Ashland Family Housing

Administrative Draft
Traffic Impact Analysis

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Kimley-Horn and Associates, Inc.

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INTRODUCTION

Kimley-Horn and Associates, Inc. (Kimley-Horn) has been retained by Resources for Community Development (RCD) to prepare a traffic study for the Ashland Family Housing project in the Ashland community of unincorporated Alameda County, California. The analysis concentrated on the proposed project's impacts to intersection operations, pedestrian and bicycle facilities, and the transit network.

Project Overview

The Ashland community is a part of the Eden Area, which consists of the unincorporated land in western Alameda County between the cities of San Leandro and Hayward and west of the County's Castro Valley planning area. Ashland is generally bound by I-580 to the east, the San Lorenzo Creek to the south, and the City of San Leandro to the north and west.

RCD is proposing to redevelop several parcels in the Ashland community to provide 85 affordable rental apartments to lower income families and emancipated foster youth. The 1.89 acre site is located at the intersection of East 14th Street and Kent Avenue, adjacent to Edendale Park and Edendale Middle School playfields. The site currently consists of a mobile home park with 13 mobile homes, three single family residences, and several outbuildings. The development of the new Youth Center by the Alameda County Redevelopment Agency adjacent to the site creates an opportunity for service linkages with potential residents.

The site location provides good access to the local and regional roadway network, in addition to various transit options. Three interstate freeways, I-580, I-880, and I-238, are located within several miles of the site, in addition to East 14th Street, a major north-south arterial accessing the neighboring cities. There are several AC Transit routes in the area, in addition to the Bay Fair BART station less than one mile to the west and the Amtrak Capitol Corridor station in Hayward approximately two miles to the south.

Numerous local streets provide access within and through Ashland and to the neighboring communities. The Plan study area and study intersection locations are illustrated in **Figure 1**.

Kent Avenue currently intersects East 14th Street at two locations – at a signalized intersection aligning with 164th Avenue and at an unsignalized intersection approximately 100 feet to the northwest of the signalized intersection. Currently, the unsignalized intersection provides right turn access from eastbound East 14th Street to southbound Kent Avenue and right turn access for northbound Kent Avenue to eastbound East 14th Street. A majority of the northbound Kent Avenue to eastbound East 14th Street currently uses the signalized intersection.

As part of this redevelopment plan, the portion of Kent Avenue that aligns with the unsignalized intersection at East 14th Street would be vacated and relinquished by the County from the roadway system and incorporated into the proposed site. This would shift traffic using the unsignalized intersection to use the signalized intersection at 164th Avenue.

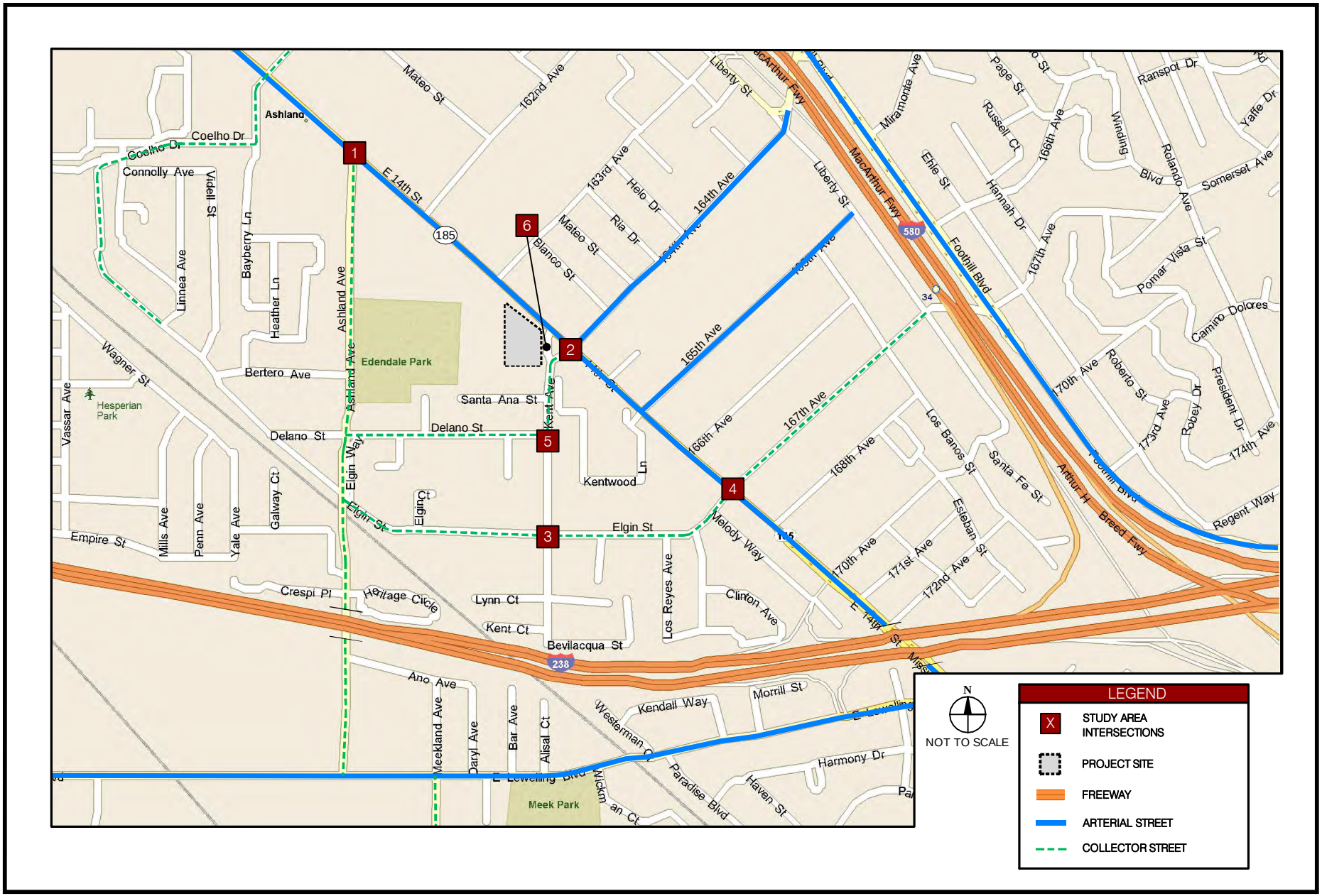

FIGURE 1

EXISTING STUDY AREA,

ROADWAY CLASSIFICATION, AND INTERSECTION LOCATIONS

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Analysis Scenarios

For purposes of CEQA and identification of project-specific impacts and mitigation measures, this report evaluates the study area intersection traffic conditions for the AM and PM peak hours under the following scenarios:

- **Existing Conditions**: Existing traffic volumes obtained from current weekday peak hour traffic counts.
- **Existing Plus Project**: Existing traffic volumes obtained from counts plus additional vehicular trips generated by the land uses proposed in the Community Plan.
- **Cumulative (2035) Conditions – No Project**: Estimated traffic volumes for the year 2035 based on growth factors derived from the City/County Association of Governments of San Mateo County (C/CAG) travel forecasting model based on build out of the General Plan.
- **Cumulative (2035) Conditions Plus Project**: 2035 No Project volumes plus additional vehicular trips generated by the land uses proposed in the Community Plan.

Baseline conditions (Existing and Cumulative No Project) establish background conditions for the evaluation of the project in the future and form the basis for determining and comparing Project and Cumulative impacts.

Study Methodology and Impact Criteria

The traffic analysis of the study intersections was conducted in accordance with the requirements from Appendix B of the C/CAG's *Congestion Management Plan for 2009*. This requires that the latest version of the *Highway Capacity Manual* (HCM) or the Transportation Board's *Circular 212* methodology be used to calculate levels of service.

Level of service (LOS) is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or at an intersection during a specific time interval. It ranges from LOS A (very little delay) to LOS F (long delays and congestion). **Table 1** provides a definition for each level of service category.

Signalized Intersections

Signalized intersection level of service is measured as the average control delay in seconds per vehicle. Control delay is the portion of the total delay experienced by drivers at intersections that is attributable to traffic signal operation. It includes the delay for decelerating to a stop at a signal, moving slowly in a queue of vehicles, stopped delay, and acceleration after the signal turns green. **Table 2** summarizes the relationship between the level of service rating and control delay for signalized intersections. To evaluate signalized intersections, the operations method of the *Highway Capacity Manual (HCM)*, Transportation Research Board, National Research Council, 2000 was utilized.

Unsignalized Intersections

Unsignalized intersection level of service evaluation also utilized the HCM 2000 operations methodology. This methodology determines the LOS based on delay. Similar

to signalized intersections, the measure of effectiveness of an unsignalized intersection is measured in average control delay; however, the delay is reported for the worst-case approach of the intersection. The LOS criteria for unsignalized intersections are summarized in **Table 2**.

Table 1: Level of Service Definitions

Level of Service	Description
A	Free flow with no delays. Users are virtually unaffected by others in the traffic stream. At signalized intersections, turning movements are easily made and all queues clear in a single signal cycle.
B	Stable traffic. Traffic flows smoothly with few delays. An occasional approach phase is fully utilized. Drivers begin to feel somewhat restricted within platoons of vehicles.
C	Stable flow but the operation of individual users becomes affected by other vehicles. Modest delays. Major approach phases fully utilized. Backups may develop behind turning vehicles.
D	Approaching unstable flow. Operation of individual users becomes significantly affected by other vehicles. Delays may be more than one cycle during peak hours. Queues may develop but dissipate rapidly, without excessive delays.
E	Unstable flow with operating conditions at or near the capacity level. Long delays and vehicle queuing.
F	Forced or breakdown flow that causes reduced capacity. Traffic demand exceeds the capacity. Stop and go traffic conditions. Excessive long delays and vehicle queuing.

Source: Transportation Research Board, *Highway Capacity Manual 2000*, National Research Council, 2000.

Table 2: Level of Service Definitions for Signalized and Unsignalized Intersections

Level of Service	Signalized Intersection Control Delay (seconds/vehicle)	Unsignalized Intersection Control Delay (seconds/vehicle)
A	$\leq$ 10	0 to 10
B	> 10 – 20	> 10 to 15
C	> 20 – 35	> 15 to 25
D	> 35 – 55	> 25 to 35
E	> 55 – 80	> 35 to 50
F	> 80	> 50

Source: Transportation Research Board, *Highway Capacity Manual 2000*, National Research Council, 2000.

Traffic Signal Warrants

The installation of a traffic signal is often considered when intersection levels of service drop below acceptable standards. Many times, they are needed to offer side street traffic an opportunity to access a major road where high volumes and/or high vehicle speeds impede crossing or turn movements. Signals do not, however, increase the capacity of an intersection. In fact, they often slightly reduce the number of total vehicles that can

pass through an intersection in a given period of time. Signals can also cause an increase in certain types of traffic accidents if installed at inappropriate locations.

Tests for determining whether a traffic signal should be considered for installation have been developed in the 2003 Manual of Uniform Traffic Control Devices (MUTCD). These tests, called "warrants," consider criteria such as traffic volume, pedestrian volume, presence of school children, and accident history. There are a total of eleven signal warrants used in the State of California and usually two or more warrants must be met before a signal is installed. An intersection meets Warrant #3, the Peak Hour Signal Warrant, when traffic volumes on the major and minor approaches exceed specified thresholds for at least one hour of the day. When the conditions of Warrant #3 are met, there is a strong indication that a detailed signal warrant analysis covering additional warrants is appropriate.

