HEXAGON TRANSPORTATION CONSULTANTS, INC.

City of San Jose 2015 General Plan Amendments

Long-Range Traffic Impact Analysis

Prepared for:

City of San Jose

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1. Introduction

This report presents the results of the long-range traffic impact analysis for the proposed City of San Jose 2015 General Plan Amendments (project). The project consists of amending the current adopted land use designations of the Envision San Jose 2040 General Plan for seven parcels within the City of San Jose (see Figure 1) and the amendment of land uses of the Downtown Strategy Plan. The purpose of the General Plan Amendments (GPAs) traffic analysis is to assess the long-range cumulative impacts of the amendments on the citywide transportation system. The potential traffic impacts of the project were evaluated in accordance with the guidelines set forth by the City of San Jose for GPA traffic analysis.

The GPA traffic analysis guidelines established a trip threshold for General Plan land use amendments that require a site-specific GPA analysis. A proposed land use amendment that would result in an increase of more than 250 peak-hour trips due to increased households or employment would be required to prepare a site-specific GPA traffic analysis. The proposed land use amendments on six of the project's seven amendment sites would result in a net increase of less than 250 peak-hour trips. The proposed land use amendment on the remaining site would result in a net increase of more than 250 peak-hour trips. However, the site is within a specific plan growth area and the proposed increase in households would not exceed the allocated units for the growth area. Therefore, site-specific GPA traffic analysis is not required for any of the seven amendment sites. However, individual development projects will be required to complete a near term traffic analysis in conjunction with any future development permit applications consistent with the Envision San Jose 2040 General Plan.

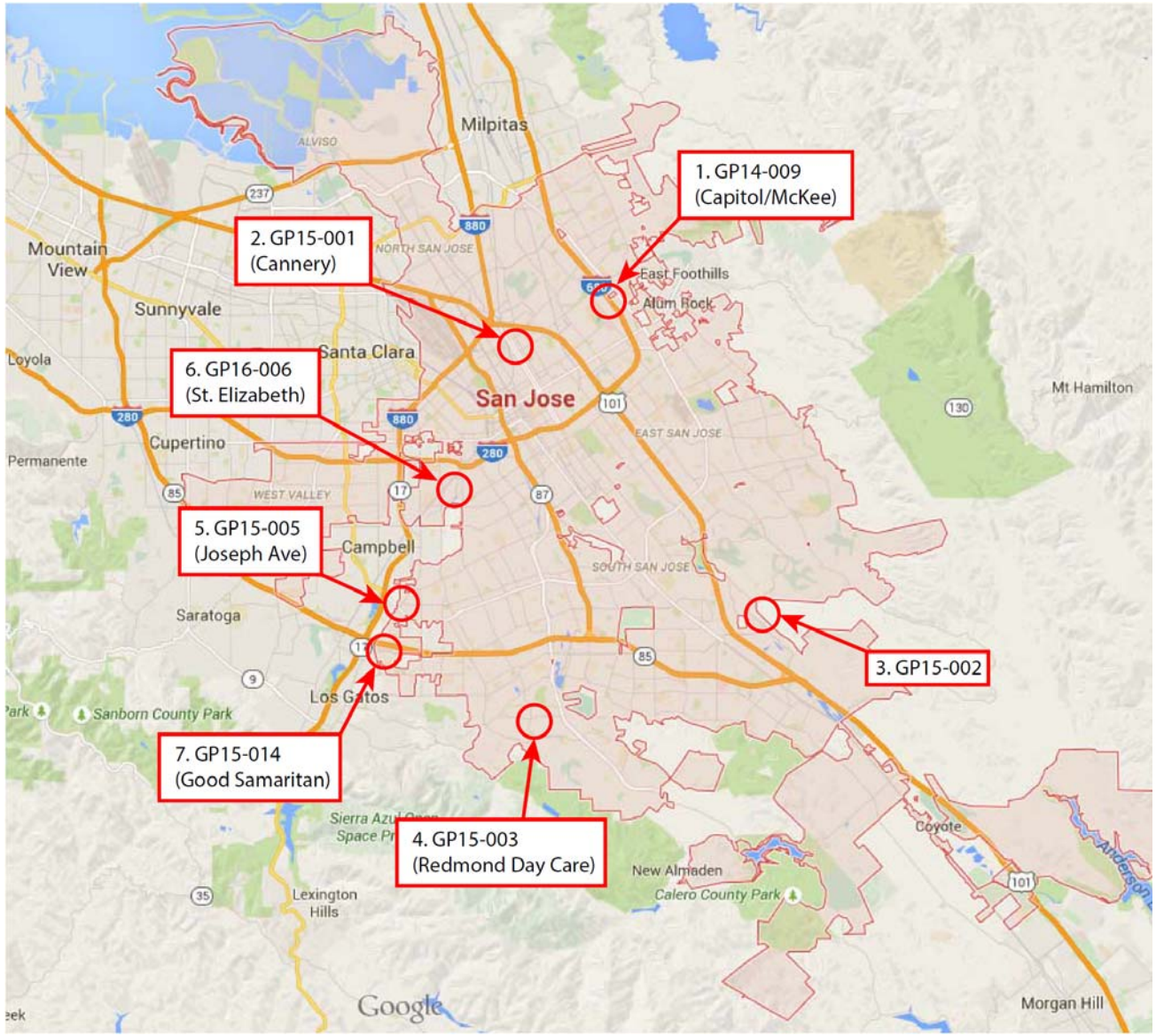
The Downtown Strategy Plan amendment proposes to reallocate a substantial amount of households from other areas in the City to the downtown area and would result in an increase of more than 250 peak-hour trips in the downtown area. Therefore, the Downtown Strategy Plan amendment will be required to prepare site-specific GPA traffic analysis. The site-specific GPA traffic analysis for the Downtown Strategy Plan amendment will be prepared separately from this study.

Evaluation Scenarios

The cumulative GPA long-range analysis focuses on the potential changes on the citywide transportation system in the horizon year of the General Plan (2035). Although the San Jose General Plan is titled Envision 2040, the actual horizon year for the plan is 2035. The analysis is based on the projected transportation condition in the future when the General Plan capacities for housing and jobs are fully developed. Traffic conditions were evaluated for the following traffic scenarios using the City of San Jose's Traffic Demand Forecasting (TDF) model:

- **Existing Conditions.** Year 2008 traffic conditions and existing land use designations. The City's TDF model is calibrated based on the year 2008.

Figure 1
Proposed GPA Site Locations



- **2040 General Plan Conditions.** Year 2040 conditions with the adopted Envision San Jose 2040 General Plan land use designations and transportation system.
- **Applicant Proposed 2040 General Plan Amendment Conditions.** Year 2040 General Plan conditions with the Downtown Strategy Plan amendment and all seven GPAs, as proposed by the applicants.
- **Staff Proposed 2040 General Plan Amendment Alternative Conditions**. Year 2040 General Plan conditions with the Downtown Strategy Plan amendment and all seven GPAs, with two sites (GP15-001 and GP15-006) incorporating City staff proposed alternative land use and density.

Report Organization

The remainder of this report is divided into four chapters. Chapter 2 presents a detailed description of each of the proposed GPA sites included in the analysis. Chapter 3 describes analysis methodology, including the City's TDF model, and the measures of effectiveness (MOEs) and significance thresholds used in the analysis. Chapter 4 presents the results of the analysis based on the TDF modeling and citywide MOEs. Chapter 5 presents the conclusions of the long-range cumulative GPA analysis.

2.
General Plan Amendment Site Descriptions

The proposed project consists of amending land uses currently adopted in the Envision San Jose 2040 General Plan on seven sites and adjustment of the planned growth of the Downtown Strategy Plan. The amendment sites and proposed GPA alternatives are described in more detail below along with peak-hour trip generation estimates for each of the proposed sites.

Amendment Sites

The project includes seven proposed GPA sites: GP14-009, GP15-001, GP15-002, GP15-003, GP15-005, GP15-006, and GP15-014. Each of the proposed GPAs would result in changes to the number of households and jobs on each site when compared to the Envision San Jose 2040 General Plan assumptions for each site. However, the total number of jobs and households citywide would not change as a result of these GPAs. The TDF model is used to rebalance the number of jobs and households citywide in order to maintain the General Plan Goal of 470,000 jobs and 120,000 households.

