IV. ENVIRONMENTAL IMPACT ANALYSIS
D. TRANSPORTATION/TRAFFIC

INTRODUCTION

The information in this section is based primarily on the following document (included in Appendix IV.D of this EIR), which was peer reviewed by staff of the City of Berkeley Transportation Department:


STUDY INTERSECTIONS AND FORECAST SCENARIOS

Seven intersections in the vicinity of the project site were analyzed for the weekday PM peak hours (refer to Figure IV.D-1):

1. San Pablo Avenue/Heinz Avenue (unsignalized, 3 approaches)
2. San Pablo Avenue/Ashby Avenue (signalized, 4 approaches)
3. 9th Street/Heinz Avenue (unsignalized, 4 approaches)
4. 9th Street/Ashby Avenue (signalized, 4 approaches)
5. 7th Street/Ashby Avenue (signalized, 4 approaches)
6. 7th Street/Potter Avenue (signalized, 4 approaches)
7. 7th Street/Heinz Avenue (signalized, 4 approaches)

The study intersections on Heinz Avenue were also analyzed during the school peak period (2:00 to 4:00 PM) to account for the afternoon school pick-up period at the French-American School located at 9th Street/Heinz Avenue.

Roadway segment analyses were also performed for 9th Street, north of Heinz Avenue and Heinz Avenue, east of 10th Street for the weekday and Saturday condition. Because the link volumes for Saturday were 50 to 60 percent of the weekday link volumes, a peak-hour intersection analysis was not completed for the Saturday condition.

For this study, the following scenarios were evaluated:

- Existing – Existing conditions.
- Existing-Plus-Project – Existing traffic volumes plus project-related traffic.
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• Cumulative-Without-Project – Cumulative (2030) conditions taking into account future development in the area surrounding the project site and planned roadway improvements in the study area.

• Cumulative-With-Project – Cumulative (2030) forecast conditions plus project-related traffic.

ANALYSIS METHODS

Study intersection operations were evaluated using level of service (LOS) calculations as discussed below.

Level of Service Criteria

Transportation engineers and planners commonly use a grading system called LOS to measure and describe the operational status of a local roadway network. LOS is a description of an intersection’s operation, ranging from LOS A (indicating free flow traffic conditions with little or no delay) to LOS F (representing over-saturated conditions where traffic flows exceed design capacity, resulting in long queues and delays).

Signalized Intersections

At signalized intersections, traffic conditions were evaluated using the Transportation Research Board’s 2000 Highway Capacity Manual method. This operation analysis uses various intersection characteristics (i.e., traffic volumes, lane geometry, and signal phasing) to estimate the average control delay experienced by motorists traveling through an intersection. City of Berkeley staff also requested that the intersection volume-to-capacity (V/C) be calculated for each intersection. Table IV.D-1 summarizes the relationship between delay and LOS for signalized intersections.

Unsignalized Intersections

For unsignalized (all-way stop-controlled and side-street stop-controlled) intersections, the 2000 Highway Capacity Manual method for unsignalized intersections was used. With this method, operations are defined by the average control delay per vehicle (measured in seconds) for each stop-controlled movement. This incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. For side-street stop-controlled intersections, the delay is typically represented for each movement from the minor approaches only. Table IV.D-2 summarizes the relationship between delay and LOS for unsignalized intersections.
### Table IV.D-1
Signalized Intersection LOS Criteria

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Description</th>
<th>Average Control Delay (Seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Operations with very low delay occurring with favorable progression and/or short cycle length.</td>
<td>≤10.0</td>
</tr>
<tr>
<td>B</td>
<td>Operations with low delay occurring with good progression and/or short cycle lengths.</td>
<td>&gt;10.0 to 20.0</td>
</tr>
<tr>
<td>C</td>
<td>Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.</td>
<td>&gt;20.0 to 35.0</td>
</tr>
<tr>
<td>D</td>
<td>Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.</td>
<td>&gt;35.0 to 55.0</td>
</tr>
<tr>
<td>E</td>
<td>Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.</td>
<td>&gt;55.0 to 80.0</td>
</tr>
<tr>
<td>F</td>
<td>Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.</td>
<td>&gt;80.0</td>
</tr>
</tbody>
</table>


### Table IV.D-2
Unsignalized Intersection LOS Criteria

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Description</th>
<th>Average Control Delay (Seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Little or no delays</td>
<td>≤10.0</td>
</tr>
<tr>
<td>B</td>
<td>Short traffic delays</td>
<td>&gt;10.0 to 15.0</td>
</tr>
<tr>
<td>C</td>
<td>Average traffic delays</td>
<td>&gt;15.0 to 25.0</td>
</tr>
<tr>
<td>D</td>
<td>Long traffic delays</td>
<td>&gt;25.0 to 35.0</td>
</tr>
<tr>
<td>E</td>
<td>Very long traffic delays</td>
<td>&gt;35.0 to 50.0</td>
</tr>
<tr>
<td>F</td>
<td>Extreme traffic delays with intersection capacity exceeded</td>
<td>&gt;50.0</td>
</tr>
</tbody>
</table>


### EXISTING CONDITIONS

The following subsection generally describes the project study area, including the surrounding roadway network, transit, pedestrian, bicycle facilities, and on-street parking in the vicinity of the project site.
Study Area

The project site is located on the southwest corner of the unsignalized Heinz Avenue/9th Street intersection in the southwest area of the City of Berkeley. Berkeley is located in western Alameda County between the cities of Emeryville and Oakland on the south and Albany on the north. Land uses surrounding the project site include residential, commercial, and educational. The project study area is bound by Heinz Avenue to the north, Ashby Avenue to the south, San Pablo Avenue to the east, and 7th Street to the west. This study area was chosen because it is the area most likely to experience direct traffic impacts from the proposed project.

Major roads in the study area include Interstate 80 (I-80), Ashby Avenue, and San Pablo Avenue. The following discusses the roadways in the study area; existing lane configurations and traffic control at the study intersections are shown on Figure IV.D-2:

I-80 is an eight-lane freeway facility that connects the San Francisco Bay Area to the Sacramento region and further east. Although I-80 is generally an east/west-trending facility, the freeway runs parallel to the Bay in a north-south trending orientation through Berkeley. A full interchange is provided at Ashby Avenue in the study area. For Shellmound, an on- and off-ramps exist only for eastbound I-80.

Ashby Avenue (State Route 13 [SR 13]) is an east/west-trending major street located south of the project site, connecting I-80 to State Route 24 (SR 24). Four travel lanes are provided on Ashby Avenue west of San Pablo Avenue, and two travel lanes are provided east of San Pablo Avenue. Parking restrictions along portions of Ashby Avenue provide for one additional travel lane in the peak direction of flow during peak commute hours.

San Pablo Avenue (SR 123) is a north/south-trending major street located east of the project site that connects the Richmond/El Cerrito area in the north to the Oakland/Emeryville area in the south. In the study area, four travel lanes are provided on San Pablo Avenue in addition to left-turn pockets at major intersections. Landscaped medians along segments of this street in the project vicinity eliminate mid-block left-turn movements and provide a partial safe area for vehicles turning left from side streets.

Heinz Avenue is an east/west-trending local street that forms the northern boundary of the project site. Heinz Avenue extends from west of 7th Street to San Pablo Avenue. Two travel lanes are provided with on-street parking allowed. Heinz Avenue between 7th Street and San Pablo Avenue is a designated Bicycle Boulevard.

7th Street is a north/south-trending collector street located west of the project site. Two travel lanes are provided with limited on-street parking allowed and left-turn pockets at major intersections in the study area. Recent improvements have added lanes between Anthony Street and Folger Avenue.
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Figure IV.D-2
Existing Lane Configurations

Legend

1 = Study Intersections

= Traffic Signal

= Stop Sign

Source: Fehr & Peers, July 2005
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9th Street is a north/south-trending local street. Two travel lanes are available with permitted on-street parking. In the study area, to the north of Heinz Avenue, 9th Street is also a designated Bicycle Boulevard. 9th Street is discontinuous between Heinz Avenue and Ashby Avenue. South of Heinz Avenue, 9th Street is generally unimproved, providing access to the Orchard Supply Hardware parking lot. Parking is also allowed on this section of 9th Street.

A traffic signal was recently installed at the 9th Street/Ashby Avenue intersection. In conjunction with the signalization of the 9th Street/Ashby Avenue intersection, the City of Berkeley upgraded the traffic signals at the 7th Street/Ashby Avenue intersection and installed a traffic signal at the 7th Street/Potter Street intersection.

Potter Street is an east-west local street located southwest of the project site. Two travel lanes are provided with on-street parking allowed and left-turn pockets at major intersections in the study area. Potter Street terminates at 9th Street, and is used as a cut-through route to 7th Street for westbound traffic traveling on Ashby Avenue.

Anthony Street is a local street located one block south of Heinz Avenue. East of 7th Avenue, it has one lane eastbound with angled parking on the south side of the street and terminates at 9th Street. West of 7th Street, it is a two-way road providing a connection to 5th Street.

Existing Traffic Counts

Weekday evening (4:00 to 6:00 PM) peak period intersection turning movement counts were conducted at the seven study intersections in April 2005, and automatic, 24-hour counts were conducted on 9th Street, north of Heinz Avenue, and Heinz Avenue, east of 10th Street for two weekdays and on a Saturday in April 2005. School peak period (2:00 to 4:00 PM) counts were conducted at the intersections on Heinz Avenue to capture activity associated with the French-American School. Pedestrian and bicycle counts were taken during the school and PM peak periods at the unsignalized San Pablo Avenue/Heinz Avenue and 9th Street/Heinz Avenue intersections.

Counts were conducted on clear days with area schools in normal session. The existing traffic counts are provided in the appendix of the traffic study included in Appendix IV.D and are consistent with counts used in other studies completed in the area. For each intersection count period, the 1-hour with the highest traffic volumes was identified and is represented on Figure IV.D-3. The peak-hour data were used as the basis for analysis. The existing weekday and Saturday daily volumes on 9th Street, north of Heinz Avenue, and Heinz Avenue, east of 10th Street are also shown on Figure IV.D-3.

Existing Intersection Operations

Existing intersection conditions were evaluated for the weekday school and PM peak hours at the seven study intersections. Conditions were analyzed using the existing signal timings (provided by the City of Berkeley) at each signalized intersection. Table IV.D-3 summarizes the intersection analysis results. As
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Existing Peak-Hour Traffic Volumes

**Source:** Fehr & Peers, July 2005

**Legend**

1 = Study Intersections

XX (YY) = School (PM) Peak Hour Traffic Volumes

* = Only intersections on Heinz Ave were analyzed during the school peak period.

Figure Not to Scale
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shown, all of the study intersections operate at acceptable service levels during the school and PM peak hours. Detailed intersection LOS calculation worksheets are presented in the appendix of the traffic study included in Appendix IV.D. Observations were also made in the study area at locations where operational concerns have been identified by City Staff.

<table>
<thead>
<tr>
<th>Location</th>
<th>Control</th>
<th>Peak Hour</th>
<th>Delay</th>
<th>LOS</th>
<th>V/C Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. San Pablo Avenue/Heinz Avenue</td>
<td>SSSC</td>
<td>School</td>
<td>27 sec</td>
<td>D</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>28 sec</td>
<td>D</td>
<td>n/a</td>
</tr>
<tr>
<td>2. San Pablo Avenue/Ashby Avenue</td>
<td>Signal</td>
<td>PM</td>
<td>42 sec</td>
<td>D</td>
<td>0.93</td>
</tr>
<tr>
<td>3. 9th Street/Heinz Avenue</td>
<td>AWSC</td>
<td>School</td>
<td>8 sec</td>
<td>A</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>9 sec</td>
<td>A</td>
<td>n/a</td>
</tr>
<tr>
<td>4. 9th Street/Ashby Avenue</td>
<td>Signal</td>
<td>PM</td>
<td>5 sec</td>
<td>A</td>
<td>0.35</td>
</tr>
<tr>
<td>5. 7th Street/Ashby Avenue</td>
<td>Signal</td>
<td>PM</td>
<td>44 sec</td>
<td>D</td>
<td>0.83</td>
</tr>
<tr>
<td>6. 7th Street/Potter Street</td>
<td>Signal</td>
<td>PM</td>
<td>28 sec</td>
<td>C</td>
<td>0.48</td>
</tr>
<tr>
<td>7. 7th Street/Heinz Avenue</td>
<td>Signal</td>
<td>School</td>
<td>7 sec</td>
<td>A</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>9 sec</td>
<td>A</td>
<td>0.58</td>
</tr>
</tbody>
</table>

**Notes:**
1. Signal = Signalized intersection; AWSC = All-way stop-controlled intersection; SSSC = Side-street stop-controlled intersection
2. School = School peak hour between 2:00 and 4:00 PM, PM = PM peak hour between 4:00 and 6:00PM.
3. For side-street stop-controlled intersections, delay for each movement is calculated using the 2000 Highway Capacity Manual method, and the highest delay (worst movement) is presented. For all-way stop-controlled intersections, the average delay is calculated using the 2000 Highway Capacity Manual method.
4. HCM V/C ratios.
5. Eastbound approach is critical approach.