Significance Criteria

The thresholds used to determine the significance of transportation impacts are based on standards set based on the type of transportation facility and the jurisdiction that controls the facility, including the County of Alameda and Caltrans. For this analysis, the relevant criteria for impacts at intersections are based on the Alameda County and Caltrans level of service (LOS) guidelines, depending on the jurisdiction of the intersection. The following standards for intersections will be applied, where applicable.

Alameda County intersections and roadway segments
According to Alameda County guidelines, a development is said to create a significant adverse impact on traffic conditions at an intersection if one or more of the following conditions occurred:

- Level of service (LOS) exceeds the conditions expected under the No Project baseline by a full letter grade and:
    - LOS is below E for freeways;
    - LOS is below C for all other major streets and highways during non-peak travel periods and below D during peak travel periods.
- When LOS under the No Project baseline condition is already below standard for peak hours and:
    - Traffic generated by the proposed Plan causes a change in volume-to-capacity (V/C) ratio of three (3) percent or more (the 3 percent level has been found to be the threshold for which a perceived change in congestion is observed, and is equivalent to about one-half of the change from one level of service to the next); or
    - The proposed Plan causes the average delay per vehicle at an intersection to exceed that of the No Project condition by 5 seconds or more.

California Department of Transportation (Caltrans) intersections

The study area intersections along East 14th Street are under the jurisdiction of Caltrans. The Guide for the Preparation of Traffic Impact Studies (2002) defines the following LOS standards for State-operated facilities, which include intersections on State Routes:

- Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D.
- If an existing State-operated facility is operating at less than LOS C, the existing LOS should be maintained. Caltrans staff has indicated that Caltrans considers any increase in traffic to a state-operated facility operating at an unacceptable level of service is considered a significant impact.

Pedestrian System Impact Criteria

A significant impact related to the pedestrian system would occur if the implementation of the proposed project causes:

- Disruption to existing pedestrian facilities, or interferes with planned pedestrian facilities;
- Inconsistencies with adopted pedestrian system plans, guidelines, policies, or standards;
- Vehicles to cross pedestrian facilities on a regular basis without adequate design and/or warning systems, causing safety hazards.

Bicycle System Impact Criteria

Bicycle impacts are considered significant if implementation of the project results in any of the following:

- Disrupts existing, or interferes with planned bicycle facilities;
- Creates inconsistencies with adopted pedestrian system plans, guidelines, policies, or standards;
- Increases potential for bicycle/vehicle conflicts.

Transit System Impact Criteria

Transit impacts are considered significant if implementation of the project results in the following:

- Disrupts existing, or interferes with planned transit services or facilities;
- Creates inconsistencies with adopted transit system plans, guidelines, policies, or standards;
- Creates demand for public transit services above that which is provided or planned.

REGIONAL AND LOCAL GOALS, POLICIES, AND ACTIONS

The goal of the Eden Area General Plan Circulation Element is "to establish goals, policies and actions to regulate and improve the Eden Area's transportation systems. This Element balances the needs to move people and goods by multiple transportation modes and routes with the overall desire to maintain the Eden Area as a safe, attractive community with walkable neighborhoods and vibrant retail districts. The transportation corridors of the Eden Area must accommodate development planned for the area, minimize environmental degradation, and complement regional transportation and land use plans.

Eden Area General Plan

The Eden Area General Plan Circulation Element includes several goals, policies and actions that address a range of transportation issues. The following are the proposed goals of the General Plan and the policies and actions most relevant to the proposed project:

Goal CIR-1 Provide attractive streets designed to serve a broad spectrum of land use patterns and travel modes.

Policies

- P1. The County should develop functional classification and street design standards that allow for variations in street width based on the function of the facility and the land use context. These "context-sensitive" roadway designs should have the following aims:
    - Use design features to make the corridor a center of community activity.
    - Create an aesthetically attractive streetscape and safe pedestrian environment.
    - Increase bicycle safety by following accepted standards or by designing a bicycle circulation system.
    - Balance the needs of autos, pedestrians, trucks, transit and bicyclists. The extent to which each mode is emphasized should vary according to the function of the roadway and the adjacent existing and future land uses.
    - Decrease the impacts of roadways on surrounding uses by slowing speeds, reducing noise impacts and emphasizing pedestrian travel.
- P3. Land use concepts shall be promoted that minimize automobile trips and encourage walking, bicycling and transit use.
- P5. New developments shall mitigate the full impacts of their projects on the transportation system. A variety of mitigation measures should be considered, including impact fees, street improvements and transportation demand management (TDM) measures.
- P6. New developments shall incorporate design features that encourage use of alternative modes such as transit, bicycling and walking.

Goal CIR-2 Adopt and enforce level of service (LOS) standards that provide a high level of mobility and accessibility for all travel modes.

Policies

- P1. An LOS of E or better shall be applied to Congestion Management Program (CMP) Roadways: Foothill Boulevard, Center Street, "A" Street, Hesperian Boulevard, Interstate 880, Interstate 580 and Interstate 238.
- P2. An LOS of D or better shall be applied to all non-CMP roadways during peak travel periods.
- P3. The County may allow individual locations to fall below the LOS standards in instances where the construction of physical improvements would be infeasible, prohibitively expensive, significantly affect adjacent properties or the environment, have a significant adverse impact on the character of the Eden Area, or where the lower standard results from significant physical improvements to transit, bicycle or pedestrian facilities.
- P4. Intersections may be permitted to fall below their adopted LOS standards on a temporary basis when the improvements necessary to preserve the LOS standard are in the process of construction or have been designed and funded but not yet constructed.

Goal CIR-3 Provide for efficient motor vehicle circulation within the Eden Area.

Goal CIR-4 Provide access and circulation along Corridors and in Districts while respecting the intensity of adjacent development.

Policies

- P2. At intersections located in and immediately adjacent to Districts, pedestrian and transit circulation should take precedence over the movement of motor vehicles. The Districts identified and described in the Land Use Element are:
    - East 14th Street at Ashland Avenue.
- P3. On-street parking should be allowed, where appropriate, along Corridors and in Districts to provide access to adjacent land uses and to serve as a buffer for pedestrians.
- P6. Wide sidewalks shall be provided in Districts and along Corridors. Where it is not possible to provide wide sidewalks continuously along a Corridor, sidewalks shall be widened at their most congested locations such as in Districts located along corridors and at bus stops.

Goal CIR-5 Ensure that public transit is a viable alternative to driving in the Eden Area.

Policies

- P1. Encourage AC Transit and BART to provide transit service throughout the Eden Area, preferably within one-quarter mile of all residences, businesses, health care, parks and service facilities.
- P2. The County should work with AC Transit and BART to ensure that the frequency and duration (hours of operation) of transit service is adequate and that overall travel time and convenience of travel by public transit is comparable to travel by other modes.
- P3. The County shall support efforts to enhance regional transit service serving the Eden Area, such as the extension of BART to San Jose and enhanced bus service on East 14th Street/Mission Boulevard and Hesperian Boulevard.

- P4. The County shall promote Transit-Oriented Development (TOD) opportunities and pursue available grant funding from local, state and federal sources to fund potential projects.

Goal CIR-6 Complete and enhance the pedestrian circulation network serving the Eden Area.

Policies

- P1. Walking shall be considered an essential and integral part of the County's circulation network.
- P2. An uninterrupted pedestrian network of sidewalks, with continuous sidewalks along both sides of streets, should be ensured. An interconnected pedestrian network is essential to a functional and safe walking environment.
- P4. Ample crossing opportunities shall be provided, especially in Districts and along Corridors. In addition to marked crosswalks at all intersections, mid-block crossings and adequately timed signals should be provided at intersections which are too widely spaced for reasonable pedestrian access.
- P6. New development projects shall be required to provide sidewalks and direct pedestrian connections to adjacent neighborhood streets.
- P9. The County's pedestrian system shall have a high level of connectivity, especially between residences and common local destinations, such as schools, shopping and parks.
- P10. The County shall investigate measures to enhance access and circulation as required by the Americans with Disabilities Act.
- P11. The County shall promote Transit-Oriented Development (TOD) opportunities and pursue available grant funding from local, State and federal sources to fund potential projects.

Goal CIR-7 Promote bicycling as a form of transportation within the Eden Area.

Policies

- P1. Bicycling shall be considered an essential and integral part of the County's circulation network.
- P2. The County shall develop and maintain a bikeway system for the Eden Area that effectively serves residential areas, employment centers, schools, parks and transit stations.
- P3. Safe and direct bicycle facilities should be constructed to provide access from residential neighborhoods to the Bay Fair and Hayward BART stations and the Amtrak Capitol Corridor station south of the Eden Area.
- P6. New commercial, office and Research & Development projects and multi-family residential development projects shall provide safe and secure covered bicycle parking or storage facilities.

Goal CIR-8 Provide for adequate truck circulation to allow for the efficient transport of goods within the Eden Area while protecting neighborhoods from truck related impacts.

Goal CIR-9 Minimize the negative effects of traffic on adjacent land uses and improve traffic safety.

Policies

- P1. Use of local residential streets by non-local and commercial traffic should be discouraged.
- P2. Appropriate buffering and screening mechanisms should be incorporated in development projects to limit the impacts associated with motor vehicle traffic and parking.
- P4. The County shall implement traffic calming measures in order to reduce travel speeds and create a safer pedestrian environment. Priority measures should include street trees, pedestrian-scaled lighting, speed bumps, traffic circles and bulb-outs at intersections.
- P6. Safety around at-grade railroad crossings along Western Boulevard and Grant Avenue should be improved through a variety of physical design techniques such as increasing signage, restricting pedestrian access, and creating more gradual transitions in-grade between parallel roadways and the railroad tracks.

California Department of Transportation (Caltrans)

Caltrans builds, operates, and maintains the State Highway system, including the Interstate Highway system. Caltrans' mission is to improve mobility statewide. The department operates under strategic goals to provide a safe transportation system, optimize throughput and ensure reliable travel times, improve the delivery of state highway projects, provide transportation choices, and improve and enhance the states investments and resources. Caltrans controls the planning of the state highway system and accessibility to the system. Caltrans establishes LOS goals for highways and works with local and regional agencies to assess impacts and develop funding sources for improvements to the State Highway system. Caltrans requires encroachment permits from agencies or new development before any construction work may be undertaken within the state's right-of-way. For projects that would impact traffic flow and levels of services on state highways, Caltrans would recommend measures to mitigate the traffic impacts.

EXISTING CONDITIONS

This section describes the current transportation network within the study area, including roadway, bicycle, pedestrian, and transit facilities. The existing traffic operations of the study area intersections are analyzed and discussed.

Roadway Network/Street Classifications

The existing circulation network within the project vicinity is composed of freeways, arterials, collectors, and local streets. Several of the arterials are classified as state highways, as well. The Eden Area General Plan (2010) provides the definitions below for street classifications, which govern engineering design standards and the roadway level of service thresholds:

Freeways – A freeway is a high-speed, high-capacity transportation facility that serves regional and countywide travel, and provides for relatively long trips between major land use generators. Freeways are typically divided highways for through traffic with full control of access and grade separation at intersections.

Arterial – An arterial is a relatively high mobility, high capacity roadway that provides access to regional transportation facilities and serve relatively long trips. They also accommodate intra-community travel and connect the rest of the countywide collector system.

Collectors – A collector is a relatively low-speed, low-volume street with two lanes that provides for circulation within and between neighborhoods. These roads serve relatively short trips and are meant to collect traffic from local streets and distribute them to the arterial network.

Local Streets – A local street provides access to individual properties, primarily residences and businesses, and connects to the County's network of arterial and collector streets.

