3.1 TRANSPORTATION AND CIRCULATION

This section evaluates impacts of the proposed Lincoln Landing project on intersection operations and queuing, site access, parking, pedestrian and bicycle access, transit operations, and traffic safety. A traffic impact analysis (TIA) was prepared for the proposed project by TJKM (2016) and is included as **Appendix TRA** to this Draft EIR. This section summarizes the analysis and findings in the TIA. The reader is referred to **Appendix TRA** for the detailed methodology and analysis of traffic impacts.

3.1.1 EXISTING SETTING

EXISTING ROADWAY SYSTEM

Regional roadway facilities providing access to the project site include Interstates 238, 880, and 580, State Route 185, and Foothill Boulevard, A Street, and Grove Way. Local roadways providing local access to the project site include City Center Drive, McKeever Avenue, Maple Court, 2nd Street, Hazel Avenue, Simon Street, Hotel Avenue, Main Street, and Sunset Boulevard.

- *Foothill Boulevard* is a six-lane, north–south roadway with occasional raised medians. Posted speed limits vary from 25 miles per hour (mph) to 35 mph in the project vicinity. This roadway provides local access to residential and commercial developments and to Interstates 580 and 238. This corridor is part of the Hayward Loop and operates one way northbound from Mission Boulevard/Jackson Street to A Street.

- *Mission Boulevard* is a four- to six-lane, north–south roadway with a raised median south of Jackson Street. The posted speed limit is 25 mph in the project vicinity. This roadway provides local access to residential and commercial developments, but also serves as a regional facility from Oakland (as International Boulevard/State Route 185) to Fremont. This corridor is part of the Hayward Loop and operates one way southbound from A Street to Foothill Boulevard.

- *City Center Drive* is a two- to four-lane, north–south roadway from Hazel Avenue and terminating at Maple Court. The posted speed limit is 25 mph in the project vicinity. This roadway provides local access to residential and commercial developments.

- *A Street* is a four- to five-lane, east–west roadway. The posted speed limit is 35 mph in the project vicinity. This roadway is part of the Hayward Loop and operates one way westbound between Foothill Boulevard and Mission Boulevard. This corridor provides local access to residential areas and to the downtown Hayward commercial developments and access to I-580 and I-880.

- *B Street* is a two- to four-lane, east–west roadway. The posted speed limit is 35 mph in the project vicinity. It operates one way westbound from Foothill Boulevard to Watkins Street. This roadway provides local access to residential areas, downtown Hayward commercial developments, and the Hayward Amtrak station.

- *Hazel Avenue* is a two-lane, east–west roadway between Main Street and Foothill Boulevard. The posted speed limit is 25 mph in the project vicinity. This roadway provides local access to residential and commercial developments.

- *Grove Way* is a two- to four-lane, east–west roadway from Meekland Avenue to I-580 in Castro Valley. The posted speed limit is 25 mph in the project vicinity. This roadway collector provides local access to residential neighborhoods.

- *Main Street* is a two- to four-lane, north–south roadway from D Street to Rose Street. The posted speed limit is 25 mph in the project vicinity. This roadway collector provides local access to residential neighborhoods.

- *Maple Court* is a two-lane, north–south roadway from A Street to McKeever Avenue. The posted speed limit is 25 mph in the project vicinity. The roadway provides local access to residential and commercial developments.

- *McKeever Avenue* is a two-lane, east–west roadway from Maple Court to Main Street. The posted speed limit is 25 mph in the project vicinity. This roadway collector provides local access to residential neighborhoods.

- *Hotel Avenue* is a one-lane, east–west roadway from Mission Boulevard to Main Street. The posted speed limit is 25 mph in the project vicinity. This roadway collector provides local access to residential neighborhoods.

- *Simon Street* is a one-lane, east-west roadway from Western Boulevard to Main Street. The posted speed limit is 25 mph in the project vicinity. This roadway collector provides local access to residential neighborhoods.

- *Sunset Boulevard* is a two-lane, east–west roadway from Meekland Avenue to Main Street. The posted speed limit is 25 mph in the project vicinity. The roadway provides local access to residential and commercial developments.

EXISTING BICYCLE AND PEDESTRIAN FACILITIES

Walkability is defined as the ability to travel easily and safely on foot between various origins and destinations without having to rely on automobiles or other motorized travel. The ideal walkable community includes wide sidewalks, a mix of land uses such as residential, employment, and shopping opportunities, a limited number of conflict points with vehicle traffic, and easy access to transit facilities and services.

Pedestrian facilities consist of crosswalks, sidewalks, pedestrian signals, and off-street paths, which provide safe and convenient routes for pedestrians to access destinations such as institutions, businesses, public transportation, and recreation facilities.

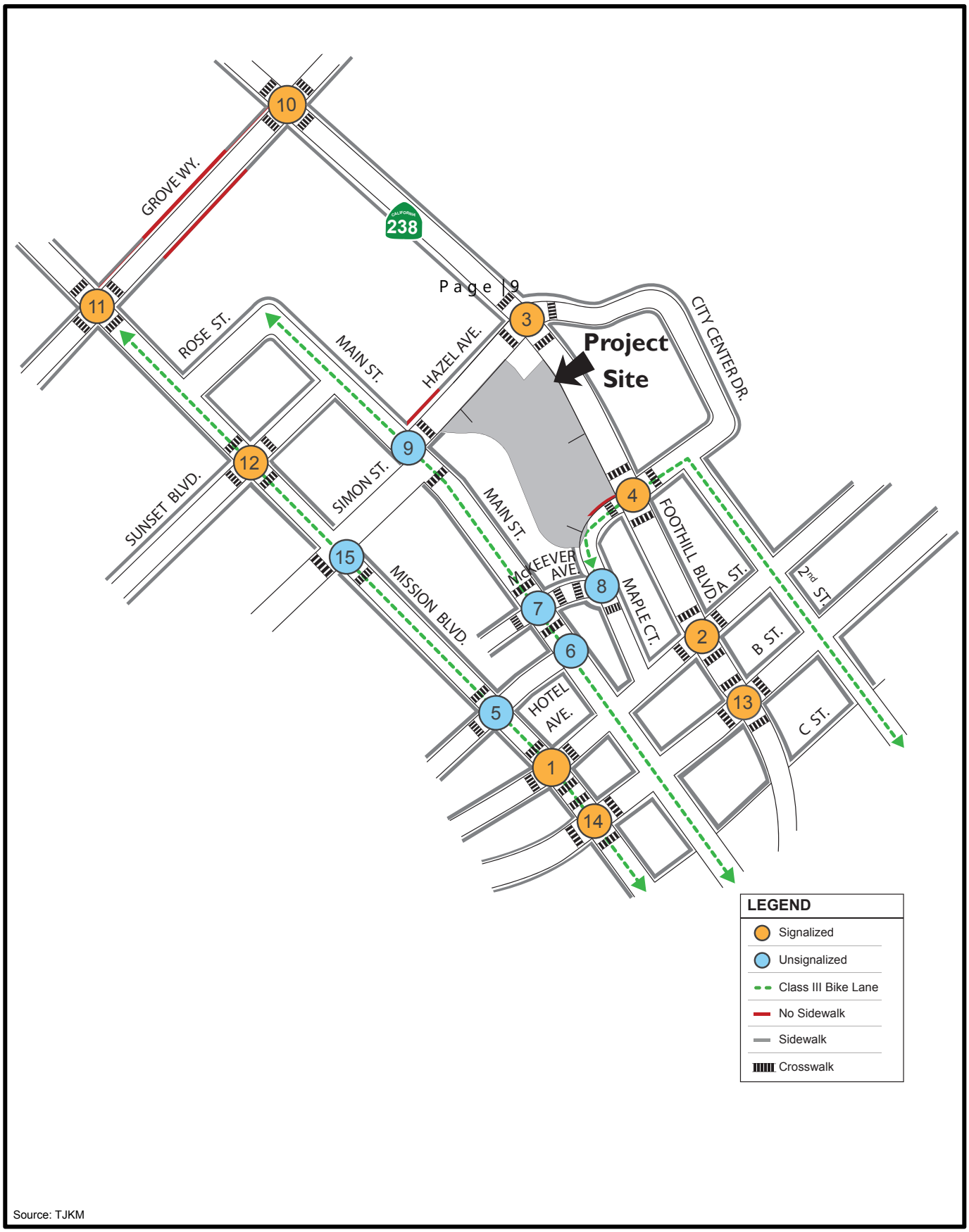
The City of Hayward Bicycle Master Plan (October 2007) defines bikeway classifications as follows:

- Class I Bikeway – Typically called a bike path, a Class I bikeway provides bicycle travel on a paved right-of-way completely separated from any street or highway.

- Class II Bikeway – Often referred to as a bike lane, a Class II bikeway provides a striped and stenciled lane for one-way travel on a street or highway.

- Class III Bikeway – Generally referred to as a bike route, a Class III bikeway provides for shared use with motor vehicle traffic and is identified only by signing.

The existing bicycle and pedestrian facilities in the vicinity of the project are shown in **Figure 3.1-1** and are described below.



Not To Scale

FIGURE 3.1-1
Existing Bicycle and Pedestrian Facilities

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- *Mission Boulevard* – In the project vicinity, Mission Boulevard has sidewalks on both sides of the road. There are marked crosswalks on all four legs of the signalized study intersections and at least one east–west crossing at the unsignalized study intersections with Mission Boulevard. At each signalized study intersection, pedestrians on all four legs are controlled by pedestrian pushbuttons and WALK/DON'T WALK pedestrian heads. There are currently no bicycle facilities on Mission Boulevard in the project vicinity.

- *Foothill Boulevard* – In the project vicinity, Foothill Boulevard has sidewalks on both sides of the road. There are marked crosswalks on all four legs of the signalized study intersections with Foothill Boulevard. At the signalized study intersections, pedestrian pushbuttons and WALK/DON'T WALK pedestrian heads control pedestrians on all four legs. Foothill Boulevard has Class I bike lane striping between D Street and A Street.

- *A Street* is a Class III bike route between Montgomery Street and 4th Street. There are sidewalks on each side of the roadway and marked crosswalks on all four legs of each signalized study intersection with A Street. At each signalized study intersection, pedestrians on all four legs are controlled by pedestrian pushbuttons and WALK/DON'T WALK pedestrian heads. There are no marked crosswalks at the two-way stop-controlled intersection of Maple Court and A Street.

- *Main Street* is a Class III bike route between Sunset Boulevard and D Street. In the project vicinity, Main Street has sidewalks on both sides of the road. There are marked crosswalks on all four legs of the signalized study intersection and some east–west crossings at the unsignalized study intersections with Main Street. The south and east legs of the all-way stop-controlled intersection of Main Street and Hazel Avenue have pedestrian crossings. At signalized study intersections, all four legs are controlled by pedestrian pushbuttons and WALK/DON'T WALK pedestrian heads.

- *City Center Drive* is a two-lane roadway with sidewalks on both sides of the road, except in the immediate vicinity of the project site. There are marked crosswalks on all four legs of the signalized study intersections with City Center Drive and Foothill Boulevard. At signalized study intersections, all four legs are controlled by pedestrian pushbuttons and WALK/DON'T WALK pedestrian heads.

- *Hazel Avenue* has sidewalks on both sides of the road, except in the immediate vicinity of the project site. There are marked crosswalks on all four legs of the signalized study intersections with Hazel Avenue and Foothill Boulevard. At signalized study intersections, all four legs are controlled by pedestrian pushbuttons and WALK/DON'T WALK pedestrian heads. There are no bicycle facilities on Hazel Avenue.

- *Maple Court* and *McKeever Avenue* are two-lane roadways with sidewalks on both sides of the road. In terms of existing pedestrian facilities in the project vicinity, crosswalks and actuated pedestrian signals compliant with the Americans with Disabilities Act (ADA) are provided at all signalized study intersections.

The project site has adequate accessibility from the surrounding roadway system. However, there are discontinuous sidewalks on Hazel Avenue along the north side of the roadway and on City Center Drive in the project vicinity. The proposed project is expected to improve the overall pedestrian access and facilities by providing sidewalks in the project vicinity with adequate accessible design meeting City of Hayward design standards.

EXISTING TRANSIT FACILITIES

The existing transit service lines and facilities near the project site are shown in **Figure 3.1-2** and are described below.

Hayward is served by the Alameda-Control Costa Transit District (AC Transit) bus service, Bay Area Rapid Transit (BART) rail service, and Amtrak commuter rail service. Local and trans-bay bus service is provided seven days a week at roughly 30- to 60-minute headways. The Hayward BART station is located 0.8-mile west of the project site. Numerous local bus routes traverse the roadways in the immediate project vicinity and serve the Hayward BART station, the Greyhound bus station, and the Amtrak train station at A Street and Meekland Avenue.

There are three bus stops in the immediate vicinity of the project site. Two are located on Foothill Boulevard between City Center Drive and A Street, both on the west side of the street for southbound travel. The third stop is on City Center Drive, near the Foothill Boulevard and City Center Drive/Hazel Avenue intersection, on the north side of the street for westbound travel. Pedestrian access from the two stops on Foothill Boulevard and one stop on City Center Drive to the project site is via existing sidewalks. The three transit stops serve Line 48, providing access to the Hayward BART, Bayfair BART, and Castro Valley BART stations. Paratransit services are provided throughout the city and the surrounding region by East Bay Paratransit, operated by AC Transit and BART.

Currently, AC Transit offers local bus transit service on the following routes in the vicinity of the project site:

- Line 48 provides weekday service at one-hour headways between 5:13 AM and 10:30 PM. The route runs a loop from the Hayward BART station and stops along Hazel Avenue/City Center Drive in the project vicinity.

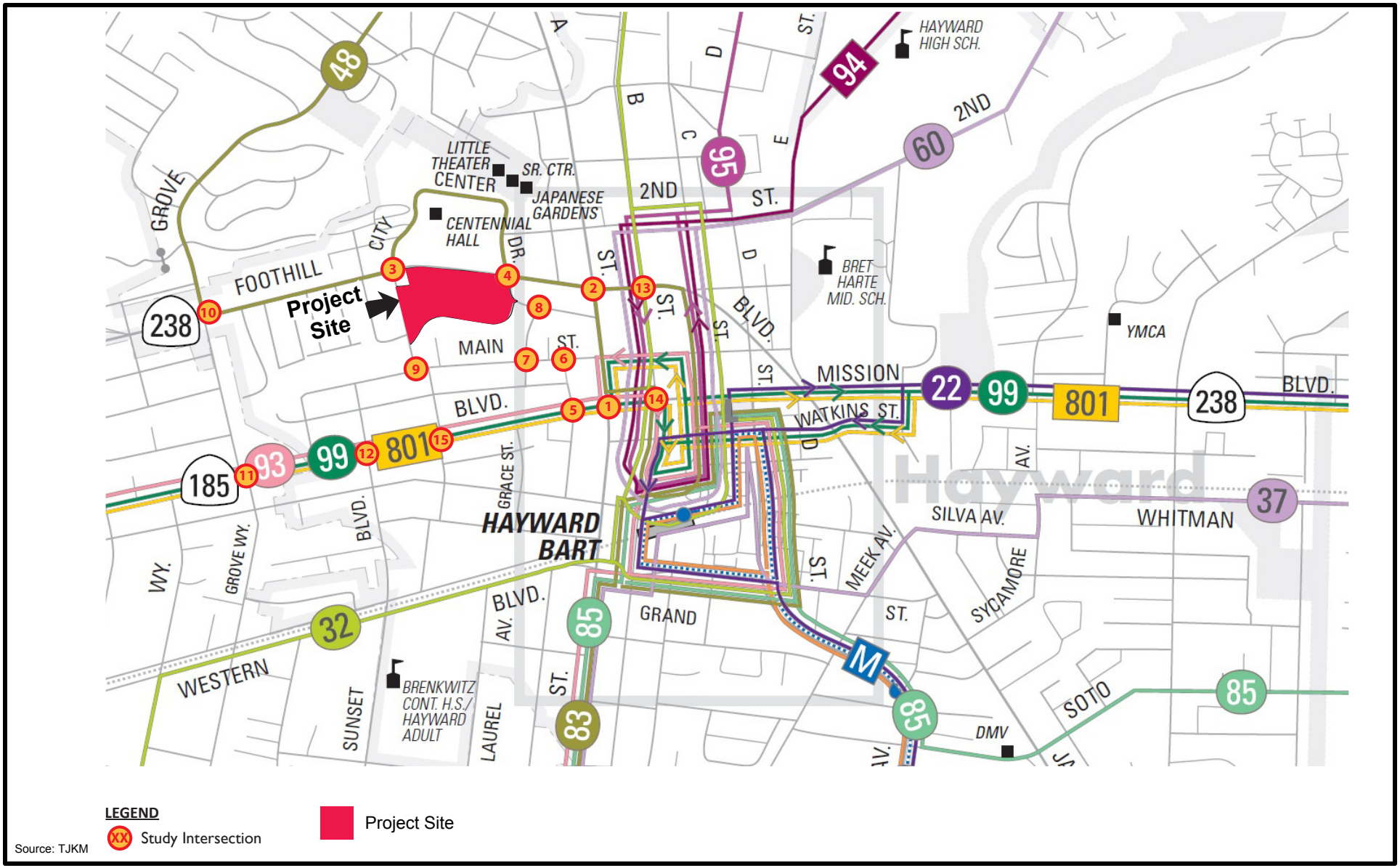
- Line 93 provides weekday service at one-hour headways between 4:58 AM and 8:25 PM and one-hour headways between 5:25 AM and 8:52 PM on weekends. The route runs a loop from the Hayward BART station and stops along Mission Boulevard in the project vicinity.

