4.4 TRANSPORTATION AND TRAFFIC

This chapter describes the regulatory framework and existing conditions in the vicinity of the Project site related to transportation and traffic, and the potential impacts of the Project on transportation and traffic. The analysis contained in this chapter was prepared by Fehr & Peers.

4.4.1 TERMINOLOGY

The operations of roadway facilities are typically described with the term “level of service,” abbreviated as LOS. The level of service is a qualitative description of traffic flow from a driver’s perspective, based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels of service are defined ranging from LOS A (best operating conditions) to LOS F (worst operating conditions). LOS E corresponds to operations “at capacity.” When volumes exceed capacity, stop-and-go conditions result and operations are designated as LOS F.

Volume-to-capacity (V/C) ratio is another performance measure of roadway facilities. The V/C ratio is a common comparison of traffic volumes to capacity of the roadway system. The V/C ratio is a value between 0 and 1.0; a V/C ratio close to 0 represents free-flow conditions and a V/C ratio close to 1.0 represents more congested conditions. At 1.0, the system has reached capacity, and no more traffic demand can be served. In future analysis conditions, the V/C ratio can exceed 1.0; a V/C ratio greater than 1.0 represents an oversaturated condition where the amount of traffic that wishes to use the system exceeds the available capacity, which represents a failing condition.

4.4.1.1 LEVEL OF SERVICE CRITERIA

Study intersections were evaluated using the 2010 Highway Capacity Manual (HCM) methodologies for signalized and unsignalized intersections. The level of service for intersections is calculated based on the average control delay per vehicle. Control delay is defined as the delay associated with deceleration, stopping, moving up in the queue, and acceleration experienced by drivers at an intersection. Higher delays at signalized intersections are more tolerated than delays at unsignalized intersections, which result in a different set of level of service criteria for signalized and unsignalized intersections, as shown in Table 4.4-1 and Table 4.4-2.

The Synchro software was used to estimate delay and LOS for all study intersections. Synchro uses the equations provided in 2010 HCM to calculate control delay. These equations use intersection characteristics, such as vehicle and pedestrian volumes, lane geometry, and signal phasing as inputs in estimating control delay.
### Table 4.4-1  Signalized Intersection LOS Criteria

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Description</th>
<th>Delay in Seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.</td>
<td>&lt; 10.0</td>
</tr>
<tr>
<td>B</td>
<td>Progression is good, cycle lengths are short, or both. More vehicles stop than with LOS A, causing higher levels of average delay.</td>
<td>10.0 to 20.0</td>
</tr>
<tr>
<td>C</td>
<td>Higher congestion may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.</td>
<td>20.0 to 35.0</td>
</tr>
<tr>
<td>D</td>
<td>The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity (V/C) ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.</td>
<td>35.0 to 55.0</td>
</tr>
<tr>
<td>E</td>
<td>This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.</td>
<td>55.0 to 80.0</td>
</tr>
<tr>
<td>F</td>
<td>This level is considered unacceptable with oversaturation, which is when arrival flow rates exceed the capacity of the intersection. This level may also occur at high V/C ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to such delay levels.</td>
<td>&gt; 80.0</td>
</tr>
</tbody>
</table>


### Table 4.4-2  Unsignalized Intersection LOS Criteria

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Description</th>
<th>Delay in Seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Little or no delays</td>
<td>&lt; 10.0</td>
</tr>
<tr>
<td>B</td>
<td>Short traffic delays</td>
<td>10.0 to 15.0</td>
</tr>
<tr>
<td>C</td>
<td>Moderate traffic delays</td>
<td>15.0 to 25.0</td>
</tr>
<tr>
<td>D</td>
<td>Long traffic delays</td>
<td>25.0 to 35.0</td>
</tr>
<tr>
<td>E</td>
<td>Very long traffic delays</td>
<td>35.0 to 50.0</td>
</tr>
<tr>
<td>F</td>
<td>Extreme traffic delays</td>
<td>&gt; 50.0</td>
</tr>
</tbody>
</table>


### 4.4.2  METHODOLOGY

This section presents the methods used to determine the traffic conditions for each scenario below. It includes descriptions of the data requirements, the analysis methodologies, and the applicable level of service standards.
4.4.2.1 STUDY INTERSECTIONS

The Project site is located on the northeast corner of Shattuck Avenue (East)1 and Center Street, as shown on Figure 4.4-1. Study intersections were selected where the Project is most likely to cause a significant impact, and generally consist of signalized intersections where the proposed Project would increase traffic volumes by 50 or more peak hour trips and unsignalized intersections where the proposed Project would increase traffic volumes on a stop-controlled approach by 10 or more peak hour trips. The following intersections were selected for analysis, as shown in Figure 4.4-1:

1. Milvia Street/University Avenue
2. Shattuck Avenue (West)/University Avenue
3. Shattuck Avenue (East)/University Avenue
4. Shattuck Avenue (West)/Addison Street
5. Shattuck Avenue (East)/Addison Street
6. Oxford Street/Addison Street
7. Milvia Street/Center Street
8. Shattuck Avenue (West)/Center Street
9. Shattuck Avenue (East)/Center Street
10. Oxford Street/Center Street
11. Shattuck Avenue/Allston Way

4.4.2.2 ANALYSIS SCENARIOS

For each of the study intersections, the following scenarios were evaluated:

- **Existing.** Existing conditions, which includes the trips generated by the existing bank land use.
- **Existing with Project.** Existing conditions with Project-related traffic.
- **Cumulative without Project.** Future (2040) forecast conditions, which consider local and regional traffic growth. This scenario assumes that the proposed reconfiguration of Shattuck Avenue, which would primarily convert Shattuck Avenue (West) to two-way operations, would be completed by 2040.
- **Cumulative with Project.** Future forecast conditions with Project-related traffic.

1 Shattuck Avenue (East) refers to the eastern alignment of the one-way couplet between Center Street and University Avenue, which is currently northbound traffic only; Shattuck Avenue (West) refers to the western alignment of the one-way couplet, which is currently southbound traffic only.

Figure 4.4-1
Project Site and Study Intersections
4.4.2.3 PROJECT TRAFFIC ESTIMATION

The traffic volumes associated with the Project were estimated using a three-step process:

- **Trip Generation.** The *amount* of vehicle traffic entering and exiting the Project site was estimated, taking into consideration travel by walking, biking, and transit use.

- **Trip Distribution.** The *direction* trips use to approach and depart the site was projected.

- **Trip Assignment.** Trips were then *assigned* to specific roadway segments and intersection turning movements.

4.4.2.4 ROADWAY SEGMENTS

The LOS for roadway (arterial) segments on the Metropolitan Transportation System (MTS) was evaluated based on the volume-to-capacity ratio method, per Alameda County Transportation Commission (Alameda CTC) guidelines. Capacity for the arterial roadways is set to 800 vehicles per hour per lane. The LOS criteria for roadway segments are shown in Table 4.4-3. The arterial roadways on the MTS in the Project area include University Avenue and Shattuck Avenue.

### TABLE 4.4-3 ROADWAY SEGMENT LOS CRITERIA

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Description</th>
<th>V/C Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream.</td>
<td>&lt; 0.35</td>
</tr>
<tr>
<td>B</td>
<td>Reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted, and control delay at the boundary intersection is not significant.</td>
<td>0.35 to 0.58</td>
</tr>
<tr>
<td>C</td>
<td>Stable operation. The ability to maneuver and change lanes at mid-segment locations may be more restricted than LOS B. Longer queues at the boundary intersections may contribute to lower speeds.</td>
<td>0.58 to 0.75</td>
</tr>
<tr>
<td>D</td>
<td>Less stable condition. Small increase in traffic may cause substantial increases in delay and decreases in travel speeds.</td>
<td>0.75 to 0.90</td>
</tr>
<tr>
<td>E</td>
<td>Unstable operation and significant delay.</td>
<td>0.90 to 1.00</td>
</tr>
<tr>
<td>F</td>
<td>Extremely low travel speeds. The roadway is not able to adequately serve demand, resulting in large delays.</td>
<td>&gt; 1.00</td>
</tr>
</tbody>
</table>

Source: Alameda County Transportation Commission Guidelines.
4.4.3 ENVIRONMENTAL SETTING

4.4.3.1 REGULATORY FRAMEWORK

Regional Regulations

Alameda County Transportation Commission

The Alameda County Transportation Commission (Alameda CTC) coordinates transportation planning efforts throughout Alameda County and programs federal, state, regional, and local funding for project planning and implementation. Through its Congestion Management Program (CMP), Alameda CTC oversees and monitors the operations and performance of roadways in the CMP network, which consist of freeways and major arterials that provide connectivity in the County. The Land Use Analysis Program of the CMP requires local jurisdictions to evaluate the potential impacts of proposed land use changes (i.e., General Plan amendments, and developments estimated to generate 100 or more net new PM peak hour automobile trips) on the CMP network. See page 4.4-37 of this Draft EIR for the analysis of the proposed project impacts on the CMP network.

Local Regulations

City of Berkeley General Plan

The Transportation Element of the Berkeley General Plan (2003) contains the following policies and actions relevant to the proposed project:

Policy T-4: Transit First Policy. Give priority to alternative transportation and transit over single-occupant vehicles on Transit Routes identified on the Transit Network map (Figure 7, page T-31).

Policy T-6: Transportation Services Fee. Ensure that new development does not impact existing transportation services and facilities. (Also see Land Use Policy LU-28.)

Policy T-10: Trip Reduction. To reduce automobile traffic and congestion and increase transit use and alternative modes in Berkeley, support, and when appropriate require, programs to encourage Berkeley citizens and commuters to reduce automobile trips, such as:

1. Participation in a citywide Eco-Pass Program (also see Transportation Policy T-3).
2. Participation in the Commuter Check Program.
3. Carpooling and provision of carpool parking and other necessary facilities.
4. Telecommuting programs.
5. "Free bicycle" programs and electric bicycle programs.
6. "Car-sharing" programs.
7. Use of pedal-cab, bicycle delivery services, and other delivery services.
8. Programs to encourage neighborhood-level initiatives to reduce traffic by encouraging residents to combine trips, carpool, telecommute, reduce the number of cars owned, shop locally, and use alternative modes.
9. Programs to reward Berkeley citizens and neighborhoods that can document reduced car use.
10. Limitations on the supply of long-term commuter parking and elimination of subsidies for commuter parking.
11. No-fare shopper shuttles connecting all shopping districts throughout the city.

**Policy T-12: Education and Enforcement.** Support, and when possible require, education and enforcement programs to encourage carpooling and alternatives to single-occupant automobile use, reduce speeding, and increase pedestrian, bicyclist, and automobile safety.