Study Area Circulation System

The study area circulation system is comprised of arterials, collectors and local streets that provide both regional and local access to the site. The Ashland community is connected to several regional highways, including I-580 and I-880, which provide access to the Bay Area communities, and I-238. The existing vehicular circulation system within the study area is shown in **Figure 1** and the key access routes are described below:

East 14th Street (SR 185) is a four-lane state highway that operates as a parallel route to I-880 and I-580 and provides regional access to Oakland and San Leandro to the northwest and Hayward and Fremont to the southeast. The speed limit in the area is 35 mph and on-street parking is permitted along the corridor. This segment is also classified as a truck route.

Kent Avenue is a two-lane, north-south street classified as a collector from East 14th Street to Delano Street and a local street south of Delano Street. The posted speed limit is 25 mph and on-street parking is permitted.

Ashland Avenue is a two-lane, north-south street classified as a collector through the study area. The posted speed limit is 25 mph and on-street parking is permitted.

164th Avenue is a two-lane, north-south street classified as an arterial from East 14th Street to Foothill Boulevard with Class II bicycle lanes. The posted speed limit is 25 mph and on-street parking is permitted. This segment is also classified as a truck route.

167th Avenue is a two-lane, north-south street classified as a collector from East 14th Street to Foothill Boulevard with Class II bicycle lanes. The posted speed limit is 25 mph and on-street parking is permitted.

Delano Street is a two-lane, east-west street classified as a collector through the study area. The posted speed limit is 25 mph and on-street parking is permitted.

Elgin Street is a two-lane, east-west street classified as a collector through the study area. The posted speed limit is 25 mph and on-street parking is permitted.

Intersection Operations

Intersection turning movement counts were collected on a typical weekday between 7:00-9:00 AM and 4:00-6:00 PM at all of the study area intersections. The traffic counts were conducted on May 24, 2011. A field visit was also conducted to observe intersection geometry, intersection control, pedestrian and bicycle accessibility, and queue lengths. The existing intersection geometry and traffic control is illustrated in **Figure 2**. The existing conditions traffic volumes are shown in **Figure 3**.

The following intersections were evaluated under existing conditions for the AM and PM peak hours:

1. East 14th Street (SR 185) and Ashland Avenue (signal)
2. East 14th Street (SR 185) and 164th Avenue /Kent Avenue (signal)
3. Kent Avenue and Elgin Street (all-way stop controlled)
4. East 14th Street (SR 185) and 167th Avenue/Elgin Street (signal)
5. Kent Avenue and Delano Street (two-way stop controlled)

A traffic operations model was developed for the study area using TRAFFIX software, which utilizes the methodology of the 2000 Highway Capacity Manual (HCM). **Table 3** summarizes the existing intersection levels of service for the AM and PM peak hour.

As **Table 3** illustrates, all of the study area intersections currently operate at acceptable levels of service.

Table 3: Existing Conditions – Intersection Levels of Service

Intersection	Traffic Control	Peak Hour	Average Delay[1]	LOS[2]	LOS Standard[3]
1. East 14th Street and Ashland Avenue	Signal	AM PM	23.4 14.2	C B	C/D
2. East 14th Street and 164th Avenue/Kent Avenue	Signal	AM PM	21.9 16.3	C B	C/D
3. Kent Avenue and Elgin Street	AWSC	AM PM	7.9 7.6	A A	D
4. East 14th Street and 167th Avenue/Elgin Street	Signal	AM PM	18.7 18.0	B B	D
5. Kent Avenue and Delano Street	TWSC	AM PM	13.1 10.8	B B	C/D

Notes:

1. Whole intersection weighted average total delay for signalized and all-way stop-controlled intersections (expressed in seconds per vehicle).
2. LOS calculations performed using the 2000 *Highway Capacity Manual*.
3. LOS standard for Caltrans and Alameda County.
4. Unacceptable operations are indicated in **bold** type.
5. AWSC – All-Way Stop controlled, TWSC – Two-Way Stop controlled

Roadway Segment Operations

In addition to intersection analysis, the County requested that several roadway segments also be analyzed for potential impacts. Therefore, a peak hour roadway segment analysis was conducted on Ashland Avenue, Elgin Street, Kent Avenue, and Delano Street in the vicinity of the project site. The peak hour roadway volumes were derived from the peak hour intersection turning movement counts collected in May 2011.

All four roadway segments are two lane roads classified as collector streets by the County. Capacity of the roadways was estimated using the Florida Department of Transportation methodology for roadway segment analysis. This methodology is based on the 2000 Highway Capacity Manual, which is generally accepted as the standard practice for traffic engineering. The methodology uses peak hour traffic volumes to determine LOS for general planning applications. This methodology assesses the capacity of a roadway based on the number of lanes, number of signalized intersections per mile, presences of left and right turn lanes, and other factors.

Applying reductions to account for the roadways not being classified as state routes and not providing exclusive left turn and right turn lanes, the roadway capacity can be calculated for each service level. The volumes are the upper limit for that service level. Based on this methodology and the study roadway characteristics, the two-way, peak hour threshold for LOS B is 512 vehicles, LOS C is 825 vehicles, and LOS D is 880 vehicles. A roadway segment with more than 880 vehicles per hour would operate at LOS F.

Utilizing these thresholds, **Table 4** shows the roadway segment analysis under Existing Conditions.

Table 4: Existing Conditions – Roadway Segment Levels of Service

Roadway	Segment	AM Peak Two-Way Volume	AM LOS	PM Peak Two-Way Volume	PM LOS
Ashland Avenue	South of East 14th Street	620	C	480	B
Elgin Street	West of East 14th Street	224	B	275	B
Kent Avenue	South of East 14th Street	357	B	305	B
Delano Street	West of Kent Avenue	393	B	308	B

As **Table 4** illustrates, all of the study area roadway segments currently operate at acceptable levels of service.

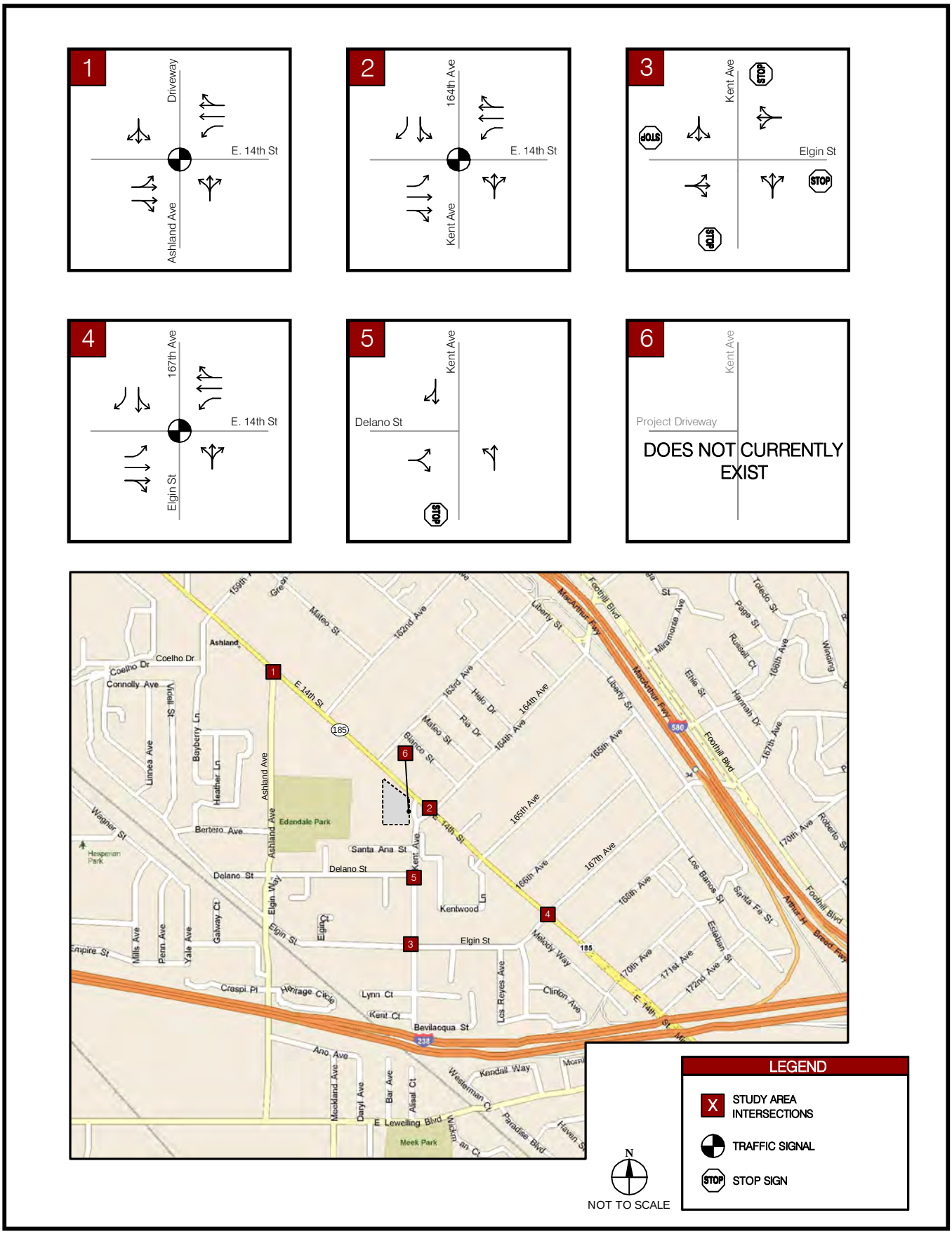

FIGURE 2

EXISTING CONDITIONS

INTERSECTION GEOMETRY AND TRAFFIC CONTROL

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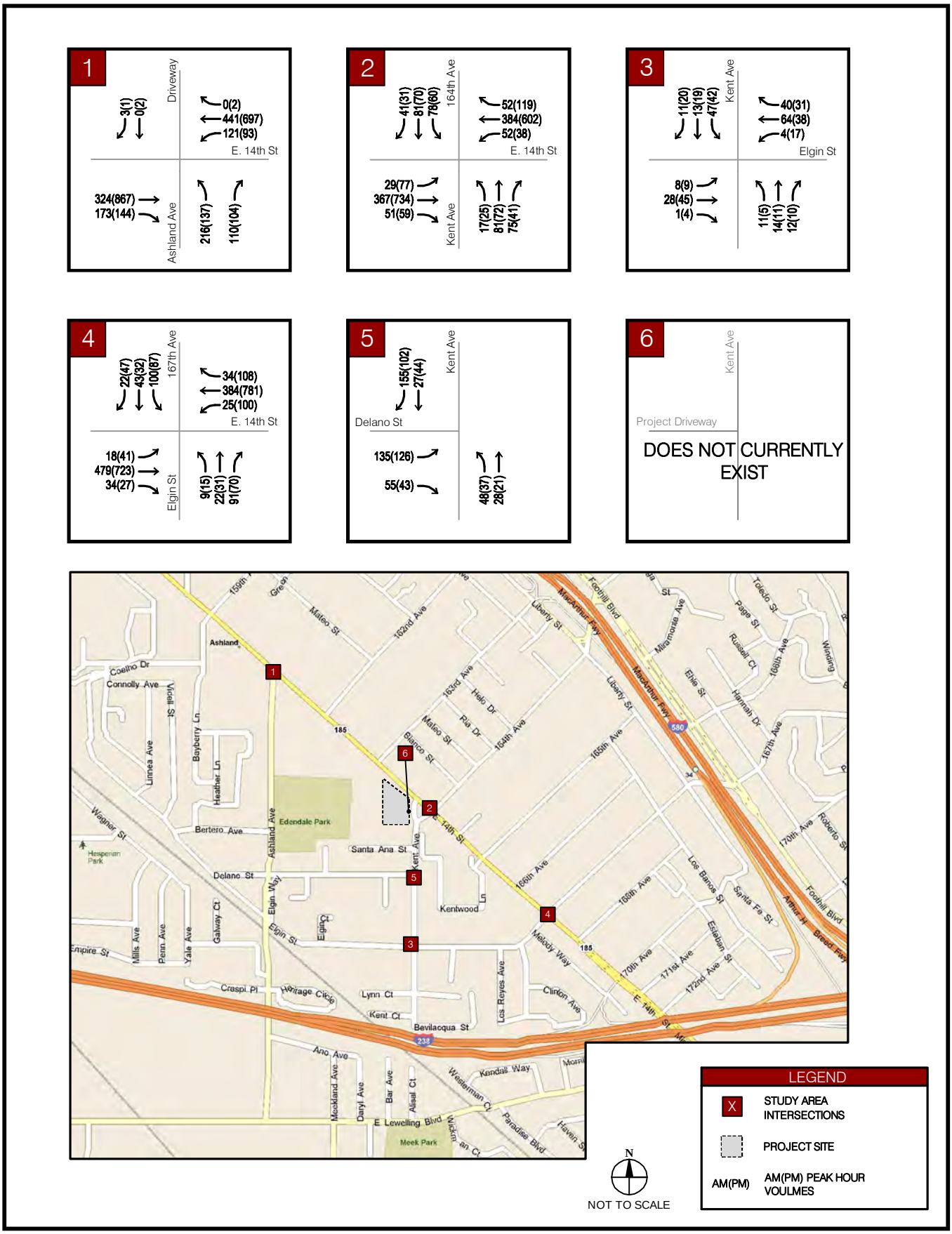

