

APPENDIX U

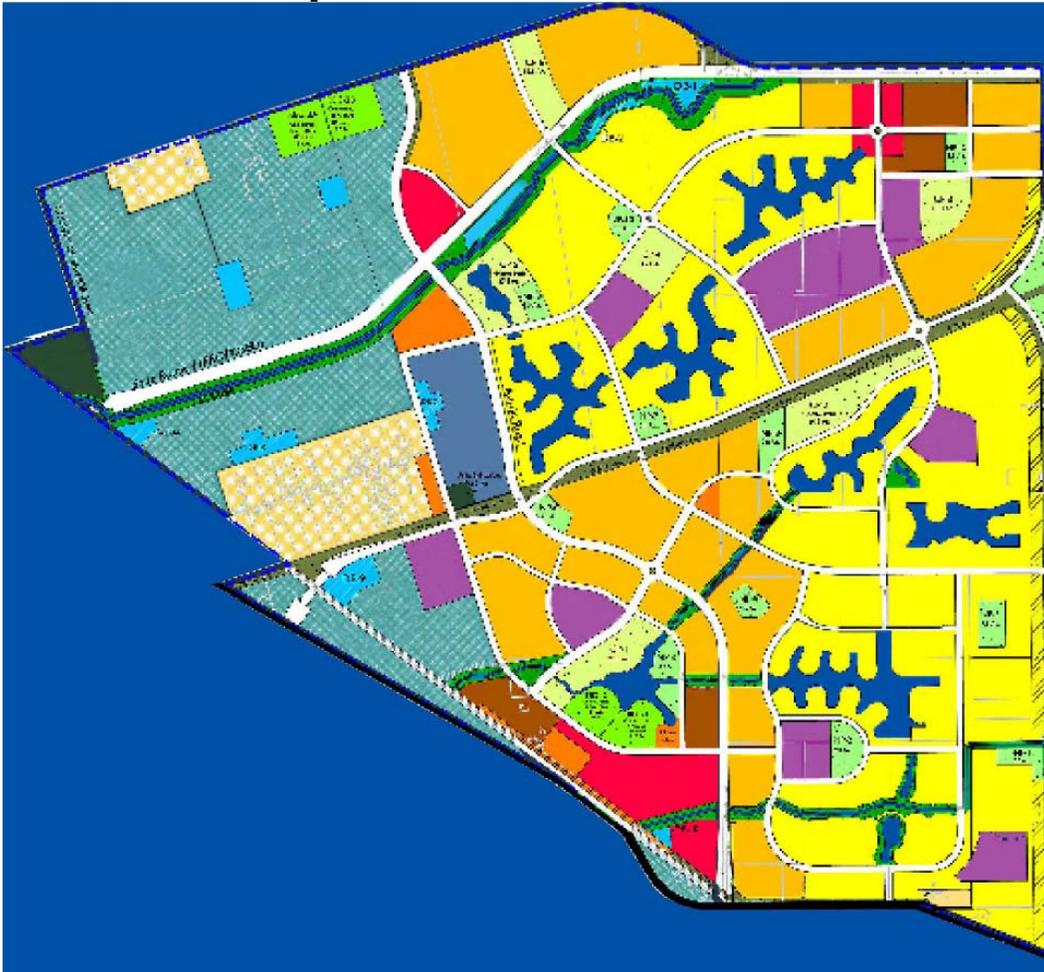
Traffic Study for the Proposed Mariposa Lakes Development



**Transportation
Consultants**

MARIPOSA LAKES STOCKTON, CALIFORNIA

Traffic Study for the Proposed Mariposa Lakes Development



Prepared for:

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February 5, 2007

Traffic Study for the Proposed Mariposa Lakes Development

In the City of Stockton

February 5, 2007

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PROJECT DESCRIPTION

Project Location

The proposed project is located generally within the area north of East Mariposa Road, south of Farmington Road and west of Kaiser Road in the City of Stockton. The proposed project covers an area of 3,810 acres.

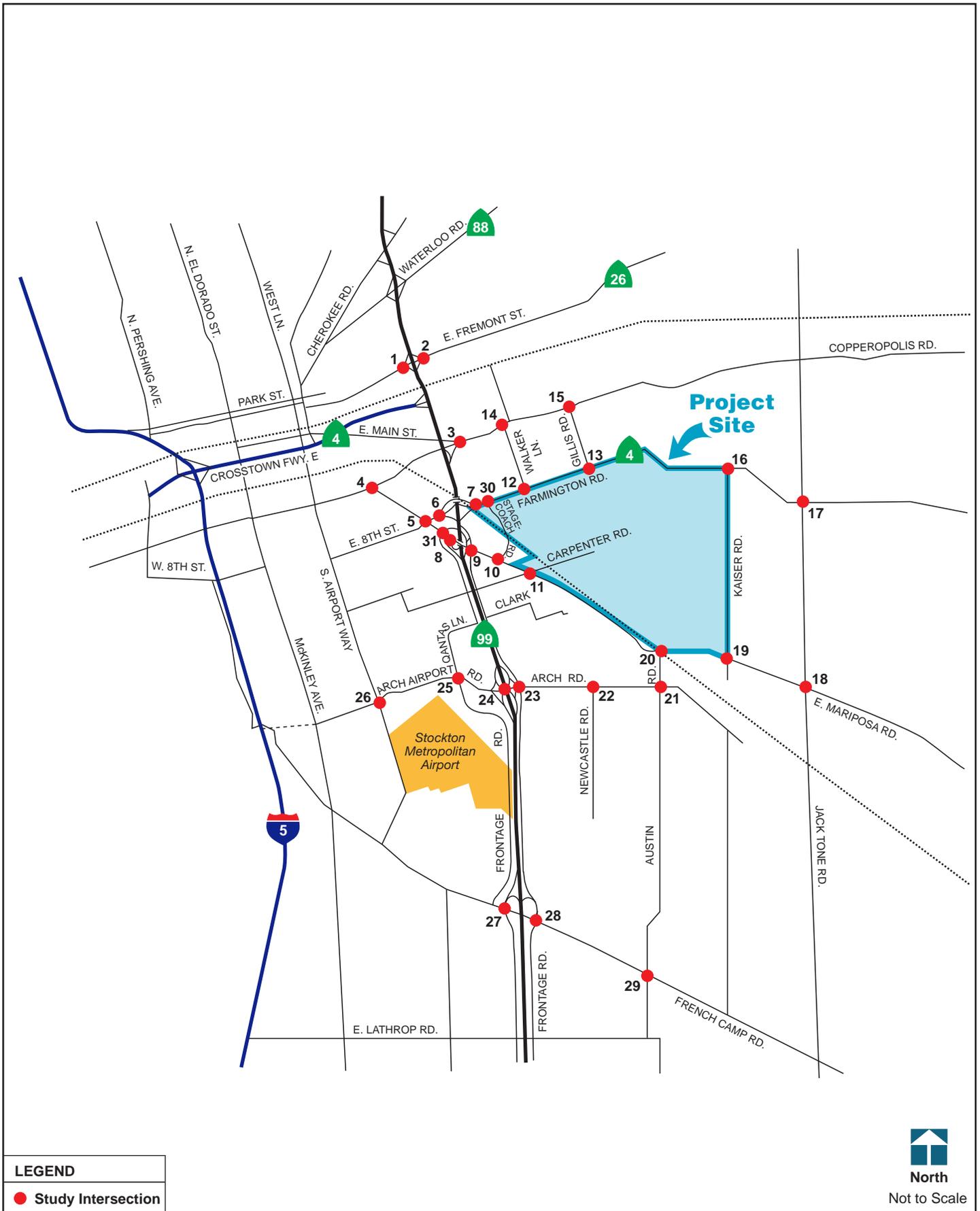
The project vicinity is shown in Figure 1.

Project Description

Mariposa Lakes will be a new residential and mixed-use village community for with an estimated population of approximately 34,000. The proposed project consists of approximately 4,360 Low Density Residential and Estate dwelling units, 5,048 Medium Density Residential dwelling units and 1,406 High Density Residential dwelling units for a total of approximately 10,814 dwelling units. The non-residential component of the project consists of approximately 1.0 million square feet of commercial development, 749,000 square feet of business park uses and 10.7 million square feet of industrial villages. The Mariposa Lakes project will produce an estimated 14,000 new jobs. Figure 2 shows the Mariposa Lakes project site plan.

The project utilizes major arterial circulation routes along the project site for access, including Mariposa Road and Farmington Road. The project site plan calls for the relocation and expansion of State Route 4 through the site with a major connection to an upgraded Mariposa Road/SR 99 interchange. This route includes a railroad grade separation. The main access to the south is via Austin Road including a new proposed railroad grade separation that forms an elevated intersection connection with Mariposa Road. A third railroad grade separation provides a connection to Mariposa Road between the relocated SR 4 and the Austin Road proposed grade separations. Austin Road also extends northerly from the project as a part of the City's proposed eastside north-south major arterial.

The project will be developed in five phases, extending over a period of approximately 20 years. The first phase is located on the south portion of the project and will draw primary access from Mariposa Road and the new Austin Road railroad grade separation, providing a connection to the newly expanded Arch Road/SR 99 interchange. The Phase I land use includes 4,697 homes and some 813,000 square feet of non-residential development.



City of Stockton
 Mariposa Lakes Traffic Study
Vicinity Map

Figure
1





North

Not to Scale



Land Use Legend

| Key | Land Use |
|-----|------------------------------------|
| | Village Residential Estate |
| | Village Low Density Residential |
| | Village Medium Density Residential |
| | Village High Density Residential |
| | Village Center/Commercial |
| | Industrial |
| | Business-Professional |
| | Institutional |
| | Elementary/High Schools |
| | College |
| | Parks & Open Space |
| | Private Recreation Center |
| | Existing Residential |
| | Public Utilities |
| | Lakes 1, 2, & 3 |

City of Stockton Mariposa Lakes Traffic Study Project Site Plan

Figure 2
TJKM

EXISTING CONDITIONS

Roadway Network

The project site is located immediately south of the City of Stockton as shown in Figure 1. Important roadways serving the project site are discussed below:

Interstate 5 (I-5) is a major north-south freeway that runs through the western portion of the City of Stockton. It is generally an eight-lane freeway with four travel lanes in each direction through the central portion of the City of Stockton (between Charter Way and Country Club Boulevard) and three lanes in each direction along the remaining segments. The average daily traffic volume on I-5 near its junction with Route 4 varies between 124,000 to 133,000 vehicles per day (vpd).

State Route 99 (SR 99) is a four-lane north-south freeway facility. It is the major north-south route on the east side of Stockton. SR 99 carries approximately 85,000 vpd south of Farmington Road and 91,000 vpd north of Farmington Road. In the vicinity of the project, SR 99 has interchanges with East Charter Way, Farmington Road, Mariposa Road and Arch Road.

East and West Frontage Roads are contiguous and parallel to SR 99. They begin near Mariposa Road and continue along both sides of SR 99 to south of Arch Road.

State Route 26 (SR 26) is called East Fremont Street in the vicinity of the project. SR 26 connects Stockton to Calaveras County to the east.

State Route 4 (SR 4) is a two to four lane state highway that connects Contra Costa County to the west to the Sierra foothills and mountains of Calaveras and Alpine Counties. SR 4 carries approximately 27,500 vpd west of I-5 and 8,900 vehicles per day east of SR 99.

Farmington Road, which is a portion of SR 4, is a two lane east-west rural roadway that extends from SR 99 to the west to South Jack Tone Road to the east. It roughly defines the northern boundary of the project.

E. Main Street is a four-lane east-west collector roadway that runs for more than four and one half miles from El Dorado Street to the west to Gillis Road to the east where it becomes Copperopolis Road. East of Walker lane, it narrows to a two-lane road with a speed limit of 55mph.

Copperopolis Road is a two-lane east-west collector roadway that runs approximately 14 miles from Gillis Road on the west to North Waverly Road to the east.

E. Mariposa Road is a two to three lane diagonal arterial roadway generally traveling southeasterly away from Stockton. It borders the south edge of the proposed project. Mariposa Road extends about 15 miles from E. Charter Way to the west to Escalon Ballot Road to the east. Mariposa Road south of Charter Way is a three-lane roadway with a center two way left turn lane. The posted speed limit on Mariposa Road south of Charter Way is 45 mph. East of SR 99, Mariposa Road is a two lane undivided rural roadway. The posted speed limit on this segment of roadway is 50 mph. Currently, Mariposa Road east of SR 99 operates at LOS C based on average daily traffic volumes.

Arch Road is a two-lane arterial roadway that runs about two miles west from Austin road to SR 99. West of SR 99 it becomes Arch-Airport road and connects to McKinley Street to the west. Arch-Airport Road provides access to the Stockton Metropolitan Airport located just south of the roadway. It is two to eight lanes wide. An extension of Arch Road between McKinley Avenue and I-5 to the west is being planned in the future.

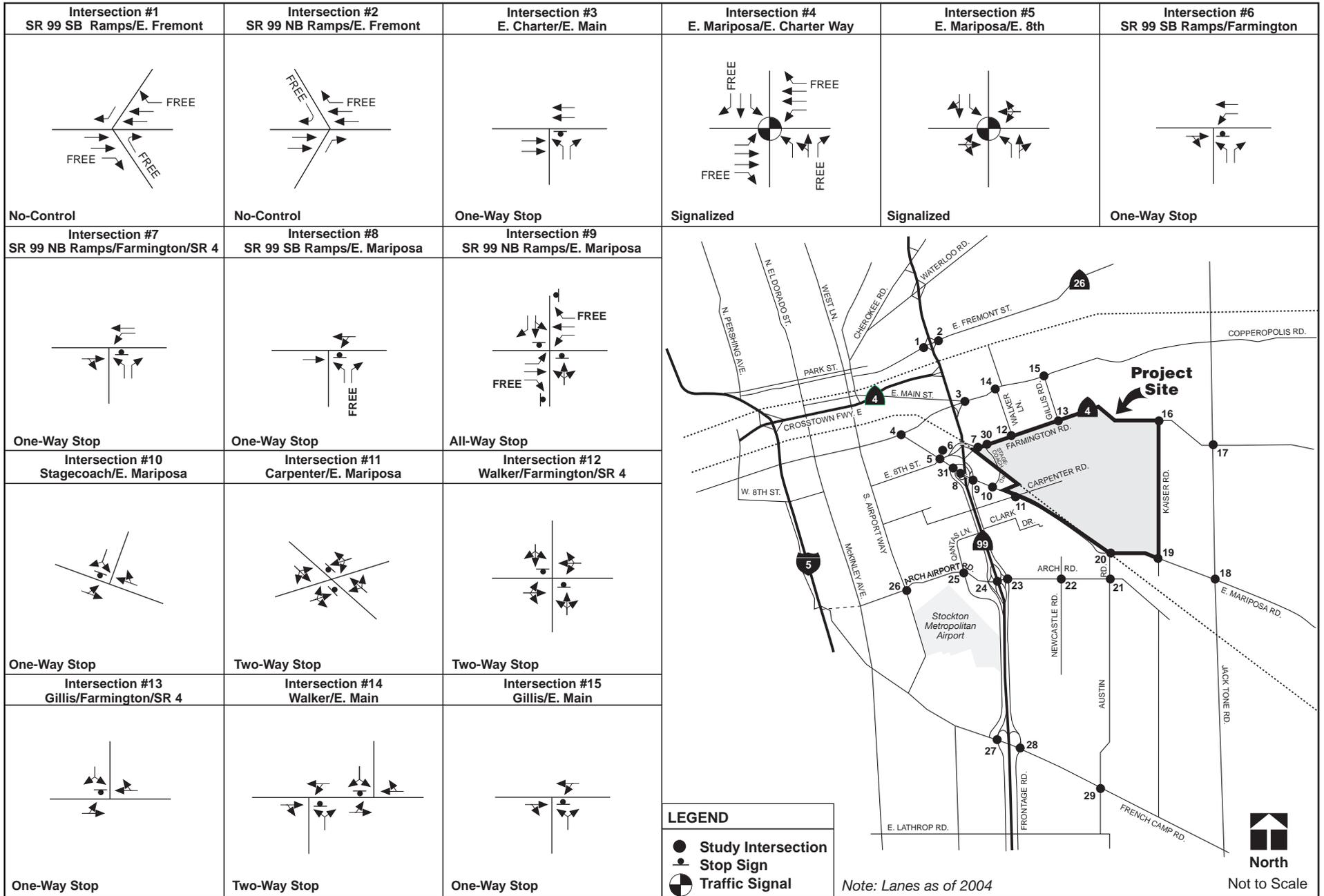
French Camp Road is a two-lane east-west rural roadway that travels almost parallel to East Mariposa Road on the north. French Camp road runs for more than ten miles from its western terminus at South Wolf Road to connect to SR 120 on the south.

Level of Service Analysis (Existing Conditions)

Existing a.m. and p.m. peak hour turning movement volumes were conducted at 31 existing intersections in the vicinity of the project between years 2003 and 2006. Since some of the study area is not experiencing significant growth, the City staff approved the use of the older counts. Also, the “existing” counts are only utilized for analysis of existing conditions; all subsequent scenarios utilize model-generated forecasts. Figure 3 shows the existing lane geometry at the study intersections at the time the counts were conducted. Figure 4 shows the existing turning movement volumes at the study intersections. Average Daily Traffic (ADT) counts were conducted for selected study segments as shown in Figure 5. These are summarized in Appendix D. Truck counts were conducted in 2006 at key selected locations to determine the percentage of heavy vehicles under existing conditions. Based on the new counts, trucks were assumed to be 17 percent in the a.m. peak and 11 percent during the p.m. peak for existing conditions. Table I summarizes the results of the intersection level of service analysis.

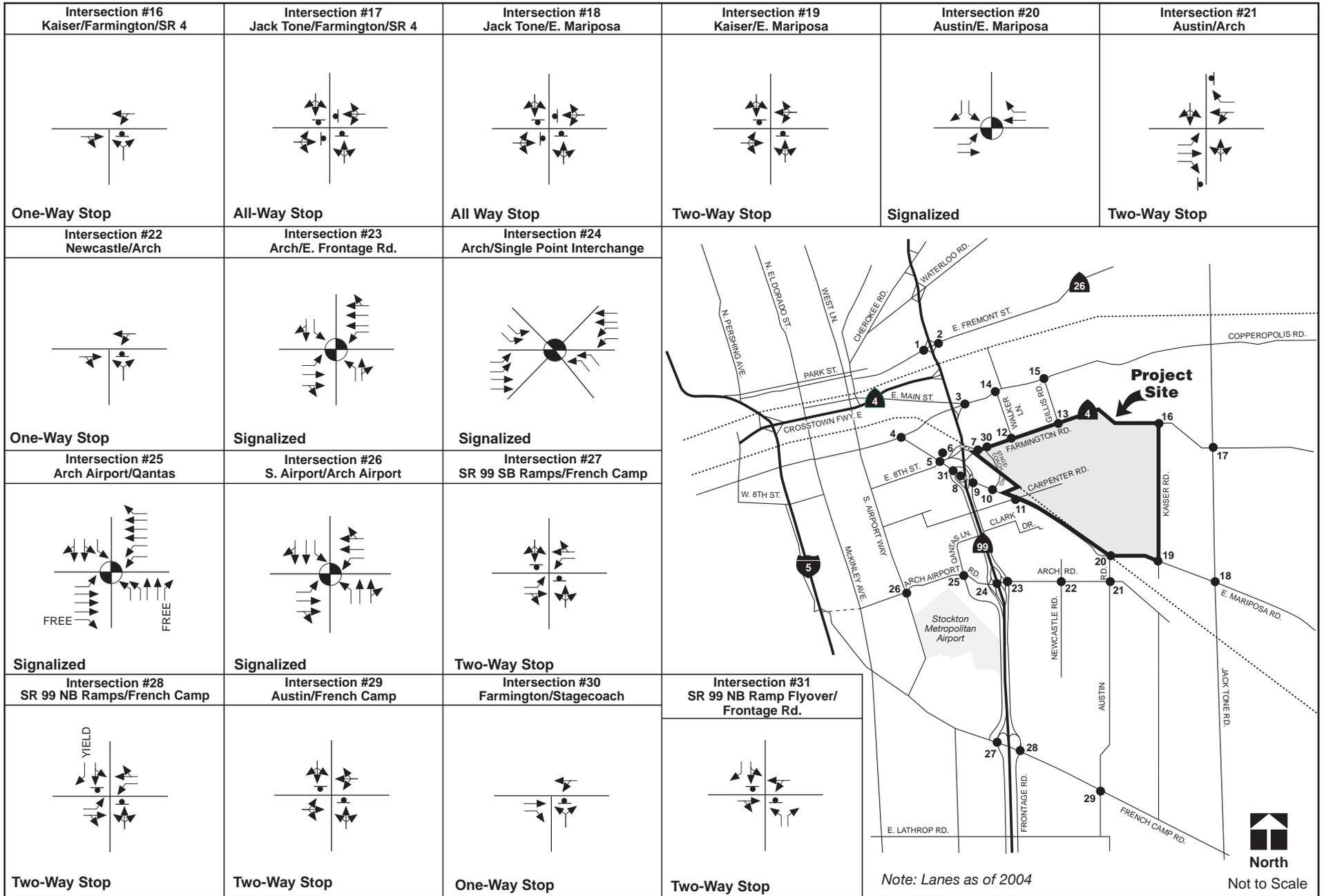
Currently, all existing study intersections operate at acceptable levels of service.

SR 99 in the vicinity of the project currently operates at levels of service varying from LOS C to LOS E. Both directions of SR 99 north of Mariposa Road were analyzed as a weaving section due to spacing of ramps of less than 2,500 feet between Farmington and Mariposa Roads. Currently, the southbound section of Arch Road is operating at LOS E, while all other sections operate at LOS D or better. Table XV later in the report summarizes the results of the freeway level of service analysis under all scenarios.

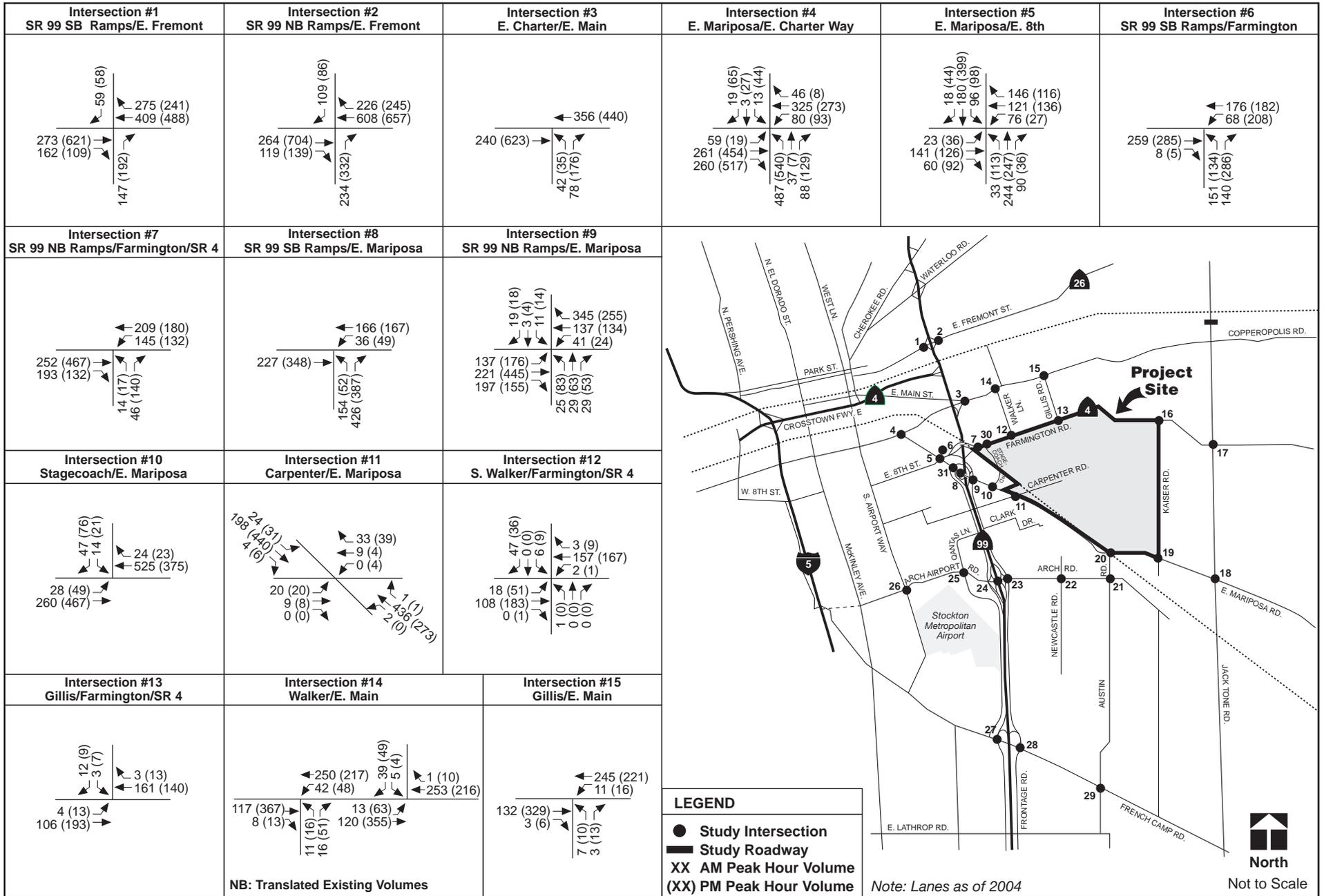


City of Stockton
Mariposa Lakes Traffic Study
Existing Lane Geometry

Figure 3
TJKM

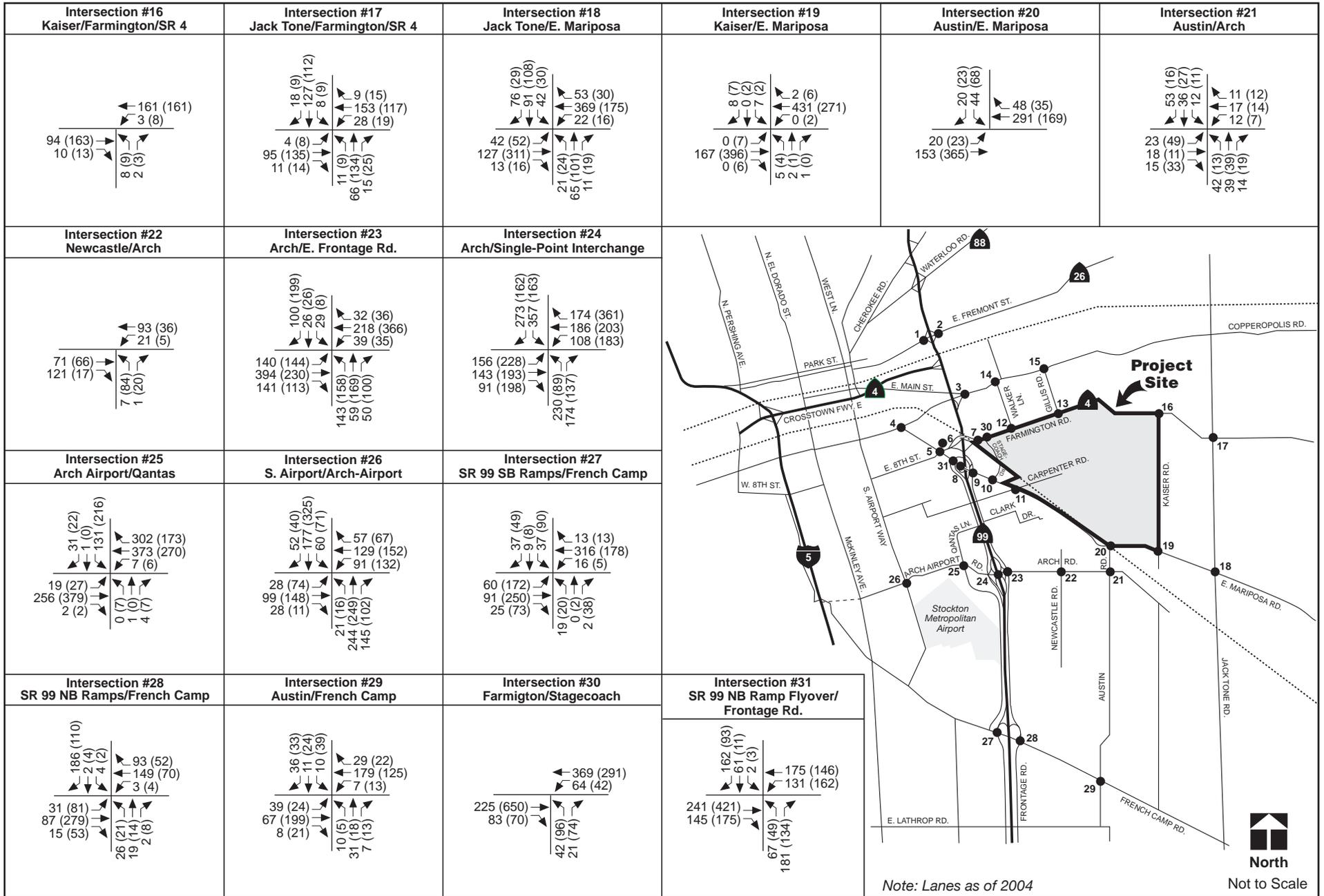


City of Stockton
Mariposa Lakes Traffic Study
Existing Lane Geometry



City of Stockton
 Mariposa Lakes Traffic Study
Existing Turning Movement Volumes

Figure 4



City of Stockton
Mariposa Lakes Traffic Study
Existing Turning Movement Volumes

LEGEND

- Study Intersection
- XX AM Peak Hour Volume
- (XX) PM Peak Hour Volume

Figure 4
Cont.

TABLE I: INTERSECTION LEVELS OF SERVICE – EXISTING CONDITIONS

| | Intersection | Existing Control | A.M. Peak Hour | | P.M. Peak Hour | |
|-----|--|----------------------------|----------------|-------|----------------|-------|
| | | | Delay (sec) | LOS | Delay (sec) | LOS |
| 1 | SR 99 SB Ramps/E. Fremont Street | See Table XVII for Results | | | | |
| 2 | SR 99 NB Ramps/E. Fremont Street | See Table XVII for Results | | | | |
| 3 | E. Charter Way/E. Main Street | One-Way Stop | 1.8 (10.7) | A (B) | 2.4 (14.4) | A (B) |
| 4 | E. Charter Way/E. Mariposa Road | Signalized | 10.2 | B | 10.1 | B |
| 5 | E. Mariposa Road/E. 8 th Street | Signalized | 9.3 | A | 8.9 | A |
| 6 | SR 99SB Ramps/Farmington Road | One-Way Stop | 6.5 (15.9) | A (C) | 11.1 (47.8) | B (E) |
| 7 | SR 99 NB Ramps/Farmington Road | One-Way Stop | 2.5 (14.1) | A (B) | 3.7 (28.8) | A (D) |
| 8 | SR 99 SB Ramps/E. Mariposa Road | One-Way Stop | 10.0 (17.0) | B (C) | 9.0 (19.7) | A (C) |
| 9 | SR 99 NB Ramps/E. Mariposa Road | All-Way Stop | 8.1 (10.2) | A (B) | 14.2 (17.8) | B (C) |
| 10 | Stagecoach Road/E. Mariposa Road | One-Way Stop | 1.4 (15.5) | A (C) | 2.2 (15.3) | A (C) |
| 11 | E. Mariposa Road/Carpenter Road | Two-Way Stop | 1.9 (19.8) | A (C) | 1.9 (21.9) | A (C) |
| 12 | Farmington Road/ Walker Lane | Two-Way Stop | 2.1 (12.1) | A (B) | 2.1 (10.4) | A (B) |
| 13 | Gillis Road/ Farmington Road | One-Way Stop | 0.6 (9.7) | A (A) | 0.7 (10.2) | A (B) |
| 14a | Walker Lane/E. Main Street (South Leg) | One-Way Stop | 1.5 (10.5) | A (B) | 1.9 (12.8) | A (B) |
| 14b | Walker Lane/E. Main Street (North Leg) | One-Way Stop | 1.3 (10.4) | A (B) | 1.8 (10.5) | A (B) |
| 15 | Gillis Road/ E. Main Street | One-Way Stop | 0.5 (10.8) | A (B) | 0.7 (11.9) | A (B) |
| 16 | Kaiser Road/Farmington Road | One-Way Stop | 0.5 (10.2) | A (B) | 0.6 (10.6) | A (B) |
| 17 | Jack Tone Road/Farmington Road | All-Way Stop | 9.6 (10.2) | A (B) | 9.6 (9.7) | A (A) |
| 18 | Jack Tone Road/E. Mariposa Road | All-Way Stop | 23.4 (35.5) | C (E) | 14.1 (17.2) | B (C) |
| 19 | Kaiser Road/E. Mariposa Road | Two-Way Stop | 0.5 (14.6) | A (B) | 0.5 (16.9) | A (C) |
| 20 | Austin Road/E. Mariposa Road | Signalized | 6.5 | A | 6.5 | A |
| 21 | Austin Road/Arch Road | Two-Way Stop | 4.9 (10.6) | A (B) | 5.6 (9.7) | A (A) |
| 22 | Newcastle Road/Arch Road | One-Way Stop | 0.8 (10.4) | A (B) | 4.7 (9.8) | A (A) |
| 23 | E. Frontage Road/Arch Road | Signalized | 6.6 | A | 6.9 | A |
| 24 | Arch Road/SR 99 Single Point Interchange | Signalized | 15.4 | B | 17.4 | B |
| 25 | Qantas Lane/Arch Airport Road | Signalized | 11.9 | B | 14.0 | B |
| 26 | S. Airport Way/Arch Airport Road | Signalized | 31.6 | C | 21.3 | C |
| 27 | SR 99 SB Ramps/French Camp Road | Two-Way Stop | 3.6 (16.8) | A (C) | 8.4 (34.2) | A (D) |
| 28 | SR 99 NB Ramps/French Camp Road | Two-Way Stop | 5.0 (13.9) | A (B) | 3.6 (16.0) | A (C) |
| 29 | Austin Road/French Camp Road | Two-Way Stop | 3.7 (12.7) | A (B) | 3.7 (12.6) | A (B) |
| 30 | Stagecoach Road/Farmington Road | One-Way Stop | 2.2 (15.9) | A (C) | 6.6 (44.0) | A (E) |
| 31 | E. Mariposa/SR 99 NB Off Ramp/Frontage Rd | Two-Way Stop | 9.2 (23.3) | A (C) | 6.4 (23.6) | A (C) |

Notes: LOS=Level of Service
X (X) = Intersection level of service (Level of service for the minor approach)
X.X (X.X) = Average Intersection Delay in seconds per vehicle (Average Delay in seconds per vehicle for the minor approach)
Note: Intersections 8, 9, 30 and 31 have signals under construction as of October 2006 but are analyzed here with their previous traffic control.

Existing Bicycle Facilities

A Class III bike lane exists near the Project site to the north of Farmington Road at Olive Avenue/Golden Avenue. The bike route extends further north, and connects to Main Street that leads to Downtown Stockton.

Existing Transit Service

The San Joaquin Regional Transit District, the regional mobility manager for San Joaquin County, provides public transit services in the Stockton Metropolitan Area, and provides intercity, commuter, and rural transit services. The Stockton Metropolitan Area Regional Transit (SMART) provides bus services between the San Joaquin County regions and Bay Area cities and Sacramento. SMART operates 20 bus trips per day between San Joaquin County (Stockton, Tracy, Lodi, Escalon, Ripon and Manteca) and the South Bay, East Bay, Sacramento, and Napa regions.

Regional Transit

In May 1997, the San Joaquin Regional Rail Commission (SJRRC), the Alameda Congestion Management Agency (ACCMA), and the Santa Clara Valley Transportation Authority (VTA) executed an agreement to create the Altamont Commuter Express (ACE) Joint Powers Authority (JPA). The ACE service became operational on October 19, 1998. Service includes three westbound morning trains and three eastbound evening trains. The closest ACE station to Mariposa Lakes is located in downtown Stockton. Parking for ACE riders is free and available on first-come, first served basis. Morning trains depart Stockton at 4:20 a.m., 5:35 a.m. and 6:40 a.m. In the evening the trains return at 5:43 p.m., 6:43 p.m. and 7:43 p.m. The train travel time between Stockton and Pleasanton is about 1 hour and 15 minutes. For the full distance to downtown San Jose, the trip is about two hours.

The Stockton Station involves a 5 to 6 mile “backtrack” northbound distance for commuters desiring to travel south and west. The Lathrop/Manteca Station is located about 10 miles to the south and is more likely to be used by Mariposa Lakes residents who can catch the train about 18 minutes later and experience less congestion. However, ticket costs are the same from both stations.

Existing Railroad Crossings

The Burlington Northern Santa Fe Railroad (BNSF) parallels Mariposa Road in the vicinity of Mariposa Lakes. It provides a physical barrier between most of Mariposa Lakes and Mariposa Road. Mariposa Road crosses the BNSF on a grade separation structure at Austin Road and crosses SR 4 (Farmington Road) at grade near to the SR 99/ Farmington Road Interchange. This crossing is equipped with flashing lights and gates to alert and protect motorists using the crossing.

There is a nearby residential development that will not be directly affected by the Mariposa Lakes project, but borders it on the west. The homes in this development use Carpenter Road as their sole access to reach Mariposa Road. Carpenter Road crosses the BNSF near Mariposa Road, requiring all residents to use this crossing. It is also equipped with flashing lights and gates. The Mariposa Lakes developer has offered to allow the Carpenter Road residents to extend their street to the east to connect with Mariposa Lakes streets and preclude the need to utilize the at-grade crossing. Once connected with the project streets, motorists would be able to utilize the planned railroad grade separations. The decision on whether to connect with the Mariposa Lakes street system will be made by the residents themselves.

IMPACT ANALYSIS

Study Scenarios

The roadway network conditions were evaluated under the following scenarios:

1. Existing Conditions
2. Existing plus Approved Projects Conditions (EPAP)
3. EPAP plus Phase I project Conditions
4. EPAP with Proposed Project
5. 1990 General Plan No Project Conditions
6. 1990 General Plan plus Proposed Project Conditions.
7. 2035 General Plan No Project Conditions
8. 2035 General Plan plus Proposed Project Conditions

Level of Service Methodology

Level of Service is a qualitative index of the performance of an element of the transportation system. Level of Service (LOS) is a rating scale running from A to F, with A indicating no congestion of any kind, and F indicating intolerable congestion and delays. LOS in this study describes the operating conditions for signalized, unsignalized intersections and roadway segments.

The *2000 Highway Capacity Manual* is the standard reference published by the Transportation Research Board, and contains the specific criteria and methods to be used in assessing LOS. The HCM report option within the Synchro 5 software was used to calculate the LOS at the study intersections. Details of this methodology are contained in Appendix E.

Arterial Level of Service Methodology

Urban street LOS is based on the average through-vehicle travel speed for the segment under consideration. The study segments analyzed in this report are assumed to be Class I urban streets with a typical free flow speed of 50 mph. A methodology was developed to determine the average speed for the study segments based on Exhibit 15-8(Speed flow curves for Class I Urban Streets) of the 2000 Highway Capacity Manual. Details of this methodology are contained in Appendix E.

Freeway Level of Service Methodology

TJKM analyzed basic freeway segments utilizing Chapters 23 and 24 of the *Highway Capacity Manual 2000 (HCM 2000)*. HCM 2000 relates volume-to-capacity (v/c) ratios and vehicle density to LOS. TJKM utilized a Caltrans-recommended mainline capacity of 1,850 vehicles per lane per hour. Where ramp spacing is less than 2,500 feet, HCM weaving analyses were also conducted.

Standards of Significance

City of Stockton Intersections

The City of Stockton's minimum acceptable level of service standard for intersections and roadway segments is Level of Service (LOS) D. Therefore, this report uses LOS D as the minimum acceptable standard and mitigation measures are recommended where service levels are below LOS D.

For City intersections with LOS E or F conditions without the project, a transportation impact for a project is considered significant if the addition of project traffic causes an increase of greater than 5 seconds in the average delay for the intersection.

Caltrans Facilities

Facilities under the jurisdiction of Caltrans, including freeway segments, ramps, ramp terminals, signalized and unsignalized intersections and urban streets, are required to utilize the current Caltrans standard to determine the project impact. Caltrans standards strive to maintain acceptable freeway operations between LOS C and LOS D.

The table below shows the LOS criteria for freeway basic mainline and weaving segments. For this study, any freeway segment exceeding LOS D is considered impacted.

| <i>Level of Service</i> | <i>Maximum V/C Ratio</i> | <i>Maximum Density (pvpmpl)</i> |
|-------------------------|--------------------------|---------------------------------|
| A | 0.32 | 11 |
| B | 0.53 | 18 |
| C | 0.74 | 26 |
| D | 0.90 | 35 |
| E | 1.00 | 45 |
| F | Varies | Varies |

Source: Transportation Research Board, Highway Capacity Manual, Washington, D.C., 2000, pages 23-3 and 23-4.

Notes: v/c = volume-to-capacity ratio; pvpmpl = passenger vehicles per mile per lane

Heavy Vehicles

Since this project is located in the vicinity of other existing and planned industrial areas and since a major industrial component is included in the Mariposa Lakes project, special attention was given to appropriate truck percentages in the analyses of levels of services on various roadways. Based on the truck counts for current roadway conditions, heavy vehicles were assumed to be 17 percent in the a.m. peak and 11 percent during the p.m. peak for Existing, EPAP and 1990 No Project scenarios. The only exceptions to this are intersections 1, 2, 3, 4, 5, 14 and 15. At these intersections, 10 percent trucks were used in the a.m. peak and 8 percent trucks were used in the p.m. peak for the Existing, EPAP and 1990 No Project scenarios.

The City of Stockton peak hour model was used to develop a single blended weighted average truck percentage at each intersection, based on the proportion of project and non-project traffic for each study intersection for the following scenarios:

- EPAP plus Phase I
- EPAP plus Project
- 1990 General Plan plus Project
- 2035 General Plan No Project
- 2035 General Plan plus Project scenarios.

The single blended weighted truck percentage was based on the following non-project traffic and project traffic truck percentages:

- For all non-project traffic, trucks were assumed to be 17 percent during the a.m. peak and 11 percent during the p.m. peak. The only exceptions to this are intersections 1,2,3,4,5,14 and 15. At these intersections 10 percent trucks were used for the a.m. and 8 percent for the p.m. for all no-project traffic.
- Based on Caltrans Trip Generation studies for Industrial Parks and Residential areas, the proposed Project is expected to generate 13.5 percent daily trucks for the industrial and commercial developments and 1 percent daily trucks for residential development. When converted to peak hour figures, these become 17.7 percent/11.4 percent a.m./p.m. for industrial and commercial development and 1.31 percent/0.85 for residential.
- The results showed that at the internal project intersections truck percentages ranged from 2 to 15 percent in the morning and from 2 to 10 percent trucks in the evening peak hour. For intersections external to the project the truck percentages ranged from 8 to 17 percent in the morning and from 6 to 12 percent in the evening peak hour.

Existing truck count field sheets are contained in Appendix D along with a table of truck percentages utilized in the “plus projects’ scenarios for all study intersections.