- Line 99 provides weekday service at one-hour headways between 4:58 AM and 8:25 PM and one-hour headways between 5:25 AM and 8:52 PM on weekends. The route runs a loop from the Hayward BART station and stops along Mission Boulevard in the project vicinity.

- Line 801 provides weekday service at one-hour headways between 4:58 AM and 8:25 PM and one-hour headways between 5:25 AM and 8:52 PM on weekends. The route runs a loop from the Hayward BART station and stops along Mission Boulevard in the project vicinity.

- Line 95, Line 94, Line 60, and Line 32 provide weekday and weekend service. The lines run a loop from the Hayward BART station and stop along B Street and C Street in the project vicinity.

T:_CS\Work\Hayward, City of\Lincoln Landing\Traffic Figures



Not To Scale

FIGURE 3.1-2
Existing Transit Facilities

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EXISTING TRUCK ROUTES

The 2040 Hayward General Plan Mobility Element states, "The City shall require trucks to use designated routes and shall prohibit trucks on local streets to address traffic operations and safety concerns in residential neighborhoods." In the project area, Mission Boulevard is a 65-foot California Legal Truck Route, and Foothill Boulevard and Mission Boulevard south of Jackson Street are STAA (Surface Transportation Act of 1982) Terminal Access truck routes.

EXISTING TRAFFIC VOLUMES AND LANE CONFIGURATIONS

The traffic impact analysis evaluated the existing operations of the study intersections for the highest one-hour volume during the weekday morning and evening peak periods. In March 2015, TJKM conducted turning movement counts for vehicles, bicycles, and pedestrians during typical weekday AM and PM peak periods (7:00 to 9:00 AM and 4:00 to 6:00 PM, respectively) at the study intersections. Field verification of existing intersection lane configurations and traffic controls were also conducted by TJKM and provided the basis for the level of service analysis for existing conditions. The reader is referred to Appendix B of **Appendix TRA** for the data sheets for the collected vehicle, bicycle, and pedestrian counts. **Figure 3.1-3** illustrates the existing vehicle turning movement volumes, lane geometry, and traffic controls at the study intersections.

LEVEL OF SERVICE ANALYSIS METHODOLOGY

Level of service (LOS) is a qualitative measure that describes operational conditions as they relate to the traffic stream and perceptions by motorists and passengers. The LOS generally describes these conditions in terms of such factors as speed and travel time, delays, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. The operational levels of service are given letter designations from A to F, with A representing the best operating conditions (free-flow) and F the worst (severely congested flow with high delays). Intersections generally are the capacity-controlling locations with respect to traffic operations on arterial and collector streets in urban areas.

Tables 3.1-1 and **3.1-2** summarize the relationship between delay and level of service for signalized and unsignalized intersections, respectively.

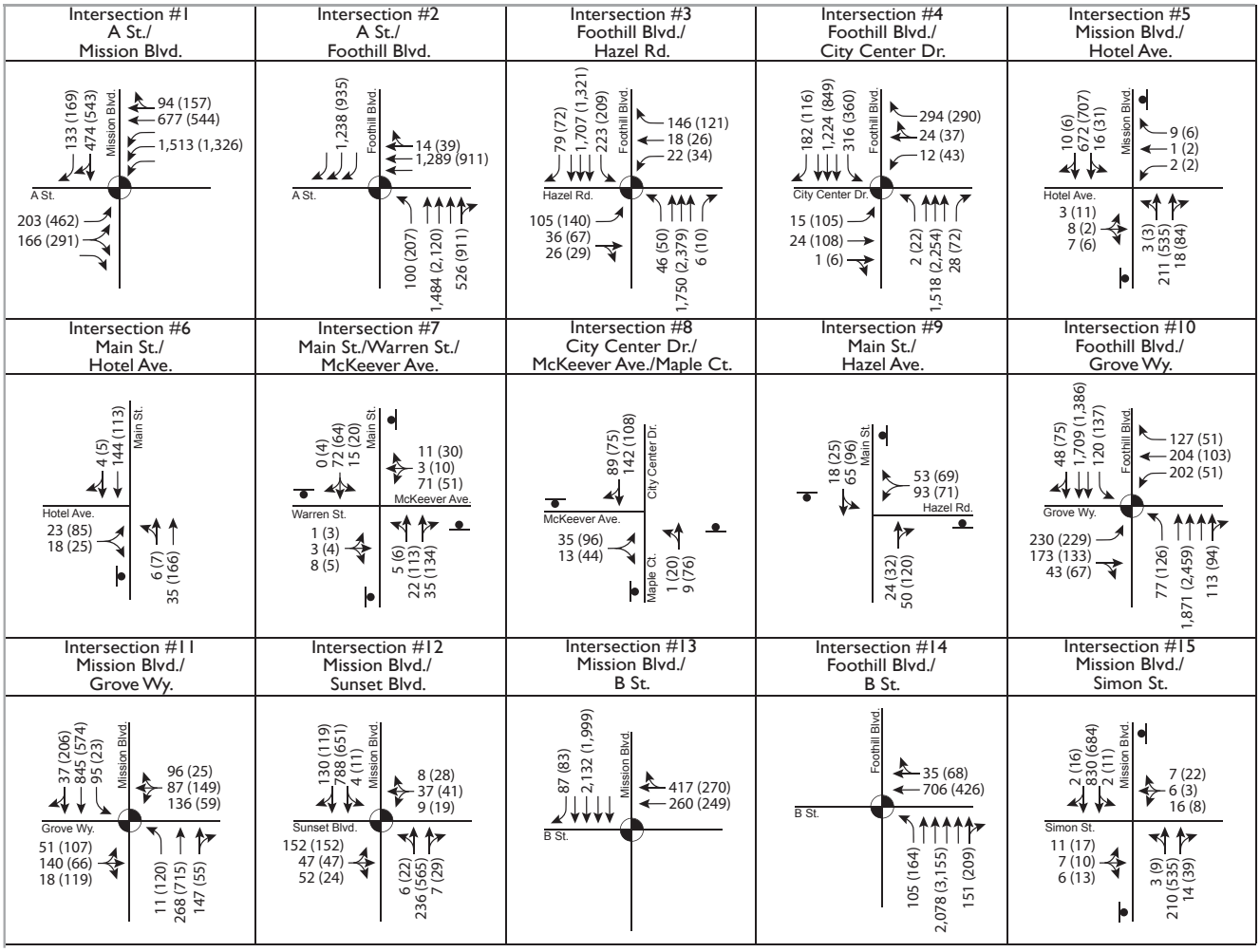
TABLE 3.1-1
LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

Level of Service	Description
A	Very low control delay, up to 10 seconds per vehicle. Progression is extremely favorable, and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.
B	Control delay greater than 10 and up to 20 seconds per vehicle. There is good progression or short cycle lengths or both. More vehicles stop causing higher levels of delay.
C	Control delay greater than 20 and up to 35 seconds per vehicle. Higher delays are caused by fair progression or longer cycle lengths or both. Individual cycle failures may begin to appear. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflow occurs. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.
D	Control delay greater than 35 and up to 55 seconds per vehicle. The influence of congestions becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volumes. Many vehicles stop, the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Control delay greater than 55 and up to 80 seconds per vehicle. The limit of acceptable delay. High delays usually indicate poor progression, long cycle lengths, and high volumes. Individual cycle failures are frequent.
F	Control delay in excess of 80 seconds per vehicle. Unacceptable to most drivers. Oversaturation, arrival flow rates exceed the capacity of the intersection. Many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to higher delay.

TABLE 3.1-2
LEVEL OF SERVICE FOR STOP-CONTROLLED INTERSECTIONS

Level of Service	Description
A	Very low control delay of less than 10 seconds per vehicle for each movement subject to delay.
B	Low control delay greater than 10 and up to 15 seconds per vehicle for each movement subject to delay.
C	Acceptable control delay greater than 15 and up to 25 seconds per vehicle for each movement subject to delay.
D	Tolerable control delay greater than 25 and up to 35 seconds per vehicle for each movement subject to delay.
E	Limit of tolerable control delay greater than 35 and up to 50 seconds per vehicle for each movement subject to delay.
F	Unacceptable control delay in excess of 50 seconds per vehicle for each movement subject to delay.

T:_CSWork\Hayward, City of\Lincoln Landing\Traffic Figures



LEGEND

- Traffic Signal
- Stop Sign
- XX AM Peak Hour Volumes
- (XX) PM Peak Hour Volumes

Source: TJKM

Not To Scale

FIGURE 3.1-3

Existing Conditions Traffic Volumes, Lane Geometry, and Traffic Controls

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INTERSECTION LEVEL OF SERVICE ANALYSIS – EXISTING CONDITIONS

Table 3.1-3 summarizes peak-hour levels of service at the study intersections under existing conditions. As shown in the table, all study intersections currently operate within City LOS E or better standards during the AM and PM peak hours.

TABLE 3.1-3
PEAK-HOUR INTERSECTION LEVELS OF SERVICE – EXISTING CONDITIONS

ID	Study Intersection	Control	Peak Hour[1]	Delay[2]	LOS[3]
1	Mission Boulevard/A Street	Signalized	AM	37.4	D
			PM	46.2	D
2	Foothill Boulevard/A Street	Signalized	AM	39.9	D
			PM	39.2	D
3	Foothill Boulevard/Hazel Avenue	Signalized	AM	32.0	C
			PM	45.5	D
4	Foothill Boulevard/City Center Drive	Signalized	AM	27.5	C
			PM	57.3	E
5	Mission Boulevard/Hotel Avenue	Two-Way Stop	AM	22.5	C
			PM	30.1	D
6	Main Street/Hotel Avenue	One-Way Stop	AM	9.8	A
			PM	11.2	B
7	Main Street/Warren Street/McKeever Avenue	All-Way Stop	AM	7.7	A
			PM	8.2	A
8	City Center Drive/McKeever Avenue/Maple Court	All-Way Stop	AM	8.2	A
			PM	9.0	A
9	Main Street/Hazel Avenue	All-Way Stop	AM	8.3	A
			PM	8.6	A
10	Foothill Boulevard/Grove Way	Signalized	AM	42.6	D
			PM	34.0	C
11	Mission Boulevard/Grove Way	Signalized	AM	34.1	C
			PM	37.3	D
12	Mission Boulevard/Sunset Boulevard	Signalized	AM	9.2	A
			PM	7.6	A
13	Mission Boulevard/"B" Street	Signalized	AM	18.2	B
			PM	16.9	B
14	Foothill Boulevard/"B" Street	Signalized	AM	26.0	C
			PM	16.1	B
15	Mission Boulevard/Simon Street	Two-Way Stop	AM	27.9	D
			PM	33.3	D

Source: TJKM 2016
Notes:
1. *AM = morning peak hour, PM = evening peak hour*
2. *Whole intersection weighted average control delay expressed in seconds per vehicle for signalized intersections and all-way stop-controlled intersections. Total control delay for the worst movement is presented for side-street stop-controlled intersections.*
3. *LOS = level of service. LOS calculations conducted using the Synchro 8 level of service analysis software package, which applies the method described in the 2000 Highway Capacity Manual.*

INTERSECTION LEVEL OF SERVICE ANALYSIS – BACKGROUND CONDITIONS

TJKM also developed year 2020 turning movement volumes for all study intersections based on the latest version of the Alameda County travel demand model. The reader is referred to **Appendix TRA** for a detailed methodology and calculation sheets.

Table 3.1-4 summarizes the intersection LOS analysis results for background conditions. As shown, under background conditions all study intersections would continue to operate within the City's LOS E standard or better during the AM and PM peak hours with the following two exceptions:

- Foothill Boulevard/City Center Drive (Intersection #4) during the PM peak hour (LOS F)
- Mission Boulevard/Simon Street (Intersection #15) during AM and PM peak hours (LOS F/F)

TABLE 3.1-4
INTERSECTION LEVELS OF SERVICE – BACKGROUND CONDITIONS

ID	Study Intersection	Control	Peak Hour[1]	Delay[2]	LOS[3]
1	Mission Boulevard/A Street	Signalized	AM	39.9	D
			PM	50.2	D
2	Foothill Boulevard/A Street	Signalized	AM	40.1	D
			PM	40.8	D
3	Foothill Boulevard/Hazel Avenue	Signalized	AM	38.4	D
			PM	72.1	E
4	Foothill Boulevard/City Center Drive	Signalized	AM	29.6	C
			PM	**80.1**	**F**
5	Mission Boulevard/Hotel Avenue	Two-Way Stop	AM	41.4	E
			PM	48.7	E
6	Main Street/Hotel Avenue	One-Way Stop	AM	10.6	B
			PM	12.6	B
7	Main Street/Warren Street/McKeever Avenue	All-Way Stop	AM	8.6	A
			PM	9.1	A
8	City Center Drive/McKeever Avenue/Maple Court	All-Way Stop	AM	8.3	A
			PM	9.2	A
9	Main Street/Hazel Avenue	All-Way Stop	AM	9.8	A
			PM	10.0	A
10	Foothill Boulevard/Grove Way	Signalized	AM	45.6	D
			PM	39.3	D
11	Mission Boulevard/Grove Way	Signalized	AM	59.3	E
			PM	57.5	E
12	Mission Boulevard/Sunset Boulevard	Signalized	AM	12.4	B
			PM	10.3	B

ID	Study Intersection	Control	Peak Hour[1]	Delay[2]	LOS[3]
13	Mission Boulevard/"B" Street	Signalized	AM	18.9	B
			PM	18.9	B
14	Foothill Boulevard/"B" Street	Signalized	AM	27.5	C
			PM	21.1	C
15	Mission Boulevard/Simon Street	Two-Way Stop	AM	**50.8**	**F**
			PM	**50.8**	**F**

Source: TJKM 2016
Notes:
1. *AM = morning peak hour, PM = evening peak hour*
2. *Whole intersection weighted average control delay expressed in seconds per vehicle for signalized intersections and all-way stop-controlled intersections. Total control delay for the worst movement is presented for side-street stop-controlled intersections.*
3. *LOS = level of service. LOS calculations conducted using the Synchro 8 level of service analysis software package, which applies the method described in the 2000 Highway Capacity Manual.*

Bold *text indicates intersection operates at a deficient level of service.*

3.1.2 REGULATORY FRAMEWORK

The City of Hayward has jurisdiction over all city streets and City-operated traffic signals. The California Department of Transportation (Caltrans) has jurisdiction over state facilities, including I-580, I-880, State Route (SR) 92, and SR 185. Caltrans also has jurisdiction over on- and off-ramp intersections with local streets. The County of Alameda has jurisdiction over streets in unincorporated areas. As described previously, transit agencies operating within the city limits include the Alameda-Control Costa Transit District (AC Transit) bus service, Bay Area Rapid Transit (BART) rail service, and Amtrak commuter rail service.