   Action B. Encourage hotels, motels, and other visitor destinations to provide visitors with information on public transportation and bicycle services and facilities

**Policy T-14: Private Employers.** Encourage private employers to reduce the demand for automobile travel through transportation demand management programs that include elements such as:

1. Trip reduction incentives such as Commuter Check and Eco-Pass.
2. Flexible work hours and telecommuting to reduce peak-hour commute congestion.
3. Carpool and vanpool incentives to reduce single-occupancy vehicle use.
4. Provision of mass transit pass/credit instead of free employee parking (parking "cash-out" programs).
5. Providing bicycle facilities.
6. Market pricing mechanisms for employee parking to reduce automotive use and discourage all-day parking.
7. Local hiring policies.
8. Numerical goals for trip reduction
Policy T-15: Local Hiring. Establish Berkeley residency as a preference for hiring, and encourage other public employers, institutions, and private employers to hire locally. (Also see Economic Development and Employment Policy ED-1.)

Policy T-18: Level of Service. When considering transportation impacts under the California Environmental Quality Act, the City shall consider how a plan or project affects all modes of transportation, including transit riders, bicyclists, pedestrians, and motorists, to determine the transportation impacts of a plan or project. Significant beneficial pedestrian, bicycle, or transit impacts, or significant beneficial impacts on air quality, noise, visual quality, or safety in residential areas, may offset or mitigate a significant adverse impact on vehicle Level of Service (LOS) to a level of insignificance. The number of transit riders, pedestrians, and bicyclists potentially affected will be considered when evaluating a degradation of LOS for motorists.

Policy T-19: Air Quality Impacts. Continue to encourage innovative technologies and programs such as clean-fuel, electric, and low-emission cars that reduce the air quality impacts of the automobile. (Also see Environmental Management Policies EM-18 through EM-22.)

Action A. Establish bicycle and low-emission vehicle preferred parking areas.

Action B. Install electric vehicle charging stations in all City-owned parking facilities downtown and at major parking facilities and employment centers.

Policy T-32: Shared Parking. Encourage Berkeley businesses and institutions to establish shared parking agreements, which would make the most efficient use of existing and new parking areas. (Also see Economic Development and Employment Policy ED-6.)

Policy T-33: Disabled Parking and Passenger Zones. Ensure adequate disabled parking and passenger drop-off zones.

Action A. Require access to adequate disabled parking and passenger drop-off zones in all new commercial and residential developments.

Policy T-34: Downtown and Southside Parking Management. Manage the supply of Downtown and Southside public parking to discourage long-term all-day parking and increase the availability and visibility of short-term parking for local businesses. (Also see Economic Development and Employment Policy ED-6.)

Action B. Improve signage and access to existing public parking, including UC lots open to the public, in the Downtown and in the Southside.
Action C. Increase all-day parking rates, maintain lower parking rates for short-term parking, eliminate monthly parking passes, provide "cash-out" programs, and extend hours of operation in City garages.

Action D. Improve lighting and security in Downtown garages to encourage better utilization during off-peak hours.

Action F. Limit employee parking based on need for a vehicle on the job, number of passengers carried, disability, and/or lack of alternative public transportation.

**Policy T-35: Public Parking Supply in the Downtown and Southside.** Prioritize implementation of improved parking conditions in the Downtown and Southside through better utilization of existing parking and through implementation of policies to reduce demand for parking. Allow enough time for these improvements to be in place to demonstrate their effectiveness before considering public expenditures on construction of additional City-owned public parking spaces in the area.

action A. Reduce demand for parking by implementing specific actions in the Southside/Downtown Transportation Demand Management Study (see Tier One, Tier Two, and Tier Three programs and actions in the TDM Study) particularly taking actions to improve transit services and implementing an Eco-Pass program (see Policy T-3), and implementing commuter, shopper, and visitor shuttles (see Policy T-2).

Action B. Increase availability of existing parking, including UC parking, to shoppers, visitors, and other short-term users (see also Policy T-34).

**Policy T-39: High-Tech Parking.** To make the most efficient use of available land, encourage consideration of high-tech computerized parking (e.g., lifts and or "robotics") when replacing existing public parking or when providing off-street parking for multi-family residential projects.

**Policy T-40: Parking Impacts.** When considering parking impacts under the California Environmental Quality Act for residential projects with more than two units located in the Avenue Commercial, Downtown, or High Density Residential land use classifications, any significant parking impacts identified that result from the project should be mitigated by improving alternatives to automobile travel and thereby reducing the need for parking. Examples include improvements to public transportation, pedestrian access, car sharing programs, and bicycle facility improvements. Parking impacts for these projects should not be mitigated through the provision of additional parking on the site. The City finds that:
1. Parking supply and demand may easily be adjusted by changing local pricing policies and by changing how the supply is managed.

2. As the parking supply increases or parking costs decrease, automobile use becomes a more attractive transportation alternative and demand for parking increases. As parking supply decreases and its price increases, demand decreases.

3. Increasing the parking supply increases automobile use, which causes a measurably negative impact on the environment.

**Policy T-41: Structured Parking.** Encourage consolidation of surface parking lots into structured parking facilities and redevelopment of surface lots with residential or commercial development where allowed by zoning.

   Action C. Provide parking and recharging facilities for alternative vehicles such as bicycles and electric and low-emission vehicles.

   Action D. Whenever feasible, orient automobile access to parking lots and garages away from designated bicycle ways and boulevards and avoid blank walls along pedestrian ways.

**Policy T-43: Bicycle Network.** Develop a safe, convenient, and continuous network of bikeways that serves the needs of all types of bicyclists, and provide bicycle-parking facilities to promote cycling.

   Action A. Expand the supply of highly secure bicycle parking near transit hubs and commercial areas.

   Action B. Encourage business owners to provide bicycle parking, showers, and lockers for employees and bicycle parking for customers.

**Policy T-49: Disabled Access.** Improve pedestrian access for the entire disabled community.

   Action B. Use regulation and incentives to require or encourage accessibility upgrades for private businesses.

   Action C. Encourage businesses to exceed the minimum standards set by the ADA "readily achievable barrier removal" requirement.

**Policy T-50: Sidewalks.** Maintain and improve sidewalks in residential and commercial pedestrian areas throughout Berkeley and in the vicinity of public transportation facilities so that they are safe, accessible, clean, attractive, and appropriately lighted.
Action C. Ensure that sidewalks are kept in good repair and are level, with a suitable grade for pedestrians and wheelchairs. Discourage, and when possible prevent, new developments from creating uncomfortably steep grades.

Action D. Ensure adequate unobstructed sidewalk passage by appropriate placement of street furniture and amenities and prevention of obstruction of travel ways by such items as advertisement signs, merchandise, and utility boxes.

Policy T-51: Pedestrian Priority. When addressing competing demands for sidewalk space, the needs of the pedestrian shall be the highest priority.

City of Berkeley Downtown Area Plan

The Access element of the Downtown Area Plan (2012) contains the following goals, policies, and implementation actions applicable to the proposed project:

Goal AC-1: improve options that increase access to downtown on foot, by bicycle, and via transit. Make living, working, and visiting downtown as car-free as possible.

Policy AC-1.1: Street Modifications. Modify Downtown’s streets and street network to better serve the needs of pedestrians, bicyclists, and transit (see policies under Goal OS-1). While recognizing that automobiles will be an important transportation mode for the foreseeable future, reduce and avoid negative impacts from the private automobile on pedestrians, transit, and bicycles (see policies under Goals AC-2, AC-4 and AC-5). Development projects that are adjacent to designated street improvements should finance a fair-share of these improvements as condition of project approval.

c) Implement street improvements that benefit pedestrians, bicyclists, and transit. Reallocate parts of public rights-of-way that give unneeded capacity to motor vehicles and can be repurposed to yield pedestrian, bicycle, and/or ecological benefits. Travel lanes should not be eliminated until analysis has determined that safety, transit, and traffic operations can be adequately addressed, however the DAP EIR has indicated that traffic lane reductions appear to be feasible in the following locations:
− Shattuck Avenue and Shattuck Square between University Avenue and Allston;
− University Avenue between Shattuck Square and Oxford;
− Hearst Avenue between Shattuck and Oxford; and
− closing Center Street to regular traffic between Shattuck and Oxford.

d) Adopt a Downtown Streets & Open Space Improvement Plan that establishes policies and actions relating to street improvements that can occur throughout the Downtown Area (such as sidewalk bulb-outs, suitable travel lane widths, bicycle parking, street trees, street lighting, furnishings, etc.), as well as major projects (including Center Street
Plaza, Center Street Greenway and Civic Center Park, Shattuck Square, University Avenue Gateway, Shattuck Avenue, and Hearst Street). See Policy OS-1.1.

f) Once the design of improvements is conceptually approved, private and public developers adjacent to designed improvements should implement them as part of the development project, whenever feasible and as described in Policies (see policies under Goals LU-2 and OS-3).

g) Engage merchants, property owners, transit agencies, the University and other stakeholders to emphasize Downtown as a shared destination. Work with AC Transit and other transit agencies to evaluate the impact of proposed street and street network changes on transit vehicle operations, and to identify suitable bus stop and layover locations (such as to replace those displaced by a new Center Street Plaza). Bus stops and layover locations should not degrade transit service, and should not negatively impact pedestrian environments.

Policy AC-1.2: Single-Occupant Vehicles. Discourage the use of single-occupant vehicles (SOVs) by commuters to Downtown and encourage commuting with transit, ridesharing, bicycles, and on foot.

a) Require larger development projects to provide ridesharing parking and support their on-going operations. Strive to serve subareas where ridesharing locations are not convenient by identifying potential ridesharing locations and working with ridesharing providers.

Policy AC-1.3: Alternative Modes & Transportation Demand Management (TDM). New development and on-going programs should reduce Downtown car use, support alternative travel modes, and consolidate publicly-accessible parking facilities and Transportation Demand Management (TDM) programs (see requirements under Policy LU-2.1).

a) A fee requirement should be established to support alternative modes (i.e. transit, walking & bicycling) and Transportation Demand Management programs. Parking requirements for new development may be reduced by paying an in lieu fee into a fund to enhance transit, which might be contained within the Streets and Open Space Improvement Plan (SOSIP); in lieu payments for parking should be encouraged.

d) Require that new buildings and substantial additions support alternative transportation as identified in Policy LU-2.1c. The City should help small businesses and smaller development projects qualify for discounted transit passes, such as by working directly with AC Transit or by encouraging the formation of an association assigned with this mission.
Goal AC-2: Give pedestrians priority in downtown, and make walking downtown safe, attractive, easy and convenient for people of all ages and abilities.

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 mid-block 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.