Based on observations made during the PM peak hour, vehicle queue lengths exceeded available storage on southbound 7th Street. Vehicle queue spillback from Ashby Avenue affected the operations of the signalized 7th Street/Potter Street intersection and periodically at the unsignalized 7th Street/Anthony Street intersection. As a result of the periodic congestion, vehicles traveling east on Anthony Street could experience delay turning onto 7th Street.

Observations were also made during the PM peak hour at the unsignalized 9th Street/Potter Street and signalized 9th Street/Ashby Avenue intersections. The 9th Street/Potter Street intersection is located about
40 feet north of the 9th Street/Ashby Avenue intersection, with stop-controlled movements for southbound and eastbound approaches to prevent vehicles from blocking the intersection. Due to close intersection spacing, the potential for vehicle queue spillback for southbound traffic on 9th Street was apparent, although field observations indicated that queues generally did not extend through the 9th Street/Potter Street intersection. Typical queues were two car-lengths during the PM peak hour, and this queue was exceeded only a few times during the peak hour. During those times, southbound traffic waited at the 9th Street/Potter Street intersection, so that vehicles turning onto Potter Street from Ashby Avenue were not blocked.

Traffic congestion at the unsignalized 9th Street/Heinz Avenue intersection occurred during the afternoon school bell time (around 3:00 PM) for the East Bay French-American School. The school has implemented a drop-off/pick-up program on 9th Street immediately north of Heinz Avenue. School personnel make use of two-way radios to efficiently load students during afternoon school bell times. Even with the school program, severe congestion did occur for 10 to 15 minutes as the student loading area is limited to the equivalent of four to five vehicles. School-planned system improvements include converting four to six additional curbside parking spaces to 5-minute restrictions (in addition to the spaces that already exist). The school’s proposal would provide increased flexibility for the school during drop-off/pick-up periods and would reduce the number of double-parked vehicles on Heinz Avenue.

**On-Street Parking**

On-street parking is permitted on all streets adjacent to the project site. There are no time restrictions on Heinz Avenue, 8th, 9th, or 10th Streets in the study area, except for a 5-minute parking restriction in front of the East Bay French-American School. A weekday on-street parking occupancy survey was conducted from 2:00 PM to 6:00 PM for the following streets surrounding the project site:

- 8th Street between Heinz Avenue and Grayson Street
- 9th Street between Heinz Avenue and Grayson Street
- 9th Street south of Heinz Avenue
- 10th Street between Heinz Avenue and Grayson Street
- Heinz Avenue between 7th and San Pablo Avenue
- 9th Street between Anthony Street and Ashby Avenue
- Anthony Street between 7th and 9th Streets
- Potter Street between 7th and 9th Streets
Approximately 352 on-street parking spaces are provided in the vicinity of the project site. The parking space occupancy survey indicates that during the early afternoon (around 2:00 PM), the majority of on-street parking spaces are occupied. Figure IV.D-4 presents PM peak-hour parking occupancies, which diminish during the PM peak period with approximately 239 spaces (68 percent) occupied at 4:00 PM, 165 spaces (47 percent) occupied at 5:00 PM, and 93 spaces (26 percent) occupied at 6:00 PM.

**Bicycle and Pedestrian Facilities**

Pedestrian facilities in the study area are comprised of sidewalks, pedestrian signals at the 7th Street/Heinz Avenue intersection, and crosswalks. Heinz Avenue and 9th Street are designated Bicycle Boulevards in the study area. Bicycle Boulevards have been developed throughout the City of Berkeley on non-arterial streets as corridors where motorized travel is discouraged and bicycle travel is encouraged. Heinz Avenue and 9th Street connect to other Bicycle Boulevards in the City including those on Russell Street, Virginia Street, Milvia Boulevard, Channing Way, California/King Streets, and Bowditch/Hillegass Streets. Thirteen bicycle movements and 23 pedestrian movements were observed at the unsignalized San Pablo Avenue/Heinz Avenue intersection during the school peak hour, and 25 bicycle movements and 24 pedestrian movements were observed during the PM peak hour.

Pedestrian activity was greatest at the unsignalized Heinz Avenue/9th Street intersection during the school peak hour when 140 pedestrian movements and 19 bicycle movements were counted at the intersection. Forty-four pedestrian movements and 27 bicycle movements were counted at the intersection during the PM peak hour. The increased school peak-period pedestrian activity is a result of the school bell time (around 3:00 PM) at the East Bay French-American School, as parents were observed parking on-street and on unimproved 9th Street and then walking their children from the school.

**Transit Access**

Alameda County Transit Authority (AC Transit) operates seven transit routes in the study area, including five all-day routes (72, 72M, 72R, 9, 19,) and two peak-period Transbay routes (H and Z).

**Routes 72, 72M, 72R** connect San Pablo/El Cerrito/Richmond to downtown Oakland via San Pablo Avenue in the study area. A transit stop is provided at the Heinz Avenue/San Pablo Avenue intersection. Connections to numerous Bay Area Rapid Transit (BART) stations and other transit lines can be made from this route. This route provides 24-hour service with headways from 1-hour between midnight and 4:00 AM to less than 10 minutes during peak periods. Weekend service is also provided on this route. Route 72R provides weekday peak-period Rapid Bus service along the San Pablo Avenue corridor at approximately 12 minute headways.

**Route 9** connects the Claremont Hotel, the Berkeley Marina, the University of California Berkeley (UC Berkeley) campus, and Solano Avenue and provides service to the Ashby and Berkeley BART Stations. Service is provided between 6:30 AM and 9:30 PM on this route. Headways range from 20 to 30-minutes.
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Observed parking occupancies on a typical weekday in April 2005. Parking supply based on the observed number of legal spaces.
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during the week, with 30-minute headways on the weekend. Stops are provided in the study area on 7th Street and Ashby Avenue.

**Route 19** connects the North Berkeley BART station to the Fruitvale BART station. Weekday and weekend service on 7th Street in the study area is provided between 6:00 AM and 10:30 PM with 30-minute headways.

**Route H** provides transbay service between San Francisco and El Cerrito. Westbound service is provided during the AM (from 6:00 AM to 9:00 AM) commute period, while eastbound service is provided during the PM commute (4:00 PM to 8:00 PM) period with a stop at the 7th Avenue/Ashby Street intersection.

**Route Z** provides transbay service between San Francisco and Albany. Westbound service is provided during the AM (from 7:00 AM to 9:00 AM) commute period, while eastbound service is provided during the PM (from 4:30 PM to 7:00 PM) commute period with a stop at the 7th Street/Heinz Avenue intersection.

**ENVIRONMENTAL IMPACTS**

**Thresholds of Significance**

In accordance with Appendix G to the *CEQA Guidelines*, a project would have a significant transportation/traffic impact if it would:

- cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number or vehicle trips, the V/C ratio on roads, or congestion at intersections);
- exceed, either individually or cumulatively, a LOS standard established by the county congestion management agency for designated roads or highways;
- result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- result in inadequate emergency access;
- result in inadequate parking capacity; or
- conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).
The following information is provided by the City of Berkeley to further define the significance criteria for transportation/traffic impacts in the City:

**Signalized and All-Way Stop-Controlled Intersections**

According to the City of Berkeley, a significant traffic-related impact would occur at signalized and all-way-stop controlled intersections if the addition of project traffic results in:

- Intersection operations degrade from LOS D to LOS E or worse and more than a 2-second increase in delay; or
- More than a 3-second increase in delay at intersections operating at LOS E without and with the project; or
- Intersection operations degrade from LOS E to LOS F and more than a 3-second increase in delay; or
- At intersections operating at LOS F without the project, a change in the V/C ratio of more than 0.01.

**Unsignalized Intersections**

A significant traffic-related impact would occur at unsignalized (side-street stop-controlled) intersections if the addition of project-related traffic causes:

- The critical approach to operate at LOS F, and
- The intersection meets peak-hour signal warrants; and
- No feasible alternative routes are available.

**Additional Significance Criteria**

The project would also be judged to have a significant impact if it would:

- Create unsafe conditions for pedestrians or bicyclists
- Cause a substantial delay in transit service, or increase demand for transit beyond existing or planned service capacity

**Parking Related Impacts**

Additionally, this traffic analysis assesses the issue of parking as a non-CEQA impact. Parking impacts will be assessed according to the following language.
The Court of Appeals has held that parking is not part of the permanent physical environment, that parking conditions change over time as people change their travel patterns, and that unmet parking demand created by a project need not be considered a significant environmental impact under CEQA unless it would cause significant secondary effects. Parking supply/demand varies by time of day, day of week, and seasonally. As parking demand increases faster than the supply, decreased availability results in changes to people’s mode and pattern of travel i.e., patrons travel at off-peak periods. However, the City of Berkeley, in its review of the proposed project, wants to ensure that the project’s provision of sufficient parking spaces along with measures to lessen parking demand (by encouraging the use of non auto travel modes) would result in minimal adverse effects to project patrons, and that any secondary effects (such as on air quality due to drivers searching for parking spaces, or parking in residential neighborhoods) would be minimized. As such, although not required by CEQA, parking conditions are evaluated in this document.

Parking deficits may be associated with secondary physical environmental impacts, such as air quality and noise effects, caused by congestion resulting from drivers circling as they look for a parking space. However, the absence of a ready supply of parking spaces, combined with available alternatives to auto travel (e.g., transit service, shuttles, taxis, bicycles or travel by foot), may induce drivers to shift to other modes of travel, or change their overall travel habits. Any such resulting shifts to transit service, in particular, would be in keeping with the City’s “Transit First” policy.

Additionally, regarding potential secondary effects, cars circling and looking for a parking space in areas of limited parking supply is typically a temporary condition, often offset by a reduction in vehicle trips due to others who are aware of constrained parking conditions in a given area. Hence, any secondary environmental impacts that might result from a shortfall in parking in the vicinity of the proposed project are considered less than significant.

This study evaluates if the project’s estimated parking demand would be met by the project’s proposed parking supply or by the existing parking supply within a reasonable walking distance of the project site. Therefore, the analysis compares the proposed parking supply with both the estimated demand and the City of Berkeley Municipal Code requirements.

**Transportation/Traffic Issues not Analyzed Further**

Due to the nature and scope of the proposed project, implementation of the project would not have the potential to result in a change in air traffic patterns at any airport in the area. Therefore, no further discussion of this issue is required.
Project Characteristics

This subsection provides an overview of the proposed project components and addresses the proposed project’s trip generation, distribution, and assignment characteristics. This allows for an evaluation of project impacts on the surrounding roadway network.

Project Description

The West Berkeley Bowl, an independent neighborhood-serving full-service grocery marketplace, would be located on the south side of Heinz Avenue, between 8th and 9th Streets in the City of Berkeley. The project is a two-story full-service grocery marketplace with underground parking garage, including general grocery store (51,065 square feet [sf]) and integrated food service area (3,670 sf), supporting office (4,120 sf), warehouse, (28,805 sf), and community room (3,400 sf). The site would provide 66 bicycle parking spaces, 211 on-site vehicle parking spaces, three delivery vehicle loading areas, and dedicated land along the 9th Street corridor for use by the City as a multi-use path.

The food service area is intended for customers who purchase pre-prepared meals at the grocery store. The community room would be used for events such as holiday parties, office meetings, and community meetings, and is expected to be used in the evenings up four times per month.

The West Berkeley Bowl would be open from 9:00 AM to 8:00 PM Monday through Saturday and from 10 AM until 6 PM on Sunday. Because the store would not be open during the AM peak period, and AM peak-hour trip generation would be negligible, an AM peak-hour analysis was not performed. A school peak-period (2:00 to 4:00 PM) analysis was performed, to analyze potential conflicts with the East Bay French-American School.

Truck deliveries would be made on-site at three loading docks and off-site on 9th Street between Anthony Street and the southern edge of the project site. Regional access to the project would occur via I-80 and use the Ashby Avenue interchange. Trucks would then use 9th Street to access the various loading docks, thereby avoiding the neighborhood streets. Large trucks would be required to use the northernmost loading dock and maneuver through approximately 15 parking spaces. The warehouse space provides central storage for the project as well as the existing Berkeley Bowl store on Shattuck. Single-unit trucks could use any of the available loading docks but would be required to pull into the north parking lot, back into on-site loading docks, and pull out onto 9th Street to access the southbound loading zone on 9th Street.

PROJECT IMPACTS

Construction

This subsection assesses construction-related traffic impacts for the proposed project. The purpose of this analysis is to determine if construction-related traffic would cause additional significant impacts beyond impacts associated with the long-term operation of the project (discussed below).
**Project Construction Activities**

Construction work would include two types of activities – site preparation and construction. Building construction can only take place after site preparation.

Site Preparation includes all of the activities required to allow construction on the individual parcels of the future developments. Major components of site preparation can include removal of contaminated soil material, deposition of fill, grading of the site, and construction of necessary infrastructure. The final phase of site preparation is the installation of infrastructure which would include water lines and other utilities. A variety of construction equipment would be required for the site preparation phase, including bull-dozers, grading machines, and dump trucks.