Signal Warrants

The Peak Hour Signal Warrant criteria was used to determine traffic signalization requirements for the study intersections under all traffic conditions studied in this report. Appendix P contains a summary table of Peak Hour Signal Warrant and charts. For ease in utilization by the reader, the analysis of signal warrants for all scenarios are contained on a single chart for each study intersection.

TRAVEL DEMAND MODELS

Introduction

The City of Stockton maintains a travel demand model to support long-range transportation planning efforts and to provide a mechanism for evaluating the potential effects of future land development and transportation improvement projects. The City's model update was completed in 2006. The 2006 model includes 441 Traffic Analysis Zones (TAZs) in the model area. In addition, there are 22 external TAZs that reflect traffic entering and leaving the City's road system. The model was modified to TAZ for the project. A more detailed zonal structure allows for a more detailed traffic analysis of individual streets and intersections. A total of 40 TAZ now make up the Mariposa Lakes project. Figure 6 shows the TAZ map for the study area. Detailed land use by TAZ is shown in Appendix A.

The three trip purposes used in the Stockton model are:

- Home Based Work (HBW): trips between a residence and a work place.
- Home Based Other (HBO): trips between a residence and any other location.
- Non- Home-Based (NHB): trips that do not begin or end at a residence, such as traveling from a workplace to a restaurant, or from a retail store to a job.

Appendix B shows the modeling network assumptions for each modeling scenario. Appendix C contains the a.m. and p.m. peak hour link volume model plots for the study scenarios in the vicinity of the Mariposa Lakes project.

EPAP Peak Hour Model

The City of Stockton's Existing plus Approved Projects (EPAP) peak hour model was used to forecast the a.m. and p.m. peak hour volumes in the following three scenarios:

- EPAP conditions
- EPAP plus Phase I Project conditions
- EPAP plus Project conditions

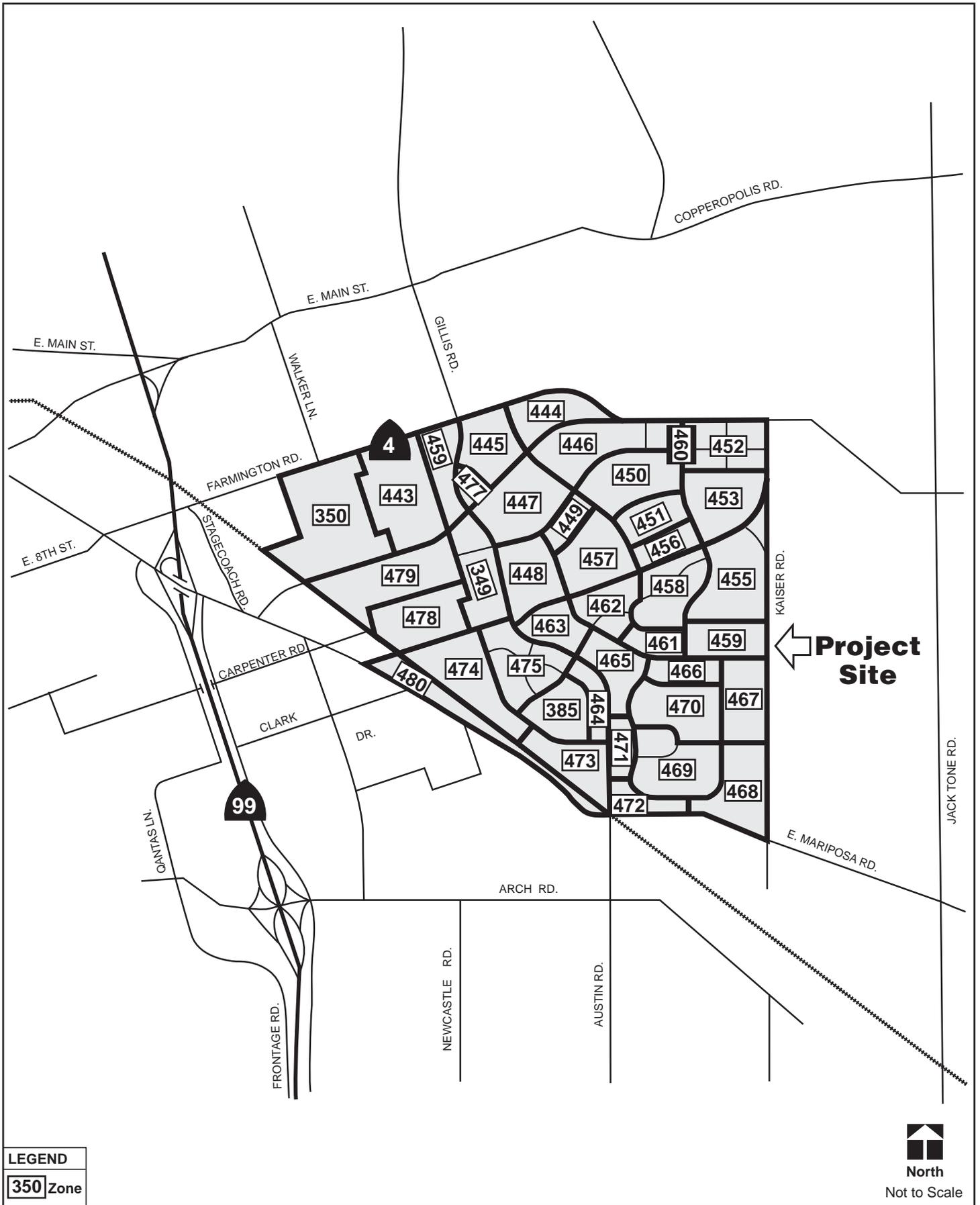
The EPAP model, as well as the 2035 model, was developed in conjunction with the City's current upgrade of the General Plan. This model uses TP+ software and is generally considered a state of the art model that has been calibrated to reflect existing conditions.

1990 General Plan Travel Demand Model

The City of Stockton's 1990 General Plan peak hour model was used to forecast the peak hour volumes in the following two scenarios:

- 1990 General Plan No Project conditions
- 1990 General Plan plus Project conditions

The 1990 General Plan model is considered somewhat outdated, particularly with the current update of the General Plan and its more recent assumptions for land use, transportation networks, and various city policies. The 1990 model uses MINUTP software. However, since the new General Plan may not be officially adopted by the City by the time the Mariposa Lakes entitlement considerations are being made, this project was analyzed using the traffic models for both the 1990 and the 2006 General Plans.



City of Stockton
 Mariposa Lakes Traffic Study
Traffic Analysis Zones (TAZ)

Figure
6



2035 General Plan Travel Demand Model

The City of Stockton's 2035 General Plan peak hour model was used to forecast the peak hour volumes in the following two scenarios:

- 2035 General Plan no Project conditions
- 2035 General Plan plus Project conditions

It should be noted that, unlike the land use assumptions in the 1990 General Plan, the proposed 2006 General Plan already includes major land use development in the area of the Mariposa Lakes project. Therefore, there may not be a significant change in regional transportation impacts when comparing the no-project and the with-project alternatives.

Planned Roadway Improvements

Planned growth in southeast Stockton including the Mariposa Lakes project will trigger the need for capacity improvements to the existing roadway network. Some of the key planned improvements include the following:

- State Route 4: The proposed relocation of existing SR 4 from Farmington Road to a location lying largely within the Project will change traffic patterns in the area. The new alignment will provide a direct connection with Mariposa Road just south of the SR 99 interchange, greatly facilitating travel between the two state highways. The portion of Mariposa Road between the two State Highways will also become a part of SR 4. In order to facilitate the relocation of SR 4 a Project Study Report (PSR) and other documents will be required to signify the approval of the change by the State, the County, and the City and other interested parties. The City of Stockton, in cooperation with the Mariposa Lakes sponsor, Caltrans and the County, has initiated a PSR for the relocation of SR 4. Separate detailed engineering, environmental and traffic studies are being conducted for the PSR. Because this roadway is considered a part of the proposed Mariposa Lakes project, all modeling and analysis scenarios that include the project also include this roadway. This includes the EPAP plus project, 1990 plus project and 2035 plus project.
- State Route 99: SR 99 is currently over capacity and needs to be widened to six lanes. Caltrans is currently developing a PSR along with planning, environmental and preliminary design studies so that a six-lane improvement project can be constructed as soon as funds are available. Potential funds may be available through various City, regional and state programs. The proposed improvement project will extend from Arch Road on the south to the SR 4 Freeway in Central Stockton. In addition to the widening of SR 99, the main elements of the project near Mariposa Lakes are the improvement of the Mariposa Road interchange and the removal of the ramps at the Farmington Road interchange (once SR 4 is relocated through the Mariposa Lakes project). Improvements at the Mariposa Road/SR 99 interchange include a partial cloverleaf interchange with westbound to southbound and eastbound to northbound loop ramps including the removal of the existing northbound to westbound ramp overpass. Figure 7 shows a Mariposa Road/ SR 99 interchange conceptual design.

There are interim improvements being made to the Mariposa interchange. Three ramp intersections along Mariposa Road within the interchange area were being signalized as of October 2006. These signals were not assumed to be in place for the analysis of existing conditions but were assumed to be in place for subsequent scenarios.

In the capacity analysis of SR 99, the freeway was analyzed both in its current four-lane configuration and the planned six-lane configuration for the existing and all EPAP scenarios.

Because the 2006 General Plan is recommending a 10 lane pattern for SR 99 by 2035, the long term scenarios, 1990 General Plan and the 2035 General Plan, both examine a six-lane and a ten-lane alternative.

- The Burlington Northern Santa Fe Railroad (BNSF) parallels Mariposa Road in the vicinity of Mariposa Lakes. It provides a physical barrier between most of Mariposa Lakes and Mariposa Road. A north south expressway is planned to run through the proposed project. This will require a grade separation structure over BNSF and will require Mariposa Road to be elevated to meet the new road. Austin Road will be extended as a four-lane roadway across Mariposa Lakes and line up with Gillis Road at Farmington Road. In addition, the relocated SR 4 will have a grade separation with the BNSF. All with-project alternatives also include a proposed railroad grade separation for the project roadway that intersects with Mariposa Road south of Carpenter Road.
- Construction of a new diamond interchange at SR 99 and Dixon Street at the location of the existing frontage road hook-ramps between Arch Road to and French Camp Road is included in the 2035 General Plan network and has been included in the 2035 scenarios only.¹
- The 2035 scenarios also include the new north-south major arterial that extends north and south of the project along the Austin Road alignment.

¹ Reference: *Tidewater Crossing Master Plan*, Fehr and Peers, February 2006



North
Not to Scale

City of Stockton
Mariposa Lakes Traffic Study
Mariposa Rd./SR 99 Conceptual Design

Figure
7



EXISTING PLUS APPROVED PROJECT (EPAP) CONDITIONS

Methodology

This scenario adds traffic from approved projects to the existing traffic counts. The EPAP peak hour forecasts were obtained from the City of Stockton's EPAP Peak Hour Model.

Approved Projects

Approved City of Stockton projects included in the EPAP model consist of approximately:

- 29,581,000 square feet of non-residential development
- 15,162 residential dwelling units

Notable approved projects include:

- Cannery Park 450 acres
- North Stockton Projects Phase 3 (180 acres)
- Westlake Villages (681 acres)

In addition, approved projects in the unincorporated portions of San Joaquin County near the projects were added to the EPAP model as follows:

- Regional church with 59,000 square feet at 2826 B Street
- Parcel split of 17,320 square foot lot into two at 2817 D Street
- Parcel split of 21,800 square foot lot into three at 2131 Michael Avenue
- Site approval for construction and storage yard at 3570 Mariposa Road
- Site approval for 2 warehouse buildings totaling 16,000 sq. ft. at 3304 SR 99 Frontage Road
- Site approval for concrete gunite company office, shop and storage at 4124 Mariposa Road
- Site approval for expansion of trucking company offices by 5,400 sq. ft. at 2900 Loomis Rd.
- Site approval to expand boat storage from 2 acres to 3.17 acres at 2823 Munford Avenue
- Site approval for landscaping materials yard at 3723 SR 99 Frontage Road
- Use permit to change from neighborhood to community church at 3732 Carpenter Road
- Site approval for a 11,780 square foot building to repair and store catering trucks at 4310 SR 99 Frontage Road
- Site approval for an industrial complex at 4236 SR 99 Frontage Road
- Site approval for expansion of farm services complex totaling 27,200 square feet at 7367 Mariposa Road
- Minor subdivision to create two 5-acre lots at 11040 Mariposa Road
- Site approval for a 100 foot tall cellular facility at 7603 Jack Tone Road

Modeling Network

Appendix B shows the modeling roadway network in the vicinity of the Project for EPAP No Project conditions.

Level of Service Analysis

Figure 8 shows the EPAP No Project turning movement volumes. Figure 9 shows the EPAP No Project Lane Geometry. Appendix G contains the a.m. and p.m. peak hour link volume model plots for this scenario. Table II summarizes the results of the intersection level of service analysis in this EPAP scenario. In this scenario, intersections 8, 9, 30 and 31 are assumed to be signalized. The traffic signals are under construction as of October 2006.

The closely spaced intersections 7 and 10 will both be signalized under the EPAP scenario. The traffic signals at the two intersections can be timed to mitigate any expected traffic queue spill back problems.

Intersections with proposed mitigation measures in this scenario are described below (Intersection numbers included):

3. E. Charter Way/E. Main Street

Signalize intersection. Stripe the northbound left turn lane to include one left/right turn lane. See Figure 38 for recommended signal phasing.

6. SR 99 SB Ramps/Farmington Road

Signalize intersection.

7. SR 99 NB Ramps/Farmington Road/SR 4

Signalize intersection. Add one westbound left turn lane. Add one eastbound right turn lane.

10. Stagecoach/E. Mariposa Road

Signalize intersection. Add one eastbound left turn lane and one westbound through lane.

11. Carpenter Road/E. Mariposa Road

Signalize intersection.

22. Newcastle Road/Arch Road

Signalize intersection. Add a north leg with one shared left/through/right turn lane.

23. Arch Road/E. Frontage Road

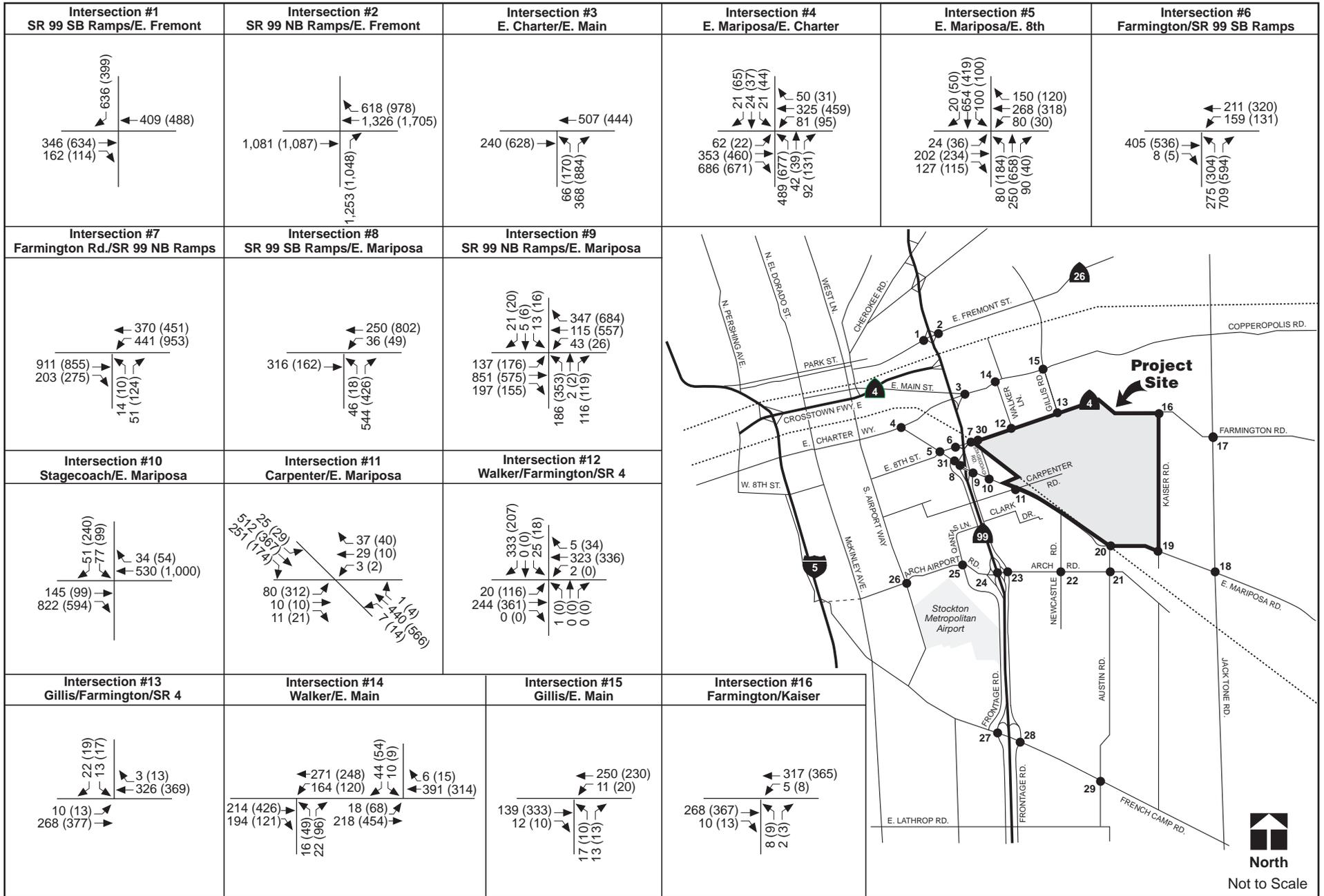
Add one eastbound through lane.

27. SR 99 SB Ramps/French Camp Road

Modify intersection traffic control to an All-Way STOP control.

30. Farmington Road/Stagecoach Road

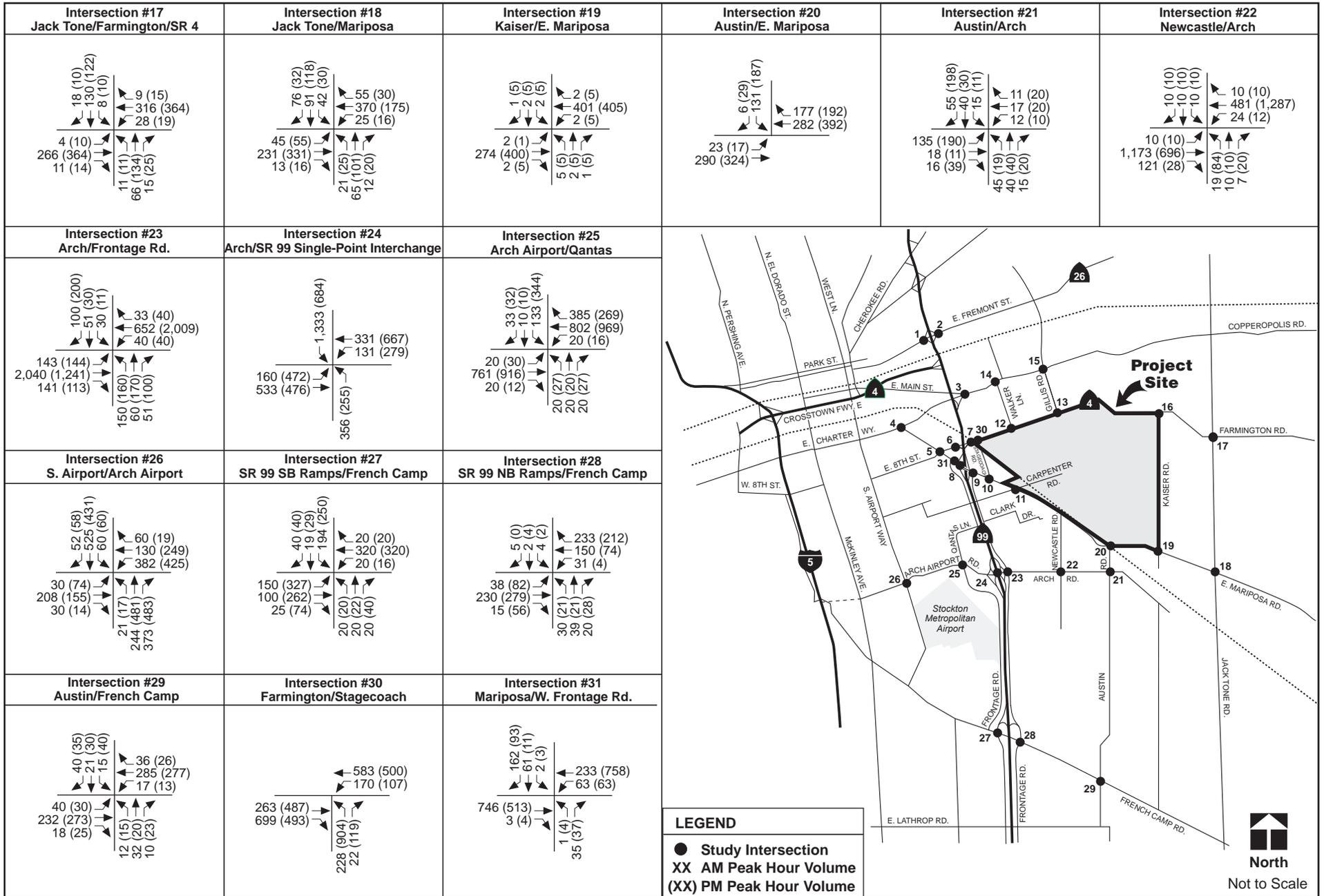
Add one northbound left turn lane.



City of Stockton
 Mariposa Lakes Traffic Study
EPAP No Project Turning Movement Volumes

LEGEND

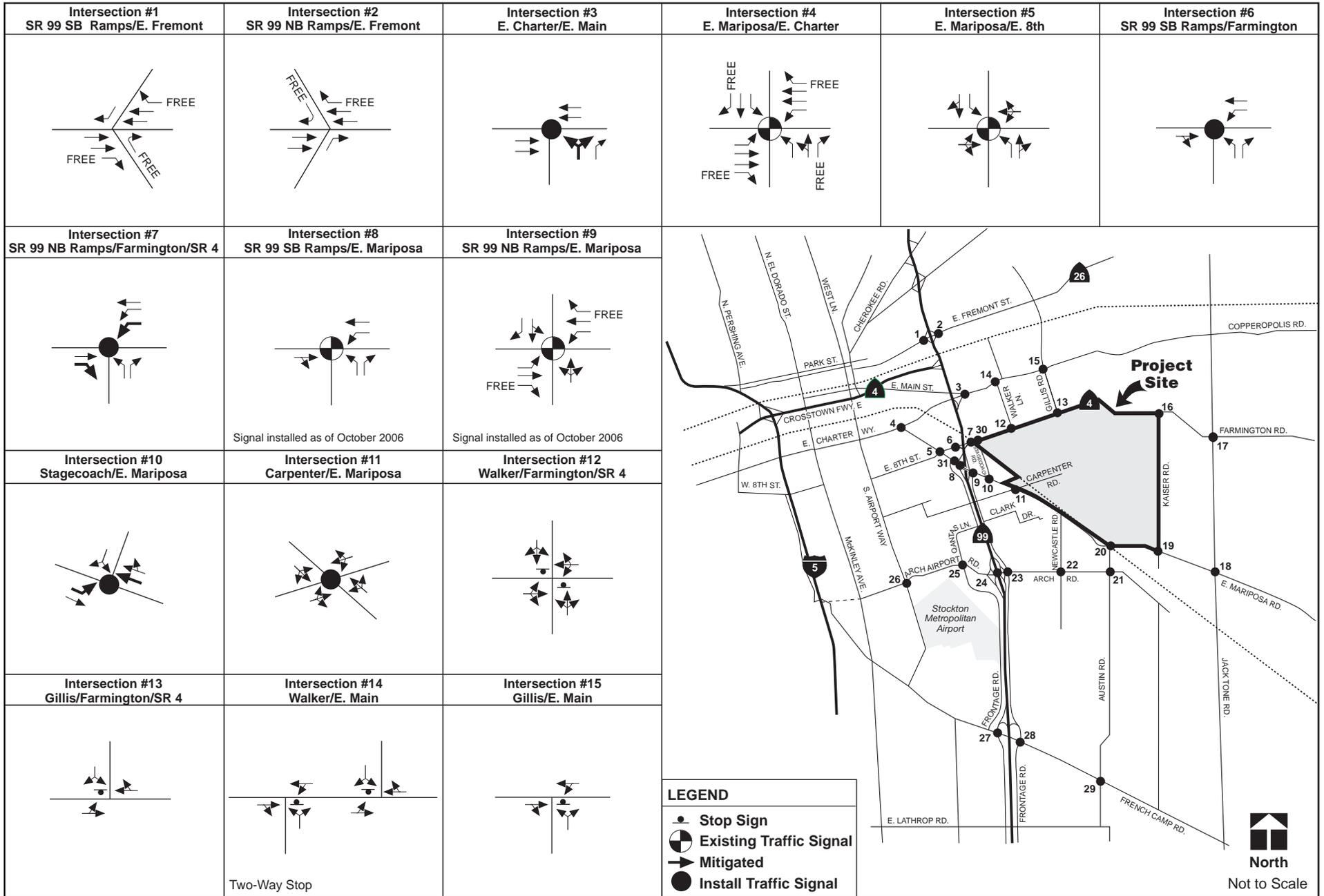
- Study Intersection
- XX AM Peak Hour Volume
- (XX) PM Peak Hour Volume



City of Stockton
Mariposa Lakes Traffic Study
EPAP No Project Turning Movement Volumes

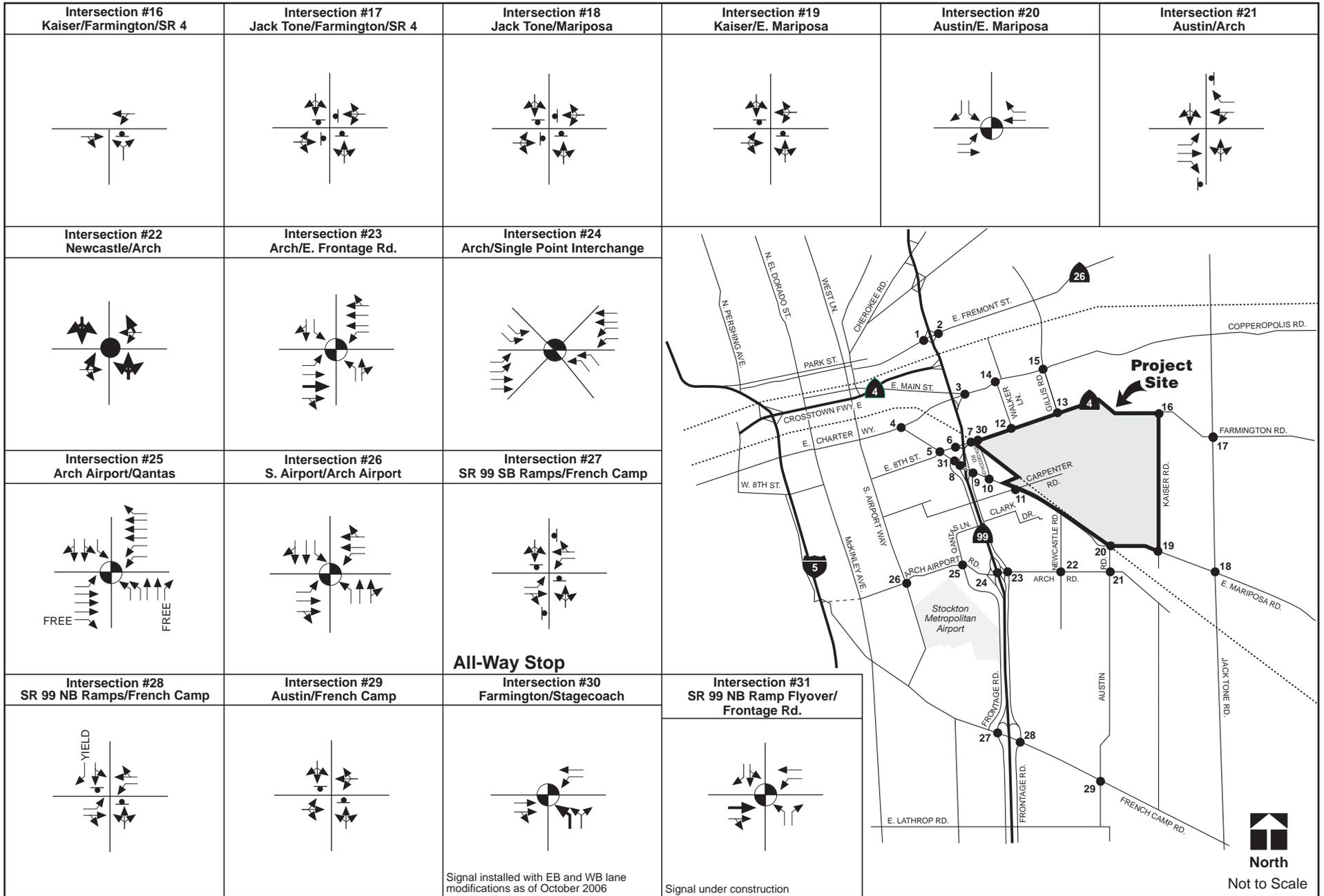
Figure 8
Cont.





City of Stockton
Mariposa Lakes Traffic Study
EPAP No Project Lane Geometry

Figure 9
TJKM



City of Stockton
 Mariposa Lakes Traffic Study
EPAP No Project Lane Geometry

Figure
9
 Cont.



TABLE II: INTERSECTION LEVELS OF SERVICE – EPAP NO PROJECT CONDITIONS

| Intersection | Existing Control | EPAP No Project Intersection Control (Mitigated) | A.M. Peak Hour | | A.M. Peak Hour (Mitigated) | | P.M. Peak Hour | | P.M. Peak Hour (Mitigated) | | |
|--------------|--|--|----------------------------|--------------|----------------------------|-------------|----------------|-------------|----------------------------|-------------|-------|
| | | | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | |
| 1 | SR 99 SB Ramps/E. Fremont Street | | See Table XVII for Results | | | | | | | | |
| 2 | SR 99 NB Ramps/E. Fremont Street | | See Table XVII for Results | | | | | | | | |
| 3 | E. Charter Way/E. Main Street | One-Way Stop | Signalized | 4.4 (13.2) | A (B) | 7.2 | A | >120 (>120) | F (F) | 14.5 | B |
| 4 | E. Charter Way/E. Mariposa Road | Signalized | Signalized | 9.6 | A | - | - | 12.9 | B | - | - |
| 5 | E. Mariposa Road/E. 8 th Street | Signalized | Signalized | 25.9 | C | - | - | 21.2 | C | - | - |
| 6 | SR 99SB Ramps/Farmington Road | One-Way Stop | Signalized | 114.9 (>120) | F (F) | 28.7 | C | >120 (>120) | F (F) | 27.4 | C |
| 7 | SR 99 NB Ramps/Farmington Road | One-Way Stop | Signalized | 81.7 (>120) | F (F) | 30.9 | C | >120 (>120) | F (F) | 51.2 | D |
| 8 | SR 99 SB Ramps/E. Mariposa Road | Signalized— ² | Signalized | 15.1 | B | - | - | 10.4 | B | - | - |
| 9 | SR 99 NB Ramps/E. Mariposa Road | Signalized— ² | Signalized | 23.4 | C | - | - | 24.6 | C | - | - |
| 10 | Stagecoach Road/E. Mariposa Road | One-Way Stop | Signalized | 25.9(>120) | D (F) | 13.6 | B | >120 (>120) | F (F) | 23.8 | C |
| 11 | E. Mariposa Road/Carpenter Road | Two-Way Stop | Signalized | 13.8 (>120) | B (F) | 9.9 | A | >120 (>120) | F (F) | 16.0 | B |
| 12 | Farmington Road/ Walker Lane | Two-Way Stop | Two-Way Stop | 7.9 (46.5) | A (E) | - | - | 5.0 (17.1) | A (C) | - | - |
| 13 | Gillis Road/ Farmington Road | One-Way Stop | One-Way Stop | 0.8 (12.4) | A (B) | - | - | 0.8 (14.3) | A (B) | - | - |
| 14a | Walker Lane/E. Main Street (South) | One-Way Stop | One-Way Stop | 2.9 (16.2) | A (C) | - | - | 4.6 (23.3) | A (C) | - | - |
| 14b | Walker Lane/E. Main Street (North) | One-Way Stop | One-Way Stop | 1.2 (12.3) | A (B) | - | - | 1.8 (12.5) | A (B) | - | - |
| 15 | Gillis Road/ E. Main Street | One-Way Stop | One-Way Stop | 1.0 (10.8) | A (B) | - | - | 0.8 (12.2) | A (B) | - | - |
| 16 | Kaiser Road/Farmington Road | One-Way Stop | One-Way Stop | 0.3 (13.3) | A (B) | - | - | 0.4 (15.0) | A (B) | - | - |
| 17 | Jack Tone Road/Farmington Road | All-Way Stop | All-Way Stop | 15.7 (20.2) | C (C) | - | - | 25.8 (38.1) | D (E) | - | - |
| 18 | Jack Tone Road/E. Mariposa Road | All-Way Stop | All-Way Stop | 29.0 (47.5) | D (E) | - | - | 15.2 (19.2) | C (C) | - | - |
| 19 | Kaiser Road/E. Mariposa Road | Two-Way Stop | Two-Way Stop | 0.4 (15.5) | A (C) | - | - | 0.7 (16.9) | A (C) | - | - |
| 20 | Austin Road/E. Mariposa Road | Signalized | Signalized | 8.6 | A | - | - | 7.3 | A | - | - |
| 21 | Austin Road/Arch Road | Two-Way Stop | Two-Way Stop | 7.2 (12.4) | A (B) | - | - | 6.5 (13.2) | A (B) | - | - |
| 22 | Newcastle Road/Arch Road | Two-Way Stop | Signalized | 7.3 (>120) | A (F) | 27.0 | C | >120 (>120) | F (F) | 29.1 | C |
| 23 | E. Frontage Road/Arch Road | Signalized | Signalized | 69.6 | E | 21.4 | C | 30.2 | C | 23.8 | C |
| 24 | Arch Road/SR 99 Single Point Interchange | Signalized | Signalized | 14.0 | B | - | - | 12.6 | B | - | - |
| 25 | Qantas Lane/Arch Airport Road | Signalized | Signalized | 20.1 | C | - | - | 17.2 | B | - | - |
| 26 | S. Airport Way/Arch Airport Road | Signalized | Signalized | 23.3 | C | - | - | 31.4 | C | - | - |
| 27 | SR 99 SB Ramps/French Camp Road | Two-Way Stop | All-Way Stop | 46.7 (>120) | E (F) | 15.9 (21.2) | C (C) | >120 (>120) | F (F) | 24.7 (29.3) | C (D) |
| 28 | SR 99 NB Ramps/French Camp Road | Two-Way Stop | Two-Way Stop | 3.0 (18.5) | A (C) | - | - | 2.4(15.6) | A (C) | - | - |
| 29 | Austin Road/French Camp Road | Two-Way Stop | Two-Way Stop | 3.7 (18.2) | A (C) | - | - | 4.2 (19.1) | A (C) | - | - |
| 30 | Stagecoach Road/Farmington Road | Signalized— ² | Signalized | 12.5 | B | 9.0 | A | 112.2 | F | 19.7 | B |
| 31 | E. Mariposa Road/W. Frontage Road | Signalized— ² | Signalized | 26.2 | C | - | - | 13.9 | B | - | - |

Notes: —¹ For the EPAP No Project scenario, due to network changes existing lane geometry cannot be used to analyze forecast volumes. In this scenario, the intersections 8, 9 and 31 are analyzed as newly designed freeway interchanges.
—²Traffic Signals under construction with geometric improvements as of October 2006. LOS and delay values assume signal in place.

EPAP PLUS PHASE I CONDITIONS

This scenario adds traffic from the proposed Phase I Project to the EPAP conditions.

Phase I Project Description

The proposed first phase of the Mariposa Lakes project consists of 4,697 dwelling units, 642,510 square feet of commercial and 170,755 square feet of industrial villages. See Figure A on the following page for the detailed Phase I Site Plan.

Modeling Network

Appendix B contains the modeling roadway network in the vicinity of the Project for EPAP plus Phase I Project conditions.

Trip Generation

Table III summarizes the proposed Phase I project trip generation. Trip generation for the proposed Phase I was estimated based on rates provided in the standard reference, *ITE Trip Generation*, 7th Edition. As noted in the earlier section on travel demand models, three separate travel demand models were used for the traffic analyses in this study: the EPAP model, the 1990 General Plan model and the 2035 General Plan model. In each case, the trip rates contained within the calibrated model were utilized for the Mariposa Lakes traffic study. The trip rates contained in Table III are shown for the convenience of the reader and to comply with the City of Stockton *Transportation Impact Analysis Guidelines*.

TABLE III: PHASE I PROJECT TRIP GENERATION

| Land Use | ITE Codes | Size | Units | Rate | Trips | A.M. Peak | | | | | P.M. Peak | | | | |
|------------------------|-----------|-------|-------|-------|---------------|-----------|--------|--------------|--------------|--------------|-----------|--------|--------------|--------------|--------------|
| | | | | | | Rate | In:Out | In | Out | Total | Rate | In:Out | In | Out | Total |
| Single Family | 210 | 1,578 | du | 9.57 | 15,101 | 0.75 | 25:75 | 296 | 888 | 1,184 | 1.01 | 63:37 | 1,004 | 590 | 1,594 |
| Multi-Family | 220 | 2,354 | du | 6.72 | 15,819 | 0.51 | 20:80 | 240 | 961 | 1,201 | 0.62 | 65:35 | 948 | 511 | 1,459 |
| Condo | 230 | 765 | du | 5.86 | 4,483 | 0.44 | 17:83 | 57 | 280 | 337 | 0.52 | 67:33 | 267 | 131 | 398 |
| Heavy Industrial | 120 | 171 | ksf | 1.5 | 257 | 0.51 | 88:12 | 77 | 10 | 87 | 0.68 | 12:88 | 14 | 102 | 116 |
| General Commercial | 820 | 643 | ksf | 42.94 | 27,610 | 1.03 | 61:39 | 404 | 258 | 662 | 3.75 | 48:52 | 1157 | 1254 | 2411 |
| Elementary School | 520 | 420 | ksf | 14.49 | 6,086 | 4.69 | 54:46 | 1,064 | 906 | 1,970 | 3.13 | 43:57 | 565 | 750 | 1,315 |
| ITE Total Trips | | | | | 69,356 | | | 2,138 | 3,303 | 5,441 | | | 3,955 | 3,338 | 7,293 |

Notes: du= dwelling units
ksf= thousand square feet

Trip Distribution

Trip distribution for the proposed Phase I Project is based on the City of Stockton's EPAP model. Figure 10 shows the Phase I project trip distribution. Figure 11 shows the Project trip distribution in this scenario. Although the distribution shown is fully representative of conditions depicted in this scenario, the actual distribution details vary somewhat between a.m. and p.m. time periods and between inbound and outbound trips. The details of the final assignment of the EPAP plus Phase I project link trips (and all other study scenarios) can be seen in Appendix C of this report.

Internal Trips

In all large mixed-use projects, many of the vehicular trips are made within the project area. These are described as internal trips. The community of Mariposa Lakes is designed to maximize the number of internal trips, and correspondingly reduce the number of external trips (trips made from within the project area to points outside the project area). Design features of the project developed to maximize internal trips include alternative pathways for pedestrians and bicycles, alternative pathway connectivity, and the provision of multi-modal transportation opportunities such as rail access to both Emeryville and Sacramento. By design this community will encourage residents to use the internal community services with less focus on external trips.

In addition, the Mariposa Lakes project proposes extensive housing, employment, shopping, recreation and school uses. The project will ultimately house a population of approximately 34,000 and produce approximately 14,000 jobs. Most school trips will be internal to the project, and with one million square feet of retail uses -- equivalent in scale to a large regional mall -- many shopping trips will also be internal. The project will include a large variety of housing types and costs, resulting in various scales of income levels among projects residents. This will enable many of the Mariposa Lakes residents to work locally within the retail, business and industrial components of the project.

The rate of internal capture was determined by evaluating base model conditions, experience in other areas, trips lengths in San Joaquin County and statewide, ITE data, and trip purposes in Mariposa Lakes.

Base Model Conditions TJKM utilized the City of Stockton's 2035 General Plan model for the analysis of some of the scenarios contained in the Mariposa Lakes traffic study. That model was recently calibrated and, when loaded with Mariposa Lakes land uses, produced an approximate internal percentage of 35 percent. While this number may be in the range that could be considered reasonable, it was not felt to be sufficiently conservative. Higher internal percentages reduce the amount of travel outside the development while lower internal percentages increase the amount of travel outside the development and increase project responsibilities for mitigation of traffic impacts.

Experience In Other Areas A study conducted by the National Cooperative Highway Research Program Report (NCHRP) 323, entitled "*Travel Characteristics at Large-Scale Suburban Activity Centers*," indicated that work trips made within major suburban activity centers tended to be approximately 24 percent of total trips. The employed residents that work within the major suburban activity center range from 21 to 37 percent.

The City of Pleasanton conducted a commute survey in August 2003. The result showed that approximately 29 percent of the residents both live and work in the city. In Pleasanton, a significant amount of local employment is for professional and service employees, which is not expected to be the case in all of the Mariposa Lakes employment centers. However, in the selected scenario for Mariposa Lakes, less than 10 percent of the peak hour work trips come from Mariposa Lakes residents.

Trip Lengths in San Joaquin County and Statewide Length of commute is a relevant factor for most home buyers when considering whether to purchase a home in a given community. Based on a statewide travel survey conducted in 2000 and 2001, the mean length of trips in the state is 22 minutes for all trips and 27 minutes for all work trips. In San Joaquin County, the mean trip length for all trips is 18 minutes and for work trips is 23 minutes. As shown in Table A, 23 percent of all work trips in San Joaquin County are 5 minutes or less and another 21 percent are between 6 and 10 minutes. In Mariposa Lakes, most residents will be located between five and ten minutes from the Mariposa Lakes employment centers. It is expected that between 23 and 44 percent of the Mariposa Lakes residents' work trips will fall within a five to ten minute commute distance, and that many of these trips will be within the confines of the Mariposa Lakes project.