Policy AC-2.2: Universal Access. Provide safe access to all Downtown streets and pathways for people of all abilities.

a) Use regulation and incentives to require and/or encourage universal accessibility upgrades for private businesses when significant modifications to structures are made.

Goal AC-3: Provide parking to meet the needs of Downtown, while discouraging commuter parking and encouraging motorists to park their cars and experience Downtown as a pedestrian.

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.

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.

g) New development should provide effective parking and TDM measures (see Policy LU-2.1 and AC-1.3).
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.

d) Discourage use of more than 25 percent 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.

Goal AC-4: Promote transit as an efficient, attractive choice and as a primary mode of motor-vehicle travel.

Policy AC-4.1: Transit Priority. Promote transit as the primary mode for commuting to and from Downtown, and give transit priority over personal vehicles. Encourage use of transit by area businesses, institutions, and residents.

a) Require that new development provides bus passes and promotes use of alternative modes (see Policies LU-2.1 and AC-1.3).

b) Work collaboratively with Downtown employers, institutions, and organizations (including major employers such as the City of Berkeley, UC Berkeley, Berkeley Unified School District, Berkeley City College, Berkeley Unified School District, Lawrence Berkeley National Laboratory, and Alta Bates Medical Center) to adopt aggressive TDM programs and facilities that reduce automobile use by staff, faculty and students.

c) Require that Downtown businesses provide bus passes to employees and pre-tax commute-by-transit vouchers. Work with businesses and institutions to expand guaranteed-ride-home programs for employees who use transit. Encourage Downtown employers to provide other subsidies for bicycling, walking and public transit use. Encourage Berkeley Unified School District and Peralta Community College to participate in such programs or to establish their own programs to reduce automobile use by faculty and staff.

Policy AC-4.2: Attractive Transit. Make transit an efficient and attractive choice by improving speed, reliability, pedestrian safety, and comfort. Improve transit options and give transit priority over personal vehicles.
c) Work with AC Transit and shuttle providers to identify suitable bus stops and layover locations. Consider the integration of bus facilities within City, University, and/or private projects.

d) Avoid bus stop and layover locations that interrupt pedestrian movement or block clear views of sidewalks, plazas or storefronts. Give careful consideration to trade-offs between facilitating bus turning movements and other operations versus reductions in on-street parking supply, landscaping, and sidewalks.

Goal AC-5: Maintain and enhance safe, attractive and convenient bicycle circulation within Downtown, and to and from surrounding areas, for people of all ages and abilities. Promote bicycling Downtown.

Policy AC-5.2: Bicycle Parking. Increase the availability of convenient, secure and attractive short- and long-term bicycle parking throughout Downtown.

a) Increase the availability of secured bicycle parking throughout Downtown, particularly in areas of high use, including bicycle parking options that are sheltered and/or attended.

b) Increase availability of bicycle racks throughout Downtown, especially where parking meter poles are removed.

e) Require the provision of secure bicycle parking facilities by new development projects (and major renovations), both public and private.

Policy AC-5.3: Bike Sharing. Promote convenient “bike sharing” options (i.e., short-term bike rentals) and their use by employees, residents, and visitors – especially near BART.

4.4.4 EXISTING CONDITIONS

This section describes existing transportation conditions for the Project site.

4.4.4.1 EXISTING ROADWAY NETWORK

The regional and local roadways serving the Project site are described below.

Regional Roadways

Shattuck Avenue is a two- to four-lane, north-south major arterial that extends between Telegraph Avenue in Oakland and Rose Street in North Berkeley. Between Center Street and University Avenue, Shattuck Avenue splits into two one-way streets with
three lanes in each direction. Shattuck Avenue provides sidewalks and either parallel parking or a separated parking aisle with angled parking on both sides of the street.

**University Avenue** provides one of Berkeley’s three connections to I-80 to the west (along with Gilman Street and Ashby Avenue). It is an east-west, four-lane major arterial that extends from the Berkeley Marina and I-80 in the west to the UC Berkeley campus in the east. The divided roadway provides a center median and left-turn pockets at major intersections. Left-turns from University Avenue onto cross-streets generally are not served by a separate left-turn signal phase. University Avenue provides parallel parking and sidewalks on both sides of the roadway.

**Local Roadways**

**Addison Street** is an east-west, two-lane local street extending between Downtown Berkeley and West Berkeley. It provides on-street parking and sidewalks on both sides.

**Allston Way** is an east-west, two-lane local street extending between Downtown Berkeley and West Berkeley. It provides on-street parking and sidewalks on both sides.

**Center Street** is an east-west, two-lane local street extending for three blocks in Downtown Berkeley between Oxford Street in the east and Martin Luther King Jr. Way in the west. It provides on-street parking and sidewalks on both sides of the street, as well as Class 2 bicycle lanes between Milvia Street and Shattuck Avenue. Center Street provides direct access to the existing Project site.

**Milvia Street** is a north-south, two-lane street extending between Adeline Street in the south and Hopkins Street in the north. It generally provides on-street parking and sidewalks on both sides and is a designated Bicycle Boulevard with Class 3 bicycle route north of Center Street and Class 2 bicycle lanes south of Allston Way.

**Oxford Street** is a north-south, four-lane arterial that typically has left turn lanes at intersections and on-street parking between Kittredge Street and Heart Avenue. North of Hearst Avenue, Oxford Street becomes a two lane roadway. South of Kittredge Street, Oxford Street becomes Fulton Street. Class 2 bicycle lanes are provided along Oxford Street between Kittredge Street and Hearst Avenue. Sidewalks are present along the length of the roadway.
4.4.4.2 EXISTING INTERSECTION VOLUMES

The intersection operations analysis presented in this study are based on 2011 counts provided by the City of Berkeley for all but one of the study intersections\(^2\). For the Addison Street/Oxford Street intersection, AM and PM peak period (7:00 to 9:00 a.m. and 4:00 to 6:00 p.m.) intersection turning movement, pedestrian, and bicycle volumes were collected on May 5, 2015, a clear day with UC Berkeley and Berkeley High School in regular session.\(^3\) These time periods were selected because trips generated by the proposed Project, in combination with background traffic, are expected to represent typical worst traffic conditions. Within the peak periods, the peak hours (i.e., the hour with the highest traffic volumes observed in the study area) are from 8:00 a.m. to 9:00 a.m. (AM peak hour) and 5:00 p.m. to 6:00 p.m. (PM peak hour).

Figure 4.4-2 shows the existing AM and PM peak hour intersection vehicle volumes and the lane configurations and controls at the study intersections. Appendix F presents the detailed count sheets for the locations counted for this analysis.

4.4.4.3 EXISTING INTERSECTION OPERATIONS

Table 4.4-4 summarizes existing weekday AM and PM peak hour intersection operational analysis results, which are based on the 2010 Highway Capacity Manual methodologies. Appendix F provides the detailed calculation work sheets. As shown in the table, all study intersections currently operate at LOS C or better during the AM and PM peak hours.

4.4.4.4 EXISTING TRANSIT AND SHUTTLE SERVICES

The Project site is served by BART, AC Transit, UC Berkeley’s Shuttle Service (BEAR Transit) and the Lawrence Berkeley National Laboratory (LBNL) shuttle service. Along the Project frontage, approximately 125 feet of curb along Shattuck Avenue (East) and approximately 160 feet of curb along Center Street are designated for various bus stops. Figure 4.4-3 shows the transit routes in the vicinity of the Project site, and Figure 4.4-4 shows the transit stops in the immediate vicinity of the Project site. Each transit service is described below.

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\(^2\) Since these traffic counts are more than three years old, they were compared with more recent data at select locations where data was available. Based on the comparison, the 2011 data continues to be a valid representation of current traffic volumes in the study area.

\(^3\) At the time when the data at the Addison Street/Oxford Street intersection was collected, the University Art Museum was under construction at the southwest corner of the intersection. The sidewalk adjacent to the construction site was closed but the vehicular approach was open.
Figure 4.4-2

Existing Peak Hour Volumes, Lane Configurations and Traffic Control

LEGEND

- Signalized Intersection
- Stop Sign
- Project Site
- Study Intersection

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Control</th>
<th>AM Peak Hour</th>
<th>PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 University Avenue/Milvia Street</td>
<td>Signalized</td>
<td>12.7 B</td>
<td>12.9 B</td>
</tr>
<tr>
<td>2 University Avenue/Shattuck Avenue</td>
<td>Signalized</td>
<td>13.8 B</td>
<td>11.4 B</td>
</tr>
<tr>
<td>(West)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 University Avenue/Shattuck Avenue</td>
<td>Signalized</td>
<td>13.4 B</td>
<td>14.6 B</td>
</tr>
<tr>
<td>(East)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Addison Street/Shattuck Avenue</td>
<td>Signalized</td>
<td>17.3 B</td>
<td>24.3 C</td>
</tr>
<tr>
<td>(West)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Addison Street/Shattuck Avenue</td>
<td>Signalized</td>
<td>17.8 B</td>
<td>22.8 C</td>
</tr>
<tr>
<td>(East)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Addison Street/Oxford Street</td>
<td>Side-Street</td>
<td>1.8 (60.1) A (F)</td>
<td>3.2 (88.0) A (F)</td>
</tr>
<tr>
<td></td>
<td>Stop-Controlled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Center Street/Milvia Street</td>
<td>Signalized</td>
<td>10.0 B</td>
<td>10.2 B</td>
</tr>
<tr>
<td>8 Center Street/Shattuck Avenue</td>
<td>Signalized</td>
<td>10.0 B</td>
<td>10.2 B</td>
</tr>
<tr>
<td>(West)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Center Street/Shattuck Avenue</td>
<td>Signalized</td>
<td>10.0 B</td>
<td>14.3 B</td>
</tr>
<tr>
<td>(East)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Center Street/Oxford Street</td>
<td>Signalized</td>
<td>6.0 A</td>
<td>8.5 A</td>
</tr>
<tr>
<td>11 Allston Way/Shattuck Avenue</td>
<td>Signalized</td>
<td>20.9 C</td>
<td>25.0 C</td>
</tr>
</tbody>
</table>

Note: For signalized intersections, average intersection delay and LOS based on the 2010 HCM method is shown. For side-street stop-controlled intersections, delays for worst approach and average intersection delay are shown: intersection average (worst approach).


**BART**

BART provides regional commuter rail transit in Alameda, Contra Costa, San Francisco, and San Mateo counties. Currently, BART trains operate on weekdays from 4:00 a.m. to 1:00 a.m., on Saturdays from 6:00 a.m. to 1:00 a.m., and on Sundays from 8:00 a.m. to 1:00 a.m. The Project site is adjacent to the Downtown Berkeley station, with the nearest portals just across Shattuck Avenue.