Construction involves the assembly of the actual buildings. Major elements of construction can include driving piles to support the building foundation, constructing the building frame, pouring concrete, completing the interior of each building on the project site. Interior work within each building would include adding the necessary piping and wiring and installing interior fixtures and hardware, such as sinks and windows. Additionally, the project would be building the subterranean garage, the surface parking lots, and completing surface improvements such as pedestrian curb cut-outs and the Bicycle Boulevard.

**Project Construction Traffic**

Due to the size and amount of work that would be required to construct this development, it is expected that construction-related traffic could negatively impact pedestrian and vehicular traffic flow along Heinz Avenue and 9th Street. Creating adequate storage and staging areas for equipment, materials, and vehicles would potentially cause additional construction impacts. The combination of the level of construction activity and the downtown setting for these activities necessitates the need for a construction traffic management plan for the site. Thus, project impacts related to construction traffic would be potentially significant.

**Mitigation Measures (Construction)**

Because the proposed project would result in potentially significant impacts related to construction traffic, the following mitigation measures are required:

**IV.D-1:** The project applicant is required to prepare and implement a construction-traffic management plan for the proposed project. This plan shall be developed prior to the commencement of any construction activities at the project site. The plan shall be subject to the review and approval by the City of Berkeley. The construction-traffic management plan shall include the following items:

- A map documenting material and equipment staging and storage locations for all phases of construction.
• A map documenting working parking locations for all phases of construction.

• A construction schedule that outlines days and hours of construction to limit noise impacts.

• Signage plans relating to any temporary lane closures on public streets with a particular focus on Heinz Avenue and 9th Street.

• Notification procedures for adjacent businesses, residents, and public safety personnel for all major deliveries, detours, and street closures that would affect traffic in the vicinity of the development.

• Provisions for monitoring surface streets designated as truck routes so that any damage and debris attributed to the trucks can be identified and corrected.

• Signage plans documenting any detours for bicycle and pedestrian traffic with a particular focus on Heinz Avenue and 9th Street.

IV.D-2: Regional access to the project site for all construction traffic shall occur via I-80 and the Ashby Avenue interchange. Construction vehicles shall then use 9th Street to access the site, thereby avoiding the neighborhood streets.

IV.D-3: All staging and parking related to construction shall take place on-site. The project applicant shall construct the South Parking Lot first to be used as a staging area and on-site parking for construction workers. The project applicant shall also water down the site to reduce dust due to construction vehicles.

Conformance with these mitigation measures would reduce the project’s potentially significant impacts related to construction traffic to a less-than-significant level.

Operational Impacts

Existing-Plus-Project LOS/Roadway Segments

Vehicle Trip Generation Assumptions

Project vehicle trips for the proposed project were estimated using vehicle trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual (7th Edition) for office, warehouse, and grocery store. Table IV.D-4 indicates the vehicle trip generation rates used for this study.

The warehouse space is separate from the grocery store space. The warehouse is intended to receive goods in large tractor trailer trucks. The goods would then be processed through inventory, stored, and at the appropriate time, be distributed to one of the two Berkeley Bowl stores. Goods destined for the
Berkeley Bowl store on Shattuck Avenue would be delivered with the use of smaller trucks. Goods to the West Berkeley Bowl would be delivered via lifts as the store is adjacent to the warehouse. There would be some shared trip reductions between the proposed West Berkeley Bowl grocery store and warehouse because of their proximity. However, no reduction was considered in the trip generation calculations.

Table IV.D-4
ITE Vehicle Trip Generation Rates1

<table>
<thead>
<tr>
<th>Proposed Use</th>
<th>Weekday Daily</th>
<th>Weekday PM Peak Hour</th>
<th>Saturday Daily</th>
<th>Saturday Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In</td>
<td>Out</td>
<td>Total</td>
<td>In</td>
</tr>
<tr>
<td>Grocery marketplace</td>
<td>102.24</td>
<td>5.33</td>
<td>5.12</td>
<td>10.45</td>
</tr>
<tr>
<td>Supporting office</td>
<td>11.01</td>
<td>0.25</td>
<td>1.24</td>
<td>1.49</td>
</tr>
<tr>
<td>Warehouse</td>
<td>4.96</td>
<td>0.12</td>
<td>0.35</td>
<td>0.47</td>
</tr>
</tbody>
</table>

Notes:
1 Average ITE rate per 1,000 gross square feet (gsf).

To supplement the analysis, Fehr & Peers staff conducted a one-day weekday PM peak-period (4:00 to 6:00 PM) trip generation survey at the existing Berkeley Bowl, located at 2020 Oregon Street in Berkeley, to determine vehicle, pedestrian, bicycle, and transit usage. Table IV.D-5 shows the calculated PM peak-hour vehicular, bicycle, pedestrian, and transit trip generation rate per 1,000 gsf of grocery store. Survey data are provided in the appendix of the traffic study included in Appendix IV.D. These rates were derived by comparing the survey results to the size of the existing Berkeley Bowl store.

The trip generation rates (from Table IV.D-5) for bicycle, pedestrian and transit users were used as the basis for determining the project’s trip generation for modes other than vehicles.

Table IV.D-5
Project Trip Generation Rates per 1,000 sf

<table>
<thead>
<tr>
<th>Mode</th>
<th>PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In</td>
</tr>
<tr>
<td>Vehicle</td>
<td>5.31</td>
</tr>
<tr>
<td>Bicycle</td>
<td>0.83</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>1.02</td>
</tr>
<tr>
<td>Transit</td>
<td>0.33</td>
</tr>
</tbody>
</table>

Notes:
Rates derived from surveys conducted at the existing store located at 2020 Oregon Street.
The one-day survey shows that the vehicle trip rates generally conformed to the ITE Manual’s estimates. The 6th Edition of the ITE Manual showed rates six percent lower than the observed rates in Table IV.D-5. The 7th Edition ITE Manual shows rates three percent higher. The ITE data reflects numerous surveys, while the Berkeley Bowl rates represent one day of data collection. Thus, City Staff directed Fehr & Peers to use the current ITE trip generation rates for the purposes of this analysis.

Hourly sale transactions for the existing Berkeley Bowl were used as the basis for determining the school peak-hour trip generation rates. The sale transactions were consistent between 2:00 and 6:00 PM with a slight peaking between 4:00 and 6:00 PM. Given the transaction data, PM peak-hour trip generation rates would be expected to be slightly greater than the school (2:00 to 4:00 PM) peak period rates. Rather than discounting the school peak period trip generation rates to account for the fewer sale transactions, the analysis incorporates the PM peak-hour trip generation rates for the school peak period analysis. This represents a conservative (“worst-case”) condition for the school period.

Project Trip Generation

The trip generation rates described above were applied to the proposed project components to determine overall project vehicle, bicycle, pedestrian, and transit trip generation. The community center portion of the project was assumed to generate no school or PM peak-hour trips because the center would be used infrequently (about four times each month) and generally during the evening or weekend hours. The integrated food service was assumed to generate trips at the same rate as the grocery store because the food service is a supporting component of the grocery store by providing patrons an opportunity to eat pre-prepared foods purchased at the store.

Pass-by trips were accounted for in the calculation of project trip generation only for purposes of air quality and noise analyses, and for the analyses completed for the Congestion Management Agency (CMA). These trips were not considered in the traffic operations analysis in order to represent a conservative (“worst-case”) traffic condition. Intersection analysis does not assume any pass-by reductions. Pass-by reduction was only considered in the traffic analysis outside the primary study area (i.e., at the Ashby Avenue/I-80 interchange). Pass-by trips represent trips that are already on the roadway system that would stop at the project site on an already planned trip. Examples of pass-by trips include patrons stopping at the grocery store on their way home from work or as part of a school-related trip. The ITE Manual indicates that the average pass-by trip percentage for grocery stores is thirty-six percent during the PM peak hour. Pass-by trip data are not available from ITE for either the school or Saturday grocery store trip. The PM rate was assumed for the weekday school and Saturday periods. Pass-by trip factors were not applied to the office or warehouse uses.

As shown in Table IV.D-6, the proposed project would generate about 3,780 net new weekday daily vehicle trips including 386 school and PM peak-hour vehicle trips (194 in and 192 out). Net new trips on a Saturday would be about 6,270 daily vehicle trips including 382 Saturday peak-hour vehicle trips (197 in and 185 out).
Table IV.D-6
Vehicle Trip Generation

<table>
<thead>
<tr>
<th>Proposed Use</th>
<th>Size (sf)</th>
<th>Weekday</th>
<th>School and PM Peak Hour</th>
<th>Saturday</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Daily</td>
<td>In</td>
<td>Out</td>
<td>Total</td>
<td>Daily</td>
<td>In</td>
<td>Out</td>
</tr>
<tr>
<td>Grocery marketplace¹</td>
<td>54,735</td>
<td>5,600</td>
<td>292</td>
<td>280</td>
<td>572</td>
<td>9,720</td>
<td>300</td>
<td>289</td>
</tr>
<tr>
<td>Less 36 % Pass-by²</td>
<td>(2,020)</td>
<td>(103)</td>
<td>(103)</td>
<td>(206)</td>
<td>(3,500)</td>
<td>(106)</td>
<td>(106)</td>
<td>(212)</td>
</tr>
<tr>
<td>Net New Grocery Market Place Trips</td>
<td>3,580</td>
<td>189</td>
<td>177</td>
<td>366</td>
<td>6,220</td>
<td>194</td>
<td>183</td>
<td>377</td>
</tr>
<tr>
<td>Supporting office</td>
<td>4,120</td>
<td>150</td>
<td>4</td>
<td>10</td>
<td>14</td>
<td>40</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Warehouse</td>
<td>28,805</td>
<td>50</td>
<td>1</td>
<td>5</td>
<td>6</td>
<td>10</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Net New Trips (with pass-by)</strong></td>
<td>3,780</td>
<td>194</td>
<td>192</td>
<td>386</td>
<td>6,270</td>
<td>197</td>
<td>185</td>
<td>382</td>
</tr>
</tbody>
</table>

Note: Vehicle Trips derived using the ITE rates presented in Table 4.

¹ Includes grocery and food service.

² Intersection analysis does not assume any pass-by reductions. Pass-by reduction was only considered in the traffic analysis outside the primary study area (i.e., at the Ashby Avenue/I-80 interchange).


Typically, Saturday analyses are not conducted because the weekday PM peak hour represents the one-hour period during the week when overall traffic congestion is greatest. Daily traffic volumes shown in Figure IV.D-3 support this statement. Figure IV.D-3 shows daily traffic on a Saturday (9th Street and Heinz Avenue) is 50 and 60 percent of that during the weekday. Table IV.D-6 shows that the project’s traffic generation is similar for both the weekday PM and Saturday peak hours. As a result, a Saturday traffic analysis was not performed. Any project impacts would be greater for the weekday period.

Table IV.D-7 indicates that the project would generate about 76 bicycle trips, 116 pedestrian trips, and 32 transit trips during the weekday school and the PM peak hours. Bicycle, pedestrian, and transit trip generation rates were not available for the Saturday peak hour. The Saturday trips were derived indirectly using the ratio of ITE weekday PM peak hour to Saturday peak-hour trip generation applied to the observed rates presented in Table IV.D-5. The project would generate 81 bicycle trips, 123 pedestrian trips, and 34 transit trips during the Saturday peak hour with application of the ratio. These trips were not subtracted from the vehicle trip generation.

Trip Distribution and Assignment

Project vehicle trips were distributed based on information provided by the project applicant. A zip code survey was conducted for a one-week period at the existing Berkeley Bowl, where all patrons were asked to provide their residential zip code (included in the appendix of the traffic study in Appendix IV.D). The survey results were used to determine the regional distribution of Berkeley Bowl patrons. The data were adjusted to account for patrons who would continue to shop at the existing store, due to its location relative to the new store. The project trip distribution percentages are graphically shown on Figure IV.D-
5. The zip code survey revealed that seventy-five percent of all patrons were from within a five-mile radius of the store.

### Table IV.D-7

<table>
<thead>
<tr>
<th>Alternative Mode</th>
<th>Weekday School and PM Peak Hour</th>
<th>Saturday Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In</td>
<td>Out</td>
</tr>
<tr>
<td>Bicycle</td>
<td>45</td>
<td>31</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>56</td>
<td>60</td>
</tr>
<tr>
<td>Transit</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td><strong>Net New Trips</strong></td>
<td><strong>119</strong></td>
<td><strong>105</strong></td>
</tr>
</tbody>
</table>

Notes:

1. Trip generation derived from surveys conducted at the existing store located at 2020 Oregon Street.
2. Saturday peak-hour trip generation rate calculated: ITE Saturday peak-hour rate X (Observed PM peak-hour rate/ITE PM peak-hour rate)


Trips generated by the proposed project were assigned to the roadway system based on the directions of approach and departure as described above. Project driveway and parking space locations were taken into consideration in the routing of project trips to the site. The weekday school and PM peak-hour project trip assignments are also shown on Figure IV.D-5. The trip assignment in Figure IV.D-5 does not assume reductions for pass-by trips (i.e., all trips are assumed to be new trips added to the road network). This assignment process represents a conservative (“worst-case”) analysis for both the study intersections and roadway segments.

