:	**15. Bicycle/Ped Scale Street Lighting Present:**	Yes, Pedestrian Lighting			
		Yes, Private (business or residential building)			
		Yes, Pedestrian and Private Lighting			
		No	X	X	
	16. Presence of Bicycle Lane Signs:	Yes			
		No	X	X	
Adjacent Land Use:	**17. Line of Site:**	Line of Sight Obstructed or Compromised			
		Adequate Distance			
		Clear Line of Sight	X	X	
	18. Bicycle Parking:	Yes	X	X	
		No			
	19. Storefront/ Retail Use:	3 or More			Note: This should reflect businesses only. Include ground floor businesses with window treatments, displays and open shades.
		1 or 2	X		
		0		X	

: should be able to observe while standing in one place

: assessed while walking along the street

Appendix D: BEQI Street Surveys

Proposed Condition

Bicycle Environmental Quality Index (BEQI):

Neighborhood:	**Surveyed By:** IBI Group	**Survey Date:**
Project: 2211 Harold Way	**Date Entered into Database:**	

INTERSECTIONS

Intersection CNN #:	**Primary Street:** Allston Way
	Secondary Street: Harold Way

Domain:	Indicator:	Indicator Values:				Comments:
Intersection Design:	**1. Left Turn Bicycle Lane:**	0	X	3		
		1		4		
		2				
	2. Dashed Intersection Bicycle Lane:	0	X	3		
		1		4		
		2				
	3. No Turn on Red Sign(s):	0	X	3		
		1		4		
		2				

STREETS

Street: Allston Way	**CNN #:**
Cross Street #1: Harold Way	**Cross Street #2:** Shattuck Avenue

Domain:	Indicator:	Indicator Values:				Comments:
Vehicle Traffic:	**4. Number of Lanes:** (not including turning only lanes)	4 + Lanes				
		3 Lanes				
		2 Lanes	X			
		1 Lane				
		No Lanes				
	5. Vehicle Speed - Is there a posted speed limit?	Yes				Note: San Francisco default street speed limit is 25 mph.
		No	X			
	Speed Limit:	10 mph		35 mph		
		15 mph		40 mph		
		20 mph		45 mph		
		25 mph		50 mph		
		30 mph		55 mph		
				>55 mph		
	6. Traffic Calming Features:	0 TCF				
		1-2 TCFs	X			
		3-4 TCFs				
		5 or more TCFs				

Check all that apply:*

**** See BEQI manual for illustrations/definitions.***

**** Intersection TCF**

☐X Curb extensions or bulbouts**	☐ Pavement Treatments, Lights**	☐ Street Medians (w/ or without trees)
☐ Partial Closures**	☐ Speed Tables**	☐ Speed Limit
☐ Roundabouts**	☐ Speed Humps**	☐ Chicanes
☐ Semi-diverters**	☐ Mini-Circles **	☐ Rumble Strips

NOTE: From this point on, street conditions on each side of the street are recorded separately.

Northern or Eastern side = N/E; Southern or Western side = S/W.

Indicator	Value	N/E	S/W	Comments:
7. Parallel Parking Adjacent to Bicycle Lane/Route:	Parallel Parking - not time restricted (PP) < 7ft			Note: Street cleaning restrictions do not count as time-restricted parallel parking.
	Parallel Parking - not time restricted (PP) 7ft - 9ft	X	X	
	Parallel Parking - not time restricted (PP) > 9ft			
	Time-restricted Parallel Parking (TPP) < 7ft			
	Time-restricted Parallel Parking (TPP) 7ft - 9ft			
	Time-restricted Parallel Parking (TPP) > 9ft			
	None			