TABLE A: TRIP LENGTH FREQUENCY IN SAN JOAQUIN COUNTY AND STATEWIDE

| Interval (In Minutes) | San Joaquin County | | | | State of California | | | |
|-----------------------------|--------------------|--------|----------------|--------|---------------------|--------|----------------|--------|
| | Total Trips | | Home-Base-Work | | Total Trips | | Home-Base-Work | |
| | Trips | % | Trips | % | Trips | % | Trips | % |
| 0-5 | 209 | 26.2 | 15,795 | 23.4 | 2,515 | 13.2 | 37 | 17.1 |
| 6-10 | 184 | 23.1 | 14,255 | 21.1 | 2,686 | 14.1 | 44 | 20.4 |
| 11-15 | 149 | 18.6 | 11,139 | 16.5 | 2,967 | 15.6 | 37 | 17.2 |
| 16-20 | 78 | 9.8 | 6,058 | 9.0 | 2,012 | 10.6 | 27 | 12.6 |
| 21-25 | 32 | 4.1 | 3,414 | 5.0 | 1,153 | 6.0 | 11 | 5.2 |
| 26-30 | 79 | 9.9 | 6,440 | 9.5 | 2,973 | 15.6 | 36 | 16.9 |
| 31-35 | 11 | 1.4 | 1,681 | 2.5 | 728 | 3.8 | 4 | 1.8 |
| 36-40 | 12 | 1.5 | 1,390 | 2.1 | 580 | 3.0 | 2 | 1.2 |
| 41-45 | 12 | 1.5 | 1,896 | 2.8 | 916 | 4.8 | 6 | 2.7 |
| 46-50 | 6 | 0.7 | 730 | 1.1 | 331 | 1.7 | 2 | 0.9 |
| 51-55 | 3 | 0.3 | 441 | 0.7 | 210 | 1.1 | 1 | 0.6 |
| 56-60 | 6 | 0.7 | 1,515 | 2.2 | 772 | 4.1 | 1 | 0.6 |
| 61-65 | 1 | 0.1 | 225 | 0.3 | 120 | 0.6 | 1 | 0.2 |
| 66-70 | 1 | 0.1 | 280 | 0.4 | 120 | 0.6 | 0 | 0.1 |
| 71-75 | 3 | 0.3 | 423 | 0.6 | 214 | 1.1 | 2 | 0.9 |
| 76-80 | 0 | 0.0 | 185 | 0.3 | 64 | 0.3 | 0 | 0.0 |
| 81-85 | 1 | 0.2 | 133 | 0.2 | 68 | 0.4 | 0 | 0.2 |
| 86+ | 11 | 1.3 | 1,616 | 2.4 | 627 | 3.3 | 3 | 1.4 |
| Total | 798 | 100.0% | 67,617 | 100.0% | 19,055 | 100.0% | 215 | 100.0% |
| Mean Time | 18 Min | | 23 Min | | 22 Min | | 27 Min | |
| Median Time | 15 Min | | 16 Min | | 15 Min | | 20 Min | |

Source: California Department of Transportation, 2000-2001 California Statewide Travel Survey, Weekday Travel Report

ITE Data The Institute of Transportation Engineers publication *Trip Generation Handbook*, March 2001, contains procedures to estimate internal capture rates of multi-use developments. Appendix C of that document presents a summary of six multi-use development case studies conducted in the development of the methodology. These uses ranged in size from 26 to 253 acres with office, retail and residential categories. The office component ranged in size from 100,000 to 300,000 square feet, the retail ranged in size from 100,000 to 1.1 million square feet and the residential components ranged from 136 units to 1,100 units. One complex had no homes but had 256 hotel rooms. Using the procedures contained in the Handbook, TJKM calculated a p.m. peak hour capture rate of 20 percent for Mariposa Lakes. This is depicted in Table B. Given that the procedures are intended to work for smaller, more compact, developments it is reasonable to assume that 20 percent would be

at the low end of the range for Mariposa Lakes due to the significant increase in opportunities to live, work and shop in a development of this size.

TABLE B: ITE- BASED INTERNAL TRIP CALCULATION (PM PEAK)

| <i>Land Use</i> | <i>Trips</i> | | | <i>Internal Trips</i> | | | <i>Internal Capture Rate</i> | | |
|-----------------|----------------|-----------------|---------------|-----------------------|-----------------|--------------|------------------------------|-----------------|--------------|
| | <i>Inbound</i> | <i>Outbound</i> | <i>Total</i> | <i>Inbound</i> | <i>Outbound</i> | <i>Total</i> | <i>Inbound</i> | <i>Outbound</i> | <i>Total</i> |
| Residential | 5,303 | 2,968 | 8,271 | 1,052 | 246 | 1,298 | 20% | 8% | 16% |
| Office | 95 | 462 | 557 | 29 | 64 | 93 | 31% | 14% | 17% |
| Commercial | 2,733 | 8,690 | 11,423 | 301 | 1,072 | 1,373 | 11% | 12% | 12% |
| School | 764 | 920 | 1,684 | 688 | 828 | 1,516 | 90% | 90% | 90% |
| Total | 8,895 | 13,040 | 21,935 | 2,070 | 2,210 | 4,280 | 23% | 17% | 20% |

Source: ITE Trip Generation Handbook, 2nd Edition

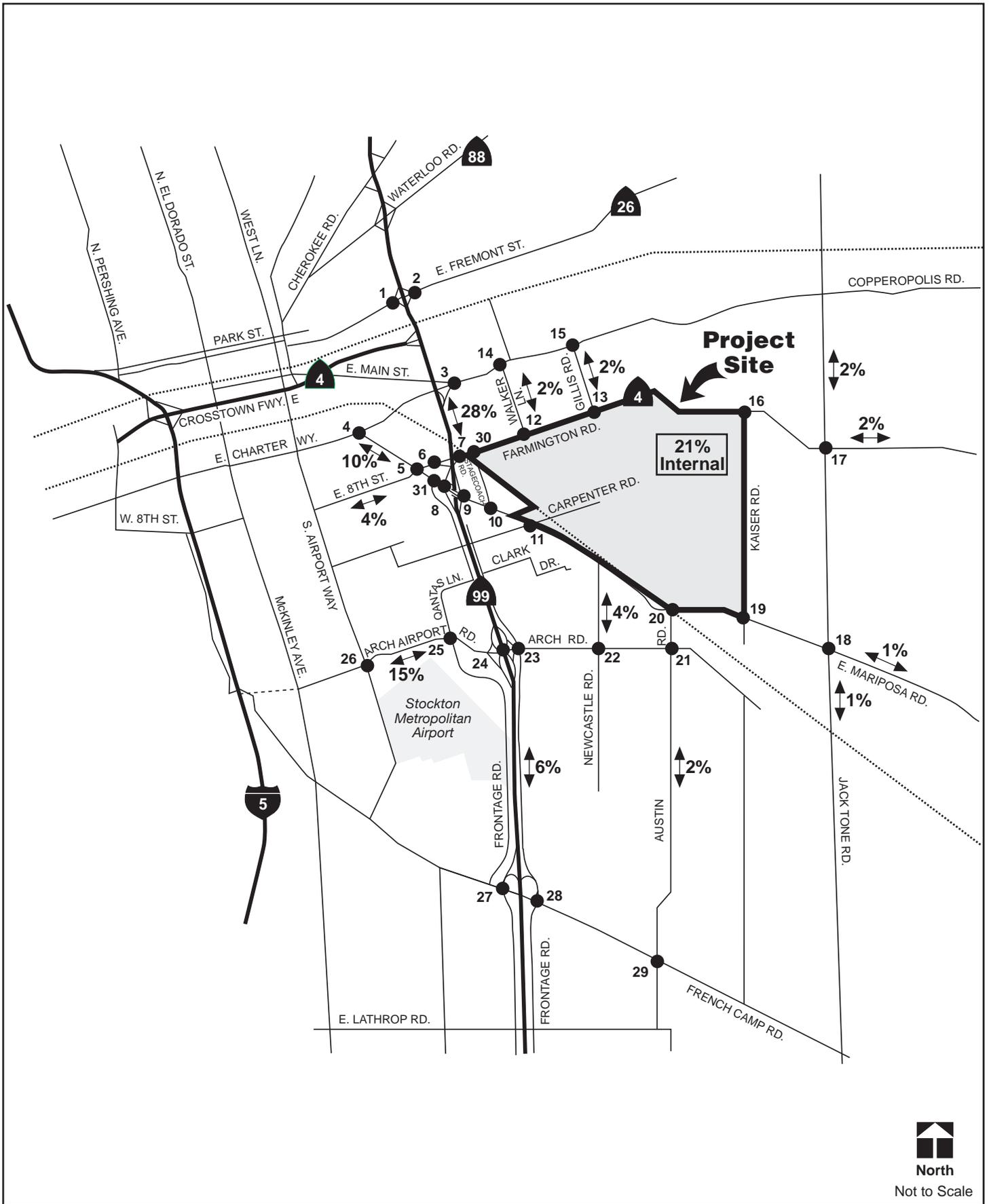
Trip Purposes of Selected Internal Capture As noted above, the City of Stockton’s model produced about 35 percent internal capture rates for the Mariposa Lakes project. The rate of trip internalization was reduced by increasing the average length of all trips generated within the Mariposa Lakes project. This resulted in less internalization of trips and more trips assigned to the roadway system outside of Mariposa Lakes. As shown in Table C, the selected internal capture rate for the example shown was 17 percent in the a.m. and 22 percent in the p.m. Each study scenario in the Mariposa Lakes traffic study is slightly different, but most internal capture rates are about 20 percent. Table C shows the trip purpose components of the total trips, again largely based on the Stockton model but with adjustments to produce more external trips than the model produced originally. In the table, the categories External-Internal and Internal-External refer to trips that travel to and from Mariposa Lakes (internal) from outside the greater Stockton area (external).

The conclusion is that the proposed internal capture rates of about 20 percent fall well within conservatively acceptable ranges, and we would expect the rate to exceed 20 percent at full buildout for this community, approaching the 35 percent internal capture rate produced by the City of Stockton’s model.

TABLE C: TRIP PURPOSES IN MARIPOSA LAKES PROJECT

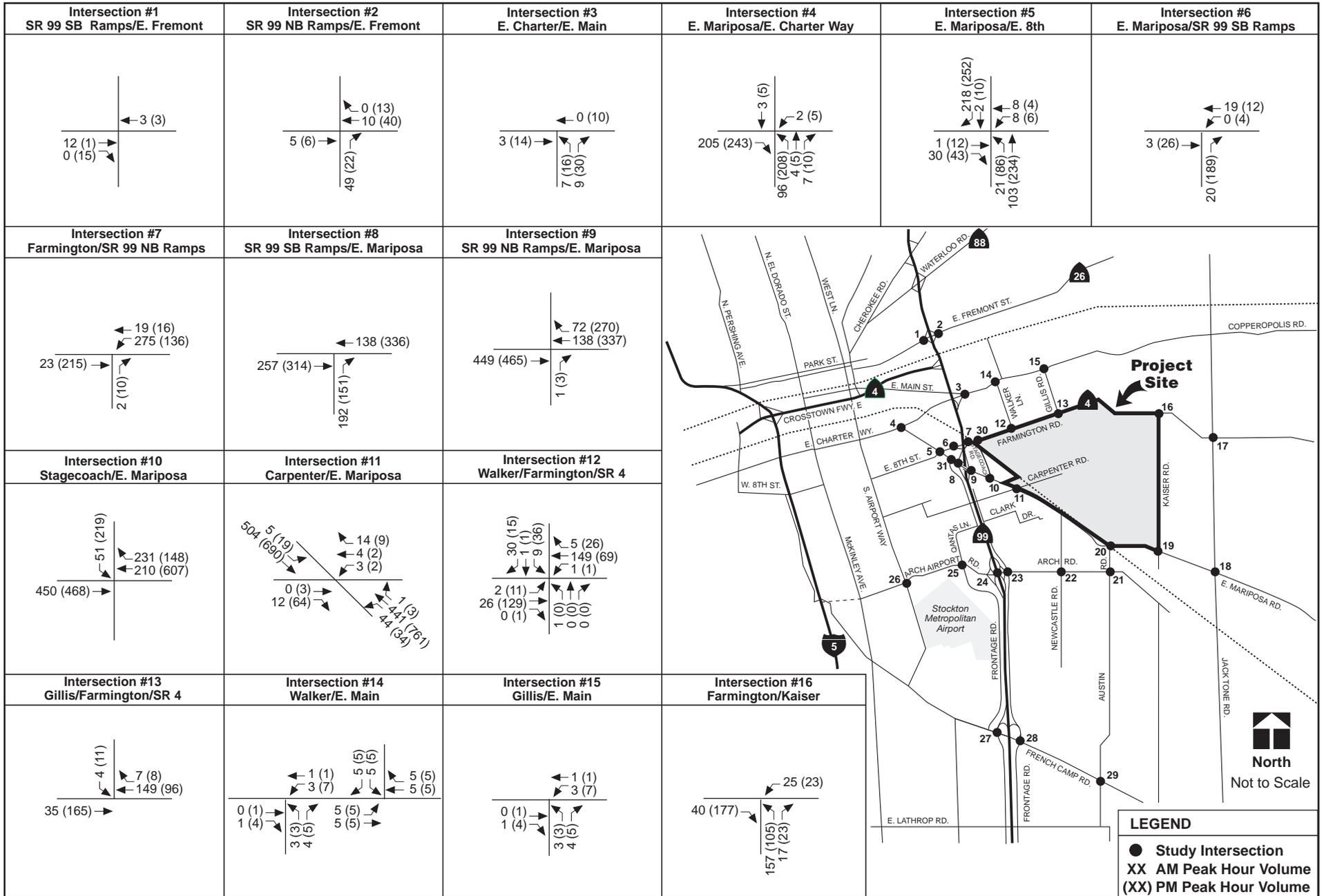
| | <i>A.M. IN</i> | <i>A.M. OUT</i> | <i>A.M. Total</i> | <i>P.M. IN</i> | <i>P.M. OUT</i> | <i>P.M. TOTAL</i> |
|---------------------------------------|--------------------|---------------------|-----------------------|--------------------|---------------------|-----------------------|
| <i>Trip Purpose: Home Based Work</i> | | | | | | |
| Internal | 229 | 229 | 458 | 162 | 162 | 324 |
| Total | 2160 | 2807 | 4966 | 1962 | 1566 | 3527 |
| <i>Trip Purpose: Home Based Other</i> | | | | | | |
| Internal | 656 | 656 | 1312 | 1283 | 1283 | 2565 |
| Total | 1282 | 1858 | 3139 | 3374 | 2775 | 6149 |
| <i>Trip Purpose: Non-Home Based</i> | | | | | | |
| Internal | 162 | 162 | 324 | 543 | 543 | 1086 |
| Total | 823 | 863 | 1687 | 2619 | 2895 | 5515 |
| <i>External-Internal</i> | | | | | | |
| Total | 593 | 478 | 1071 | 623 | 565 | 1188 |
| <i>Internal-External</i> | | | | | | |
| Total | 647 | 531 | 1178 | 688 | 616 | 1304 |
| <i>All Trips</i> | | | | | | |
| Internal | 1046 | 1046 | 2093 | 1988 | 1988 | 3976 |
| Total | 5505 | 6536 | 12042 | 9267 | 8416 | 17683 |
| % Internal | 19.01% | 16.01% | 17.38% | 21.45% | 23.62% | 22.48% |

Source: TJKM

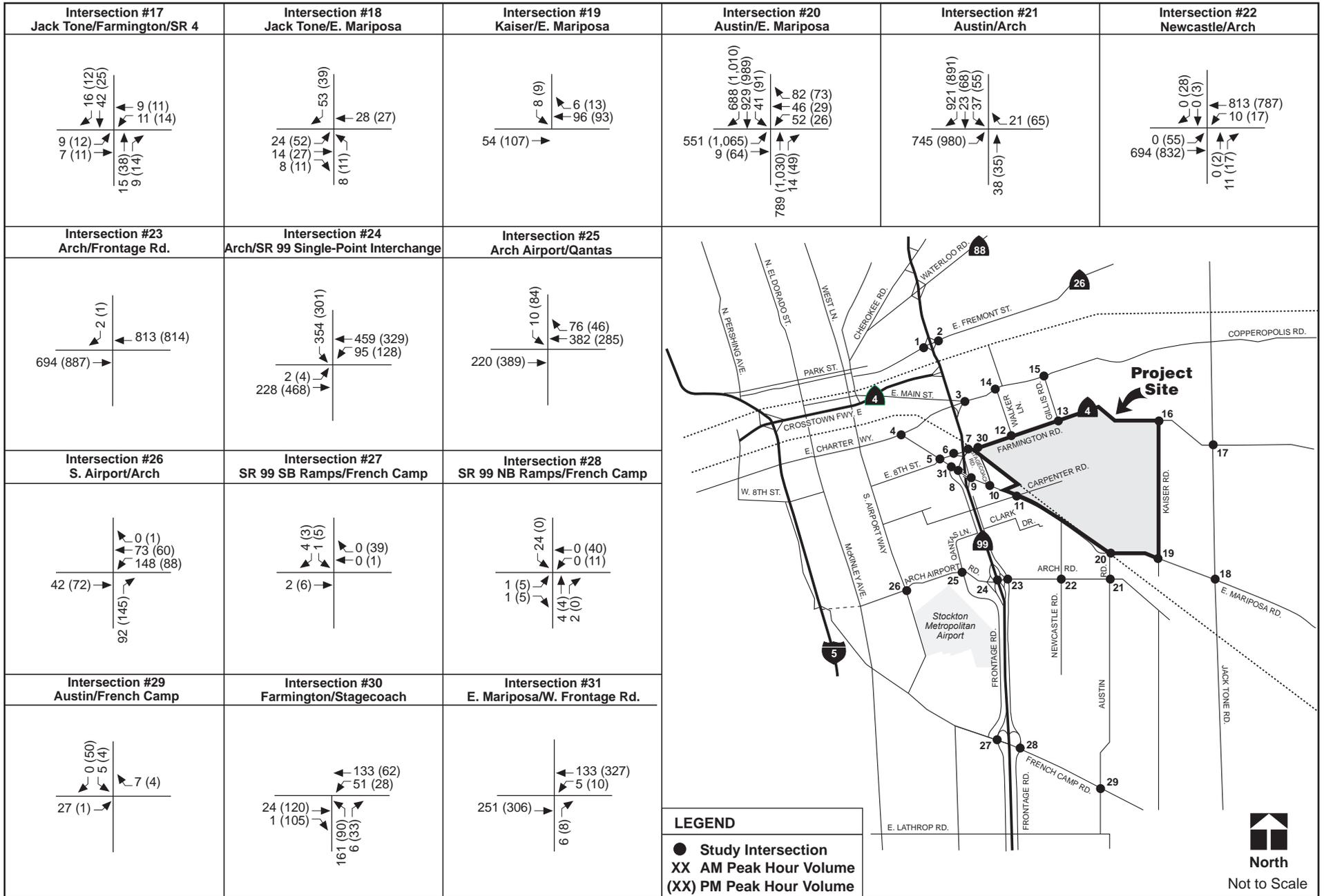


North

Not to Scale



City of Stockton
 Mariposa Lakes Traffic Study
Phase I Project Trip Assignment (EPAP Plus Phase I Project Conditions)



City of Stockton
 Mariposa Lakes Traffic Study
Phase I Project Trip Assignment (EPAP Plus Phase I Project)

Figure 11
 Cont.



Level of Service Analysis

Figure 12 shows the EPAP plus Phase I project turning movement volumes. Figure 13 shows the EPAP plus Phase I Project lane geometry. Appendix C contains the a.m. and p.m. peak hour link volume model plots for this scenario. Table IV summarizes the results of the intersection level of service analysis in this scenario.

The closely spaced Intersections 7 and 10 will both be signalized under the EPAP plus Phase I project scenario. The traffic signals at the two intersections can be timed to mitigate any expected traffic queue spill back problems.

Intersections with proposed mitigation measures in this scenario are described below (Intersection numbers included):

3. E. Charter Way/E. Main Street

Signalize intersection. Stripe the northbound left turn lane to include one left/right turn lane. See Figure 38 for recommended signal phasing.

5. E. Mariposa Way/E. 8th Street

Add one southbound through lane and one northbound through lane. Add one eastbound right turn lane and one westbound right turn lane. Add one northbound left turn lane.

6. SR 99 SB Ramps/Farmington Road

Signalize intersection.

7. SR 99 NB Ramps/Farmington Road/SR 4

Signalize intersection. Add one westbound left turn. Add one eastbound right turn lane and one eastbound through lane.

10. Stagecoach/E. Mariposa Road

Signalize intersection. Add one eastbound left turn lane, one westbound through lane and one westbound right turn lane. Add one southbound right turn lane and stripe existing southbound lane to a left turn lane.

11. Carpenter Road/E. Mariposa Road

Signalize intersection. Add one eastbound, one westbound, one southbound and one northbound left turn lane. Add one southbound right turn lane.

12. Walker Lane/Farmington Road/SR 4

Signalize intersection.

14a. Walker Lane/E. Main Street (South Leg)

Add one eastbound right turn lane. Add one northbound right-turn lane.

20. Austin Road/E. Mariposa Road

Grade separated intersection. Signalize intersection. Construct the north leg of the intersection.
Eastbound: construct two left turn lanes, one through lane and one shared through right turn lane.
Westbound: construct one left turn lane, one through lane and one shared through right turn lane.
Northbound: construct one left turn lane, one through lane and one shared through right turn lane.
Southbound: construct one left turn lane, two through lanes and one right turn lane.

21. Austin Road/Arch Road

Signalize intersection. Add one southbound right turn lane, one westbound left turn lane, one eastbound left turn lane, and one eastbound shared through right turn lane.

22. Newcastle Road/Arch Road

Signalize intersection. Add a north leg with one shared left/through/right turn lane. Add one eastbound left turn lane and one westbound left turn lane. Add one eastbound through lane and one westbound through lane.

23. Arch Road/E. Frontage Road

Add one eastbound through lane.

26. S. Airport Road/Arch Airport Road

Add one westbound left turn lane and one northbound right turn lane.

27. SR 99 SB Ramps/French Camp Road

Signalize intersection. Add one southbound left turn lane.

30. Farmington Road/Stagecoach Road

Add one northbound left turn lane.

31. Mariposa Road/W. Frontage Road

Add one westbound through lane and one eastbound through lane.

TABLE IV: INTERSECTION LEVELS OF SERVICE – EPAP PLUS PHASE I CONDITIONS

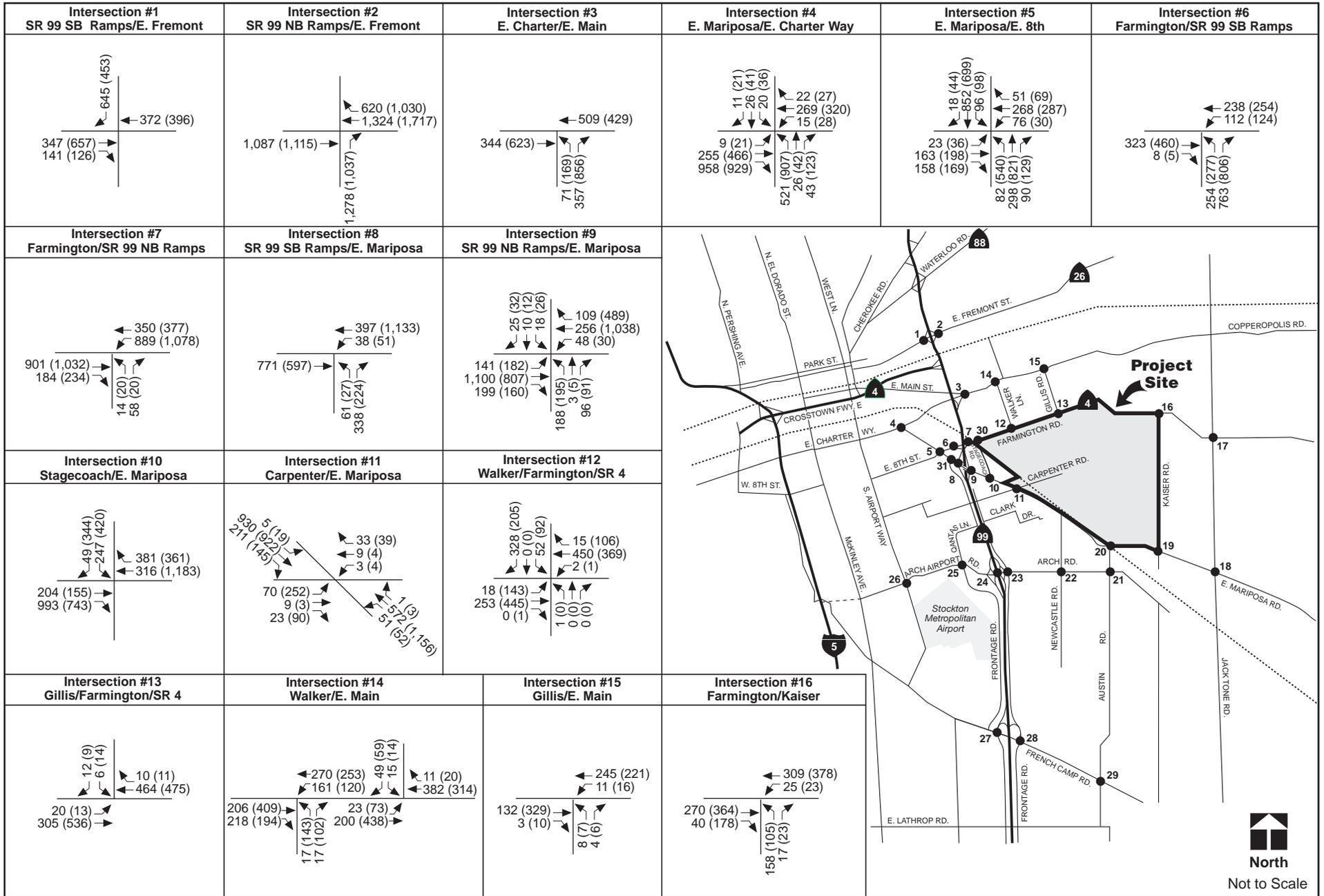
| Intersection | Existing Control | EPAP + Ph 1 Intersection Control (Mitigated) | A.M. Peak Hour | | A.M. Peak Hour (Mitigated) | | P.M. Peak Hour | | P.M. Peak Hour (Mitigated) | | |
|--|----------------------------|--|----------------|-------|----------------------------|-------|----------------|-------|----------------------------|-------|--|
| | | | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | |
| 1 SR 99 SB Ramps/E. Fremont Street | See Table XVII for Results | | | | | | | | | | |
| 2 SR 99 NB Ramps/E. Fremont Street | See Table XVII for Results | | | | | | | | | | |
| 3 E. Charter Way/E. Main Street | One-Way Stop | Signalized | 4.7 (14.2) | A (B) | 6.8 | A | 97.8 (>120) | F (F) | 13 | B | |
| 4 E. Charter Way/E. Mariposa Road | Signalized | Signalized | 7 | A | - | - | 11.3 | B | - | - | |
| 5 E. Mariposa Road/E. 8 th Street | Signalized | Signalized | 38.3 | D | 17 | B | >120 | F | 21.5 | C | |
| 6 SR 99SB Ramps/Farmington Road | One-Way Stop | Signalized | 68.9 (114.1) | F (F) | 21 | C | >120 (>120) | F (F) | 31.9 | C | |
| 7 SR 99 NB Ramps/Farmington Road | One-Way Stop | Signalized | >120 (>120) | F (F) | 18.6 | B | >120 (>120) | F (F) | 24.1 | C | |
| 8 SR 99 SB Ramps/E. Mariposa Road | Signalized— ¹ | Signalized | 23 | C | - | - | 38.4 | D | - | - | |
| 9 SR 99 NB Ramps/E. Mariposa Road | Signalized— ¹ | Signalized | 41.1 | D | - | - | 37.5 | D | - | - | |
| 10 Stagecoach Road/E. Mariposa Road | One-Way Stop | Signalized | >120 (>120) | F (F) | 17.6 | B | >120 (>120) | F (F) | 23 | C | |
| 11 E. Mariposa Road/Carpenter Road | Two-Way Stop | Signalized | 47.0 (>120) | E (F) | 16.7 | B | >120 (>120) | F (F) | 42.6 | D | |
| 12 Farmington Road/ Walker Lane | Two-Way Stop | Signalized | 14.7 (68.2) | B (F) | 21.5 | C | 34.3 (>120) | D (F) | 19.3 | B | |
| 13 Gillis Road/ Farmington Road | One-Way Stop | One-Way Stop | 0.6 (13.8) | A (B) | - | - | 0.6 (18.9) | A (C) | - | - | |
| 14a Walker Lane/E. Main Street (South Leg) | One-Way Stop | One-Way Stop | 2.8 (17.1) | A (C) | 2.8 (14.7) | A (B) | 19.8 (92.1) | C (F) | 7.8 (32.7) | A (D) | |
| 14b Walker Lane/E. Main Street (North Leg) | One-Way Stop | One-Way Stop | 1.5 (12.6) | A (B) | - | - | 2.1 (13.3) | A (B) | - | - | |
| 15 Gillis Road/ E. Main Street | One-Way Stop | One-Way Stop | 0.6 (10.7) | A (B) | - | - | 0.5 (12.2) | A (B) | - | - | |
| 16 Kaiser Road/Farmington Road | One-Way Stop | One-Way Stop | 5.1 (22.4) | A (C) | - | - | 3.5 (27.2) | A (D) | - | - | |
| 17 Jack Tone Road/Farmington Road | All-Way Stop | All-Way Stop | 13.2 (14.9) | B (B) | - | - | 19.1 (21.9) | C (C) | - | - | |
| 18 Jack Tone Road/E. Mariposa Road | All-Way Stop | All-Way Stop | 11.5 (12.6) | B (B) | - | - | 16.1 (21.0) | C (C) | - | - | |

(CONTINUED ON NEXT PAGE)

TABLE IV(CONT.): INTERSECTION LEVELS OF SERVICE – EPAP PLUS PHASE I CONDITIONS

| | Intersection | Existing Control | EPAP + Ph 1 Intersection Control (Mitigated) | A.M. Peak Hour | | A.M. Peak Hour (Mitigated) | | P.M. Peak Hour | | P.M. Peak Hour (Mitigated) | |
|----|--|---------------------------|--|----------------|-------|----------------------------|-----|----------------|-------|----------------------------|-----|
| | | | | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS |
| 19 | Kaiser Road/E. Mariposa Road | Two-Way Stop | Two-Way Stop | 2.9 (21.2) | A (C) | - | - | 3.1 (26.5) | A (D) | - | - |
| 20 | Austin Road/E. Mariposa Road | Signalized | Signalized | >120 | F | 21.1 | C | >120 | F | 52.6 | D |
| 21 | Austin Road/Arch Road | Two-Way Stop | Signalized | >120 (>120) | F (F) | 29.1 | C | >120 (>120) | F (F) | 33 | C |
| 22 | Newcastle Road/Arch Road | One-Way Stop | Signalized | >120 (>120) | F (F) | 13.7 | B | >120 (>120) | F (F) | 16.5 | B |
| 23 | E. Frontage Road/Arch Road | Signalized | Signalized | 63.6 | E | 21.6 | C | 92.9 | F | 31.4 | C |
| 24 | Arch Road/SR 99 Single Point Interchange | Signalized | Signalized | 50.6 | D | - | - | 34.6 | C | - | - |
| 25 | Qantas Lane/Arch Airport Road | Signalized | Signalized | 15.9 | B | - | - | 17.7 | B | - | - |
| 26 | S. Airport Way/Arch Airport Road | Signalized | Signalized | 84.4 | F | 14.6 | B | 69 | E | 13.9 | B |
| 27 | SR 99 SB Ramps/French Camp Road | Two-Way Stop | Signalized | 44.3 (>120) | E (F) | 9 | A | >120 (>120) | F (F) | 14.4 | B |
| 28 | SR 99 NB Ramps/French Camp Road | Two-Way Stop | Two-Way Stop | 3.2 (18.2) | A (C) | - | - | 4.0 (19.5) | A (C) | - | - |
| 29 | Austin Road/French Camp Road | Two-Way Stop | Two-Way Stop | 3.0 (16.9) | A (C) | - | - | 4.0 (16.8) | A (C) | - | - |
| 30 | Stagecoach Road/Farmington Road | Signalized— ¹ | Signalized | 48.3 | D | 18 | B | >120 | F | 36.4 | D |
| 31 | Mariposa Road/W. Frontage Road | Signalized— ¹² | Signalized | >120 | F | 43 | D | >120 | F | 16 | B |

Notes: —¹Traffic Signals under construction with geometric improvements as of October 2006

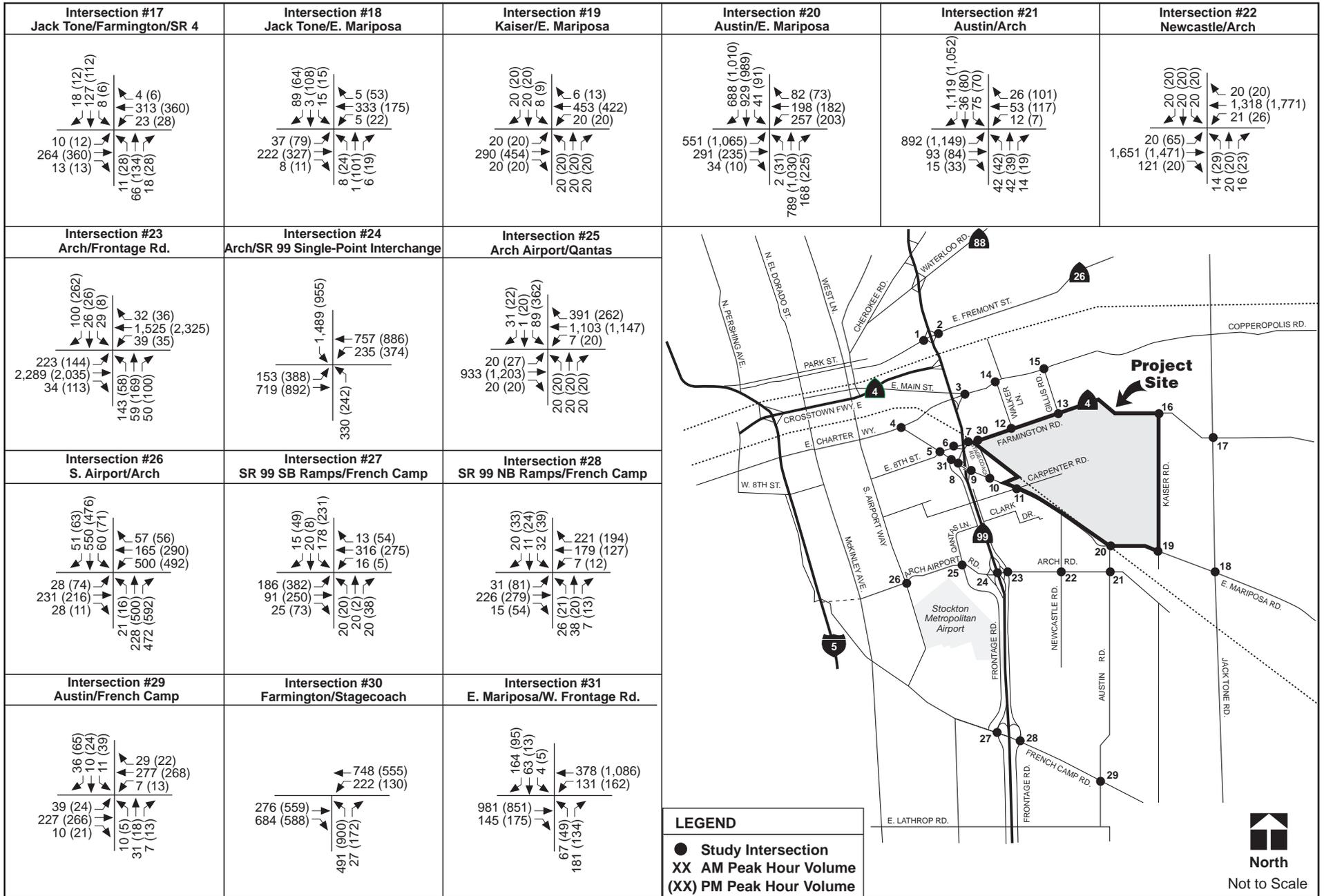


City of Stockton
Mariposa Lakes Traffic Study
EPAP + Phase I Project Turning Movement Volumes

LEGEND

- Study Intersection
- XX AM Peak Hour Volume
- (XX) PM Peak Hour Volume

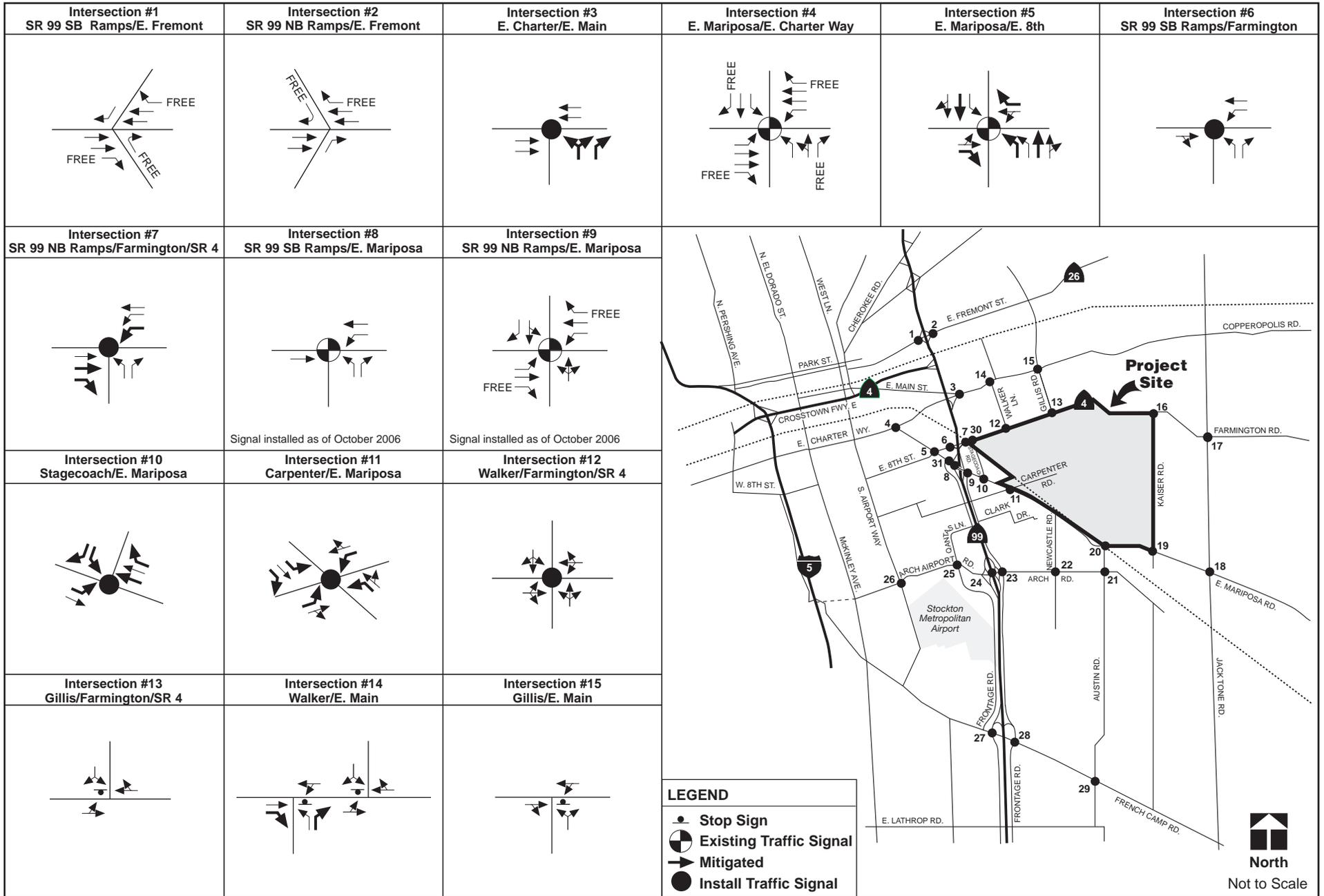
Figure **12** TJKM



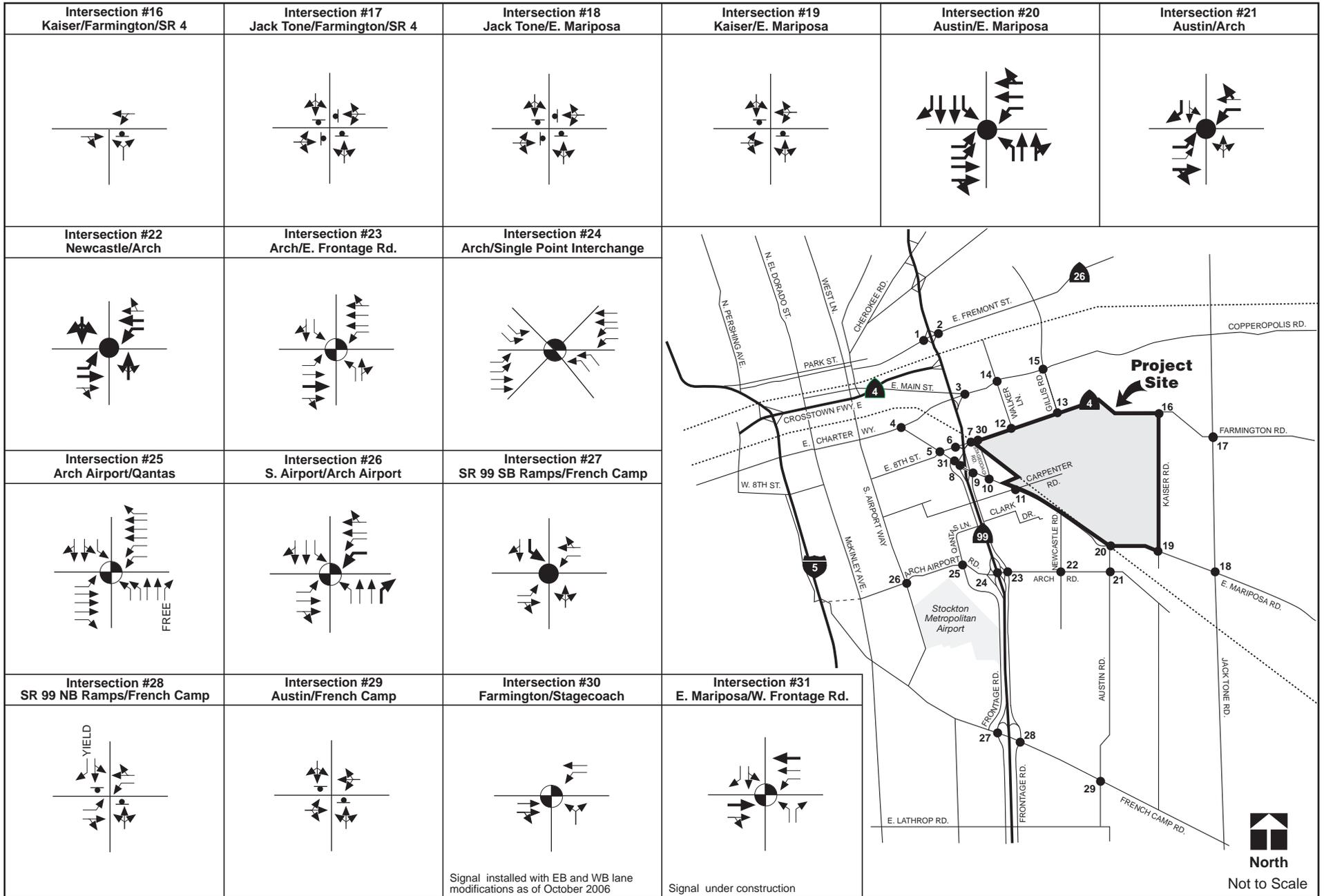
City of Stockton
Mariposa Lakes Traffic Study
EPAP + Phase I Project Turning Movement Volumes

Figure
12
Cont.