The warehouse component of the project would generate truck traffic as deliveries are made to the facility and then distributed to the two Berkeley Bowl stores.

**Planned Roadway Improvements**

No roadway improvements beyond those improvements that have recently been implemented were assumed for the analysis of near-term project impacts. These improvements include signalization of the 9th Street/Ashby Avenue intersection, stop-sign controls on southbound 9th Street and eastbound Potter Street, and traffic signal upgrades at the 7th Street/Ashby Avenue intersection and signal installation at the 7th Street/Potter Street intersection. An additional northbound through lane on the east side of 7th Street from south of Ashby Avenue to Anthony Street was also recently completed.
Figure IV.D-5
Project Trip Distributions and Assignment

Legend

= Study Intersections
XX = School and PM Peak Hour Traffic Volumes
X% = Trip Distribution Percentage
NOTE: Does not include Pass-by trips

Source: Fehr & Peers, July 2005
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Traffic Forecasts

The peak-hour project volumes without the pass-by reduction were added to the existing traffic volumes to determine Existing-Plus-Project traffic volumes at the study intersections. The resulting weekday school and PM peak-hour volumes are shown for each intersection on Figure IV.D-6, as well as weekday daily and Saturday daily volumes for 9th Street, to the north of Heinz Avenue and Heinz Avenue, to the east of 10th Street.

Intersection Operations

School and PM peak-hour intersection operations were evaluated under the existing scenario with project traffic. The delay analysis results for each study intersection are provided in Table IV.D-8 and the V/C results are provided in Table IV.D-9. The intersection LOS calculation worksheets and the signal warrant worksheets are provided in the appendix of the traffic study included in Appendix IV.D. All but one study intersection would operate at acceptable LOS ranges (i.e., LOS D or better) with the addition of project traffic.

1. The unsignalized San Pablo Avenue/Heinz Avenue intersection would degrade from LOS D to LOS F with the addition of project traffic, and the peak-hour traffic signal warrant would be satisfied. This is considered a potentially significant project impact based on the City of Berkeley’s significance criteria.

2. Vehicle queue spillback from the signalized Ashby Avenue/7th Street intersection impacts operations along 7th Street north of Ashby Avenue. Vehicle queues are expected to extend north beyond the unsignalized 7th Street/Anthony Street intersection with the addition of project traffic. This would reduce the capacity of the intersections with Potter Street and Ashby Avenue and increase the duration of intersection blockage for traffic turning from Anthony Street to 7th Street. Additionally, parking maneuvers on 7th Street north of Potter Street would be difficult. However, the peak-hour traffic signal warrant would not be satisfied at the Anthony Street intersection with 7th Street, and a feasible alternative route exists for vehicles turning from Anthony Street onto Potter Street, via 5th Street. As a result, the impact is considered less-than-significant.

3. Operation of 9th Street between the project site and Ashby Avenue was also reviewed, as traffic on 9th Street between the project site and Ashby Avenue would increase by approximately 365 vehicles during the PM peak hour as a result of the project. This could potentially impede vehicle flows on Anthony Avenue and Potter Street at 9th Street. Results of the analysis indicate that with the addition of project traffic, the southbound 95th percentile vehicle queues at the signalized 9th Street/Ashby Avenue intersection would be approximately 200 feet, spilling through the unsignalized 9th Street/Potter Street intersection. With the current traffic controls on 9th Street at Potter Street (southbound and eastbound stop-controlled), signal operation at the 9th Street/Ashby Avenue intersection would be less than optimal. This is a potentially significant impact.
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Figure IV.D-6

Legend

1 = Study Intersections
* = Only intersections on Heinz Ave were analyzed during the School peak period
XX (YY) = School (PM) Peak Hour Traffic Volumes

Source: Fehr & Peers, July 2005

Christopher A. Joseph & Associates
Environmental Planning and Research
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### Table IV.D-8
Existing and Existing-Plus-Project Peak-Hour Intersection HCM LOS

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Control 1</th>
<th>Control 2</th>
<th>Existing 1</th>
<th>Existing 2</th>
<th>Existing-Plus-Project 1</th>
<th>Existing-Plus-Project 2</th>
<th>Delay Increase 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Delay 3</td>
<td>LOS</td>
<td>Delay 3</td>
<td>LOS</td>
<td></td>
</tr>
<tr>
<td>1. San Pablo Avenue/Heinz Avenue</td>
<td>SSSC</td>
<td>School</td>
<td>27 sec</td>
<td>D</td>
<td>160 sec</td>
<td>F</td>
<td>133 Sec</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>28 sec</td>
<td>D</td>
<td>253 sec</td>
<td>F</td>
<td>225 Sec</td>
</tr>
<tr>
<td>2. San Pablo Avenue/Ashby Avenue</td>
<td>Signal</td>
<td>PM</td>
<td>42 sec</td>
<td>D</td>
<td>45 sec</td>
<td>D</td>
<td>3 sec</td>
</tr>
<tr>
<td>3. 9th Street/Heinz Avenue</td>
<td>AWSC</td>
<td>School</td>
<td>8 sec</td>
<td>A</td>
<td>10 sec</td>
<td>A</td>
<td>2 sec</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>9 sec</td>
<td>A</td>
<td>10 sec</td>
<td>A</td>
<td>1 sec</td>
</tr>
<tr>
<td>4. 9th Street/Ashby Avenue</td>
<td>Signal</td>
<td>PM</td>
<td>5 sec</td>
<td>A</td>
<td>12 sec</td>
<td>B</td>
<td>7 sec</td>
</tr>
<tr>
<td>5. 7th Street/Ashby Avenue</td>
<td>Signal</td>
<td>PM</td>
<td>44 sec</td>
<td>D</td>
<td>47 sec</td>
<td>D</td>
<td>3 sec</td>
</tr>
<tr>
<td>6. 7th Street/Potter Street</td>
<td>Signal</td>
<td>PM</td>
<td>28 sec</td>
<td>C</td>
<td>28 sec</td>
<td>C</td>
<td>0 sec</td>
</tr>
<tr>
<td>7. 7th Street/Heinz Avenue</td>
<td>Signal</td>
<td>School</td>
<td>7 sec</td>
<td>A</td>
<td>7 sec</td>
<td>A</td>
<td>0 sec</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>9 sec</td>
<td>A</td>
<td>9 sec</td>
<td>A</td>
<td>0 sec</td>
</tr>
</tbody>
</table>

**Notes:**
1. **Signal** = Signalized intersection; **AWSC** = All-way stop-controlled intersection; **SSSC** = Side-street stop-controlled intersection.
2. School peak hour between 2:00 and 4:00 PM, PM peak hour between 4:00 and 6:00 PM.
3. For side-street stop-controlled intersections, delay for each movement is calculated using the 2000 Highway Capacity Manual method, and the highest delay (worst movement) is presented. For all-way stop-controlled intersections, average delay calculated using the 2000 Highway Capacity Manual method.
4. **Interception analysis does not assume any pass-by reductions.**
5. **Bold italics** indicate a potentially significant impact.
6. Eastbound approach is critical approach.
7. Although the 2000 Highway Capacity Manual can provide results for intersections over capacity, it recognizes that modest increases in traffic volumes cause significant increases in delay at intersections over capacity. As such, the methodology becomes less reliable for estimating actual delay when an intersection is over capacity.


### Daily Roadway Segment Volumes

Daily roadway segment conditions were evaluated under the existing scenario with project traffic. The daily traffic forecasts with the project are shown in Table IV.D-10. Traffic volumes on 9th Street north of Heinz Avenue would increase from about 1,720 vehicles per day to 2,070 vehicles. Daily traffic for a Saturday would increase from about 880 vehicles per day to 1,470 vehicles. The Heinz Avenue corridor, west of San Pablo Avenue, would experience the greatest increase in daily traffic from about 2,240 vehicles.
vehicles to 3,500 vehicles during the weekday and from about 1,350 vehicles to 3,300 vehicles during Saturday. These volume changes would be noticeable to the corridor users.

Table IV.D-9

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Control 1</th>
<th>Peak Hour 2</th>
<th>Without Project</th>
<th>With Project 4</th>
<th>V/C Ratio Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>V/C Ratio 3</td>
<td>V/C Ratio 3</td>
<td></td>
</tr>
<tr>
<td>1. San Pablo Avenue/Heinz Avenue</td>
<td>SSSC</td>
<td>School</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>2. San Pablo Avenue/Ashby Avenue</td>
<td>Signal</td>
<td>PM</td>
<td>0.93</td>
<td>0.94</td>
<td>0.01</td>
</tr>
<tr>
<td>3. 9th Street/Heinz Avenue</td>
<td>AWSC</td>
<td>School</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>4. 9th Street/Ashby Avenue</td>
<td>Signal</td>
<td>PM</td>
<td>0.35</td>
<td>0.51</td>
<td>0.16</td>
</tr>
<tr>
<td>5. 7th Street/Ashby Avenue</td>
<td>Signal</td>
<td>PM</td>
<td>0.83</td>
<td>0.86</td>
<td>0.03</td>
</tr>
<tr>
<td>6. 7th Street/Potter Street</td>
<td>Signal</td>
<td>PM</td>
<td>0.48</td>
<td>0.49</td>
<td>0.01</td>
</tr>
<tr>
<td>7. 7th Street/Heinz Avenue</td>
<td>Signal</td>
<td>School</td>
<td>0.44</td>
<td>0.47</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>0.58</td>
<td>0.60</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Notes:
1. Signal = Signalized intersection; AWSC = All-way stop-controlled intersection; SSSC = Side-street stop-controlled intersection.
2. School peak hour between 2:00 and 4:00 PM, PM peak hour between 4:00 and 6:00 PM.
3. HCM V/C ratios.
4. Intersection analysis does not assume any pass-by reductions.

Both the 9th Street and Heinz Avenue corridors are identified by the City of Berkeley as Bicycle Boulevards. The City does not have specific criteria to identify an impact to a Bicycle Boulevard. However, one characteristic of Bicycle Boulevards is the low volume of vehicles they serve. According to the City of Berkeley’s Bicycle Plan (December 1998), a low volume facility is one that serves less than 3,000 to 4,000 vehicles per day. For purpose of this analysis, the project would be deemed to have a significant impact on either Bicycle Boulevard facility if the project’s traffic resulted in daily traffic volumes over 4,000 vehicles per day. Based on this criterion, the additional traffic from the project would be considered to have a less-than-significant impact to the boulevards.
### Table IV.D-10

**Existing and Existing-Plus-Project Daily Roadway Segment Analysis**

<table>
<thead>
<tr>
<th>Segment</th>
<th>Time Period</th>
<th>Existing Daily Volume</th>
<th>Project Daily Volume&lt;sup&gt;1&amp;2&lt;/sup&gt;</th>
<th>Existing-Plus-Project Daily Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>9&lt;sup&gt;th&lt;/sup&gt; Street, North of Heinz Avenue</td>
<td>Weekday</td>
<td>1,717</td>
<td>348</td>
<td>2,065</td>
</tr>
<tr>
<td></td>
<td>Saturday</td>
<td>879</td>
<td>586</td>
<td>1,465</td>
</tr>
<tr>
<td>Heinz Avenue, East of 10&lt;sup&gt;th&lt;/sup&gt; Street</td>
<td>Weekday</td>
<td>2,339</td>
<td>1,160</td>
<td>3,499</td>
</tr>
<tr>
<td></td>
<td>Saturday</td>
<td>1,351</td>
<td>1,954</td>
<td>3,305</td>
</tr>
</tbody>
</table>

<sup>1</sup> Based on discussions with City Staff, the Berkeley Bowl zip code survey, and existing turning movements at the study intersection, this analysis assumes 6 percent of daily project traffic would use 9<sup>th</sup> Street, north of Heinz Avenue, and 21 percent would use Heinz Avenue, east of 10<sup>th</sup> Street.

<sup>2</sup> Roadway analysis does not assume any pass-by reductions.


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**Mitigation Measures (LOS/Roadway Segments)**

With the addition of project traffic, side-street traffic operations of the eastbound approach at the unsignalized San Pablo Avenue/Heinz Avenue intersection would degrade from LOS D to LOS F, and the intersection traffic would satisfy the peak-hour signal warrant. Based on the City of Berkeley significance criteria, this is considered potentially significant project impact, and thus, the mitigation measure listed below is required.