FIGURE 3

EXISTING CONDITIONS

PEAK HOUR TURNING MOVEMENT VOLUMES

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Transit Network

Two key transit agencies provide public transportation options in the vicinity of the study area – AC Transit operates fixed bus routes and the Bay Area Rapid Transit (BART) provides commuter heavy rail. The Amtrak Capital Corridor provides train service from San Jose to Sacramento and can be accessed at a Hayward station approximately two miles south of the proposed development.

Public transportation routes within the project vicinity are shown in **Figure 4**.

Bus Service

Alameda County transit service is provided by AC Transit, which operates several bus routes that travel with the proposed study area. **Figure 4** shows the existing bus transit routes in the study area, which are also described below.

Route 32 – This bus route runs along 164th Avenue and East 14th Street through the study area. It is a local community route connecting Hayward with the unincorporated communities of Castro Valley, Ashland, and Cherryland and provides access to the Bay Fair BART, Hayward BART, and Castro Valley BART stations. This two-way loop route operates on weekdays and weekends with 60 minute weekday headways per direction from 5 AM to 9 PM.

Route 75 – This bus route runs along Ashland Avenue and Elgin Street adjacent to the study area. It is a local community route connecting Foothill Square in Oakland with the Downtown San Leandro BART and Bay Fair BART stations and Ashland. This two-way loop route operates on weekdays only with 60 minute headways per direction from 5:30 AM to 8:30 PM.

Route 93 – This bus route runs along East 14th Street through the study area. It is a local community route connecting Hayward at the Hayward BART station with the unincorporated communities of Ashland, San Lorenzo, and Cherryland with the Bay Fair BART station. This two-way loop route operates on weekdays and weekends with 60 minute weekday headways per direction from 5 AM to 9 PM.

Route 99 – This bus route runs along East 14th Street through the study area. This multi-city route connects the Bay Fair BART, Hayward BART, South Hayward BART, Union City BART, and Fremont BART stations. The route operates on weekdays and weekends with 30 to 60 minute weekday headways from 5:30 AM to 12:30 AM.

Route 801 – This bus route operates as the night route for Route 99. The route operates on weekdays and weekends with 60 minute weekday headways from 12:30 AM to 5:30 AM.

There are currently several bus stop locations within one block of the proposed development. A bus stop for the westbound East 14th Street routes is located at the intersection of East 14th Street and Kent Avenue adjacent to the proposed development. A stop for the westbound East 14th Street routes is located at the intersection of East 14th Street and 163rd Avenue. A stop for the routes along Kent Avenue north of East 14th Street is located along Kent Avenue north of East 14th Street.

Rail Service

BART provides heavy rail rapid transit service throughout the counties of Contra Costa, Alameda, San Francisco, and San Mateo with stations in most major cities in these counties. Trains generally operate with 10 to 20 minute headways during weekdays and weekends. The Bay Fair BART station is located approximately three-quarters of a mile west of the proposed development south of Bayfair Center at Hesperian Boulevard and Thornally Drive. Approximately 4,900 people access BART on a typical weekday from this station. There are no existing at-grade railroad crossings within the study area as the BART tracks are elevated.

Paratransit

East Bay Paratransit is provided by both AC Transit and BART. The Americans with Disabilities ACT (ADA) requires that all bus and rail companies provide paratransit service to riders whose disabilities prevent them from using regular public transit. The two agencies work cooperatively together to provide ADA service for individuals who are eligible.

Bicycle Facilities

The *Alameda County Bicycle Master Plan for Unincorporated Areas* (March 2007) provides a discussion of bikeways throughout the County and illustrates the bicycle facilities network. As referenced in this plan, cities generally follow state definitions for bikeways, which identify three distinct types of bicycle facilities: bike paths, bike lanes and bike routes. These facilities are defined as follows:

- *Class I Bikeway (Bike Path or Bike Trail)*: Provides completely separated right-of-way designated for the exclusive use of bicycles and pedestrians with crossflows by motorists minimized.

- *Class II Bikeway (Bike Lane)*: Provides a restricted right-of-way designated for the exclusive use or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and crossflows by pedestrians and motorists provided.

- *Class III Bikeway (Bike Route)*: Provides a right-of-way designated by signs or permanent markings and shared with pedestrians or motorists.

Within the study area, 164th Avenue from East 14th Street to Liberty Street and 167th Avenue from East 14th Street to Liberty Street provide Class II bike lanes.

The *Alameda County Bicycle Master Plan for Unincorporated Areas* (March 2007) includes the following proposed improvements to the bicycle network near the study area:

- Bike lanes along Ashland Avenue from East 14th Street to Lewelling Boulevard;
- Bike route along East 14th Street from San Leandro City Limit to south of I-238; and
- Bike route along Elgin Street from East 14th Street to Bay Fair BART Station.

The location of the existing and planned bicycle facilities within the study area is illustrated in **Figure 5**.

Pedestrian Facilities

The *Alameda County Pedestrian Master Plan for Unincorporated Areas* (July 2006) provides a discussion of pedestrian facilities throughout the County. Sidewalks currently exist through much of the study area along the study area roadways typically located at the backside of the curb. There are also several street pedestrian crossings located within the study area.

Signalized Intersections with Pedestrian Crossings – These crossings have marked crosswalks and pedestrian activated signal control. Pedestrian signal heads are provided. Most signalized crossings provide crosswalks on all approaches of the intersection, but several locations do not provide pedestrian crosswalks for one or more approach. The following intersections within the study area provide key signalized pedestrian crossings:

- East 14th Street and 167th Avenue/Elgin Street
- East 14th Street and 165th Avenue
- East 14th Street and 164th Avenue/Kent Avenue – east side crossing only
- East 14th Street and 162nd Avenue – west side crossing only
- East 14th Street and Ashland Avenue – east side crossing only

Unsignalized Intersection with Marked School Crossings – These crossings are standard yellow transverse-style crosswalks indicating a school crossing. Several school crossings are provided within the study area:

- Ashland Avenue south of East 14th Street (mid-block crossing)
- Ashland Avenue and Bertero Avenue
- Ashland Avenue and Delano Street

Unsignalized Intersections with No Marked Crossings – These intersections are legal crossing points but have no marked or signed facilities. There are numerous crossings of this type in the study area.

Planned and Proposed Transportation Projects/Studies

The following transportation projects, as identified in County documents and recent planning studies, are proposed within the vicinity of the study area:

- *East 14th Street/Mission Boulevard Streetscape Project* – From the County website, the East 14th Street/Mission Boulevard Streetscape Project is a catalyst public improvement project designed to strengthen the viability of the commercial corridor and enhance the physical connection to the surrounding communities of Ashland and Cherryland. The Project will provide streetscape improvements for the entire length of the East 14th Street/Mission Boulevard corridor (159th Avenue and East 14th Street to Rufus Court and Mission Boulevard), as well as

pedestrian access from East 14th Street to BART along 159th Avenue. The Project is intended to reduce the scale of the street and make it more pedestrian friendly. Improvements include undergrounding of utility wires, new hardscape such as widened sidewalks, planted medians, intersection bulb-outs with trees, new ornamental street lighting, improved bus stops, and street furniture. Construction of the first portions of the project on East 14th Street between 159th Avenue and 162nd Avenue and on 159th Avenue from East 14th Street to the Bay Fair BART station was completed in 2005 and 2007, respectively. Design is underway on the next phase of improvements which includes East 14th Street between 162nd Avenue and 173rd Avenue. Construction of the streetscape elements and utility undergrounding will occur at the same time.

- *BART Silicon Valley* – BART is planning the extension of the existing BART regional heavy rail system to Milpitas, San Jose, and Santa Clara. This would provide an additional transportation option for the area for traveling to and from the South Bay.