City of Stockton
 Mariposa Lakes Traffic Study
EPAP Plus Phase I Project Lane Geometry



City of Stockton
Mariposa Lakes Traffic Study
EPAP Plus Phase I Project Lane Geometry

- LEGEND**
-  Stop Sign
 -  Existing Traffic Signal
 -  Mitigated
 -  Install Traffic Signal

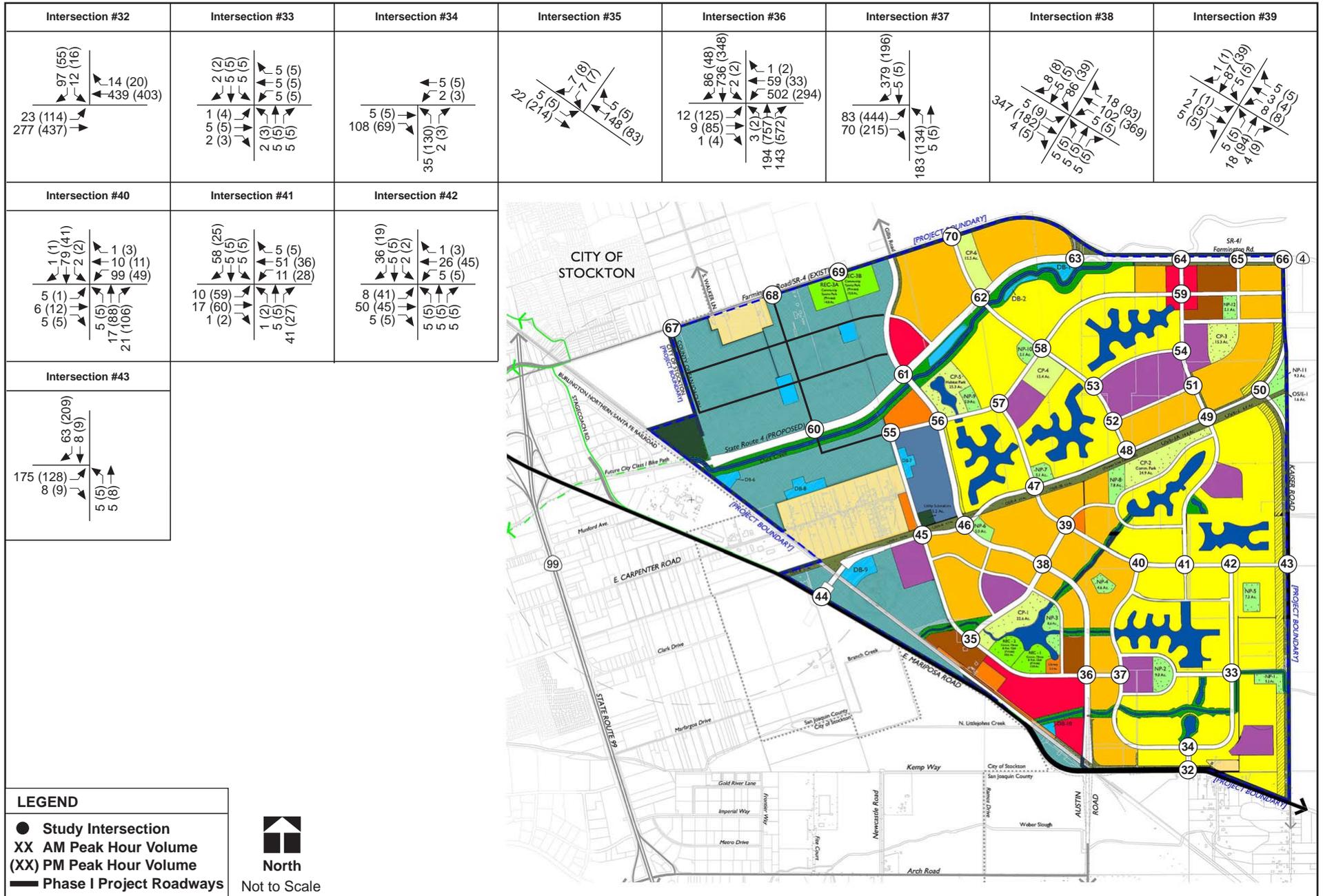
Figure 13
Cont.



Figure 14 shows the EPAP plus Phase I Project internal intersection turning movement volumes. Figure 15 shows the EPAP plus Phase I Project internal lane geometry. Table V summarizes the results of the internal intersection level of service analysis in this scenario.

TABLE V: INTERNAL INTERSECTION LEVEL OF SERVICE ANALYSIS – EPAP PLUS PHASE I PROJECT CONDITIONS

| <i>Intersection Control</i> | | <i>A.M. Peak Hour</i> | | <i>P.M. Peak Hour</i> | |
|-----------------------------|--------------|-----------------------|------------|-----------------------|------------|
| | | <i>Delay (sec)</i> | <i>LOS</i> | <i>Delay (sec)</i> | <i>LOS</i> |
| 32 | One-Way Stop | 2.0 (14.0) | A (B) | 2.1 (16.3) | A (C) |
| 33 | Two-Way Stop | 5.4 (9.0) | A (A) | 5.7 (8.9) | A (A) |
| 34 | One-Way Stop | 2.2 (9.0) | A (A) | 6.0 (9.5) | A (A) |
| 35 | One-Way Stop | 0.9 (9.6) | A (A) | 0.6 (9.8) | A (A) |
| 36 | Signalized | 11.4 | B | 15.6 | B |
| 37 | One-Way Stop | 5.2 (14.1) | A (B) | 24.6 (35.7) | C (E) |
| 38 | Roundabout | 4.3 | A | 4.8 | A |
| 39 | Two-Way Stop | 2.1 (9.3) | A (A) | 1.9 (9.6) | A (A) |
| 40 | Two-Way Stop | 8.7 (11.9) | A (B) | 9.0 (10.5) | A (B) |
| 41 | Two-Way Stop | 5.6 (9.1) | A (A) | 5.1 (9.5) | A (A) |
| 42 | Two-Way Stop | 4.0 (9.4) | A (A) | 4.0 (9.8) | A (A) |
| 43 | One-Way Stop | 6.9 (9.8) | A (A) | 3.9 (10.1) | A (A) |
| 44 | One-Way Stop | 0.4 (16.9) | A (C) | 0.4 (30.1) | A (D) |



LEGEND

- Study Intersection
- XX AM Peak Hour Volume
- (XX) PM Peak Hour Volume
- Phase I Project Roadways



City of Stockton
 Mariposa Lakes Traffic Study
EPAP Plus Phase I Project Internal Turning Movement Volumes



LEGEND

- Stop Sign
- Traffic Signal
- Roundabout
- Phase I Project Roadways

North
Not to Scale

City of Stockton
 Mariposa Lakes Traffic Study
EPAP Plus Phase I Project Internal Lane Geometry

EPAP PLUS PROJECT CONDITIONS

This scenario adds traffic from the proposed Project to the EPAP conditions.

Project Description

The proposed project consists of approximately 4360 Low Density Residential dwelling units, 5,048 Medium Density Residential dwelling units and 1,406 High Density Residential dwelling units for a total of approximately 10,814 dwelling units. The non-residential component of the project consists of approximately 1.0 million square feet of commercial development, 11.4 million square feet of industrial development

Modeling Network

Appendix B shows the modeling roadway network in the vicinity of the Project for EPAP plus Project conditions.

Trip Generation

Table V summarizes the proposed Project trip generation. Trip generation for the proposed Project was estimated based on rates provided in the standard reference, *ITE Trip Generation, 7th Edition*. As shown in Table V, the proposed project is expected to generate 17,017 a.m. peak hour trips and 21,934 p.m. peak hour trips.

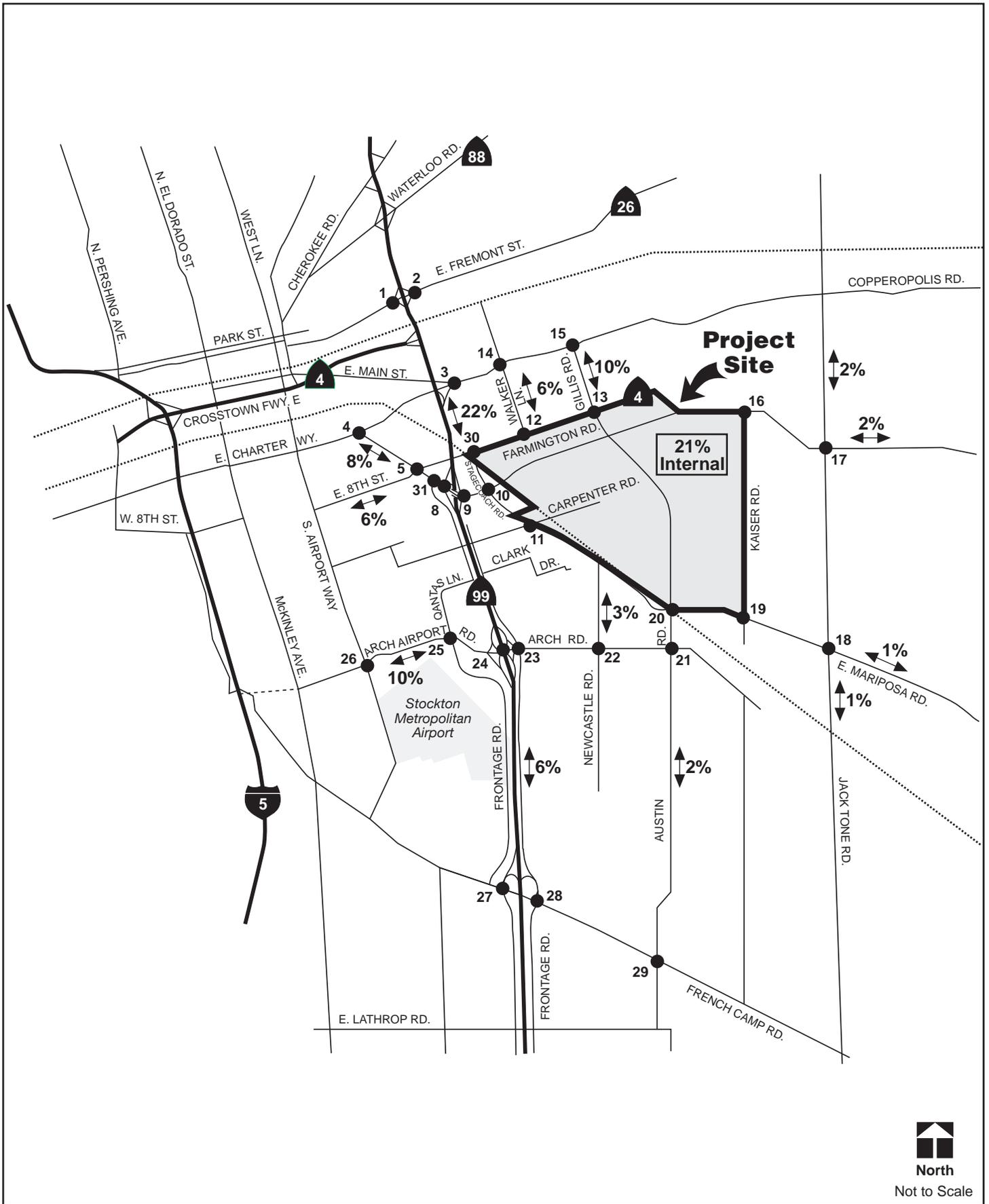
TABLE VI: PROPOSED PROJECT TRIP GENERATION

| Land Use | ITE Codes | Size | Units | Rate | Trips | A.M. Peak | | | | | P.M. Peak | | | | |
|------------------------|-----------|--------|-------|-------|----------------|-----------|--------|--------------|--------------|---------------|-----------|--------|--------------|---------------|---------------|
| | | | | | | Rate | In:Out | In | Out | Total | Rate | In:Out | In | Out | Total |
| Single Family | 210 | 4,365 | du | 9.57 | 41,773 | 0.75 | 25:75 | 819 | 2,456 | 3,274 | 1.01 | 63:37 | 2,778 | 1,631 | 4,409 |
| Multi-Family | 220 | 5,048 | du | 6.72 | 33,923 | 0.51 | 20:80 | 515 | 2,059 | 2,574 | 0.62 | 65:35 | 2,035 | 1,096 | 3,130 |
| Condo | 230 | 1,406 | du | 5.86 | 8,239 | 0.44 | 17:83 | 105 | 514 | 619 | 0.52 | 67:33 | 490 | 241 | 731 |
| Office | 710 | 374 | ksf | 11.01 | 4,118 | 1.55 | 88:12 | 510 | 70 | 580 | 1.49 | 17:83 | 95 | 462 | 557 |
| Light Industrial | 110 | 374 | ksf | 6.97 | 2,607 | 0.92 | 88:12 | 303 | 41 | 344 | 0.98 | 12:88 | 44 | 323 | 367 |
| Heavy Industrial | 120 | 10,695 | ksf | 1.5 | 16,042 | 0.51 | 88:12 | 4,800 | 654 | 5,454 | 0.68 | 12:88 | 873 | 6,399 | 7,272 |
| General Commercial | 820 | 1,009 | ksf | 42.94 | 43,326 | 1.03 | 61:39 | 634 | 405 | 1,039 | 3.75 | 48:52 | 1816 | 1968 | 3784 |
| Elementary School | 520 | 420 | ksf | 14.49 | 6,086 | 4.69 | 54:46 | 1,064 | 906 | 1,970 | 3.13 | 43:57 | 565 | 750 | 1,315 |
| High School/College | 530 | 380 | ksf | 12.89 | 4,898 | 3.06 | 71:29 | 826 | 337 | 1,163 | 0.97 | 54:46 | 199 | 170 | 369 |
| ITE Total Trips | | | | | 161,012 | | | 9,576 | 7,442 | 17,017 | | | 8,895 | 13,040 | 21,934 |

Notes: du= dwelling units
ksf= thousand square feet

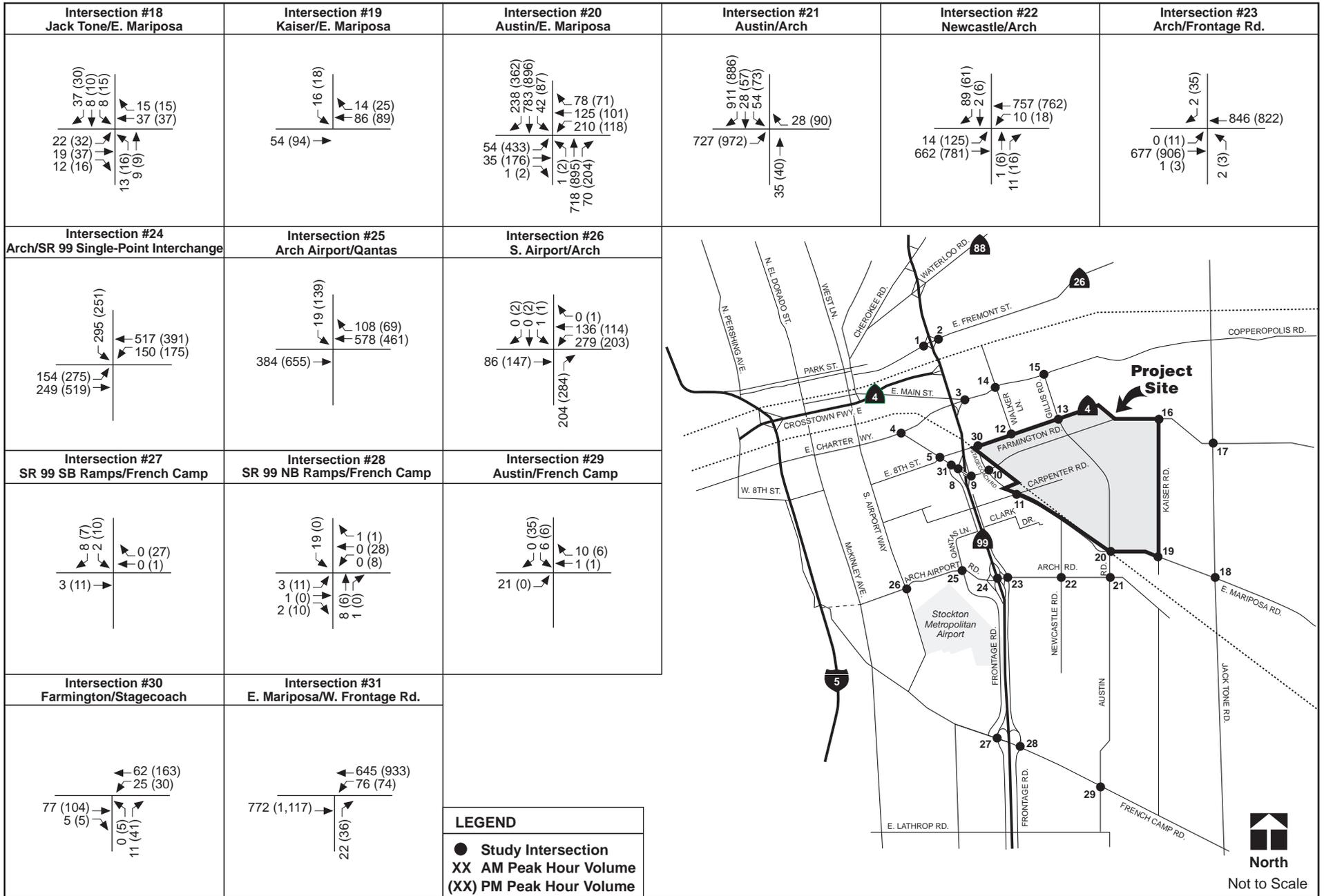
Trip Distribution

Trip distribution for the proposed Project under EPAP plus Project conditions is based on the City of Stockton's EPAP model. Figure 16 shows the proposed Project trip distribution under EPAP plus Project conditions. Figure 17 shows the proposed Project only turning movement volumes under EPAP plus Project conditions.



City of Stockton
 Mariposa Lakes Traffic Study
Project Trip Distribution (EPAP Plus Project Conditions)

Figure **16** TJKM



City of Stockton
Mariposa Lakes Traffic Study
Project Trip Assignment (EPAP plus Project Conditions)

Figure
17
Cont.



Level of Service Analysis

Figure 18 shows the EPAP plus Project turning movement volumes. Figure 19 shows the EPAP plus Project Lane Geometry. Appendix C contains the a.m. and p.m. peak hour link volume model plots for this scenario. Table VII summarizes the results of the intersection level of service analysis in this scenario.

In this scenario, intersections 8,9 and 31 were analyzed with traffic forecast volumes and existing lane configuration. The analysis was done to assess the adequacy of recently installed traffic signals (October 2006). The above noted intersections are expected to operate unacceptably with existing lane configuration and traffic signal control. The intersections were re analyzed with traffic forecast volumes and re configured SR 99 and Mariposa Road interchange. The results of the analysis are presented in Table VII

Intersections with proposed mitigation measures in this scenario are described below (Intersection numbers included):

3. E. Charter Way/E. Main Street

Signalize intersection. Stripe the northbound left turn lane to include one left/right turn lane. See Figure 38 for recommended signal phasing.

5. E. Mariposa Way/E. 8th Street

Add one southbound through lane and one northbound through lane. Add one eastbound right turn lane and one westbound right turn lane. Add one northbound left turn lane.

8. SR 99 SB Ramps/Mariposa Road

A new Mariposa Road interchange configuration assumed in this scenario as shown in Figure 7. Modify and signalize intersection. In the southbound approach, construct two left turn lanes and one right turn lane; in the westbound approach construct two through lanes; in the eastbound approach construct two through lanes and one right turn lane.

9. SR 99 NB Ramps/Mariposa Road

A new Mariposa Road interchange configuration assumed in this scenario as shown in Figure 7. Modify and signalize intersection. In the northbound approach, construct one left turn lane and two right turn lanes; in the eastbound approach construct three through lanes; in the westbound approach construct two through lanes and two right turn lanes.

10. Stagecoach/E. Mariposa Road

Construct and signalize intersection to include the following:

Eastbound: two left turn lanes, three through lanes and two right turn lanes.

Westbound: one left turn lane, four through lanes and one right turn lane.

Southbound: two left turn lanes, two through lanes and two right turn lanes.

Northbound: three left turn lanes, one through lane and one shared through right turn lane.

11. Carpenter Road/E. Mariposa Road

Signalize intersection. Add one eastbound, one westbound, one southbound and one northbound left turn lane. Add one southbound shared through/right turn lane. Add one northbound through lane.

12. Walker Lane/Farmington Road/SR 4

Signalize intersection.

13. Gillis Road/Farmington Road/SR 4

Signalize intersection. Add a south leg and construct the northbound approach to include one left turn lane and one shared through/right turn lane. Modify the existing southbound approach to include two left turn lanes and one shared through/right turn lane.

14. Walker Lane/E. Main Street

Signalize intersection. Add one eastbound right turn lane. Add a north leg and construct the southbound approach to include one left turn lane and one shared through/right turn lane. Modify the existing northbound approach to include two left turn lanes and one shared through/right turn lane.

15. Gillis Road/E. Main Street

Signalize intersection. Add a north leg and construct the southbound approach to include one left turn lane and one shared through/right turn lane. Add one eastbound left turn lane and one right turn lane. Modify the northbound approach to include two left turn lanes and one shared through/right turn lane. Add a westbound left turn lane.

20. Austin Road/E. Mariposa Road

Grade separated intersection. Signalize intersection. Construct the north leg of the intersection. Eastbound: construct two left turn lanes, one through lane and one shared through/right turn lane. Westbound: construct two left turn lanes, one through lane and one shared through/right turn lane. Northbound: construct one left turn lane, one through lane and one shared through/right turn lane. Southbound: construct one left turn lane, two through lanes and one right turn lane.

21. Austin Road/Arch Road

Signalize intersection. Add one southbound right turn lane, one westbound left turn lane, one eastbound left turn lane, and one eastbound shared through/right turn lane.

22. Newcastle Road/Arch Road

Signalize intersection. Add a north leg with one shared left/through/right turn lane. Add one eastbound left turn lane and one westbound left turn lane. Add one eastbound through lane and one westbound through lane.

26. S. Airport Road/Arch Airport Road

Add one westbound left turn lane and one northbound right turn lane.

27. SR 99 SB Ramps/French Camp Road

Signalize intersection. Add one eastbound left turn lane. Modify existing southbound approach lane to include one left turn lane and one shared through/right turn lane.

31. Mariposa Road/W. Frontage Road

Construct a new T-intersection. Signalize intersection.

Eastbound: add one through lane.

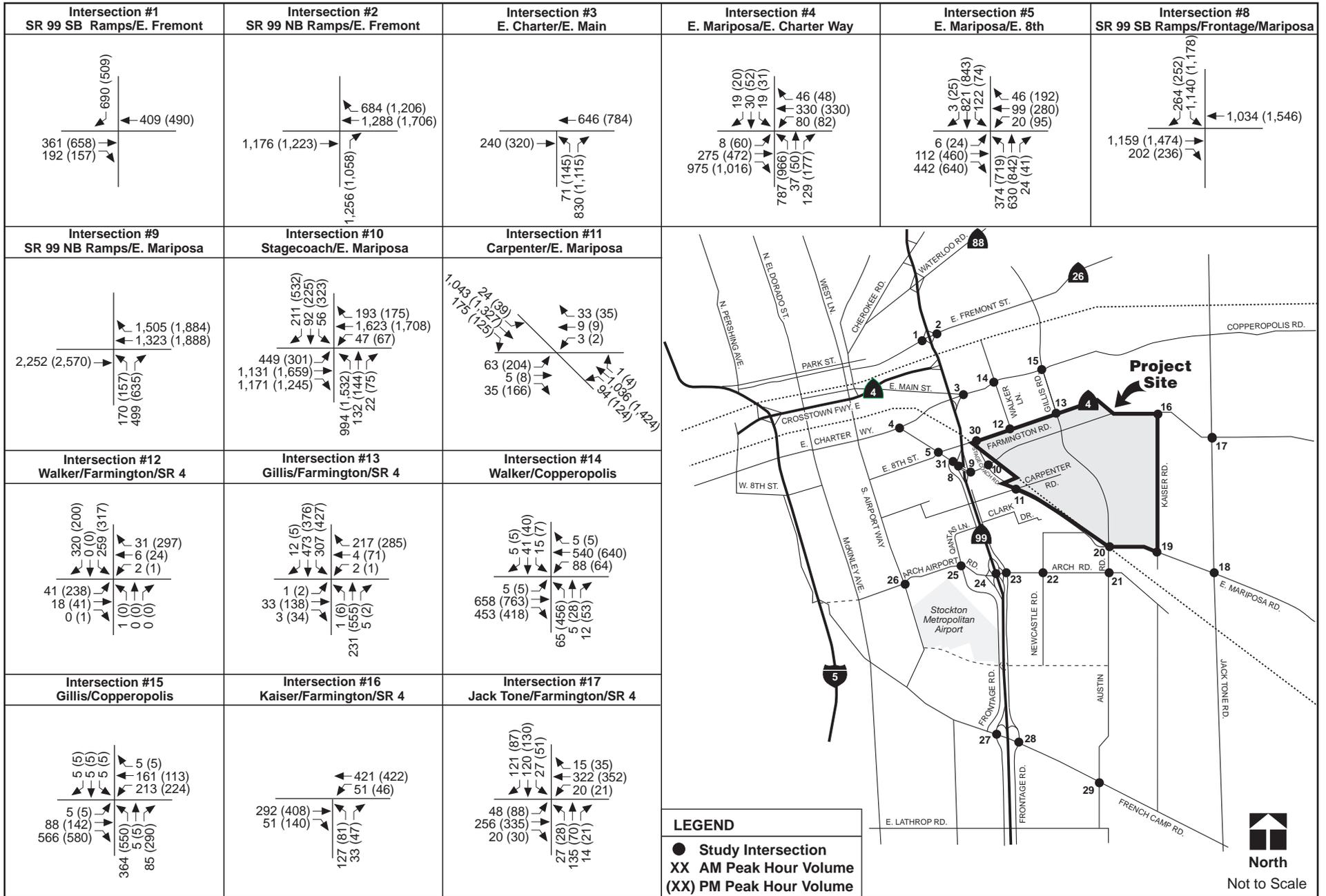
Westbound: add one left turn lane and one through lane.

Northbound: Stripe one left turn lane and one right turn lane.

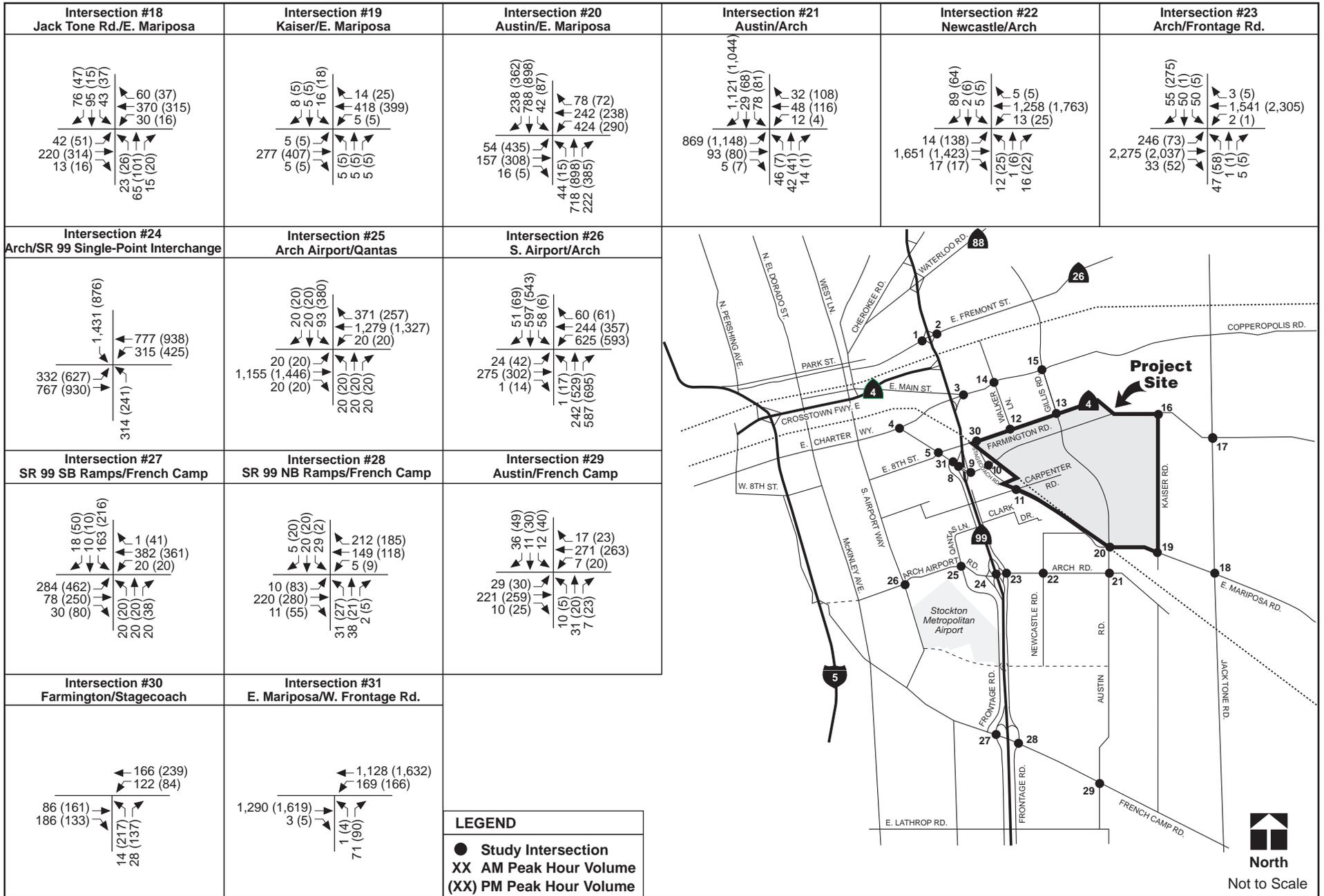
TABLE VII: INTERSECTION LEVELS OF SERVICE – EPAP PLUS PROJECT CONDITIONS

| | Intersection | Existing Control | EPAP With Project Intersection Control (Mitigated) | A.M. Peak Hour | | A.M. Peak Hour (Mitigated) | | P.M. Peak Hour | | P.M. Peak Hour (Mitigated) | |
|----|--|--------------------------|--|---|----------------|----------------------------|-----|----------------|----------------|----------------------------|-----|
| | | | | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS |
| 1 | SR 99 SB Ramps/E. Fremont Street | | | See Table XVII for Results | | | | | | | |
| 2 | SR 99 NB Ramps/E. Fremont Street | | | See Table XVII for Results | | | | | | | |
| 3 | E. Charter Way/E. Main Street | One-Way Stop | Signalized | 8.6 (17.9) | A (C) | 30.7 | C | 28.2 (58.4) | D (F) | 35.0 | C |
| 4 | E. Charter Way/E. Mariposa Road | Signalized | Signalized | 10.1 | B | - | - | 16.9 | B | - | - |
| 5 | E. Mariposa Road/E. 8 th Street | Signalized | Signalized | >120 | F | 15.3 | B | >120 | F | 40.1 | D |
| 6 | SR 99SB Ramps/Farmington Road | One-Way Stop | Signalized | Not a study intersection in this scenario | | | | | | | |
| 7 | SR 99 NB Ramps/Farmington Road | One-Way Stop | Signalized | Not a study intersection in this scenario | | | | | | | |
| 8 | SR 99 SB Ramps/E. Mariposa Road | Signalized ⁻² | Signalized ⁻¹ | - ³ | - ³ | 21.8 | C | - ³ | - ³ | 36.6 | D |
| 9 | SR 99 NB Ramps/E. Mariposa Road | Signalized ⁻² | Signalized ⁻¹ | - ³ | - ³ | 26.3 | C | - ³ | - ³ | 20.3 | C |
| 10 | Stagecoach Road/E. Mariposa Road | One-Way Stop | Signalized ⁻⁴ | - ¹ | - ¹ | 34.0 | C | - ¹ | - ¹ | 47.8 | D |
| 11 | E. Mariposa Road/Carpenter Road | Two-Way Stop | Signalized | >120 (>120) | F (F) | 10.5 | B | >120 (>120) | F (F) | 19.5 | B |
| 12 | Farmington Road/ Walker Lane | One-Way Stop | Signalized | - ¹ | - ¹ | 8.3 | A | - ¹ | - ¹ | 30.6 | C |
| 13 | Gillis Road/ Farmington Road | One-Way Stop | Signalized | - ¹ | - ¹ | 36.1 | D | - ¹ | - ¹ | 54.4 | D |
| 14 | Walker Lane/E. Main Street | One-Way Stop | Signalized | - ¹ | - ¹ | 13.8 | B | - ¹ | - ¹ | 39.7 | D |
| 15 | Gillis Road/ E. Main Street | One-Way Stop | Signalized | - ¹ | - ¹ | 15.1 | B | - ¹ | - ¹ | 15.8 | B |
| 16 | Kaiser Road/Farmington Road | One-Way Stop | One-Way Stop | 5.6 (30.0) | A (D) | - | - | 3.9 (29.5) | A (D) | - | - |
| 17 | Jack Tone Road/Farmington Road | All-Way Stop | All-Way Stop | 20.8 (26.6) | C (D) | - | - | 35.0 (43.2) | D (E) | - | - |
| 18 | Jack Tone Road/E. Mariposa Road | All-Way Stop | All-Way Stop | 30.5 (50.7) | D (F) | - | - | 19.3 (25.2) | C (D) | - | - |
| 19 | Kaiser Road/E. Mariposa Road | Two-Way Stop | Two-Way Stop | 1.1 (16.9) | A (C) | - | - | 1.1 (20.1) | A (C) | - | - |
| 20 | Austin Road/E. Mariposa Road | Signalized | Signalized | - ¹ | - ¹ | 17.3 | B | - ¹ | - ¹ | 26.5 | C |
| 21 | Austin Road/Arch Road | Two-Way Stop | Signalized | >120 (>120) | F (F) | 35.8 | D | >120 (>120) | F (F) | 38.5 | D |
| 22 | Newcastle Road/Arch Road | One-Way Stop | Signalized | - ¹ | - ¹ | 11.5 | B | - ¹ | - ¹ | 15.6 | B |
| 23 | E. Frontage Road/Arch Road | Signalized | Signalized | 27.6 | C | - | - | 32.5 | C | - | - |
| 24 | Arch Road/SR 99 Single Point Interchange | Signalized ⁻⁴ | Signalized | 54.1 | D | - | - | 36.8 | D | - | - |
| 25 | Qantas Lane/Arch Airport Road | Signalized | Signalized | 14.8 | B | - | - | 18.3 | B | - | - |
| 26 | S. Airport Way/Arch Airport Road | Signalized | Signalized | 45.8 | D | 19.4 | B | 58.1 | E | 26.9 | C |
| 27 | SR 99 SB Ramps/French Camp Road | Two-Way Stop | Signalized | 96.9 (>120) | F (F) | 23.3 | C | >120 (>120) | F (F) | 24.4 | C |
| 28 | SR 99 NB Ramps/French Camp Road | Two-Way Stop | Two-Way Stop | 2.9 (16.1) | A (C) | - | - | 2.9(19.9) | A (C) | - | - |
| 29 | Austin Road/French Camp Road | Two-Way Stop | Two-Way Stop | 2.9 (16.0) | A (C) | - | - | 4.4 (18.4) | A (C) | - | - |
| 30 | Stagecoach Road/Farmington Road | Signalized | Signalized | 7.1 | A | - | - | 8.5 | A | - | - |
| 31 | E. Mariposa Road/W. Frontage Road | Signalized | Signalized ⁻¹ | - ¹ | - ¹ | 11.4 | B | - ¹ | - ¹ | 12.8 | B |

Notes: ⁻¹ For the EPAP With Project scenario, due to network changes existing lane geometry cannot be used to analyze forecast volumes. In this scenario, the intersections 8, 9 and 31 are analyzed as newly designed freeway interchanges.
⁻² Traffic Signals under construction with geometric improvements as of October 2006
⁻³ Unable to calculate LOS and Delay due to excessive traffic volumes with the existing lane configuration and traffic control
⁻⁴ PHF of 0.97 was used (see Westernite publication Nov-Dec, 2002 issue).



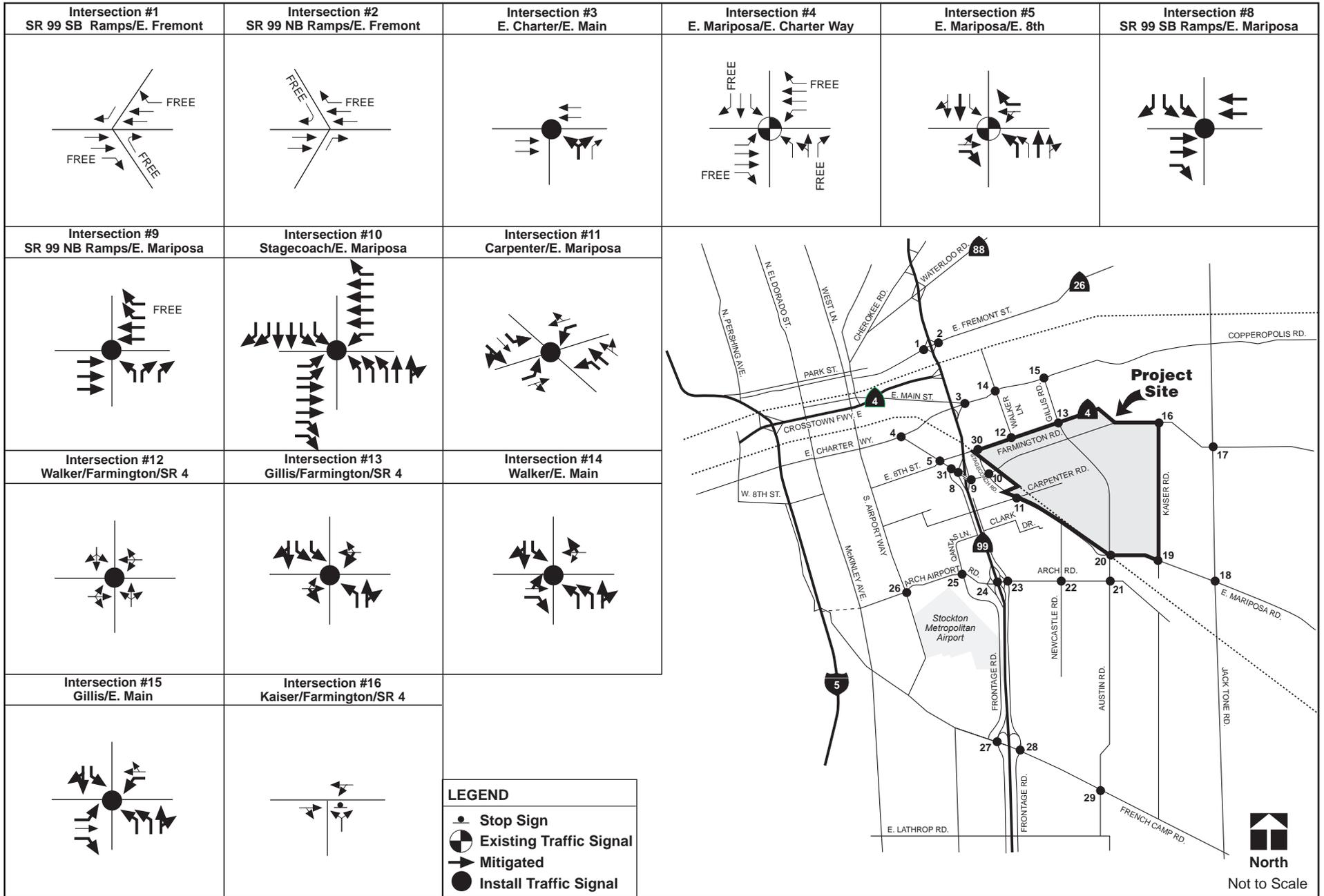
City of Stockton
Mariposa Lakes Traffic Study
EPAP Plus Project Turning Movement Volumes



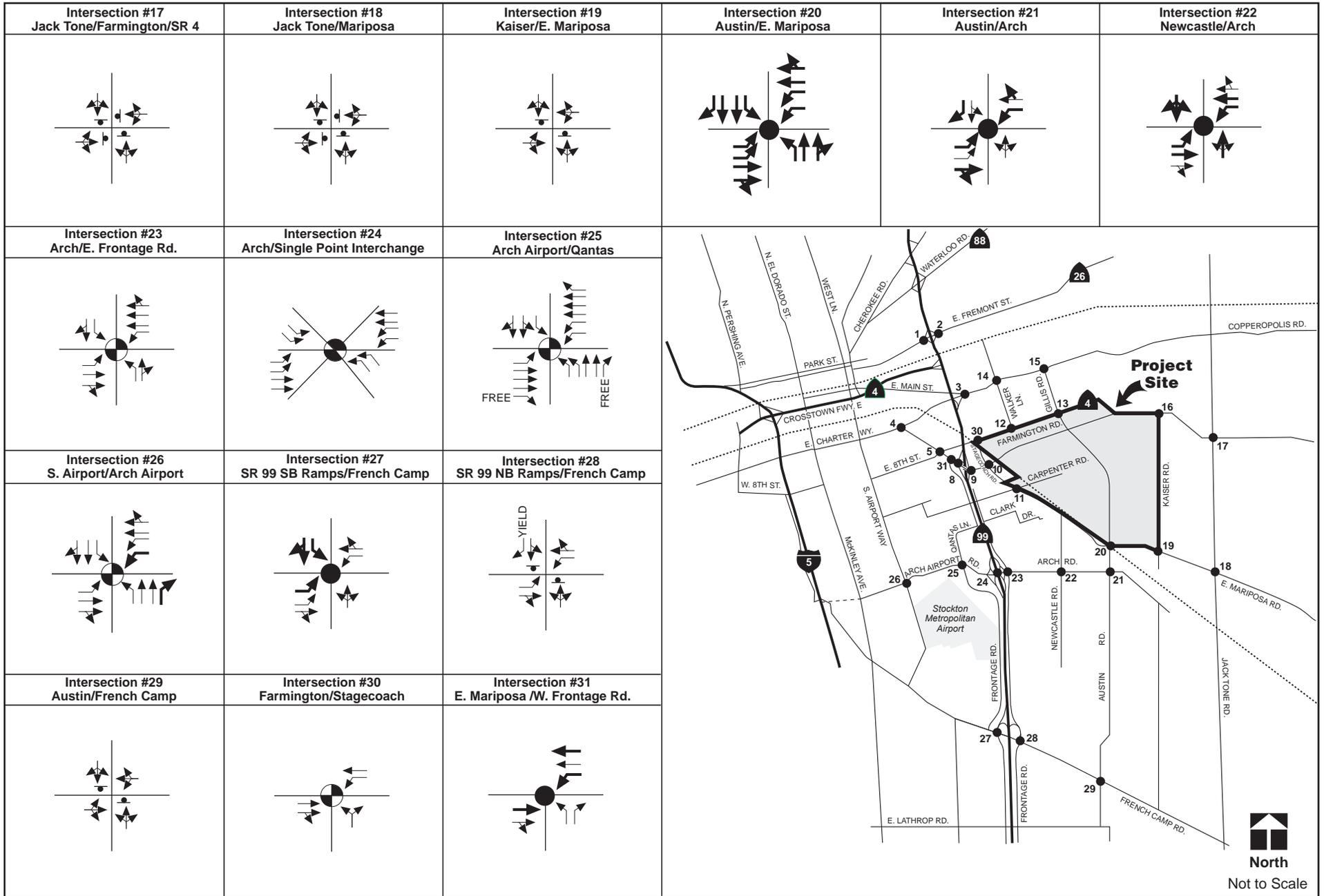
City of Stockton
 Mariposa Lakes Traffic Study
EPAP Plus Project Turning Movement Volumes

Figure 18
 Cont.