: should be able to observe while standing in one place

: ssessed while walking along the street

Domain:	Indicator:	Indicator Values:	N/E	S/W	Comments:
Street Design:	**8. Presence of a Marked Area for Bicycle Traffic:**	1.Bike Lane w/ Parking Adjacent to Right			
		2.Bike Lane w/ Sidewalk or Curb Adjacent to Right (without parking)			
		3.Bike Lane w/ HOV or Public Transit Adjacent to Right			
		4.Bike Lane w/ Traffic Lane Adjacent to Right			
		5.Shared Traffic Lane With Sharrow (or Painted Bike Marking on Pavement) — # of Sharrows: N - S -			
		6.Bike Path			
		7.None	X	X	
	9. Width of Bike Lane:	> 6 ft			
		5 - 6 ft			
		<5 ft			
		None	X	X	
	10. Bicycle Lane Markings:	One Stripe, Left Side of Bike Lane			
		Stripes on Both Sides of Bike Lane			
		None	X	X	
	11. Trees:	Continuously Lined			
		Sporadically Lined	X		
		None		X	
	12. Connectivity of Bicycle Lanes: (e.g. bike lane or sharrows)	Yes			
		No	X	X	
	13. Pavement Type/Condition:	Smooth Surface			
		Mild Obstructions (e.g., cracks)	X	X	
		Medium Obstructions (e.g., Raised cracks or raised pavement parallel to street)			
		Large Obstructions (e.g., Potholes or Bumps)			
	14. Driveway Cuts: (Please enter count <u>and</u> check a category)	**Enter Count (#):**			Note: Parking garages count as 2 (i.e., vehicle entry and exit in same driveway = 2 cuts)
		5 or more			
		Few (less than 5)	X		
		None		X	
Safety/Other:	**15. Bicycle/Ped Scale Street Lighting Present:**	Yes, Pedestrian Lighting			
		Yes, Private (business or residential building)			
		Yes, Pedestrian and Private Lighting		X	
		No	X		
	16. Presence of Bicycle Lane Signs:	Yes			
		No	X	X	
Adjacent Land Use:	**17. Line of Site:**	Line of Sight Obstructed or Compromised			
		Adequate Distance			
		Clear Line of Sight	X	X	
	18. Bicycle Parking:	Yes	X	X	
		No			
	19. Storefront/ Retail Use:	3 or More	X	X	Note: This should reflect <u>businesses only</u>. Include <u>ground floor</u> businesses with window treatments, displays and open shades.
		1 or 2			
		0			

: should be able to observe while standing in one place

: ssessed while walking along the street

Bicycle Environmental Quality Index (BEQI):

Neighborhood:	**Surveyed By:** IBI Group	**Survey Date:**
Project: 2211 Harold Way	**Date Entered into Database:**	

INTERSECTIONS

Intersection CNN #:	**Primary Street:** Kittredge Street
	Secondary Street: Harold Way

Domain:	Indicator:	Indicator Values:		Comments:		
Intersection Design:	**1. Left Turn Bicycle Lane:**	0	X	3		
		1		4		
		2				
	2. Dashed Intersection Bicycle Lane:	0	X	3		
		1		4		
		2				
	3. No Turn on Red Sign(s):	0	X	3		
		1		4		
		2				

STREETS

Street: Allston Way	**CNN #:**
Cross Street #1: Harold Way	**Cross Street #2:** Shattuck Avenue

Domain:	Indicator:	Indicator Values:				Comments:
Vehicle Traffic:	**4. Number of Lanes:** (not including turning only lanes)	4 + Lanes				
		3 Lanes				
		2 Lanes	X			
		1 Lane				
		No Lanes				
	5. Vehicle Speed - Is there a posted speed limit?	Yes				Note: San Francisco default street speed limit is 25 mph.
		No	X			
	Speed Limit:	10 mph		35 mph		
		15 mph		40 mph		
		20 mph		45 mph		
		25 mph		50 mph		
		30 mph		55 mph		
				>55 mph		
	6. Traffic Calming Features:	0 TCF				
		1-2 TCFs	X			
		3-4 TCFs				
		5 or more TCFs				

Check all that apply:*
**** See BEQI manual for illustrations/definitions.***
**** Intersection TCF**

☒ Curb extensions or bulbouts**	☐ Pavement Treatments, Lights**	☐ Street Medians (w/ or without trees)
☐ Partial Closures**	☐ Speed Tables**	☐ Speed Limit
☐ Roundabouts**	☐ Speed Humps**	☐ Chicanes
☐ Semi-diverters**	☐ Mini-Circles **	☐ Rumble Strips

NOTE: From this point on, street conditions on each side of the street are recorded separately.