Table 1 summarizes the existing (adopted 2040 GP) and proposed land uses and density for each site. The changes in households and jobs for each site and the resulting increases in peak-hour trips are summarized in Table 2. The peak-hour trips for each site were estimated using the City of San Jose's travel demand forecasting (TDF) model. The TDF modeling is described in Chapter 2.

Proposed land use changes for each of the GPA sites are described below.

- **GP14-009 (Capitol/McKee):** The 10.6-acre site is located near the Capitol Avenue/McKee Road intersection in an Urban Village growth area (VR15). Figure 2 shows the location of the site. The adopted General Plan land use designation for the site is *Neighborhood/Community Commercial*, and the proposed amendment involves changing the adopted land use to *Mixed Use Neighborhood*. The proposed amendment would result in 101 fewer jobs on the site. Therefore, the amendment would not result in an increase in vehicle trips on local streets in the vicinity of the site and would not be required to prepare a site-specific GPA traffic analysis.

- **GP15-001 (Cannery):** The 8.71-acre site is located on Cannery Place between Mission Street and Taylor Street in the Jackson/Taylor Specific Plan growth area. Figure 3 shows the location of the site. The adopted General Plan land use designation for the site is *Mixed Use Neighborhood*, and the proposed amendment involves changing the adopted land use to *Urban Residential* on 7.59 acres and *Combined Industrial/Commercial* on 1.12 acres. The proposed amendment would result in 335 additional households and 8 additional jobs on the site.

  Based on the TDF modeling results, GP15-001 would result in an increase of more than 250 peak-hour trips during the PM peak hour (see Table 2). Although the amendment exceeds the 250 trip threshold, the increase in households proposed on the site is within the total number of planned residential units in the

Table 1
Existing General Plan and Applicant Proposed Land Uses

Site Number	Site Name	Location	Size (Acres)	Existing General Plan		Applicant Proposed Amendment		Staff Alternative Amendment	
				Land Use	Density	Land Use	Density	Land Use	Density
1	GP14-009 (Capitol/McKee)	Near the Capitol Avenue/ McKee Road intersection in an Urban Village growth area (VR15)	10.60	Neighborhood/ Community Commercial	FAR up to 2.0	Mixed Use Neighborhood	30 DU/AC; FAR 0.25 to 2.0		
2	GP15-001 (Cannery)	On Cannery Place in the Jackson/Taylor Specific Plan growth area	8.71	Mixed Use Neighborhood	30 DU/AC; FAR 0.25 to 2.0	Urban Residential (7.59 ac) Industrial/Commercial (1.12 ac)	30-95 DU/AC; FAR 1.0 to 4.0	Urban Residential Combined Industrial/Commercial	30-95 DU/AC; FAR 1.0 to 4.0
3	GP15-002	At the Silver Creek Valley Road/ Hellyer Avenue intersection	4.48	Industrial Park	FAR up to 10.0	Light Industrial	FAR up to 1.5		
4	GP15-003 (Redmond Day Care)	Near the Redmond Avenue/Meridian Avenue intersection near an Urban Village growth area (V71)	0.91	Neighborhood/ Community Commercial	FAR up to 2.0	Residential Neighborhood	Typically 8 DU/AC; FAR up to 0.7		
5	GP15-005 (Joseph Ave)	At the Joseph Avenue Road/Shamrock Drive intersection in an Urban Village growth area (C40)	0.19	Neighborhood/ Community Commercial	FAR up to 2.0	Mixed Use Neighborhood	30 DU/AC; FAR 0.25 to 2.0		
6	GP15-006 (St. Elizabeth)	On St. Elizabeth Drive near an Urban Village growth area (CR21)	3.60	Public/Quasi-Public	FAR N/A	Mixed Use Neighborhood	30 DU/AC; FAR 0.25 to 2.0	Urban Residential	30-95 DU/AC; FAR 1.0 to 4.0
7	GP15-014 (Good Samaritan)	On Good Samaritan Drive near an Urban Village growth area (C44)	9.27	Neighborhood/ Community Commercial	Non core/frame - commercial	Regional Commercial	Non core/frame - commercial		

Notes: FAR = floor-to-area ratio; DU = dwelling units; AC = acre.
Source: City of San Jose Planning Department, July 21, 2015.

Table 2
Changes in Households, Jobs, and Peak-Hour Trips Due to Applicant Proposed Amendments

Site Number	Site Name	Existing General Plan		Applicant Proposed Amendment		Net Land Use Increase		Net Peak-Hour Trip Increase	
		TOTHH	TEMP	TOTHH	TEMP	TOTHH	TEMP	AM	PM
1	GP14-009 (Capitol/McKee)	212	133	212	32	0	-101	0	1
2	GP15-001 (Cannery)	174	110	509	118	335	8	236	262
3	GP15-002	0	210	0	82	0	-128	0	0
4	GP15-003 (Redmond Day Care)	0	11	7	0	7	-11	-1	-1
5	GP15-005 (Joseph Ave)	4	2	4	2	0	0	-40	-45
6	GP15-006 (St. Elizabeth)	0	0	72	46	72	46	-2	-4
7	GP15-014 (Good Samaritan)	0	117	0	492	0	375	97	105

Notes: TOTHH = total number of households; TEMP = total number of jobs.
Source: City of San Jose Planning Department, July 21, 2015 & City of San Jose TDF model runs August 2015.

Jackson Taylor Specific Plan growth area. Therefore, the proposed amendment would not result in an increase in residential units and subsequent vehicle trips in the Jackson-Taylor Specific Plan growth area previously analyzed in the Envision San Jose 2040 General Plan EIR and would not require a site-specific GPA traffic analysis.

- **GP15-002:** The 4.48-acre site is located near the Silver Creek Valley Road/Hellyer Avenue intersection. Figure 4 shows the location of the site. The adopted General Plan land use designation for the site is *Industrial Park*, and the proposed amendment involves changing the adopted land use to *Light Industrial*. The proposed amendment would result in 128 fewer jobs on the site. Therefore, the amendment would not result in an increase of vehicle trips on local streets in the vicinity of the site and would not be required to prepare a site-specific GPA traffic analysis.

- **GP15-003 (Redmond Day Care):** The 0.91-acre site is located near the Redmond Avenue/Meridian Avenue intersection near an Urban Village growth area (V71). Figure 5 shows the location of the site. The adopted General Plan land use designation for the site is *Neighborhood/Community Commercial*, and the proposed amendment involves changing the adopted land use to *Residential Neighborhood*. The proposed amendment would result in 7 additional households and 11 fewer jobs on the site, and shift the same amount of households and jobs in the adjacent V71 Urban Village growth area. The small change of households and jobs would not substantially increase vehicle traffic on local streets in the vicinity of the site and would not be required to prepare a site-specific GPA traffic analysis.

- **GP15-005 (Joseph Ave):** The 0.19-acre site is located at the Joseph Avenue Road/Shamrock Drive intersection in an Urban Village growth area (C40). Figure 6 shows the location of the site. The adopted General Plan land use designation for the site is *Neighborhood/Community Commercial*, and the proposed amendment involves changing the adopted land use to *Mixed Use Neighborhood*. The amendment would not result in a change to the number of households and jobs on the site. Therefore, the amendment would not result in an increase of vehicle trips on local streets in the vicinity of the site and would not be required to prepare a site-specific GPA traffic analysis.

- **GP15-006 (St. Elizabeth):** The 3.6-acre site is located on St. Elizabeth Drive near an Urban Village growth area (CR21). Figure 7 shows the location of the site. The adopted General Plan land use designation for the site is *Public/Quasi-Public*, and the proposed amendment involves changing the adopted land use to *Mixed Use Neighborhood*. The proposed amendment would result in 72 additional households on the site, and reduce the same amount of households in the adjacent Urban Village growth area that is located within the same Traffic Analysis Zone (TAZ).

  Because both GP-006 and the CR21 Urban Village growth area are within the same traffic analysis zone (TAZ) in the City's TDF model, the amendment would not result in an increase in vehicle trips on local

streets in the vicinity of the growth area and would not be required to prepare a site-specific GPA traffic analysis.