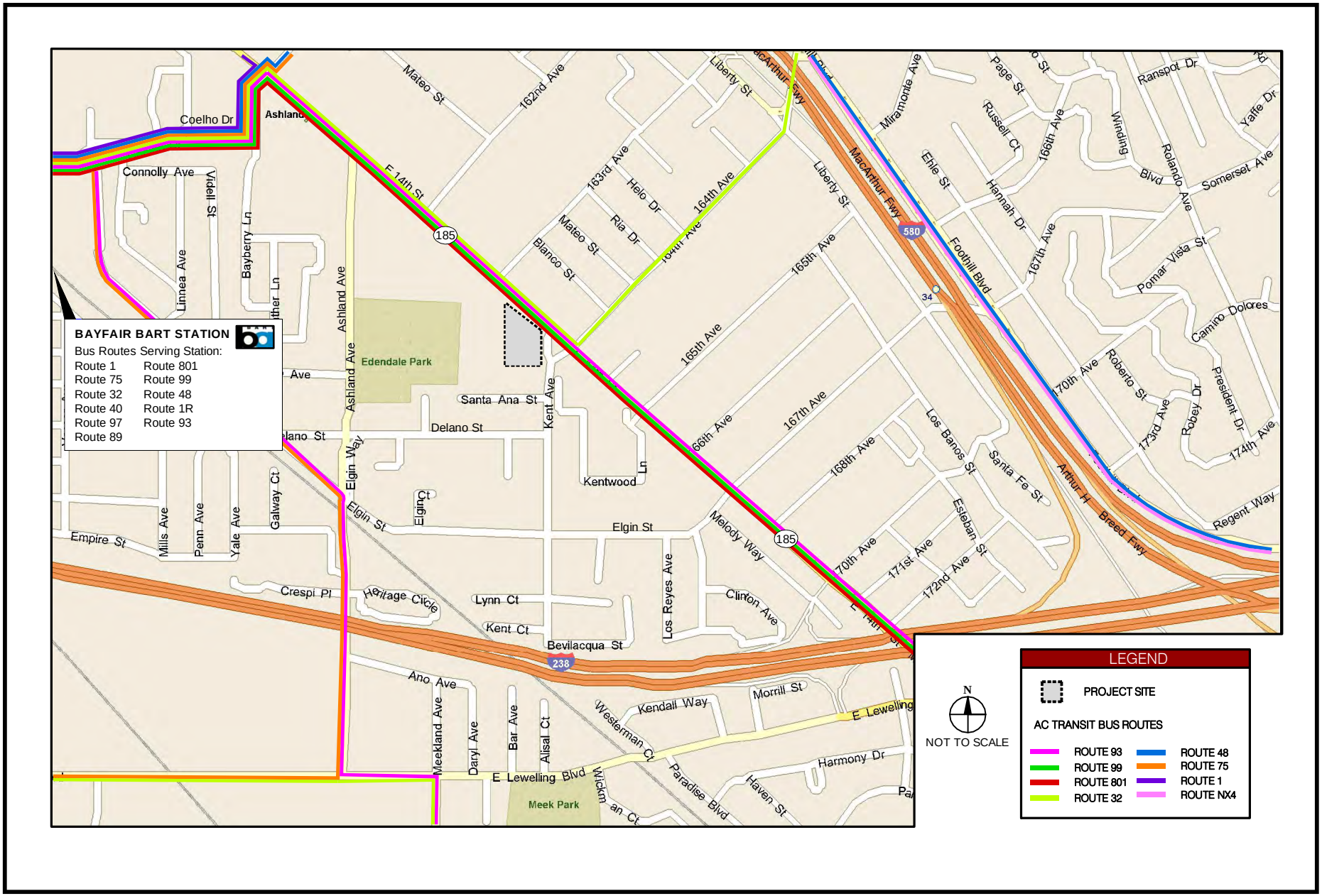

FIGURE 4
EXISTING CONDITIONS
TRANSIT CIRCULATION

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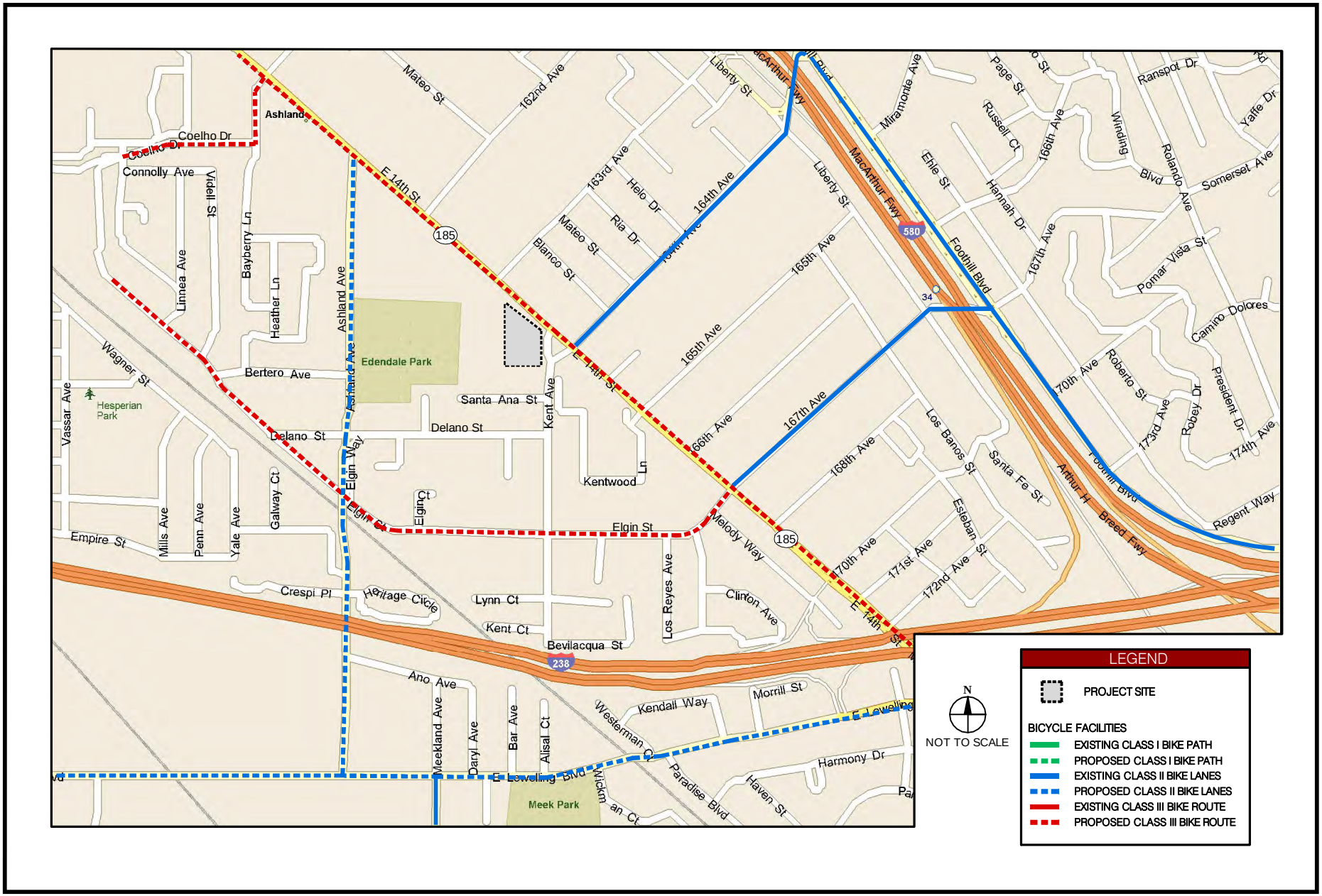

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FIGURE 5

NON-MOTORIZED TRANSPORTATION FACILITIES

EXISTING PLUS PROJECT CONDITIONS

The existing plus project scenario is an artificial scenario that identifies specific impacts of the proposed plan for comparative purposes. The peak hour traffic volumes for this scenario were developed by adding the net new trips generated by the proposed project to the existing traffic volumes. It will also evaluate potential ramifications to pedestrian, bicycle, and transit circulation. No roadway improvements have been incorporated in this scenario's analysis. Overall, traffic patterns are not anticipated to change significantly since the primary roadway network remains the same.

Project Trip Generation

The Institute of Transportation Engineer's (ITE) *Trip Generation, 8th Edition*, was used to estimate daily and peak-hour trip generation that can be attributed to the development of the proposed project. Trip generation rates are the number of trips generated by a particular land use per an independent variable of dwelling units, employees, or square feet. These rates are developed through many studies conducted throughout the country and, therefore, the rates represent a national average for similar land use types. Trip generation rates can vary depending on where the studies were conducted, and ITE provides a range of rates.

A trip is defined in *Trip Generation* as a single or one-directional vehicle movement with either the origin or destination at the project site. In other words, a trip can be either "to" or "from" the site. In addition, a single customer visit to a site is counted as two trips (i.e., one to and one from the site).

For purposes of determining the worst-case impacts of traffic on the surrounding street network, the trips generated by a proposed development are typically estimated between the hours of 7:00-9:00 AM and 4:00-6:00 PM. While the project itself may generate more traffic occurring some other time of the day such as around noon, the peak of "adjacent street traffic" represents the time period when the uses generally contribute to the greatest amount of congestion, with the PM peak commonly being the greatest congestion period. Although the trips generated by the project may be greater during certain hours of the day, the background volumes on the street network would be relatively low compared to weekday peak traffic volumes. For this reason, this section of the traffic report focused on the weekday AM and PM peak hours.

The site currently includes land uses that generate existing vehicle trips consisting of three single family homes and 13 mobile homes. The trips generated by these uses can be deducted from the trips generated by the proposed development to calculate the net new trips generated. **Table 5** summarizes the trip generation of the existing uses and the proposed development, and calculates the total net new trips generated.

Developments constructed within viable walking distance to existing transit systems typically have lower vehicular trip generation than developments with poor access to transit. While the proposed development is located within one mile of the BART station and adjacent to an AC Transit bus stop, no reductions were taken for transit trips to develop a conservative trip generation estimate.

Table 5: Project Trip Generation

Land Use	ITE Code	Quantity	Units	Daily	AM Peak			PM Peak		
				Total	In	Out	Total	In	Out	Total
Existing Land Uses										
Single-Family Detached Housing	210	3	DU	30	1	1	2	2	1	3
Mobile Home Park	240	13	DU	66	1	5	6	5	3	8
Trip Generation Subtotal – Existing Land Uses				**96**	**2**	**6**	**8**	**7**	**4**	**11**
Proposed Land Uses										
Apartment	220	85	DU	566	9	34	43	34	19	53
Net New Trips Generated by Proposed Development										
Total Project Trip Generation				**470**	**7**	**28**	**35**	**27**	**15**	**42**

Trip Generation Data from ITE *Trip Generation, 8th Edition*, 2008.

As noted in **Table 5**, the proposed development will generate 470 net new daily trips, 35 net new AM peak hour trips, and 42 net new PM peak hour trips.

Project Trip Distribution and Assignment

The project trip distribution was developed based on existing traffic count information, traffic volumes in the ACTC travel demand model, and the general orientation of similar land uses to the site and population and employment sources to the study area. **Figure 6** presents the traffic distributions assumed for this traffic study.

The net new trips generated by the development of the Plan were assigned to the roadway network on the basis of the trip distribution and the likely travel patterns to and from the Plan area. The result of the projects peak hour traffic assignment is illustrated in **Figure 7**.

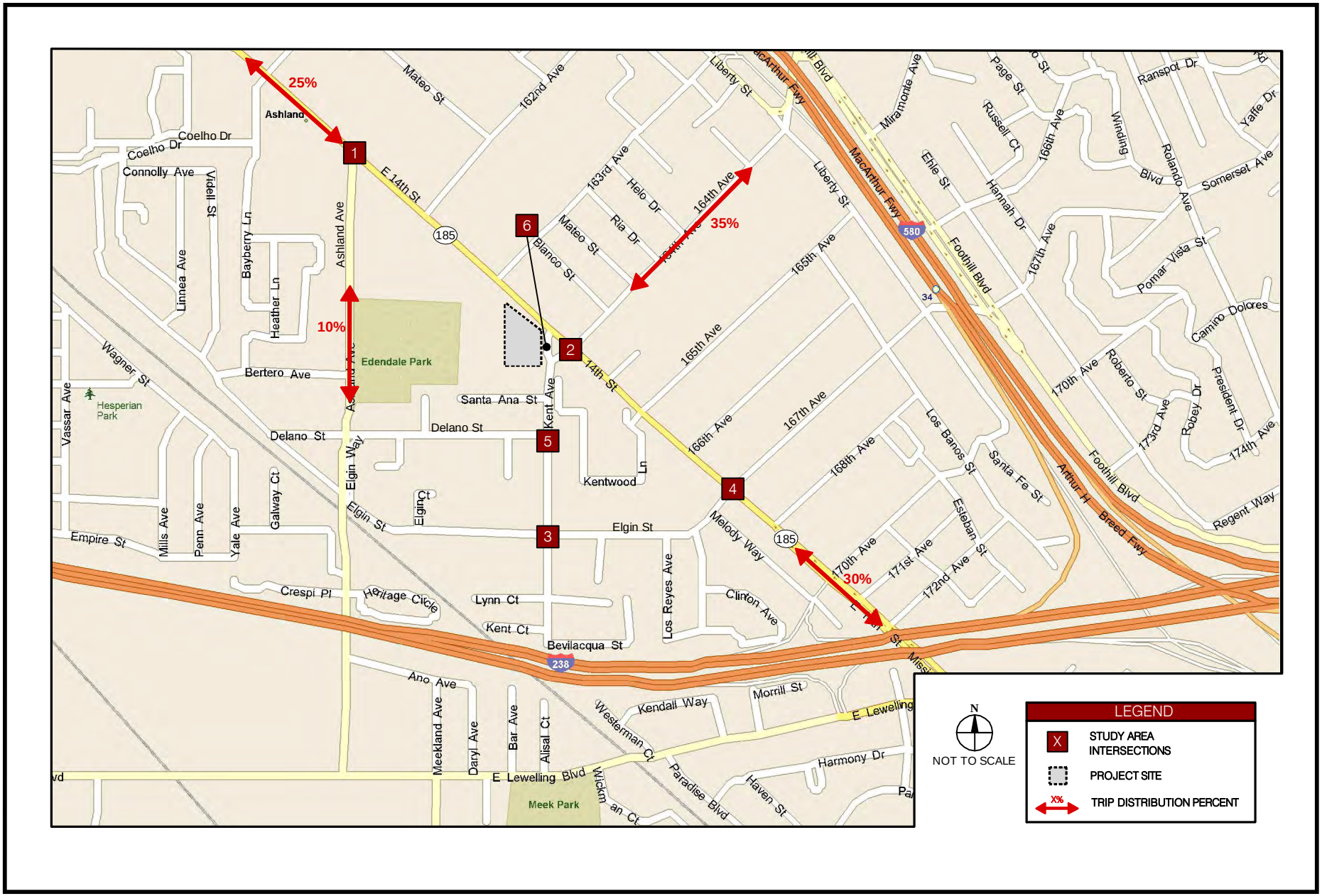

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FIGURE 6
PROJECT TRIP DISTRIBUTION