Northern or Eastern side = N/E; Southern or Western side = S/W.

		N/E	S/W	Comments:
7. Parallel Parking Adjacent to Bicycle Lane/Route:	Parallel Parking - not time restricted (PP) < 7ft			Note: Street cleaning restrictions do not count as time-restricted parallel parking.
	Parallel Parking - not time restricted (PP) 7ft - 9ft	X	X	
	Parallel Parking - not time restricted (PP) > 9ft			
	Time-restricted Parallel Parking (TPP) < 7ft			
	Time-restricted Parallel Parking (TPP) 7ft - 9ft			
	Time-restricted Parallel Parking (TPP) > 9ft			
	None			

: should be able to observe while standing in one place

: ssessed while walking along the street

Domain:	Indicator:	Indicator Values:	N/E	S/W	Comments:
Street Design:	**8. Presence of a Marked Area for Bicycle Traffic:**	1.Bike Lane w/ Parking Adjacent to Right			
		2.Bike Lane w/ Sidewalk or Curb Adjacent to Right (without parking)			
		3.Bike Lane w/ HOV or Public Transit Adjacent to Right			
		4.Bike Lane w/ Traffic Lane Adjacent to Right			
		5.Shared Traffic Lane With Sharrow (or Painted Bike Marking on Pavement) — # of Sharrows: N - S -			
		6.Bike Path			
		7.None	X	X	
	9. Width of Bike Lane:	> 6 ft			
		5 - 6 ft			
		<5 ft			
		None	X	X	
	10. Bicycle Lane Markings:	One Stripe, Left Side of Bike Lane			
		Stripes on Both Sides of Bike Lane			
		None	X	X	
	11. Trees:	Continuously Lined			
		Sporadically Lined	X		
		None		X	
	12. Connectivity of Bicycle Lanes: (e.g. bike lane or sharrows)	Yes			
		No	X	X	
	13. Pavement Type/Condition:	Smooth Surface			
		Mild Obstructions (e.g., cracks)	X	X	
		Medium Obstructions (e.g., Raised cracks or raised pavement parallel to street)			
		Large Obstructions (e.g., Potholes or Bumps)			
	14. Driveway Cuts: (Please enter count <u>and</u> check a category)	**Enter Count (#):**			Note: Parking garages count as 2 (i.e., vehicle entry and exit in same driveway = 2 cuts)
		5 or more			
		Few (less than 5)	X	X	
		None			
Safety/Other:	**15. Bicycle/Ped Scale Street Lighting Present:**	Yes, Pedestrian Lighting			
		Yes, Private (business or residential building)		X	
		Yes, Pedestrian and Private Lighting	X		
		No			
	16. Presence of Bicycle Lane Signs:	Yes			
		No	X	X	
Adjacent Land Use:	**17. Line of Site:**	Line of Sight Obstructed or Compromised			
		Adequate Distance			
		Clear Line of Sight	X	X	
	18. Bicycle Parking:	Yes	X	X	
		No			
	19. Storefront/ Retail Use:	3 or More		X	Note: This should reflect <u>businesses only</u>. Include <u>ground floor</u> businesses with window treatments, displays and open shades.
		1 or 2	X		
		0			

: should be able to observe while standing in one place

: ssessed while walking along the street

Bicycle Environmental Quality Index (BEQI):

Neighborhood:	**Surveyed By:** IBI Group	**Survey Date:**
Project: 2211 Harold Way	**Date Entered into Database:**	

INTERSECTIONS

Intersection CNN #:	**Primary Street:** Harold Way
	Secondary Street: Allston Way

Domain:	Indicator:	Indicator Values:		Comments:	
Intersection Design:	**1. Left Turn Bicycle Lane:**	0	X	3	
		1		4	
		2			
	2. Dashed Intersection Bicycle Lane:	0	X	3	
		1		4	
		2			
	3. No Turn on Red Sign(s):	0	X	3	
		1		4	
		2			