- **GP15-014 (Good Samaritan):** The 9.27-acre site is located on Good Samaritan Drive near an Urban Village growth area (C44). Figure 8 shows the location of the site. The adopted General Plan land use designation for the site is *Neighborhood/ Community Commercial*, and the proposed amendment involves changing the adopted land use to *Regional Commercial*. The proposed amendment would result in 375 additional jobs on the site, and reduce the same amount of jobs in the adjacent C44 Urban Village growth area. Based on the TDF modeling results, peak-hour trips generated by GP15-014 would not exceed the 250 trip threshold (see Table 2) and a site-specific GPA traffic analysis would not be required.

The staff proposed GPA alternative consists of the same seven GPA sites, however, two of the sites (GP15-001 and GP15-006) would consist of alternative land use changes identified by City of San Jose Staff rather than those proposed by the applicants. The alternatives are intended to allow decision makers to consider alternate land use designations consistent with General Plan goals and policies for GP15-001 and GP15-006. The proposed land use and density under Alternative for these two sites as well as the projected change in households and jobs are presented in Table 3. The proposed land use amendments of the remaining five sites would consist of the applicant proposed amendments. A site specific GPA traffic analysis would not be required for the alternative land use scenarios for GP15-001 and GP15-006 consistent with the analysis above.

Table 3
Changes in Households and Jobs Due to Staff Proposed Alternative

Site Number	Site Name	Existing General Plan		Staff Proposed Alternative		Net Land Use Increase	
		TOTHH	TEMP	TOTHH	TEMP	TOTHH	TEMP
2	GP15-001 (Cannery)	174	110	379	171	205	61
6	GP15-006 (St. Elizabeth)	0	0	235	46	235	46

Notes: TOTHH = total number of households; TEMP = total number of jobs.
Source: City of San Jose Planning Department, July 21, 2015 & City of San Jose TDF model runs August 2015.

Downtown Strategy Plan

The Downtown Strategy Plan amendment will result in an increase of up to 4,000 households in the downtown plan area. The increase in households would be balanced by reducing the same amount of households in other areas within the City. Although the plan would not change the total number of jobs and households citywide, the household increase within the downtown area would substantially increase vehicle traffic on local streets within and adjacent to the downtown area. Therefore, the Downtown Strategy Plan amendment will be required to prepare a site-specific GPA traffic analysis. The Downtown Strategy Plan amendment is assumed under both GPA Alternatives analyzed.