The Downtown Berkeley BART Station is served by the Richmond-Fremont and Richmond-Daly City/Millbrae lines. Other destinations in the BART system can be reached by transferring at stations in Oakland. Typically, Downtown Berkeley BART Station is served by a train every seven (peak weekday commute periods) to twenty minutes (Sundays). The Downtown Berkeley BART station is one of the most used stations within the BART system with average weekday exits and entries of approximately 28,200 passengers in September 2015.

Figure 4.4-3
Existing Transit Routes
Figure 4.4-4

Existing Transit Stop Locations

AC Transit

Local bus service in Berkeley is provided by AC Transit. As shown on Figures 4.4-3 and 4.4-4, the Downtown Berkeley BART Station is served by several AC Transit bus routes, connecting Downtown Berkeley to other neighborhoods within Berkeley, adjacent Cities, and San Francisco. Bus stops for Routes 7, 25, 51, 52, 65, 67, and 800 are located along the Project frontage on Shattuck Avenue (East) and a bus stop for Route 1 is located along the Project frontage on Center Street. Table 4.4-5 describes the AC Transit bus routes serving the Project area.

Shuttles

The Lawrence Berkeley National Labs (LBNL) provides a free shuttle service connecting LBNL to UC Berkeley, BART, AC Transit, and local neighborhoods. Although the LBNL shuttles are free, they are restricted to LBNL employees and visitors. Shuttle stops are coordinated with AC Transit bus lines serving Downtown Berkeley. The nearest shuttle stop to the Project site is the Downtown Berkeley BART station stop just north of the Project site on Shattuck Avenue (East) south of Addison Street.

BEAR Transit, operated by UC Berkeley, primarily serves the UC Berkeley community, providing service between the UC Berkeley campus, surrounding neighborhoods, and select destinations, such as the Richmond Field Station (RFS). In general, the daytime shuttles operate on a fixed route and schedule between 6:45 a.m. and 7:30 p.m. The night shuttles operate on a fixed schedule between 7:30 p.m. and 4:00 a.m., and provide door-to-door service throughout the service area between 4:00 a.m. and 5:30 a.m. The nearest Bear Transit stop to the Project site is the Downtown Berkeley BART station stop just north of the Project site on Shattuck Avenue (East) north of Addison Street.

4.4.4.5 EXISTING PEDESTRIAN AND BICYCLE CIRCULATION

Within the City of Berkeley, all non-residential and most residential streets provide sidewalks and crosswalks for pedestrians. Signalized intersections in the vicinity of the Project site provide curb ramps and pedestrian signal heads. Sidewalks and intersections in the vicinity of the Project site generally experience high pedestrian and bicycle activity.
<table>
<thead>
<tr>
<th>Line</th>
<th>Route</th>
<th>Nearest Stop</th>
<th>Weekday</th>
<th>Weekend</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hours</td>
<td>Frequency (Minutes)</td>
</tr>
<tr>
<td><strong>Local Routes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Between Berkeley and Bay Fair BART Stations via Telegraph Ave., International Blvd., and East 14th St.</td>
<td>Adjacent to Project on Center St.</td>
<td>5:15 AM to 12:45 AM</td>
<td>15</td>
</tr>
<tr>
<td>1R</td>
<td>Between Berkeley and Bay Fair BART Stations via Telegraph Ave., International Blvd., and East 14th St.</td>
<td>Shattuck Ave. south of Center St.</td>
<td>5:15 AM to 12:45 AM</td>
<td>15</td>
</tr>
<tr>
<td>7</td>
<td>Between Berkeley and El Cerrito Del Norte BART Stations via Shattuck Ave., Arlington Ave., and San Pablo Ave.</td>
<td>Adjacent to Project on Shattuck Ave. (East)</td>
<td>6:00 AM to 8:30 PM</td>
<td>40</td>
</tr>
<tr>
<td>12</td>
<td>Berkeley BART to Downtown Oakland via Martin Luther King Jr. Way</td>
<td>Shattuck Ave. north of Allston Way</td>
<td>6:10 AM to 10:50 AM</td>
<td>20</td>
</tr>
<tr>
<td>18</td>
<td>University Village, Albany, to Montclair via Solano Ave, Shattuck Ave, Park Boulevard</td>
<td>Northbound: Shattuck Ave. (East) south of Center St.; Southbound: Shattuck Ave./Allston Way</td>
<td>5:20 AM to 12:40 AM</td>
<td>15</td>
</tr>
<tr>
<td>25</td>
<td>Two-way loop: El Cerrito Plaza BART, Berkeley BART, Martin Luther King Jr Way</td>
<td>Adjacent to Project on Shattuck Ave. (East)</td>
<td>7:00 AM to 8:45 PM</td>
<td>40</td>
</tr>
<tr>
<td>49</td>
<td>Loop starting at Rockridge BART via Ashby Ave., Dwight Way, Bancroft Way/Durant Ave. and Claremont Ave.</td>
<td>Loop A: Shattuck Ave. south of Center St.; Loop B: Shattuck Ave. north of Allston Way</td>
<td>6:00 AM to 8:00 PM</td>
<td>30</td>
</tr>
<tr>
<td>51B</td>
<td>Between Rockridge BART and Berkeley Amtrak Station via College Ave., Bancroft Way/ Durant Ave. and University Ave.</td>
<td>Westbound: Adjacent to Project on Shattuck Ave. (East); Eastbound: Shattuck Ave. north of Allston Way</td>
<td>5:00 AM to 12:30 AM</td>
<td>10-20</td>
</tr>
<tr>
<td>52</td>
<td>Between UC Berkeley and Albany University Village via Hearst Ave., Bancroft Way, University Ave., and San Pablo Ave.</td>
<td>Westbound: Adjacent to Project on Shattuck Ave. (East); Eastbound: University Ave./Shattuck Ave.</td>
<td>6:00 AM to 12:00 AM</td>
<td>15-35</td>
</tr>
<tr>
<td>65</td>
<td>Between Berkeley BART and Lawrence Hall of Science via Euclid Ave. and Grizzly Peak Blvd.</td>
<td>Adjacent to Project on Shattuck Ave. (East)</td>
<td>5:30 AM to 9:00 PM</td>
<td>30</td>
</tr>
</tbody>
</table>
TABLE 4.4-5   AC TRANSIT SERVICE SUMMARY

<table>
<thead>
<tr>
<th>Line</th>
<th>Route</th>
<th>Nearest Stop</th>
<th>Weekday</th>
<th>Frequency (Minutes)</th>
<th>Weekend</th>
<th>Frequency (Minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>67</td>
<td>Berkeley BART to Grizzle Peak Blvd. via Spruce St.</td>
<td>Adjacent to Project on Shattuck Ave. (East)</td>
<td>6:00 AM to 8:11 PM</td>
<td>30 to 40</td>
<td>8:00 AM to 6:53 PM</td>
<td>45</td>
</tr>
<tr>
<td>88</td>
<td>Between Berkeley and Lake Merritt BART Stations via 11th St./12th St., Market St., and University Ave.</td>
<td>Center St. west of Shattuck Ave.</td>
<td>5:20 AM to 10:45 PM</td>
<td>20</td>
<td>5:20 AM to 10:45 PM</td>
<td>30</td>
</tr>
</tbody>
</table>

Night Routes

<table>
<thead>
<tr>
<th>Line</th>
<th>Route</th>
<th>Nearest Stop</th>
<th>Weekday</th>
<th>Frequency (Minutes)</th>
<th>Weekend</th>
<th>Frequency (Minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>800</td>
<td>Downtown San Francisco to Richmond BART Station via Telegraph Ave., Ashby Ave., Shattuck Ave., University Ave., and San Pablo Ave.</td>
<td>Northbound: Adjacent to Project on Shattuck Ave. (East); Southbound: Shattuck Ave. north of Allston Way</td>
<td>12:20 AM to 6:20 AM</td>
<td>60</td>
<td>11:50 PM to 7:40 AM</td>
<td>20</td>
</tr>
<tr>
<td>851</td>
<td>Between Fruitvale and Berkeley BART Stations via Fruitvale Ave., Santa Clara Ave., Webster St., Broadway, College Ave., and Bancroft Way/Durant Ave.</td>
<td>Shattuck Ave. south of Center St.</td>
<td>12:10 AM to 5:00 AM</td>
<td>60</td>
<td>12:10 AM to 5:00 AM</td>
<td>60</td>
</tr>
</tbody>
</table>

Transbay Routes

<table>
<thead>
<tr>
<th>Line</th>
<th>Route</th>
<th>Nearest Stop</th>
<th>Weekday</th>
<th>Frequency (Minutes)</th>
<th>Weekend</th>
<th>Frequency (Minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Between UC Berkeley and San Francisco Transbay Terminal</td>
<td>Shattuck Ave. north of Allston Way</td>
<td>5:10 AM to 1:00 AM</td>
<td>30</td>
<td>5:10 AM to 1:00 AM</td>
<td>30</td>
</tr>
<tr>
<td>FS</td>
<td>Between Solano Ave. (North Berkeley) and San Francisco Transbay Terminal</td>
<td>University Ave./Shattuck Ave.</td>
<td>6:15 AM to 9:15 AM (WB), 5:00 PM to 7:40 PM (EB)</td>
<td>30</td>
<td>No Weekend Service</td>
<td></td>
</tr>
</tbody>
</table>

Notes: Distance shown is current walking distance between bus stop and the Project site.
Source: AC Transit, 2015.

Based on the City of Berkeley Bicycle Master Plan (February 2005), bicycle facilities can be classified into several types, including:

- **Bicycle Paths (Class 1)** – These facilities are located off-street and can serve both bicyclists and pedestrians.
- **Bicycle Lanes (Class 2)** – These facilities provide a dedicated area for bicyclists within the paved street width through the use of striping and appropriate signage.
- **Bicycle Routes (Class 3)** – These facilities are found along streets that do not provide sufficient width for dedicated bicycle lanes. The street is then designated as a bicycle route through the use of signage informing drivers to expect bicyclists.
- **Shared Bikeways (Class 2.5)** – These facilities are found along streets with high bicycle volumes where bicycle lanes are not feasible. Typically, shared lane bicycle stencils, wide curb lanes, signage, and low speed limits are used to encourage shared use.

- **Bicycle Boulevards** – These facilities are generally installed along residential streets with low traffic volumes and prioritize bicycle travel. Assignment of right-of-way to the route, traffic calming measures and bicycle traffic signal actuation are used to prioritize through-trips for bicycles.

Figure 4.4-5 identifies existing and proposed bicycle facilities in the study area. Currently, bicyclists are allowed on all streets within the study area. Existing bicycle facilities near the Project site include Class 2 bicycle lanes on Center Street, Milvia Street, Oxford Street, and Hearst Avenue, and Class 3 bicycle routes on Milvia Street adjacent to the Project. Designated Bicycle Boulevards near the Project site include Milvia Street and Channing Way.