STREETS

Street: Harold Way	**CNN #:**
Cross Street #1: Allston Way	**Cross Street #2:** Kittredge Street

Domain:	Indicator:	Indicator Values:				Comments:
Vehicle Traffic:	**4. Number of Lanes:** (not including turning only lanes)	4 + Lanes				
		3 Lanes				
		2 Lanes	X			
		1 Lane				
		No Lanes				
	5. Vehicle Speed - Is there a posted speed limit?	Yes				Note: San Francisco default street speed limit is 25 mph.
		No	X			
	Speed Limit:	10 mph		35 mph		
		15 mph		40 mph		
		20 mph		45 mph		
		25 mph		50 mph		
		30 mph		55 mph		
				>55 mph		
	6. Traffic Calming Features:	0 TCF				
		1-2 TCFs	X			
		3-4 TCFs				
		5 or more TCFs				

Check all that apply:*

**** See BEQI manual for illustrations/definitions.***

**** Intersection TCF**

☐X Curb extensions or bulbouts**	☐ Pavement Treatments, Lights**	☐ Street Medians (w/ or without trees)
☐ Partial Closures**	☐ Speed Tables**	☐ Speed Limit
☐ Roundabouts**	☐ Speed Humps**	☐ Chicanes
☐ Semi-diverters**	☐ Mini-Circles **	☐ Rumble Strips

NOTE: From this point on, street conditions on each side of the street are recorded separately.

Northern or Eastern side = N/E; Southern or Western side = S/W.

Indicator:	Indicator Values:	N/E	S/W	Comments:
7. Parallel Parking Adjacent to Bicycle Lane/Route:	Parallel Parking - not time restricted (PP) < 7ft			Note: Street cleaning restrictions do not count as time-restricted parallel parking.
	Parallel Parking - not time restricted (PP) 7ft - 9ft	X	X	
	Parallel Parking - not time restricted (PP) > 9ft			
	Time-restricted Parallel Parking (TPP) < 7ft			
	Time-restricted Parallel Parking (TPP) 7ft - 9ft			
	Time-restricted Parallel Parking (TPP) > 9ft			
	None			

: should be able to observe while standing in one place

: ssessed while walking along the street

Domain:	Indicator:	Indicator Values:	N/E	S/W	Comments:
Street Design:	8. Presence of a Marked Area for Bicycle Traffic:	1.Bike Lane w/ Parking Adjacent to Right			
		2.Bike Lane w/ Sidewalk or Curb Adjacent to Right (without parking)			
		3.Bike Lane w/ HOV or Public Transit Adjacent to Right			
		4.Bike Lane w/ Traffic Lane Adjacent to Right			
		5.Shared Traffic Lane With Sharrow (or Painted Bike Marking on Pavement) — # of Sharrows: N - S -			
		6.Bike Path			
		7.None	X	X	
	9. Width of Bike Lane:	> 6 ft			
		5 - 6 ft			
		<5 ft			
		None	X	X	
	10. Bicycle Lane Markings:	One Stripe, Left Side of Bike Lane			
		Stripes on Both Sides of Bike Lane			
		None	X	X	
	11. Trees:	Continuously Lined	X		
		Sporadically Lined		X	
		None			
	12. Connectivity of Bicycle Lanes: (e.g. bike lane or sharrows)	Yes			
		No	X	X	
	13. Pavement Type/Condition:	Smooth Surface			
		Mild Obstructions (e.g., cracks)	X	X	
		Medium Obstructions (e.g., Raised cracks or raised pavement parallel to street)			
		Large Obstructions (e.g., Potholes or Bumps)			
	14. Driveway Cuts: (Please enter count and check a category)	**Enter Count (#):**			Note: Parking garages count as 2 (i.e., vehicle entry and exit in same driveway = 2 cuts)
		5 or more			
		Few (less than 5)			
		None	X	X	
Safety/Other:	15. Bicycle/Ped Scale Street Lighting Present:	Yes, Pedestrian Lighting			
		Yes, Private (business or residential building)			
		Yes, Pedestrian and Private Lighting	X		
		No		X	
	16. Presence of Bicycle Lane Signs:	Yes			
		No	X	X	
Adjacent Land Use:	17. Line of Site:	Line of Sight Obstructed or Compromised			
		Adequate Distance			
		Clear Line of Sight	X	X	
	18. Bicycle Parking:	Yes	X	X	
		No			
	19. Storefront/ Retail Use:	3 or More	X		
		1 or 2			
		0		X	Note: This should reflect businesses only. Include ground floor businesses with window treatments, displays and open shades.