Figure 2
Location of GP14-009

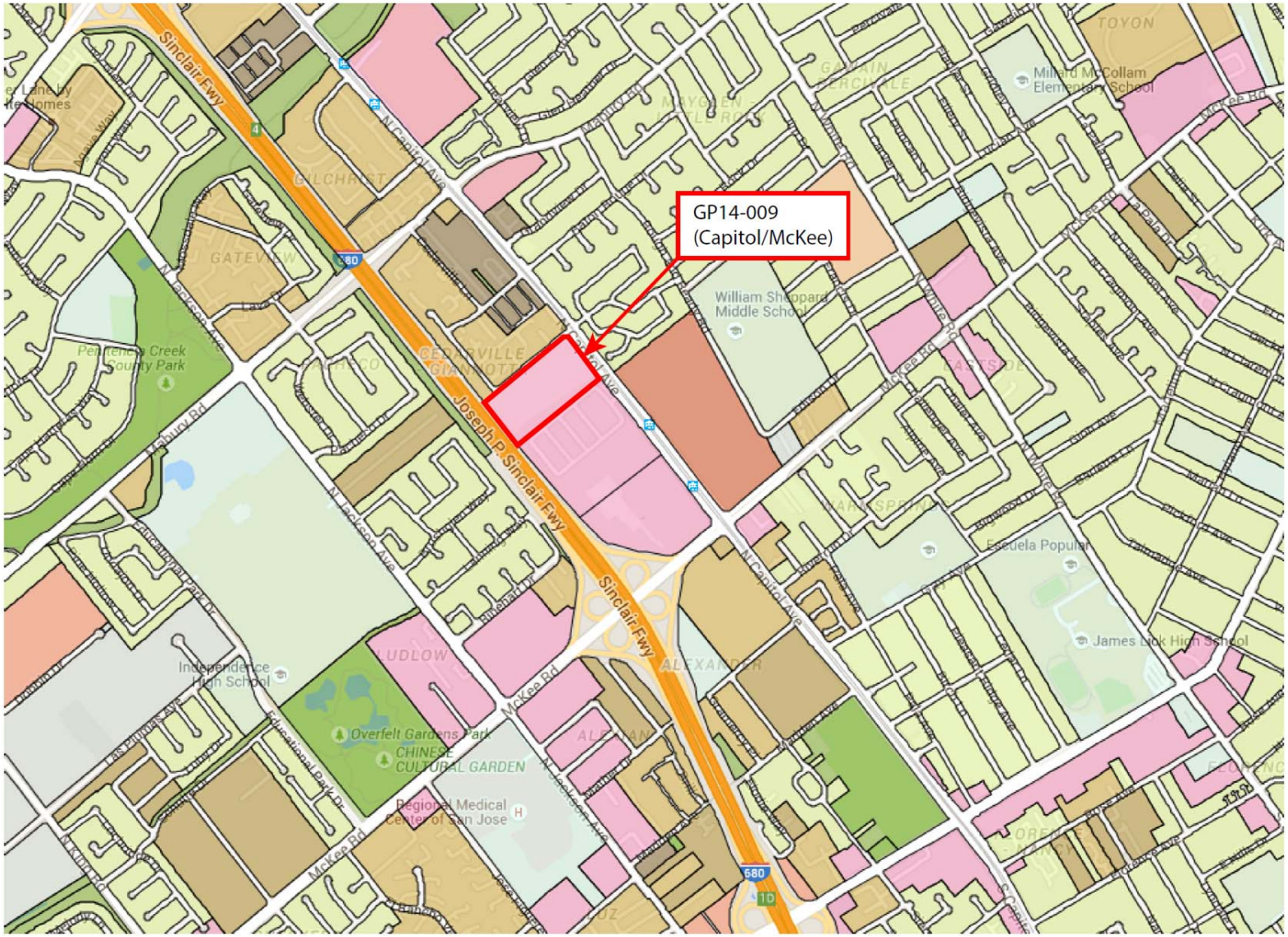


Figure 3
Location of GP15-001

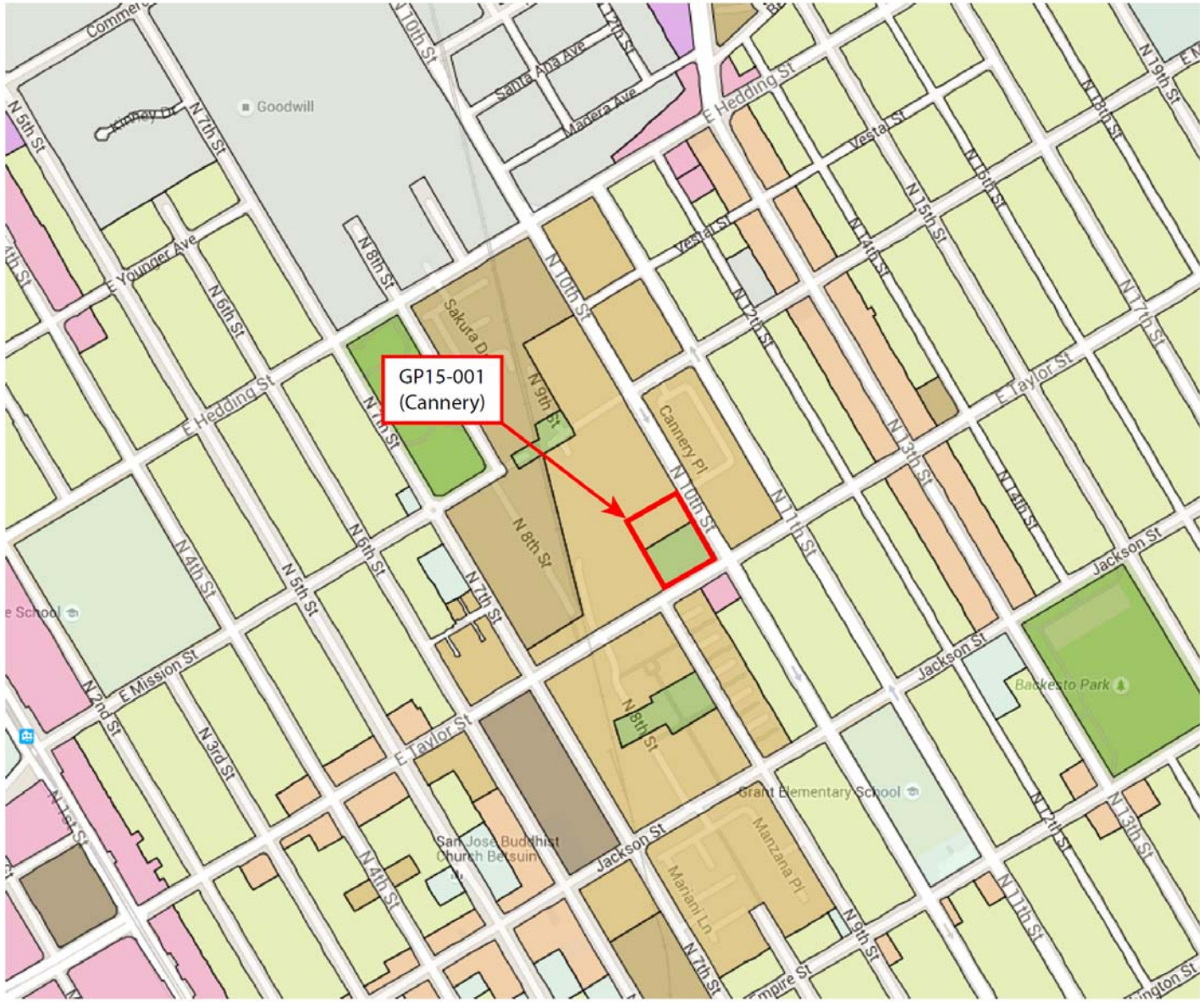


Figure 4
Location of GP15-002

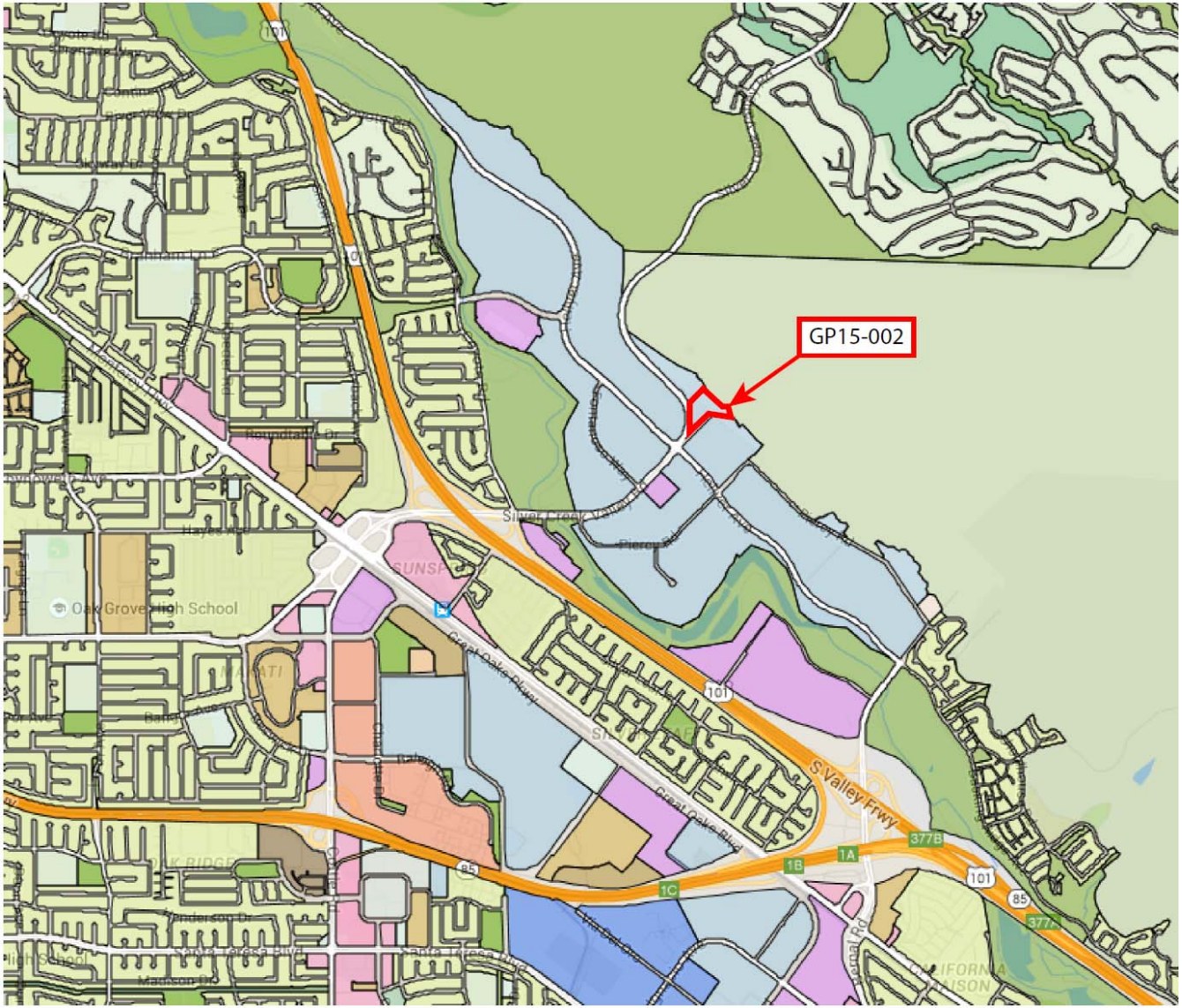


Figure 5
Location of GP15-003

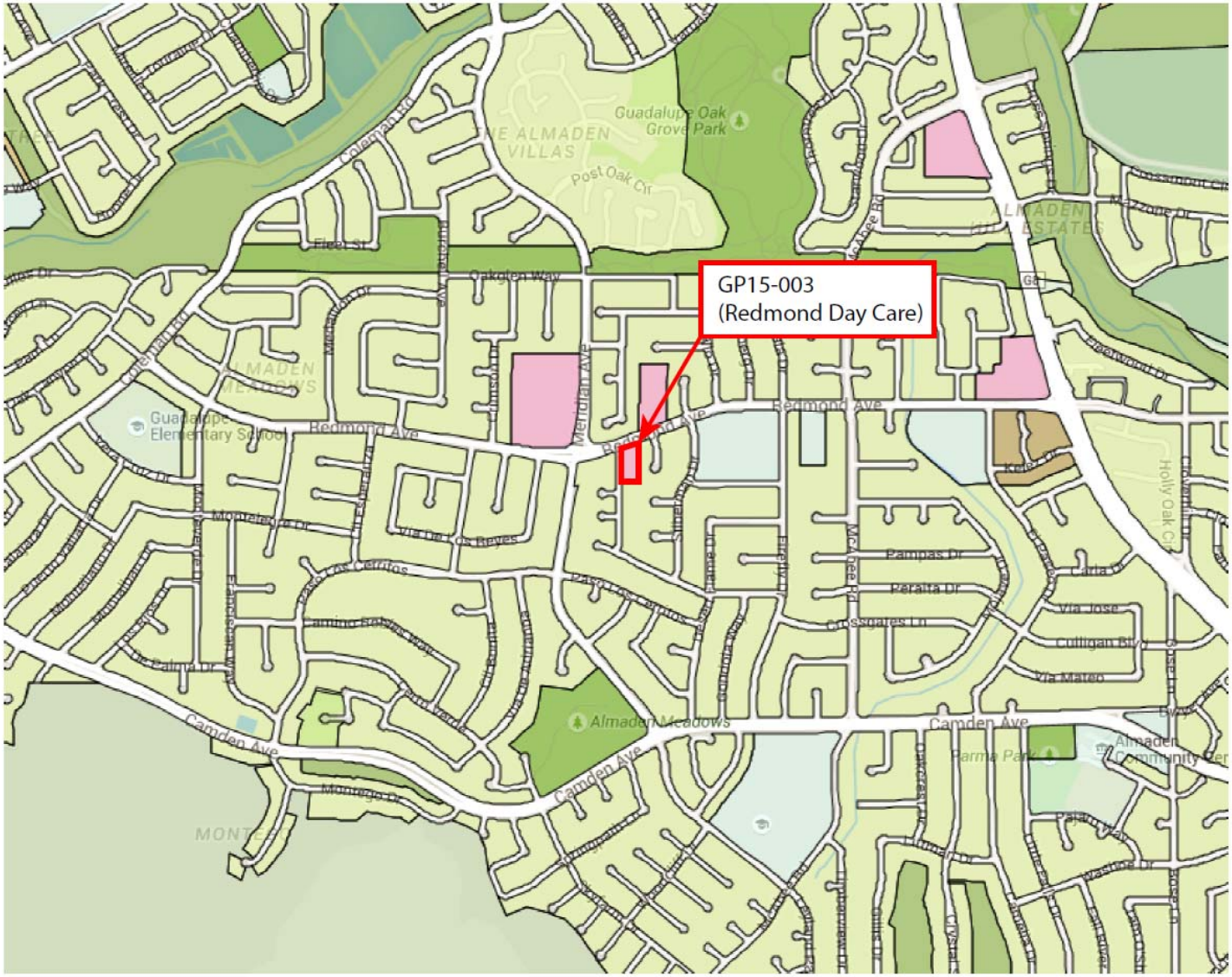


Figure 6
Location of GP15-005

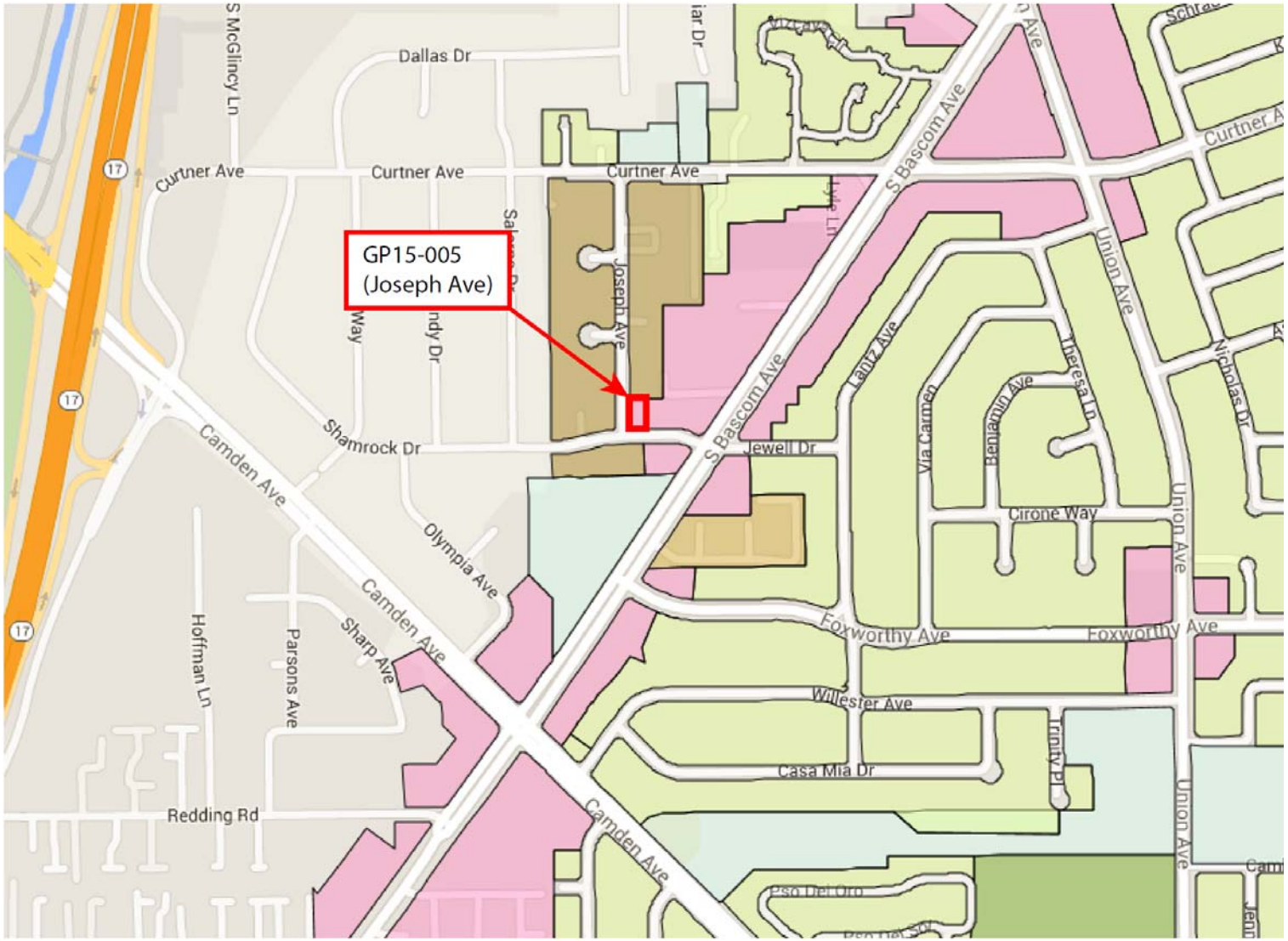


Figure 7
Location of GP15-006

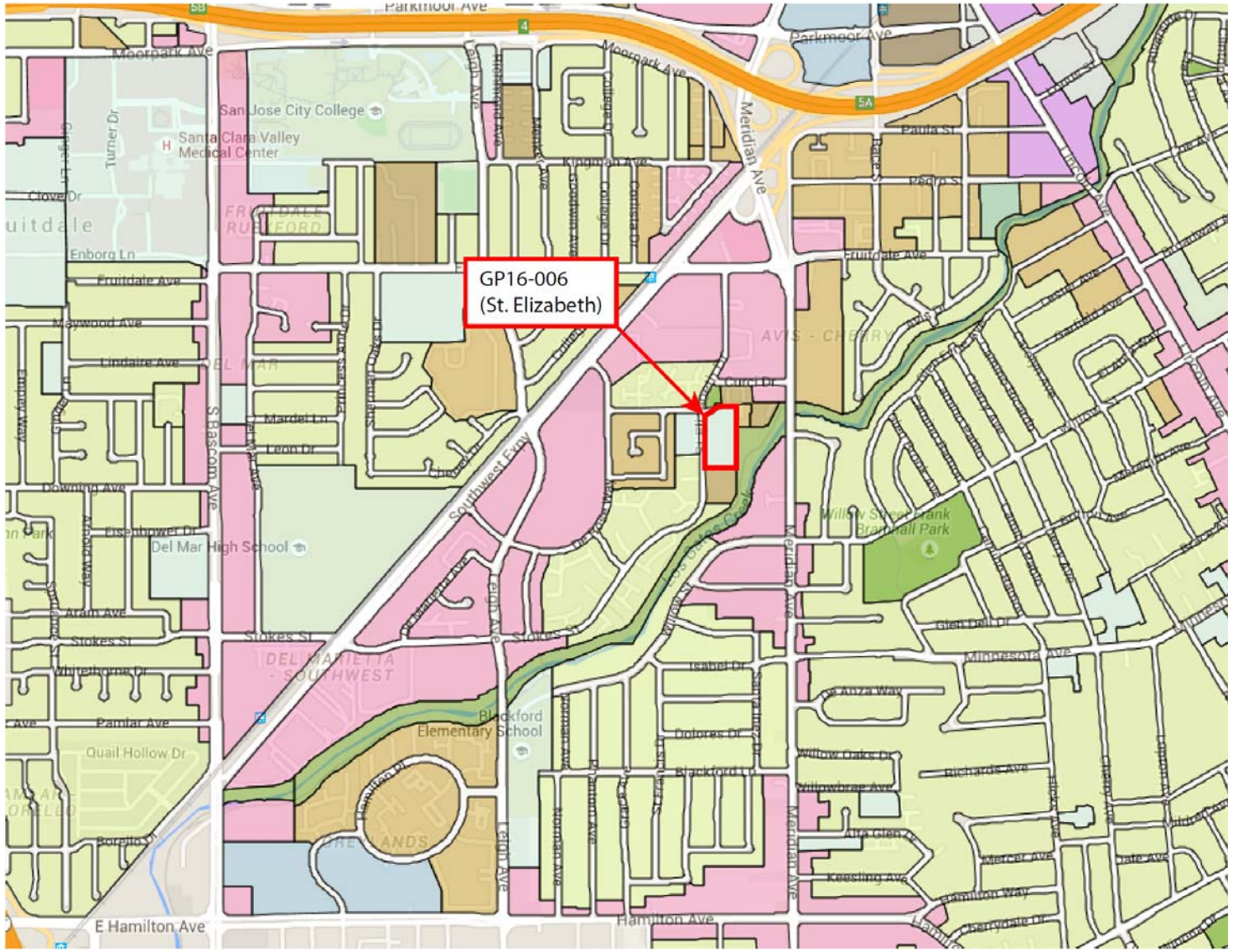
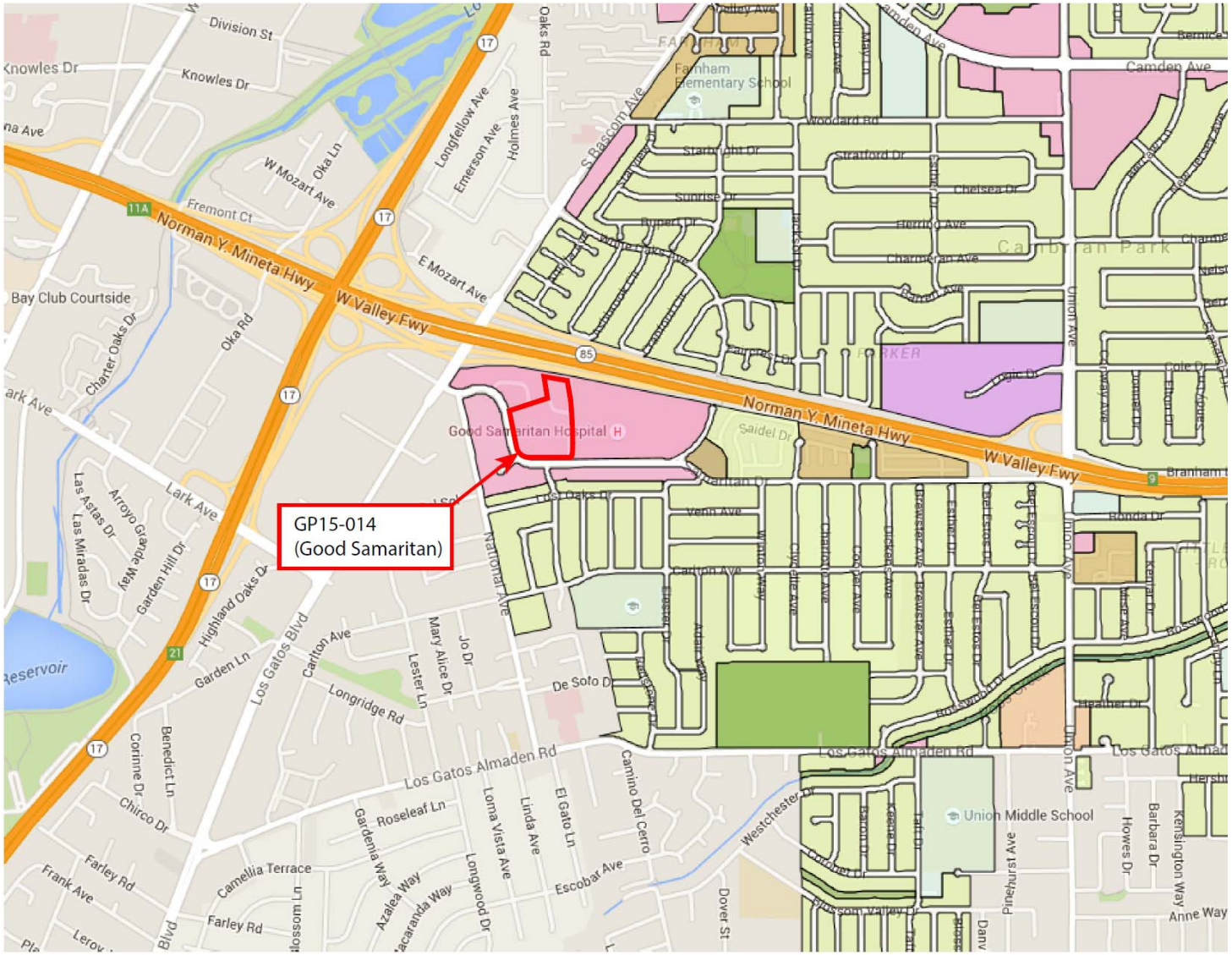


Figure 8
Location of GP15-014



3.
Analysis Methodology and Impact Criteria

This chapter describes the travel demand forecasting modeling methodology used for the analysis and the methods used to determine the traffic conditions for the study scenarios, described in the previous chapter. It includes descriptions of the measures of effectiveness and the applicable significance thresholds directed by the City's General Plan used in the evaluation of the proposed GPAs.

Travel Demand Forecasting Model

The citywide travel demand forecasting (TDF) model was prepared as part of the Envision San Jose 2040 General Plan. The TDF model was developed to provide improved citywide travel demand forecasting as part of continued planning efforts to address transportation infrastructure needs and to assist in the update of the City's General Plan. The model was developed from the VTA countywide travel demand model. The VTA