### 4.4.5 STANDARDS OF SIGNIFICANCE

#### 4.4.5.1 STATE CEQA GUIDELINES SIGNIFICANCE CRITERIA

The proposed Project would result in a significant impact with regard to transportation and traffic if it would:

1. 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.

2. 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.

3. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

4. Result in inadequate emergency access.

5. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.
Source: Fehr & Peers Transportation Consultants, 2015; Source: City of Berkeley Bicycle Plan 2005 Update; Berkeley! Biking and Walking Map (UC Berkeley).

**Legend**
- **Project Site**
- **BART**

<table>
<thead>
<tr>
<th>Bikeway Type</th>
<th>Existing</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I Bike Path</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class II Bike Lane</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class III Bike Route</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UCB Campus Bikeway</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bicycle Boulevard</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 4.4-5**

Existing and Future Bicycle Network
4.4.5.2 CITY OF BERKELEY SIGNIFICANCE CRITERIA

The City of Berkeley’s performance standards are defined in the 2005 City of Berkeley Guidelines for Development of Traffic Impact Reports. Per the City of Berkeley’s Guidelines, the Project would have a significant impact if any of the following would occur:

- A signalized intersection operating at LOS D or better deteriorates to LOS E with an added average intersection delay of two seconds.
- A signalized intersection operating at LOS E continues to operate at LOS E or deteriorates to LOS F with an added average intersection delay of three seconds.
  - A signalized intersection operating at LOS F continues to operate at LOS F with an increase in the V/C ratio by 0.01.
  - A stop-controlled movement of an unsignalized intersection operates at LOS F, the peak hour signal warrant is met, and a minimum of 10 vehicles are added to the critical movement.

4.4.5.3 ALAMEDA COUNTY TRANSPORTATION COMMISSION SIGNIFICANCE CRITERIA

For projects that are expected to generate at least 100 PM peak hour trips, the project is required to use the Alameda County Transportation Commission (Alameda CTC) Countywide Travel Demand Forecasting Model to assess impacts on the regional Congestion Management Program (CMP) roadways near the project site. The Project would have a significant impact on the CMP roadway segments in the Project area if any of the following would occur:

- A facility operating at LOS E or better deteriorates to LOS F.
- A facility operating at LOS F continues to operate at LOS F with an increase in the V/C ratio by .03 or more.

---

1 For the purposes of this analysis, the listed intersection LOS thresholds of significance are based on the City of Berkeley standards and practices. City of Berkeley staff are aware of the prospective changes to traffic impact analyses as required by California Senate Bill 743 which would prohibit the use of LOS or other congestion-based metrics in identifying significant impacts under California Environmental Quality Act (CEQA). Since the State Office of Planning and Research (OPR) has not published the final guidelines on analysis methodologies or significance criteria, this report uses thresholds of significance based on intersection LOS to analyze the potential Project-related transportation impacts, consistent with current City of Berkeley standards and practices.

1 Based on California Manual on Uniform Traffic Control Devices (MUTCD) Warrant 3.
4.4.6 IMPACT DISCUSSION

This section analyzes potential Project-specific and cumulative impacts to transportation and traffic.

As discussed in Chapter 3, Project Description, the proposed Project would result in a sixteen story mixed-use hotel building with a total of 336 hotel rooms. On the first level, the Project would include 6,900 square-foot restaurant, a 1,500 square-foot café, and a 6,500 square-foot bank (to replace the existing bank). The Project would also include a parking garage with 97 parking spaces that would be accessed through a right-in/right-out driveway on Shattuck Avenue. The Project site is currently occupied by a 14,765 square-foot bank and a 36-space parking lot with a driveway on Center Street.

4.4.6.1 EXISTING WITH PROJECT CONDITIONS

The Project would not 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, 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.

The Existing with Project conditions reflect Project trips added to the existing peak hour traffic volumes, which assumes transportation system would remain same as current conditions. Project trips were estimated using the three-step process previously discussed.

Project Trip Generation

Trip generation refers to the process of estimating the amount of vehicular traffic a project would add to the surrounding roadway system. Estimates are created for the peak one-hour period during the morning and the evening commute periods when traffic volumes on the adjacent streets are the highest.

Trip generation was initially estimated for the Project using the Institute of Transportation Engineers (ITE) Trip Generation Manual. ITE data is generally based on...
data collected at single-use suburban sites, which overestimates trip generation for mixed-use developments located in dense downtown environments with excellent transit connectivity. Therefore, the trip generation was adjusted to account for walking, biking, and transit trips.

This study assumes that 58 percent of all trips generated by the proposed 2129 Shattuck Avenue Project would be by driving (a 42 percent trip reduction to the ITE trip generation data). This mode split is based on 2000 US Census data for workers in Downtown Berkeley, which shows that 58 percent of workers in Downtown Berkeley drive to and from work. This is a conservative assumption because the 2012 California Household Travel Survey shows a 58 percent non-auto mode share for Downtown Berkeley residents. This reduction captures travel characteristics of an area with high walking, biking, and transit mode shares due to the proximity of the Downtown Berkeley BART station, the limited availability and high cost of parking, frequent bus service, and the density of mixed-use land use. Travel to and from the site would likely be similar as employees would often travel to work by non-driving modes, many hotel visitors would connect from the Oakland and San Francisco airports by BART, and a significant number of hotel guests would likely be visiting UC Berkeley, which is just a short walk from the site.

This trip generation estimate is conservative in that it does not account for pass-by trip reductions. Pass-by trips are defined as trips attracted to a site from adjacent roadways as an intermediate stop on the way to a final destination. Pass-by trips alter travel patterns in the immediate study area but do not add new vehicle trips to the roadway network. For example, a Berkeley resident may travel along Shattuck Avenue and decide to stop at the site's restaurant for dinner on the way home from work—in this case, the trip to the restaurant would not be a new trip on the transportation system. According to ITE's *Trip Generation Handbook* (3rd Edition), a pass-by trip reduction of up to 43 percent for the restaurant and café uses may be applicable.

Table 4.4-6 presents the resulting trip generation for the Project site. As shown in the table, trip generation rates are applied to the number of hotel rooms and the square footage of the external restaurant and café. All trips made to and from the hotel (including trips generated by conference space and hotel restaurants) are captured by the hotel room trip generation rate. Therefore, trips are not calculated for individual hotel amenities to avoid double counting. Trips were estimated for the ground floor restaurant and café as they are not considered part of the hotel. The proposed Project would replace the existing 14,765 square-foot Bank of America with a smaller 6,500 square-foot bank; while the proposed bank would be smaller, this analysis assumes that the bank would continue to generate the same amount of trips. The proposed 2129
**Table 4.4-6 Project Trip Generation**

<table>
<thead>
<tr>
<th>Land Use</th>
<th>ITE Code</th>
<th>Amount</th>
<th>Units</th>
<th>Daily Trips</th>
<th>AM Peak Hour Trips</th>
<th>PM Peak Hour Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hotel</td>
<td>310a</td>
<td>336</td>
<td>Rooms</td>
<td>2,745</td>
<td>105</td>
<td>73</td>
</tr>
<tr>
<td>Restaurant</td>
<td>932b</td>
<td>6.9</td>
<td>1,000 sq.ft.</td>
<td>872</td>
<td>41</td>
<td>33</td>
</tr>
<tr>
<td>Café</td>
<td>936c</td>
<td>1.5</td>
<td>1,000 sq.ft.</td>
<td>1,206</td>
<td>82</td>
<td>78</td>
</tr>
<tr>
<td>Bank</td>
<td>912d</td>
<td>6.5</td>
<td>1,000 sq.ft.</td>
<td>963</td>
<td>48</td>
<td>39</td>
</tr>
</tbody>
</table>

**Unadjusted Total Trips** 5,786 276 223 499 253 235 488

**Existing Site Trip Credits (Existing Bank Trips)** -963 -48 -39 -87 -79 -79 -158

**Unadjusted Net New Trips** 4,823 228 184 412 174 156 330

**Non-Auto Trips Reduction (-42%)** 2,026 -95 -78 -173 -73 -66 -139

**Total New Trips** 2,797 133 106 239 101 90 191

---

a. ITE Trip Generation (9th Edition) land use category 310 – Hotel (Adjacent Streets, 7-9 a.m., 4-6 p.m.):
   - Daily: $T = 8.17^* (X)$
   - AM Peak Hour: $T = 0.53^* (X)$ (59% in, 41% out)
   - PM Peak Hour: $T = 0.60^* (X)$ (51% in, 49% out)

b. ITE Trip Generation (9th Edition) land use category 932 - High-Turnover Restaurant (Adjacent Streets, 7-9 a.m., 4-6 p.m.):
   - Daily: $T = 127.15^* (X)$
   - AM Peak Hour: $T = 10.81^* (X)$ (55% in, 45% out)
   - PM Peak Hour: $T = 9.85^* (X)$ (60% in, 40% out)

c. ITE Trip Generation (9th Edition) land use category 936 - Coffee/Donut Shop without Drive-Through Window (Adjacent Streets, 7-9 a.m., 4-6 p.m.):
   - Daily: $T = 818.58^* (X)$ (Daily trip generation rates are not available for ITE land use category 936 (coffee/donut shop without drive-through window) land use. Therefore, the daily trip rate for land use category 937 land use (coffee/donut shop with drive-through window) was applied)
   - AM Peak Hour: $T = 108.38^* (X)$ (51% in, 49% out)
   - PM Peak Hour: $T = 40.75^* (X)$ (50% in, 50% out)

d. ITE Trip Generation (9th Edition) land use category 912 – Drive-in Bank (Adjacent Streets, 7-9 a.m., 4-6 p.m.):
   - Daily: $T = 148.15^* (X)$
   - AM Peak Hour: $T = 12.08^* (X)$ (57% in, 43% out)
   - PM Peak Hour: $T = 24.30^* (X)$ (50% in, 50% out)

e. Source: Based on 2000 US Census data that shows that about 42 percent of the commute trips for workers in Downtown Berkeley are by non-automobile modes.

Shattuck Avenue Project would add 2,800 daily trips, 239 AM peak hour trips, and 191 PM peak hour trips to the roadway network.

**Project Trip Distribution and Assignment**

Trip distribution is defined as the directions of approach and departure that vehicles would use to arrive at and depart from the Project site. Trip distribution for the proposed Project was developed based on the locations of complementary land uses, existing travel patterns and street network in the area, and the location of the Project driveway on Shattuck Avenue. Figure 4.4-6 shows the resulting Project trip distribution. Project
trips were then assigned to the street network based on the trip distribution. Figure 4.4-7 shows the resulting AM and PM peak hour trips generated by the site.