FEDERAL

Americans with Disabilities Act of 1990

Titles I, II, III, and V of the Americans with Disabilities Act (ADA) have been codified in Title 42 of the United States Code, beginning at Section 12101. Title III prohibits discrimination on the basis of disability in places of public accommodation (businesses and nonprofit agencies that serve the public) and commercial facilities (other businesses). The regulation includes Appendix A to Part 36 (Standards for Accessible Design), establishing minimum standards for ensuring accessibility when designing and constructing a new facility or altering an existing facility.

Examples of key guidelines include detectable warnings for pedestrians entering traffic where there is no curb, a clear zone of 48 inches for the pedestrian travelway, and a vibration-free zone for pedestrians.

STATE

California Department of Transportation

Caltrans has authority over the state highway system, including freeways, interchanges, and arterial state routes. Caltrans approves the planning, design, and construction of improvements for all state-controlled facilities, including I-580, I-880, SR 92, and SR 185, and the associated interchanges for these facilities located in the project vicinity. Caltrans requirements are described

in its Guide for the Preparation of Traffic Impact Studies, which covers the information needed for Caltrans to review the impacts on state highway facilities, including freeway segments.

Senate Bill 743

Senate Bill (SB) 743 was signed into law on September 27, 2013. SB 743 adds Chapter 2.7, Modernization of Transportation Analysis for Transit-Oriented Infill Projects, to Division 13 (Section 21099) of the Public Resources Code. SB 743 started a process that could change the way transportation impacts are analyzed under CEQA. These changes will shift agencies away from using auto delay, level of service, and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant traffic impacts in California. SB 743 includes amendments that allow cities and counties to opt out of traditional level of service standards where congestion management programs are used and requires the state Office of Planning and Research (OPR) to update the CEQA Guidelines and establish "criteria for determining the significance of transportation impacts of projects within transit priority areas." As part of the new CEQA Guidelines, the new criteria "shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." The OPR is currently accepting comments on its Preliminary Discussion Draft of Updates to the CEQA Guidelines Implementing Senate Bill 743, which was released on August 6, 2014, and currently proposes the use of vehicle miles traveled (VMT) as a metric for evaluating traffic impacts. Once the final draft of the changes to the CEQA Guidelines is published, certification and adoption by the Secretary for Resources will be required before they go into effect.

Based on CalEEMod outputs generated for the project's greenhouse gas emissions (see **Appendix GHG**), the proposed project would result in 12,084,085 vehicle miles traveled in the unmitigated condition and 10,658,163 vehicle miles traveled (an approximately 12 percent reduction) when increased diversity of uses and the pedestrian network are considered in the model (mitigated).

REGIONAL

Metropolitan Transportation Commission

The Metropolitan Transportation Commission (MTC) is the Bay Area's regional transportation planning agency and federally designated metropolitan planning organization (MPO). MTC is responsible for preparing the Regional Transportation Plan (RTP), a comprehensive blueprint for the development of mass transit, highway, airport, seaport, railroad, bicycle, and pedestrian facilities. The RTP is a 20-year plan that is updated every three years to reflect new planning priorities and changing projections of future growth and travel demand. The long-range plan must be based on a realistic forecast of future revenues, and the transportation projects taken as a whole must help improve regional air quality. MTC also screens requests from local agencies for state and federal grants for transportation projects to determine compatibility with the RTP.

Plan Bay Area

Plan Bay Area is a long-range integrated transportation and land-use/housing strategy through 2040 for the San Francisco Bay Area. On July 18, 2013, the Association of Bay Area Governments (ABAG) Executive Board and MTC jointly approved the plan. The plan includes the region's Sustainable Communities Strategy and the 2040 RTP and represents the next iteration of a planning process that has been in place for decades.

Plan Bay Area marks the nine-county region's first long-range plan to meet the requirements of California's landmark 2008 Senate Bill 375, which calls on each of the state's 18 metropolitan areas to develop a Sustainable Communities Strategy to accommodate future population growth and reduce greenhouse gas emissions from cars and light trucks. Working in collaboration with cities and counties, the plan advances initiatives to expand housing and transportation choices, create healthier communities, and build a stronger regional economy.

One of the strategies to achieve this vision is the establishment of Priority Development Areas (PDAs). Downtown Hayward is an identified PDA. The proposed project site is located within the Downtown PDA and within approximately one-half mile of the Downtown BART Station and was thus identified as a prime opportunity to develop a large-scale, mixed use development to locate high density housing close to services and transit. See further discussion on this topic in **Impact LAN-2** in Section 3.0, Impacts Found to Be Less Than Significant.

LOCAL

City of Hayward 2040 General Plan

On July 1, 2014, the Hayward City Council approved the Hayward 2040 General Plan and certified the General Plan Final Environmental Impact Report. The plan provides a community-based vision for the future of the Hayward community, and identifies a variety of goals policies, and implementation programs to advance the vision. Following is a list of those General Plan goals, policies, and implementation programs that apply to transportation and circulation and the proposed project.

Mobility Element

Policy M-1.2: Multimodal Choices: The City shall promote development of an integrated, multi-modal transportation system that offers desirable choices among modes including pedestrian ways, public transportation, roadways, bikeways, rail and aviation.

Policy M-3.9: The City shall encourage large private developments (e.g., office parks, apartment complexes, retail centers) to provide complete streets that connect to the existing public roadway system and provide a seamless transition to existing and planned transportation facilities.

Policy M-4.3: Level of Service – The City shall maintain a minimum vehicle Level of Service E at signalized intersections during the peak commute periods except when a LOS F may be acceptable due to costs of mitigation or when there would be other unacceptable impacts, such as right-of-way acquisition or degradation of the pedestrian environment due to increased crossing distances or unacceptable crossing delays.

City of Hayward Interim Traffic Study Guidelines

The City's Traffic Study Guidelines, adopted October 2015 and revised December 2015, serve as a general guide to aid in the preparation of traffic studies for projects in Hayward. The guidelines establish thresholds for trip generation, study intersections, analysis methodology, and forecasting, as well as a pedestrian and bicycle circulation systems. The guidelines were used in the project's traffic impact analysis and are explained in more detail in the Methodology subsection below.

City of Hayward Municipal Code

The City has adopted the California Vehicle Code as the regulations governing parking and traffic movement in Hayward. Additionally, Chapter 7, Article 1, provides guidelines for private developers as they relate to the acquisition of public rights-of-way and for the construction of public improvements in connection with the development of property. The goals are to supplement and ensure conformity to the Zoning Ordinance, the Subdivision Map Act, and Chapter 10, Articles 3 and 4 of the Municipal Code; spread the costs of public improvements; protect public safety and welfare; and protect the vested public interest in city streets and highways.

City of Hayward Bicycle Master Plan

The Hayward Bicycle Master Plan includes long-term vision and direction for bicycle transportation and recreation in the city. The plan provides a broad vision, strategies, and actions for the improvement of bicycling in Hayward.

Figure 3-3 of the Bicycle Master Plan shows the existing bikeways in the city as of October 2007. Hayward has nearly 7 miles of existing off-street bike paths within its borders. The Bay Trail, at almost three miles long, is maintained by the East Bay Regional Parks District. The bike path along the Eden Greenway, developed by the Hayward Area Recreation and Park District, is 1.5 miles long. The remaining 2.4 miles are located adjacent to Mission Boulevard, Industrial Parkway, and along the Alameda County Flood Control channel between Pacheco Way and Folsom Avenue.

3.1.3 IMPACTS AND MITIGATION MEASURES

METHODOLOGY

The following impact analysis is based primarily on the traffic impact analysis (TIA) prepared for the proposed project by TJKM (2016; **Appendix TRA**).

Traffic Signal Warrant Evaluation Methods

In order to determine whether traffic signals should be installed at currently unsignalized intersections, a supplemental traffic signal warrant analysis was completed. The California Manual on Uniform Traffic Control Devices (CA-MUTCD), dated November 2014, was used for the analysis. The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the need for installation of a traffic signal at an unsignalized intersection location. The CA-MUTCD signal warrant criteria are based on several factors including volume of vehicular and pedestrian traffic, location of school areas, frequency and type of collisions, etc. CA-MUTCD indicates that "the satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal." The TIA evaluated CA-MUTCD-based Peak-Hour-Volume-based Warrant 3 (Urban Areas) as a representative type of warrant analysis.

Proposed Project

Project Trip Generation

TJKM developed estimated project trip generation for the proposed project based on published trip generation rates from the Institute of Transportation Engineers' (ITE) publication Trip Generation

(9th Edition). TJKM applied trip discounts to the proposed project trip generation that are consistent with industry standards used in Bay Area cities with similar development patterns as Hayward in terms of development densities, residential-retail mixed-use internal trip capture, retail pass-by, and proximity to rail transit, and in consultation with City of Hayward staff.

TJKM applied published trip rates for the ITE land uses Apartment (Code 220), Supermarket (Code 850), and Shopping Center (Code 820) to the proposed project. As shown in **Table 3.1-5**, Phase 1 of the project is expected to generate approximately net 247 weekday AM peak-hour trips (103 inbound, 143 outbound) and 395 weekday PM peak-hour trips (220 inbound, 175 outbound). As shown in **Table 3.1-6**, the entire project is expected to generate approximately 322 weekday AM peak-hour trips (113 inbound, 209 outbound) and 488 weekday PM peak-hour trips (284 inbound, 204 outbound).

TJKM applied a 10 percent internal trip discount from residential to commercial and commercial to residential, as the project proposes a mixed-use development. In addition, Transportation Demand Management (TDM) trip discounts of 9 percent and pass-by trip reductions of 34 percent were applied per Land Use 820-Shopping Center from ITE's Trip Generation, Volume 1: User's Guide and Handbook.

Mixed-use trip reductions of 10 percent and TDM measure reductions of 9 percent are consistent with industry standards used in Bay Area cities with similar development patterns as Hayward and were applied by TJKM in consultation with City staff. For mixed-use trip reduction, a 10 percent trip reduction was first applied by TJKM to the smaller trip generator (residential) and the same number of trips was then subtracted from the larger trip generator (retail) to account for both trip ends.

Pass-by trips are made as intermediate stops on the way from an origin to a primary trip destination without a route diversion. Pass-by trips account for trips that are already on the roadway but will stop/divert to the new development on their way to their final destinations. Pass-by trips are attracted from traffic passing the site on an adjacent street or roadway that offers direct access to the generator. Pass-by trips are not diverted from another roadway.

TABLE 3.1-5
TRIP GENERATION – PROPOSED PROJECT PHASE 1

Proposed Land Use (ITE Code)	Size		Daily		AM Peak						PM Peak					
			Rate	Trips	Rate	In %	Out %	In	Out	Total	Rate	In %	Out %	In	Out	Total
Apartment (220)	267.0	DU	6.65	1,176	0.51	20	80	27	109	136	0.62	65	35	108	58	166
Supermarket (850)	35.0	KSF	102.24	3,578	3.40	62	38	74	45	119	9.48	51	49	169	163	332
Retail (820)	45.5	KSF	42.70	1,943	0.96	62	38	27	17	44	3.71	48	52	81	88	169
Total Before Discounts				**7,297**				**128**	**171**	**300**				**357**	**309**	**666**
10% Internal Discount (residential to commercial)[1]				-178				-3	-11	-14				-11	-6	-17
10% Internal Discount (commercial to residential)[1]				-178				-11	-3	-14				-6	-11	-17
TDM Measure Discount, 9%[2]				-657				-12	-15	-27				-32	-28	-60
Supermarket Peak-Hour Pass-By Trip Reduction (ITE), 36%[3]													-36%	-61	-59	-120
Retail Peak-Hour Pass-By Trip Reduction (ITE), 34%[3]													-34%	-28	-30	-57
Total After Discounts				**6,284**				**103**	**143**	**247**				**220**	**175**	**395**

Source: TJKM 2016
Notes:
KSF = one thousand square feet, DU = dwelling unit

1. *Mixed Use Trip Reduction of 10% consistent with industry standards used in Bay Area cities with similar development patterns as Hayward and in consultation with City staff. The 10% trip reduction was first applied to the smaller trip generator (residential).The same number of trips was then subtracted from the larger trip generator (retail) to account for both trip ends.*
2. *TDM Measure Reduction of 9% consistent with industry standards used in Bay Area cities with similar development patterns as Hayward. Used after consultation with City staff.*
3. *TJKM applied a pass-by reduction rate of 34% for Retail land use and 36% for Supermarket land use consistent with ITE-recommended average rates for a conservative estimate of net-total trips.*

TABLE 3.1-6
TRIP GENERATION – PROPOSED PROJECT PHASE 1 AND PHASE 2

Proposed Land Use (ITE Code)	Size		Daily		AM Peak						PM Peak					
			Rate	Trips	Rate	In %	Out %	In	Out	Total	Rate	In %	Out %	In	Out	Total
Apartment (220)	476.0	DU	6.65	3,165	0.51	20	80	49	194	243	0.62	65	35	192	103	295
Supermarket (850)	35.0	KSF	102.24	3,578	3.40	62	38	74	45	119	9.48	51	49	169	163	332
Retail (820)	45.5	KSF	42.70	1,943	0.96	62	38	27	17	44	3.71	48	52	81	88	169
Total Before Discounts				**8,687**				**151**	**256**	**407**				**442**	**354**	**796**
10% Internal Discount (residential to commercial)[1]				-317				-5	-19	-24				-19	-10	-30
10% Internal Discount (commercial to residential)[1]				-317				-19	-5	-24				-10	-19	-30
TDM Measure Discount, 9%[2]				-782				-14	-23	-37				-40	-32	-72
Supermarket Peak-Hour Pass-By Trip Reduction (ITE), 36%[3]													-36%	-61	-59	-120
Retail Peak-Hour Pass-By Trip Reduction (ITE), 34%[3]													-34%	-28	-30	-57
Total After Discounts				**7,271**				**113**	**209**	**322**				**284**	**204**	**488**

Source: TJKM 2016
Notes:
KSF = one thousand square feet, DU = dwelling unit

1. *Mixed Use Trip Reduction of 10% consistent with industry standards used in Bay Area cities with similar development patterns as Hayward and in consultation with City staff. The 10% trip reduction was first applied to the smaller trip generator (residential).The same number of trips was then subtracted from the larger trip generator (retail) to account for both trip ends.*
2. *TDM Measure Reduction of 9% consistent with industry standards used in Bay Area cities with similar development patterns as Hayward. Used after consultation with City staff.*
3. *TJKM applied a pass-by reduction rate of 34% for Retail land use and 36% for Supermarket land use consistent with ITE recommended average rates for a conservative estimate of net-total trips.*

Transportation Demand Management

The project's traffic impact analysis applied a reduction in trips related to TDM, thus assuming that people will drive less and walk, bike, and take transit. The proposed project would be generating 37 transit trips in the AM peak hour and 72 transit trips in the PM peak hour. The following measures were provided by TJKM as options to obtain the above reductions. These will be incorporated into the project, and the City will include a condition of approval that determines the timing of the measures and monitoring to ensure reductions are met.

- **Shuttle services**: Provide a shuttle service for residents and employees to connect with the Hayward BART station, like funding the future Amtrak-Downtown Cannery loop shuttle service.

- **Transit passes**: Universal transit passes, such as Clipper cards, would allow residents and employees alike to have subsidized services for AC Transit and BART.

- **Car-sharing programs**: Lincoln Landing, with its higher housing density and amount of employees, is an ideal candidate to utilize car-sharing services. Zipcar is a member program that could benefit from employer or homeowner association subsidies.

- **Unbundled parking costs**: The cost of parking for residential and commercial units is often passed on to the occupants indirectly through the rent or purchase price ("bundled"), rather than directly through a separate charge. The alternative is to unbundle parking—rent or sell parking spaces separately, rather than automatically including them with building space. This is not only more equitable, but can also reduce the total amount of parking required for the building.

- **Bicycle racks and lockers** for residents, employees, and shoppers. These will be particularly useful for Lincoln Landing employees to encourage walking and bicycling to work, including bike sharing. Provisions for bicycle racks and lockers should be part of the Lincoln Landing conditions of approval.