City of Stockton
 Mariposa Lakes Traffic Study
EPAP Plus Project Lane Geometry



City of Stockton
Mariposa Lakes Traffic Study
EPAP Plus Project Lane Geometry

LEGEND

-  Stop Sign
-  Existing Traffic Signal
-  Mitigated
-  Install Traffic Signal

Figure
19
Cont.



Figure 20 shows the EPAP plus Project internal turning movement volumes. Figure 21 shows the EPAP plus Project internal lane geometry. Table VIII summarizes the EPAP plus Project internal intersection level of service analysis.

TABLE VIII: INTERNAL INTERSECTION LEVEL OF SERVICE ANALYSIS – EPAP PLUS PROJECT CONDITIONS

| | <i>Intersection Control</i> | <i>A.M. Peak Hour</i> | | <i>P.M. Peak Hour</i> | |
|----|-----------------------------|-----------------------|------------|-----------------------|------------|
| | | <i>Delay (sec)</i> | <i>LOS</i> | <i>Delay (sec)</i> | <i>LOS</i> |
| 32 | Signalized | 29.4 | C | 15.0 | B |
| 33 | Two-Way Stop | 1.6 (9.3) | A (A) | 2.2 (9.6) | A (A) |
| 34 | One-Way Stop | 7.2 (11.4) | A (B) | 11.6 (15.1) | B (C) |
| 35 | One-Way Stop | 4.3 (16.2) | A (C) | 2.2 (19.1) | A (C) |
| 36 | Signalized | 10.6 | B | 10.9 | B |
| 37 | One-Way Stop | 5.6 (12.5) | A (B) | 15.5 (21.5) | C (C) |
| 38 | Roundabout | 7.0 | A | 8.2 | A |
| 39 | Two-Way Stop | 10.5 (28.4) | B (D) | 5.2 (25.1) | A (D) |
| 40 | Two-Way Stop | 3.6 (11.0) | A (B) | 3.6 (12.8) | A (B) |
| 41 | Two-Way Stop | 6.3 (10.7) | A (B) | 3.3 (11.5) | A (B) |
| 42 | Two-Way Stop | 7.7 (9.2) | A (A) | 7.3 (9.6) | A (A) |
| 43 | One-Way Stop | 3.3 (8.8) | A (A) | 2.9 (8.8) | A (A) |
| 44 | Signalized | 18.0 | B | 41.8 | D |
| 45 | Signalized | 25.6 | C | 35.5 | D |
| 46 | Signalized | 12.2 | B | 12.8 | B |
| 47 | Two-Way Stop | 3.7 (9.2) | A (A) | 4.0 (9.7) | A (A) |
| 48 | One-Way Stop | 2.3 (9.0) | A (A) | 1.9 (8.6) | A (A) |
| 49 | Roundabout | 3.6 | A | 3.7 | A |
| 50 | One-Way Stop | 1.8 (8.9) | A (A) | 3.3 (9.1) | A (A) |
| 51 | Two-Way Stop | 1.5 (10.5) | A (B) | 1.2 (10.8) | A (B) |
| 52 | Two-Way Stop | 3.4 (9.2) | A (A) | 6.4 (9.5) | A (A) |
| 53 | One-Way Stop | 5.5 (9.7) | A (A) | 5.2 (9.1) | A (A) |
| 54 | One-Way Stop | 0.5 (9.4) | A (A) | 0.6 (10.6) | A (B) |
| 55 | One-Way Stop | 2.8 (10.2) | A (B) | 7.1 (12.1) | A (B) |
| 56 | All-Way Stop | 10.4 | B | 16.1 | C |
| 57 | One-Way Stop | 5.1 (10.4) | A (B) | 2.2 (10.7) | A (B) |
| 58 | Roundabout | 3.9 | A | 4.1 | A |
| 59 | Roundabout | 3.6 | A | 4.2 | A |
| 60 | Signalized | 23.7 | C | 38.1 | D |
| 61 | Signalized | 26.0 | C | 18.1 | B |
| 62 | Signalized | 20.7 | C | 25.0 | C |
| 63 | Signalized | 13.1 | B | 13.5 | B |
| 64 | Signalized | 9.9 | A | 15.0 | B |
| 65 | One-Way Stop | 7.0 (43.3) | A (E) | 1.9 (29.2) | A (D) |
| 66 | Signalized | 6.2 | A | 7.7 | A |
| 67 | One-Way Stop | 6.2 (15.4) | A (C) | 11.7 (22.5) | B (C) |
| 68 | One-Way Stop | 0.8 (10.2) | A (B) | 2.7 (15.4) | A (C) |
| 69 | One-Way Stop | 1.3 (9.2) | A (A) | 3.6 (12.3) | A (B) |
| 70 | Signalized | 11.0 | B | 21.3 | C |



City of Stockton
 Mariposa Lakes Traffic Study
EPAP Plus Project Internal Turning Movement Volumes



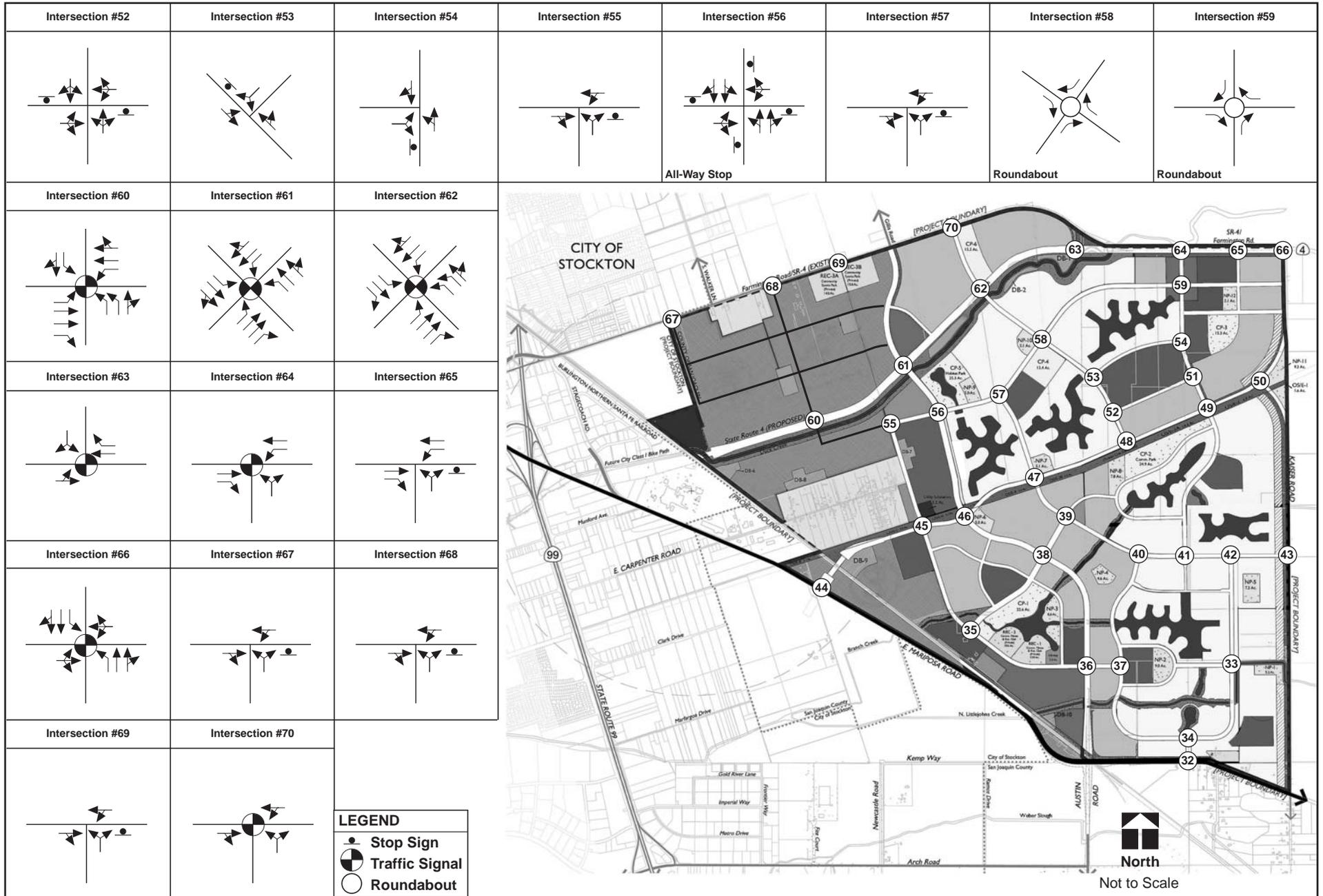
City of Stockton
 Mariposa Lakes Traffic Study
EPAP Plus Project Internal Turning Movement Volumes

Figure 20
 Cont.
 TJKM



City of Stockton
 Mariposa Lakes Traffic Study
EPAP Plus Project Internal Lane Geometry

Figure 21



City of Stockton
 Mariposa Lakes Traffic Study
EPAP Plus Project Internal Lane Geometry

Figure 21
 Cont.



1990 GENERAL PLAN NO PROJECT CONDITIONS

This future scenario considers the traffic volumes under the City's 1990 General Plan Buildout conditions. The City of Stockton's 1990 General Plan travel demand model was used to forecast the a.m. and p.m. peak hour volumes in this scenario.

Modeling Network

Appendix B shows the modeling roadway network in the vicinity of the Project for 1990 General Plan No Project conditions.

Level of Service Analysis

Figure 22 shows the 1990 General Plan No Project turning movement volumes. Figure 23 shows the EPAP No Project Lane Geometry. Appendix C contains the a.m. and p.m. peak hour link volume model plots for this scenario. Table IX summarizes the results of the intersection level of service analysis in this scenario.

In calculating intersection levels of service peak hour factors are utilized. Peak hour factors reflect the fact that during the peak hour all four 15-minute periods are usually not fully and equally utilized. A peak hour factor of 1.0 indicates that all four 15-minute periods are fully utilized. When using the Synchro software, the default value is 0.92. Based on published research information reported in the December 2002 edition of *WesternITE* by Ransford McCourt, P.E., peak hour factors as high as 1.00 can be considered for future conditions. To be conservative, TJKM utilized a 0.97 factor at a few locations in some of the future scenarios where very high volumes are expected. These locations are all noted in table footnotes.

Intersections with proposed mitigation measures in this scenario are described below (Intersection numbers included):

3. E. Charter Way/E. Main Street

Signalize intersection. Add one northbound right turn lane. See Figure 38 for recommended signal phasing.

4. E. Mariposa Road/E. Charter Way

Add one eastbound left turn lane. Add one northbound left turn lane and one through lane.

5. E. Mariposa Way/E. 8th Street

Eastbound: Add one left turn lane and one right turn lane.
Westbound: Add two left turn lanes and one right turn lane.
Northbound: Add one through lane and one right turn lane.
Southbound: Add one through lane and one right turn lane.

8. SR 99 SB Ramps/Mariposa Road

A new Mariposa Road interchange configuration assumed in this scenario as shown in Figure 7. Modify and signalize intersection. In the southbound approach, construct two left turn lanes and one right turn lane; in the westbound approach construct two through lanes; in the eastbound approach

construct two through lanes and one right turn lane. The intersection would be fully mitigated with a third southbound left-turn lane but this mitigation measure does not conform to City policies. Therefore the traffic impact to the intersection is *Significant and unavoidable*.

9. SR 99 NB Ramps/Mariposa Road

A new Mariposa Road interchange configuration assumed in this scenario as shown in Figure 7. Modify and signalize intersection. In the northbound approach, construct two left turn lanes and one right turn lane; in the eastbound approach construct three through lanes; in the westbound approach construct two through lanes and two right turn lanes.

10. Stagecoach/E. Mariposa Road

Signalize intersection. Add one eastbound left turn lane and two through lanes. Add two westbound through lanes and one right turn lane. Add one southbound right turn lane and stripe existing southbound lane to a left turn lane.

11. Carpenter Road/E. Mariposa Road

Signalize intersection. Add two eastbound left turn lanes. Add one westbound left turn lane. Add one southbound left turn lane, one through lane and one right turn lane. Add one northbound left turn lane and one through lane. The intersection would be fully mitigated with a third eastbound left-turn lane but this mitigation measure does not conform to City policies. Therefore the traffic impact to the intersection is *Significant and unavoidable*.

12. Walker Lane/Farmington Road/SR 4

Signalize intersection. Add one eastbound left turn lane and one westbound left turn lane.

13. Gillis Road/Farmington Road/SR 4

Signalize intersection.

14. Walker Lane/E. Main Street

Signalize intersection. Add a north leg with only one lane approach (i.e. re align the dog legged Walker Lane/E. Main Street as a four legged intersection).

15. Gillis Road/E. Main Street

Signalize intersection. Add a north leg with only one lane approach.

17. Jack Tone Road/Farmington Road

Signalize intersection.

18. Jack Tone Road/E. Mariposa Road

Signalize intersection. Add one eastbound left turn lane. Add one westbound left turn lane and one right turn lane.

19. E. Mariposa Road/Kaiser Road

Signalize intersection. Add one eastbound left turn lane. Add one westbound left turn lane.

21. Austin Road/Arch Road

Signalize intersection. Stripe existing westbound shared through/left turn lane to a left turn only lane. Stripe existing right turn lane to a shared through/right turn lane.

22. Newcastle Road/Arch Road

Signalize intersection. Add a north leg with one southbound shared through/left turn lane and a right turn only lane. Add one eastbound left turn lane and one through lane. Add one westbound left turn lane and one shared through/right turn lane. Add one northbound right turn lane and stripe existing lane to a shared through/left turn lane.

23. Arch Road/E. Frontage Road

Add two eastbound left turn lanes, one right turn lane and one through lane. Add one westbound left turn lane and one through lane. Add one northbound right turn lane. Modify the southbound approach to include two right turn lanes and one shared through/left turn lane. The intersection would be fully mitigated with a third eastbound left-turn lane but this mitigation measure does not conform to City policies. Therefore the traffic impact to the intersection is *Significant and unavoidable*.

24. Arch Road/Single Point Interchange

Due to physical restriction at the interchange, it is impractical to add an additional eastbound left-turn lane and one westbound through lane to operate the intersection acceptably under 1990 General Plan conditions. Therefore the traffic impact to the intersection is *significant and unavoidable*.

25. Arch Airport Road/Qantas Lane

Add one eastbound through lane.

26. S. Airport Road/Arch Airport Road

Eastbound: Add one left turn lane, two through lanes and one right turn lane.

Westbound: Add one left turn lane, two through lanes and one right turn lane.

Northbound: Add one left turn lane, one through lane and one right turn lane.

Southbound: Add one left turn lane and one right turn lane.

27. SR 99 SB Ramps/French Camp Road

Signalize intersection. Add one eastbound left turn lane. Add one westbound through lane. Add two southbound left turn lanes and one right turn lane.

28. SR 99 NB Ramps/French Camp Road

Signalize intersection.

29. Austin Road/French Camp Road

Signalize intersection.

31. Mariposa Road/W. Frontage Road

Construct and signalize a new T-intersection with the following:

Eastbound: two through lanes and one right turn lane.

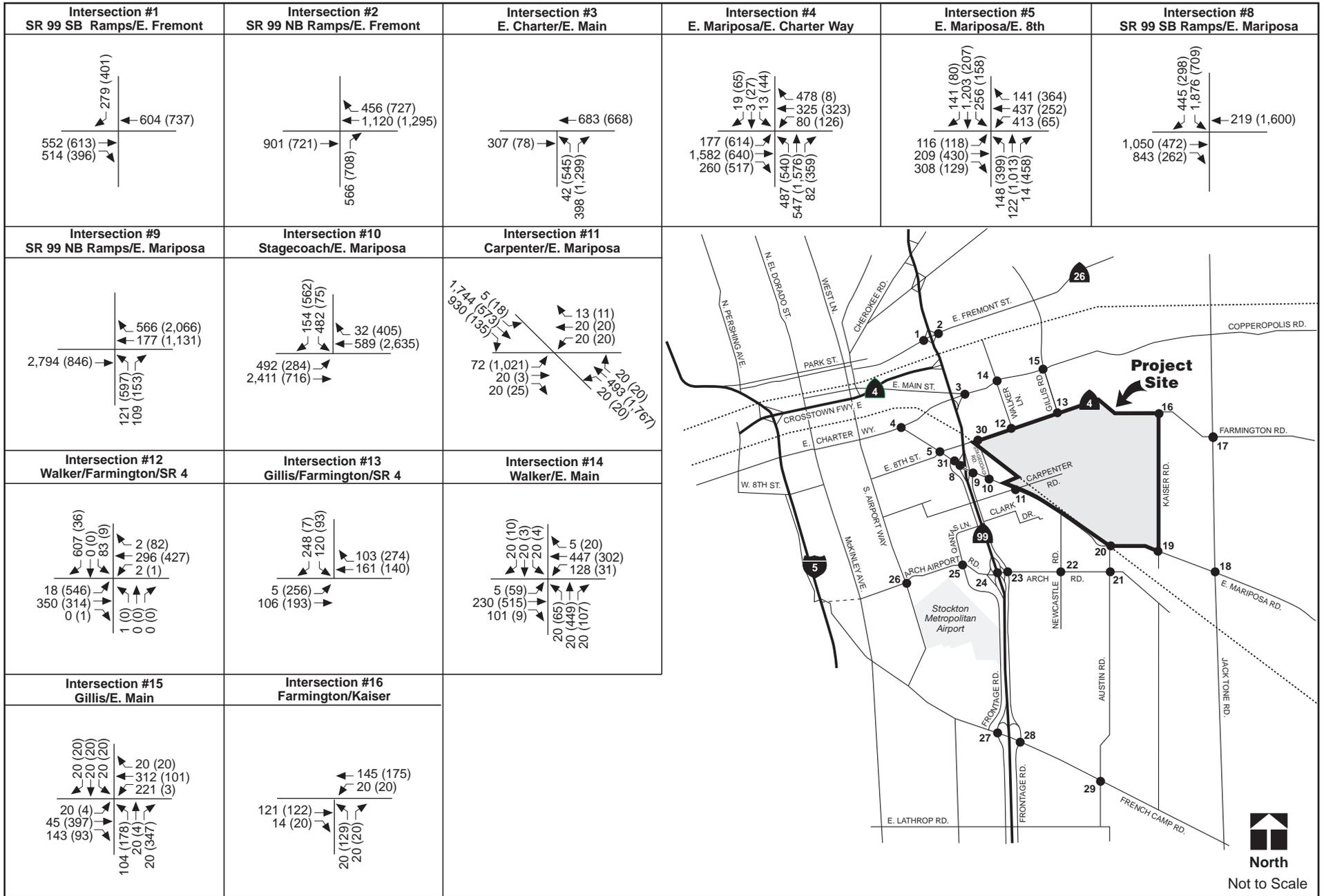
Westbound: one left turn lane and two through lanes.

Northbound: one left turn lane and one right turn lane.

TABLE IX: INTERSECTION LEVELS OF SERVICE – 1990 GENERAL PLAN NO PROJECT CONDITIONS

| | Intersection | Existing Control | 1990 GP+Prj Intersection Control (Mitigated) | A.M. Peak Hour | | A.M. Peak Hour (Mitigated) | | P.M. Peak Hour | | P.M. Peak Hour (Mitigated) | |
|----|--|----------------------------|--|----------------|----------------|--|-----|----------------|----------------|--|-----|
| | | | | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS |
| 1 | SR 99 SB Ramps/E. Fremont Street | See Table XVII for Results | | | | | | | | | |
| 2 | SR 99 NB Ramps/E. Fremont Street | See Table XVII for Results | | | | | | | | | |
| 3 | E. Charter Way/E. Main Street | One-Way Stop | Signalized | 4.4 (14.3) | A (B) | 7.0 | A | >120 (>120) | F (F) | 31.8 | C |
| 4 | E. Charter Way/E. Mariposa Road | Signalized | Signalized | 58.4 | E | 31.8 | C | >120 | F | 51.7 | D |
| 5 | E. Mariposa Road/E. 8 th Street | Signalized | Signalized ⁻³ | >120 | F | 50.1 | D | >120 | F | 41.7 | D |
| 6 | SR 99SB Ramps/Farmington Road | One-Way Stop | Not a Study Intersection in this scenario | | | | | | | | |
| 7 | SR 99 NB Ramps/Farmington Road | One-Way Stop | Not a Study Intersection in this scenario | | | | | | | | |
| 8 | SR 99 SB Ramps/E. Mariposa Road | Signalized ⁻⁴ | Signalized | - ¹ | - ¹ | ⁵ Significant and unavoidable impact | | - ¹ | - ¹ | 18.7 | B |
| 9 | SR 99 NB Ramps/E. Mariposa Road | Signalized ⁻⁴ | Signalized | - ¹ | - ¹ | 9.6 | A | - ¹ | - ¹ | 7.9 | A |
| 10 | Stagecoach Road/E. Mariposa Road | One-Way Stop | Signalized | >120 (>120) | F (F) | 46.1 | D | >120 (>120) | F (F) | 54.1 | D |
| 11 | E. Mariposa Road/Carpenter Road | Two-Way Stop | Signalized | >120 (>120) | F (F) | 13.1 | B | >120 (>120) | F (F) | ⁻⁵ Significant and unavoidable impact | |
| 12 | Farmington Road/ Walker Lane | One-Way Stop | Signalized | 68.6 (>120) | F (F) | 52.1 | D | 10.3 (>120) | B (F) | 30.9 | C |
| 13 | Gillis Road/ Farmington Road | One-Way Stop | Signalized | 8.2 (16.4) | A (C) | 9.9 | A | 8.2 (49.4) | A (E) | 9.4 | A |
| 14 | Walker Lane/E. Main Street | One-Way Stop | Signalized | - ¹ | - ¹ | 8.1 | A | - ¹ | - ¹ | 27.7 | C |
| 15 | Gillis Road/ E. Main Street | One-Way Stop | Signalized | - ¹ | - ¹ | 12.1 | B | - ¹ | - ¹ | 38.8 | D |
| 16 | Kaiser Road/Farmington Road | One-Way Stop | One-Way Stop | 1.7 (10.3) | A (B) | - | - | 4.3 (12.8) | A (B) | - | - |
| 17 | Jack Tone Road/Farmington Road | All-Way Stop | Signalized | 45.0 (76.7) | E (F) | 13.3 | B | 70.7 (>120) | F (F) | 13.4 | B |
| 18 | Jack Tone Road/E. Mariposa Road | All-Way Stop | Signalized | >120 (>120) | F (F) | 47.2 | D | >120 (>120) | F (F) | 17.6 | B |
| 19 | Kaiser Road/E. Mariposa Road | Two-Way Stop | Signalized | 5.0 (55.6) | A (F) | 10.2 | B | 12.0 (>120) | B (F) | 8.7 | A |
| 20 | Austin Road/E. Mariposa Road | Signalized | Signalized | 7.8 | A | - | - | 16.4 | B | - | - |
| 21 | Austin Road/Arch Road | Two-Way Stop | Signalized | 4.1 (14.9) | A (B) | 15.7 | B | 32.8 (45.5) | D (E) | 21.2 | C |
| 22 | Newcastle Road/Arch Road | One-Way Stop | Signalized | - ¹ | - ¹ | 16.0 | B | - ¹ | - ¹ | 28.5 | C |
| 23 | E. Frontage Road/Arch Road | Signalized | Signalized | >120 | F | 39.8 | D | >120 | F | ⁻⁵ Significant and unavoidable impact | |
| 24 | Arch Road/SR 99 Single Point Interchange | Signalized | Signalized | >120 | F | ⁻² Significant and unavoidable impact | | 75.3 | E | ⁻² Significant and unavoidable impact | |
| 25 | Qantas Lane/Arch Airport Road | Signalized | Signalized | 69.8 | E | 50.6 | D | 76.3 | E | 54.5 | D |
| 26 | S. Airport Way/Arch Airport Road | Signalized | Signalized ⁻³ | >120 | F | 52.9 | D | >120 | F | 53.0 | D |
| 27 | SR 99 SB Ramps/French Camp Road | Two-Way Stop | Signalized | >120 (>120) | F (F) | 25.5 | C | >120 (>120) | F (F) | 31.9 | C |
| 28 | SR 99 NB Ramps/French Camp Road | Two-Way Stop | Signalized | 2.8 (29.0) | A (D) | 38.4 | D | >120 (>120) | F (F) | 22.2 | C |
| 29 | Austin Road/French Camp Road | Two-Way Stop | Signalized | 6.2 (51.0) | A (F) | 8.9 | A | 10.3 (90.6) | B (F) | 9.3 | A |
| 30 | Stagecoach Road/Farmington Road | Signalized ⁻⁴ | Signalized | 23.0 | C | - | - | 39.4 | D | - | - |
| 31 | E. Mariposa Road/W. Frontage Road | Signalized ⁻⁴ | Signalized | - ¹ | - ¹ | 43.2 | D | - ¹ | - ¹ | 25.6 | C |

Notes: ⁻¹ Existing lane geometry cannot be used to analyze forecast volumes at these locations due to network changes in this scenario. In this scenario, intersections 8 and 9 are analyzed as newly designed freeway interchanges and intersections 13, 14, 15, 20 and 22 are analyzed as four-legged intersections. Similarly, 27 and 28 are analyzed as new diamond interchange intersections.
⁻² Further widening not feasible due to space constraints.
⁻³ PHF of 0.97 was used for mitigations (see Westernite publication Nov-Dec, 2002 issue).
⁻⁴ Traffic Signal under construction with geometric improvements as of October 2006
⁻⁵ Unwarranted triple left-turn lanes for mitigation per City's arterial-to- arterial (eight lanes each) criteria.



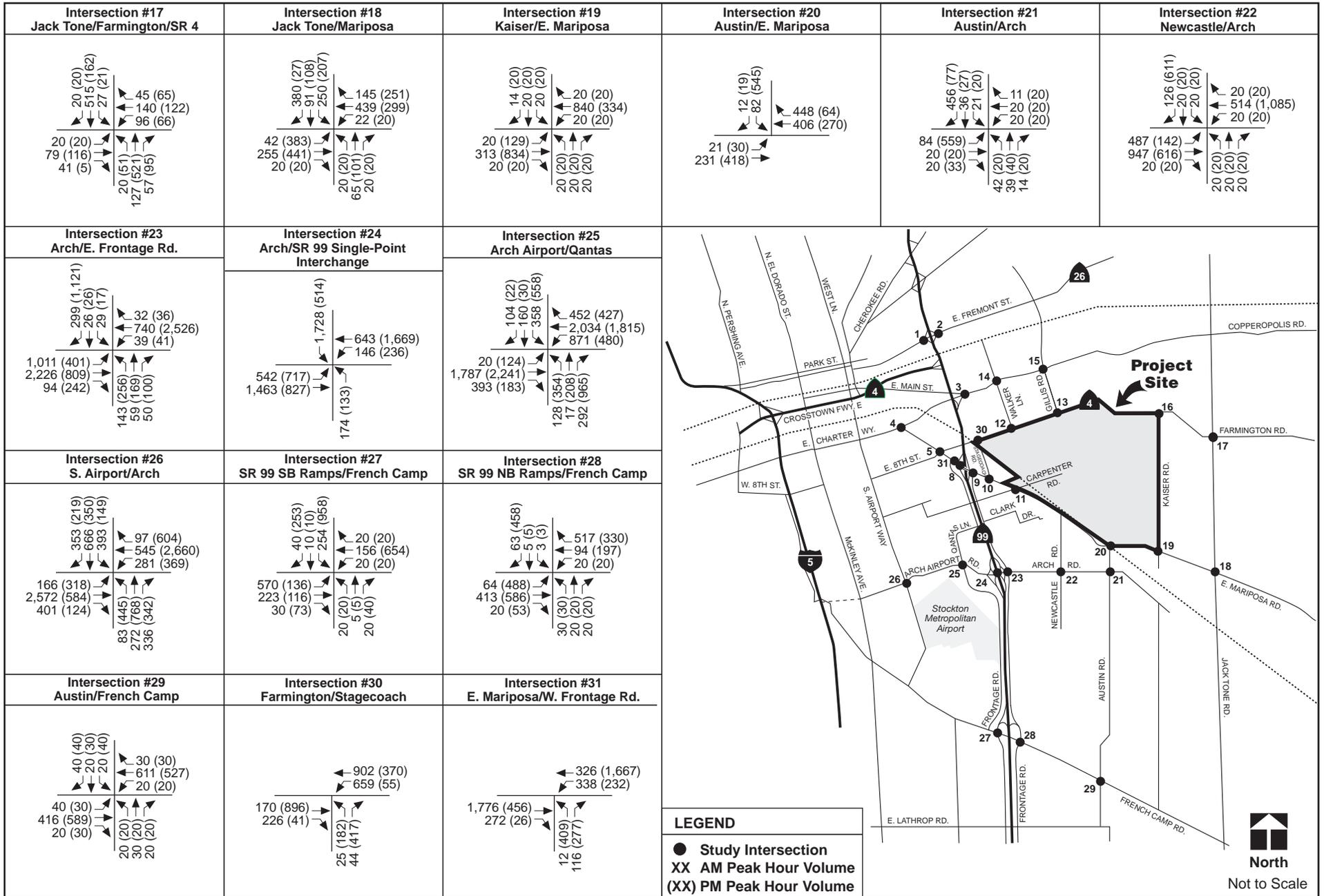
City of Stockton
 Mariposa Lakes Traffic Study
1990 General Plan No Project Turning Movement Volumes

LEGEND

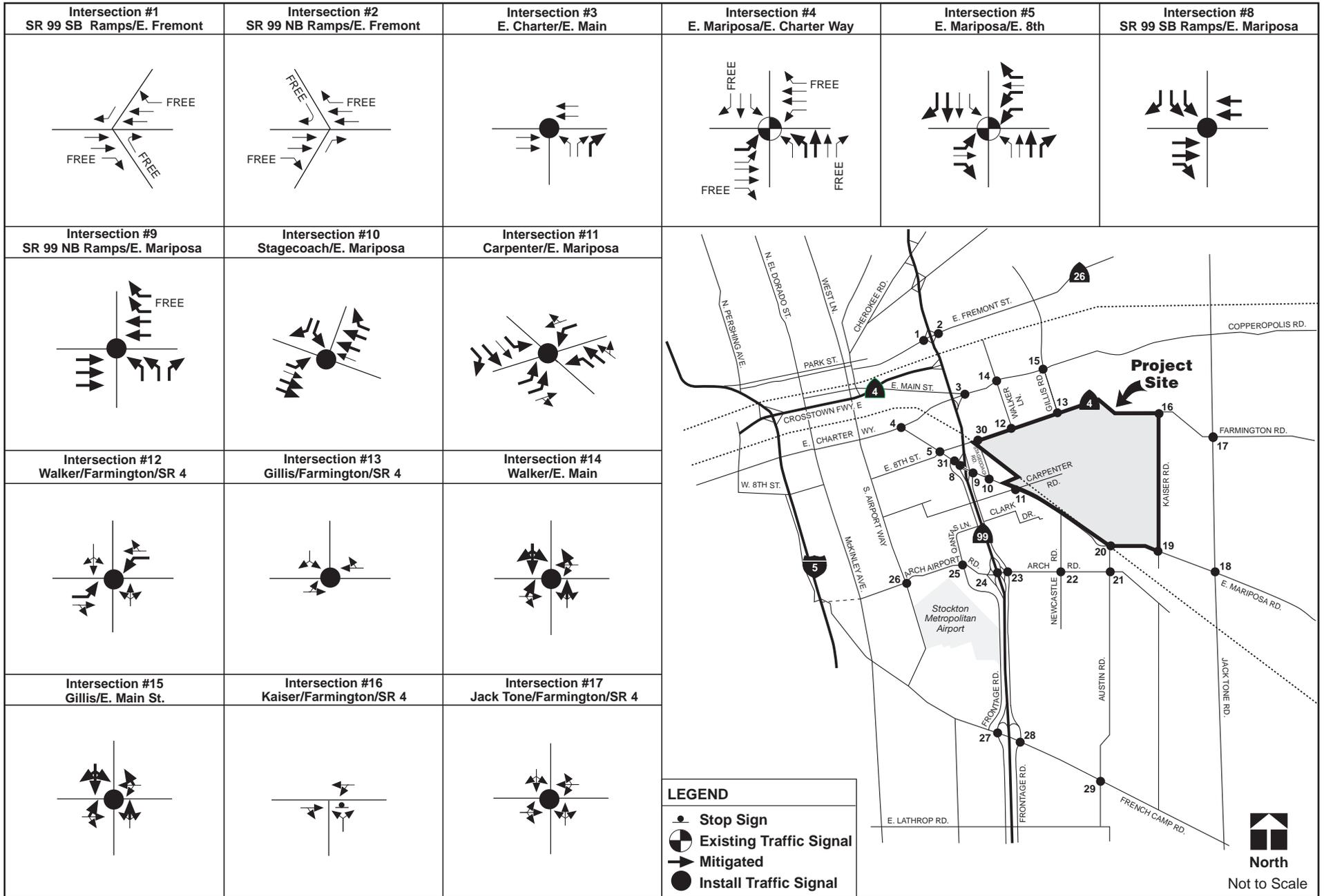
- Study Intersection
- XX AM Peak Hour Volume
- (XX) PM Peak Hour Volume

Figure **22** TJKM



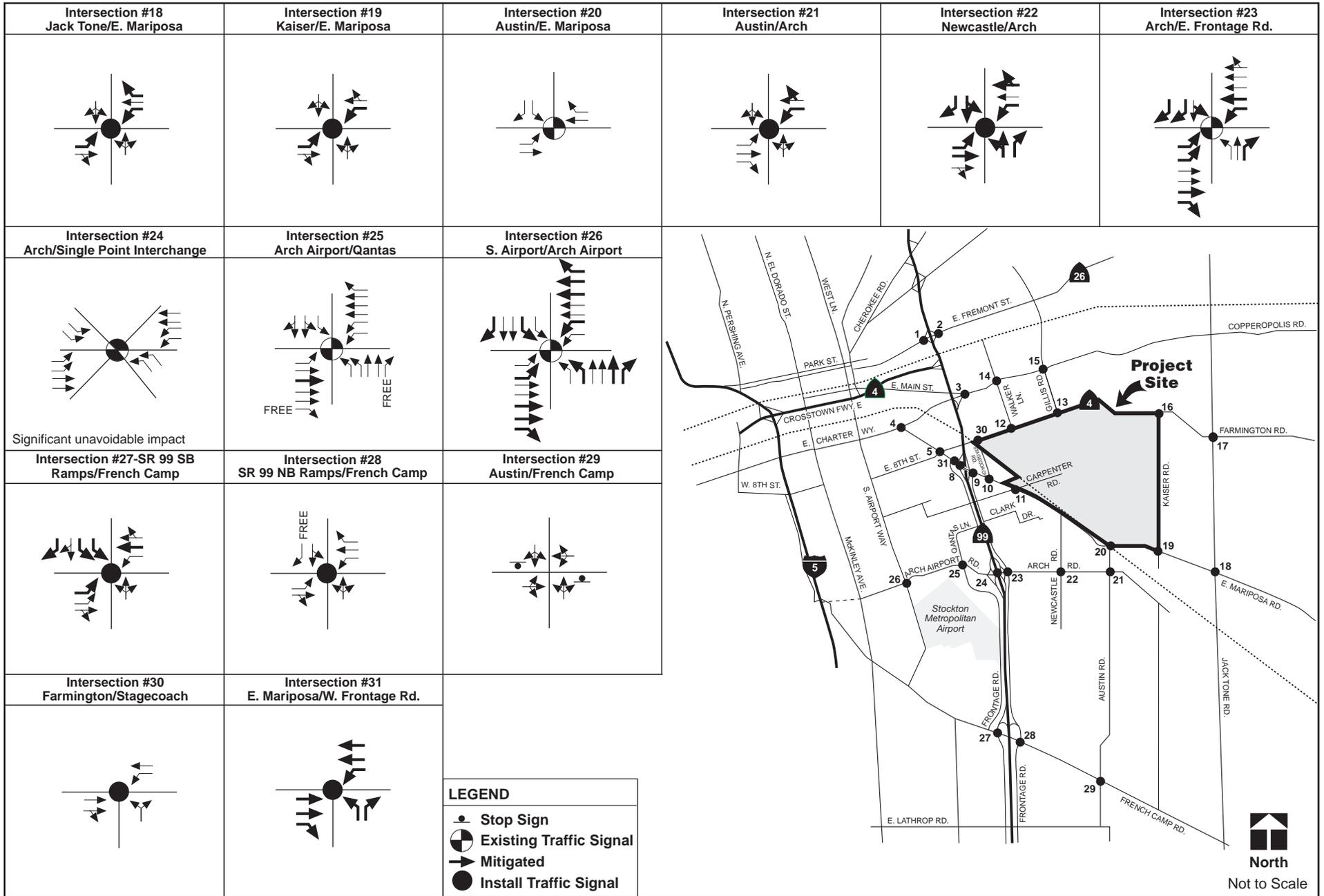


City of Stockton
Mariposa Lakes Traffic Study
1990 General Plan No Project Turning Movement Volumes



City of Stockton
 Mariposa Lakes Traffic Study
1990 No Project Lane Geometry

Figure 23 



City of Stockton
Mariposa Lakes Traffic Study
1990 No Project Lane Geometry

Figure 23
Cont.



1990 GENERAL PLAN PLUS PROJECT CONDITIONS

This scenario adds traffic from the proposed Project to the 1990 General Plan no Project conditions. The City of Stockton's 1990 General Plan travel demand model was used to forecast the a.m. and p.m. forecasts in this scenario.

Project Description

The project has been previously described under the EPAP plus project conditions. The same project with the exact same land use and internal street network was analyzed in this scenario. The proposed project consists of approximately 4,360 Low Density Residential and Estate dwelling units, 5,048 Medium Density Residential dwelling units and 1,406 High Density Residential dwelling units for a total of approximately 10,814 dwelling units. The non-residential component of the project consists of approximately 1.0 million square feet of commercial development, 749,000 square feet of business park uses and 10.7 million square feet of industrial villages.

Modeling Network

Appendix B shows the modeling roadway network in the vicinity of the Project for EPAP plus Project conditions.

Trip Generation

As shown in Table V earlier in the report, the proposed project is expected to generate 17,017 a.m. peak hour trips and 21,934 p.m. peak hour trips.

Trip Distribution

Trip distribution for the proposed Project in 1990 General Plan plus Project conditions is based on the City of Stockton's 1990 General Plan model. Figure 24 shows the proposed Project trip distribution in 1990 General Plan plus Project conditions. Figure 25 shows the proposed Project trip assignment in 1990 General Plan plus Project conditions.

Level of Service Analysis

Figure 26 shows the 1990 General Plan plus Project turning movement volumes. Figure 27 shows the 1990 General Plan plus Project lane geometry. Appendix C contains the a.m. and p.m. peak hour link volume model plots for this scenario. Table X summarizes the results of the intersection level of service analysis in this scenario.

Intersections with proposed mitigation measures in this scenario are described below (Intersection numbers included):

3. E. Charter Way/E. Main Street

Signalize intersection. Add one northbound right turn lane. See Figure 38 for recommended signal phasing.

4. E. Mariposa Road/E. Charter Way

Eastbound: add one right turn lane.

Northbound: add one left turn lane and one through lane.

5. E. Mariposa Way/E. 8th Street

Eastbound: add one left turn lane and one right turn lane.

Westbound: add two left turn lanes and one right turn lane.

Northbound: add one through lane and one right turn lane.

Southbound: add one through lane, one right turn lane and one left turn lane.

8. SR 99 SB Ramps/Mariposa Road

A new Mariposa Road interchange configuration assumed in this scenario as shown in Figure 7.

Modify and signalize intersection. In the southbound approach, construct two left turn lanes and one right turn lane; in the westbound approach construct two through lanes; in the eastbound approach construct two through lanes and one right turn lane. The intersection would be fully mitigated with a third southbound left-turn lane but this mitigation measure does not conform to City policies.

Therefore the traffic impact to the intersection is *Significant and unavoidable*.

9. SR 99 NB Ramps/Mariposa Road

A new Mariposa Road interchange configuration assumed in this scenario as shown in Figure 7.

Modify and signalize intersection. In the northbound approach, construct two left turn lanes and one right turn lane; in the eastbound approach construct three through lanes; in the westbound approach construct two through lanes and two right turn lanes.

10. Stagecoach/E. Mariposa Road

Construct and signalize intersection to include the following lanes:

Eastbound: two left turn lane, three through lanes and two right turn lanes.

Westbound: two left turn lanes, four through lanes and one right turn lane.

Southbound: one left turn lane, two through lanes and one right turn lane.

Northbound: three left turn lanes, two through lanes and one right turn lane.

11. Carpenter Road/E. Mariposa Road

Signalize intersection. Add two eastbound left turn lanes. Add one westbound left turn lane. Add one southbound left turn lane, one through lane and one right turn lane. Add one northbound left turn lane and one through lane. The intersection would be fully mitigated with a third eastbound left-turn lane but this mitigation measure does not conform to City policies. Therefore the traffic impact to the intersection is *Significant and unavoidable*.

12. Walker Lane/Farmington Road/SR 4

Signalize intersection. Add one eastbound left turn lane. Stripe existing southbound lane to a left turn lane and add one southbound right turn lane.

13. Gillis Road/Farmington Road/SR 4

Signalize intersection. Add a south leg and construct the northbound approach to include one left turn lane, two through lanes and one right turn lane. Modify the existing southbound approach to include one left turn lane, two through lanes and one right turn lane. Add one eastbound left turn lane. Add one westbound left turn lane.

14. Walker Lane/E. Main Street

Signalize intersection. Add a north leg and construct the southbound approach to include one left turn lane and one shared through/right turn lane (i.e. re align the dog legged Walker Lane/E. Main Street as a four legged intersection). Add one eastbound left turn lane and one westbound left turn lane. Stripe existing northbound lane to one left turn lane and add one shared through/right turn lane.

15. Gillis Road/E. Main Street

Signalize intersection. Add a north leg and construct the southbound approach to include one left turn lane and one shared through/right turn lane. Add one eastbound left turn lane and two right turn lanes. Modify the northbound approach to include two left turn lanes, one through lane and one right turn lane. Add two westbound left turn lanes.

18. Jack Tone Road/E. Mariposa Road

Signalize intersection. Add one eastbound left turn lane. Add one westbound left turn lane and one right turn lane.

20. Austin Road/E. Mariposa Road

Grade separated intersection. Signalize and construct the north leg of the intersection.
Eastbound: construct one left turn lane and one shared through/right turn lane.
Westbound: construct one left turn lane, one through lane and one right turn lane.
Northbound: construct one left turn lane, two through lanes and one right turn lane.
Southbound: construct one left turn lane, two through lanes and one right turn lane.