The Project would provide 97 parking spaces, which is estimated to be less than the Project typical peak parking demand. Therefore, it is likely that some trips generated by the Project would use on-street parking, or other off-street facilities in the area. This study assumes that all Project trips would arrive at and depart from the Project driveway as it is difficult to predict the number of motorists that would use other parking facilities and the specific facilities that may be used.

The removal of the existing driveway for the bank parking on Center Street would result in motorists traveling to and from the bank to change their route. Figure 4.4-8 shows the net difference in bank trips resulting from relocating the site's driveway. Figure 4.4-9 shows the net trip assignment for the Project, which consists of new trips generated by the Project and the re-assignment of existing bank trips. Figure 4.4-10 shows the resulting Existing with Project traffic volumes.

**Existing with Project Intersection Operations**

As shown in Table 4.4-7, the addition of Project traffic would not change the LOS at any of the signalized study intersections in either the AM or PM peak hours. For the unsignalized Addison Street/Oxford Street intersection, the Project would add traffic to the side-street stop-controlled eastbound Addison Street approach that currently operates at LOS F. The Project would add more than 10 peak hour trips to the stop-controlled approach but would not trigger the peak hour traffic signal warrant. Therefore, a traffic signal would not be warranted and the Project would not have a significant impact at the intersection. As a result, the Project impacts to existing conditions would be less than significant.

Queuing along Shattuck Avenue was estimated using Synchro. While queuing estimates from Synchro do not account for closely spaced intersections, turn-lane storage bays, or other factors that affect queuing, it can provide a relative comparison between scenarios, and account for the potential effects of the proposed Project on queues. The AM and PM peak hour 95th percentile queues at the study intersections would either continue to be accommodated within the available storage area, or the Project would not increase the 95th percentile queues that currently exceed the storage area. It is estimated that the Project traffic would not have a noticeable effect on AM or

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7 95th percentile queue is defined as the 95th highest queue out of 100 observations.
### Figure 4.4-7
Peak Hour Project Trip Assignment

<table>
<thead>
<tr>
<th>Study Intersection</th>
<th>AM (PM) Peak Hour Traffic Volumes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Milvia Street/University Avenue</td>
<td>2 (1) 14 (10) 21 (18)</td>
</tr>
<tr>
<td>2. Shattuck Avenue (W)/University Avenue</td>
<td>2 (2) 11 (8) 23 (20)</td>
</tr>
<tr>
<td>3. Shattuck Avenue (E)/University Avenue</td>
<td>8 (7) 31 (27) 4 (4)</td>
</tr>
<tr>
<td>4. Shattuck Avenue (W)/Addison Street</td>
<td>11 (10) 37 (32) 2 (2)</td>
</tr>
<tr>
<td>5. Shattuck Avenue (E)/Addison Street</td>
<td>48 (42) 21 (18)</td>
</tr>
<tr>
<td>6. Oxford Street/Addison Street</td>
<td>6 (4) 5 (4) 18 (13)</td>
</tr>
<tr>
<td>7. Milvia Street/Center Street</td>
<td>33 (28) 27 (20) 4 (4)</td>
</tr>
<tr>
<td>8. Shattuck Avenue (W)/Center Street</td>
<td>21 (18) 28 (21)</td>
</tr>
<tr>
<td>9. Shattuck Avenue (E)/Center Street</td>
<td>32 (24) 56 (41) 47 (38)</td>
</tr>
<tr>
<td>10. Oxford Street/Center Street</td>
<td>5 (4) 2 (18) 27 (20)</td>
</tr>
<tr>
<td>11. Shattuck Avenue/Allston Way</td>
<td>6 (8) 27 (20) 14 (10) 33 (28)</td>
</tr>
</tbody>
</table>

**Legend**
- AM (PM) Peak Hour Traffic Volumes
- Signalized Intersection
- Stop Sign
- Project Site
- Study Intersection


Figure 4.4-8
Peak Hour Bank Trip Re-Assignment

Figure 4.4-9
Net New Peak Hour Trips
Existing with Project

Peak Hour Volumes, Lane Configurations and Traffic Control


Figure 4.4-10
### Table 4.4-7 Existing with Project Intersection Operations

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Control</th>
<th>Peak Hour</th>
<th>Existing</th>
<th>Existing With Project</th>
<th>Significant Impact?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Delay</td>
<td>LOS</td>
<td>Delay</td>
</tr>
<tr>
<td>1 University Avenue/ Milvia Street</td>
<td>Signalized</td>
<td>AM</td>
<td>12.7</td>
<td>B</td>
<td>12.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>12.9</td>
<td>B</td>
<td>12.9</td>
</tr>
<tr>
<td>2 University Avenue/ Shattuck Avenue (West)</td>
<td>Signalized</td>
<td>AM</td>
<td>13.8</td>
<td>B</td>
<td>13.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>11.4</td>
<td>B</td>
<td>11.4</td>
</tr>
<tr>
<td>3 University Avenue/ Shattuck Avenue (East)</td>
<td>Signalized</td>
<td>AM</td>
<td>13.4</td>
<td>B</td>
<td>13.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>14.6</td>
<td>B</td>
<td>14.6</td>
</tr>
<tr>
<td>4 Addison Street/ Shattuck Avenue (West)</td>
<td>Signalized</td>
<td>AM</td>
<td>17.3</td>
<td>B</td>
<td>17.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>24.3</td>
<td>C</td>
<td>24.9</td>
</tr>
<tr>
<td>5 Addison Street/ Shattuck Avenue (East)</td>
<td>Signalized</td>
<td>AM</td>
<td>17.8</td>
<td>B</td>
<td>18.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>22.8</td>
<td>C</td>
<td>23.7</td>
</tr>
<tr>
<td>6 Addison Street/ Oxford Street</td>
<td>Side-Street Stop-Controlled</td>
<td>AM</td>
<td>1.8 (60.1)</td>
<td>A (F)</td>
<td>2.7 (56.6)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>3.2 (88.0)</td>
<td>A (F)</td>
<td>4.6 (91.1)</td>
</tr>
<tr>
<td>7 Center Street/ Milvia Street</td>
<td>Signalized</td>
<td>AM</td>
<td>10.0</td>
<td>B</td>
<td>10.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>10.2</td>
<td>B</td>
<td>10.3</td>
</tr>
<tr>
<td>8 Center Street/ Shattuck Avenue (West)</td>
<td>Signalized</td>
<td>AM</td>
<td>20.2</td>
<td>C</td>
<td>21.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>23.5</td>
<td>C</td>
<td>26.3</td>
</tr>
<tr>
<td>9 Center Street/ Shattuck Avenue (East)</td>
<td>Signalized</td>
<td>AM</td>
<td>10.3</td>
<td>B</td>
<td>11.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>14.3</td>
<td>B</td>
<td>15.6</td>
</tr>
<tr>
<td>10 Center Street/ Oxford Street</td>
<td>Signalized</td>
<td>AM</td>
<td>6.0</td>
<td>A</td>
<td>6.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>8.5</td>
<td>A</td>
<td>8.4</td>
</tr>
<tr>
<td>11 Allston Way/ Shattuck Avenue</td>
<td>Signalized</td>
<td>AM</td>
<td>20.9</td>
<td>C</td>
<td>21.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>25.0</td>
<td>C</td>
<td>25.5</td>
</tr>
</tbody>
</table>

Notes: For signalized intersections, average intersection delay and LOS based on the 2010 HCM method is shown. For side-street stop-controlled intersections, delays for worst approach and average intersection delay are shown: intersection average (worst approach).


PM peak hour queuing along Shattuck Avenue. Appendix F summarizes the queue lengths along Shattuck Avenue.

**Significance Without Mitigation:** Less than significant.

### 4.4.7 Congestion Management Program Analysis

**TRANS-2** The Project would not conflict with an applicable congestion management program, including, but not limited to, level of service standards, travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

The Alameda County Transportation Commission (CTC) continuously monitors and updates its Congestion Management Program (CMP) of major freeways and arterial...
roadways in the county, and most recently updated its CMP in October 2015. This section provides an analysis of CMP roadways near the site to determine if the Project would cause a significant impact. The CMP and Metropolitan Transportation System (MTS) roadways near the site include University Avenue and Shattuck Avenue.

### 4.4.7.1 EXISTING CONDITIONS

The most recent *Level of Service Monitoring on the Congestion Management Program Roadway Network* was released in November 2014. This report documents 2014 LOS based on floating car surveys. Table 4.4-8 presents the 2014 LOS results for CMP segments in the study area. As shown in Table 4.4-8, segments of westbound University Avenue during the PM peak hour, which operate at LOS E, are the most critical CMP section in the study area. Other CMP study segments operate at LOS D or better during both AM and PM peak hours.

### 4.4.7.2 PROJECT IMPACT ANALYSIS

Since the Project would generate more than 100 PM peak hour trips, Alameda CTC requires the use of the Countywide Travel Demand Forecasting Model to assess the impacts on the regional roadways near the Project site. The Alameda CTC Model used in this study is a regional travel demand model that uses socio-economic data and roadway and transit network assumptions to forecast traffic volumes and transit ridership using a four-step modeling process that includes trip generation, trip distribution, mode split, and trip assignment. This process accounts for changes in travel patterns due to future growth and balances trip productions and attractions. Alameda CTC released the most recent version of the Model in May 2015. The Model is based on the Association of Bay Area Governments (ABAG) *Projections 2013* (i.e., Sustainable Community Strategies) land uses for 2020 and 2040.