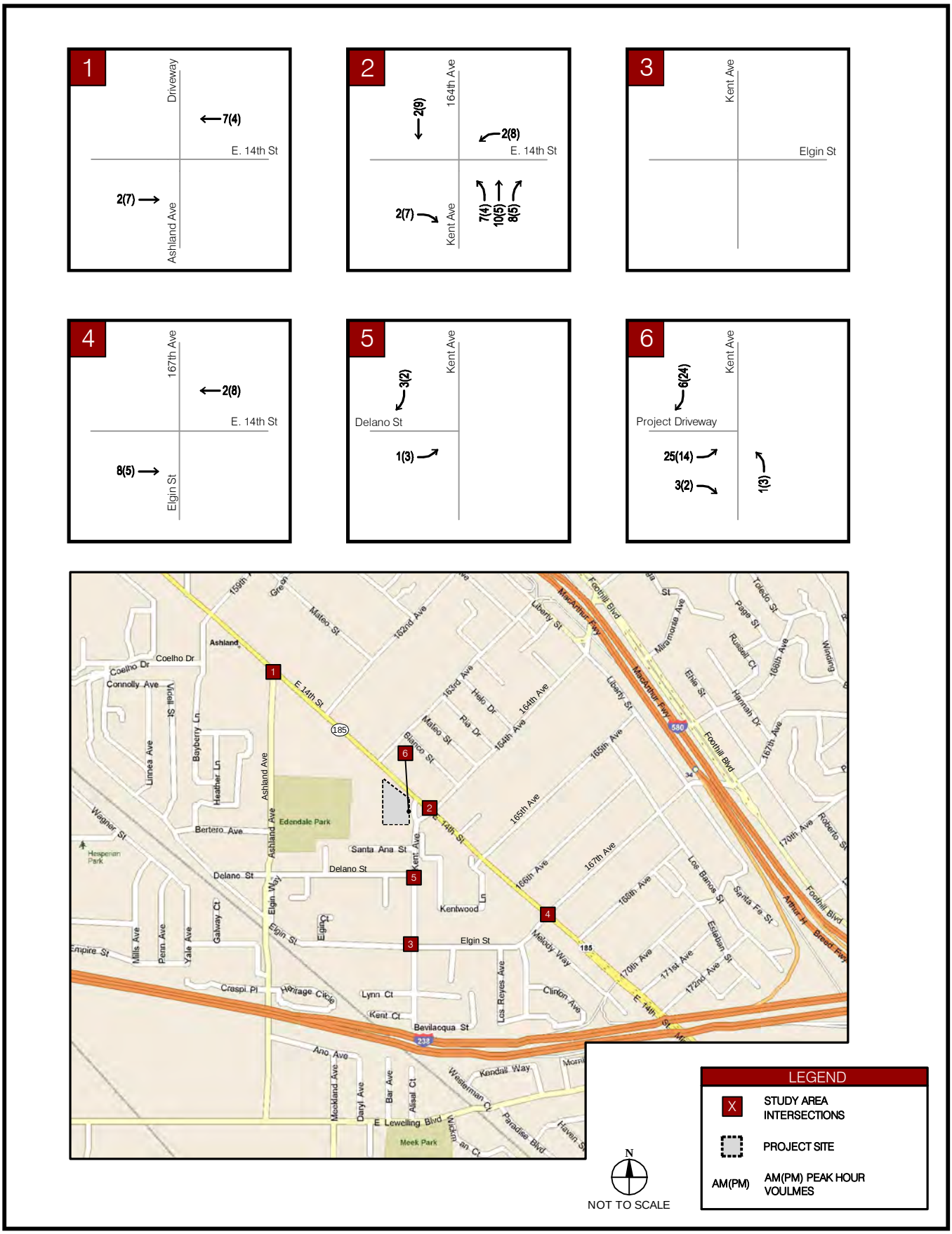

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FIGURE 7
PROJECT TRAFFIC ASSIGNMENT

Intersection Operations

Each study area intersection was analyzed using the proposed intersection geometry and traffic control illustrated in **Figure 2**. Using the trip generation from **Table 5** and the trip distribution percentages from **Figure 6**, the net new project trips were calculated and added to the existing traffic volumes to develop the existing plus project traffic volumes. **Figure 8** illustrates the Existing plus Project peak hour volumes. Results of the capacity analysis are shown in **Table 6**.

Table 6: Existing Plus Project Conditions – Intersection Levels of Service

Intersection	Traffic Control	Peak Hour	Existing Conditions		Existing Plus Project		LOS Standard[3]	Significant Impact
			Avg. Delay[1]	LOS[2]	Avg. Delay[1]	LOS[2]		
1. East 14th Street and Ashland Avenue	Signal	AM PM	23.4 14.2	C B	23.4 14.2	C B	C/D	No
2. East 14th Street and 164th Avenue/Kent Avenue	Signal	AM PM	21.9 16.3	C B	22.1 17.2	C B	C/D	No
3. Kent Avenue and Elgin Street	AWSC	AM PM	7.9 7.6	A A	7.9 7.6	A A	D	No
4. East 14th Street and 167th Avenue/Elgin Street	Signal	AM PM	18.7 18.0	B B	18.6 17.9	B B	D	No
5. Kent Avenue and Delano Street	TWSC	AM PM	13.1 10.8	B B	13.2 10.9	B B	C/D	No
6. Kent Avenue and Proposed Site Driveway	TWSC	AM PM			10.7 10.4	B B	D	No

Notes:

1. Whole intersection weighted average total delay for signalized and all-way stop-controlled intersections (expressed in seconds per vehicle).
2. LOS calculations performed using the 2000 *Highway Capacity Manual*.
3. LOS standard for Caltrans and Alameda County.
4. Unacceptable operations are indicated in **bold** type.
5. AWSC – All-Way Stop controlled, TWSC – Two-Way Stop controlled

Roadway Segment Operations

Each study area roadway segment was analyzed using the existing plus project traffic volumes illustrated in **Figure 8**. Results of the capacity analysis are shown in **Table 7**.

Table 7: Existing Conditions – Roadway Segment Levels of Service

Roadway	Segment	AM Peak Two-Way Volume	AM LOS	PM Peak Two-Way Volume	PM LOS
Ashland Avenue	South of East 14th Street	620	C	480	B
Elgin Street	West of East 14th Street	224	B	275	B
Kent Avenue	South of East 14th Street	388	B	343	B
Delano Street	West of Kent Avenue	397	B	313	B

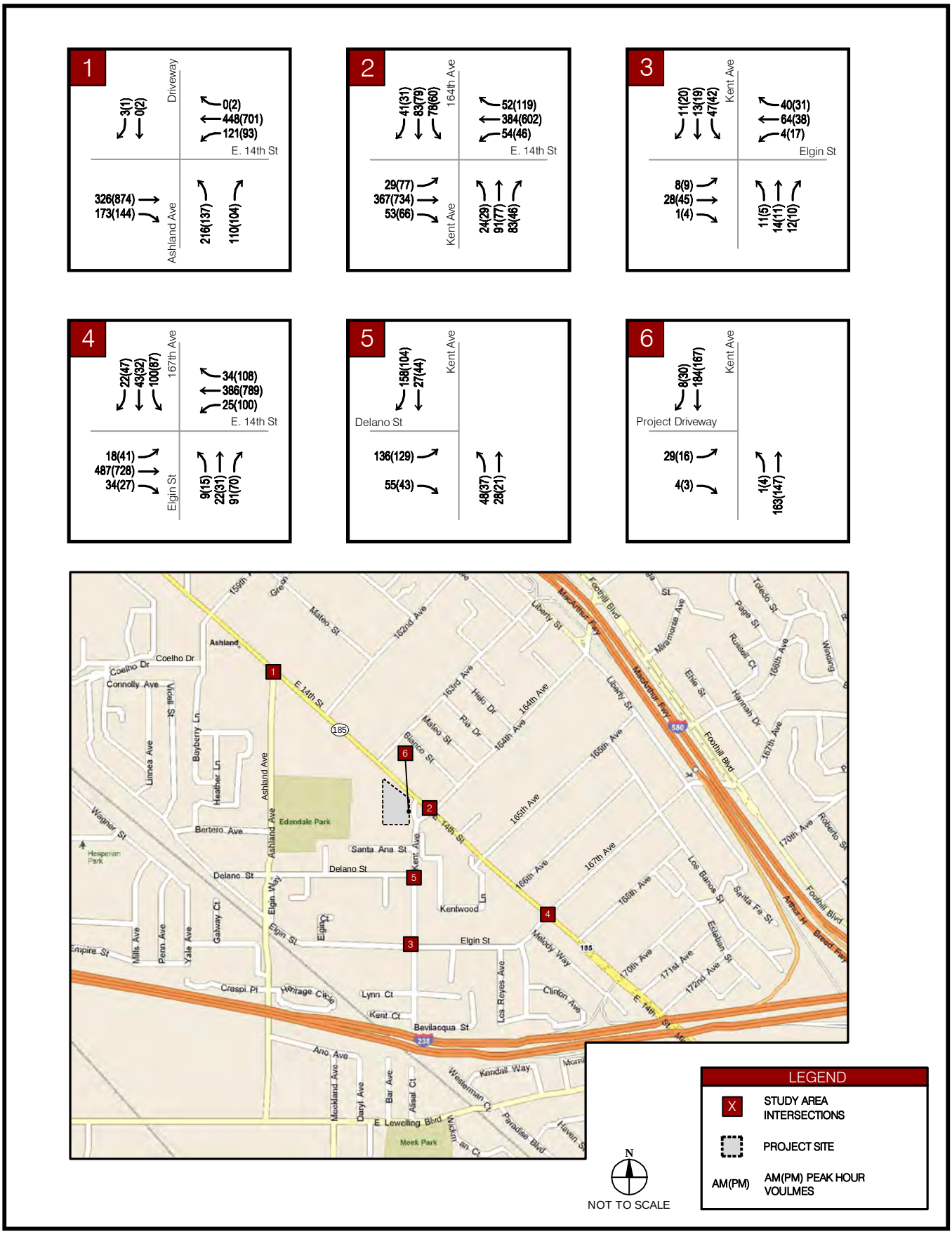

FIGURE 8

EXISTING PLUS PROJECT CONDITIONS

PEAK HOUR TURNING MOVEMENT VOLUMES

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Existing Plus Project Conditions Impact Analysis

Impact TRAF-1: Traffic generated by the proposed project will increase delay times at study area intersections under Existing plus Project conditions. (Less-than-significant)

As shown in **Table 6**, the average intersection delay times for the study area intersections would remain the same or increase with the addition of vehicle trips generated by the proposed development. However, all study intersections in the Existing plus Project scenario would continue to operate at acceptable levels of service. Therefore, mitigation is not required at the study area intersections.