21. Austin Road/Arch Road

Signalize intersection. Add one eastbound left turn lane. Stripe existing westbound shared through/left turn lane to a left turn only lane. Stripe existing right turn lane to a shared through/right turn lane. Add two southbound right turn lanes.

22. Newcastle Road/Arch Road

Signalize intersection. Add a north leg with one southbound shared through/left turn lane and a right turn only lane. Add two eastbound left turn lanes and one through lane. Add one westbound left turn lane and one shared through/right turn lane. Add one northbound right turn lane and stripe existing lane to a shared through/left turn lane.

23. Arch Road/E. Frontage Road

Add two eastbound left turn lanes, two through lanes and one right turn lane. Add one westbound left turn lane and one through lane. Add one northbound right turn lane. Add two southbound right turn lanes.

24. Arch Road/Single Point Interchange

Due to physical restriction at the interchange, it is impractical to add an additional eastbound left-turn lane and one westbound through lane to operate the intersection acceptably under 1990 General Plan Plus Project conditions. Therefore the traffic impact to the intersection is *significant and unavoidable*.

25. Arch Airport Road/Qantas Lane

Add one eastbound through lane. Add one southbound left turn lane. Due to physical restriction at the intersection, it is impractical to add a third southbound left-turn lane to operate the intersection acceptably under 1990 General Plan Plus Project conditions. Therefore the traffic impact to the intersection is *significant and unavoidable*.

26. S. Airport Road/Arch Airport Road

Eastbound: add one left turn lane, two through lanes and one right turn lane.
Westbound: add one left turn lane, two through lanes and one right turn lane.
Northbound: add one left turn lane, one through lane and one right turn lane.
Southbound: add one left turn lane and one right turn lane.

27. SR 99 SB Ramps/French Camp Road

Signalize intersection. Add two southbound left turn lanes and one right turn lane.

28. SR 99 NB Ramps/French Camp Road

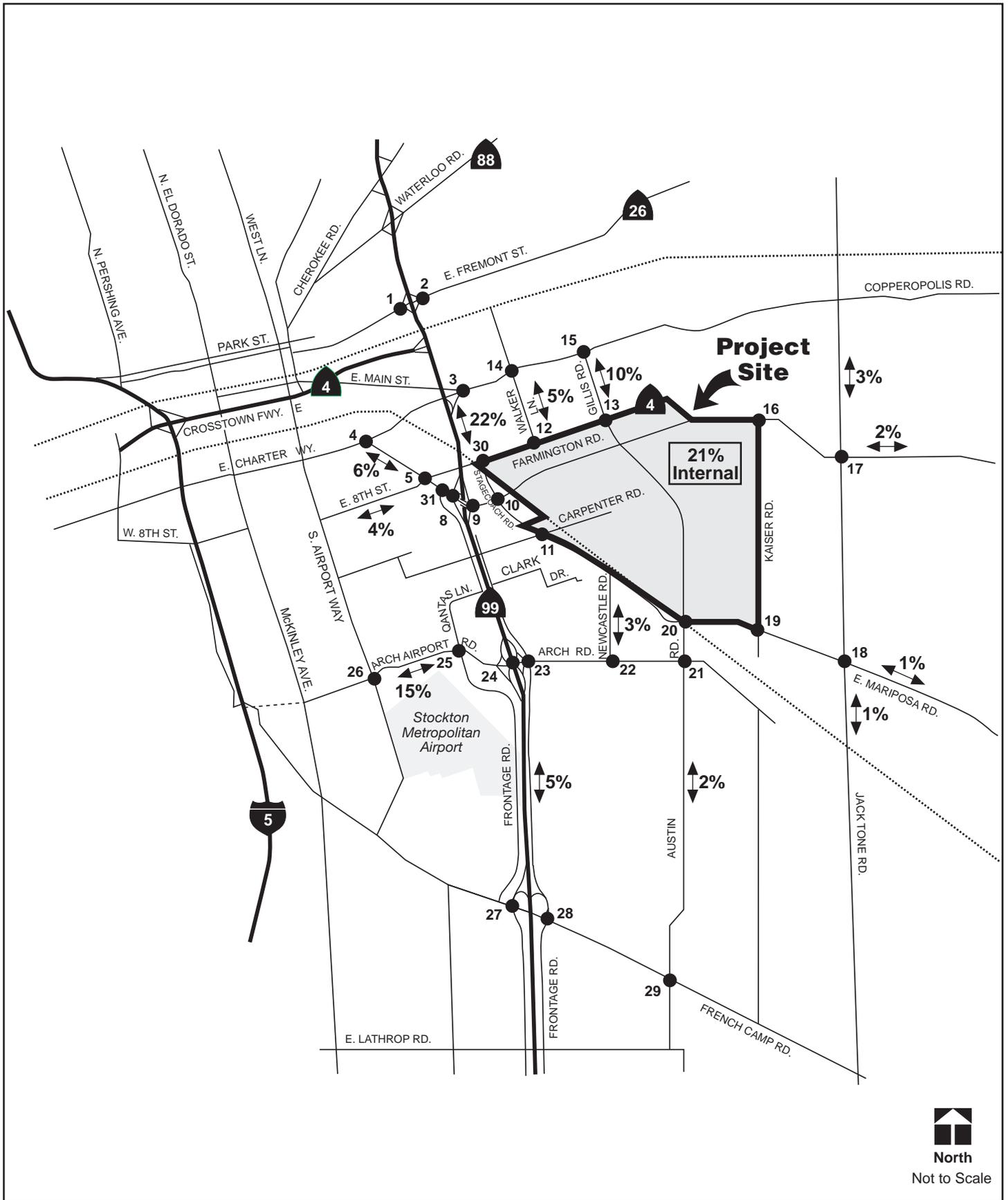
Signalize intersection.

30. Farmington Road/Stagecoach

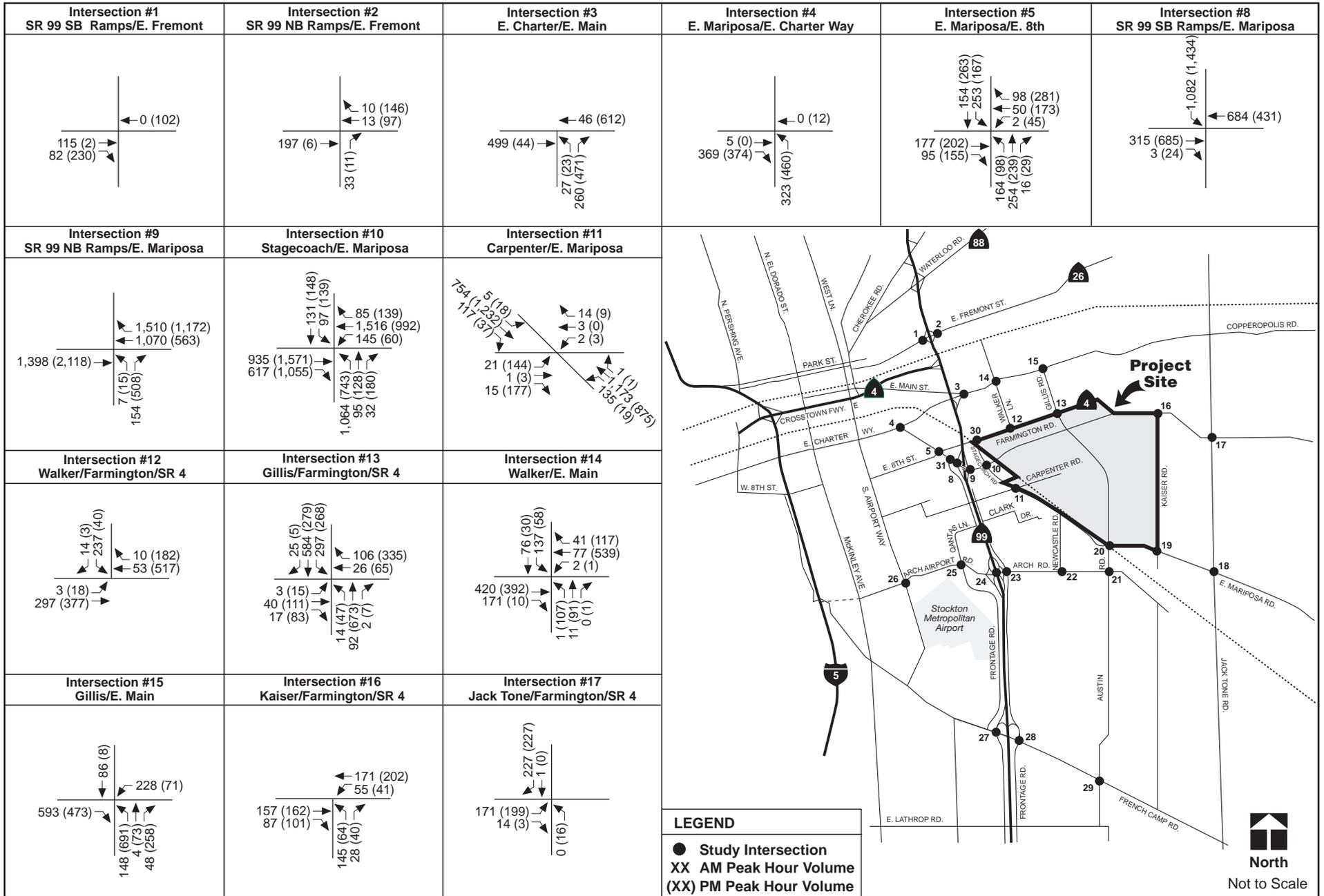
Add one westbound through lane. Add one northbound right turn lane and stripe existing lane to a left turn only lane.

31. Mariposa Road/W. Frontage Road

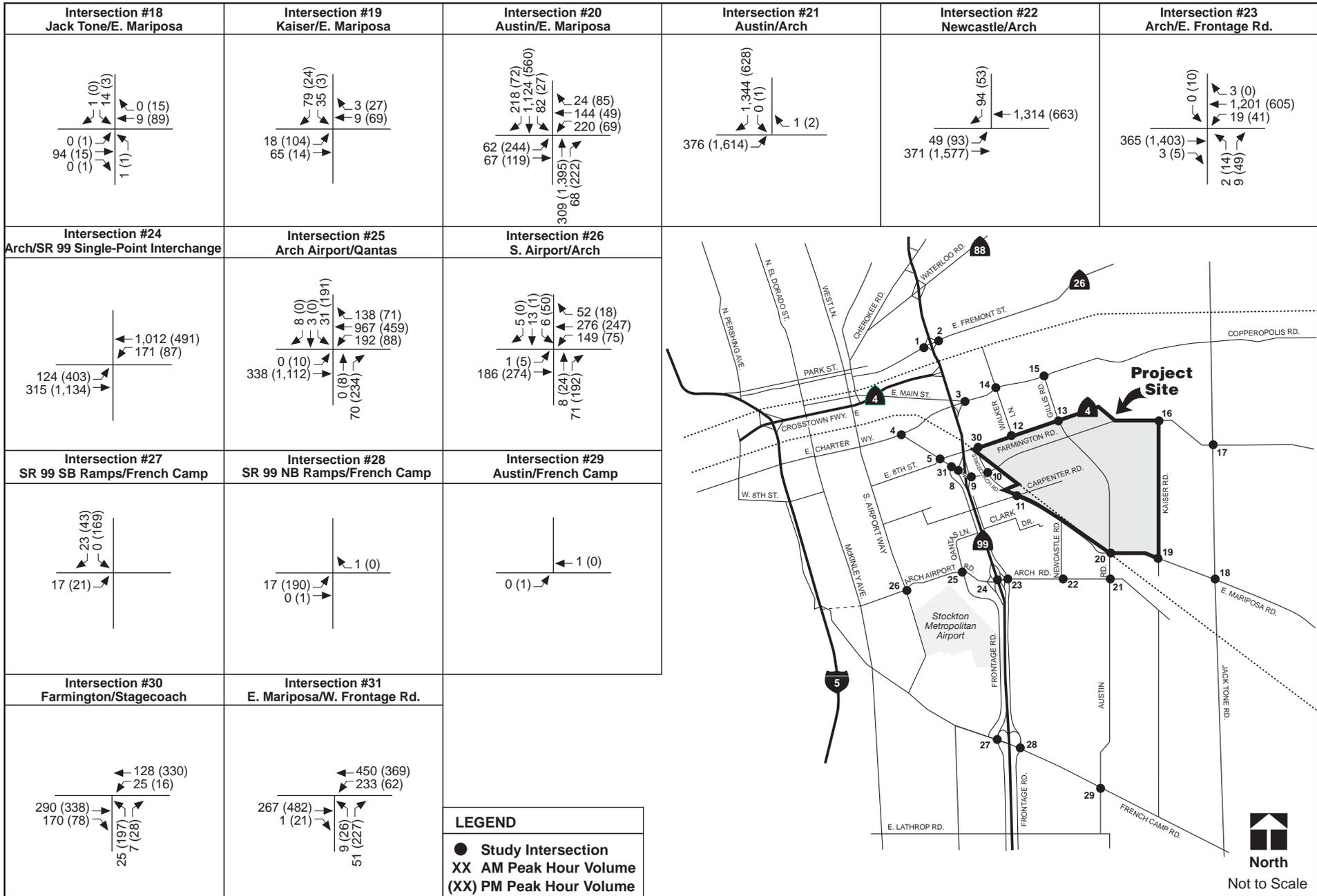
Construct and signalize a new T-intersection.
Eastbound: two through lanes and one right turn lane.
Westbound: one left turn lane and two through lanes.
Northbound: one left turn lane and one right turn lane.



City of Stockton
 Mariposa Lakes Traffic Study
Project Trip Distribution
(1990 General Plan Plus Project Conditions)



City of Stockton
 Mariposa Lakes Traffic Study
Project Trip Assignment (1990 General Plan Plus Project Conditions)



City of Stockton
 Mariposa Lakes Traffic Study
Project Trip Assignment (1990 General Plan Plus Project Conditions)

Figure
25
 Cont.



TABLE X: INTERSECTION LEVELS OF SERVICE – 1990 GENERAL PLAN PLUS PROJECT CONDITIONS

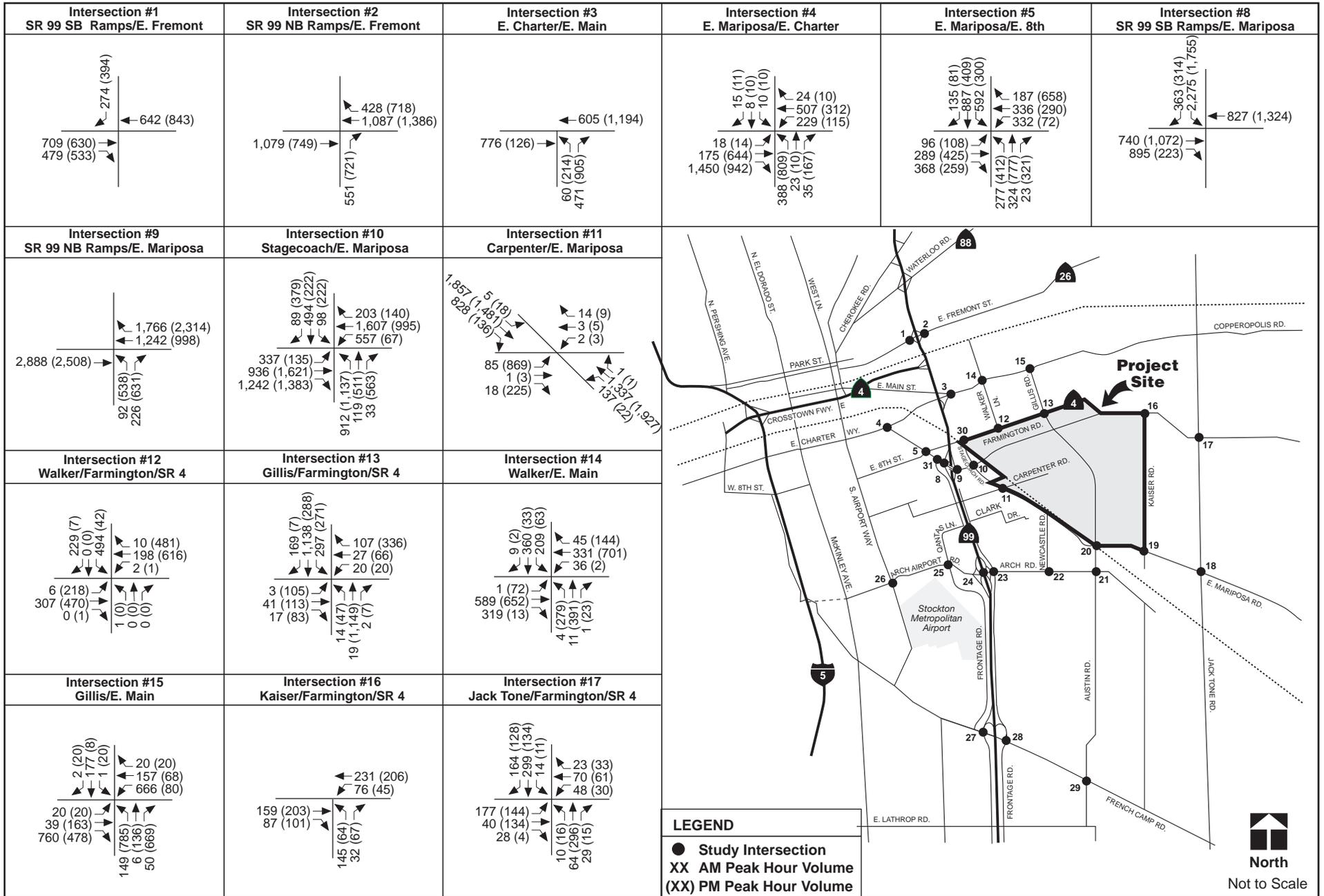
| Intersection | Existing Control | GP_1990 + Project Intersection Control (Mitigated) | A.M. Peak Hour | | A.M. Peak Hour (Mitigated) | | P.M. Peak Hour | | P.M. Peak Hour (Mitigated) | | |
|--|--------------------------|--|---|----------------|---|-----|----------------|----------------|---|-----|--|
| | | | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | |
| 1 SR 99 SB Ramps/E. Fremont Street | | | See Table XVII for Results | | | | | | | | |
| 2 SR 99 NB Ramps/E. Fremont Street | | | See Table XVII for Results | | | | | | | | |
| 3 E. Charter Way/E. Main Street | One-Way Stop | Signalized | 12.9 (46.4) | B (E) | 8.2 | A | >120 (>120) | F (F) | 51.6 | D | |
| 4 E. Charter Way/E. Mariposa Road | Signalized | Signalized | 72.3 | E | 49.3 | D | 13.5 | B | 28.3 | C | |
| 5 E. Mariposa Road/E. 8 th Street | Signalized | Signalized | >120 | F | 45.8 | D | >120 | F | 41.7 | D | |
| 6 SR 99SB Ramps/Farmington Road | One-Way Stop | | Not a Study Intersection in this scenario | | | | | | | | |
| 7 SR 99 NB Ramps/Farmington Road | One-Way Stop | | Not a Study Intersection in this scenario | | | | | | | | |
| 8 SR 99 SB Ramps/E. Mariposa Road | Signalized ⁻⁴ | Signalized | - ¹ | - ¹ | - ⁵ Significant and unavoidable impact | | - ¹ | - ¹ | - ⁵ Significant and unavoidable impact | | |
| 9 SR 99 NB Ramps/E. Mariposa Road | Signalized ⁻⁴ | Signalized | - ¹ | - ¹ | 12.8 | B | - ¹ | - ¹ | 47.6 | D | |
| 10 Stagecoach Road/E. Mariposa Road | One-Way Stop | Signalized ⁻³ | - ¹ | - ¹ | 54.4 | D | - ¹ | - ¹ | 49.6 | D | |
| 11 E. Mariposa Road/Carpenter Road | Two-Way Stop | Signalized | >120 (>120) | F (F) | 19.1 | B | >120 (>120) | F (F) | - ⁵ Significant and unavoidable impact | | |
| 12 Farmington Road/ Walker Lane | One-Way Stop | Signalized | >120 (>120) | F (F) | 13.4 | B | 12.9 (>120) | A (F) | 51.1 | D | |
| 13 Gillis Road/ Farmington Road | One-Way Stop | Signalized | - ¹ | - ¹ | 11.6 | B | - ¹ | - ¹ | 49.5 | D | |
| 14 Walker Lane/E. Main Street | One-Way Stop | Signalized | - ¹ | - ¹ | 11.8 | B | - ¹ | - ¹ | 16.6 | B | |
| 15 Gillis Road/ E. Main Street | One-Way Stop | Signalized | - ¹ | - ¹ | 27.8 | C | - ¹ | - ¹ | 38.3 | C | |
| 16 Kaiser Road/Farmington Road | One-Way Stop | One-Way Stop | 5.8 (19.7) | A (C) | - | - | 3.3 (13.8) | A (B) | - | - | |
| 17 Jack Tone Road/Farmington Road | All-Way Stop | All-Way Stop | 17.6 (23.4) | C (C) | - | - | 14.8 (16.6) | B (C) | - | - | |
| 18 Jack Tone Road/E. Mariposa Road | All-Way Stop | Signalized | 38.8 (57.2) | E (F) | 19 | B | 86.5 (>120) | F (F) | 8.3 | A | |
| 19 Kaiser Road/E. Mariposa Road | Two-Way Stop | Two-Way Stop | 4.4 (17.0) | A (C) | - | - | 3.2 (20.8) | A (C) | - | - | |
| 20 Austin Road/E. Mariposa Road | Signalized | Signalized | - ¹ | - ¹ | 36.6 | D | - ¹ | - ¹ | 42.2 | D | |

(CONTINUED ON NEXT PAGE)

TABLE X (CONT): INTERSECTION LEVELS OF SERVICE – 1990 GENERAL PLAN PLUS PROJECT CONDITIONS

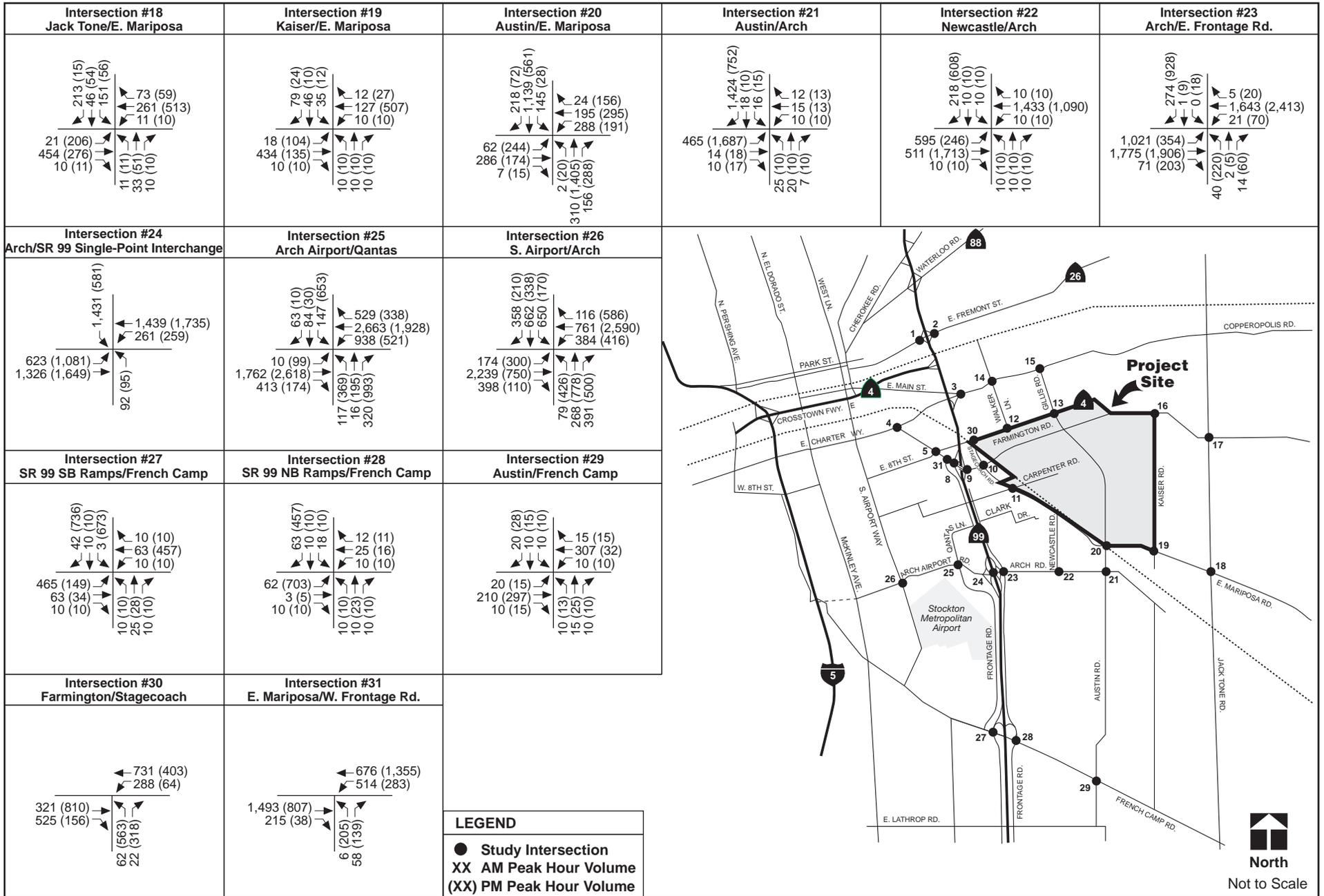
| Intersection | Existing Control | GP_1990 + Project Intersection Control (Mitigated) | A.M. Peak Hour | | A.M. Peak Hour (Mitigated) | | P.M. Peak Hour | | P.M. Peak Hour (Mitigated) | | |
|--------------|--|--|--------------------------|----------------|----------------------------|---|----------------|----------------|----------------------------|---|---|
| | | | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | |
| 21 | Austin Road/Arch Road | Two-Way Stop | Signalized | >120 (>120) | F (F) | 8 | A | >120 (>120) | F (F) | 8.1 | A |
| 22 | Newcastle Road/Arch Road | One-Way Stop | Signalized | — ¹ | — ¹ | 26.4 | C | — ¹ | — ¹ | 22.2 | C |
| 23 | E. Frontage Road/Arch Road | Signalized | Signalized | >120 | F | 29.2 | C | >120 | F | 48.5 | D |
| 24 | Arch Road/SR 99 Single Point Interchange | Signalized | Signalized | >120 | F | — ² Significant and unavoidable impact | | 117.1 | F | — ² Significant and unavoidable impact | |
| 25 | Qantas Lane/Arch Airport Road | Signalized | Signalized | 46.7 | D | 34.8 | C | 112.3 | F | — ⁵ Significant and unavoidable impact | |
| 26 | S. Airport Way/Arch Airport Road | Signalized | Signalized— ³ | >120 | F | 51.8 | D | >120 | F | 48.8 | D |
| 27 | SR 99 SB Ramps/French Camp Road | Two-Way Stop | Signalized | 10.2 (47.2) | B (E) | 17.5 | B | >120 (>120) | F (F) | 41.2 | D |
| 28 | SR 99 NB Ramps/French Camp Road | Two-Way Stop | Signalized | 7.0 (10.4) | A (B) | 12.2 | B | 32.8 (>120) | D (F) | 10.6 | B |
| 29 | Austin Road/French Camp Road | Two-Way Stop | Two-Way Stop | 2.1 (14.7) | A (B) | — | — | 2.9 (12.9) | A (B) | — | — |
| 30 | Stagecoach Road/Farmington Road | Signalized— ⁴ | Signalized | 8.5 | A | 8.5 | A | 60.7 | E | 28.3 | C |
| 31 | E. Mariposa Road/W. Frontage Road | Signalized— ⁴ | Signalized | — ¹ | — ¹ | 41 | D | — ¹ | — ¹ | 15.1 | B |

Notes: —¹ Existing lane geometry cannot be used to analyze forecast volumes at these locations due to network changes in this scenario. In this scenario, the intersections 8 and 9 are analyzed as newly designed freeway interchanges and the intersections 10, 13, 14, 15, 20 and 22 are analyzed as four-legged intersections. Similarly, 27 and 28 are analyzed as new diamond interchange intersections.
 —² Further widening not feasible due to space constraints.
 —³ PHF of 0.97 was used for mitigations (see Westernite publication Nov-Dec, 2002 issue).
 —⁴ Traffic Signal under construction with geometric improvements as of October 2006
 —⁵ Unwarranted triple left-turn lanes for mitigation per City's arterial-to-arterial (eight lanes each) criteria.



City of Stockton
Mariposa Lakes Traffic Study
1990 General Plan Plus Project Turning Movement Volumes

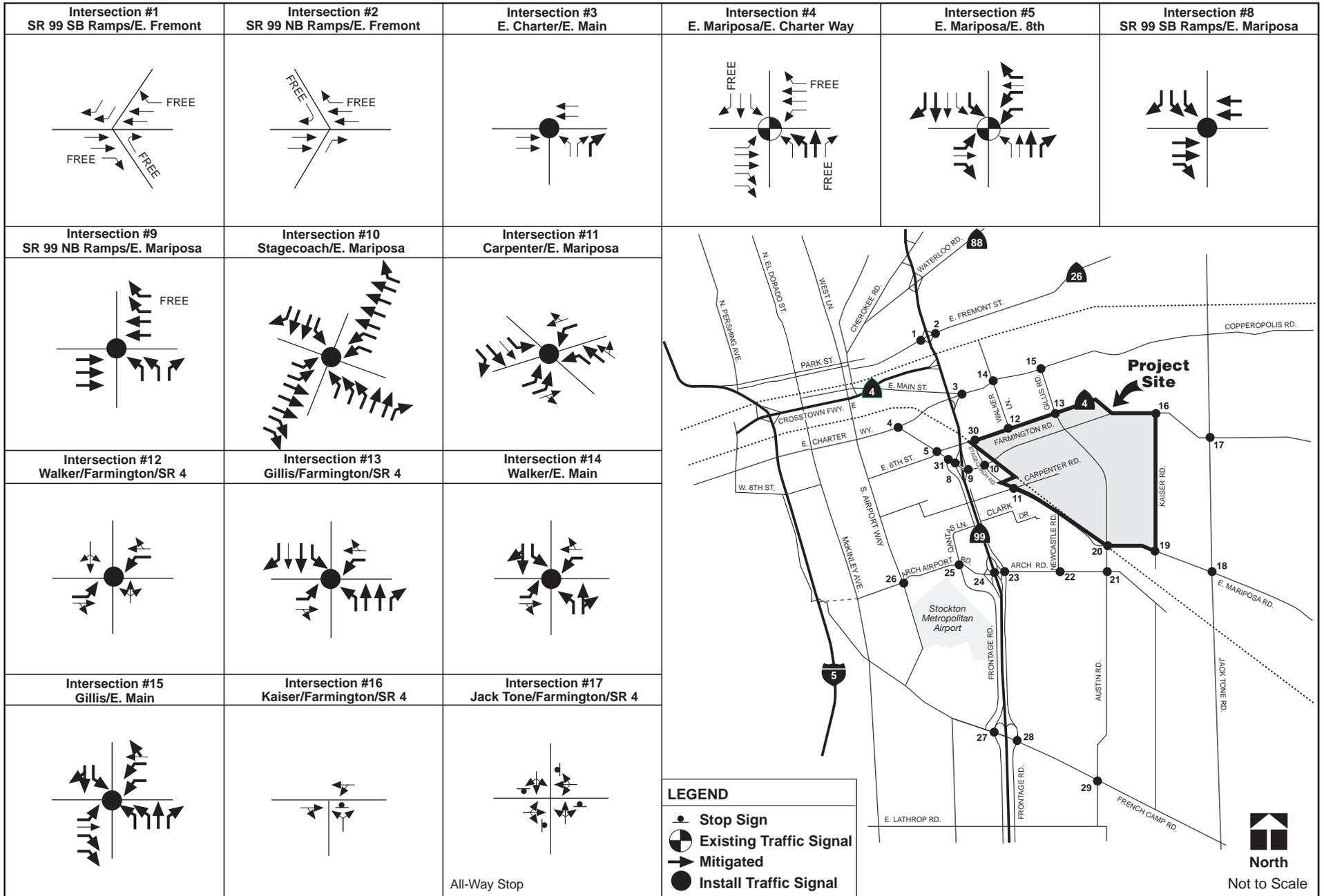
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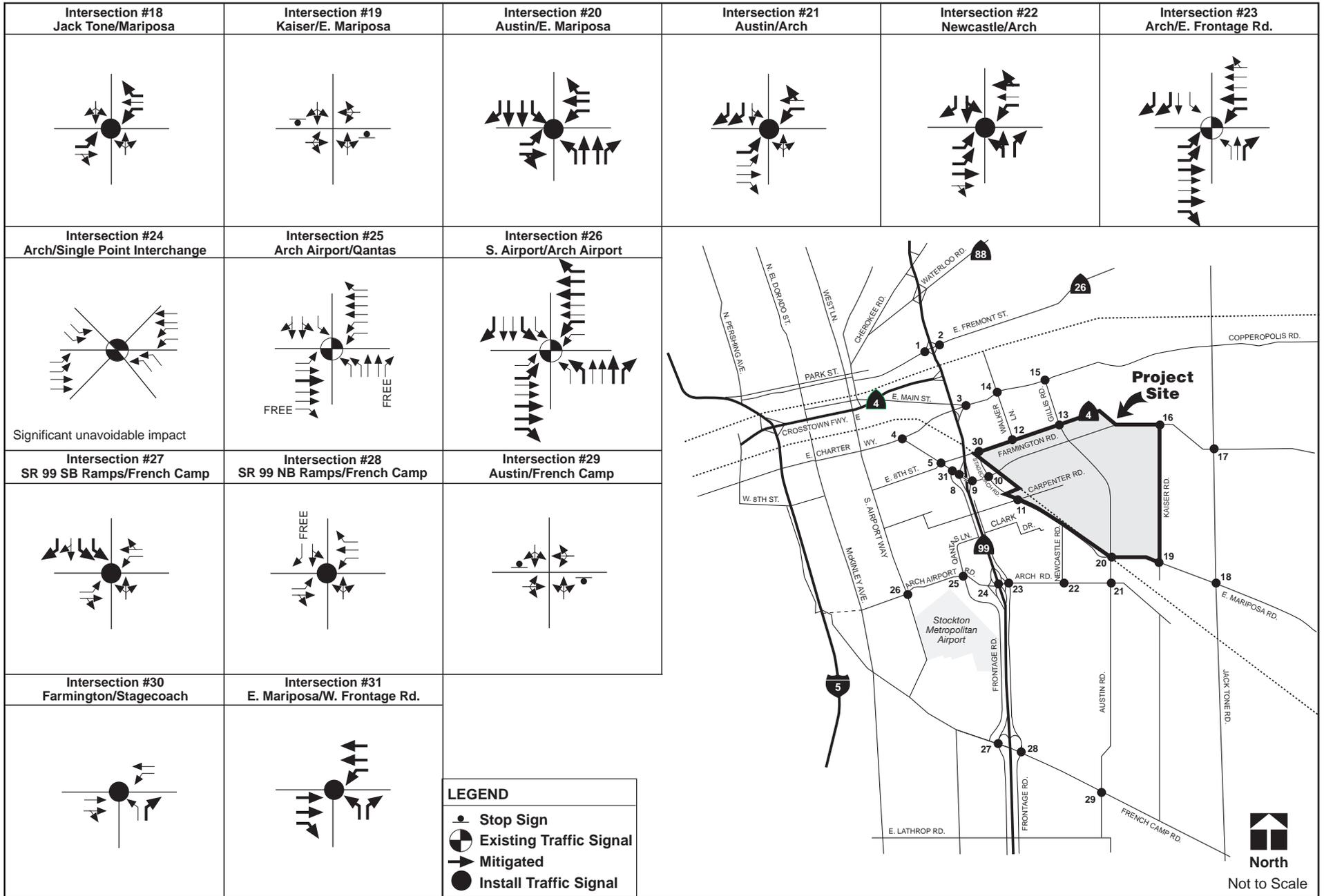
City of Stockton
Mariposa Lakes Traffic Study
1990 General Plan Plus Project Turning Movement Volumes

Figure 26
Cont.





City of Stockton
 Mariposa Lakes Traffic Study
1990 General Plan Plus Project Lane Geometry



City of Stockton
 Mariposa Lakes Traffic Study
1990 General Plan Plus Project Lane Geometry

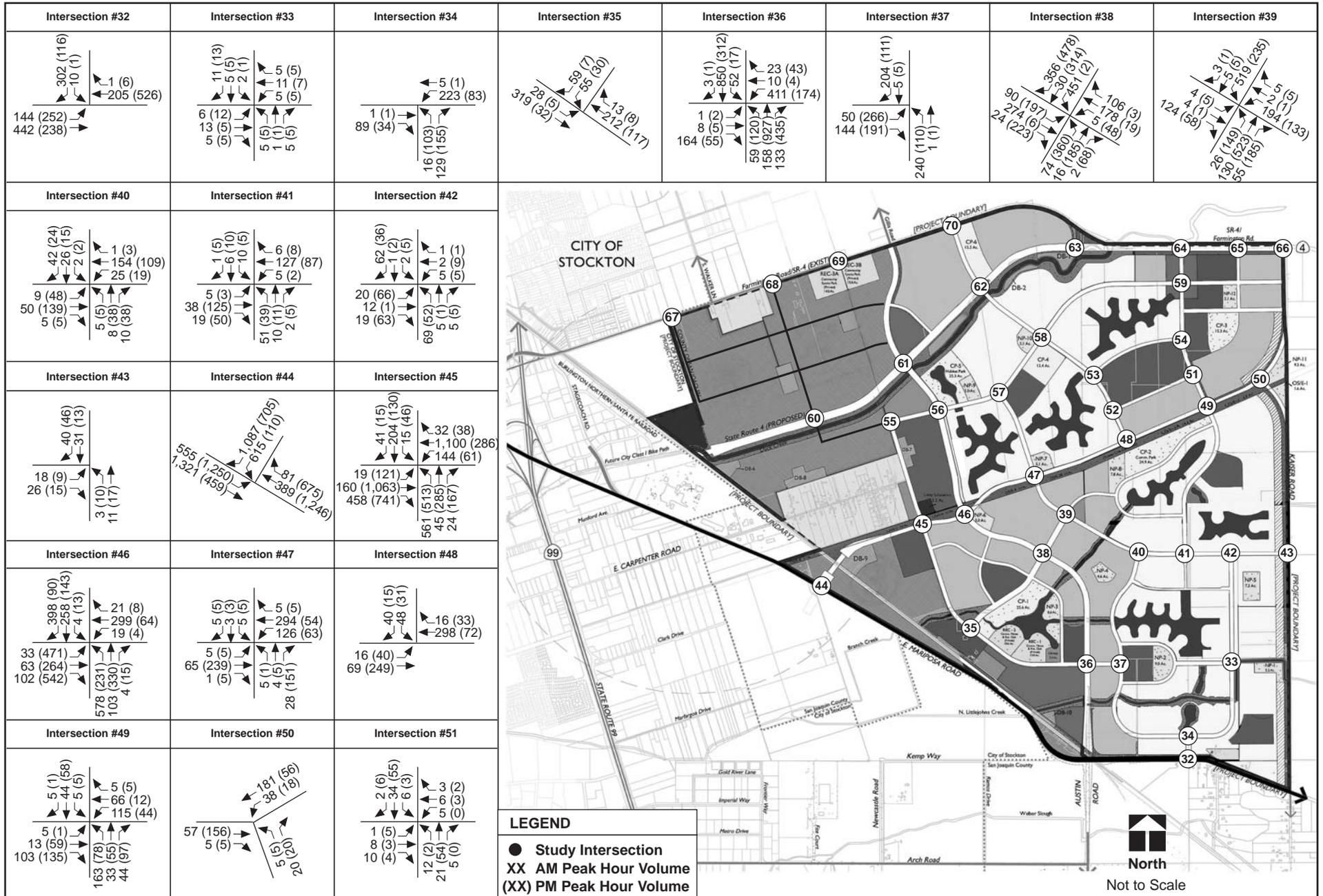
Figure
27
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Figure 28 shows the 1990 General Plan plus Project internal turning movement volumes. Figure 29 shows the 1990 General Plan plus Project internal lane geometry. Table XI summarizes the results of the internal intersection level of service analysis in this scenario.