For the purposes of this CMP analysis, the Project is assumed to not be included in the Model to present a more conservative analysis. The PM peak hour traffic forecasts for the 2020 and 2040 scenarios were extracted for the CMP and MTS roadway segments from that model and used as the “Without Project” forecasts. Vehicle trips generated by the Project, as shown on Figure 4.4-9, were added to the “Without Project” forecasts to estimate the “With Project” forecasts. This study evaluated Shattuck Avenue between Adeline and Cedar Streets, and University Avenue between San Pablo Avenue and Oxford Street.
**Table 4.4-8  2014 LEVEL OF SERVICE RESULTS FOR CMP ROUTES**

<table>
<thead>
<tr>
<th>CMP Route</th>
<th>From</th>
<th>To</th>
<th>LOS AM</th>
<th>LOS PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shattuck Avenue (Northbound)</td>
<td>Adeline Street</td>
<td>Dwight Way</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>Shattuck Avenue (Northbound)</td>
<td>Dwight Way</td>
<td>University Avenue</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>Shattuck Avenue (Southbound)</td>
<td>University Avenue</td>
<td>Dwight Way</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Shattuck Avenue (Southbound)</td>
<td>Dwight Way</td>
<td>Adeline Street</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td>University Avenue (Eastbound)</td>
<td>San Pablo Avenue</td>
<td>Sacramento Street</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>University Avenue (Eastbound)</td>
<td>Sacramento Street</td>
<td>MLK Jr Way</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>University Avenue (Eastbound)</td>
<td>MLK Jr Way</td>
<td>Shattuck Place</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>University Avenue (Westbound)</td>
<td>Shattuck Place</td>
<td>MLK Jr Way</td>
<td>C</td>
<td>E</td>
</tr>
<tr>
<td>University Avenue (Westbound)</td>
<td>MLK Jr Way</td>
<td>Sacramento Street</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>University Avenue (Westbound)</td>
<td>Sacramento Street</td>
<td>San Pablo Avenue</td>
<td>C</td>
<td>E</td>
</tr>
</tbody>
</table>


These segments were assessed using V/C ratios, assuming a per-lane capacity of 800 vehicles per hour. Appendix F presents the results. Traffic generated by the Project would contribute to increases in traffic congestion along the segments of University Avenue and Shattuck Avenue for both the 2020 and 2040 scenarios. However, the Project would not cause a segment to exceed its CMP LOS threshold (LOS F) nor would it increase the V/C ratio of a segment that would operate at LOS F by more than 0.03. Therefore, the Project’s impacts to the CMP roadway system are **less than significant**.

**Significance Without Mitigation:** Less than significant.

### 4.4.8 ROADWAY DESIGN IMPACTS

**TRANS-3** The Project would increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

The proposed Project would implement the following changes to the roadway network:

- Sidewalk and streetscape improvements along Shattuck Avenue (East) and Center Street, and curb extensions along Center Street.
- Removal of the existing driveway along Center Street.
TRANSPORTATION AND TRAFFIC

▪ Addition of a new curb-cut on Shattuck Avenue (East) near the north end of the site that would accommodate access to and from the loading space and garage. The loading bay would accommodate back-in loading space for two trucks on the south part of the curb-cut. The parking garage access would provide a gated entry and a gated exit on the north part of the curb-cut.

The first two roadway modifications would provide a safety benefit to the area—curb extensions improve pedestrian safety through reduced crossing distance and increased visibility, and removal of the existing driveway would eliminate the potential conflicts between vehicles turning in and out of the driveway with other vehicles, pedestrians, and bicyclists.

The proposed driveways would introduce new potential conflicts along Shattuck Avenue (East) between automobiles turning into and from the Project driveway and pedestrians and vehicles along Shattuck Avenue (East). Trucks would be required to back into the loading dock, which would block one or both lanes of traffic for a short period.

The conflict between pedestrians along the Shattuck Avenue (East) sidewalk and the motorists exiting the Project driveways and trucks entering and exiting the loading bay is considered significant due to the following:

▪ High volume of pedestrian activity on the sidewalk along the project frontage. Although the current AC Transit bus stops on this segment of Shattuck Avenue (East) would be relocated to just south of Center Street and would somewhat reduce pedestrian activity along the project frontage, this segment of Shattuck Avenue is expected to continue to experience high levels of pedestrian activity.

▪ Limited sight distance for trucks backing into the loading space, and motorists and trucks exiting the project driveway, especially to the north.

▪ Considering that Shattuck Avenue (East) is a one-way northbound street, motorists exiting the garage are less likely to look north when turning out of the driveway.

Significance Without Mitigation: Significant.

Impact TRANS-3: The proposed driveways would result in new potential conflicts along Shattuck Avenue (East) between automobiles and site loading accessing the site via the driveway and pedestrians and vehicles within the public right-of-way.

Mitigation Measure TRANS-3: Implement all of the following measures, to the satisfaction of the City of Berkeley Zoning Officer and City of Berkeley Public Works staff:
1. Ensure that the project driveways would provide adequate sight distance between exiting automobiles and pedestrians on the sidewalk in both directions. A 10-foot by 10-foot sight triangle is preferred; however, the sight triangle may be reduced to a minimum of at least 5-foot by 5-foot.

2. Provide a stop bar, “STOP” marking, and signage for exiting drivers to look both ways for pedestrians at the Project exit prior to the sidewalk. Also, provide signage and markings on the sidewalk alerting pedestrians to exiting automobiles.

3. Limit use of the garage to valet parking and designated disabled drivers only.

4. Provide visual and/or audio warning devices that alert pedestrians when automobiles exit the driveways.

5. Install convex mirrors at driveways to improve the visibility of exiting automobiles from the sidewalk.

6. Provide a flagger when trucks are backing into or leaving the loading area.

7. Prohibit truck access during peak pedestrian activity periods as determined by the City of Berkeley Transportation Division.

8. Install a gate or roll up door equivalent to secure & screen the loading area when loading access is prohibited.

9. Provide bollards (or functional equivalent) on the edge of the sidewalk at the curb ramp opposite the loading area. The bollards shall remain up when the loading access is prohibited to increase pedestrian comfort.

10. Reduce the width of the loading area or reduce the length of the curb-cut that would serve the loading area.

**Significance With Mitigation:** Less than significant.

**TRANS-4 The Project would not result in inadequate emergency access.**

The proposed Project would not make any changes to the roadway that would impact emergency access. Emergency vehicles would continue to have adequate access along Shattuck Avenue (East) and Center Street, and would have adequate access to the Project site. Trucks backing into the loading space may block traffic flow on one or both lanes of northbound Shattuck Avenue (East). It is expected that a flagger would be present to direct the truck into the loading dock. The flagger can also direct trucks when emergency vehicles are approaching to minimize potential conflicts. Other proposed improvements, such as curb extensions, would not impede emergency access because they would not encroach on the roadway.
Furthermore, as shown in Table 4.4-7, the Project would have minimal effects on traffic congestion and emergency access.

**Significance Without Mitigation:** Less than significant.

### 4.4.9 PEDESTRIAN, BICYCLE, AND TRANSIT IMPACTS

**TRANS-5** The Project would conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Pedestrian trips to and from the Project site would connect to the Downtown Berkeley BART station to the west, to UC Berkeley campus to the east, and to various other land uses and bus stops throughout the area. Pedestrian access to all Project components would be along Center Street, including the bank, hotel, café, and restaurant. The bank would have a second entrance along Shattuck Avenue (East). The proposed Project would provide 22-foot sidewalks with landscaping along its Center Street frontage and 13-foot sidewalk along its Shattuck Avenue (East) frontage, which would narrow to 8 feet adjacent to the driveway curb-cut. It would also improve pedestrian safety by providing curb extensions on the northeast corner of the Center Street/Shattuck Avenue (east) intersection.

As discussed in Downtown Area Plan Policy AC-1.1 and Downtown Streets and Open Space Improvement Plan (SOSIP) Policy 1.6, the City of Berkeley’s long-term plan for Center Street between Shattuck Avenue and Oxford Street is to create a pedestrian-oriented “Center Street Plaza” that enhances the pedestrian connection between the BART station and the UC Berkeley campus and “bring[s] more vitality to Downtown’s ‘Core Area’.” SOSIP Policy 1.6 includes a schematic concept that would, among other objectives, “close this portion of Center Street to regular automobile traffic for pedestrian comfort … while providing access for emergency vehicles and commercial vehicles”\(^8\). However, the concept of closing Center Street to regular automobile traffic is merely a preliminary proposal as to how the broad goals of Policy 1.6 could be implemented, rather than a definitive policy or plan in itself. Furthermore, DAP, which prevails over SOSIP from a policy perspective, states in Policy AC-1.1 that “travel lanes should not be eliminated until analysis has determined that safety, transit, and traffic operations can be adequately addressed.” In addition, SOSIP Policy 1.5 states that SOSIP concepts “are subject to further analysis and refinement.”

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\(^8\) SOSIP Policy 1.6, objective (g).
The proposed Project relies on maintaining regular automobile traffic on the western part of Center Street between Oxford and Shattuck so that hotel and bank patrons may access the proposed pick-up/drop-off area. Therefore, the current design of proposed Project would not allow the City to fully implement the long-term conceptual plan shown in SOSIP Policy 1.6 for closure of the entire block to vehicular traffic. However, as stated above, this conceptual plan does not constitute a definitive plan or policy in itself, and DAP Policy AC-1.1 and SOSIP Policy 1.5 clearly state that SOSIP concepts are subject to refinement. By incorporating design elements that implement SOSIP proposals to the extent feasible and consistent with DAP policies, the Project would not conflict with either plan. Furthermore, as SOSIP concepts for Center Street are developed further, future improvements may be made that further implement DAP policies for Center Street. Therefore, this impact is considered less than significant.

The proposed Project would not include improvements to the bicycle network, and would expand the sidewalk on Center Street to an extent that would prevent future installation of bicycle lanes. Per the City of Berkeley 2005 Bicycle Plan, a Class II bike lane facility is proposed on Center Street between Shattuck Avenue and Oxford Street. In addition, SOSIP Policy 1.6 calls for slow-speed bicycle access on Center Street as part of the Center Street Plaza project, rather than dedicated bicycle lanes. The City is currently updating the Bicycle Plan, and the Center Street Plaza project may not be implemented for several years, and as noted earlier, is subject to further refinement. In the interim, prior to reconfiguration of Center Street, the length of the proposed Project’s pick-up/drop-off area could be problematic for bicycle safety due to the high turnover rates associated with such areas, and the anticipated increase in bicycle traffic as a result of the Project and the adjacent UC art museum. As a result, the proposed Project’s impacts to bicycle safety would be significant.

Bus and shuttle stops currently line the Project frontage on both Shattuck Avenue (East) and Center Street. Approximately 125 feet of curb along Shattuck Avenue (East) and approximately 160 feet of curb along Center Street are designated for various bus and shuttle stops. It is expected that the City’s planned Shattuck Avenue Reconfiguration Project would relocate the existing AC Transit bus stops from north to south of Center Street. The existing shuttle stop on Shattuck Avenue (East), north of the proposed driveway curb-cut, would remain, and a second shuttle stop would be created south of the proposed driveway curb-cut in order to improve shuttle operations. The proposed Project’s pick-up/drop-off area on Center Street would eliminate the existing stop and layover for AC Transit’s Line 1. Since an alternative location for this stop and layover

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9 Sage, Aaron. Principal Planner, Transportation Division. Personal communication, January 13, 2016
has not been selected, the proposed Project’s impacts to the transit system would be significant. Note that this bus stop would need to be relocated in the long term regardless of the proposed Project to accommodate the City’s long-term plans for Center Street.

**Significance Without Mitigation:** Significant.

**Impact TRANS-5:** The proposed pick-up/drop-off area would conflict with the City of Berkeley’s adopted plan to provide bicycle lanes on Center Street between Shattuck Avenue and Oxford Street. The proposed removal of AC Transit’s Line 1 stop without an identified alternative location would be a significant impact to the transit system.