- **On-site bike/pedestrian amenities:** The overall layout of the site should be geared first of pedestrian and bicycle promotion. Walkways within the site should be carefully planned to facilitate walking by pedestrians to access nearby downtown features and to promote recreational uses by residents.

- **Shared parking**: Preferential carpool/vanpool parking should be provided for carpooling employees. In this instance, shared parking between the residential and nonresidential uses, combined with unbundling the residential uses, should result in a substantial reduction of on-site parking for the overall Lincoln Landing development.

- **Bike-share program**: A system modeled after San Francisco's bike-share program has the potential for success in downtown Hayward; the City should endeavor to include the Lincoln Landing development due to its higher residential densities and mixed-use characteristics.

- **On-site TDM coordinators:** In this mixed-use development, TJKM recommends separate arrangements for on-site coordinators for residential and nonresidential uses. In both instances, the goal is to promote carpooling and alternative modes of transportation such as transit, bicycling, or walking. On the residential side, the local TDM coordinator would provide rideshare matching, information on shuttle services, car sharing, bike sharing, and

transit passes. On the nonresidential side, the TDM coordinator would facilitate carpooling and ridesharing among residents and would care for on-site showers, lockers, and bicycle lockers. In addition, bus and shuttle services and passes would be coordinated, along with information on car and bike sharing. The on-site TDM coordinators will offer important services to Lincoln Landing residents, employees, and customers.

Project Trip Distribution and Assignment

Trip distribution is a process that determines in what proportion vehicles would be expected to travel between the project site and various destinations outside the project study area. Assignment determines the various routes that vehicles would take from the project site to each destination using the calculated trip distribution.

Trip distribution assumptions for the proposed project were developed based on the City of Hayward/ACTC Travel Demand Model and existing travel patterns, the traffic consultant's knowledge of the study area, and consultation with City staff.

The distribution assumptions are as follows:

- 35 percent to/from Foothill Boulevard north
- 10 percent to/from Mission Boulevard north (via Grove Way)
- 5 percent to/from A Street west
- 10 percent to/from A Street east
- 5 percent to /from B Street
- 25 percent to/from Foothill Boulevard/Jackson Street
- 10 percent to/from Mission Boulevard south

Cumulative Conditions

TJKM developed 2040 turning movement volumes for all study intersections based on the latest version of the Alameda County travel demand model. TJKM determined the difference in 2005 base year and 2035 buildout year volumes for study area model links and factored the difference to account for 20 years of traffic growth. This result was then applied proportionately to existing conditions turning movement volumes to generate year 2035 turning movement volumes. At the direction of City staff, an additional factor of 1 percent annual growth over five years was applied to develop 2040 traffic volumes.

STANDARDS OF SIGNIFICANCE

Appendix G of the State CEQA Guidelines provides general considerations for lead agencies evaluating impacts on the transportation system. These considerations are listed below, along with the significance criteria for determining whether impacts would be significant.

a) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant

components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

b) Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

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

e) Result in inadequate emergency access.

f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance of safety of such facilities.

The City of Hayward currently uses LOS E as the minimum acceptable level of service threshold for signalized intersections during the AM and PM peak periods. Therefore, the TIA prepared for the proposed project and the following impact analysis utilize LOS E as the minimum acceptable threshold at all signalized study intersections for traffic impact purposes.

Regarding acceptable level of service during AM and PM peak periods, the Hayward 2040 General Plan Mobility Element (2014) includes the following implementing policy:

Policy M-4.3: Level of Service – The City shall maintain a minimum vehicle Level of Service E at signalized intersections during the peak commute periods except when a LOS F may be acceptable due to costs of mitigation or when there would be other unacceptable impacts, such as right-of-way acquisition or degradation of the pedestrian environment due to increased crossing distances or unacceptable crossing delays.

For the purposes of this analysis, project impacts at signalized intersections are considered significant if the addition of project-generated traffic:

- Causes the AM or PM peak-hour level of service to degrade from an acceptable LOS E or better to an unacceptable LOS F.

In addition, for both signalized and unsignalized intersections, the project would result in a potentially significant impact if:

- The intersection operates at LOS F without the project under Existing, Background, or Cumulative conditions and the addition of the project under Existing plus Project, Background plus Project, or Cumulative plus Project conditions results in an increase in the average control delay of 5.0 seconds or greater when compared to the associated no project condition.

Impacts Not Evaluated in Detail

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

The project site is located more than 2 miles from the Hayward Executive Airport and would not involve changes in air traffic operations. There would be no impact relative to standard of significance c, and impacts related to airport operations are not evaluated further in this Draft EIR.

PROJECT IMPACTS AND MITIGATION MEASURES

Traffic Operational Impacts – Existing plus Phase 1 Conditions (Standards of Significance a and b)

Impact 3.1.1 Implementation of Phase 1 of the proposed project would generate vehicle trips but would not contribute to significant traffic operational impacts at intersections or project driveways as compared to existing conditions. This impact would be **less than significant**.

Intersection Level of Service Analysis

TJKM added the assigned project trips estimated for Phase 1 of the proposed project to the existing traffic volumes to generate Existing plus Project Phase 1 traffic volumes, which are shown in **Figure 3.1-4.** The intersection LOS analysis results for Existing plus Project Phase 1 Conditions are summarized in **Table 3.1-7**. The LOS analysis for Existing Conditions are also included in the table, along with the projected increases in control delay. With the addition of project traffic, all of the study intersections would continue to operate within the applicable standard of LOS E or better during both the AM and PM peak hours.

TABLE 3.1-7
INTERSECTION LEVEL OF SERVICE ANALYSIS – EXISTING PLUS PROJECT PHASE 1 CONDITIONS

ID	Study Intersections	Control	Peak Hour[1]	Existing Conditions		Existing plus Phase 1 Conditions		Change in Control Delay (sec)[4]
				Delay[1]	LOS[2]	Delay[2]	LOS[3]	
1	Mission Boulevard/ A Street	Signalized	AM	37.4	D	37.5	D	0.1
			PM	46.2	D	46.5	D	0.3
2	Foothill Boulevard/ A Street	Signalized	AM	39.9	D	41.3	D	1.4
			PM	39.2	D	39.9	D	0.7
3	Foothill Boulevard/ Hazel Avenue	Signalized	AM	32.0	C	30.6	C	-1.4
			PM	45.5	D	52.5	D	7.0
4	Foothill Boulevard/ City Center Drive	Signalized	AM	27.5	C	32.2	C	4.7
			PM	57.3	E	74.1	E	16.8
5	Mission Boulevard/ Hotel Avenue	Two-Way Stop	AM	22.5	C	22.7	C	0.2
			PM	30.1	D	30.9	D	0.8
6	Main Street/Hotel Avenue	One-Way Stop	AM	9.8	A	9.9	A	0.1
			PM	11.2	B	11.5	B	0.3
7	Main Street/Warren Street/McKeever Avenue	All-Way Stop	AM	7.7	A	7.9	A	0.2
			PM	8.2	A	8.4	A	0.2

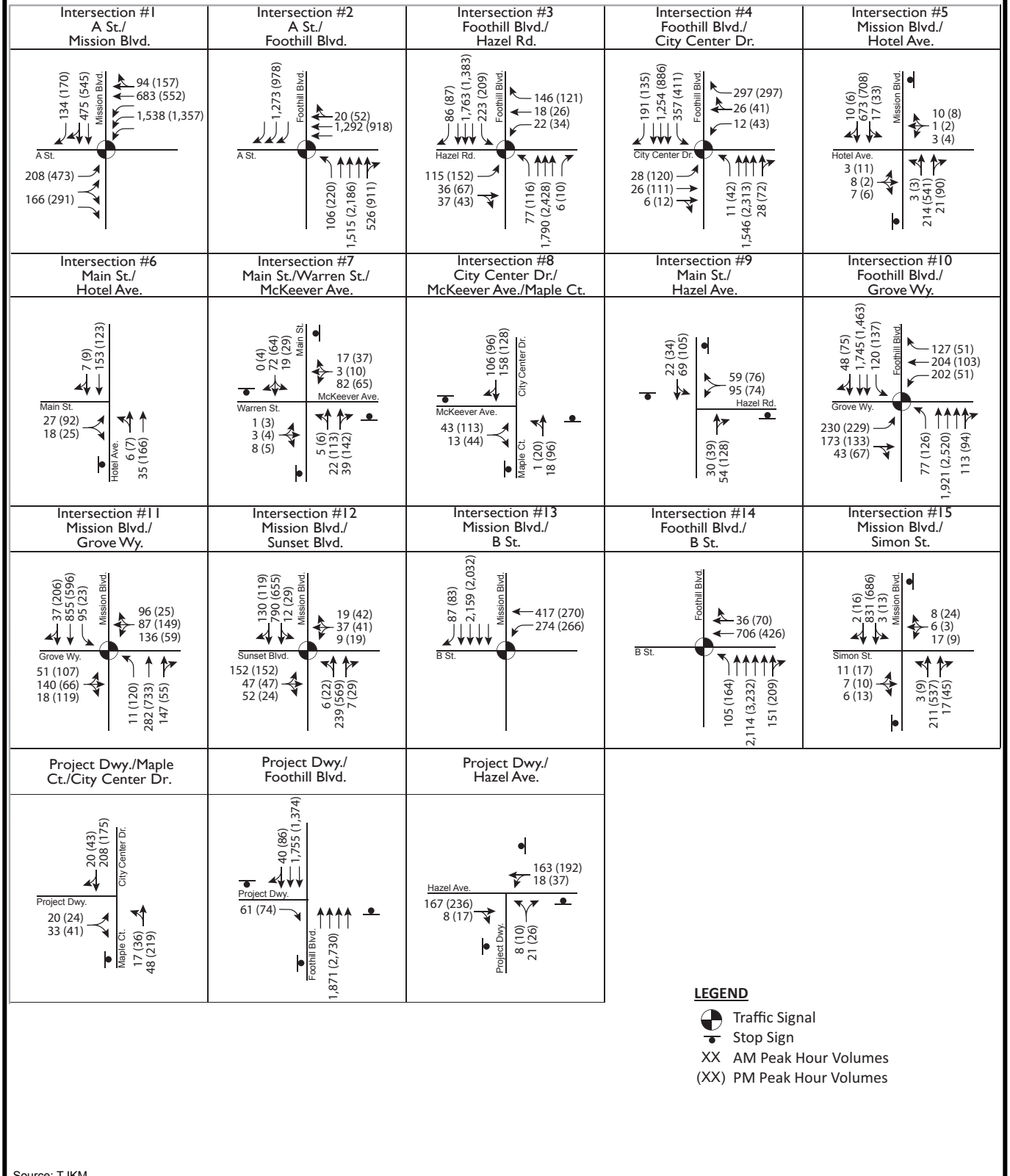
ID	Study Intersections	Control	Peak Hour[1]	Existing Conditions		Existing plus Phase 1 Conditions		Change in Control Delay (sec)[4]
				Delay[1]	LOS[2]	Delay[2]	LOS[3]	
8	City Center Drive/ McKeever Avenue/ Maple Court	All-Way Stop	AM	8.2	A	8.6	A	0.4
			PM	9.0	A	9.7	A	0.7
9	Main Street/Hazel Avenue	All-Way Stop	AM	8.3	A	8.4	A	0.1
			PM	8.6	A	8.9	A	0.3
10	Foothill Boulevard/ Grove Way	Signalized	AM	42.6	D	48.3	D	5.7
			PM	34.0	C	34.3	C	0.3
11	Mission Boulevard/ Grove Way	Signalized	AM	34.1	C	34.2	C	0.1
			PM	37.3	D	37.6	D	0.3
12	Mission Boulevard/ Sunset Boulevard	Signalized	AM	9.2	A	9.3	A	0.1
			PM	7.6	A	7.6	A	0.0
13	Mission Boulevard/ B Street	Signalized	AM	18.2	B	18.4	B	0.2
			PM	16.9	B	17.3	B	0.4
14	Foothill Boulevard/ B Street	Signalized	AM	26.0	C	26.0	C	0.0
			PM	16.1	B	16.3	B	0.2
15	Mission Boulevard/ Simon Street	Two-Way Stop	AM	27.9	D	28.3	D	0.4
			PM	33.3	D	34.2	D	0.9

Source: TJKM 2016
Notes:
1. *AM = morning peak hour, PM = evening peak hour*
2. *Whole intersection weighted average control delay expressed in seconds per vehicle for signalized intersections and all-way stop-controlled intersections. Total control delay for the worst movement is presented for side-street stop-controlled intersections.*
3. *LOS = level of service. LOS calculations conducted using the Synchro 8 level of service analysis software package, which applies the method described in the 2000 Highway Capacity Manual.*
4 *Change in average control delay between Existing and Existing plus Project Phase 1 Conditions.*

Intersection Queuing Analysis

While the City of Hayward has no standards of significance that apply to queuing, TJKM conducted a vehicle queuing and storage analysis for all exclusive left and right turn pockets at selected study intersections and driveways where project traffic is added under Existing plus Phase 1 conditions. **Table 3.1-8** summarizes the 95th percentile queue lengths at these intersections under both Existing and Existing plus Phase 1 conditions.

T:_CSWork\Hayward, City of\Lincoln Landing\Traffic Figures



Source: TJKM

Not To Scale

FIGURE 3.1-4

Existing Plus Project Phase 1 Conditions Traffic Volumes, Lane Geometry and Traffic Controls

Michael Baker INTERNATIONAL

TABLE 3.1-8
95TH PERCENTILE QUEUES AT TURN POCKETS AFFECTED BY PROJECT TRAFFIC – EXISTING PLUS PHASE 1 CONDITIONS

ID	Study Intersections	Lane Group	Storage Length per Lane (feet)	Existing Conditions		Existing plus Phase 1 Conditions		Change	
				AM	PM	AM	PM	AM	PM
1	Mission Boulevard/A Street	EBL	360	200	**380**	200	**400**	0	20
		SBR	100	**120**	**160**	**120**	**160**	0	0
2	Foothill Boulevard/A Street	NBL	400	120	240	120	260	0	20
		SBR	730	420	460	500	500	80	40
3	Foothill Boulevard/Hazel Avenue	SBR	100	40	40	60	40	20	0
		EBL	100	**160**	**320**	**180**	**360**	20	40
		NBL	550	100	100	120	280	20	180
4	Foothill Boulevard/City Center Drive	SBR	170	60	40	80	40	20	0
		SBL	420	**440**	**640**	**580**	**780**	120	140
		EBL	80	40	**260**	60	**300**	20	40
		NBL	220	20	40	20	80	0	40
10	Foothill Boulevard/Grove Way	NBL	180	120	**200**	120	**200**	0	0
11	Mission Boulevard/Grove Way	SBL	220	120	40	120	60	0	20

Source: TJKM 2016
Notes:
***Bold** indicates 95th percentile queue exceeds storage length expressed in feet per lane.*
EBL = eastbound left turn; SBR = southbound right turn; NBL = northbound left turn; SBL = southbound left turn

The following findings were made:

- Mission Boulevard/A Street (#1) – For this intersection, both eastbound left turn and southbound right turn available queuing capacity is exceeded for the PM peak hour under both Existing and Existing plus Project Phase 1 scenarios. However, the project would increase the queue by a maximum of one vehicle per cycle in the peak 15 minutes during the PM peak hour for eastbound left turn. This increase is not considered significant.

- Foothill Boulevard/A Street (#2) – For this intersection, both northbound left turn and southbound right turn available queuing capacity is not exceeded for both the AM and PM peak hours under both Existing and Existing plus Project Phase 1 scenarios. The project would increase the queue by a maximum of four vehicles per cycle in the peak 15 minutes during the peak hours, which is accommodated by the existing storage. This increase is not considered significant.

- Foothill Boulevard/Hazel Avenue (#3) – For this intersection, eastbound left turn available queuing capacity is exceeded for both the AM and PM peak hours under both Existing and Existing plus Project Phase 1 scenarios. The project would increase the queue by a maximum of two vehicles per cycle in the peak 15 minutes during the peak hours, a minor change. In the worst case, the proposed project is expected to add approximately 180 feet of queuing in the PM peak hour (a maximum of nine vehicles per cycle in the peak 15

minutes) to the existing northbound left turn queues, but the storage length of 550 feet can accommodate projected queues.