**TABLE XI: INTERNAL INTERSECTION LEVEL OF SERVICE ANALYSIS –
1990 GENERAL PLAN PLUS PROJECT CONDITIONS**

| | <i>Intersection Control</i> | <i>A.M. Peak Hour</i> | | <i>P.M. Peak Hour</i> | |
|----|-----------------------------|-----------------------|------------|-----------------------|------------|
| | | <i>Delay (sec)</i> | <i>LOS</i> | <i>Delay (sec)</i> | <i>LOS</i> |
| 32 | One-Way Stop | 5.1 (14.1) | A (B) | 3.8 (14.9) | A (B) |
| 33 | Two-Way Stop | 6.2 (9.1) | A (A) | 5.7 (8.9) | A (A) |
| 34 | One-Way Stop | 6.9 (10.0) | A (A) | 9.0 (10.8) | A (B) |
| 35 | One-Way Stop | 2.7 (13.7) | A (B) | 2.0(9.7) | A (A) |
| 36 | Signalized | 17.1 | B | 9.5 | A |
| 37 | One-Way Stop | 7.1 (13.1) | A (B) | 14.1(19.2) | B (C) |
| 38 | Roundabout | 16.0 | C | 19.1 | C |
| 39 | Signalized | 27.3 | C | 30.7 | C |
| 40 | Two-Way Stop | 3.7 (10.4) | A (B) | 4.4 (11.7) | A (B) |
| 41 | Two-Way Stop | 3.3 (10.5) | A (B) | 2.4 (11.0) | A (B) |
| 42 | Two-Way Stop | 7.6 (10.2) | A (B) | 6.3 (10.8) | A (B) |
| 43 | One-Way Stop | 3.2 (8.9) | A (A) | 2.6 (8.8) | A (A) |
| 44 | Signalized | 14.1 | B | 52.3 | D |
| 45 | Signalized | 39.3 | D | 33.1 | C |
| 46 | Signalized | 41.0 | D | 18.7 | B |
| 47 | Two-Way Stop | 3.4 (14.2) | A (B) | 4.6 (13.2) | A (B) |
| 48 | One-Way Stop | 2.4 (11.8) | A (B) | 2.0 (11.1) | A (B) |
| 49 | Roundabout | 3.9 | A | 3.8 | A |
| 50 | One-Way Stop | 1.8 (9.1) | A (A) | 1.5 (9.5) | A (A) |
| 51 | Two-Way Stop | 3.9 (9.3) | A (A) | 1.4 (9.3) | A (A) |
| 52 | Two-Way Stop | 4.9 (10.0) | A (A) | 7.7(10.6) | A (B) |
| 53 | One-Way Stop | 6.1 (10.9) | A (B) | 2.4 (9.6) | A (A) |
| 54 | One-Way Stop | 2.3 (8.7) | A (A) | 1.1 (8.9) | A (A) |
| 55 | One-Way Stop | 2.6 (11.7) | A (B) | 14.8 (33.5) | B (D) |
| 56 | Signalized | 17.2 | B | 14.5 | B |
| 57 | One-Way Stop | 3.8 (9.5) | A (A) | 1.8 (9.5) | A (A) |
| 58 | Roundabout | 4.5 | A | 4.3 | A |
| 59 | Roundabout | 4.2 | A | 4.3 | A |
| 60 | Signalized | 51.6 | D | 49.4 | D |
| 61 | Signalized | 51.1 | D | 54.7 | D |
| 62 | Signalized | 53.5 | D | 22.6 | C |
| 63 | One-Way Stop | 2.9 (27.4) | A (D) | 6.5 (54.0) | A (F) |
| 64 | One-Way Stop | 14.3 (46.9) | B (E) | 10.2 (40.9) | B (E) |
| 65 | One-Way Stop | 0.3 (11.3) | A (B) | 0.3 (11.8) | A (B) |
| 66 | Signalized | 33.5 | C | 19.7 | B |
| 67 | Signalized | 14.7 | B | 23.2 | C |
| 68 | Signalized | 5.0 | A | 8.5 | A |
| 69 | One-Way Stop | 0.5 (9.6) | A (A) | 0.4 (11.0) | A (B) |
| 70 | Signalized | 11.8 | B | 11.8 | B |

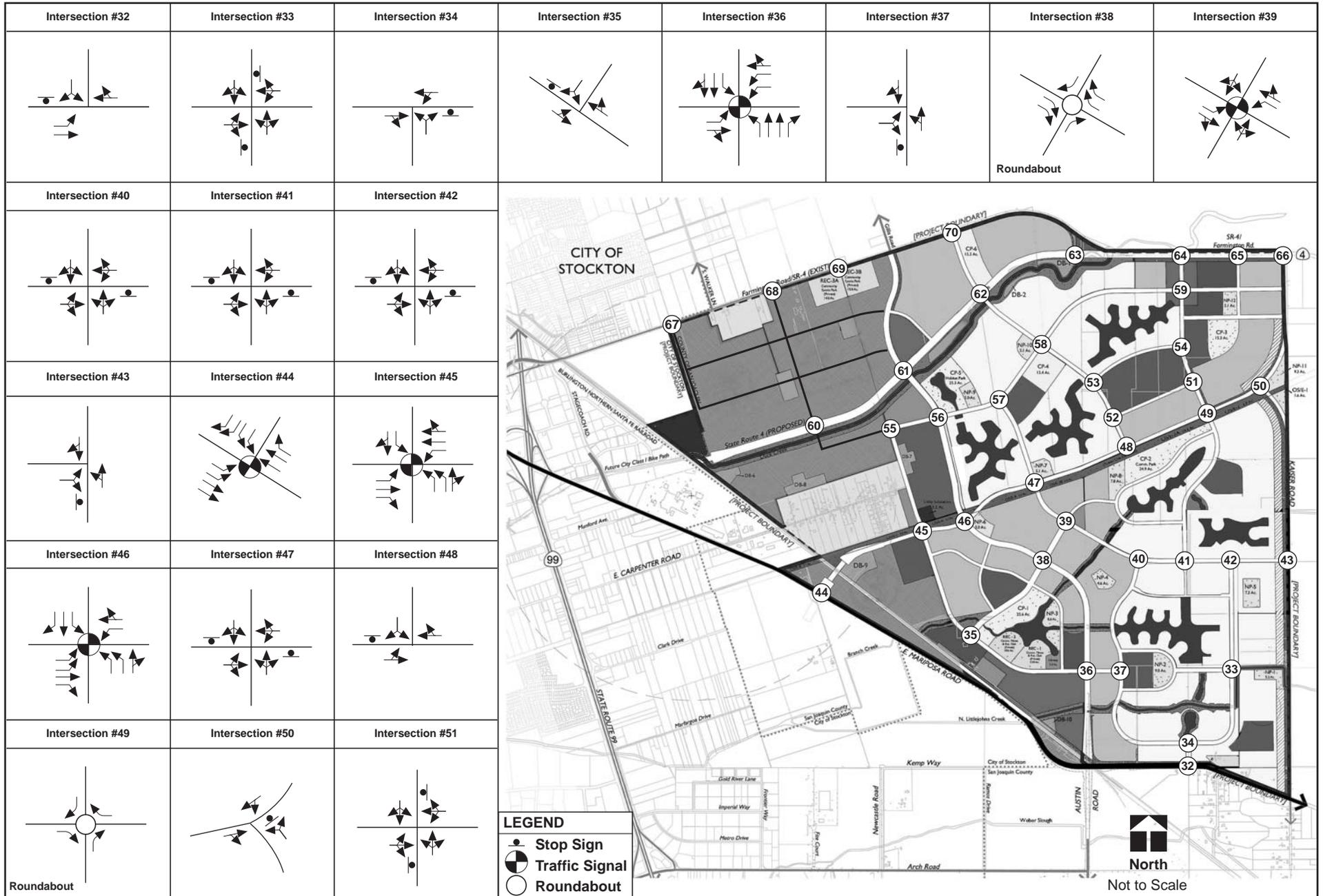


City of Stockton
 Mariposa Lakes Traffic Study
1990 General Plan Plus Project Internal Turning Movement Volumes

Figure 28
 TJKM

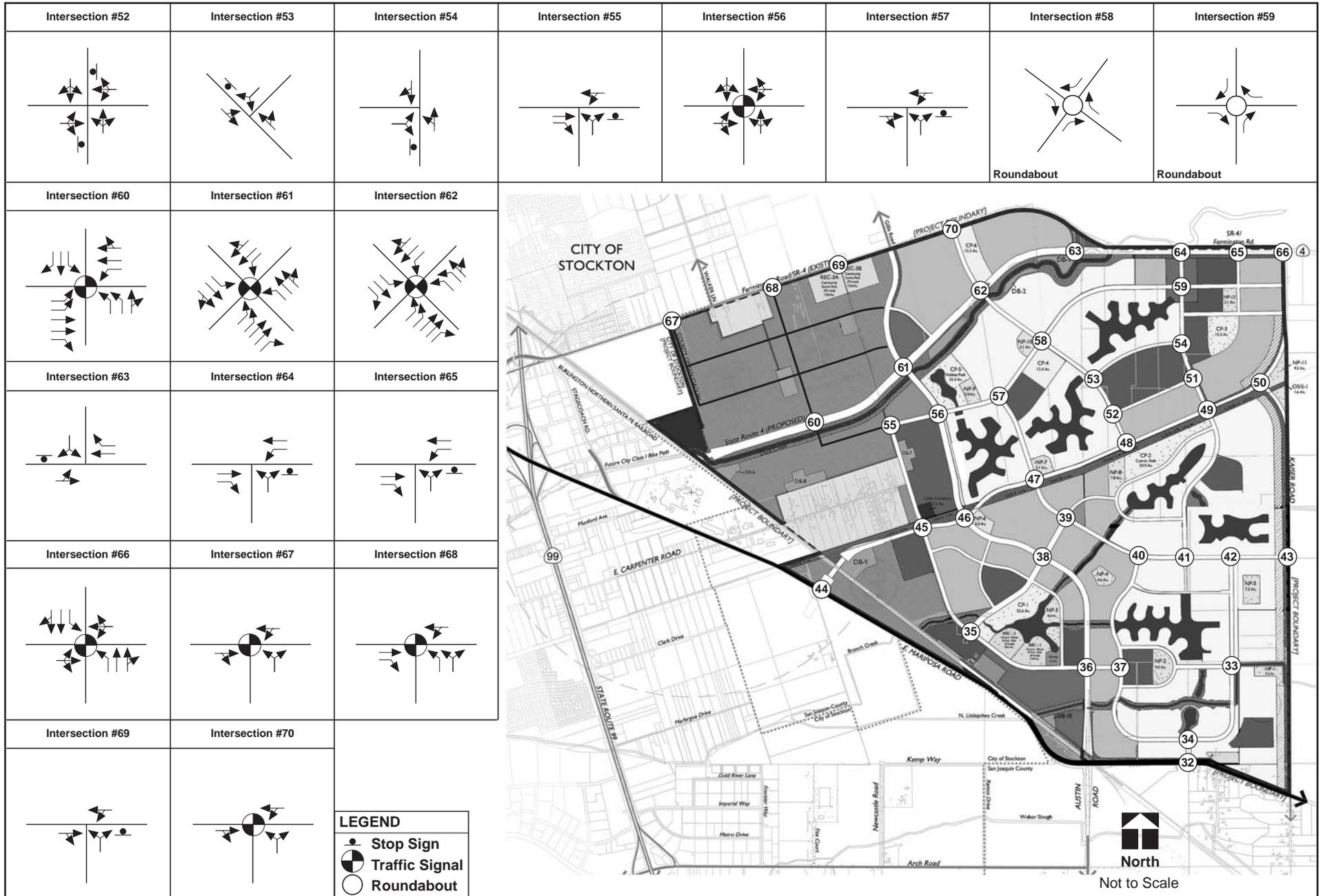


City of Stockton
 Mariposa Lakes Traffic Study
1990 General Plan Plus Project Internal Turning Movement Volumes



City of Stockton
 Mariposa Lakes Traffic Study
1990 General Plan Plus Project Internal Lane Geometry

Figure 29 TJKM



City of Stockton
 Mariposa Lakes Traffic Study
1990 General Plan Plus Project Internal Lane Geometry

Figure
29
 Cont.



2035 GENERAL PLAN BUILDOUT NO PROJECT CONDITIONS

This scenario considers the traffic volumes under the City's 2035 General Plan Buildout conditions. The City of Stockton's 2035 travel demand model was used to forecast the volumes under this scenario. The land use and highway network in this scenario are based on the general plan update that is currently being considered by the City.

Modeling Network

Appendix B shows the modeling network in the vicinity of the Project for the 2035 No Project conditions. As shown on the network, this scenario features a new north-south major arterial parallel to, and east of, SR 99. The purpose of this roadway is to serve new planned land use on the east side of the City and to provide arterial relief to SR 99 itself.

Level of Service Analysis

Figure 30 shows the 2035 General Plan no Project turning movement volumes. Figure 31 shows the 2035 General Plan no Project lane geometry. Appendix L contains the a.m. and p.m. peak hour link volume model plots for this scenario. Table XII summarizes the results of the intersection level of service analysis in this scenario.

Intersections with proposed mitigation measures in this scenario are described below (Intersection numbers included):

3. E. Charter Way/E. Main Street

Signalize intersection. See Figure 38 for recommended signal phasing.

4. E. Mariposa Road/E. Charter Way

Add one eastbound right turn lane.

5. E. Mariposa Way/E. 8th Street

Eastbound: add one left turn lane and two right turn lanes.

Westbound: add one left turn lane and two right turn lanes.

Northbound: add one through lane and one left turn lane.

Southbound: add one through lane and two left turn lanes.

8. SR 99 SB Ramps/Mariposa Road

A new Mariposa Road interchange configuration assumed in this scenario as shown in Figure 7.

Modify and signalize intersection. In the southbound approach, construct two left turn lanes and one right turn lane; in the westbound approach construct two through lanes; in the eastbound approach construct two through lanes and one right turn lane.

9. SR 99 NB Ramps/Mariposa Road

A new Mariposa Road interchange configuration assumed in this scenario as shown in Figure 7.

Modify and signalize intersection. In the northbound approach, construct one left turn lane and two right turn lanes; in the eastbound approach construct three through lanes; in the westbound approach construct two through lanes and two right turn lanes.

10. Stagecoach/E. Mariposa Road

Construct and signalize intersection to include the following:

Eastbound: one left turn lane, three through lanes and one right turn lane.

Westbound: one left turn lane, three through lanes and one right turn lane.

Southbound: two left turn lanes, two through lanes and two right turn lanes.

Northbound: one left turn lane and one shared through/right turn lane.

11. Carpenter Road/E. Mariposa Road

Signalize intersection. Add two eastbound left turn lanes. Add one westbound left turn lane and one right turn lane. Add two southbound left turn lanes, two through lanes and one right turn lane. Add one northbound left turn lane and two through lanes.

12. Walker Lane/Farmington Road/SR 4

Signalize intersection. Add one eastbound left turn lane and one through lane. Stripe existing southbound lane to a left turn lane and add one southbound right turn lane. Add one through lane and one right turn lane.

13. Gillis Road/Farmington Road/SR 4

Signalize intersection. Add a south leg and construct the northbound approach to include one left turn lane, one through lane and one shared through/right turn lane. Modify the existing southbound approach to include two left turn lanes, one through lane and one shared through/right turn lane. Add one eastbound left turn lane, one through lane and one right turn lane. Add one westbound left turn lane and one right turn lane.

14. Walker Lane/E. Main Street

Signalize intersection. Add a north leg and construct the southbound approach to include one lane for all movements. Add one eastbound left turn lane and one westbound left turn lane.

15. Gillis Road/E. Main Street

Signalize intersection. Add a north leg and construct the southbound approach to include one left turn lane, one through lane and one shared through/right turn lane. Add one eastbound left turn lane. Modify the northbound approach to include one left turn lane, one through lane and one shared through/right turn lane. Add one westbound left turn lane.

17. Jack Tone Road/Farmington Road

Signalize intersection. Add one eastbound left turn lane and one westbound left turn lane.

18. Jack Tone Road/E. Mariposa Road

Signalize intersection. Add one eastbound left turn lane. Add one westbound left turn lane.

19. E. Mariposa Road/Kaiser Road

Signalize intersection.

20. Austin Road/E. Mariposa Road

Add one eastbound left turn lane and one through lane. Add one westbound through lane and one right turn lane. Add one southbound left turn lane and one right turn lane.

21. Austin Road/Arch Road

Signalize intersection. Add two eastbound left turn lanes and stripe the existing right turn lane to a shared through/right turn lane. Add one northbound left turn lane and one through lane. Add one southbound left turn lane and two right turn lanes.

22. Newcastle Road/Arch Road

Signalize intersection. Add a north leg with one southbound left turn lane, one through lane and two right turn lanes. Add two eastbound left turn lanes, two through lanes and one right turn lane. Add one westbound left turn lane, two through lanes and one right turn lane. Add two northbound left turn lanes, one through lane and one right turn lane.

23. Arch Road/E. Frontage Road

Add one eastbound left turn lane. Add one westbound through lane. Add one northbound left turn lane. Add two southbound right turn lanes. There is insufficient space to add the required lanes to fully mitigate this intersection. Therefore the traffic impact to the intersection is *significant and unavoidable*.

24. Arch Road/Single Point Interchange

Due to physical restriction at the interchange, it is impractical to add an additional eastbound left-turn lane and one westbound through lane to operate the intersection acceptably under 2035 General Plan Buildout conditions. Therefore the traffic impact to the intersection is *significant and unavoidable*.

25. Arch Airport Road/Qantas Lane

Modify existing eastbound right turn lane to a shared through/right turn lane. Stripe one westbound through lane to a left turn lane and modify the westbound right turn lane to a shared through/right turn lane.

26. S. Airport Road/Arch Airport Road

Eastbound: add one left turn lane and three through lanes.
Westbound: add one left turn lane and three through lanes.
Northbound: add one through lane and one right turn lane.
Southbound: add one through lane and one right turn lane.

27. SR 99 SB Ramps/French Camp Road

Signalize intersection. Add two southbound left turn lanes. Add one eastbound left turn lane, one through lane and one right turn lane. Add two westbound through lanes and one right turn lane.

28. SR 99 NB Ramps/French Camp Road

Signalize intersection. Add one eastbound through lane and one westbound through lane. Add one southbound left turn lane and one northbound left turn lane.

30. Farmington Road/Stagecoach

Add one northbound right turn lane and one left turn lane. Stripe the existing northbound lane to a left turn only lane. Add one eastbound through lane.

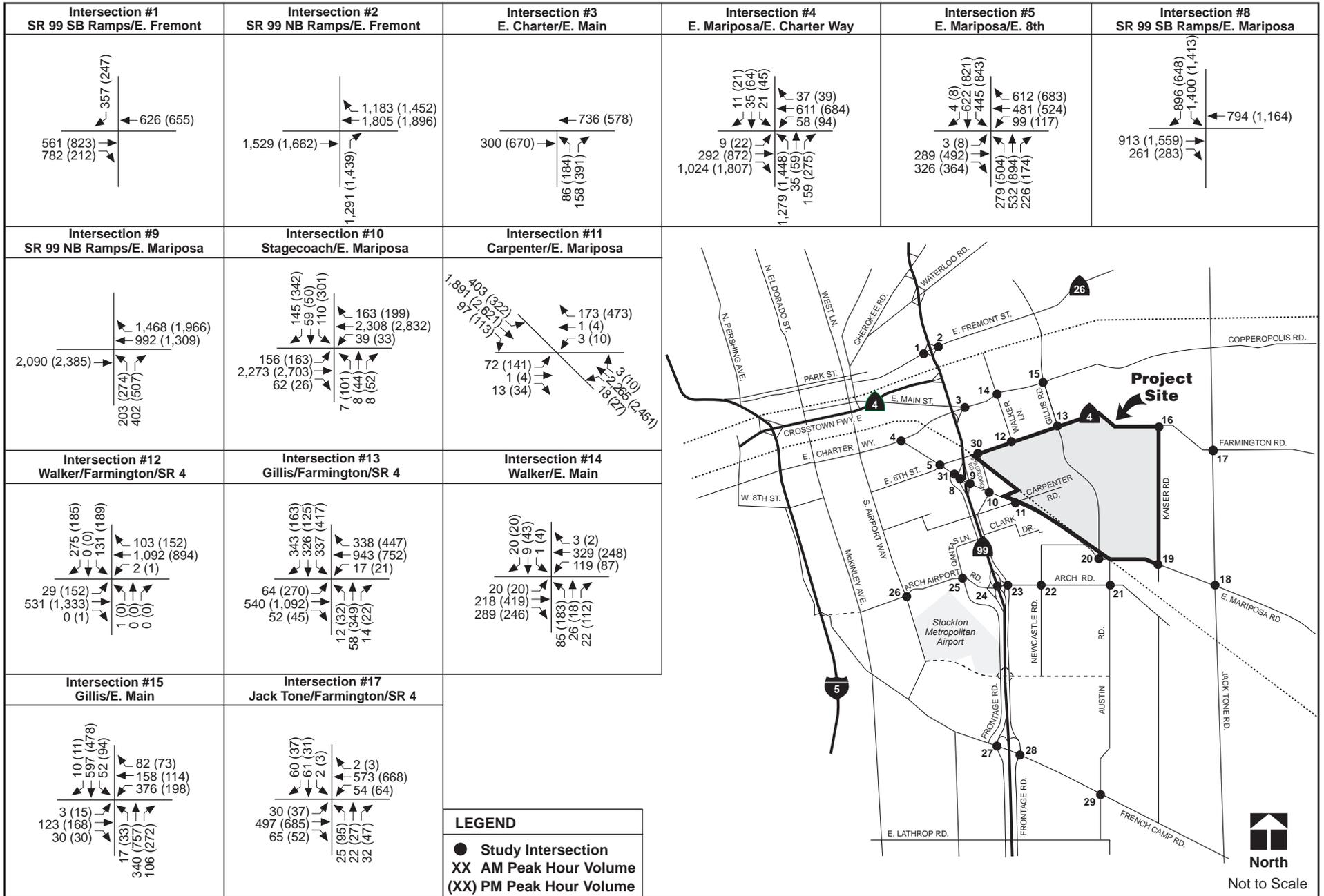
31. Mariposa Road/W. Frontage Road

Construct and signalize a new T-intersection. Add one eastbound through lane. Add one westbound left turn lane and one through lane. Stripe one northbound left turn lane and one right turn lane.

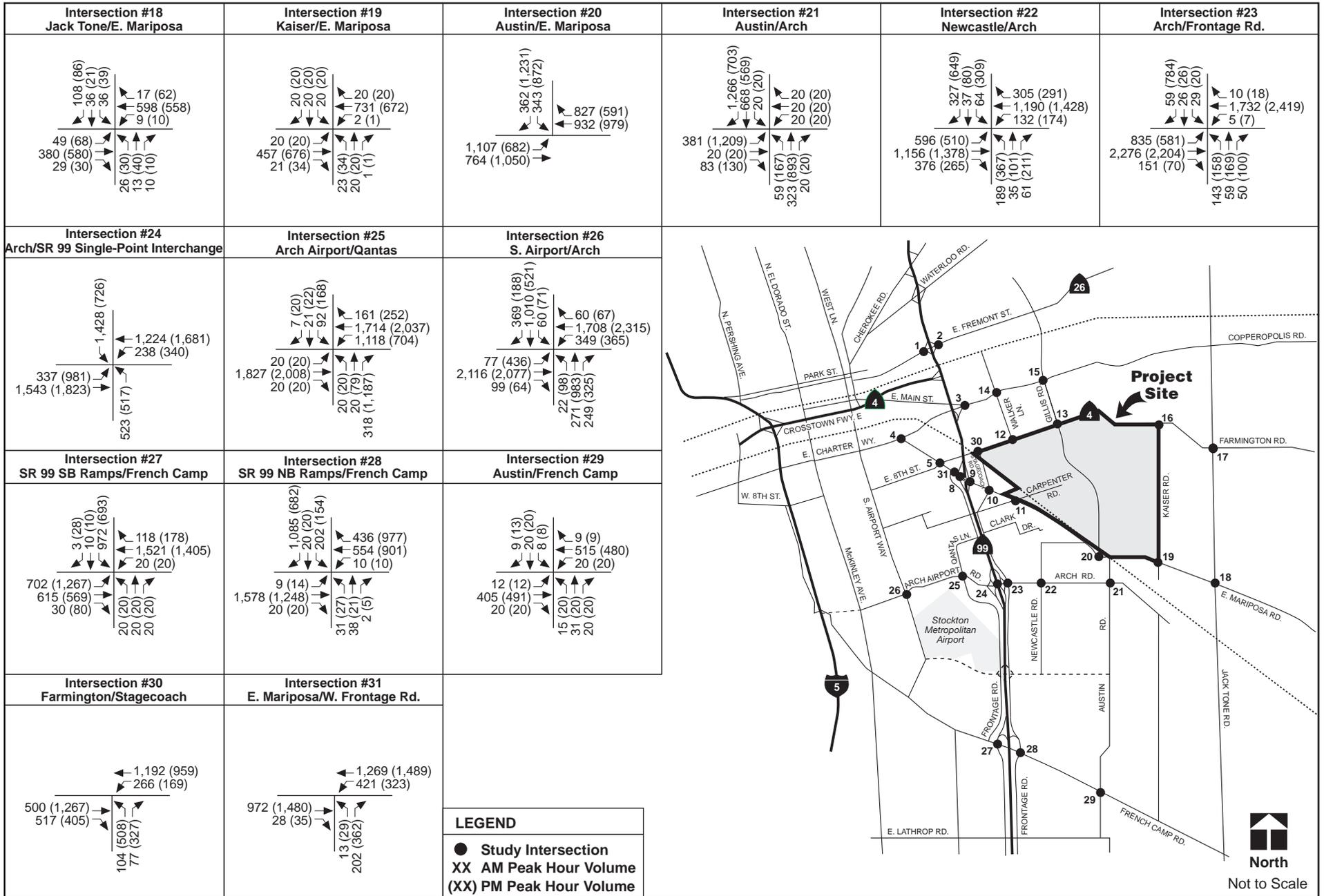
TABLE XII: INTERSECTION LEVELS OF SERVICE – 2035 GENERAL PLAN NO PROJECT CONDITIONS

| | Intersection | Existing Control | 2035 No Project Intersection Control (Mitigated) | A.M. Peak Hour | | A.M. Peak Hour (Mitigated) | | P.M. Peak Hour | | P.M. Peak Hour (Mitigated) | |
|----|--|--------------------------|--|---|-----------------|--|-----------------|----------------|----------------|--|-----------------|
| | | | | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS |
| 1 | SR 99 SB Ramps/E. Fremont Street | | | See Table XVII for Results | | | | | | | |
| 2 | SR 99 NB Ramps/E. Fremont Street | | | See Table XVII for Results | | | | | | | |
| 3 | E. Charter Way/E. Main Street | One-Way Stop | Signalized | 2.6 (13.6) | A (B) | 6.2 | A | 14.1 (44.6) | B (E) | 9.7 | A |
| 4 | E. Charter Way/E. Mariposa Road | Signalized | Signalized | 18.5 | B | 18.0 | B | >120 | F | 45.8 | D |
| 5 | E. Mariposa Road/E. 8 th Street | Signalized ⁻³ | Signalized ⁻³ | >120 | F ⁻³ | 19.4 | B ⁻³ | >120 | F ³ | 48.0 | D ⁻³ |
| 6 | SR 99SB Ramps/Farmington Road | One-Way Stop | | Not a Study Intersection in this scenario | | | | | | | |
| 7 | SR 99 NB Ramps/Farmington Road | One-Way Stop | | Not a Study Intersection in this scenario | | | | | | | |
| 8 | SR 99 SB Ramps/E. Mariposa Road | Signalized ⁻⁴ | Signalized ⁻³ | - ¹ | - ¹ | 43.5 | D ⁻³ | - ¹ | - ¹ | 50.5 | D ⁻³ |
| 9 | SR 99 NB Ramps/E. Mariposa Road | Signalized ⁻⁴ | Signalized | - ¹ | - ¹ | 9.1 | A | - ¹ | - ¹ | 12.1 | B |
| 10 | Stagecoach Road/E. Mariposa Road | One-Way Stop | Signalized ⁻³ | - ¹ | - ¹ | 20.8 | C ⁻³ | - ¹ | - ¹ | 46.4 | D ⁻³ |
| 11 | E. Mariposa Road/Carpenter Road | Two-Way Stop | Signalized | >120 (>120) | F (F) | 35.0 | D | >120 (>120) | F (F) | 50.4 | D |
| 12 | Farmington Road/ Walker Lane | Two-Way Stop | Signalized | >120 (>120) | F (F) | 35.0 | D | >120 (>120) | F (F) | 38.7 | D |
| 13 | Gillis Road/ Farmington Road | One-Way Stop | Signalized | - ¹ | - ¹ | 51.9 | D | - ¹ | - ¹ | 50.1 | D |
| 14 | Walker Lane/E. Main Street | One-Way Stop | Signalized | - ¹ | - ¹ | 9.9 | A | - ¹ | - ¹ | 17.6 | B |
| 15 | Gillis Road/ E. Main Street | One-Way Stop | Signalized | - ¹ | - ¹ | 19.2 | B | - ¹ | - ¹ | 18.9 | B |
| 16 | Kaiser Road/Farmington Road | One-Way Stop | | Not a Study Intersection in this scenario | | | | | | | |
| 17 | Jack Tone Road/Farmington Road | All-Way Stop | Signalized | >120 (>120) | F (F) | 8.8 | A | >120 (>120) | F (F) | 11.8 | B |
| 18 | Jack Tone Road/E. Mariposa Road | All-Way Stop | Signalized | 104.9 (>120) | F (F) | 9.3 | A | >120 (>120) | F (F) | 9.4 | A |
| 19 | Kaiser Road/E. Mariposa Road | Two-Way Stop | Signalized | 4.6 (64.0) | A (F) | 8.8 | A | 7.9 (>120) | A (F) | 9.4 | A |
| 20 | Austin Road/E. Mariposa Road | Signalized | Signalized | >120 | F | 48.1 | D | >120 | F | 39.7 | D |
| 21 | Austin Road/Arch Road | Two-Way Stop | Signalized | >120 (>120) | F (F) | 51.3 | D | >120 (>120) | F (F) | 73.4 | E ⁻² |
| 22 | Newcastle Road/Arch Road | One-Way Stop | Signalized | - ¹ | - ¹ | 18.2 | B | - ¹ | - ¹ | 53.4 | D |
| 23 | E. Frontage Road/Arch Road | Signalized | Signalized | >120 | F | 37.8 | D | >120 | F | 41.2 | D ⁻³ |
| 24 | Arch Road/SR 99 Single Point Interchange | Signalized | Signalized | >120 | F | Significant and unavoidable impact ⁻² | | >120 | F | Significant and unavoidable impact ⁻² | |
| 25 | Qantas Lane/Arch Airport Road | Signalized | Signalized | >120 | F | 41.8 | D | >120 | F | 24.8 | C ⁻³ |
| 26 | S. Airport Way/Arch Airport Road | Signalized | Signalized | >120 | F | 45.7 | D | >120 | F | 54.0 | D |
| 27 | SR 99 SB Ramps/French Camp Road | Two-Way Stop | Signalized ⁻³ | - ¹ | - ¹ | 119.6 | F ⁻² | - ¹ | - ¹ | >120 | F ⁻² |
| 28 | SR 99 NB Ramps/French Camp Road | Two-Way Stop | Signalized | - ¹ | - ¹ | 20.3 | C | - ¹ | - ¹ | 44.1 | D |
| 29 | Austin Road/French Camp Road | Two-Way Stop | Two-Way Stop | 3.1 (28.1) | A (D) | - | - | 3.0 (29.9) | A (D) | - | - |
| 30 | Stagecoach Road/Farmington Road | Signalized ⁻⁴ | Signalized | 31.0 | C | 25.5 | C | >120 | F | 47.9 | D |
| 31 | E. Mariposa Road/W. Frontage Road | Signalized ⁻⁴ | Signalized | - ¹ | - ¹ | 16.6 | B | - ¹ | - ¹ | 20.9 | C |

Notes: ⁻¹ Existing lane geometry cannot be used to analyze forecast volumes at these locations due to network changes in this scenario. In this scenario, intersections 8, 9 and 31 are analyzed as newly designed freeway interchanges and intersections 10, 13, 14, 15, 20 and 22 are analyzed as four-legged intersections. Similarly, 27 and 28 are analyzed as new diamond interchange intersections.
⁻² Further widening not feasible due to space constraints.
⁻³ PHF of 0.97 was used for mitigated and unmitigated conditions (see Westernite publication Nov-Dec, 2002 issue).
⁻⁴ Traffic Signal under construction with geometric improvements as of October 2006



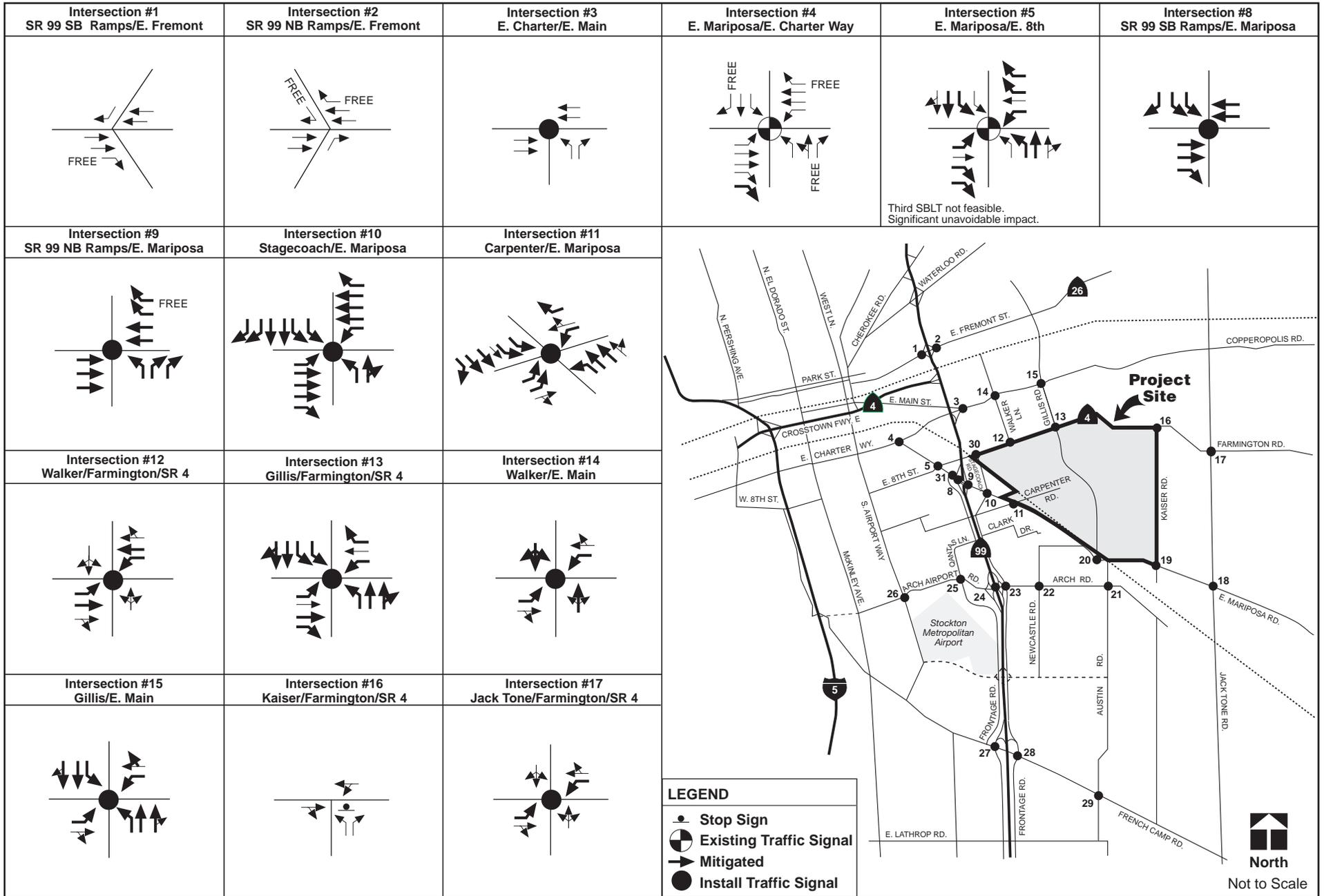
City of Stockton
 Mariposa Lakes Traffic Study
2035 General Plan No Project Turning Movement Volumes



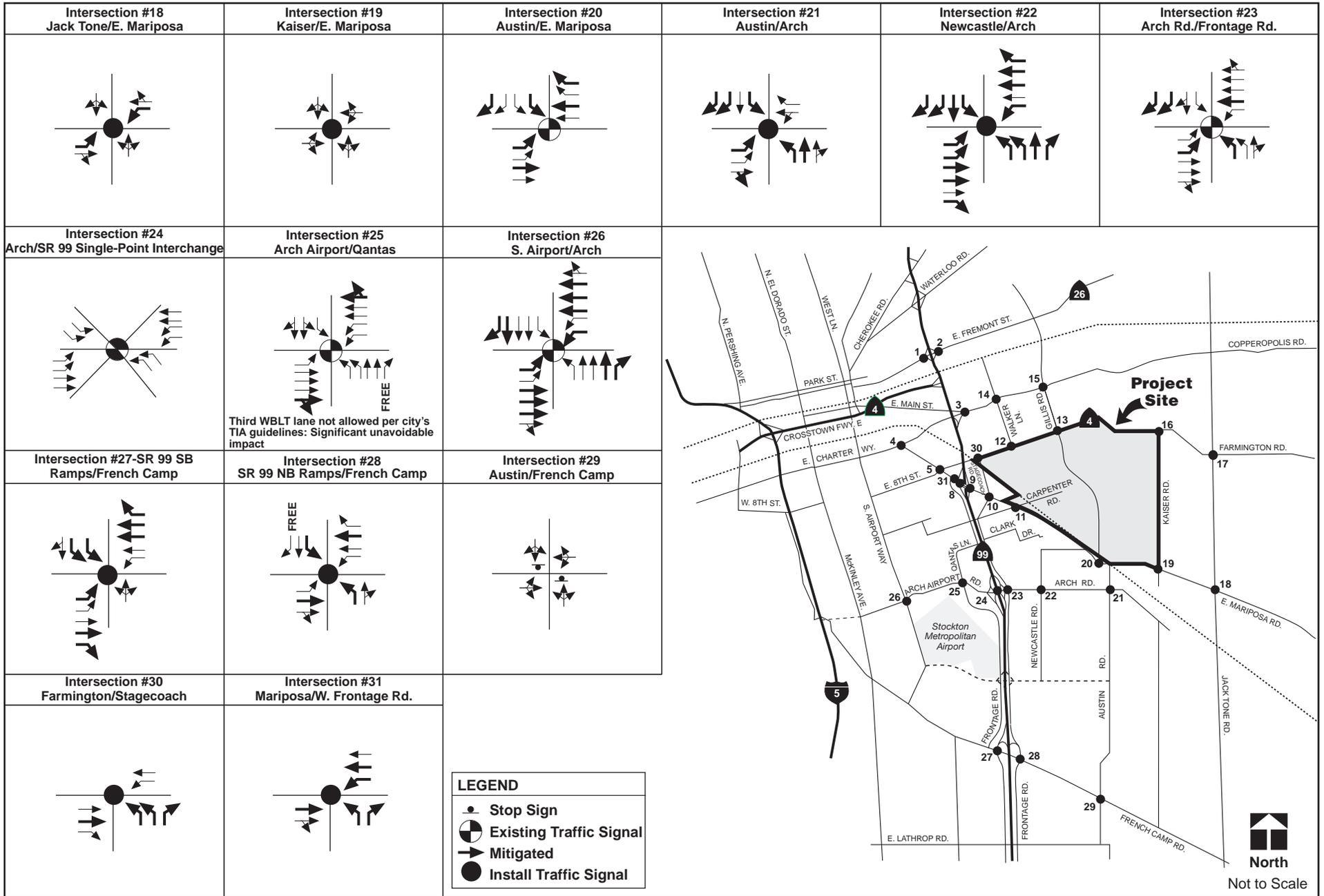
City of Stockton
Mariposa Lakes Traffic Study
2035 General Plan No Project Turning Movement Volumes

Figure
30
Cont.





City of Stockton
 Mariposa Lakes Traffic Study
2035 General Plan No Project Lane Geometry



City of Stockton
 Mariposa Lakes Traffic Study
2035 General Plan No Project Lane Geometry

Figure 31
 Cont.



2035 GENERAL PLAN PLUS PROJECT CONDITIONS

This future scenario considers the traffic volumes under the City's 2035 General Plan Buildout plus proposed Project conditions.

Project Description

The project has been previously described under the EPAP plus project and 1990 plus project conditions. The same project with the exact same land use and internal street network was analyzed in this scenario. The proposed project consists of approximately 4,360 Low Density Residential and Estate dwelling units, 5,048 Medium Density Residential dwelling units and 1,406 High Density Residential dwelling units for a total of approximately 10,814 dwelling units. The non-residential component of the project consists of approximately 1.0 million square feet of commercial development, 749,000 square feet of business park uses and 10.7 million square feet of industrial villages.

Modeling Network

Appendix B shows the modeling network in the vicinity of the Project for the 2035 General Plan plus Project conditions. The modeling network in this scenario has the following key assumptions:

- Removal of the Farmington Road/SR 99 ramps.
- The new configuration of the Mariposa Road/SR 99 interchange.
- A new diamond interchange at SR 99 and Dixon Street at the location of the existing frontage road hook-ramps between Arch Road to the north and French Camp Road to the south.
- A north south major roadway is planned to run through the proposed project. This will require a grade separation structure over the BNSF and will require Mariposa Road to be elevated to meet the new road. Austin Road will be extended as a four-lane roadway across Mariposa Lakes and line up with Gillis Road at Farmington Road.

Trip Generation

As shown in Table V earlier in the report, the proposed project is expected to generate 17,017 a.m. peak hour trips and 21,934 p.m. peak hour trips.

Trip Distribution

Trip distribution for the proposed Project in this scenario is based on the City of Stockton's 2035 General Plan model. Figure 32 shows proposed Project trip distribution in 2035 General Plan plus Project conditions. Figure 33 shows the proposed Project trip assignment in 2035 General Plan plus Project conditions.

Level of Service Analysis

Figure 34 shows the 2035 General Plan plus Project turning movement volumes. Figure 35 shows the 2035 General Plan plus Project lane geometry. Appendix C contains the a.m. and p.m. peak hour link volume model plots for this scenario. Table XIII summarizes the results of the intersection level of service analysis in this scenario.

Intersections with proposed mitigation measures in this scenario are described below (Intersection numbers included):

3. E. Charter Way/E. Main Street

Signalize intersection. See Figure 38 for recommended signal phasing.

4. E. Mariposa Road/E. Charter Way

Add one eastbound right turn lane.

5. E. Mariposa Way/E. 8th Street

Eastbound: add one left turn lane and two right turn lanes.

Westbound: add one left turn lane and one right turn lane.

Northbound: add one through lane and one left turn lane.

Southbound: add one left turn lane and one through lane.

8. SR 99 SB Ramps/Mariposa Road

A new Mariposa Road interchange configuration assumed in this scenario as shown in Figure 7.

Modify and signalize intersection. In the southbound approach, construct two left turn lanes and one right turn lane; in the westbound approach construct two through lanes; in the eastbound approach construct two through lanes and one right turn lane. The intersection would be fully mitigated with a third southbound left-turn lane but is not allowed by City policies. Therefore the traffic impact to the intersection is *Significant and unavoidable*.

9. SR 99 NB Ramps/Mariposa Road

A new Mariposa Road interchange configuration assumed in this scenario as shown in Figure 7.

Modify and signalize intersection. In the northbound approach, construct one left turn lane and two right turn lanes; in the eastbound approach construct three through lanes; in the westbound approach construct two through lanes and two right turn lanes.

10. Stagecoach/E. Mariposa Road

Construct and signalize intersection to include the following lanes:

Eastbound: two left turn lanes, four through lanes and two right turn lanes.

Westbound: one left turn lane, four through lanes and one right turn lane.

Southbound: two left turn lanes, two through lanes and two right turn lanes.

Northbound: three left turn lanes, one through lane and one shared through/right turn lane.

11. Carpenter Road/E. Mariposa Road

Signalize intersection. Add two eastbound left turn lanes. Add one westbound left turn lane. Add one southbound left turn lane, one through lane and one right turn lane. Add one northbound left turn lane and one through lane.

13. Gillis Road/Farmington Road/SR 4

Signalize intersection. Add a south leg and construct the northbound approach to include one left turn lane, one through lane and one shared through/right turn lane. Modify the existing southbound approach to include two left turn lanes, one through lane and one shared through/right turn lane. Add one right turn lane.

14. Walker Lane/E. Main Street

Signalize intersection. Add a north leg and construct the southbound approach to include one lane for all movements. Add one eastbound left turn lane and one westbound left turn lane.

15. Gillis Road/E. Main Street

Signalize intersection. Add a north leg and construct the southbound approach to include one left turn lane, one through lane and one shared through/right turn lane. Add one eastbound left turn lane. Modify the northbound approach to include one left turn lane, one through lane and one shared through/right turn lane. Add one westbound left turn lane.

16. Kaiser Road/Farmington Road

Signalize intersection.

17. Jack Tone Road/Farmington Road

Signalize intersection. Add one eastbound left turn lane and one westbound left turn lane.

18. Jack Tone Road/E. Mariposa Road

Signalize intersection. Add one eastbound left turn lane. Add one westbound left turn lane.

19. E. Mariposa Road/Kaiser Road

Signalize intersection.

20. Austin Road/E. Mariposa Road

Grade separated intersection. Signalize intersection. Construct the north leg of the intersection.

Eastbound: construct one left turn lane, one through lane and one shared through/right turn lane.

Westbound: construct two left turn lanes, one through lane and one shared through/right turn lane.

Northbound: construct one left turn lane, two through lanes and two right turn lanes.

Southbound: construct one left turn lane, one through lane and one shared through/right turn lane.