model contains all cities and counties within the model's extents roughly bounded by southern Monterey County, eastern San Joaquin County, northern Sonoma County, and the Pacific Ocean. The San Jose model is a sub-area model of the VTA model – it maintains the general inputs (roadway network, land use, trip generation rates, etc.), structure, and process as the VTA model, but with refinement within the City of San Jose. This allows regional travel patterns and behavior to be accounted for in the focused area of San Jose, which will become more important with the recent legislative requirements associated with greenhouse gas quantification and impacts. The land use data, roadway network, and counts used in the base year validation reflect April and May 2008 conditions.

The VTA and San Jose models both include four elements traditionally associated with models of this kind. These elements include trip generation, trip distribution, mode choice, and traffic assignment.

- **Trip Generation.** Trip generation involves estimating the number of trips that would occur with the proposed General Plan land uses. The City's TDF model includes trip generation formulas that are based on the Metropolitan Transportation Commission (MTC) regional travel demand model. Trip generation is estimated based on the type and amount of specific land uses within each travel analysis zone (TAZ). The TDF model produces trip estimates in person trips (as opposed to vehicle trips, which are typically used in near-term traffic analyses).

- **Trip Distribution.** Trip distribution is the second element of the model. Trip distribution involves distributing the trips to various internal destinations and external gateways. The model pairs trip origins and trip destinations (starting and ending points) for each person trip based on the type of trip (e.g., home-to-work, home-to-school, etc.) and the distance a person is willing to travel for that purpose. The distance a person is willing to travel is determined by a gravity model, which is analogous to Newton's law of gravity. In a gravity model, estimates are made about how many trips occur between two locations where the interaction between those two locations diminishes with increasing distance, time, and cost between them.

- **Mode Choice.** Mode choice is the third element of the model. Mode choice determines which mode of transport a person will choose for each trip, based on the availability of a vehicle, the trip distance, and the trip purpose.
- **Traffic Assignment.** Traffic assignment is the fourth and final element of the model. Traffic assignment involves determining which route to take to travel between the trip origin and destination. The model assigns the trips to the roadway network to minimize travel time between the start and end points.