The following four mitigation options were considered to mitigate this impact:

a. Create a second lane on the eastbound approach for left-turning vehicles. There is no opportunity to widen Heinz Avenue, but a second eastbound lane could be provided if parking was prohibited and the approach was restriped. The delay for the worst movement at this intersection (the eastbound left-turn) would still be LOS F (254 seconds), because the delay is based on the conflicting through volume. The impact would continue to be significant with this change.

b. Restrict left-turns from Heinz Avenue to San Pablo Avenue during the peak periods. The prohibition of left-turns would improve the service level to LOS C for the right-turn movement from Heinz Avenue to San Pablo Avenue. This measure would shift traffic from San Pablo Avenue, a regional corridor, to 9<sup>th</sup> Street, a local corridor. About 550 daily vehicles would shift from San Pablo Avenue to 9<sup>th</sup> Street during the weekday and about 450 vehicles would shift during a Saturday. This improvement would increase neighborhood traffic, would require advanced warning signs for drivers approaching the intersection. Additionally, it would be difficult to enforce the turn restrictions.

c. Direct West Berkeley Bowl patrons through the signalized 9<sup>th</sup> Street/Ashby Avenue intersection to minimize project traffic through the Heinz Avenue/San Pablo Avenue intersection. As this
routing is circuitous and cannot be enforced; individuals would likely ignore the direction and either use Heinz Avenue or 9th Street to the north to access the site, parking on-street and accessing the site as a pedestrian.

d. Install a traffic signal at the Heinz Avenue/San Pablo Avenue intersection, incorporate it into the existing San Pablo Avenue signal coordination system, and update the coordination system to provide optimal traffic flow through San Pablo Avenue. Signalization would improve intersection operations from LOS F to LOS B during the PM peak hour and, as a secondary benefit to pedestrian and transit users, would enable them to cross San Pablo Avenue at a signalized crossing.

Based on these considerations the following mitigation measure is required:

**IV.D-4:** The project applicant shall install a traffic signal at the Heinz Avenue/San Pablo Avenue intersection, incorporate the signal into the San Pablo Avenue coordination system, and update the coordination timing plans. San Pablo Avenue is a designated Smart Corridor within the City of Berkeley and new traffic signals installed along San Pablo Avenue must meet the Smart Corridor Design Criteria. Countdown pedestrian signal operations and crosswalks shall be provided to facilitate bicycle, pedestrian, and transit users crossing at San Pablo Avenue. The installation of a traffic signal would improve intersection operations to an acceptable LOS B, provide secondary pedestrian, bicycle and transit benefits, and reduce this impact to a less-than-significant level.

With the addition of project traffic to the 9th Street corridor between the project site and Ashby Avenue, the 95th percentile vehicle queues would extend from Ashby Avenue approximately 200 feet, potentially blocking the unsignalized 9th Street/Potter Street intersection. This is a potentially significant impact.

The following four mitigation options were considered to mitigate this impact:

a. Maintain stop signs on Potter Street and 9th Street. To ensure that vehicles do not queue through the 9th Street/Potter Street intersection and block the northbound left-turn movement, it is recommended that the pavement in the 9th Street/Potter Street intersection be marked “KEEP CLEAR”.

b. Remove the stop sign on 9th Street, maintain the Potter Street stop sign, and install “KEEP CLEAR” marking. This would allow for more effective use of the southbound green time at the Ashby Avenue/9th Street intersection. To reduce right-of-way issues at the intersection, eastbound left-turns from Potter Street onto 9th Street shall be prohibited.

c. Install a signal at the 9th Street/Potter Street intersection to operate with the signal at the Ashby Avenue/9th Street intersection.
Based on these considerations the following mitigation measure is required:

**IV.D-5:** The project applicant shall remove the stop sign on 9th Street, and maintain the Potter Street stop sign. This would allow for more effective use of the southbound green time at the Ashby Avenue/9th Street intersection, which controls the capacity of 9th Street between Ashby Avenue and the project site. To reduce right-of-way issues at the intersection, eastbound left-turns from Potter Street onto 9th Street shall be prohibited. This option was analyzed with Sim Traffic micro simulation software, which showed that the removal of the stop-sign on southbound 9th Street at Potter Street would reduce queues on 9th Street by approximately 60 percent (approximately 150 feet). Operation of 9th Street between Ashby Avenue and the project site shall be analyzed one year subsequent to project opening to determine if additional improvements within the existing right-of-way would improve corridor operations. Implementation of this measure would reduce the project impact to a less-than-significant level.

**Metropolitan Transportation System**

This subsection outlines the Alameda County Congestion Management Agency (ACCMA) roadway analysis, which evaluates the potential effects of the proposed project on the regional transportation system. This analysis was completed to comply with requirements of the ACCMA, which are to analyze project impacts to Metropolitan Transportation System (MTS) roadways for development projects that would generate more than 100 new PM peak-hour trips, where either an EIR is being prepared or a General Plan amendment is sought.

**ACCMA Roadway Study Segments**

The ACCMA roadways located in the project site vicinity include the following:

1. Interstate 80 (I-80) north of Ashby Avenue
2. Interstate 80 (I-80) south of Ashby Avenue
3. San Pablo Avenue north of Ashby Avenue
4. San Pablo Avenue south of Ashby Avenue
5. Ashby Avenue east of San Pablo Avenue
6. Ashby Avenue west of San Pablo Avenue
ACCMA Roadway Analysis Methods

Operations of the MTS freeway and surface street segments were assessed using a V/C method. For freeway segments, a per-lane capacity of 2,200 vehicles per hour was assumed and for surface streets, a per-lane capacity of 800 vehicles per hour was assumed. Roadway segments with a V/C ratio greater than 1.0 are assigned LOS F.

To complete the analysis, the project trip generation was reviewed to determine if the CMA threshold is met. Traffic forecasts were developed to which traffic generated by the proposed project was added. Analysis was completed to determine if LOS standards are exceeded with the project, and if the significance thresholds are met.

ACCMA Roadway Significance Measurements

Based on LOS standards for the Development Plan EIR established by the ACCMA the standard of significance for determining project impacts is as follows:

1. On CMA designated roadway segments that are projected to meet the CMA standard in the future without the project, the impact is significant if the project causes the segment to exceed the standard and adds at least five percent to the future hour peak traffic volume; or

2. On CMA designated roadway segments that are projected to exceed the standard in the future without the project, the impact is significant if the project adds at least five percent to the future peak-hour traffic volume.

The LOS standard on I-80 in the project vicinity is LOS F. The LOS standard for San Pablo Avenue and Ashby Avenue is LOS E.

ACCMA Roadway Analysis Results

As detailed previously, the project would generate 386 net new PM peak-hour trips (194 inbound and 192 outbound), taking into consideration pass-by trips. Because the PM peak-hour trip generation meets the CMA threshold requiring analysis, a PM peak-hour analysis of the MTS roadway system in the vicinity of the project was performed.

The analysis employed forecasts from the Alameda County Travel Demand Model. This model, which is maintained and updated by the Alameda County CMA, provides forecasts based on land use projections developed by the Association of Bay Area Governments (ABAG). Link (roadway segment) V/C ratios were calculated based on the model forecasts and are summarized in Tables IV.D-11 and IV.D-12 for Year 2010 and Year 2025, respectively. The project trips were added to the traffic forecasts shown in Table IV.D-11 and IV.D-12 to determine the project’s level of impact to the forecasted link volume.
### Table IV.D-11
Year 2010 PM Peak-Hour LOS Analysis
Metropolitan Transportation System Roadways

<table>
<thead>
<tr>
<th>Roadway Segment</th>
<th>Direction</th>
<th>Capacity</th>
<th>Without Project</th>
<th>With Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Volume</td>
<td>V/C</td>
</tr>
<tr>
<td>I-80 north of Ashby</td>
<td>NB</td>
<td>11,000</td>
<td>10,200</td>
<td>0.93</td>
</tr>
<tr>
<td></td>
<td>SB</td>
<td>11,000</td>
<td>8,450</td>
<td>0.77</td>
</tr>
<tr>
<td>I-80 south of Ashby</td>
<td>SB</td>
<td>11,000</td>
<td>9,760</td>
<td>0.89</td>
</tr>
<tr>
<td>San Pablo north of Ashby</td>
<td>SB</td>
<td>1,600</td>
<td>2,040</td>
<td>1.28</td>
</tr>
<tr>
<td>San Pablo south of Ashby</td>
<td>SB</td>
<td>1,600</td>
<td>2,330</td>
<td>1.46</td>
</tr>
<tr>
<td>Ashby east of San Pablo</td>
<td>NB</td>
<td>1,600</td>
<td>1,610</td>
<td>1.01</td>
</tr>
<tr>
<td>Ashby west of San Pablo</td>
<td>WB</td>
<td>1,600</td>
<td>1,070</td>
<td>0.67</td>
</tr>
</tbody>
</table>

Notes:
1. Roadway capacities assumed to be 2,200 vehicles per hour per lane for freeway segments and 800 vehicles per hour per lane for arterial roadway segments.


### Table IV.D-12
Year 2025 PM Peak-Hour LOS Analysis
Metropolitan Transportation System Roadways

<table>
<thead>
<tr>
<th>Roadway Segment</th>
<th>Direction</th>
<th>Capacity</th>
<th>Without Project</th>
<th>With Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Volume</td>
<td>V/C</td>
</tr>
<tr>
<td>I-80 north of Ashby</td>
<td>NB</td>
<td>11,000</td>
<td>10,660</td>
<td>0.97</td>
</tr>
<tr>
<td></td>
<td>SB</td>
<td>11,000</td>
<td>8,860</td>
<td>0.81</td>
</tr>
<tr>
<td>I-80 south of Ashby</td>
<td>NB</td>
<td>11,000</td>
<td>11,530</td>
<td>1.05</td>
</tr>
<tr>
<td>San Pablo north of Ashby</td>
<td>SB</td>
<td>1,600</td>
<td>2,180</td>
<td>1.36</td>
</tr>
<tr>
<td>San Pablo south of Ashby</td>
<td>SB</td>
<td>1,600</td>
<td>2,480</td>
<td>1.55</td>
</tr>
<tr>
<td>Ashby east of San Pablo</td>
<td>NB</td>
<td>1,600</td>
<td>1,780</td>
<td>1.11</td>
</tr>
<tr>
<td>Ashby west of San Pablo</td>
<td>WB</td>
<td>1,600</td>
<td>780</td>
<td>0.49</td>
</tr>
</tbody>
</table>

Notes:
1. Roadway capacities assumed to be 2,200 vehicles per hour per lane for freeway segments and 800 vehicles per hour per lane for arterial roadway segments.

For Year 2010 the greatest impact is expected to be on San Pablo Avenue, north and south of Ashby Avenue. The results in Table IV.D-11 indicate that the project would increase the forecasted link volume by approximately four percent on these two links which are expected to operate at LOS F, whether or not the project is constructed. The increase caused by the project would be less than five percent and so is considered to be less-than-significant.

Similar to Year 2010, the greatest impact in Year 2025 is expected to be on San Pablo Avenue, north and south of Ashby Avenue. The results in Table IV.D-12 indicate that the project would increase the forecasted link volume by four percent on these two links which are expected to operate at LOS F whether or not the project is constructed. The increase caused by the project would be less than five percent and so is considered to be less-than-significant.

Ashby Avenue/I-80 Interchange

A focused volume assessment of the ramp system at the Ashby Avenue/I-80 interchange was conducted to determine if the increase in ramp traffic associated with the project would rise to the level of significance using the MTS significance criteria.

Traffic volumes were reviewed at the Ashby Avenue/I-80 interchange during the PM peak hour to determine the level of traffic increase that could be expected at the interchange with the addition of project traffic. Pass-by trip reductions were considered in the interchange analysis because of the regional significance of the I-80 freeway and the local-serving nature of the Berkeley Bowl. Based on the peak-hour trip generation, trip distribution and assignment (including pass-by trip reductions), the West Berkeley Bowl is expected to increase traffic volumes through the Ashby Avenue/I-80 interchange by 62 vehicles during the PM peak hour. Table IV.D-13 shows the existing PM peak-hour traffic volume on each ramp at the interchange, the expected project traffic, and the percent growth in ramp traffic. Overall, traffic is expected to increase through the interchange ramp system by about two percent with development of the project. This is considered a less-than-significant impact using the MTS significance criteria.

<table>
<thead>
<tr>
<th>Ramp</th>
<th>Existing PM Peak-Hour Traffic Volume</th>
<th>Project Trips</th>
<th>Percent Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Westbound Off-Ramp</td>
<td>635</td>
<td>12</td>
<td>2 percent</td>
</tr>
<tr>
<td>Westbound On-Ramp</td>
<td>925</td>
<td>19</td>
<td>2 percent</td>
</tr>
<tr>
<td>Eastbound Off-Ramp</td>
<td>569</td>
<td>19</td>
<td>3 percent</td>
</tr>
<tr>
<td>Eastbound On-Ramp</td>
<td>630</td>
<td>12</td>
<td>2 percent</td>
</tr>
</tbody>
</table>

*Source: Fehr & Peers, 2005.*
Mitigation Measures (Metropolitan Transportation System)

No significant project impacts related to the Metropolitan Transportation System were identified, and no mitigation measures are required.

Alternative Mode Analysis

The alternative modes analysis considers project impacts to transit, pedestrians, and bicycles. Significant impacts are quantified, and mitigation measures are identified to address the impacts, as necessary.