: should be able to observe while standing in one place

: ssessed while walking along the street

Appendix E: Urbemis Reports

Urbemis Annual Summary Report

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Users\llapoint\AppData\Roaming\Urbemis\Version9a\Projects\2211 Harold Way.urb924

Project Name: 2211 Harold Way

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2007 TOTALS (tons/year unmitigated)	0.04	0.34	0.18	0.00	0.17	0.02	0.19	0.04	0.02	0.05	27.08
2008 TOTALS (tons/year unmitigated)	4.47	1.79	3.73	0.00	0.08	0.09	0.18	0.02	0.09	0.10	391.12

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	4.94	0.62	7.07	0.02	1.01	0.97	787.13

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	3.69	5.22	44.40	0.05	0.51	0.32	5,548.40
TOTALS (tons/year, mitigated)	1.66	2.04	17.47	0.03	0.20	0.12	2,169.94
Percent Reduction	55.01	60.92	60.65	40.00	60.78	62.50	60.89

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	8.63	5.84	51.47	0.07	1.52	1.29	6,335.53

Both Area and Operational Mitigation must be turned on to get a combined mitigated total.

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments high rise	2.08	2.76	23.96	0.03	0.27	0.17	2,956.90
High turnover (sit-down) rest.	0.17	0.27	2.21	0.00	0.03	0.02	280.20
Strip mall	1.44	2.19	18.23	0.02	0.21	0.13	2,311.30
TOTALS (tons/year, unmitigated)	3.69	5.22	44.40	0.05	0.51	0.32	5,548.40

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments high rise	1.27	1.50	12.97	0.02	0.14	0.09	1,600.47
High turnover (sit-down) rest.	0.04	0.06	0.49	0.00	0.01	0.00	61.46
Strip mall	0.35	0.48	4.01	0.01	0.05	0.03	508.01
TOTALS (tons/year, mitigated)	1.66	2.04	17.47	0.03	0.20	0.12	2,169.94

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments high rise	1.00	6.65	dwelling units	302.00	2,008.30	17,170.36

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
High turnover (sit-down) rest.		89.95	1000 sq ft	2.45	220.38	1,643.47
Strip mall		42.70	1000 sq ft	42.97	1,834.82	13,564.82
					4,063.50	32,378.65

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.4	0.2	99.6	0.2
Light Truck < 3750 lbs	12.3	0.8	97.6	1.6
Light Truck 3751-5750 lbs	19.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	0.7	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
High turnover (sit-down) rest.				5.0	2.5	92.5
Strip mall				2.0	1.0	97.0