**Mitigation Measure TRANS-5:** Implement the following measures:

1. The Project applicant shall modify the project’s Center Street frontage to minimize conflicts between the valet zone and bicycle through traffic, including, but not limited to, providing a dedicated westbound bike lane and one travel lane in either direction, with appropriate signs and markings as determined by City Traffic Engineer.

2. City of Berkeley Transportation Division shall work with AC Transit to relocate the existing Line 1 bus stop (including layover) on Center Street. If relocation of the stop is determined to be infeasible, revise the Project site plan to continue to accommodate the existing bus stop.

**Significance With Mitigation:** Less than significant.

### 4.4.10 CONSTRUCTION IMPACTS

**TRANS-6** The construction of the proposed Project may result in intermittent temporary significant impacts with respect to transportation and traffic.

During the construction period for the proposed Project, temporary and intermittent transportation impacts may result from truck movements, as well as construction worker vehicles to and from the project site. The construction-related traffic may temporary reduce capacities of roadways in the project vicinity because of the slower movements and larger turning radii of construction trucks compared to passenger vehicles.

Construction activity along the Shattuck Avenue (East) and Center Street frontages, especially in the public right-of-way, may also result in temporary closure of sidewalks, closure of travel lanes, and/or relocation of AC Transit and shuttle stops.
Significance Without Mitigation: Significant.

Impact TRANS-6: Construction of the Project would result in reduced capacity, and temporary closure of Shattuck Avenue (East) and Center Street as well as adjoining sidewalks.

Mitigation Measure TRANS-6: The project applicant shall develop and implement a Construction Traffic Management Plan (TMP) to the satisfaction of the City of Berkeley staff. The plan shall include (but not be limited to) the following:

- Approved truck routes
- Locations of staging areas
- Identification of arrival/departure times for trucks and construction workers to minimize traffic affects
- Locations of employee parking and methods to encourage carpooling and use of alternative transportation
- If necessary, methods for partial/complete street closures (e.g., timing, signage, location and duration restrictions) and identification of detour routes for pedestrian, bicyclists, and automobiles
- If necessary, provisions for relocation of bus stops
- Criteria for use of flaggers and other traffic controls
- Preservation of safe and convenient passage for bicyclists and pedestrians around construction areas
- Monitoring for roadbed damage and timing for completing repairs along the approved truck routes
- Preservation of emergency vehicle access
- Providing a point of contact for Downtown residents, workers, and visitors to obtain construction information, have questions answered, and convey complaints

Significance With Mitigation: Less than significant.

4.4.11 CUMULATIVE IMPACTS

TRANS-7 The proposed Project, in combination with past, present and reasonably foreseeable projects, would result in significant cumulative impacts with respect to transportation and traffic.
Traffic forecasts for the year 2040 were developed based on the results of the Alameda CTC Countywide Travel Demand Model. The most recent version of the Alameda CTC Model, released in May 2015, which reflects assumptions in residential and non-residential land use growth consistent with ABAG Projections 2013 (i.e., Sustainable Community Strategies), served as the basis for developing AM and PM peak hour intersection turning movement forecasts for the year 2040. The Model land use database and roadway network were checked for accuracy in the vicinity of the Project and consistency with the Downtown Area Plan. The Model shows an increase of about 15 percent in peak hour traffic volumes in Downtown Berkeley between 2010 and 2040; therefore the existing AM and PM peak hour intersection volumes (Figure 4.4-2) were increased by 15 percent to estimate the intersection volumes under Cumulative (2040) Without Project conditions.

The Cumulative analyses account for the proposed Shattuck Avenue Reconfiguration project, which would make the following modifications:

- Convert Shattuck Avenue (West) to two-way travel with two lanes in each direction; remove on-street parallel parking on the east side of the street between Addison Street and University Avenue.
- Maintain Shattuck Avenue (East) as a one-way northbound street, reduce to two travel lanes, and provide back-in angled parking along the west side of the street.
- Prohibit northbound and southbound left-turns from Shattuck Avenue (West) at Center Street and Addison Street, and prohibit northbound left-turns from Shattuck Avenue (West) at University Avenue (permitting southbound left turns).

The Cumulative analyses assume no other transportation network modifications at the study intersections and that the signal timing parameters for all signalized intersections would remain same as current conditions.

Figure 4.4-11 presents the traffic volumes and intersection configurations under Cumulative without Project conditions. Project volumes were added to the Cumulative without Project volumes to estimate the Cumulative with Project volumes. The proposed Shattuck Avenue Reconfiguration would prohibit the southbound left turn from Shattuck Avenue (West) onto Center Street, which would affect vehicle routing to the Project site. Therefore, the Project trips under Cumulative conditions were adjusted to reflect this change. Figure 4.4-12 presents the Cumulative with Project volumes. Table 4.4-9 presents the resulting level of service for the Cumulative without Project and Cumulative with Project scenarios.
Figure 4.4-11
Cumulative (2040) without Project
Peak Hour Volumes, Lane Configurations and Traffic Control

Cumulative (2040) with Project
Peak Hour Volumes, Lane Configurations and Traffic Control


Figure 4.4-12
As shown in Table 4.4-9, all signalized study intersections would operate at LOS C or better with or without the Project during both AM and PM peak hours. Therefore, the Project would not cause a significant impact at the signalized study intersections.

The eastbound stop-controlled approach at the Addison Street/Oxford Street intersection would continue to operate at LOS F under Cumulative conditions. With the addition of Project traffic, delays at the stop-controlled approach would further increase. The Project would add at least 10 peak hour trips to the critical approach, and cause the intersection to meet the peak hour signal warrant (Warrant 3). Appendix F presents the Warrant 3 analysis. Therefore, the Project would have a significant impact at this intersection.

**Significance Without Mitigation:** Significant.

**Impact TRANS-7:** The Project would result in a cumulative impact to the Addison Street/Oxford Street intersection.

**Mitigation Measure TRANS-7:** Implement one of the following options:

- **Option A:** Signalize the intersection of Addison Street/Oxford Street intersection.
- **Option B:** Prohibit the eastbound left-turn movement at the Addison Street/Oxford Street intersection.

**Significance With Mitigation:** Less than significant. As shown in Table 4.4-10, both these options would mitigate the impact to a less-than-significant level and would not cause a secondary impact at this intersection or other intersections. Although the intersection would meet the peak-hour signal warrant under Cumulative With Project conditions, the signal would primarily benefit the eastbound left-turn movement at the intersection and increase delay for most other movements at the intersection. A signal would also benefit pedestrians by providing a protected crossing on Oxford Street. Considering the low number of eastbound left-turns at the intersection (30 peak hour vehicles under Cumulative With Project conditions), Option B, which would prohibit left-turns from eastbound Addison Street to northbound Oxford Street, may result in traffic diverting to Center Street or University Avenue. Monitoring of the Addison Street/Oxford Street intersection shall be conducted at the expense of the Project Applicant. Monitoring at this location shall occur after the Project is fully occupied, and implementation of one of these options will occur when the peak signal warrant is triggered. The Project applicant shall provide fair share funding for implementing Option A, and shall be financially responsible for Option B if it implemented.
### Table 4.4-9  CUMULATIVE (2040) INTERSECTION OPERATIONS

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Control</th>
<th>Peak Hour</th>
<th>Cumulative Without Project</th>
<th>Cumulative With Project</th>
<th>Significance Impact?</th>
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<tbody>
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<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>AM</td>
<td>14.1</td>
<td>B</td>
<td>14.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>14.4</td>
<td>B</td>
<td>14.5</td>
</tr>
<tr>
<td>University Avenue/</td>
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<td>AM</td>
<td>26.4</td>
<td>C</td>
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<tr>
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<td>C</td>
<td>21.6</td>
</tr>
<tr>
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<td>Signalized</td>
<td>AM</td>
<td>14.9</td>
<td>B</td>
<td>15.6</td>
</tr>
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<td>A</td>
<td>6.7</td>
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<tr>
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<td>A</td>
<td>11.5</td>
</tr>
<tr>
<td>Addison Street/</td>
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<td>B</td>
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<td>B</td>
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<td></td>
<td>Side-Street</td>
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<td>6.9 (146.4)</td>
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<td>Stop-Controlled</td>
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<td>15.9 (&gt;200)</td>
<td>C (F)</td>
<td>22.3 (&gt;200)</td>
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<td>Signalized</td>
<td>AM</td>
<td>10.6</td>
<td>B</td>
<td>10.9</td>
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<td></td>
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<td></td>
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<td>15.5</td>
<td>B</td>
<td>16.3</td>
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</table>

Notes: For signalized intersections, average intersection delay and LOS based on the 2010 HCM method is shown. For side-street stop-controlled intersections, delays for worst approach and average intersection delay are shown: intersection average (worst approach).

### Table 4.4-10 Mitigated Intersection operations for CUMULATIVE 2040 with PROJECT PM PEAK HOUR CONDITIONS

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Cumulative With Project</th>
<th>Option A: Signalize Intersection 6</th>
<th>Option B: Prohibit Eastbound Lefts at Intersection 6</th>
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<td>Delay</td>
<td>LOS</td>
<td>Delay</td>
</tr>
<tr>
<td>5 Addison Street/Shattuck</td>
<td>23.4</td>
<td>C</td>
<td>21.2</td>
</tr>
<tr>
<td>Avenue (East)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Addison Street/Oxford</td>
<td>22.3 (&gt;200)</td>
<td>C (F)</td>
<td>9.8</td>
</tr>
<tr>
<td>Street</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Center Street/Oxford</td>
<td>16.9</td>
<td>B</td>
<td>9.8</td>
</tr>
</tbody>
</table>

Notes: For signalized intersections, average intersection delay and LOS based on the 2010 HCM method is shown. For side-street stop-controlled intersections, delays for worst approach and average intersection delay are shown: intersection average (worst approach).
Shattuck Avenue queues were also evaluated under Cumulative conditions, summarized in Appendix F. The AM and PM peak hour 95th percentile queues at the study intersections under Cumulative conditions would either continue to be accommodated within the available storage area, or the Project would not substantially increase the 95th percentile queues that currently exceed the storage area, except at the following location:

Project generated traffic would contribute to the 95th percentile queue on southbound Shattuck Avenue at Allston Way during the PM peak hour. Without the Project, the southbound queue at Allston Way would not spillback to Center Street; with the Project, the 95th percentile queue would extend past Center Street. Although the 95th percentile queue is expected to spillback past the upstream intersection, it is expected to clear at the end of each signal cycle length and the queue would not build-up during the peak hour. Considering that the intersection would operate at LOS B during the PM peak hour, this is not a significant impact.
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