Transit

AC Transit operates several routes in the study area. It is projected that an additional 32 weekday PM peak-hour transit trips (18 inbound, 14 outbound) would be generated by the proposed project. This increase in transit trips is not considered significant compared to the many buses that travel along San Pablo Avenue, Ashby Avenue, and 7th Street during a one-hour period. However, the infrastructure needs to be maintained to support the increased transit trips. This includes providing safe routes to transit and transit friendly streets.

Effective routes to transit consist of integrated network of sidewalks and paths to maximize circulation opportunities. Transit users would access the site from San Pablo Avenue, Ashby Avenue, and 7th Avenue. The project has extended the 9th Street Bicycle Boulevard through to Ashby Avenue, providing improved bicycle and pedestrian access to transit. From San Pablo Avenue and 7th Street, pedestrians would walk along Heinz Avenue to access the project site. From Ashby Avenue, pedestrians would walk along 9th Street. Sidewalks are provided along these routes. As part of the site improvements the project applicant is providing sidewalks, curbs, and gutters along the 9th Street extension, and curb-extensions at the south corners of the 9th Street/Heinz Avenue intersection. Decorative crosswalk treatments would be used to enhance the pedestrian crossing at the 9th Street/Heinz Avenue intersection. None of the pedestrian crossings at the San Pablo Avenue/Heinz Avenue intersection are controlled, yet the majority of the transit buses use San Pablo Avenue. This is not consistent with policies for safe routes to transit and is considered a potentially significant impact.

Communities need streets for buses to operate on and stop along. A functional transit-supportive street system maximizes the opportunities to expand existing transit services to higher density developments. The AC Transit routes that provide transit service to the project site operate along Ashby Avenue, 7th Street, and San Pablo. As indicated in the intersection impact and mitigation subsection, the new traffic signal along San Pablo Avenue that is installed by the project must meet the Smart Corridor Design Criteria. These design criteria are intended to improve vehicle travel through the area and provide a benefit to the AC Transit system. The new signal also expands opportunities for additional transit riders. The project (with signal installation) is consistent with the policies for transit friendly streets. Therefore, project impacts related to transit-friendly streets would be less than significant.
Mitigation Measures (Transit)

Because the proposed project would result in potentially significant impacts related to safe routes to transit, the following mitigation measure is required:

**IV.D-6:** Signalize the San Pablo Avenue/Heinz Avenue intersection. Install countdown pedestrian signal operations to facilitate pedestrian and bicycle crossings. Interconnect the signal with the Ashby Avenue/San Pablo Avenue signal. Provide transit preemption for the San Pablo Bus Rapid Transit Route. With implementation of this measure, the project’s potentially significant impacts related to transit would be less than significant.

Pedestrians

Pedestrian circulation encompasses the sidewalks and walking paths within and surrounding the project site, as well as the internal facilities for pedestrians. Safe facilities are defined as those facilities that are continuous and well signed with adequate warning measures at potentially hazardous locations such as motor vehicle driveways and intersections. The pedestrian network should be accessible to all users and integrated with the surrounding environment to connect the project to destinations. A network made up of a grid pattern provides maximum flexibility to the user.

Pedestrians would access the project site from various locations – from the transit corridors mentioned previously, from the businesses north of the project, along Heinz Avenue, 8th Street and 9th Street, and from the businesses south of the project, along Anthony Street and 9th Street. There are a substantial number of pedestrians (about 150) crossing the Heinz Avenue/9th Street intersection during the afternoon school bell time for the East Bay French-American School. Parents who currently park in the unimproved portion of 9th Street would be expected to park in the same area whether it is on the street or within the project site. The project site’s dedicated parking area may become an attractive short-term parking area for parents picking up children from the school, thereby, increasing the number of pedestrians crossing Heinz Avenue at 9th Street.

Pedestrian facilities along the project frontage would be improved with new sidewalks and landscaping to enhance the pedestrian experience and direct pedestrians to use the appropriate facilities. Curb extensions would be constructed on the south side corners of the 9th Street/Heinz Avenue intersection and decorative crosswalk treatments would be used to enhance the pedestrian crossing. Pedestrian access points to the project are provided from each of the adjacent roadways, all of which are separated from vehicular and bicycle traffic. These improvements would act to direct pedestrians to appropriate and safe crossing locations and would shorten the crossing distances, minimizing the potential conflict zone. Additionally, the City of Berkeley has recently instructed the Ecole Bilingue de Berkeley to implement several measures to provide for the safety of the school children when traveling to and from the school; these measures include: 1. implementing and enforcing curb-side drop off, 2. creating a crosswalk mid-street between 9th and 10th streets, and 3. posting signage along the roadways in the project area cautioning
drivers to be aware of children in the area. These measures along with the pedestrian facilities improvements that are part of the proposed project would ensure pedestrian safety near the project site.

A review of the conceptual site plan indicates that pedestrian paths are provided within the site, across the 9th Street extension, north of the Anthony Street driveway and the internal connection between the southerly and main parking lots. These facilities separate to the greatest extent possible pedestrian and vehicle traffic. Potential vehicle/pedestrian conflicts could occur within and adjacent to the parking lots as drivers access parked vehicles and drive to/from the site. Conflicts could also occur at the access to the subterranean garage as well as each driveway to the site. Additionally, drivers in the project area could potentially want to use the project site as a cut-through between Heinz Avenue and Ashby Avenue as currently occurs at the Orchard Supply Hardware parking lot. This is considered a potentially significant impact.

**Mitigation Measures (Pedestrian)**

Because the proposed project would result in potentially significant impacts related to pedestrians, the following mitigation measures are required:

**IV.D-7:** Provide a raised pedestrian walkway and speed bumps within the parking lots to slow vehicles driving through the West Berkeley Bowl parking lot (refer to Figure IV.D-7).

**IV.D-8:** Install “Car Coming” warning system (visual and audible) at entrance to subterranean garage to warn pedestrians of an on-coming vehicle exiting the garage (refer to Figure IV.D-8).

With implementation of these measures, the project’s potentially significant impacts related to pedestrians would be less than significant.

**Bicycles**

Bicycle circulation encompasses the public street system and the local Bicycle Boulevard network. A variety of pavement treatments are used to delineate on-street bike facilities including lane lines to define a bike lane, stencils that indicate bikes are to share the road, stencils that indicate the general location within the travelway bicycles are to use, and a combination of stencils and posted signs that designate Bicycle Boulevards. Safe facilities are continuous, well delineated with striping and signs, and designed to accommodate the expected bicycle speeds.

9th Street between Heinz Avenue and the project driveway and between Anthony Street and Ashby Avenue would be designated as a Bicycle Boulevard. The 9th Street Bicycle Boulevard currently terminates at Heinz Avenue. The project would dedicate land on the eastern and southern project frontages to the City for a multi-use path connecting the discontinuous segments of 9th Street. There has been discussion of purchasing right-of-way from the Union Pacific Railroad (UPRR) along the extension.
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ALLOW TWO WAY TRAFFIC
INSTALL SPEED BUMPS
REMOVE 6 PARKING SPACES
LIMIT HEIGHT OF LANDSCAPING
INSTALL SPEED BUMP
PROHIBIT LARGE DELIVERY VEHICLES DURING PEAK TIMES
INSTALL PARKING GARAGE COUNT SYSTEM

Source: Fehr & Peers, July 2005

Mitigation Measures for Ground Level
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Mitigation Measures for Subterranean Garage

- Relocate support columns 3 feet from aisle
- Install "Car Coming" warning system

Source: Fehr & Peers, July 2005
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of 9th Street to use as an alternative location for the Bicycle Boulevard extension. The project does not preclude the use of the UPRR corridor if the City of Berkeley expresses interest in pursuing that option.

The proposed project is expected to increase bicycle usage by 76 bicycle trips (45 inbound, 31 outbound) during the PM peak hour. These bicycle trips would most likely use Heinz Avenue and 9th Street, portions of which are designated as Bicycle Boulevards within the study area. The proposed project would add additional vehicular traffic on these roadway facilities that could discourage bicycle activity in the area. As previously indicated the daily traffic levels on the Bicycle Boulevards adjacent to the site are expected to be less than 4,000 vehicles per day, which is the maximum desired threshold for Bicycle Boulevards. The project is consistent with practices to provide bicycle friendly circulation. Therefore, project impacts related to bicycles would be less than significant.

Mitigation Measures (Bicycles)

Because no significant impacts to bicycles have been identified, no mitigation measures are required.

Site Access, Circulation, and Parking

This subsection evaluates and provides recommendations for project site access, on-site circulation, and parking. The discussion of the on-site analysis focuses on general use vehicles and delivery vehicles including the vehicle access points, as well as the internal roadway facilities and the parking garage circulation. Significant impacts are quantified, and mitigation measures are identified to address the impacts, as necessary.

A safe road system includes continuous roads with intersecting streets at perpendicular angles both within the project site and at its interface with the existing road network. Road design is based on expected vehicle speeds to ensure adequate sight distance for road users and warning measures are employed at hazardous or unexpected locations. The road system is well signed to alert users as to vehicle size restrictions. A road network made up of a grid pattern provides maximum flexibility to the user.

Site Access

Site access encompasses the intersection of the project site roadways/driveways to the public street system. A safe intersection has adequate sight distance, width and corner radii so drivers can safely maneuver through the intersection. Appropriate intersection traffic control is also a component of a safe intersection taking into account vehicle, pedestrian and bicycle traffic. Specialty treatments such as decorative pavers, curb extensions, safety lighting, pedestrian flashers or signing are also a component to enhance safety and operational needs of the intersection.

The project would have three vehicle access points from 9th Street. Landscaping is shown on the site plan adjacent to each driveway. Improperly maintained landscaping adjacent to project driveways could limit driver visibility. The first driveway would connect the project parking lot to Heinz Avenue (via 9th
The second driveway would be at the 9th Street extension, north of Anthony Street, and would be off-set with 9th Street. The third driveway would be aligned with Anthony Street, which is a one-way street (eastbound). All driveways would provide for unrestricted access in and out of the project site, and all are shown as side-street stop-controlled on the conceptual site plan. This is considered a potentially significant impact.

As part of the site improvements, the project applicant would improve 9th Street, south of Heinz Avenue to the property line, including roadway paving, curbs, and gutters along the eastern property frontage. These improvements would allow drivers to travel from 9th Street south of the project site to 9th Street north of the project site via the parking aisles within the project site, although the site plan, with 9th Street off-set, is designed to discourage this movement. This movement is not currently allowed. Traffic passing through the West Berkeley Bowl parking lot is likely to occur similar to the current condition through the Orchard Supply Hardware parking lot. This is considered a potentially significant impact.

Mitigation Measures (Site Access)

Because the proposed project would result in potentially significant impacts related to site access, the following mitigation measure is required:

IV.D-9: Maintain landscaping in areas near driveways to a height of less than two feet and tree branches trimmed to heights greater than six feet to provide sight distance visibility for drivers (refer to Figure IV.D-7). With implementation of this measure, the project’s potentially significant impacts related to site access would be less than significant.

On-Site Circulation

Site circulation encompasses the roadways within and adjacent to the site that serve general vehicle circulation and delivery access to adjacent buildings. Safe roadways provide adequate space for its designated/intended uses. Vehicle, parking and bicycle lane widths, delivery loading zones, curves and traffic control are all roadway features to consider in safe on-site roadway design.

The site plan identifies perpendicular parking with one-way circulation. This condition results in drivers traveling in the wrong direction because there are no visual queues indication other wise. The one-way circulation, while it maximizes on-site parking spaces, results in awkward vehicle maneuvers to and from the subterranean parking. This is considered a potentially significant impact.

Mitigation Measures (On-Site Circulation)

Because the proposed project would result in potentially significant impacts related to on-site circulation, the following mitigation measure is required:

IV.D-10: Eliminate six parking spaces in the North Parking Lot to facilitate access to the subterranean garage from 9th Street, and allow for two-way circulation in the North
Parking Lot (refer to Figure IV.D-7). With implementation of this measure, the project’s potentially significant impacts related to on-site circulation would be less than significant.

**Drive Aisles**

The surface parking area provides two main north-south drive aisles serving the parking areas. All drive aisles are 26 feet wide and exceed the 24-foot minimum width generally allowed for two-way travel and perpendicular parking. The garage area provides three north-south 26-foot wide drive aisles. Drive aisles are of sufficient width to accommodate vehicle circulation, and the curb radius at the subterranean garage entry is sufficient to allow southbound vehicles entry into the garage without entering the travel lane of exiting traffic. The ramp connecting the garage parking to the main level is proposed to be 20 feet with two feet on both sides between the drive area and the wall. This width is sufficient to provide two-way travel, although, accessing the ramps could be difficult if there is an on-coming vehicle. This is considered a potentially significant impact.

**Mitigation Measures (Drive Aisles)**

Because the proposed project would result in potentially significant impacts related to drive aisles, the following mitigation measure is required:

**IV.D-11:** Install a vehicle warning system at the subterranean level of the parking garage to detect vehicles on the ramp entering the parking garage and alert the driver accessing the ramp to exit the garage that there is an on-coming vehicle (refer to Figure IV.D-8). With implementation of this measure, the project’s potentially significant impacts related to drive aisles would be less than significant.