Subsequent trip distribution, assignment, and mode choice iterations are completed by the model to account for roadway congestion. These iterations continue under equilibrium traffic conditions until the optimal trip assignment is reached.

Transportation Network and Traffic Analysis Zones (TAZs)

The fundamental structure of the model includes a computer readable representation of the roadway system (highway network) that defines roadway segments (links) identified by end points (nodes). Each roadway link is further represented by key characteristics (link attributes) that describe the length, travel speeds, and vehicular capacity of the roadway segment. Small geographic areas (TAZs) are used to quantify the planned land use activity throughout the City's planning area. The boundaries of these small geographic areas are typically defined by the modeled roadway system, as well as natural and man-made barriers that have an effect on traffic access to the modeled network. Transit systems are represented in the model by transit networks that are also identifiable by links and nodes. Unlike the roadway network, the key link attributes of a transit link are operating speed and headways – elapsed time between successive transit services. Transit stops and "dwelling times" (the time allowed for passengers embarking and disembarking transit vehicles) are described as transit node attributes. Transit networks are further grouped by type of transit (rail versus bus) and operator (VTA bus versus AC Transit bus). Transit accessibility for each TAZ is evaluated by proximity to transit stops or stations, and the connectivity of transit lines to destinations.

The socioeconomic data for each TAZ in the model includes information about the number of households (stratified by household income and structure type), population, average income, population age distribution, and employment (stratified by groupings of Standard Industrial Codes). The worker per household ratios and auto ownership within a TAZ are calculated based on these factors and the types and densities of residences. The model projects trip generation rates and the traffic attributable to residents and resident workers, categorized by trip purposes, using set trip generation formulas that are based on the MTC regional travel demand model.

Traffic Assignment

Travel times within and between TAZs (intra-zonal, inter-zonal and terminal times) are developed from the network being modeled. Travel times within zones (intra-zonal travel times) are derived for each zone based on half its average travel time to the nearest three adjacent zones. Time to walk to and from the trip maker's car (terminal times) are also added. The projected daily trips are distributed using a standard gravity model and friction factors calibrated for the modeling region, which presently consists of 13 counties.

The City of San Jose TDF model is capable of estimating up to 7 modes of transportation:

- auto drive alone
- auto carpool with two persons
- auto carpool with three+ persons
- rail transit
- bus transit
- bicycle
- walk

Before the traffic is assigned to the roadway networks, time-of-day factors and directionality factors are applied to automobile trips occurring during the:

- AM peak hour

- AM 4-hour peak
- PM peak hour
- PM 4-hour peak
- mid-day 6-hour
- mid-night 10-hour periods

The assignment of the trip tables to the roadway network uses a route selection procedure based on minimum travel time paths (as opposed to minimum travel distance paths) between TAZs and is done using a capacity-constrained user equilibrium-seeking process. This capacity constrained traffic assignment process enables the model to reflect diversion of traffic around congested areas of the overall street system. High Occupancy Vehicle (HOV) lanes on freeways, expressways, and on-ramps are specifically dealt with in the model network, with access restricted to auto-shared-ride mode trips only, similar to real world operations of roadway facilities with HOV lanes.

Transit Mode Share

Transit use is modeled for peak and non-peak periods based on computed transit levels of services (speeds and wait times). Based on the conditions that influence transit speeds and wait times (such as traffic congestion), transit use numbers are modified to reflect the likelihood of transit use, based on the constraints to the system. This feedback loop is a modern enhancement in the model to address the dynamics of transit ridership related to the expansion or contraction of roadway capacities.

In addition to providing projected peak hour and peak period volumes and ratios comparing projected traffic volume to available roadway capacity (V/C ratios) on each roadway segment, the model provides information on vehicle-miles and vehicle-hours of travel by facility type (freeway, expressways, arterial streets, etc.). These informational reports can be used to compare projected conditions under the current General Plan with the impacts of proposed land use amendments. The City's TDF model is intended for use as a "macro analysis tool" to project probable future conditions. Therefore, the TDF model is best used when comparing alternative future scenarios, and is not designed to answer "micro analysis level" operational questions typically address in detailed traffic impact analyses (TIAs).

General Plan Transportation Network

According to the City of San Jose policies and practice, the TDF model used to evaluate the long-range impacts of the project on the citywide transportation system includes all major transportation infrastructure identified in the Envision San Jose 2040 *Land Use/Transportation Diagram*, including planned infrastructure that is not yet built and/or funded.

Measures of Effectiveness

The GPA analysis addresses the long-range cumulative impacts of the project on the citywide transportation system through the use of measures of effectiveness (MOEs) developed for the Envision San Jose 2040 General Plan. The GPA long-range analysis includes analysis of the following MOEs:

- **Vehicle Miles Traveled (VMT) per Service Population.** VMT per service population is a measure of the daily vehicle miles traveled divided by the number of residents and employees within the City of San Jose. VMT per service population (residents + employees) is used for the analysis as opposed to VMT per capita (residents only), since per service population more accurately captures the effects of land use on VMT. The City not only has residents that travel to and from jobs, but also attracts regional employees. VMT is calculated based on the number of vehicles multiplied by the distance traveled by each vehicle in miles.
- **Journey-to-Work Mode Share (Drive Alone %).** Mode share is the distribution of all daily work trips by travel mode, including the following categories: drive alone, carpool with two persons, carpool with three persons or more, transit (rail and bus), bike, and walk trips.

- **Average Travel Speeds within the City's Transit Priority Corridors.** Average transit corridor speeds shows the speeds for all vehicles (transit and non-transit vehicles) in the City's transit corridors for the morning and evening peak commute periods, although impacts are analyzed for the AM peak commute period only. A transit corridor is a segment of roadway identified as a Grand Boulevard in the Envision San Jose 2040 General Plan Land Use/Transportation Diagram. Grand Boulevards serve as major transportation corridors and, in most cases, are primary routes for Valley Transportation Authority (VTA) light-rail transit (LRT), bus rapid transit (BRT), local buses, and other public transit vehicles. Although transit services are found on other street types throughout the City, transit has the utmost priority on Grand Boulevards.

Significance Thresholds

The City of San Jose has adopted policy goals in Envision San Jose 2040 to reduce the drive alone mode share to no more than 40 percent of all daily commute trips, and to reduce the VMT per service population by 40 percent from existing conditions. To meet these goals by the General Plan horizon year, and to satisfy CEQA requirements, a set of evaluation criteria (MOEs) and associated significance thresholds to evaluate long-range transportation impacts resulting from General Plan Amendments was developed by the City. Table 4 summarizes the significance thresholds associated with vehicular modes of transportation that were used in the evaluation of the proposed GPAs. The project uses the same thresholds to evaluate the long-range cumulative traffic impacts resulting from the seven GPAs and the Downtown Strategy Plan amendment.

Table 4
MOE Significance Thresholds

MOE	Citywide Threshold
VMT/Service Population	Any increase over Envision 2040 General Plan
Mode Share (Drive Alone Percentage)	Any increase in journey-to-work drive alone mode share compared to Envision 2040 General Plan
Transit Corridor Travel Speeds	Descrease in travel speeds by 7.5 percent in the AM peak one-hour period

Notes: Citywide thresholds were developed based on results from the City of San Jose's TDF Model.
Source: City of San Jose, April 2013.

4. Cumulative General Plan Long-Range Analysis

The long-range cumulative traffic impacts resulting from the 2015 GPAs were determined based on the MOEs and associated significance thresholds described in Chapter 3. The results of the GPA long-range analysis are described below.

Vehicle Miles Traveled Per Service Population

The San Jose TDF model was used to calculate daily vehicle miles traveled (VMT) per service population, where service population is defined as the number of residents plus the number of employees citywide. This approach focuses on the VMT generated by new population and employment growth. VMT is calculated as the number of vehicle trips multiplied by the length of the trips in miles.

Since the City of San Jose not only has residents that travel to and from jobs within the City, but also attracts regional employees, the daily VMT includes some trips traveling outside of the City limits but with origins or destinations within San Jose. For this reason, the following trip types were included in the VMT calculation:

- Internal-Internal – All daily trips are made entirely within the San Jose City limits.
- One-half of Internal-External – One-half of the daily trips with an origin located within the San Jose City limits and a destination located outside of San Jose.
- One-half of External-Internal – One-half of the daily trips with an origin located outside the San Jose City limits and a destination located within San Jose.