Appendix F: Mitigation Measure

Future (Year 2035) With Project

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	54	39	0	0	0	42	1073	240	116	1054	41
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0					2.5	2.5	3.5	3.0	3.0	
Lane Util. Factor		0.95					1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.98					1.00	1.00	0.79	1.00	0.99	
Flpb, ped/bikes		1.00					0.94	1.00	1.00	1.00	1.00	
Frt		0.94					1.00	1.00	0.85	1.00	0.99	
Flt Protected		1.00					0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3077					1583	3353	1178	1676	3291	
Flt Permitted		1.00					0.21	1.00	1.00	0.10	1.00	
Satd. Flow (perm)		3077					350	3353	1178	170	3291	
Peak-hour factor, PHF	0.52	0.52	0.52	0.95	0.95	0.95	0.89	0.89	0.89	0.98	0.98	0.98
Adj. Flow (vph)	17	104	75	0	0	0	47	1206	270	118	1076	42
RTOR Reduction (vph)	0	22	0	0	0	0	0	0	155	0	3	0
Lane Group Flow (vph)	0	174	0	0	0	0	47	1206	116	118	1115	0
Confl. Peds. (#/hr)	21		52				147		155	155		147
Confl. Bikes (#/hr)			5						21			25
Turn Type	Split						Perm		Perm	pm+pt		
Protected Phases	6	6						8		7	4	
Permitted Phases							8		8	4		
Actuated Green, G (s)		32.5					37.5	37.5	37.5	47.5	47.5	
Effective Green, g (s)		35.0					39.5	39.5	38.5	48.5	49.0	
Actuated g/C Ratio		0.39					0.44	0.44	0.43	0.54	0.54	
Clearance Time (s)		5.5					4.5	4.5	4.5	4.0	4.5	
Lane Grp Cap (vph)		1197					154	1472	504	209	1792	
v/s Ratio Prot		c0.06						c0.36		0.04	c0.34	
v/s Ratio Perm							0.13		0.10	0.26		
v/c Ratio		0.15					0.31	0.82	0.23	0.56	0.62	
Uniform Delay, d1		17.8					16.4	22.1	16.3	15.9	14.1	
Progression Factor		1.00					1.00	1.00	1.00	1.89	1.61	
Incremental Delay, d2		0.3					5.1	5.2	1.1	8.4	1.3	
Delay (s)		18.1					21.4	27.3	17.4	38.5	24.0	
Level of Service		B					C	C	B	D	C	
Approach Delay (s)		18.1			0.0			25.4			25.4	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM Average Control Delay	24.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	46	45	0	0	0	31	1358	240	93	1150	44
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		3.0					2.5	2.5	3.5	3.0	3.0	
Lane Util. Factor		0.95					1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.96					1.00	1.00	0.69	1.00	0.98	
Flpb, ped/bikes		1.00					0.94	1.00	1.00	1.00	1.00	
Frt		0.94					1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.99					0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		2997					1569	3353	1029	1676	3269	
Flt Permitted		0.99					0.16	1.00	1.00	0.09	1.00	
Satd. Flow (perm)		2997					263	3353	1029	152	3269	
Peak-hour factor, PHF	0.80	0.80	0.80	0.95	0.95	0.95	0.94	0.94	0.94	0.93	0.93	0.93
Adj. Flow (vph)	21	58	56	0	0	0	33	1445	255	100	1237	47
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	138	0	3	0
Lane Group Flow (vph)	0	126	0	0	0	0	33	1445	117	100	1281	0
Confl. Peds. (#/hr)	58		92	92		58	277		238	238		277
Confl. Bikes (#/hr)			6						14			10
Turn Type	Split						Perm		Perm	pm+pt		
Protected Phases	6	6						8		7	4	
Permitted Phases							8		8	4		
Actuated Green, G (s)		32.5					42.5	42.5	42.5	52.5	52.5	
Effective Green, g (s)		35.0					44.5	44.5	43.5	53.5	54.0	
Actuated g/C Ratio		0.37					0.47	0.47	0.46	0.56	0.57	
Clearance Time (s)		5.5					4.5	4.5	4.5	4.0	4.5	
Lane Grp Cap (vph)		1104					123	1571	471	198	1858	
v/s Ratio Prot		c0.04						c0.43		0.04	c0.39	
v/s Ratio Perm							0.13		0.11	0.25		
v/c Ratio		0.11					0.27	0.92	0.25	0.51	0.69	
Uniform Delay, d1		19.8					15.4	23.6	15.7	18.1	14.5	
Progression Factor		1.00					1.00	1.00	1.00	1.86	1.59	
Incremental Delay, d2		0.2					5.3	10.2	1.3	6.5	1.5	
Delay (s)		20.0					20.6	33.8	17.0	40.1	24.7	
Level of Service		B					C	C	B	D	C	
Approach Delay (s)		20.0			0.0			31.1			25.8	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM Average Control Delay	28.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group