**Dead-End Drive Aisles**

Dead-end drive aisles are parking aisles that are obstructed at one end thereby increasing navigational difficulty through the drive aisles. Although no dead-end drive aisles are shown on the conceptual site plan, a driver entering the garage does not know if spaces are available in the garage, potentially resulting in severe garage congestion during high demand parking. This is considered a potentially significant impact.

**Mitigation Measures (Dead-End Drive Aisles)**

Because the proposed project would result in potentially significant impacts related to dead-end drive aisles, the following mitigation measure is required:

**IV.D-12:** Install a vehicle counting system to inform drivers of the number of available spaces in the garage (refer to Figure IV.D-7). Parking attendant monitoring may be necessary during high activity periods. With implementation of this measure, the project’s
potentially significant impacts related to dead-end drive aisles would be less than significant.

Trucks and Delivery Vehicles

All truck deliveries are oriented to the Ashby Avenue corridor and away from the neighborhood to the north of the project site, and would access the project site via 9th Street at Ashby Avenue, which is a state highway facility with direct access to I-80. The location of the project’s proposed warehouse would require large delivery vehicles to enter the parking lot via the extension of 9th Street at Anthony Avenue and maneuver through approximately 15 parking spaces to access the north loading dock area. Trucks cannot complete this maneuver if cars are parked by the loading docks. Additionally, while delivery trucks make this maneuver, access to the adjacent subterranean garage would temporarily be blocked with a similar impact to the 9th Street driveway at Anthony Street. Small truck deliveries are made on 9th Street, between Anthony Street and the project entrance. These smaller trucks would circulate through the parking lots to return to Ashby Avenue. This is considered a potentially significant impact.

Mitigation Measures (Trucks and Delivery Vehicles)

Because the proposed project would result in potentially significant impacts related to trucks and delivery vehicles, the following mitigation measure would be required:

**IV.D-13:** Schedule warehouse deliveries for off-peak periods (i.e., before 11:00 AM) to prevent conflicts between warehouse delivery trucks and shopping patron vehicles and install yellow “loading zone” curb along the warehouse frontage. With implementation of this measure, the project’s potentially significant impacts related to trucks and delivery vehicles would be less than significant.

Shopping Cart Return Areas

Shopping cart return areas are proposed throughout the site. The proposed project would not result in any impacts related to shopping cart return areas.

Mitigation Measures (Shopping Cart Return Areas)

No significant project impacts related to shopping cart return areas have been identified, and no mitigation measures are required.

Parking Stall Dimensions

City of Berkeley requires that 90 degree parking stalls be 18-feet long and a minimum of 8-feet wide with 26-foot wide drive aisles. Spaces adjacent to a support column must be a minimum of 8 ½-feet wide and spaces adjacent to a wall must be a minimum of 9-feet wide. According to the project architect, all parking spaces have been designed to meet City of Berkeley parking requirements. Parking stalls for high
turnover uses typically provide wider parking stalls to facilitate parking maneuvers into and out of the site. The support columns in the garage are located one foot from the drive aisles. The location of the parking garage support columns could impede parking maneuvers due to their proximity to the drive aisles. This is considered a potentially significant impact.

Mitigation Measures (Parking Stall Dimensions)

Because the proposed project would result in potentially significant impacts related to parking stall dimensions, the following mitigation measure is required:

IV.D-14: Locate the support columns in the parking garage three feet in from the drive aisles and spaced at least 30-feet on center to facilitate parking maneuvers (refer to Figure IV.D-8). With implementation of this measure, the project’s potentially significant impacts related to parking stall dimensions would be less than significant.

Parking

A total of 211 on-site parking spaces are shown in the conceptual site plan as part of the project. Implementation of Mitigation Measure IV.D-10 to improve on-site circulation would reduce the available parking supply to 205 on-site parking spaces. The proposed on-site parking supply was compared to both City Code parking requirements and ITE parking demand rates. The project would provide on-site parking exceeding City Code requirements and is generally sufficient to satisfy the ITE peak parking demand.

City Code: Vehicles

Parking requirements were reviewed to ensure that the proposed project would provide sufficient parking based on City Code requirements. The City of Berkeley requires:

- One space for every 500 sf of grocery store
- One space for every 500 sf of office development
- One space for every 1,500 sf of warehouse
- One space for every 500 sf of community room

As shown in Table IV.D-14, the project is required to provide 146 parking spaces. The on-site parking space supply of 205 spaces (post mitigation) would exceed City Code requirements. Therefore, project impacts related to vehicle parking on the project site based on City Code requirements would be less than significant.
Table IV.D-14
City Code Automobile Parking Requirements

<table>
<thead>
<tr>
<th>Land Use Type</th>
<th>Size</th>
<th>Parking Code Requirement</th>
<th>Parking Spaces Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grocery marketplace²</td>
<td>54,735 sf</td>
<td>1 space/500 sf</td>
<td>110</td>
</tr>
<tr>
<td>Warehouse</td>
<td>28,805 sf</td>
<td>1 space/1,500 sf</td>
<td>20</td>
</tr>
<tr>
<td>Office</td>
<td>4,120 sf</td>
<td>1 space/500 sf</td>
<td>9</td>
</tr>
<tr>
<td>Community Room</td>
<td>3,400 sf</td>
<td>1 space/500 sf</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total Parking Required</strong></td>
<td></td>
<td></td>
<td><strong>146</strong></td>
</tr>
<tr>
<td><strong>Total Provided</strong></td>
<td></td>
<td></td>
<td><strong>205</strong></td>
</tr>
<tr>
<td><strong>Surplus (Deficit)</strong></td>
<td></td>
<td></td>
<td><strong>59</strong></td>
</tr>
</tbody>
</table>

¹ Includes grocery and food service.

Source: City of Berkeley Parking Code Requirements.

Bicycle Parking

Based on City Code requirements, one bicycle parking space per every 2,000 sf of non-residential development is required, equating to a bicycle parking space requirement of 46. The proposed bicycle parking supply of 66 spaces would exceed City Code Requirements. Therefore, project impacts related to bicycle parking would be less than significant.

Weekday Parking Demand

Peak weekday parking demand rates, as presented in ITE’s Parking Generation (3rd Edition) were reviewed to estimate peak weekday parking demands for the project. ITE weekday peak parking demand rates for the various project uses are shown in Table IV.D-15. For the grocery marketplace portion of the project, the maximum peak parking demand rate for urban supermarkets was used.

Table IV.D-15
ITE Weekday Parking Demand Rates

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Size</th>
<th>Peak Parking Demand Rate</th>
<th>Percent Utilization¹</th>
<th>Parking Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Midday</td>
<td>PM</td>
</tr>
<tr>
<td>Grocery marketplace</td>
<td>54,735 sf</td>
<td>3.74 spaces/1,000 sf²</td>
<td>90 %</td>
<td>100 %</td>
</tr>
<tr>
<td>Warehouse</td>
<td>28,805 sf</td>
<td>0.41 space/1,000 sf</td>
<td>100 %</td>
<td>50 %</td>
</tr>
<tr>
<td>Office</td>
<td>4,120 sf</td>
<td>2.40 spaces/1,000 sf</td>
<td>100 %</td>
<td>60 %</td>
</tr>
<tr>
<td><strong>Total Parking Demand</strong></td>
<td></td>
<td></td>
<td><strong>207</strong></td>
<td><strong>217</strong></td>
</tr>
</tbody>
</table>

Notes:
¹ Percent utilization based on information provided in ITE’s Parking Generation (3rd Edition) and data provided from Berkeley Bowl.
² 3.74 spaces per 1,000 sf represents the maximum peak parking demand rate for supermarkets in urban area. Use of the average peak parking demand rate (2.27 spaces per 1,000 sf) results in a peak supermarket parking demand of 124 spaces, rather than the 205 spaces indicated in the table.

Source: Parking Generation (3rd Edition), Institute of Transportation Engineers.
Information contained *Parking Generation* (3rd Edition), as well as experience, indicates that peak demand for the warehouse and office portions of the project would occur during the weekday mid-day, and peak demand for the supermarket and restaurant would occur on weekday evenings and on weekends. Transaction data provided by Berkeley Bowl indicates that midday activity at the existing Berkeley Bowl store is approximately 90 percent of the PM peak hour and weekend peak hour.

As indicated in Table IV.D-15, a mid-day weekday peak demand of 207 spaces and a weekday PM peak demand of 217 spaces could be expected. This level of peak parking demand could generally be accommodated on site. Impact of overflow to neighborhood businesses would be minimal given the surplus of on-street parking.

The analysis assumed the maximum parking demand rates from the ITE Manual. Using the average peak-parking demand rate for urban supermarkets (2.27 spaces per 1,000 sf), as opposed to the maximum rate, would reduce the overall parking demand to 136 spaces during the PM peak hour, which is substantially less than the available supply. Therefore, project impacts related to weekday parking demand would be less than significant.

**East Bay French-American School Parking Demand**

As part of the development of the proposed project, the informal parking spaces on the railroad right-of-way on 9th Street, south of Heinz Avenue would become formalized. With the formalization of this parking there would be a reduction in the total number of spaces provided, because currently vehicles park at an angle, which can accommodate more vehicles than the proposed parallel parking. If angled parking were to be continued, there would be no loss of parking spaces. However, parallel parking has been required to facilitate the development of 9th Street, south of Heinz Avenue as a Bicycle Boulevard, regardless of the proposed project. Additionally, the proposed project does not plan to impose use restrictions on its parking lot. Therefore, it is foreseeable that some French-American School parents may park in the West Berkeley Bowl parking lot and improve the currently deficient operations around the afternoon school-bell times. Therefore, project impacts related to parking demand for the East Bay French-American School would be less than significant.

**Mitigation Measures (Parking)**

Because no significant project impacts related to parking have been identified, no mitigation measures are required.
Cumulative Impacts

This subsection discusses cumulative (Year 2030) traffic conditions both without and with the project. The future traffic conditions analysis takes into consideration forecasted land use development within the area surrounding the project site.

Planned Roadway Improvements

City of Berkeley staff indicated that a westbound left-turn lane from Ashby Avenue to San Pablo Avenue is planned for implementation by 2030. This improvement is assumed in the analysis of Cumulative (2030) conditions. Improvements to the Ashby/Shellmound interchange at I-80 are being studied jointly by Caltrans and the Cities of Berkeley and Emeryville. The project would provide full interchanges for both Shellmound and Ashby and would eliminate traffic at the Ashby/7th Street intersection that otherwise would use Shellmound to and from westbound I-80. Its impacts have not been included as no implementation schedule exists, and its omission results in a worst case analysis. This assumption was not incorporated in the Year 2030 analysis because of its uncertainty of the improvements. The cumulative geometries are shown on Figure IV.D-9.

Traffic Projections

Year 2030 traffic forecasts were developed using the data from the Emeryville Traffic Impact Fee Program model, which is a weekday PM peak-hour model. This model is based on the Alameda County Congestion Management Agency model with refinements in the Berkeley/Emeryville area to account for known and potential developments. Specific developments within the study area include redevelopment of the Garr Building to 100,000 sf of manufacturing/lab space, construction of a 35,000 square foot manufacturing/lab building with access to Anthony Street, east of 7th street, and an expansion of the East Bay French-American School, located at the northeast corner of the Heinz Avenue/9th Street intersection, to incorporate a 50-student increased enrollment. A complete list of the projects used to determine the 2030 traffic forecasts is provided in the appendix of the traffic study included in Appendix IV.D.

The additional activity at the school would occur during the AM peak period (7:00 to 9:00 AM) prior to the opening of West Berkeley Bowl and during the school peak period (2:00 to 4:00 PM). Therefore, additional traffic generated by East Bay French-American School was considered during the Cumulative school scenario, where potential operational conflicts may arise. The growth associated with the East Bay French-American School was not considered during the PM peak period (4:00 to 6:00 PM).

Weekday PM peak-hour traffic forecasts for Year 2030 were derived from the model while the school peak-hour forecasts were derived by increasing the existing school peak-hour traffic in proportion to the PM peak-hour traffic growth.

Figure IV.D-10 shows the Year 2030 school and PM peak-hour traffic forecasts without the project. The figure also shows the daily traffic forecast for 9th Street, north of Heinz Avenue, and for Heinz Avenue,
Figure IV.D-9
Cumulative (Year 2030)
Intersection Geometries

Legend
1 = Study Intersections
= Traffic Signal
= Stop Sign

Source: Fehr & Peers, July 2005
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Figure IV.D-10
Cumulative (Year 2030) Without Project Traffic Volumes

Legend

= Study Intersections
* = Only intersections on Heinz Ave were analyzed during the School peak period
XX (YY) = School (PM) Peak Hour Traffic Volumes

Source: Fehr & Peers, July 2005
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west of San Pablo Avenue. The daily traffic forecasts were derived by applying a 0.5 percent per year growth factor to the existing traffic. Both 9th Street and Heinz Avenue are local-serving roads and with limited development expected in the immediate area, traffic increases on these two streets would be expected to be minimal.