Mitigation Measure TRAF-1: None required**.**

Significance after Mitigation: Less-than-Significant.

Impact TRAF-2: Traffic generated by the proposed project will increase peak hour volumes at study area roadway segments under Existing plus Project conditions. (Less-than-significant)

As shown in **Table 7**, the two-way peak hour traffic volumes for the study area roadway segments would remain the same or increase with the addition of vehicle trips generated by the proposed development. However, all study roadway segments in the Existing plus Project scenario would continue to operate at acceptable levels of service. Therefore, mitigation is not required at the study area roadway segments.

Mitigation Measure TRAF-2: None required**.**

Significance after Mitigation: Less-than-Significant.

Pedestrian and Bicycle Facilities

Impact TRAF-3: Implementation of the project under Existing plus Project conditions would generate pedestrian and bicycle trips, which would use the existing and planned circulation network in the project area. (Less than significant)

As noted previously, the project would be considered to have a significant impact if it conflicted with adopted policies, plans, or programs supporting alternative transportation (e.g., bicycle racks) or generate pedestrian and bicycle travel demand that would not be accommodated by current pedestrian facilities or bicycle development plans.

The proposed development will potentially generate pedestrian demand. Currently, sidewalks exist along the vast majority of roadways within the area, including East 14th Street and Kent Avenue. The development will also improve pedestrian access at the site by constructing eight-foot sidewalks along Kent Avenue and improving the sidewalk along East 14th Street to match those being constructed as part of the East 14th Street/Mission Boulevard Streetscape Project. This project is not anticipated to interfere

with any of the existing or planned pedestrian facilities. It is recommended that internal pedestrian paths be provided to accommodate residents, including providing pedestrian access to the Youth Center through the site.

There are several existing and planned bicycle facilities in the vicinity of the proposed development. The development will potentially generate bicycle demand. It is expected that the planned bicycle facilities will be able to accommodate the future bicycle demand generated by the proposed development. The project's traffic generation or site access would not create any changes to the existing or planned bicycle facilities. Therefore, the Project would not result in any adverse impacts to bicyclists.

The proposed project would not interfere with existing or planned pedestrian or bicycle facilities. Thus, the project's impact on pedestrian and bicycle is determined to be less than significant.

Mitigation Measure TRAF-3: None Required.

Significance after Mitigation: Less-than-Significant.

Transit Facilities

Impact TRAF-4: Implementation of the project under Existing plus Project conditions would generate transit trips, which would use the existing and planned transit network in the project area. (Less than significant)

It is expected that the proposed development may generate transit ridership. There are currently bus routes along East 14th Street that travel by the proposed development. Bus stops are currently located at the intersections of East 14th Street and Kent Avenue and East 14th Street and 163rd Avenue, all within walking distance of the proposed development. The Bay Fair BART station is also less than one mile to the west of the site, providing an additional transit option for future residents. BART is planning to expand its rail system south to Milpitas, San Jose, and Santa Clara, providing another transit option to and from the South Bay.

The proposed development would not interfere with existing or planned transit service or transit stops, and dispersion of the project-generated riders to the various existing bus routes and train service is expected to result in a minimal effect on transit capacity. Thus, the project's impact on transit facilities is determined to be less than significant.

Mitigation Measure TRAF-3: None required.

Significance after Mitigation: Less than Significant**.**

CUMULATIVE (2035) NO PROJECT CONDITIONS

This scenario evaluates the impacts on traffic and circulation that would occur in 2035 with and without the development of the project. The Cumulative No Project scenario will develop baseline traffic projections to establish background conditions for the evaluation of the project in the future and form the basis for determining and comparing cumulative impacts. Additional development projects are expected to be completed by 2035 and will contribute to a long-term increase in background traffic regardless of the proposed project. These projects include growth in land uses located within the County's urban growth limit such as residential, industrial, business park, and commercial, as well as growth outside of the County. This step in the analysis makes it possible to identify long-term traffic impacts, regardless of the proposed project.

The Alameda County Transportation Commission (ACTC), formerly the Alameda County Congestion Management Agency travel demand forecasting (TDF) model forecasts future traffic volumes within Alameda County. Land use data is included in the model on a traffic analysis zone (TAZ) level of detail. Model trip generation is performed with algorithms that reflect land use, population, employment, income levels, auto ownership, persons per household and other socio-economic factors specific to the area. The model's trip generation is "calibrated" to match local conditions. Using the land use, socioeconomic data, and network (street and intersection) data, the model distributes or allocates trips to/from each TAZ, or land use area. The model then assigns those trips to the roadway network based on least cost (time and/or distance) paths.

The model output is in the form of daily and AM, and PM peak hour link volumes and was utilized to develop future traffic projections. The ACTC model assumes full build out of the General Plan in the 2035 model. Volumes from the model were used to forecast weekday AM and PM peak hour volumes for the Cumulative (2035) No Project scenario. The growth in the link volumes between the base year model (2005) and the forecast year model (2035) was used to develop growth rates for the arterials, collectors, and local streets. The growth rate was applied to the existing link volumes on roadways and at intersections, resulting in Cumulative (2035) No Project forecast volumes.

Many of the key roadways in the study area are detailed in the current ACTC model; however, some local and collector streets within the study area are not accurately represented. Traffic volumes from the base year model and forecast year model were compared for the key study area roadways in the current model. In addition, comparing the base year model output to the recently collected peak hour traffic volumes indicates that significant growth has occurred in the area since the base year model has been calibrated. Since East 14th Street is a major thoroughfare in the study area and the remaining study area roadways are either collectors or local streets, an annual growth rate was calculated and applied for that roadway. Since local streets are not anticipated to experience the same level of growth in traffic as major streets, a lower annual growth was calculated and applied.

The Cumulative No Project traffic volumes are shown in **Figure 9**.

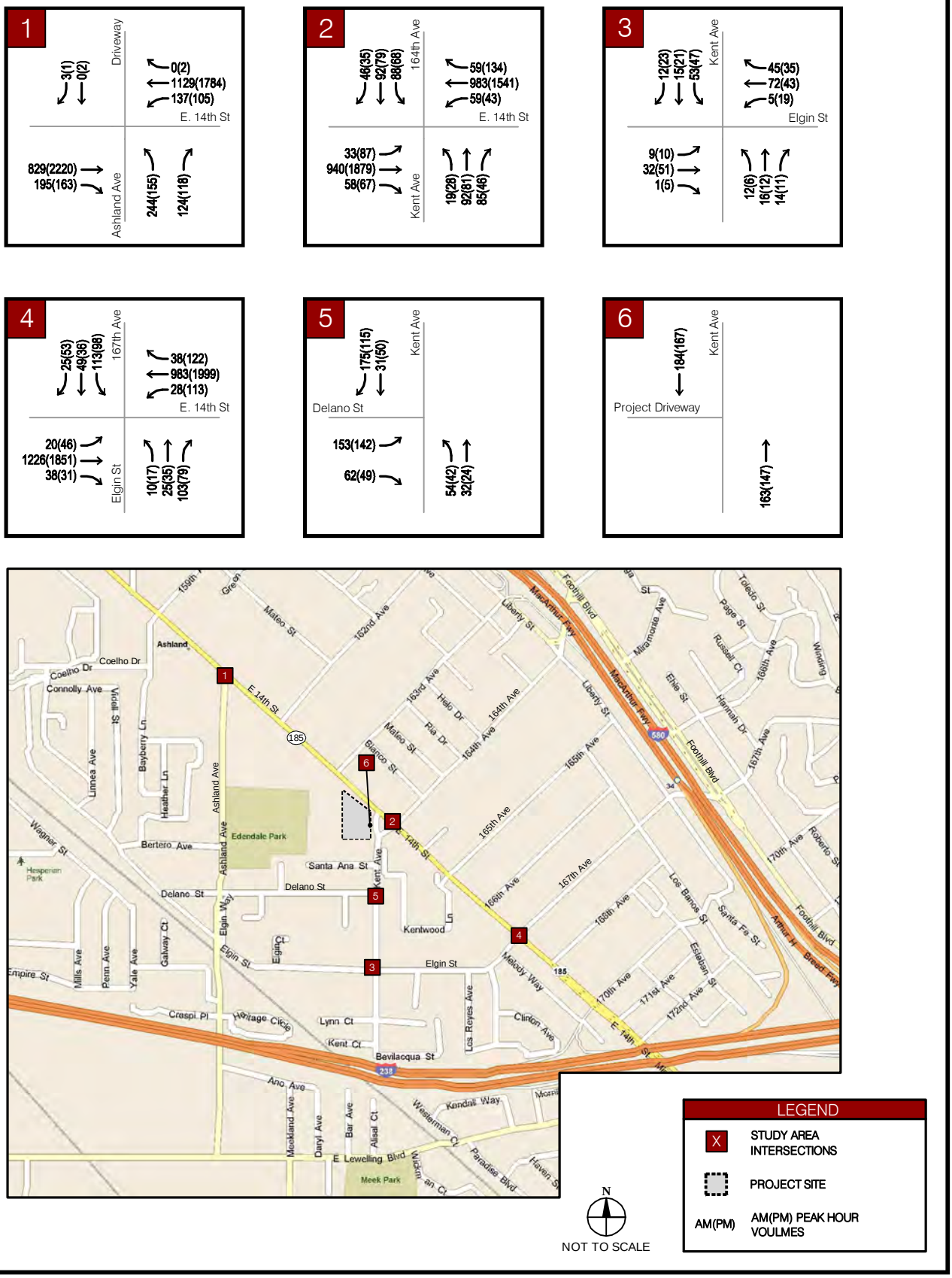

FIGURE 9

CUMULATIVE NO PROJECT CONDITIONS

PEAK HOUR TURNING MOVEMENT VOLUMES

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Intersection Operations

Each study area intersection was analyzed based on the volumes shown in **Figure 9** and the intersection geometry and traffic control illustrated in **Figure 2**. Results of the traffic operations analysis are summarized in **Table 8**. All study area intersections are projected to operate at acceptable levels of service during the AM and PM peak hours prior to adding trips generated by the proposed project.

Table 8: Cumulative (2035) No Project Conditions – Intersection Levels of Service

Intersection	Traffic Control	Peak Hour	Average Delay[1]	LOS[2]	LOS Standard[3]
1. East 14th Street and Ashland Avenue	Signal	AM PM	24.1 27.0	C C	C/D
2. East 14th Street and 164th Avenue/Kent Avenue	Signal	AM PM	21.3 18.2	C B	C/D
3. Kent Avenue and Elgin Street	AWSC	AM PM	8.1 7.7	A A	D
4. East 14th Street and 167th Avenue/Elgin Street	Signal	AM PM	17.3 28.1	B C	D
5. Kent Avenue and Delano Street	TWSC	AM PM	14.7 11.4	B B	C/D

Notes:
1. Whole intersection weighted average total delay for signalized and all-way stop-controlled intersections (expressed in seconds per vehicle).
2. LOS calculations performed using the 2000 *Highway Capacity Manual*.
3. LOS standard for Caltrans and Alameda County.
4. Unacceptable operations are indicated in **bold** type.
5. AWSC – All-Way Stop controlled, TWSC – Two-Way Stop controlled

Roadway Segment Operations

Each study area roadway segment was analyzed using the existing plus project traffic volumes illustrated in **Figure 9**. Results of the capacity analysis are shown in **Table 9**. As illustrated, all roadways are projected to operate at acceptable levels.