- Foothill Boulevard/City Center Drive (#4) – For this intersection, southbound left turn available queuing capacity is exceeded for both the AM and PM peak hours under both Existing and Existing plus Project Phase 1 scenarios. The project would increase the queue by a maximum of two vehicles per cycle in the peak 15 minutes during the peak hours, a minor change. For southbound left turns, in the worst case, the proposed project is expected to add 120 feet (a maximum of six vehicles per cycle in the peak 15 minutes) in the AM peak hour and 140 feet (a maximum of seven vehicles per cycle in the peak 15 minutes) in the PM peak hour queuing to the existing condition.

- Foothill Boulevard/Grove Way (#10) – For this intersection, northbound left turn available queuing capacity is exceeded for the PM peak hour under both Existing and Existing plus Project Phase 1 scenarios. However, the project would increase the queue by a maximum of one vehicle per cycle during the peak 15 minutes during the peak hours, a minor change, which is not considered significant.

- Mission Boulevard/Grove Way (#11) – For this intersection, southbound left turn available queuing capacity is not exceeded for either the AM or PM peak hours under both Existing and Existing plus Project Phase 1 scenarios.

Project Driveway Queuing and Level of Service Analysis

TJKM also conducted a vehicle queuing and level of service analysis at the proposed project driveways at Hazel Avenue, Foothill Boulevard, and City Center Drive. **Table 3.1-9** summarizes the 95 percentile queue lengths and LOS at the project driveways under Existing plus Project Phase 1 scenario. As shown, under Existing plus Project Phase 1 Conditions, all project driveways are expected to operate at acceptable levels of service. In addition, the 95th percentile queueing at the outbound approach of project driveways is expected to be minimal.

TABLE 3.1-9
95TH PERCENTILE QUEUES AND LOS AT PROJECT DRIVEWAYS – EXISTING PLUS PROJECT PHASE 1 CONDITIONS

ID	Intersection	Control	AM			PM		
			Delay[1]	LOS[2]	95th percentile Queue (ft.)[3]	Delay[1]	LOS[2]	95th percentile Queue (ft.)[3]
1	City Center Drive/Project Driveway	One-Way Stop	10.3	B	20	11.1	B	20
2	Foothill Boulevard/Project Driveway	One-Way Stop	9.7	A	20	9.4	A	20
3	Hazel Avenue/Project Driveway	One-Way Stop	9.9	A	20	10.8	B	20

Source: TJKM 2016
Notes:
1. *Delay = average control delay in seconds per vehicle*
2. *LOS = level of service*
3. *Reported values of 95th percentile queues are for the outbound movements at the project driveways*

Based on the City of Hayward impact criteria, the proposed project is expected to have a **less than significant** impact at all study intersections.

Mitigation Measures

None required.

Traffic Operational Impacts – Background plus Phase 1 Conditions (Standards of Significance a and b)

Impact 3.1.2 Implementation of Phase 1 of the proposed project would generate vehicle trips that could contribute to significant traffic operational impacts at intersections as compared to background conditions. This impact would be **significant and unavoidable**.

Intersection Level of Service Analysis

TJKM added the assigned project trips estimated for Phase 1 of the proposed project to the traffic volumes projected for background conditions to generate Background plus Project Phase 1 traffic volumes, which are shown in **Figure 3.1-5** and **Table 3.1-10**. The LOS analysis results for Background Conditions are also included in the table, along with the projected increases in delay. With the addition of project traffic, all study intersections are expected to continue to operate within the applicable standard of LOS E or better with the following exceptions:

- Foothill Boulevard/Hazel Avenue (#3) during the PM peak hour (LOS F)
- Foothill Boulevard/City Center Drive (#4) during the PM peak hour (LOS F)
- Mission Boulevard/Hotel Avenue (#5) during PM peak hour (LOS F)
- Mission Boulevard/Simon Street (#15) during AM and PM peak hours (LOS F/F)

TABLE 3.1-10
INTERSECTION LEVEL OF SERVICE ANALYSIS – BACKGROUND PLUS PROJECT PHASE 1 CONDITIONS

ID	Study Intersections	Control	Peak Hour[1]	Background Conditions		Background plus Phase 1 Conditions		Change in Control Delay (sec)[4]
				Delay[1]	LOS[2]	Delay[2]	LOS[3]	
1	Mission Boulevard/A Street	Signalized	AM	39.9	D	40.0	D	0.1
			PM	50.2	D	50.7	D	0.5
2	Foothill Boulevard/A Street	Signalized	AM	40.1	D	42.5	D	2.4
			PM	40.8	D	41.4	D	0.6
3	Foothill Boulevard/Hazel Avenue	Signalized	AM	38.4	D	37.7	D	-0.7
			PM	72.1	E	**80.8**	**F**	**8.7**
4	Foothill Boulevard/City Center Drive	Signalized	AM	29.6	C	34.5	C	4.9
			PM	**80.1**	**F**	**90.4**	**F**	**10.3**

ID	Study Intersections	Control	Peak Hour[1]	Background Conditions		Background plus Phase 1 Conditions		Change in Control Delay (sec)[4]
				Delay[1]	LOS[2]	Delay[2]	LOS[3]	
5	Mission Boulevard/Hotel Avenue	Two-Way Stop	AM	41.4	E	42.2	E	0.8
			PM	48.7	E	**50.4**	**F**	1.7
6	Main Street/Hotel Avenue	One-Way Stop	AM	10.6	B	10.9	B	0.3
			PM	12.6	B	13.0	B	0.4
7	Main Street/Warren Street/ McKeever Avenue	All-Way Stop	AM	8.6	A	8.7	A	0.1
			PM	9.1	A	9.4	A	0.3
8	City Center Drive/McKeever Avenue/Maple Court	All-Way Stop	AM	8.3	A	8.7	A	0.4
			PM	9.2	A	9.9	A	0.7
9	Main Street/Hazel Avenue	All-Way Stop	AM	9.8	A	10.0	B	0.2
			PM	10.0	A	10.5	B	0.5
10	Foothill Boulevard/Grove Way	Signalized	AM	45.6	D	50.9	D	5.3
			PM	39.3	D	39.9	D	0.6
11	Mission Boulevard/Grove Way	Signalized	AM	59.3	E	60.9	E	1.6
			PM	57.5	E	59.9	E	2.4
12	Mission Boulevard/Sunset Boulevard	Signalized	AM	12.4	B	12.7	B	0.3
			PM	10.3	B	10.8	B	0.5
13	Mission Boulevard/B Street	Signalized	AM	18.9	B	19.3	B	0.4
			PM	18.9	B	19.2	B	0.3
14	Foothill Boulevard/B Street	Signalized	AM	27.5	C	27.6	C	0.1
			PM	21.1	C	21.4	C	0.3
15	Mission Boulevard/Simon Street	Two-Way Stop	AM	**50.8**	**F**	**51.6**	**F**	0.8
			PM	**50.8**	**F**	**52.8**	**F**	2.0

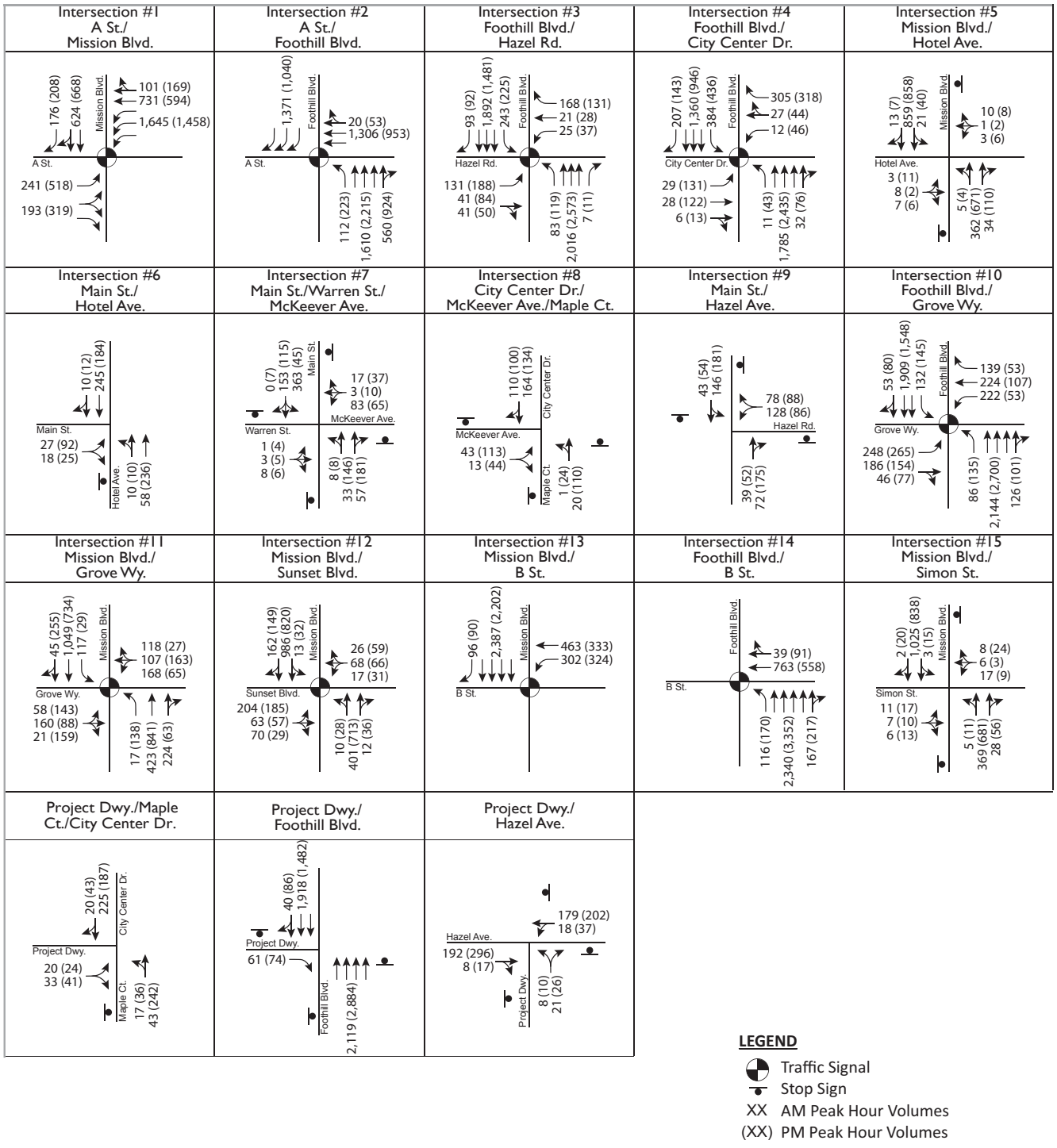
Source: TJKM 2016

Notes:

1. *AM = morning peak hour, PM = evening peak hour*
2. *Whole intersection weighted average control delay expressed in seconds per vehicle for signalized intersections and all-way stop-controlled intersections. Total control delay for the worst movement is presented for side-street stop-controlled intersections.*
3. *LOS = level of service. LOS calculations conducted using the Synchro 8 level of service analysis software package, which applies the method described in the 2000 Highway Capacity Manual.*
4. *Change in average control delay between Existing and Existing plus Project Phase 1 Conditions.*

The signal warrant analysis conducted for the unsignalized intersections projected to operate at unacceptable levels of service under Background plus Phase 1 Conditions (#5 Mission Boulevard/Hotel Avenue and #15 Mission Boulevard/Simon Street) indicate that neither intersection meets peak-hour signal warrants in either the AM or PM peak hours and neither intersection would experience an increase in delay of 5.0 seconds. Thus, the impacts at these intersections would be less than significant.

T:_CSWork\Hayward, City of\Lincoln Landing\Traffic Figures



Source: TJKM

Not To Scale

FIGURE 3.1-5

Background Plus Project Phase 1 Conditions Traffic Volumes, Lane Geometry, and Traffic Controls

Michael Baker INTERNATIONAL

With the addition of project traffic under Background Conditions, the increase in average delay at the Foothill Boulevard/Hazel Avenue intersection (#3) would be 8.7 seconds during the PM peak hour, which would exceed the 5.0-second threshold for intersections already operating at a deficient level of service. Thus, the impact at this intersection would be significant. Restriping to the northbound approach to one left-only lane, three through lanes, and one shared through/right lane would improve approach operations at the intersection to LOS D in the PM peak hour. The modification would consist of restriping the rightmost northbound approach right lane to a shared through-right turn lane and accommodate one receiving lane for the proposed shared through-right turn lane on the north side of the intersection of approximately 500 feet and then merge back to three lanes.

In order for the restriping to be accomplished, removal of parking along the site frontage on the east side of Foothill Boulevard north of Hazel Avenue/City Center Drive to accommodate the receiving lane would be necessary. On the north side of Foothill Boulevard, about 250 feet of existing parking would need to be removed because the rightmost northbound through lane would need to use the parking area. This parking is located along the Foothill Boulevard frontage for retail businesses and residences.

However, there are several considerations that must be accounted for in a discussion about removal of on-street parking. The General Plan Mobility Element acknowledges that Hayward residents and visitors generally want to have parking readily available on their neighborhood streets, at commercial centers, and at transit stations. On-street parking is provided on most roadways in residential and commercial areas of the city, the majority of which is currently free and unrestricted. Mobility Element Goal 3 discusses the provision of complete streets in the city and provides a diagram of a street section that satisfies the complete street goal (City of Hayward 2014, p. 3-79). The diagram shows parking on both sides of the street. In addition to eliminating the need for replacement parking elsewhere, on-street parking increases safety by separating pedestrians on sidewalks from traffic and slowing traffic on the street. Further, on-street parking provides convenient access for residential and/or retail users and elimination of on-street parking can have negative economic effects on businesses that rely on that convenient access. Removal of parking in the project vicinity would reduce the amount of parking for residents and visitors and require the construction of additional off-site parking, which could result in additional physical environmental effects. For these reasons, the City determined this mitigation requiring removal of on-street parking is infeasible, and this impact would remain **significant and unavoidable.**

With the addition of project traffic, the increase in average delay at the Foothill Boulevard/City Center Drive intersection (#4) would be 10.3 seconds during the PM peak hour, which would exceed the 5.0-second threshold for intersections already operating at a deficient level of service. Thus, the impact at this intersection would be significant. The restriping of the southbound approach with an additional left turn lane would improve approach operations at the intersection to LOS D in the PM peak hour. The modification would consist of restriping the leftmost southbound approach through lane to a left turn lane, shifting the southbound approach through lane to a left turn lane, shifting the three southbound approach lanes on Foothill Boulevard one lane to the right, and combining the rightmost through lane with the existing right turn lane.

This would require removal of parking adjacent to the southbound lanes along the site frontage on the west side of Foothill Boulevard north of City Center Drive to accommodate the shifting and combining of lanes. On the south side of Foothill Boulevard, about 300 feet of existing parking (about 16 spaces) would need to be removed because the rightmost southbound through lane would need to use the parking area. This parking is located along the Foothill Boulevard frontage for retail businesses. In addition, an existing AC Transit stop just south of City Center Drive would need to be relocated. Removal of parking in this area would conflict with General Plan Goals and

Policies supporting the creation of complete streets and to provide adequate parking for city residents and visitors as well as the street section envisioned in the Mobility Element of the General Plan. Further, removal of parking would eliminate a buffer between pedestrians and vehicles and eliminate a roadway feature (on-street parking) that typically reduces vehicular speeds. As such, this mitigation is found to be unfeasible, and this impact would remain **significant and unavoidable.**

Intersection Queuing Analysis

TJKM conducted a vehicle queuing and storage analysis for all exclusive left and right turn pockets at selected study intersections and driveways where project traffic is added under Background plus Phase 1 conditions. **Table 3.1-11** summarizes the 95th percentile queue lengths at these intersections under both Background and Background plus Phase 1 conditions.