The assigned project traffic (Figure IV.D-5), without the pass-by reduction, was added to the Year 2030 forecasts shown on Figure IV.D-10 to obtain the Year 2030 traffic forecasts with project traffic. Figure IV.D-11 shows the resulting traffic forecasts for the school and PM peak hours as well as the weekday and Saturday daily traffic forecasts for 9th Street, north of Heinz Avenue, and on Heinz Avenue, west of San Pablo Avenue.

**Intersection Operations**

School and PM peak-hour intersection operations were evaluated under the Year 2030 scenario both with and without project traffic. The delay analysis results for each study intersection are provided in Table IV.D-16, and the V/C results are provided in Table IV.D-17. The intersection LOS calculation worksheets are provided in the appendix of the traffic study that is included in Appendix IV.D for Year 2030 without the project and for the with project scenario; signal warrant worksheets are provided in Appendix IV.D. All but three study intersections would operate at acceptable LOS ranges (i.e., LOS D or better) with the addition of project traffic.

1. The unsignalized San Pablo Avenue/Heinz Avenue intersection would operate at LOS F whether or not the project was constructed. The peak-hour traffic signal warrant would also be satisfied. This is considered a potentially significant cumulative impact based on the City of Berkeley’s significance criteria.

2. The signalized Ashby Avenue/San Pablo Avenue intersection would operate at an unacceptable LOS F during the PM peak hour whether or not the project is constructed. The project traffic contributes more than four seconds to the intersection’s delay exceeding the City of Berkeley’s significance criteria. This is considered a potentially significant cumulative impact.

3. The signalized Ashby Avenue/7th Street intersection would operate at an acceptable LOS D during the PM peak hour without the project traffic. The project would reduce operations to LOS E and increase delay by four seconds. This is considered a potentially significant cumulative impact based on the City of Berkeley’s significance criteria.

4. Vehicle queue spillback from the Ashby Avenue/7th Street intersection would continue to impact traffic operations along 7th Street north of Ashby Avenue. The vehicle queues in Year 2030 would consistently extend north beyond the 7th Street/Anthony Street intersection. The peak-hour traffic signal warrant would not be satisfied at the Anthony Street intersection with 7th Street. As a result, the impact is considered less-than-significant.
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Cumulative (Year 2030) With Project Traffic Volumes

Legend

1 = Study Intersections

* = Only intersections on Heinz Ave were analyzed during the School peak period

XX (YY) = School (PM) Peak Hour Traffic Volumes

Figure IV.D-11

Source: Fehr & Peers, July 2005
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Table IV.D-16
Cumulative (2030) Without and With Project
PM Peak-Hour HCM Intersection LOS (Before Mitigation)

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Control</th>
<th>Peak Hour</th>
<th>Without Project</th>
<th>With Project</th>
<th>Delay Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Delay</td>
<td>LOS</td>
<td>Delay</td>
</tr>
<tr>
<td>1. San Pablo Avenue/Heinz Avenue</td>
<td>SSSC</td>
<td>School</td>
<td>334 seconds</td>
<td>F</td>
<td>1390 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>345 seconds</td>
<td>F</td>
<td>1514 seconds</td>
</tr>
<tr>
<td>2. San Pablo Avenue/Ashby Avenue</td>
<td>Signal</td>
<td>PM</td>
<td>112 seconds</td>
<td>F</td>
<td>132 seconds</td>
</tr>
<tr>
<td>3. 9th Street/Heinz Avenue</td>
<td>AWSC</td>
<td>School</td>
<td>9 seconds</td>
<td>A</td>
<td>11 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>9 seconds</td>
<td>A</td>
<td>10 seconds</td>
</tr>
<tr>
<td>4. 9th Street/Ashby Avenue</td>
<td>Signal</td>
<td>PM</td>
<td>7 seconds</td>
<td>A</td>
<td>13 seconds</td>
</tr>
<tr>
<td>5. 7th Street/Ashby Avenue</td>
<td>Signal</td>
<td>PM</td>
<td>54 seconds</td>
<td>D</td>
<td>58 seconds</td>
</tr>
<tr>
<td>6. 7th Street/Potter Street</td>
<td>Signal</td>
<td>PM</td>
<td>28 seconds</td>
<td>C</td>
<td>28 seconds</td>
</tr>
<tr>
<td>7. 7th Street/Heinz Avenue</td>
<td>Signal</td>
<td>School</td>
<td>9 seconds</td>
<td>A</td>
<td>9 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>11 seconds</td>
<td>B</td>
<td>11 seconds</td>
</tr>
</tbody>
</table>

Notes:
1. Signal = Signalized intersection; AWSC = All-way stop-controlled intersection, SSSC = Side-street stop-controlled intersection.
2. School = School peak hour between 2:00 and 4:00 PM, PM = PM peak hour between 4:00 and 6:00 PM.
3. For side-street stop-controlled intersections, delay for each movement is calculated using the 2000 Highway Capacity Manual method, and the highest delay (worst movement) is presented. For all-way stop-controlled intersections, average delay calculated using the 2000 Highway Capacity Manual method.
4. Intersection analysis does not assume any pass-by reductions.
5. Bold italics indicate potentially significant impact.
6. Eastbound Approach is critical approach.
7. Although the 2000 Highway Capacity Manual can provide results for intersections over capacity, it recognizes that modest increases in traffic volumes cause significant increases in delay at intersections over capacity. As such, the methodology becomes less reliable for estimating actual delay when an intersection is over capacity.


5. As discussed in the Existing-Plus-Project section, traffic levels on 9th Street approaching Ashby Avenue would increase as a result of the project, resulting in vehicle queue spillback through the unsignalized 9th Street/Potter Street intersection.

Daily Roadway Segment Volumes

Table IV.D-18 summarizes the Year 2030 daily roadway segment volumes without and with the project. Traffic volumes on 9th Street north of Heinz Avenue would increase from about 1,950 vehicles per day to 2,300 vehicles. Daily traffic for a Saturday would increase from about 1,000 vehicles per day to 1,590 vehicles. The Heinz Avenue corridor, west of San Pablo Avenue, would experience the greatest increase in daily traffic from about 2,650 vehicles to 3,810 vehicles during the weekday and from about 1,530
vehicles to 3,490 vehicles during Saturday. These volume changes would be noticeable to the corridor users. These daily traffic volumes are less than the 4,000 vehicle per day threshold for a Bicycle Boulevard and as a result the impact is considered less than significant.

Table IV.D-17
Cumulative (2030) Without and With Project
PM Peak-Hour V/C Ratio (Before Mitigation)

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Control1</th>
<th>Peak Hour2</th>
<th>Without Project</th>
<th>With Project4</th>
<th>V/C Ratio Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>V/C Ratio3</td>
<td>V/C Ratio3</td>
<td></td>
</tr>
<tr>
<td>1. San Pablo Avenue/Heinz Avenue</td>
<td>SSSC</td>
<td>School</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>2. San Pablo Avenue/Ashby Avenue</td>
<td>Signal</td>
<td>PM</td>
<td>1.15</td>
<td>1.28</td>
<td>0.13</td>
</tr>
<tr>
<td>3. 9th Street/Heinz Avenue</td>
<td>AWSC</td>
<td>School</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>4. 9th Street/Ashby Avenue</td>
<td>Signal</td>
<td>PM</td>
<td>0.41</td>
<td>0.55</td>
<td>0.14</td>
</tr>
<tr>
<td>5. 7th Street/Ashby Avenue</td>
<td>Signal</td>
<td>PM</td>
<td>0.95</td>
<td>0.98</td>
<td>0.03</td>
</tr>
<tr>
<td>6. 7th Street/Potter Street</td>
<td>Signal</td>
<td>PM</td>
<td>0.52</td>
<td>0.53</td>
<td>0.01</td>
</tr>
<tr>
<td>7. 7th Street/Heinz Avenue</td>
<td>Signal</td>
<td>School</td>
<td>0.62</td>
<td>0.65</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>0.66</td>
<td>0.67</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Notes:
1. Signal = Signalized intersection; AWSC = All-way stop-controlled intersection; SSSC = Side-street stop-controlled intersection.
2. School = School peak hour between 2:00 and 4:00 PM, PM = PM peak hour between 4:00 and 6:00 PM.
3. HCM V/C ratios.
4. Intersection analysis does not assume any pass-by reductions.
5. Bold italics indicate potentially significant impact.

Mitigation Measures (Cumulative)

With the addition of cumulative traffic, side-street traffic operations at the San Pablo Avenue/Heinz Avenue intersection would operate at LOS F, and the intersection traffic would satisfy the peak-hour signal warrant. The project would contribute to the cumulative traffic. Based on the City of Berkeley significance criteria, this is considered potentially significant cumulative impact, and thus, the following mitigation measure is required:

IV.D-15: Implementation of Mitigation Measure IV.D-4 (installation of a traffic signal at the Heinz Avenue/San Pablo Avenue intersection) would improve intersection operations to an
acceptable LOS B, provide secondary pedestrian, bicycle and transit benefits, and reduce this impact to a less-than-significant level.

<table>
<thead>
<tr>
<th>Segment</th>
<th>Time Period</th>
<th>Cumulative Daily Volume</th>
<th>Project Daily Volume&lt;sup&gt;1 &amp; 2&lt;/sup&gt;</th>
<th>Cumulative Plus Project Daily Traffic Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>9th Street, North of Heinz Avenue</td>
<td>Weekday</td>
<td>1,950</td>
<td>348</td>
<td>2,298</td>
</tr>
<tr>
<td></td>
<td>Saturday</td>
<td>1,000</td>
<td>586</td>
<td>1,586</td>
</tr>
<tr>
<td>Heinz Avenue, East of 10th Street</td>
<td>Weekday</td>
<td>2,650</td>
<td>1,160</td>
<td>3,810</td>
</tr>
<tr>
<td></td>
<td>Saturday</td>
<td>1,530</td>
<td>1,954</td>
<td>3,484</td>
</tr>
</tbody>
</table>

<sup>1</sup> Based on discussions with City Staff, the Berkeley Bowl zip code survey, and existing turning movements at the study intersection, this analysis assumes 6 percent of daily project traffic would use 9th Street, north of Heinz Avenue and 21 percent would use Heinz Avenue, east of 10th Street.

<sup>2</sup> Roadway analysis does not assume any pass-by reductions.


The proposed project would worsen LOS F conditions in the PM peak hour at the San Pablo Avenue/Ashby Avenue intersection and would increase the average V/C ratio by more than 0.01. Based on the City of Berkeley’s significance criteria, this is considered a potentially significant cumulative impact, and thus, the following mitigation measure is required:

**IV.D-16:** The project applicant shall modify the traffic signal to provide protected/permitted westbound and eastbound left-turn phases to more effectively make use of the added westbound left-turn pocket. Incorporate the signal phasing changes into the San Pablo Avenue coordination system and update the coordination timing plans. San Pablo Avenue is a designated Smart Corridor within the City of Berkeley and modified traffic signals installed along San Pablo Avenue must meet the Smart Corridor Design Criteria. Countdown pedestrian signal operations shall be provided to facilitate bicycle, pedestrian, and transit users crossing at San Pablo Avenue. Implementation of this measure would improve the intersection operations during the PM peak hour from LOS F to LOS E with a delay of 77 seconds and a V/C ratio of 1.09 (as compared to the Cumulative-without-Project scenario), reducing the project’s impact to a less-than-significant level.

The proposed project would degrade the operation of the signalized 7th Street/Ashby Avenue intersection from LOS D to LOS E in the PM peak hour and would increase the delay at this intersection by four
seconds. Based on the City of Berkeley’s significance criteria, this is considered a potentially significant cumulative impact, and thus, the following mitigation measure is required:

**IV.D-17:** The project applicant shall modify the traffic signals at the 7th Street/Ashby Avenue intersection to provide north/south protected phasing, as opposed to split phasing. Modify the traffic signal at the 7th Street/Potter Street intersection to provide northbound protected/permitted phasing and southbound permitted phasing, as opposed to split phasing. This is a similar phasing to that found at the Ashby Avenue/Shattuck Avenue intersection in the City of Berkeley. Retime the 7th Street corridor intersections. This mitigation measure would improve intersection operations to LOS D, reducing the cumulative impact to a less-than-significant level.

With the addition of project traffic to the 9th Street corridor between the project site and Ashby Avenue, the 95th percentile vehicle queues would extend from Ashby Avenue approximately 200 feet, potentially blocking the unsignalized 9th Street/Potter Street intersection. This is considered a potentially significant cumulative impact. Thus, the following mitigation measure is required:

**IV.D-18:** Implement Mitigation Measure IV.D-5 in conjunction with updating the signal timing at the 9th Street/Ashby Avenue intersection to more efficiently allocate green time. With implementation of this mitigation measure, the project’s potentially significant impact related to potentially blocking the unsignalized 9th Street/Potter Street intersection would be less than significant.

**LEVEL OF SIGNIFICANCE AFTER MITIGATION**

All transportation/traffic impacts would be less than significant.