Table 9: Cumulative (2035) No Project Conditions – Roadway Segment Levels of Service

Roadway	Segment	AM Peak Two-Way Volume	AM LOS	PM Peak Two-Way Volume	PM LOS
Ashland Avenue	South of East 14th Street	700	C	543	C
Elgin Street	West of East 14th Street	253	B	311	B
Kent Avenue	South of East 14th Street	405	B	344	B
Delano Street	West of Kent Avenue	444	B	441	B

CUMULATIVE (2035) PLUS PROJECT CONDITIONS

Turning movement volumes for the Cumulative (2035) plus Project scenario were calculated by applying the growth rate (as described in the Cumulative No Project Conditions section) to the existing traffic volumes and adding the net new trips generated by the proposed project. The Cumulative plus Project traffic volumes are shown in **Figure 10**.

Intersection Operations

Each study area intersection was analyzed based on the proposed intersection geometry and traffic control illustrated in **Figure 2** and the peak hour turning movement volumes shown in **Figure 10**. Results of the capacity analysis are shown in **Table 10**.

Table 10: Cumulative (2035) Plus Project Conditions – Intersection Levels of Service

Intersection	Traffic Control	Peak Hour	Cumulative Conditions		Cumulative Plus Project		LOS Standard[3]	Significant Impact
			Avg. Delay[1]	LOS[2]	Avg. Delay[1]	LOS[2]		
1. East 14th Street and Ashland Avenue	Signal	AM PM	24.1 27.0	C C	24.6 30.9	C C	C/D	No
2. East 14th Street and 164th Avenue/Kent Avenue	Signal	AM PM	21.3 18.2	C B	21.6 22.1	C C	C/D	No
3. Kent Avenue and Elgin Street	AWSC	AM PM	8.1 7.7	A A	7.9 7.8	A A	D	No
4. East 14th Street and 167th Avenue/Elgin Street	Signal	AM PM	17.3 28.1	B C	18.0 24.2	B C	D	No
5. Kent Avenue and Delano Street	TWSC	AM PM	14.7 11.4	B B	14.8 12.3	B B	C/D	No
6. Kent Avenue and Proposed Site Driveway	TWSC	AM PM			11.0 10.7	B B	D	No

Notes:
1. Whole intersection weighted average total delay for signalized and all-way stop-controlled intersections (expressed in seconds per vehicle).
2. LOS calculations performed using the 2000 *Highway Capacity Manual*.
3. LOS standard for Caltrans and Alameda County.
4. Unacceptable operations are indicated in **bold** type.
5. AWSC – All-Way Stop controlled, TWSC – Two-Way Stop controlled

Roadway Segment Operations

Each study area roadway segment was analyzed using the existing plus project traffic volumes illustrated in **Figure 10**. Results of the capacity analysis are shown in **Table 11**. As illustrated, all roadways are projected to operate at acceptable levels.

Table 11: Cumulative (2035) Plus Project Conditions – Roadway Segment Levels of Service

Roadway	Segment	AM Peak Two-Way Volume	AM LOS	PM Peak Two-Way Volume	PM LOS
Ashland Avenue	South of East 14th Street	700	C	543	B
Elgin Street	West of East 14th Street	253	B	311	B
Kent Avenue	South of East 14th Street	436	B	382	B
Delano Street	West of Kent Avenue	448	B	353	B

Queuing Summary

As congestion increases it is common for traffic at signals and stop signs to form lines of stopped (or queued) vehicles. Queue lengths were determined for each lane and measure the distance that vehicles will backup in each direction approaching an intersection. A typical vehicle length of 25 feet is used in the queuing analysis. Average queue lengths at the study area intersections for turning movements with dedicated turn lanes at signalized intersections and approaches at unsignalized intersections have been projected. A summary of the queuing results can be seen in **Table 12**. While the queue lengths at several intersections are projected to exceed the length of the turn bay, the project is not adding trips to these movements.

Table 12: Cumulative (2035) Plus Project Conditions – Queuing Summary

Intersection	Turning Movement / Approach	Bay Length	Estimated Queue Length	
			Existing Plus Project	Cumulative Plus Project
East 14th Street and Ashland Avenue	WB Left	160 feet	100 feet	125 feet
East 14th Street and Kent Avenue	EB Left	60 feet	50 feet	75 feet
	WB Left	100 feet	50 feet	50 feet
	SB Right	70 feet	25 feet	25 feet
Kent Avenue and Elgin Street	Northbound	-	<25 feet	<25 feet
	Southbound	-	<25 feet	<25 feet
	Eastbound	-	<25 feet	<25 feet
	Westbound	-	<25 feet	<25 feet
East 14th Avenue and Elgin Street	EB Left	100 feet	25 feet	50 feet
	WB Left	100 feet	100 feet	150 feet
	SB Right	100 feet	25 feet	25 feet
Kent Avenue and Delano Street	Eastbound	-	50 feet	75 feet
Kent Avenue and Proposed Site Driveway	Eastbound	-	<25 feet	<25 feet

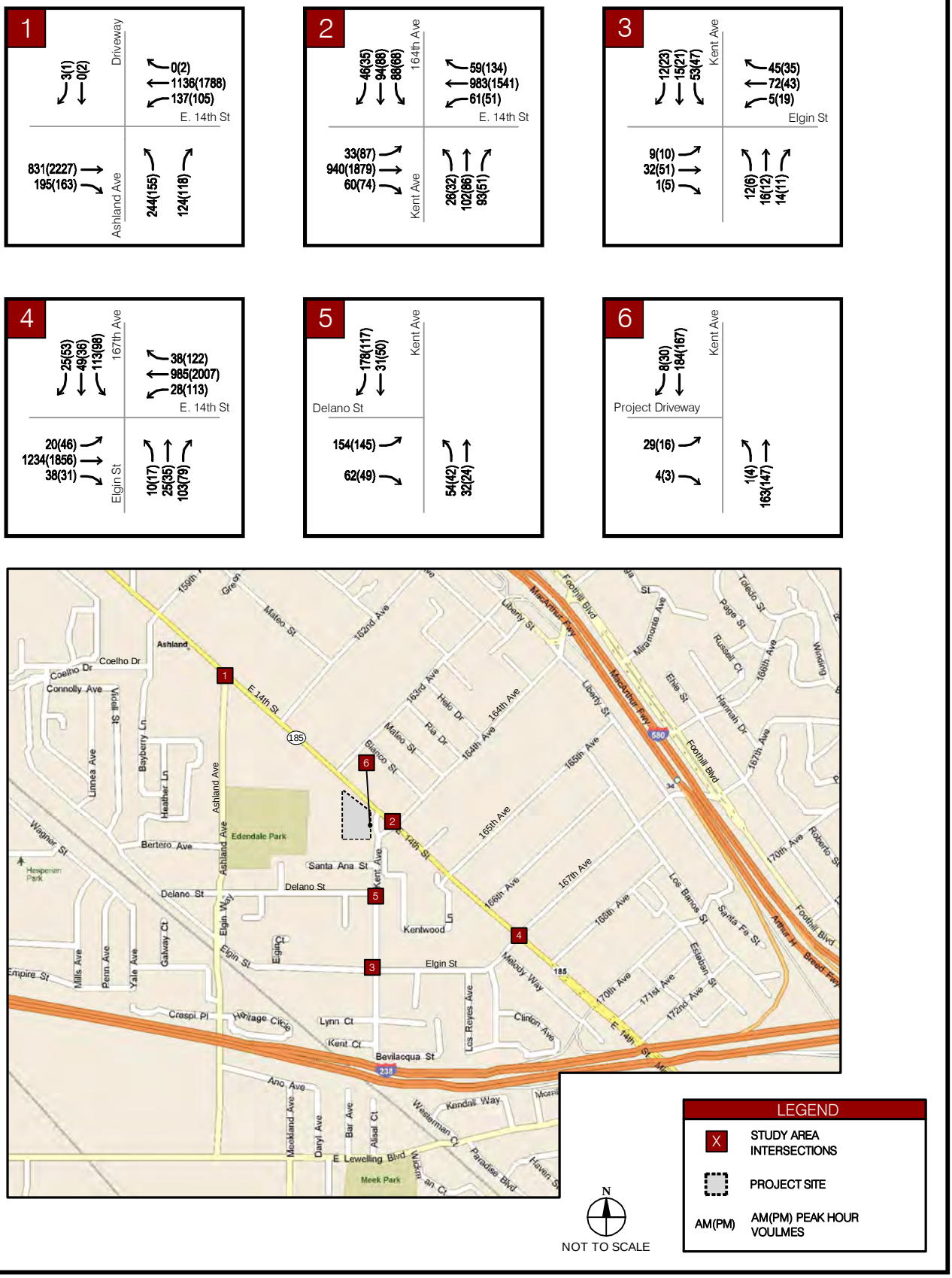

FIGURE 10

CUMULATIVE PLUS PROJECT CONDITIONS

PEAK HOUR TURNING MOVEMENT VOLUMES

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Cumulative (2035) Plus Project Conditions Impact Analysis

Impact TRAF-5: Traffic generated by the proposed project will increase delay times at study area intersections under Cumulative plus Project conditions. (Less-than-significant)

As shown in **Table 10**, the average intersection delay times for the study area intersections would remain the same or increase with the addition of vehicle trips generated by the proposed development. However, all study intersections in the Cumulative plus Project scenario would continue to operate at acceptable levels of service. Therefore, mitigation is not required at the study area intersections.

It is recommended that the northwest corner radii at the intersection of East 14th Street and Kent Avenue be modified to accommodate the eastbound right turn movement due to the closure of the unsignalized Kent Avenue access. The intersection should be re-designed to accommodate a WB-40 design vehicle.

Mitigation Measure TRAF-5: None required**.**

Significance after Mitigation: Less-than-Significant.

Impact TRAF-6: Traffic generated by the proposed project will increase peak hour volumes at study area roadway segments under Cumulative plus Project conditions. (Less-than-significant)

As shown in **Table 11**, the two-way peak hour traffic volumes for the study area roadway segments would remain the same or increase with the addition of vehicle trips generated by the proposed development. However, all study roadway segments in the Existing plus Project scenario would continue to operate at acceptable levels of service. Therefore, mitigation is not required at the study area roadway segments.

Mitigation Measure TRAF-6: None required**.**

Significance after Mitigation: Less-than-Significant.

Pedestrian and Bicycle Facilities

Impact TRAF-7: Implementation of the project under Cumulative plus Project conditions would generate pedestrian and bicycle trips, which would use the existing and planned circulation network in the project area. (Less than significant)

Refer to Impact TRAF-3 for discussion

Mitigation Measure TRAF-7: None required**.**

Significance after Mitigation: Less-than-Significant.

Transit Facilities

Impact TRAF-8: Implementation of the project under Cumulative plus Project conditions would generate transit trips, which would use the existing and planned transit network in the project area. (Less than significant)

Refer to Impact TRAF-4 for discussion

Mitigation Measure TRAF-8: None required**.**

Significance after Mitigation: Less-than-Significant.

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APPENDIX