TABLE 3.1-11
95TH PERCENTILE QUEUES AT TURN POCKETS AFFECTED BY PROJECT TRAFFIC – BACKGROUND PLUS PHASE 1 CONDITIONS

ID	Study Intersections	Lane Group	Storage Length per lane (feet)	Background Conditions		Background plus Phase 1 Conditions		Change	
				AM	PM	AM	PM	AM	PM
1	Mission Boulevard/A Street	EBL	360	220	**420**	220	**440**	0	20
		SBR	100	**180**	**220**	**180**	**220**	0	0
2	Foothill Boulevard/A Street	NBL	400	120	240	120	280	0	40
		SBR	730	480	500	540	520	60	20
3	Foothill Boulevard/Hazel Avenue	SBR	100	40	40	40	40	0	0
		EBL	100	**180**	**420**	**200**	**440**	20	20
		NBL	550	60	100	120	280	60	180
4	Foothill Boulevard/City Center Drive	SBR	170	60	20	100	40	40	20
		SBL	420	**500**	**700**	**640**	**820**	140	120
		EBL	80	40	**280**	60	**340**	20	60
		NBL	220	20	40	20	80	0	40
10	Foothill Boulevard/Grove Way	NBL	180	120	**220**	120	**220**	0	0
11	Mission Boulevard/Grove Way	SBL	220	140	60	140	60	0	0

Source: TJKM 2016
Notes:
***Bold** indicates 95th percentile queue exceeds storage length expressed in feet per lane.*
EBL = eastbound left turn; SBR = southbound right turn; NBL = northbound left turn; SBL = southbound left turn

The following findings were made:

- Mission Boulevard/A Street (#1) – For this intersection, both eastbound left turn and southbound right turn available queuing capacity is exceeded for the PM peak hour under both Background and Background plus Project Phase 1 scenarios. However, the project would increase the queue by a maximum of one vehicle per cycle in the peak 15 minutes

during the PM peak hour for eastbound left turn, a minor change, which is not considered significant.

- Foothill Boulevard/A Street (#2) – For this intersection, both northbound left turn and southbound right turn available queuing capacity is not exceeded for both the AM and PM peak hours under both Background and Background plus Project Phase 1 scenarios. The project would increase the queue by a maximum of four vehicles per cycle in the peak 15 minutes during the peak hours, which is accommodated by the existing storage. The increase is not considered significant.

- Foothill Boulevard/Hazel Avenue (#3) – For this intersection, eastbound left turn available queuing capacity is exceeded for both the AM and PM peak hours under both Background and Background plus Project Phase 1 scenarios. The City of Hayward has no standards of significance that apply to queuing; the project would increase the queue by a maximum of two vehicles per cycle in the peak 15 minutes during the peak hours, a minor change. In the worst case, the proposed project is expected to add around 180 feet of queuing in the PM peak hour (a maximum of nine vehicles per cycle in the peak 15 minutes) to the existing northbound left turn queues, but the storage length of 550 feet can accommodate projected queues.

- Foothill Boulevard/City Center Drive (#4) – For this intersection, southbound left turn available queuing capacity is exceeded for both the AM and PM peak hours and eastbound PM peak hour under both Background and Background plus Project Phase 1 scenarios. The project would increase the queue by a maximum of two vehicles per cycle in the peak 15 minutes during the peak hours, a minor change. For southbound left turns, in the worst case, the proposed project is expected to add 120 feet (a maximum of six vehicles per cycle in the peak 15 minutes) in the AM peak hour and 140 feet (a maximum of seven vehicles per cycle in the peak 15 minutes) in the PM peak hour queuing to the existing queues. In addition, the project does not create additional queuing issues at any locations other than those currently exceeding storage capacities.

- Foothill Boulevard/Grove Way (#10) – For this intersection, northbound left turn available queuing capacity is exceeded for the PM peak hour under both Background and Background plus Project Phase 1 scenarios. However, the project would increase the queue by a maximum of one vehicle per cycle during the peak 15 minutes during the peak hours, a minor change.

- Mission Boulevard/Grove Way (#11) – For this intersection, southbound left turn available queuing capacity is not exceeded for both the AM and PM peak hours under both Background and Background plus Project Phase 1 scenarios.

Based on the above analysis, the addition of project Phase 1 traffic would have a **less than significant** impact related to queuing at the study intersections.

Project Driveway Queuing and Level of Service Analysis

TJKM conducted a vehicle queuing and level of service analysis at the proposed project driveways at Hazel Avenue, Foothill Boulevard, and City Center Drive for the Background plus Phase 1 condition. **Table 3.1-12** summarizes the 95th percentile queue lengths and LOS at the project driveways under Background plus Project Phase 1 scenario. As shown in the table, all project driveways are expected to operate at acceptable levels of service. In addition, the 95th percentile queueing at the outbound approach of project driveways is expected to be minimal.

TABLE 3.1-12
95TH PERCENTILE QUEUES AND LOS AT PROJECT DRIVEWAYS – BACKGROUND PLUS PROJECT PHASE 1 CONDITIONS

ID	Intersection	Control	AM			PM		
			Delay[1]	LOS[2]	95th percentile Queue (ft.)[3]	Delay[1]	LOS[2]	95th percentile Queue (ft.)[3]
1	City Center Drive/Project Driveway	One-Way Stop	10.4	B	20	11.3	B	20
2	Foothill Boulevard/Project Driveway	One-Way Stop	10.0	B	20	9.6	A	20
3	Hazel Avenue/Project Driveway	One-Way Stop	10.1	B	20	11.4	B	20

Source: TJKM 2016
Notes:
1 Delay = average control delay in seconds per vehicle
2. LOS = level of service
3. Reported values of 95th percentile queues are for the outbound movements at the project driveways

Based on the above analysis, the addition of project Phase 1 traffic to the background condition would have a **less than significant** impact related to vehicle queuing at the proposed project driveways.

Although the proposed project would not result in impacts related to queuing impacts at driveways and intersections under Background plus Phase 1 conditions, two intersections (Foothill Boulevard/Hazel Avenue and Foothill Boulevard/City Center Drive) would operate at LOS F during the PM peak hour. Modifications to the roadways to improve conditions at these intersections would require the removal of existing on-street parking which is not considered feasible or desirable for the reasons outlined above. Therefore, impacts related to intersection level of service would remain **significant and unavoidable**.

Mitigation Measures

No feasible mitigation measures were identified.

Traffic Operational Impacts – Background plus Phases 1 and 2 Conditions (Standards of Significance a and b)

Impact 3.1.3 Implementation of Phases 1 and 2 of the proposed project would generate vehicle trips that could contribute to significant traffic operational impacts at intersections as compared to background conditions. This impact would be **significant**.

Intersection Level of Service Analysis

The assigned project trips estimated for Phases 1 and 2 of the proposed project were added to the traffic volumes projected for background conditions to generate Background plus Project Phases 1 and 2, which represents project buildout. Level of service and delay timing are included in **Table 3.1-13,** along with the projected increases in control delay. With the addition of project traffic, all study intersections are expected to continue to operate within the applicable standard of LOS E or better with the following exceptions:

- Foothill Boulevard/Hazel Avenue (#3) during the PM peak hour (LOS F)
- Foothill Boulevard/City Center Drive (#4) during the PM peak hour (LOS F)
- Mission Boulevard/Hotel Avenue (#5) during PM peak hour (LOS F)
- Mission Boulevard/Simon Street (#15) during AM and PM peak hours (LOS F/F)

TABLE 3.1-13
INTERSECTION LEVEL OF SERVICE ANALYSIS – BACKGROUND PLUS PROJECT PHASES 1 AND 2 CONDITIONS

ID	Study Intersections	Control	Peak Hour[1]	Background Conditions		Background plus Phases 1 and 2 Conditions		Change in Control Delay (sec)[4]
				Delay[1]	LOS[2]	Delay[2]	LOS[3]	
1	Mission Boulevard/A Street	Signalized	AM	39.9	D	40.1	D	0.2
			PM	50.2	D	50.7	D	0.5
2	Foothill Boulevard/A Street	Signalized	AM	40.1	D	43.0	D	2.9
			PM	40.8	D	41.6	D	0.8
3	Foothill Boulevard/Hazel Avenue	Signalized	AM	38.4	D	38.8	D	0.4
			PM	72.1	E	**82.1**	**F**	**10.0**
4	Foothill Boulevard/City Center Drive	Signalized	AM	29.6	C	34.8	C	5.2
			PM	**80.1**	**F**	**93.3**	**F**	**13.2**
5	Mission Boulevard/Hotel Avenue	Two-Way Stop	AM	41.4	E	42.3	E	0.9
			PM	48.7	E	**50.8**	**F**	2.1
6	Main Street/Hotel Avenue	One-Way Stop	AM	10.6	B	10.9	B	0.3
			PM	12.6	B	13.1	B	0.5
7	Main Street/Warren Street/ McKeever Avenue	All-Way Stop	AM	8.6	A	8.8	A	0.2
			PM	9.1	A	9.5	A	0.4
8	City Center Drive/McKeever Avenue/Maple Court	All-Way Stop	AM	8.3	A	8.8	A	0.5
			PM	9.2	A	10.1	B	0.9
9	Main Street/Hazel Avenue	All-Way Stop	AM	9.8	A	10.1	B	0.3
			PM	10.0	A	10.5	B	0.5
10	Foothill Boulevard/Grove Way	Signalized	AM	45.6	D	50.9	D	5.3
			PM	39.3	D	40.1	D	0.8
11	Mission Boulevard/Grove Way	Signalized	AM	59.3	E	61.2	E	1.9
			PM	57.5	E	60.4	E	2.9
12	Mission Boulevard/Sunset Boulevard	Signalized	AM	12.4	B	12.8	B	0.4
			PM	10.3	B	10.9	B	0.6

ID	Study Intersections	Control	Peak Hour[1]	Background Conditions		Background plus Phases 1 and 2 Conditions		Change in Control Delay (sec)[4]
				Delay[1]	LOS[2]	Delay[2]	LOS[3]	
13	Mission Boulevard/B Street	Signalized	AM	18.9	B	19.5	B	0.6
			PM	18.9	B	19.3	B	0.4
14	Foothill Boulevard/B Street	Signalized	AM	27.5	C	27.6	C	0.1
			PM	21.1	C	21.5	C	0.4
15	Mission Boulevard/Simon Street	Two-Way Stop	AM	**50.8**	**F**	**52.0**	**F**	1.2
			PM	**50.8**	**F**	**53.3**	**F**	2.5

Source: TJKM 2016
Notes:
1. *AM = morning peak hour, PM = evening peak hour*
2. *Whole intersection weighted average control delay expressed in seconds per vehicle for signalized intersections and all-way stop-controlled intersections. Total control delay for the worst movement is presented for side-street stop controlled intersections.*
3. *LOS = level of service. LOS calculations conducted using the Synchro 8 level of service analysis software package, which applies the method described in the 2000 Highway Capacity Manual.*
4. *Change in average control delay between Existing and Existing plus Project Phase 1 Conditions.*

TJKM conducted a signal warrant analysis for the unsignalized intersections projected to operate at unacceptable levels of service under Background plus Phases 1 and 2 Conditions (#5 Mission Boulevard/Hotel Avenue and #15 Mission Boulevard/Simon Street) to determine if a traffic signal is warranted. The results indicate that neither intersection meets peak-hour signal warrants in either the AM or PM peak hours. Thus, the impacts at these intersections would not be considered significant.

With the addition of project traffic, the increase in average delay at the Foothill Boulevard/Hazel Avenue intersection (#3) would be 10.0 seconds during the PM peak hour, which would exceed the 5.0-second threshold for intersections already operating at a deficient level of service. Thus, the impact at this intersection would be **significant**.

With the addition of project traffic, the increase in average delay at the Foothill Boulevard/City Center Drive intersection (#4) would be 13.2 seconds during the PM peak hour, which would exceed the 5.0-second threshold for intersections already operating at a deficient level of service. Thus, the impact at this intersection would be **significant**.

As discussed above, the removal of parking necessary to accommodate potential improvements for these intersections would conflict with existing City policies regarding provision of adequate parking and complete streets. As such, these impacts would remain **significant and unavoidable**.

Intersection Queuing Analysis

TJKM conducted a vehicle queuing and storage analysis for all exclusive left and right turn pockets at six study intersections and driveways where project traffic is added under Background plus Phases 1 and 2 conditions. **Table 3.1-14** summarizes the 95th percentile queue lengths at these intersections under both Background and Background plus Phases I and II conditions.

TABLE 3.1-14
95TH PERCENTILE QUEUES AT TURN POCKETS AFFECTED BY PROJECT TRAFFIC – BACKGROUND PLUS PHASES 1 AND 2 CONDITIONS

ID	Study Intersections	Lane Group	Storage Length per lane (feet)	Background Conditions		Background plus Phases 1 and 2 Conditions		Change	
				AM	PM	AM	PM	AM	PM
1	Mission Boulevard/A Street	EBL	360	220	**420**	220	**440**	0	20
		SBR	100	**180**	**220**	**180**	**220**	0	0
2	Foothill Boulevard/A Street	NBL	400	120	240	120	280	0	40
		SBR	730	480	500	560	520	80	20
3	Foothill Boulevard/Hazel Avenue	SBR	100	40	40	40	40	0	0
		EBL	100	**180**	**420**	**200**	**440**	20	20
		NBL	550	60	100	140	340	80	200
4	Foothill Boulevard/City Center Drive	SBR	170	60	20	80	20	20	0
		SBL	420	**500**	**700**	**680**	**860**	180	160
		EBL	80	40	**280**	80	**340**	40	60
		NBL	220	20	40	20	100	0	60
10	Foothill Boulevard/Grove Way	NBL	180	120	**220**	120	**220**	0	0
11	Mission Boulevard/Grove Way	SBL	220	140	60	140	60	0	0

Source: TJKM 2016
Notes:
***Bold** indicates 95th percentile queue exceeds storage length expressed in feet per lane.*
EBL = eastbound left turn; SBR = southbound right turn; NBL = northbound left turn; SBL = southbound left turn

The following findings were made:

- Mission Boulevard/A Street (#1) – For this intersection, both eastbound left turn and southbound right turn available queuing capacity is exceeded for the PM peak hour under both Background and Background plus Project Phase 1 and 2 scenarios. However, the project would increase the queue by a maximum of one vehicle per cycle in the peak 15 minutes during the PM peak hour for the eastbound left turn, a minor change, which is not considered significant.

- Foothill Boulevard/A Street (#2) – For this intersection, both northbound left turn and southbound right turn available queuing capacity is not exceeded for both the AM and PM peak hours under both Background and Background plus Project Phase 1 and 2 scenarios. The project would increase the queue by a maximum of four vehicles per cycle in the peak 15 minutes during the peak hours, which is accommodated by the existing storage. The increase is not considered significant.

- Foothill Boulevard/Hazel Avenue (#3) – For this intersection, eastbound left turn available queuing capacity is exceeded for both the AM and PM peak hours under both Background and Background plus Project Phase 1 and 2 scenarios. The City of Hayward

has no standards of significance that apply to queuing; the project would increase the queue by a maximum of two vehicles per cycle in the peak 15 minutes during the peak hours, a minor change. In the worst case, the proposed project is expected to add around 200 feet of queuing in the PM peak hour (a maximum of 10 vehicles per cycle in the peak 15 minutes) to the existing northbound left turn queues, but the storage length of 550 feet can accommodate projected queues.

- Foothill Boulevard/City Center Drive (#4) – For this intersection, southbound left turn available queuing capacity is exceeded for both the AM and PM peak hours under both Background and Background plus Project Phase 1 and 2 scenarios. The project would increase the queue by a maximum of two vehicles per cycle in the peak 15 minutes during the peak hours, a minor change. For southbound left turns, in the worst case, the proposed project is expected to add 180 feet (a maximum of nine vehicles per cycle in the peak 15 minutes) in the AM peak hour and 160 feet (a maximum of eight vehicles per cycle in the peak 15 minutes) in the PM peak hour queuing to the existing queues. In addition, the project does not create additional queuing issues at any locations other than those currently exceeding storage capacities.