Trips that travel through San Jose to and from other locations (External-External) are not included in the calculation of VMT.

As shown in Table 5, the citywide daily VMT per service population would decrease slightly as a result of each of the GPA alternatives when compared to the General Plan. This is because (1) the total number of jobs and households would not change citywide as a result of the GPAs (only shifting of households and jobs would occur) and (2) the reallocation of 4,000 households to the downtown area, where there are more jobs and transit options. Vehicle trips citywide would be reduced due to an increase in trips made via transit and non-motorized travel modes (bicycle and walk) within the Downtown area. Therefore, cumulatively, the 2015 GPAs would result in a less than significant impact on citywide daily VMT per service population.

Table 5
Daily Vehicle Miles Traveled Per Service Population

	Existing (2008)	General Plan (2040)	GPAs	GPAs Alternative
Citywide Daily VMT	19,515,462	34,250,857	34,166,792	34,171,793
San Jose Service Population	1,379,765	2,200,207	2,199,333	2,198,304
Daily VMT Per Service Population	14.14	15.57	15.54	15.54
Increased VMT/Service Population over General Plan	**-**	**-**	***-0.03***	***-0.03***
Significant Impact?	**-**	**-**	**No**	**No**

Journey-to-Work Mode Share

The San Jose TDF model was used to calculate citywide journey-to-work mode share percentages. Mode share is the distribution of all daily work trips by travel mode, including drive alone, carpool with two persons, carpool with three persons or more, transit (rail and bus), bike, and walk trips.

Table 6 summarizes the citywide journey-to-work mode share analysis results. Compared to the Envision San Jose 2040 General Plan, the percentage of drive alone trips would decrease slightly and the percentages of transit and bicycle trips would increase slightly as a result of the GPAs. This is due to the reallocation of 4,000 households to the downtown area, where there are more jobs and transit options. Vehicle trips citywide would be reduced due to an increase in trips made via transit and non-motorized travel modes (bicycle and walk) within the Downtown area. Therefore, cumulatively, the 2015 GPAs would result in a less than significant impact on citywide journey-to-work drive alone mode share.

Table 6
Journey-to-Work Mode Share Percentages

Mode Share	Existing (2008)	General Plan (2040)	GPAs	GPAs Alternative
Drive Alone	79.0%	70.3%	70.0%	70.1%
Carpool 2	11.7%	13.0%	13.0%	13.0%
Carpool 3+	4.0%	4.6%	4.6%	4.6%
Transit	3.3%	9.2%	9.3%	9.3%
Bicycle	0.7%	1.3%	1.4%	1.4%
Walk	1.3%	1.7%	1.7%	1.7%
Increased Drive Alone Percentage over General Plan	**-**	**-**	***-0.3%***	***-0.2%***
Significant Impact?	**-**	**-**	**No**	**No**

Average Vehicle Speeds in Transit Priority Corridors

The San Jose TDF model was used to calculate the citywide average transit corridor speeds for the morning and evening peak commute periods (1-hour and 4-hour periods). However, the City's significance criteria apply to the average transit corridor speeds for the AM peak one-hour period only.

Table 7 presents the average vehicle speeds in the City's 14 transit priority corridors (i.e., Grand Boulevard segments) during the AM peak hour of traffic. Overall, the average travel speeds in the AM are expected to

increase slightly as a result of the GPAs. When compared to the Envision San Jose 2040 General Plan none of the transit priority corridors would experience significant reductions in average vehicle speeds during the AM peak hour as a result of the GPAs. Therefore, cumulatively, the 2015 GPAs would result in a less than significant impact on the AM peak-hour average vehicle speeds on the transit priority corridors.

Table 7
AM Peak-Hour Vehicle Speeds (mph) in Transit Priority Corridors

Transit Priority Corridor	Existing (2008)	General Plan (2040)	GPAs	GPAs Alternative
2nd St from San Carlos St to St. James St	11.4	11.4	11.4	11.4
Alum Rock Av from Capitol Av to US 101	22.1	10.8	11.0	11.0
Camden Av from SR 17 to Meridian Av	23.5	14.3	14.2	15.2
Capitol Av from S. Milpitas Bl to Capitol Expwy	23.5	14.8	15.2	15.0
Capitol Expwy from Capitol Av to Meridian Av	28.7	20.3	21.0	21.9
E. Santa Clara St from US 101 to Delmas Av	20.4	14.8	14.8	15.0
Meridian Av from Park Av to Blossom Hill Rd	25.5	17.2	17.4	16.9
Monterey Rd from Keyes St to Metcalf Rd	24.6	15.1	15.1	15.3
N. 1st St from SR 237 to Keyes St	21.4	10.6	10.7	11.4
San Carlos St from Bascom Av to SR 87	24.4	17.0	17.5	17.6
Stevens Creek Bl from Bascom Av to Tantau Av	22.7	14.3	14.6	15.0
Tasman Dr from Lick Mill Bl to McCarthy Bl	24.4	9.3	9.5	9.4
The Alameda from Alameda Wy to Delmas Av	22.7	11.4	11.1	11.0
W. San Carlos St from SR 87 to 2nd St	19.8	15.4	15.4	15.1
Average of All Roadway Segments	***22.5***	***14.1***	***14.2***	***14.4***
Percent Change	**-**	**-**	**1.0%**	**2.2%**
Significant Impact?	**-**	**-**	**No**	**No**

5. Conclusions

This section presents a summary of the cumulative long-range traffic analysis of the project on the citywide transportation system.

Long-Range Traffic Impacts

The long-range cumulative traffic impacts resulting from the 2015 GPAs were evaluated for daily VMT per service population, percentage of journey-to-work drive alone trips, and average vehicle speeds on the transit priority corridors. Compared to the Envision San Jose 2040 General Plan, both project alternatives would reduce the citywide daily VMT per service population, reduce the percentage of journey-to-work drive alone trips, and increase average vehicle speeds on the transit priority corridors. This is because (1) the total number of jobs and households would not change citywide as a result of the GPAs (only shifting of households and jobs would occur) and (2) the reallocation of 4,000 households to the downtown area, where there are more jobs and transit options. Vehicle trips citywide would be reduced due to an increase in trips made via transit and non-motorized travel modes (bicycle and walk) within the Downtown area. Therefore, cumulatively, the 2015 GPAs would result in a less than significant long-range traffic impact on citywide transportation system.

However, the Downtown Strategy Plan amendment would result in an increase of 4,000 households in the downtown plan area. Although the plan would not change the total number of jobs and households citywide, the household increase in the downtown plan area would substantially increase vehicle traffic on local streets within and adjacent to the plan area and exceed the 250 peak-hour trip threshold for the requirement of a site-specific GPA traffic analysis. Therefore, the Downtown Strategy Plan amendment would be required to prepare a site-specific GPA traffic analysis, which would be prepared separately from this study. Any localized significant traffic impacts and mitigation measures be identified as part of the site-specific traffic impact analysis.

Consistency with General Plan Polices

The City of San Jose's Transportation Policies contained in the General Plan are intended to do the following:

1. Establish circulation policies that increase bicycle, pedestrian, and transit travel, while reducing motor vehicle trips, to increase the City's share of travel by alternative transportation modes; and
2. Promote San Jose as a walking- and bicycling-first city by providing and prioritizing funding for projects that enhance and improve bicycle and pedestrian facilities.

Implementation of the General Plan Transportation Policies can help to promote a multi-modal transportation system and stimulate the use of transit, bicycle, and walk as practical modes of transportation in the City, which ultimately will improve operating speeds in the City's 14 transit priority corridors. An enhanced multi-modal transportation system is capable of reducing reliance on the automobile and decreasing the amount of vehicle travel, specifically journey-to-work drive alone trips.

Based on the result of the analysis, the 2015 GPAs and GPAs alternative are consistent with the City of San Jose General Plan transportation policies, because they would increase bicycle, pedestrian, and transit travel, while reducing motor vehicle trips and slightly improving operating speeds in the City's 14 transit priority corridors.