- Foothill Boulevard/Grove Way (#10) – For this intersection, northbound left turn available queuing capacity is exceeded for the PM peak hour under both Background and Background plus Project Phase 1 and 2 scenarios. However, the project would increase the queue by a maximum of one vehicle per cycle during the peak 15 minutes during the peak hours, a minor change, which is not considered significant.

- Mission Boulevard/Grove Way (#11) – For this intersection, southbound left turn available queuing capacity is not exceeded for both the AM and PM peak hours under both Background and Background plus Project Phase 1 and 2 scenarios.

Based on the above analysis, the addition of project Phases 1 and 2 traffic would have a **less than significant** impact related to queuing at the study intersections.

Project Driveway Queuing and Level of Service Analysis

Table 3.1-15 summarizes the 95th percentile queue lengths and level of service at the project driveways under Background plus Project Phases 1 and 2 scenario. As shown in the table, under Background plus Project Phases 1 and 2 conditions, all project driveways are expected to operate at acceptable levels of service. In addition, the 95th percentile queueing at the outbound approach of project driveways is expected to be minimal.

TABLE 3.1-15
95TH PERCENTILE QUEUES AND LOS AT PROJECT DRIVEWAYS – BACKGROUND PLUS PROJECT PHASES 1 AND 2 CONDITIONS

ID	Intersection	Control	AM			PM		
			Delay[1]	LOS[2]	95th percentile Queue (ft.)[3]	Delay[1]	LOS[2]	95th percentile Queue (ft.)[3]
1	City Center Drive/Project Driveway	One-Way Stop	10.6	B	20	11.7	B	20
2	Foothill Boulevard/Project Driveway	One-Way Stop	10.3	B	20	9.7	A	20
3	Hazel Avenue/Project Driveway	One-Way Stop	10.2	B	20	11.6	B	20

Source: TJKM 2016
Notes:
1. *Delay = average control delay in seconds per vehicle*
2. *LOS = level of service*
3. *Reported values of 95th percentile queues are for the outbound movements at the project driveways*

Based on the above analysis, the addition of project Phases 1 and 2 traffic would have a less than significant impact related to vehicle queuing at the proposed project driveways. However, the project would increase delays during the PM peak hour by more than 5.0 seconds at two intersections (Foothill Boulevard/Hazel Avenue and Foothill Boulevard/City Center Drive) that are projected to operate at LOS F under Background conditions. Modifications to the roadways to improve conditions at these intersections would require the removal of existing on-street parking, which, as discussed above was determined to be infeasible and undesirable. Therefore, impacts related to increases in delays at these intersections would remain **significant and unavoidable**.

Mitigation Measures

No feasible mitigation measures were identified.

Traffic Hazards (Standard of Significance d)

Impact 3.1.4 The proposed site plan generally provides adequate site access and internal circulation patterns; however, the proposed limited access driveway on City Center Drive would not provide sufficient sight distance. This impact would be **significant**.

The dispersion of project traffic to numerous access points would avoid creating heavy turning movements into the project site. All project driveways are well spaced, properly aligned with opposing driveways, and provide adequate distance from public intersections except for the eastern driveway on City Center Drive. This indicates that queuing associated with vehicles entering the project site will be effectively managed and will minimize queues spilling back into downstream public intersections. Furthermore, as discussed in Impacts 3.1.1 through 3.1.3 above, project driveways are expected to operate at acceptable levels of service under all project scenarios. In addition, the 95th percentile queueing at the outbound approach of project driveways is expected to be minimal.

Sight distance is evaluated to determine whether drivers will have adequate visibility to enter a roadway safely without resulting in a conflict with traffic already on the roadway. The proposed access to the site will be via two full-access driveways along Hazel Avenue, three limited-access driveways (right-in/right-out) along Foothill Boulevard, and one limited-access (right-in/right-out) and one full-access driveway on City Center Drive (see **Figure 2.0-3**).

According to the Highway Design Manual (HDM), Chapter 200, the required minimum stopping sight distance for design speed of 15 mph (project driveway) should be 100 feet. The distance between the intersection of Foothill Boulevard and City Center Drive and the proposed limited-access driveway on City Center Drive is approximately 70 feet. Because of the driveway's proximity to the public intersection, there would be sight distance problem for this driveway that would create operational hazards.

The distance between the proposed full-access driveway on City Center Drive and the intersection of Foothill Boulevard and City Center Drive is approximately 170 feet and between the drive and the intersection of City Center Drive and McKeever Avenue is 150 feet. Thus, sufficient sight distance would be provided at this driveway.

The line of sight for vehicles exiting the project driveways and vehicles traveling southbound on Foothill Boulevard and eastbound/westbound on Hazel Avenue is clear and visible. Vehicles exiting the driveways would be visible to vehicles traveling southbound on Foothill Boulevard and eastbound/westbound on Hazel Avenue.

Due to the insufficient sight distance at the proposed limited-access driveway on City Center Drive and the required modifications at the full-access driveway on the same roadway, this impact would be **significant**.

Mitigation Measures

MM 3.1.4 The proposed site plan shall be modified to eliminate the limited-access driveway on City Center Drive and recess the north curb line by 10 to 12 feet to accommodate a westbound right turn deceleration lane for the full-access driveway on City Center Drive to accommodate additional project traffic. The modified full-access driveway shall be designed consistent with City of Hayward access standards. Construction of a roundabout should be considered.

Timing/Implementation: *Prior to approval of improvement plans*

Enforcement/Monitoring: *City of Hayward Planning Division*

Implementation of mitigation measure **MM 3.1.4** would improve the safety and capacity of the westbound lanes by eliminating the limited-access driveway, which is approximately 70 feet from the intersection, and improving access at the full-access driveway approximately 170 feet from the intersection. The resulting configurations would provide adequate access at the proposed driveways on City Center Drive. With mitigation, this impact would be **less than significant**.

Pedestrian Facilities (Standard of Significance f)

Impact 3.1.5 Existing sidewalks along the project frontage are not continuous and would require improvement in order to ensure adequate pedestrian access in the project area. Therefore, this impact would be **significant**.

The proposed project would generate demand for sidewalks, crosswalks, and pedestrian signals to allow pedestrians to access nearby bus stops and adjacent land uses. Pedestrian access to the project site would be facilitated by the existing sidewalks along Hazel Avenue, City Center Drive, and Foothill Boulevard, as well as proposed internal pedestrian circulation facilities in the immediate vicinity of the project. The signalized study intersections provide crosswalks and pedestrian countdown signals to provide for movements at the intersections. Existing sidewalks along both sides of Foothill Boulevard are continuous. However, the existing pedestrian facilities along the project frontage are inadequate to accommodate all users of the street system and provide a complete and connected pedestrian linkage between the project site and transit service. In addition, during the evening peak period, and to a lesser extent during the morning peak period, large numbers of pedestrians are anticipated to cross the parking lot drive aisles. The proposed pedestrian crossings at the drive aisles may not be adequate to accommodate these high pedestrian volumes. Therefore, this impact would be **significant**.

Mitigation Measures

MM 3.1.5 Continuous sidewalks consistent with City of Hayward standards and ADA requirements shall be provided along the project frontage. In addition, the proposed pedestrian crossings at parking lot drive aisles shall be enhanced with high-visibility treatments, corner bulb-outs, and signage. These improvements shall meet ADA requirements and include direct travel paths from the parking areas to retail and apartment buildings.

Timing/Implementation: *Prior to approval of improvement plans*

Enforcement/Monitoring: *City of Hayward Planning Division*

Implementation of mitigation measure **MM 3.1.5** would ensure adequate pedestrian facilities are provided in the project area and reduce this impact to a **less than significant** level.

Bicycle Facilities (Standard of Significance f)

Impact 3.1.6 The proposed project would not interfere with existing bicycle facilities or circulation. However, the project would create new bicycle trips, and adequate bicycle parking must be provided on the project site. This is a **significant** impact.

In the project vicinity, Main Street has Class III bicycle facilities (on-street, with signage only), and Class III bicycle facilities are currently available along City Center Drive and 2nd Street. There are currently no Class I (off-street, shared path) or Class II routes (on-street, striped lanes) in the vicinity of the project. Per the City of Hayward Bicycle Master Plan (Figure 6-1), Main Street has planned Class II bike lanes between A Street and D Street, and a Class III bike route is planned for Mission Boulevard between A Street and D Street. The proposed project does not conflict with existing or planned bicycle facilities. This would be a **less than significant** impact.

Mitigation Measures

None required.

Transit Facilities (Standard of Significance f)

Impact 3.1.7 Existing transit facilities in the project area would be adequate to meet project demand. Further, the proposed project would not conflict with any policies or plans regarding public transit. This impact would be **less than significant**.

The proposed project would generate an estimated 37 transit trips during the AM peak hour and 72 transit trips in the PM peak hour. The project site is located approximately 3,500 feet walking distance from the Hayward BART Station. AC Transit, which operates bus service in Alameda County, runs multiple transit routes through the study area along Foothill Boulevard, B Street, Main Street, and Mission Boulevard. These bus routes operate near the project site with stops located within walking distance of the proposed development (see Figure 3.1-2). The existing pedestrian facilities in the project vicinity have ADA-compliant crosswalks at Hazel Avenue and City Center Drive which provide a direct path to the current bus route in the vicinity of the project site, and actuated pedestrian signals at all signalized study intersections, which provide adequate connectivity for pedestrians to transit stops. The transit service in the immediate project site operates well below capacity, and additional trips generated by the proposed project could be accommodated by existing bus service, as project demand would be spread among multiple bus routes. Therefore, project impacts to transit service would be **less than significant**.

Mitigation Measures

None required.

3.1.4 CUMULATIVE IMPACTS AND MITIGATION MEASURES

CUMULATIVE CONDITIONS

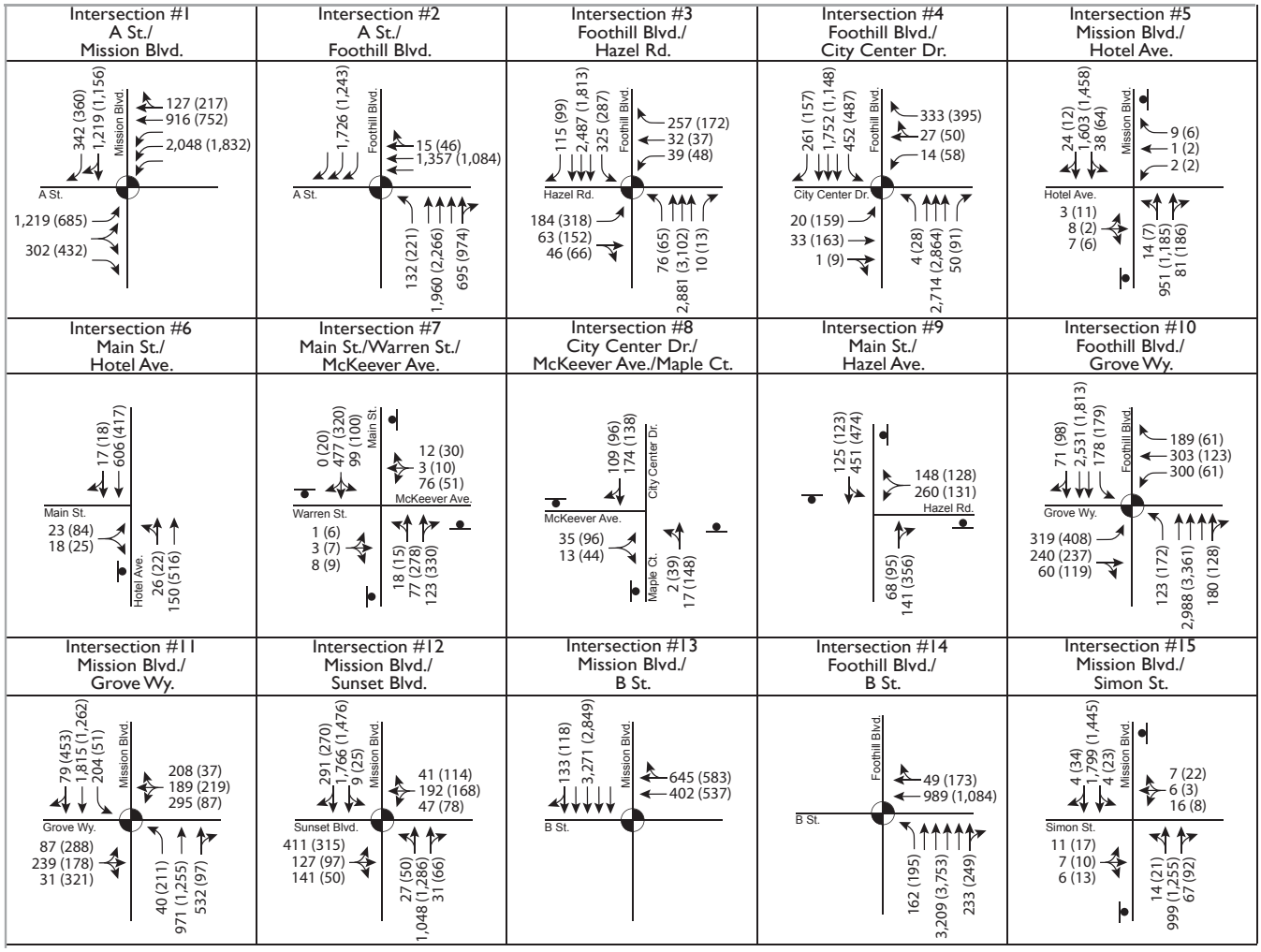
TJKM (2016) developed 2040 turning movement volumes for all study intersections based on the latest version of the Alameda County travel demand model. **Figure 3.1-6** shows the resulting turning movement volumes under Cumulative Conditions for all study intersections, along with lane geometries and traffic controls. Lane geometries and traffic controls are assumed to be identical to those under Existing Conditions.

Intersection Level of Service Analysis – Cumulative Conditions

The intersection LOS analysis results for Cumulative Conditions are summarized in **Table 3.1-16**. Under this scenario, all of the study intersections operate within the City of Hayward (LOS E) standard or better during the AM and PM peak hours except for the following intersections:

- Mission Boulevard/A Street (#1) during the PM peak hour (LOS F)
- Foothill Boulevard/Hazel Avenue (#3) during the AM and PM peak hours (LOS F/F)
- Mission Boulevard/Hotel Avenue (#5) during the AM and PM peak hours (LOS F/F)
- Foothill Boulevard/Grove Way (#10) during the AM peak hour (LOS F)
- Mission Boulevard/Grove Way (#11) during the AM and PM peak hours (LOS F/F)
- Mission Boulevard/Sunset Boulevard (#12) during the AM and PM peak hours (LOS F/F)
- Mission Boulevard/Simon Street (#15) during the AM and PM peak hours (LOS F/F)

T:_CSWork\Hayward, City of\Lincoln Landing\Traffic Figures



LEGEND

- Traffic Signal
- Stop Sign
- XX AM Peak Hour Volumes
- (XX) PM Peak Hour Volumes

Source: TJKM

Not To Scale

FIGURE 3.1-6

Cumulative Conditions Traffic Volumes, Lane Geometry, and Traffic Controls

Michael Baker INTERNATIONAL

TABLE 3.1-16
INTERSECTION LEVEL OF SERVICE ANALYSIS – CUMULATIVE CONDITIONS

ID	Study Intersection	Control	Peak Hour[1]	Delay[2]	LOS[3]
1	Mission Boulevard/A Street	Signalized	AM	70.7	E
			PM	**92.7**	**F**
2	Foothill Boulevard/A Street	Signalized	AM	47.2	D
			PM	29.5	C
3	Foothill Boulevard/Hazel Avenue	Signalized	AM	**88.6**	**F**
			PM	**144.3**	**F**
4	Foothill Boulevard/City Center Drive	Signalized	AM	24.6	C
			PM	76.7	E
5	Mission Boulevard/Hotel Avenue	Two-Way Stop	AM	**359.4**	**F**
			PM	**536.8**	**F**
6	Main Street/Hotel Avenue	One-Way Stop	AM	14.7	B
			PM	19.3	C
7	Main Street/Warren Street/McKeever Avenue	All-Way Stop	AM	17.7	C
			PM	15.1	C
8	City Center Drive/McKeever Avenue/Maple Court	All-Way Stop	AM	8.5	A
			PM	9.1	A
9	Main Street/Hazel Avenue	All-Way Stop	AM	40.9	E
			PM	39.3	E
10	Foothill Boulevard/Grove Way	Signalized	AM	**99.7**	**F**
			PM	70.7	E
11	Mission Boulevard/Grove Way	Signalized	AM	**244.2**	**F**
			PM	**229.6**	**F**
12	Mission Boulevard/Sunset Boulevard	Signalized	AM	**161.6**	**F**
			PM	**141.2**	**F**
13	Mission Boulevard/B Street	Signalized	AM	14.7	B
			PM	12.0	B
14	Foothill Boulevard/B Street	Signalized	AM	33.2	C
			PM	52.6	D
15	Mission Boulevard/Simon Street	Two-Way Stop	AM	**OVFL**	**F**
			PM	**OVFL**	**F**

Source: TJKM 2016
Notes:
1. *AM = morning peak hour, PM = evening peak hour*
2. *Whole intersection weighted average control delay expressed in seconds per vehicle for signalized intersections and all-way stop-controlled intersections. Total control delay for the worst movement is presented for side-street stop-controlled intersections.*
3. *OVFL = overflow conditions where delays are greater than 999.9 seconds per vehicle.*
4. *LOS = level of service. LOS calculations conducted using the Synchro 8 level of service analysis software package, which applies the method described in the 2000 Highway Capacity Manual.*

PROJECT IMPACTS AND MITIGATION MEASURES

Traffic Operational Impacts (Standards of Significance a and b)

Impact 3.1.9 The proposed project, in combination with other approved, planned, and reasonably foreseeable development in the project area, would generate vehicle trips that could contribute to significant traffic operational impacts to intersections as compared to cumulative conditions. The proposed project's contribution to this significant cumulative impact would be **cumulatively considerable** and **significant and unavoidable**.

Intersection Level of Service Analysis

TJKM added the assigned project trips estimated for buildout of the proposed project to the traffic volumes projected for cumulative conditions to generate Cumulative plus Project Phases 1 and 2 traffic volumes. The LOS analysis results for Cumulative Conditions are included in **Table 3.1-17,** along with the projected increases in control delay. With the addition of project traffic, all study intersections are expected to continue to operate within the applicable standard of LOS E or better with the following exceptions:

- Mission Boulevard/A Street (#1) during the PM peak hour (LOS F)
- Foothill Boulevard/Hazel Avenue (#3) during the AM and PM peak hours (LOS F/F, respectively)
- Mission Boulevard/Hotel Avenue (#5) during the AM and PM peak hours (LOS F/F, respectively)
- Foothill Boulevard/City Center Drive (#4) during the PM peak hour (LOS F)
- Foothill Boulevard/Grove Way (#10) during the AM peak hour (LOS F)
- Mission Boulevard/Grove Way (#11) during the AM and PM peak hours (LOS F/F, respectively)
- Mission Boulevard/Sunset Boulevard (#12) during the AM and PM peak hours (LOS F/F, respectively)
- Mission Boulevard/Simon Street (#15) during the AM and PM peak hours (LOS F/F, respectively)

TABLE 3.1-17
INTERSECTION LEVEL OF SERVICE ANALYSIS – CUMULATIVE PLUS PROJECT PHASES 1 AND 2 CONDITIONS

ID	Study Intersections	Control	Peak Hour[1]	Cumulative Conditions		Cumulative plus Phases 1 and 2 Conditions		Change in Control Delay (sec)[4]
				Delay[1]	LOS[2]	Delay[2]	LOS[3]	
1	Mission Boulevard/A Street	Signalized	AM	70.7	E	74.5	E	3.8
			PM	**92.7**	**F**	**96.6**	**F**	3.9
2	Foothill Boulevard/A Street	Signalized	AM	47.2	D	52.9	D	5.7
			PM	29.5	C	30.6	C	1.1
3	Foothill Boulevard/Hazel Avenue	Signalized	AM	**88.6**	**F**	**101.3**	**F**	**12.7**
			PM	**144.3**	**F**	**153.8**	**F**	**9.5**
4	Foothill Boulevard/City Center Drive	Signalized	AM	24.6	C	32.5	C	7.9
			PM	76.7	E	**91.9**	**F**	**15.2**
5	Mission Boulevard/Hotel Avenue	Two-Way Stop	AM	**359.4**	**F**	**368.6**	**F**	9.2
			PM	**536.8**	**F**	**571.3**	**F**	34.5
6	Main Street/Hotel Avenue	One-Way Stop	AM	14.7	B	15.4	C	0.7
			PM	19.3	C	20.7	C	1.4
7	Main Street/Warren Street/McKeever Avenue	All-Way Stop	AM	17.7	C	19.0	C	1.3
			PM	15.1	C	16.5	C	1.4
8	City Center Drive/McKeever Avenue/Maple Court	All-Way Stop	AM	8.5	A	8.9	A	0.4
			PM	9.1	A	9.8	A	0.7
9	Main Street/Hazel Avenue	All-Way Stop	AM	40.9	E	45.1	E	4.2
			PM	39.3	E	46.8	E	7.5
10	Foothill Boulevard/Grove Way	Signalized	AM	**99.7**	**F**	**102.8**	**F**	3.1
			PM	70.7	E	76.6	E	5.9

ID	Study Intersections	Control	Peak Hour[1]	Cumulative Conditions		Cumulative plus Phases 1 and 2 Conditions		Change in Control Delay (sec)[4]
				Delay[1]	LOS[2]	Delay[2]	LOS[3]	
11	Mission Boulevard/Grove Way	Signalized	AM	**244.2**	**F**	248.4	F	4.2
			PM	**229.6**	**F**	231.9	F	2.3
12	Mission Boulevard/Sunset Boulevard	Signalized	AM	**161.6**	**F**	**185.2**	**F**	**23.6**
			PM	**141.2**	**F**	**186.1**	**F**	**44.9**
13	Mission Boulevard/B Street	Signalized	AM	14.7	B	15.3	B	0.6
			PM	12.0	B	12.0	B	0.0
14	Foothill Boulevard/B Street	Signalized	AM	33.2	C	33.6	C	0.4
			PM	52.6	D	54.3	D	1.7
15	Mission Boulevard/Simon Street	Two-Way Stop	AM	**OVFL**	**F**	**OVFL**	**F**	**-**
			PM	**OVFL**	**F**	**OVFL**	**F**	**-**

Source: TJKM 2016

Notes:

1. *AM = morning peak hour, PM = evening peak hour*
2. *Whole intersection weighted average control delay expressed in seconds per vehicle for signalized intersections and all-way stop-controlled intersections. Total control delay for the worst movement is presented for side-street stop-controlled intersections.*
3. *OVFL = overflow conditions where delays are greater than 999.9 seconds per vehicle.*
4. *LOS = level of service. LOS calculations conducted using the Synchro 8 level of service analysis software package, which applies the method described in the 2000 Highway Capacity Manual.*

TJKM conducted a signal warrant analysis for the unsignalized intersections projected to operate at unacceptable levels of service under Cumulative plus Phases 1 and 2 Conditions (#5 Mission Boulevard/Hotel Avenue and #15 Mission Boulevard/Simon Street) to determine whether traffic signals are warranted. The results indicate that neither intersection meets peak-hour signal warrants in either the AM or PM peak hours. Thus, the impacts at these intersections would not be considered significant.

The intersection of Mission Boulevard/Simon Street (#15) operates at LOS F during the AM and PM peak hours under overflow conditions. Overflow conditions occur when approach/approaches experience delays greater than 999.9 seconds per vehicle. For the unsignalized intersection of Mission Boulevard/Simon Street (#15), the major street (Mission Boulevard) volumes are very high on both approaches, so on the minor street (Simon Street) there are insufficient gaps. In particular, the left turns experience long wait times at this intersection. Hence, the minor street approaches experience higher delays. Thus, the LOS F operations only apply to the Simon Street approaches, which have very low volumes.

Based on the impact criteria listed previously, the proposed Lincoln Landing project under Cumulative plus Project Phase 1 and 2 Conditions will have significant impact at three study intersections during the following peak hours:

- Intersection #3 – Foothill Boulevard/Hazel Avenue during the AM and PM peak hours (LOS F/F, respectively). The increase in average delay at the Foothill Boulevard/Hazel Avenue intersection would be 12.7 seconds during the AM peak hour and 9.5 seconds during the PM peak hour, which is above the 5.0-second threshold for intersections already operating at a deficient level of service. Thus, the impact at this intersection would be significant.

- Intersection #4 – Foothill Boulevard/City Center Drive during the PM peak hour (LOS F). With the addition of project traffic, the increase in average delay at the Foothill Boulevard/City Center Drive intersection would be 15.2 seconds during the PM peak hour, which is above the 5.0-second threshold for intersections already operating at a deficient level of service. Thus, the impact at this intersection would be significant.

- Intersection #12 – Mission Boulevard/Sunset Boulevard during the AM and PM peak hours (LOS F/F, respectively). With the addition of project traffic, the increase in average delay at the Foothill Boulevard/City Center Drive intersection would be 23.6 seconds during the AM peak hour and 44.9 seconds during the PM peak hour, which is above the 5.0-second threshold for intersections already operating at a deficient level of service. Thus, the impact at this intersection would be significant.

The potential mitigation measures identified to reduce project impacts would require restriping of streets and removal of parking, which as discussed above, has been determined by the City to not be feasible nor desirable due to conflicts with General Plan policies related to complete streets and street section design. As such, this impact would remain **significant and unavoidable**.

Intersection Queuing Analysis

TJKM conducted a vehicle queuing and storage analysis for all exclusive left and right turn pockets at six study intersections and driveways where project traffic is added under Cumulative plus Phases 1 and 2 conditions. **Table 3.1-18** summarizes the 95th percentile queue lengths at these intersections under both Cumulative and Cumulative plus Phases 1 and 2 conditions.

TABLE 3.1-18
95TH PERCENTILE QUEUES AT TURN POCKETS AFFECTED BY PROJECT TRAFFIC – CUMULATIVE PLUS PHASES 1 AND 2 CONDITIONS

ID	Study Intersections	Lane Group	Storage Length per lane (feet)	Cumulative Conditions		Cumulative plus Phase 1 and 2 Conditions		Change	
				AM	PM	AM	PM	AM	PM
1	Mission Boulevard/A Street	EBL	360	**380**	**620**	**400**	**640**	20	20
		SBR	100	40	**340**	40	**340**	0	0
2	Foothill Boulevard/A Street	NBL	400	140	100	140	100	0	0
		SBR	730	**820**	480	**860**	540	40	60
3	Foothill Boulevard/Hazel Avenue	SBR	100	20	20	20	40	0	20
		EBL	100	**400**	**620**	**440**	**640**	40	20
		NBL	550	180	120	180	320	0	200
4	Foothill Boulevard/City Center Drive	SBR	170	60	40	120	40	60	0
		SBL	420	**740**	**820**	**860**	**940**	120	120
		EBL	80	60	**340**	120	**380**	60	40
		NBL	220	20	40	20	80	0	40
10	Foothill Boulevard/Grove Way	NBL	180	140	120	140	120	0	0
11	Mission Boulevard/Grove Way	SBL	220	**380**	100	**460**	100	80	0

Source: TJKM 2016
Notes:
***Bold** indicates 95th percentile queue exceeds storage length expressed in feet per lane.*
EBL = eastbound left turn; SBR = southbound right turn; NBL = northbound left turn; SBL = southbound left turn

The following findings were made:

- Mission Boulevard/A Street (#1) – For this intersection, both eastbound left turn and southbound right turn available queuing capacity is exceeded for the PM peak hour and eastbound in the AM peak hour under both Cumulative and Cumulative plus Project Phase 1 and 2 scenarios. However, the project would increase the queue by a maximum of one vehicle per cycle in the peak 15 minutes during the PM peak hour for eastbound left turn, a minor change.

- Foothill Boulevard/A Street (#2) – For this intersection, northbound left turn available queuing capacity is not exceeded for both the AM and PM peak hours and the southbound right turn available queuing capacity is exceeded in the AM peak hour under both Cumulative and Cumulative plus Project Phase 1 and 2 scenarios. The project would increase the queue by a maximum of three vehicles per cycle in the peak 15 minutes during the peak hours, which is accommodated by the existing storage.

- Foothill Boulevard/Hazel Avenue (#3) – For this intersection, eastbound left turn available queuing capacity is exceeded for both the AM and PM peak hours under both Cumulative and Cumulative plus Project Phase 1 and 2 scenarios. The project would increase the queue by a maximum of two vehicles per cycle in the peak 15 minutes during the peak

hours, a minor change. In the worst case, the proposed project is expected to add around 200 feet of queuing in the PM peak hour (a maximum of 10 vehicles per cycle in the peak 15 minutes) to the existing northbound left turn queues, but the storage length of 550 feet can accommodate projected queues.

- Foothill Boulevard/City Center Drive (#4) – For this intersection, southbound left turn available queuing capacity is exceeded for both the AM and PM peak hours under both Cumulative and Cumulative plus Project Phase 1 and 2 scenarios. The project would increase the queue by a maximum of two vehicles per cycle in the peak 15 minutes during the peak hours, a minor change. For southbound left turns, in the worst case, the proposed project is expected to add 120 feet (a maximum of six vehicles per cycle in the peak 15 minutes) in the both AM and PM peak hours queuing to the cumulative queues.

- Foothill Boulevard/Grove Way (#10) – For this intersection, there would be no change to intersection queues.

- Mission Boulevard/Grove Way (#11) – For this intersection, southbound left turn available queuing capacity is exceeded for the AM peak hour under both Cumulative and Cumulative plus Project Phase 1 and 2 scenarios. The proposed project is expected to add 80 feet (a maximum of 4 vehicles per cycle in the peak 15 minutes) to the cumulative queues.

Based on the above analysis, the addition of project Phases 1 and 2 traffic would have a **less than significant** impact related to queuing at the study intersections.

Project Driveway Queuing and Level of Service Analysis

Table 3.1-19 summarizes the 95th percentile queue lengths and level of service at the project driveways under Cumulative plus Project Phases 1 and 2 conditions. As shown in the table, under Cumulative plus Project Phases 1 and 2 conditions, all project driveways are expected to operate at acceptable levels of service. In addition, the 95th percentile queueing at the outbound approach of project driveways is expected to be minimal.

TABLE 3.1-19
95TH PERCENTILE QUEUES AND LOS AT PROJECT DRIVEWAYS – BACKGROUND PLUS PROJECT PHASES 1 AND 2 CONDITIONS

ID	Intersection	Control	AM			PM		
			Delay[1]	LOS[2]	95th percentile Queue (ft.)[3]	Delay[1]	LOS[2]	95th percentile Queue (ft.)[3]
1	City Center Drive/ Project Driveway	One-Way Stop	11.2	B	20	12.6	B	20
2	Foothill Boulevard/ Project Driveway	One-Way Stop	11.7	B	20	10.3	B	20
3	Hazel Avenue/Project Driveway	One-Way Stop	11.2	B	20	14.6	B	20

Source: TJKM 2016
Notes:
1. *Delay = average control delay in seconds per vehicle*
2. *LOS = level of service*
3. *Reported values of 95th percentile queues are for the outbound movements at the project driveways*

Based on the above analysis, the addition of project Phases 1 and 2 traffic to the cumulative traffic would have a less than cumulatively considerable contribution to vehicle queuing at the proposed project driveways. However, the project would result in delays that exceed the 5.0-second threshold at Foothill Boulevard/Hazel Avenue during the AM and PM peak hours, Foothill Boulevard/City Center Drive during the PM peak hour, and Mission Boulevard/Sunset Boulevard during the AM and PM peak hours. Modifications to the roadways to improve conditions at these intersections would require the removal of existing on-street parking, which was considered infeasible and undesirable. Therefore, impacts related to increases in delays at these intersections would remain **significant and unavoidable**.

Mitigation Measures

No feasible mitigation measures were identified.

REFERENCES

Hayward, City of. 2014. *2040 Hayward General Plan, Mobility Element*.

TJKM. 2016. *Draft Traffic Impact Analysis Report, Lincoln Landing Mixed-Use Development*.

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