21. Austin Road/Arch Road

Signalize intersection. Add one eastbound left turn lane and restripe the existing right turn lane to a shared through/right turn lane. Add one northbound left turn lane and one through lane. Add one southbound left turn lane, one through lane and two right turn lanes. The intersection would be fully mitigated with a third eastbound left-turn lane but is not allowed by City policies. Therefore the traffic impact to the intersection is *Significant and unavoidable*.

22. Newcastle Road/Arch Road

Signalize intersection. Add a north leg with one southbound left turn lane, one shared through/right turn lane. Add one eastbound left turn lane and two through lanes. Add one westbound left turn lane, one through lane and one shared through/right turn lane. Stripe existing lane to a northbound left turn lane and add one shared through/right turn lane.

23. Arch Road/E. Frontage Road

Add one eastbound left turn lane and restripe the shared/through right turn lane to a through lane and add one right turn lane. Add one westbound through lane. Add one northbound left turn lane. Add two southbound right turn lanes. The intersection would be fully mitigated with a third eastbound left-turn lane but this mitigation measure does not conform to City policies. Therefore the traffic impact to the intersection is *Significant and unavoidable*.

24. Arch Road/Single Point Interchange

Due to physical restriction at the interchange, it is impractical to add an additional eastbound left-turn lane and one westbound through lane to operate the intersection acceptably under 2035 General Plan Buildout Plus Project conditions. Therefore the traffic impact to the intersection is *significant and unavoidable*.

25. Arch Airport Road/Qantas Lane

Modify existing eastbound right turn lane to a shared through/right turn lane. Stripe one westbound through lane to a left turn lane and modify the westbound right turn lane to a shared through/right turn lane.

26. S. Airport Road/Arch Airport Road

Eastbound: add one left turn lane and three through lanes.
Westbound: add one left turn lane and three through lanes.
Northbound: add one through lane and one right turn lane.
Southbound: add one through lane and one right turn lane.

The intersection mitigation appears to be the maximum that can fit into the available space. Therefore the traffic impact to the intersection is *significant and unavoidable*.

27. SR 99 SB Ramps/French Camp Road

Signalize intersection. Add two southbound left turn lanes. Add one eastbound left turn lane and two through lanes. Restripe eastbound shared through-right turn lane to exclusive right-turn lane. Add three westbound through lanes and restripe shared through-right turn lane to one right turn lane. The intersection would be fully mitigated with a third southbound left-turn lane but this mitigation measure does not conform to City policies. Therefore the traffic impact to the intersection is *Significant and unavoidable*.

28. SR 99 NB Ramps/French Camp Road

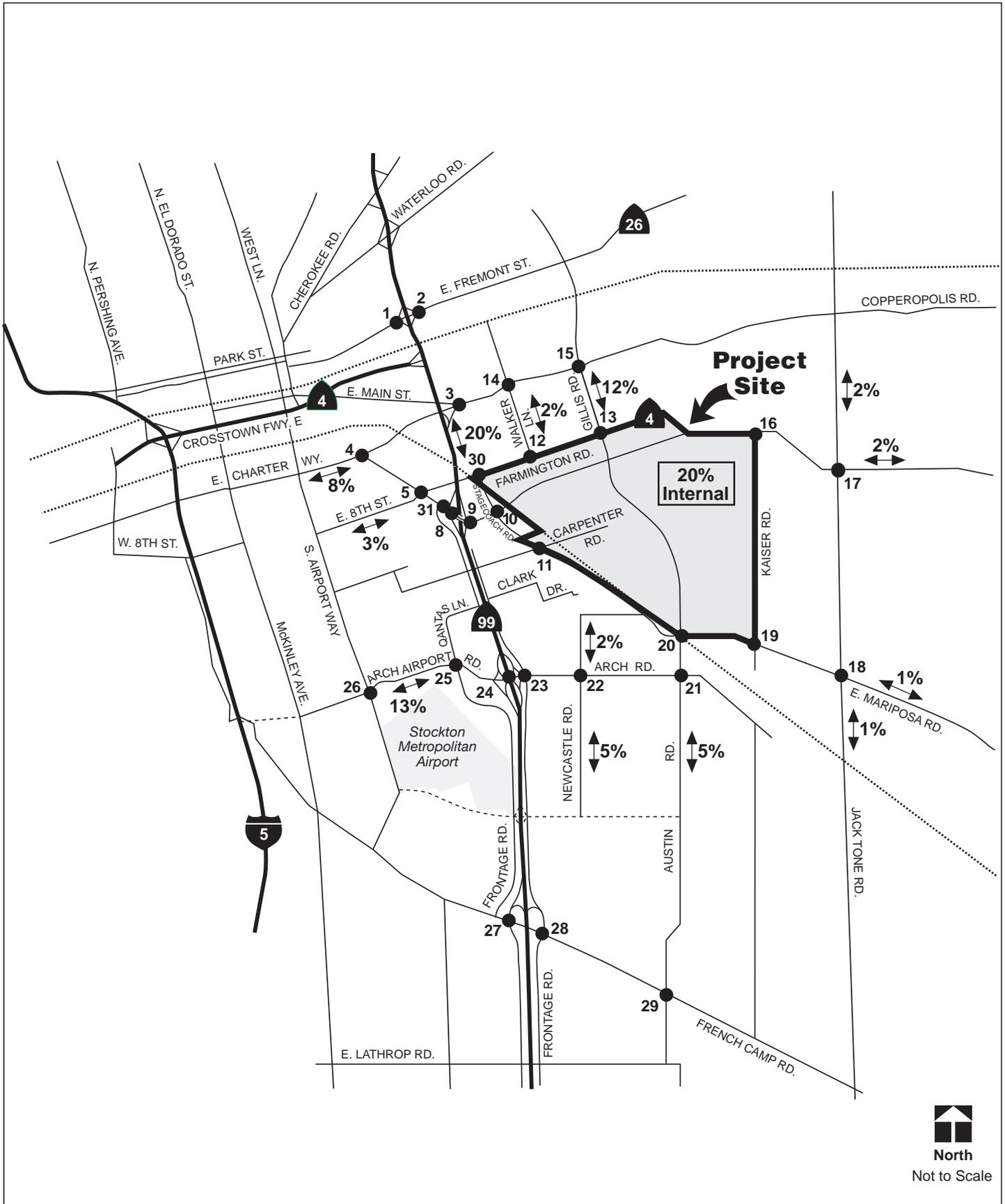
Signalize intersection. Add one eastbound through lane. Add one southbound left turn lane and one through lane. Add one westbound right turn lane and one through lane.

30. Farmington Road/Stagecoach

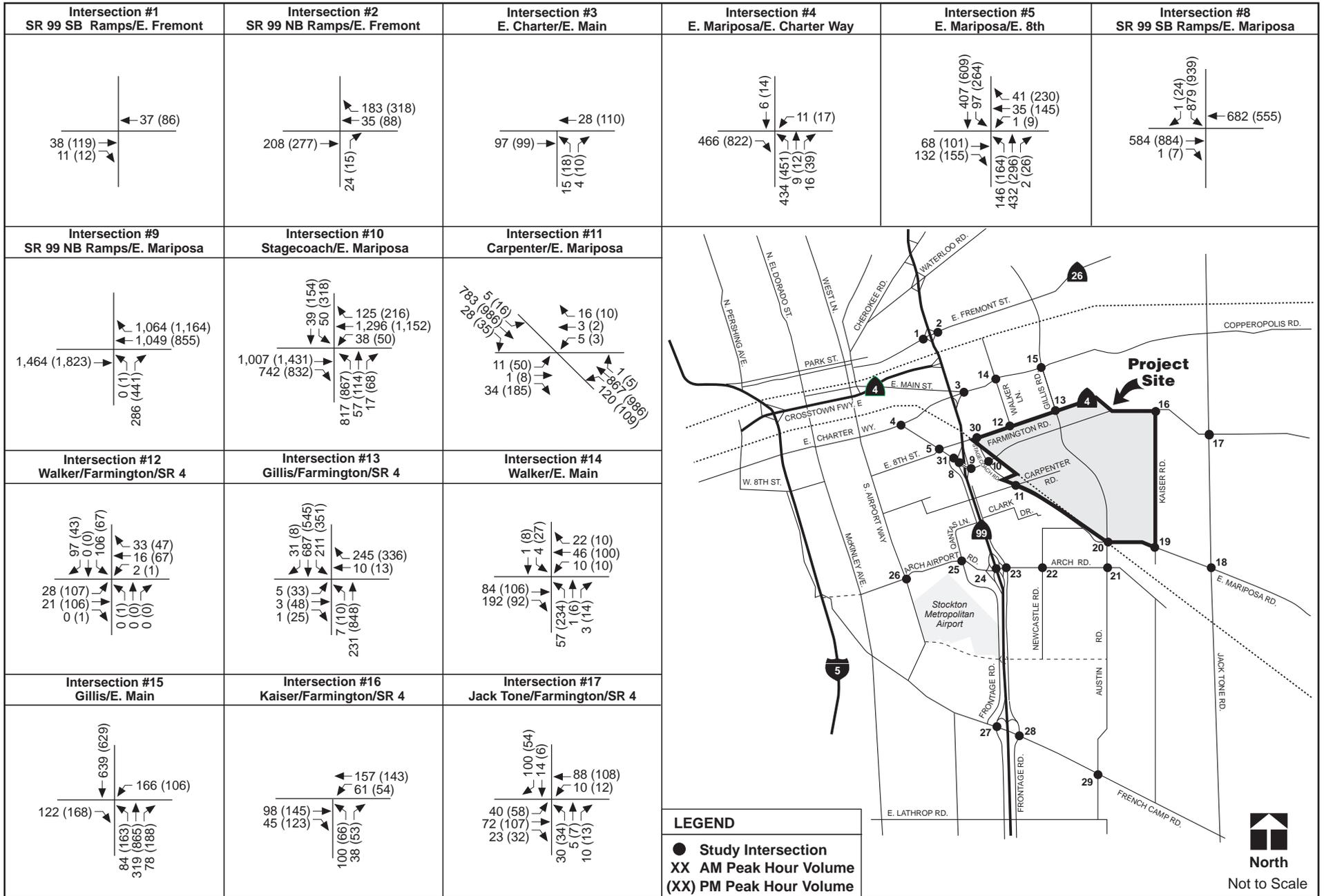
Currently, traffic signals and an eastbound through lane are under construction (October 2006) at the intersection. The improvements are expected to operate the intersection acceptably under 2035 Plus Project Conditions.

31. Mariposa Road/W. Frontage Road

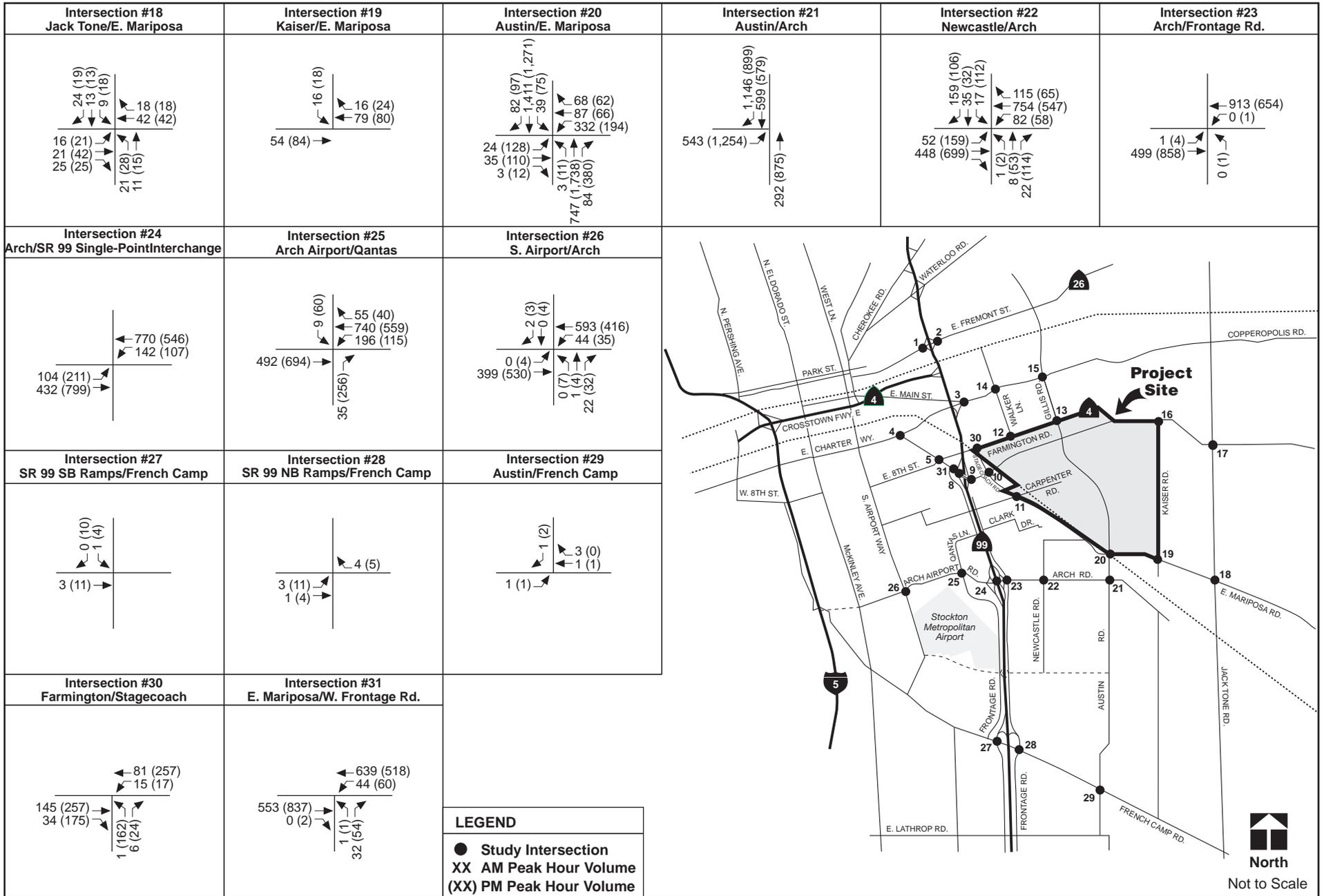
Construct and signalize a new T-intersection. Add one eastbound through lane. Add one westbound left turn lane and one through lane. Stripe one northbound left turn lane and one right turn lane.



City of Stockton
 Mariposa Lakes Traffic Study
**Project Trip Distribution (2035 General Plan
 Plus Project Conditions)**



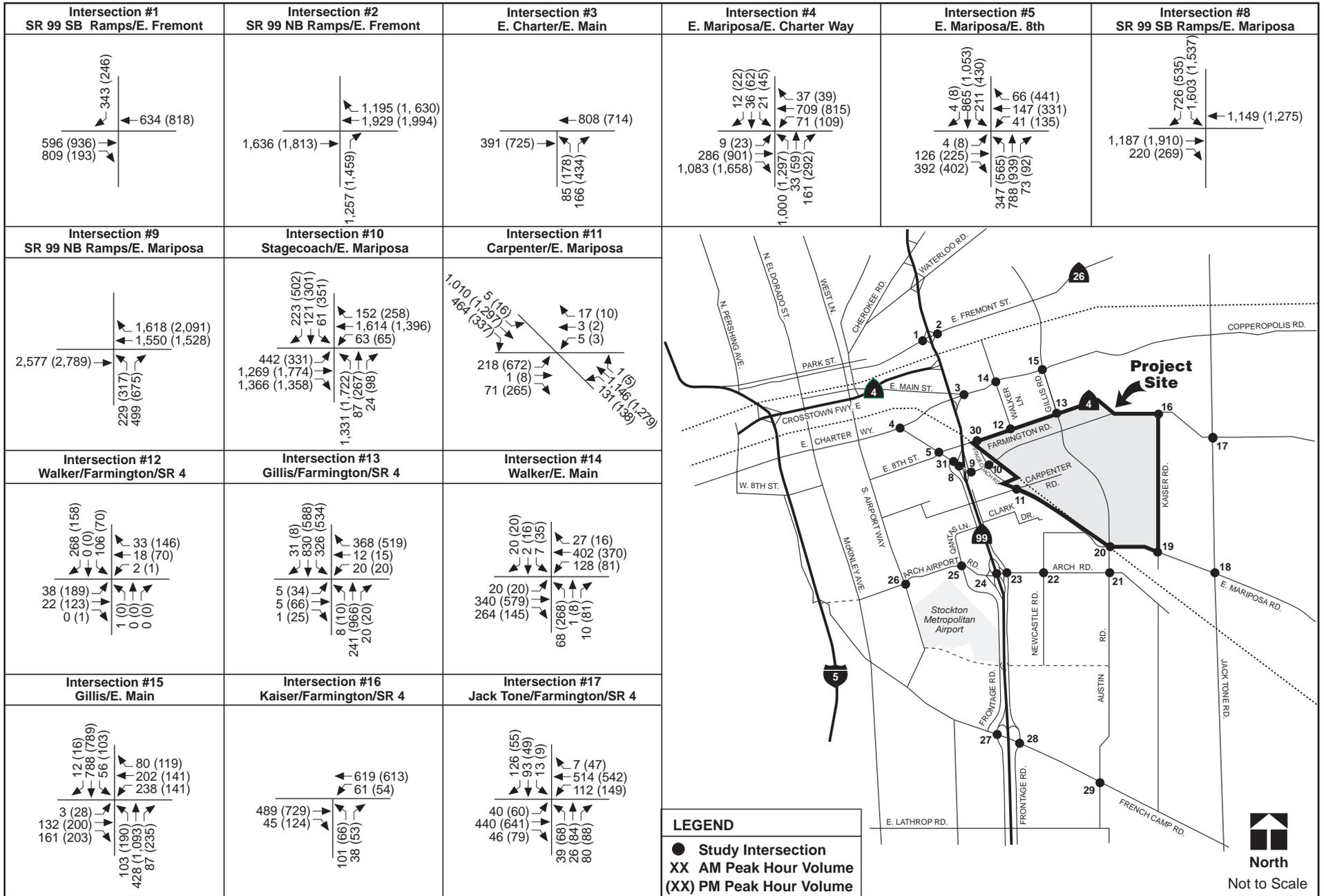
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Project Trip Assignment (2035 General Plan Plus Project Conditions)



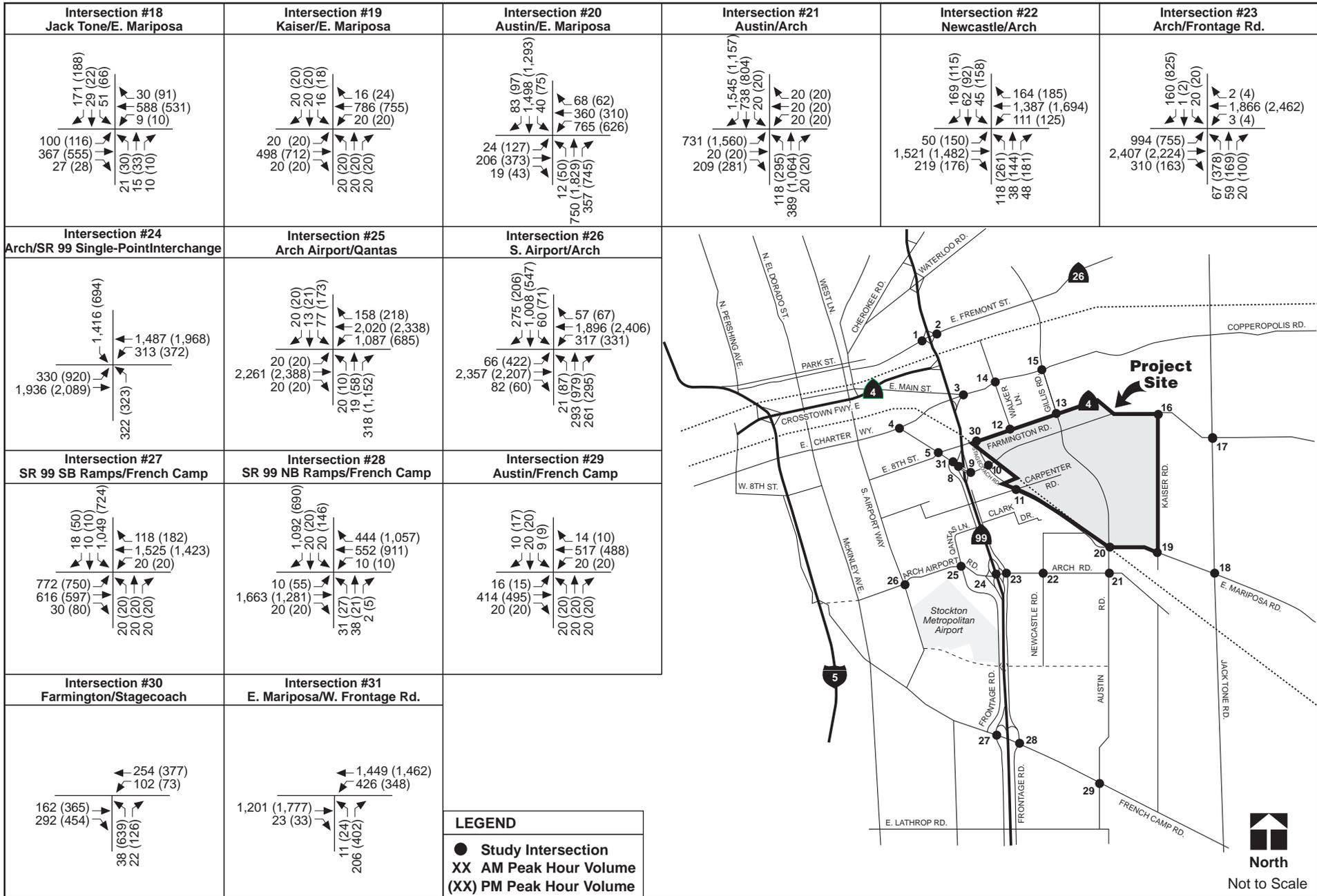
City of Stockton
 Mariposa Lakes Traffic Study
Project Trip Assignment (2035 General Plan Plus Project Conditions)

Figure
33
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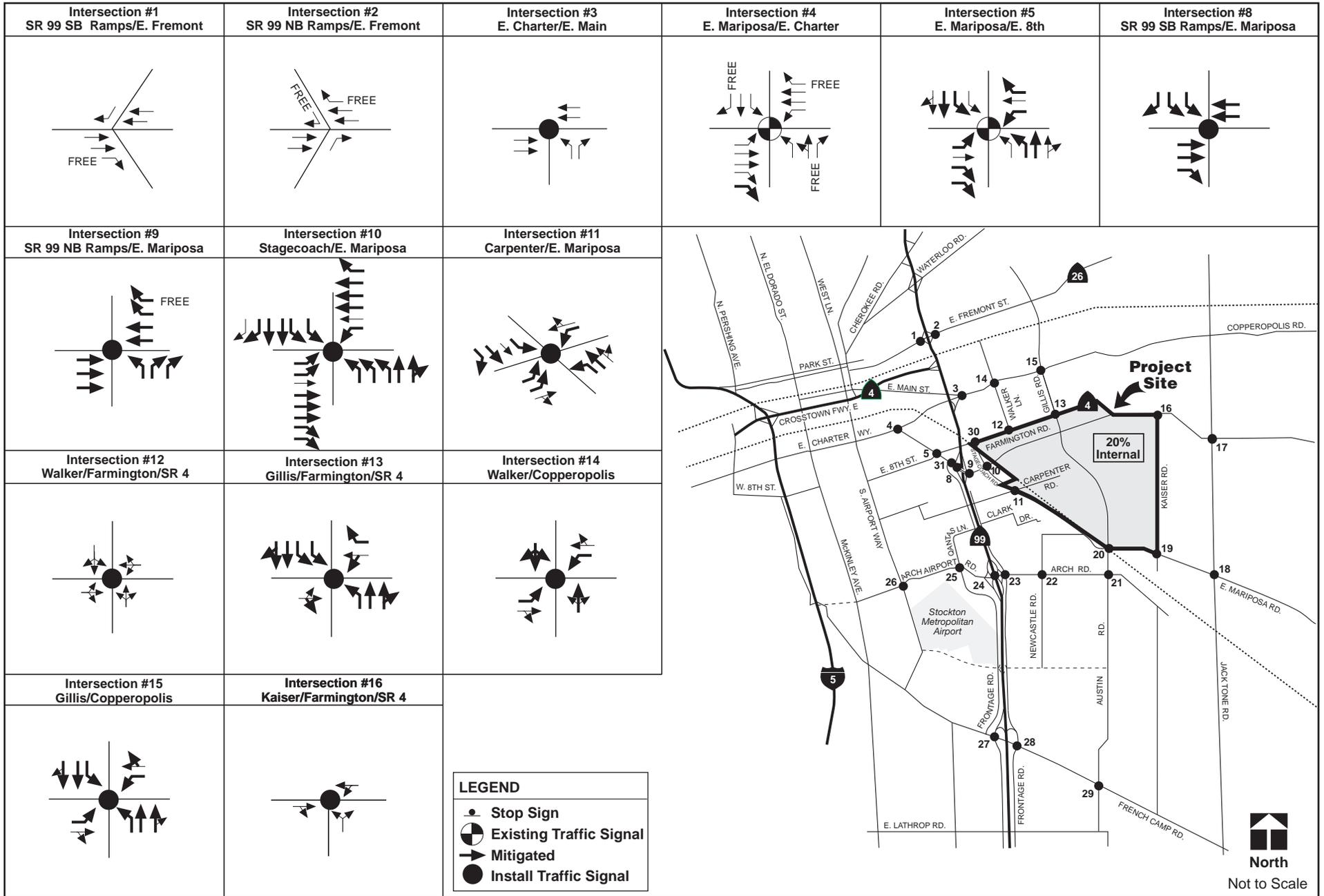




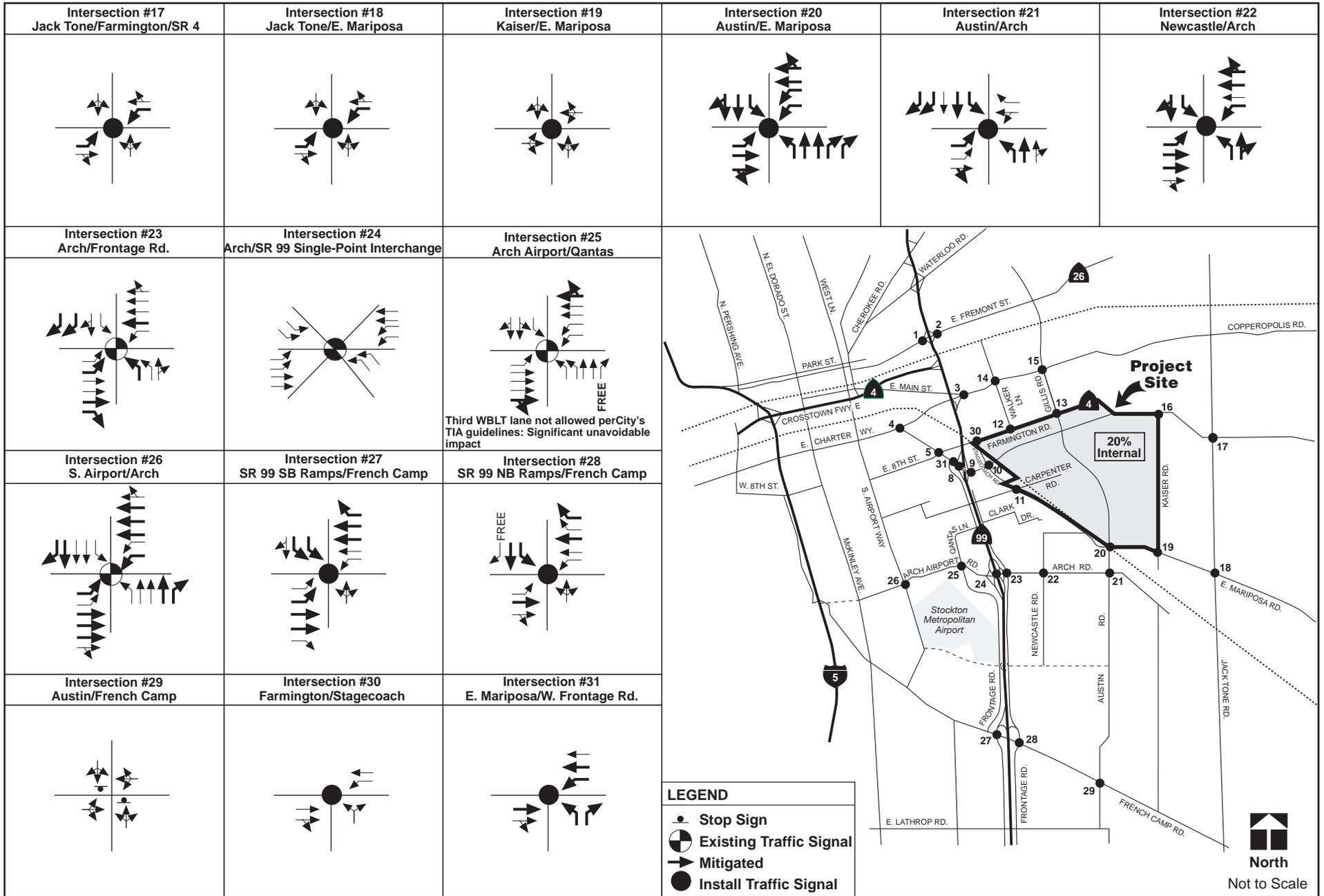
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2035 General Plan Plus Project Turning Movement Volumes



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2035 General Plan Plus Project Turning Movement Volumes



City of Stockton
 Mariposa Lakes Traffic Study
2035 General Plan Plus Project Lane Geometry



City of Stockton
 Mariposa Lakes Traffic Study
2035 General Plan Plus Project Lane Geometry

Figure
35
 Cont.



TABLE XIII: INTERSECTION LEVELS OF SERVICE – 2035 GENERAL PLAN PLUS PROJECT CONDITIONS

| Intersection | Existing Control | 2035 +Prj Intersection Control (Mitigated) | A.M. Peak Hour | | A.M. Peak Hour (Mitigated) | | P.M. Peak Hour | | P.M. Peak Hour (Mitigated) | | |
|--------------|--|--|---|----------------|----------------------------|---|----------------|----------------|----------------------------|---|-----------------|
| | | | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | |
| 1 | SR 99 SB Ramps/E. Fremont Street | | See Table XVII for Results | | | | | | | | |
| 2 | SR 99 NB Ramps/E. Fremont Street | | See Table XVII for Results | | | | | | | | |
| 3 | E. Charter Way/E. Main Street | One-Way Stop | Signalized | 2.7 (15.6) | A (C) | 6.3 | A | 19.4 (65.1) | C (F) | 11 | B |
| 4 | E. Charter Way/E. Mariposa Road | Signalized | Signalized | 17.6 | B | 16.3 | B | 68 | E | 46.3 | D |
| 5 | E. Mariposa Road/E. 8 th Street | Signalized | Signalized | >120 | F | 16.3 | B | >120 | F | 42.9 | D |
| 6 | SR 99SB Ramps/Farmington Road | One-Way Stop | Not a Study Intersection in this scenario | | | | | | | | |
| 7 | SR 99 NB Ramps/Farmington Road | One-Way Stop | Not a Study Intersection in this scenario | | | | | | | | |
| 8 | SR 99 SB Ramps/E. Mariposa Road | Signalized— ⁵ | Signalized | — ¹ | — ¹ | — ⁴ Significant and unavoidable impact | | — ¹ | — ¹ | — ⁴ Significant and unavoidable impact | |
| 9 | SR 99 NB Ramps/E. Mariposa Road | Signalized— ⁵ | Signalized | — ¹ | — ¹ | 14.4 | B | — ¹ | — ¹ | 23.7 | C |
| 10 | Stagecoach Road/E. Mariposa Road | One-Way Stop | Signalized | — ¹ | — ¹ | 48.8 | D | — ¹ | — ¹ | 49 | D— ³ |
| 11 | E. Mariposa Road/Carpenter Road | Two-Way Stop | Signalized | >120 (>120) | F (F) | 15.4 | B | >120 (>120) | F (F) | 34.5 | C |
| 12 | Farmington Road/ Walker Lane | Two-Way Stop | Signalized— ⁶ | 8.5 (15.3) | (C) | 13 | B | 6.4 (13.5) | A (B) | 10.2 | B |
| 13 | Gillis Road/ Farmington Road | One-Way Stop | Signalized | — ¹ | — ¹ | 9.3 | A | — ¹ | — ¹ | 18.9 | B |
| 14 | Walker Lane/E. Main Street | One-Way Stop | Signalized | — ¹ | — ¹ | 8.9 | A | — ¹ | — ¹ | 23.3 | C |
| 15 | Gillis Road/ E. Main Street | One-Way Stop | Signalized | — ¹ | — ¹ | 10 | A | — ¹ | — ¹ | 42.9 | D |
| 16 | Kaiser Road/Farmington Road | One-Way Stop | Signalized | 9.7 (85.6) | A (F) | 10.2 | B | 9.2 (115.0) | A (F) | 9.4 | A |
| 17 | Jack Tone Road/Farmington Road | All-Way Stop | Signalized | 107.2 | F | 9.3 | A | >120 | F | 13.9 | B |
| 18 | Jack Tone Road/E. Mariposa Road | All-Way Stop | Signalized | 74.4 | F | 11.7 | B | >120 | F | 12.7 | B |
| 19 | Kaiser Road/E. Mariposa Road | Two-Way Stop | Signalized | 6.1 (71.8) | A (F) | 18.1 | B | 9.8 (>120) | A (F) | 17 | B |

CONTINUED NEXT PAGE

TABLE XIII (CONT): INTERSECTION LEVELS OF SERVICE – 2035 GENERAL PLAN PLUS PROJECT CONDITIONS

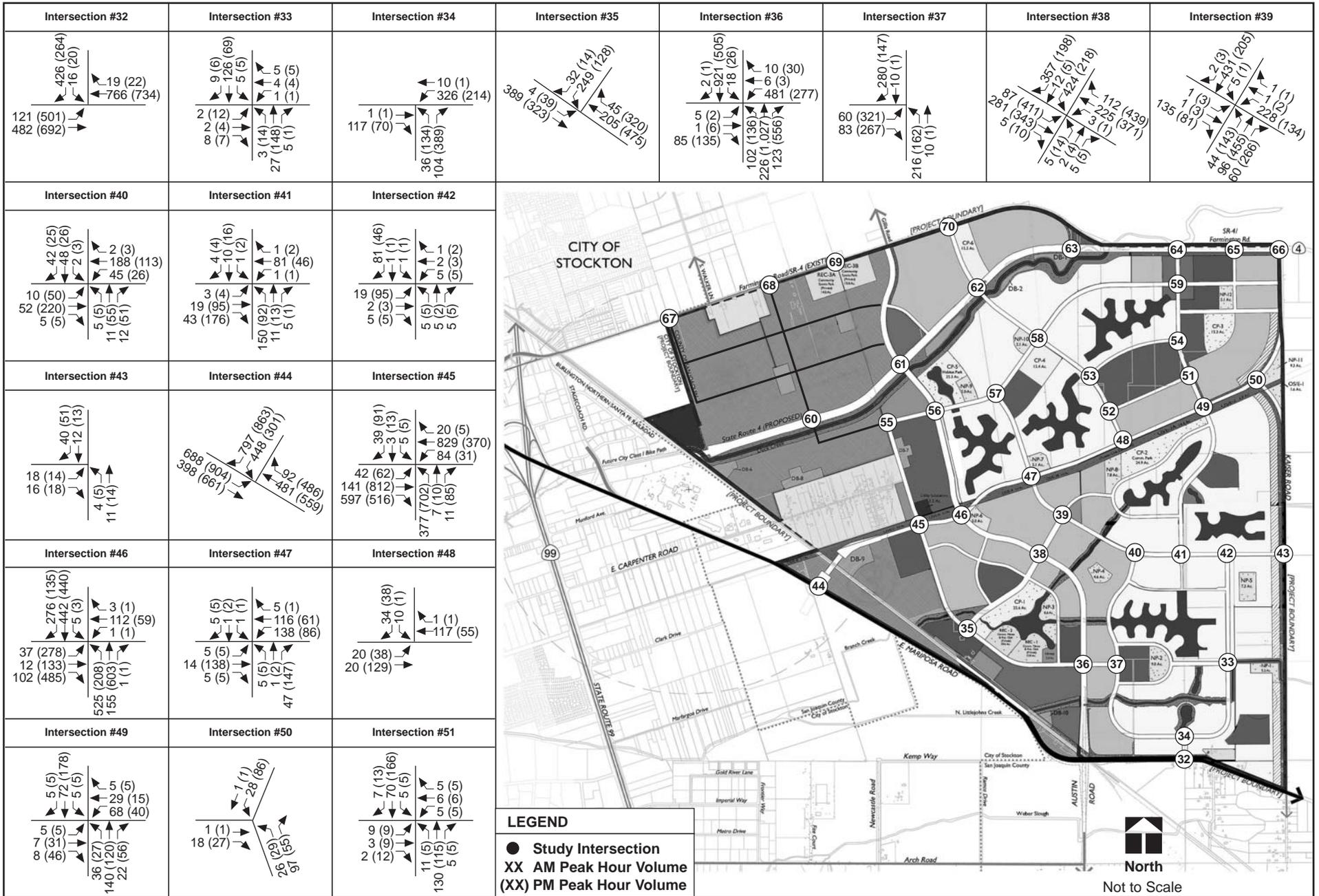
| Intersection | Existing Control | 2035 +Prj Intersection Control (Mitigated) | A.M. Peak Hour | | A.M. Peak Hour (Mitigated) | | P.M. Peak Hour | | P.M. Peak Hour (Mitigated) | | |
|--------------|--|--|----------------|----------------|----------------------------|---|----------------|----------------|----------------------------|---|---|
| | | | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | |
| 20 | Austin Road/E. Mariposa Road | Signalized | Signalized | — ¹ | — ¹ | 42.9 | D | — ¹ | — ¹ | 52 | D |
| 21 | Austin Road/Arch Road | Two-Way Stop | Signalized | >120 (>120) | F (F) | 14.8 | B | >120 (>120) | F (F) | — ⁴ Significant and unavoidable impact | |
| 22 | Newcastle Road/Arch Road | One-Way Stop | Signalized | — ¹ | — ¹ | 19.4 | B | — ¹ | — ¹ | 43.9 | D |
| 23 | E. Frontage Road/Arch Road | Signalized | Signalized | >120 | F | 32.1 | C | >120 | F | — ⁴ Significant and unavoidable impact | |
| 24 | Arch Road/SR 99 Single Point Interchange | Signalized | Signalized | >120 | F | — ² Significant and unavoidable impact | | >120 | F | — ² Significant and unavoidable impact | |
| 25 | Qantas Lane/Arch Airport Road | Signalized | Signalized | >120 | F | 49.4 | D | >120 | F | 27.6 | C |
| 26 | S. Airport Way/Arch Airport Road | Signalized | Signalized | >120 | F | 45.9 | D | >120 | F | — ² Significant and unavoidable impact | |
| 27 | SR 99 SB Ramps/French Camp Road | Two-Way Stop | Signalized | — ¹ | — ¹ | — ⁴ Significant and unavoidable impact | | — ¹ | — ¹ | — ⁴ Significant and unavoidable impact | |
| 28 | SR 99 NB Ramps/French Camp Road | Two-Way Stop | Signalized | — ¹ | — ¹ | 14.8 | B | — ¹ | — ¹ | 16.3 | B |
| 29 | Austin Road/French Camp Road | Two-Way Stop | Two-Way Stop | 3.1 (28.9) | A (D) | — | — | 3.2 (31.6) | A (D) | — | — |
| 30 | Stagecoach Road/Farmington Road | Signalized— ⁵ | Signalized | 5.7 | A | — | — | 39.1 | D | — | — |
| 31 | E. Mariposa Road/W. Frontage Road | Signalized— ⁵ | Signalized | — ¹ | — ¹ | 41.1 | D | — ¹ | — ¹ | 30.9 | C |

Notes: —¹ Existing lane geometry cannot be used to analyze forecast volumes at these locations due to network changes in this scenario. In this scenario, intersections 8, 9 and 31 are analyzed as newly designed freeway interchanges and intersections 13, 14, 15, 20 and 22 are analyzed as four-legged intersections. Similarly, 27 and 28 are analyzed as new diamond interchange intersections.
 —² Further widening not feasible due to space constraints.
 —³ PHF of 0.97 was used for mitigations (see Westernite publication Nov-Dec, 2002 issue).
 —⁴ Third westbound left-turn lane not allowed per City's TIA guidelines.
 —⁵ Traffic Signal under construction with geometric improvements as of October 2006
 —⁶ Although intersection 12 operates acceptably with the existing lane configuration and Two-Way Stop control, the LOS and delay values assume signals in place. The intersection is recommended for signalization under near term conditions (i.e. EPAP + Phase I and EPAP + Project Conditions).

Figure 36 shows the 2035 General Plan plus Project internal turning movement volumes. Figure 37 shows the 2035 General Plan plus Project internal lane geometry.

TABLE XIV: INTERNAL INTERSECTION LEVELS OF SERVICE – 2035 GENERAL PLAN PLUS PROJECT CONDITIONS

| | <i>Intersection</i> | <i>A.M. Peak Hour</i> | | <i>P.M. Peak Hour</i> | |
|----|---------------------|-----------------------|------------|-----------------------|------------|
| | <i>Control</i> | <i>Delay (sec)</i> | <i>LOS</i> | <i>Delay (sec)</i> | <i>LOS</i> |
| 32 | Signalized | 30.0 | C | 27.5 | C |
| 33 | Two-Way Stop | 1.4 (9.4) | A (A) | 1.8 (10.2) | A (B) |
| 34 | One-Way Stop | 7.7 (13.1) | A (B) | 16.0 (21.5) | C (C) |
| 35 | One-Way Stop | 10.2 (33.4) | B (D) | 6.5 (54.1) | A (F) |
| 36 | Signalized | 15.9 | B | 14.3 | B |
| 37 | All-Way Stop | 9.6 | A | 21.4 | C |
| 38 | Roundabout | 12.4 | B | 23.2 | C |
| 39 | Signalized | 8.7 | A | 13.1 | B |
| 40 | Two-Way Stop | 4.4 (11.8) | A (B) | 4.9 (13.6) | A (B) |
| 41 | Two-Way Stop | 6.0 (10.8) | A (B) | 3.4 (11.6) | A (B) |
| 42 | Two-Way Stop | 7.8 (9.3) | A (A) | 7.4 (9.9) | A (A) |
| 43 | One-Way Stop | 3.2 (8.8) | A (A) | 2.8 (8.8) | A (A) |
| 44 | Signalized | 20.4 | C | 54.7 | D |
| 45 | Signalized | 25.2 | C | 35.9 | D |
| 46 | Signalized | 15.3 | B | 37.3 | D |
| 47 | Two-Way Stop | 5.0 (10.2) | A (B) | 5.2 (10.5) | A (B) |
| 48 | One-Way Stop | 2.8 (9.3) | A (A) | 2.5 (8.8) | A (A) |
| 49 | Roundabout | 3.6 | A | 3.7 | A |
| 50 | One-Way Stop | 1.6 (9.2) | A (A) | 2.4 (8.9) | A (A) |
| 51 | Two-Way Stop | 1.7 (10.3) | A (B) | 1.6 (10.7) | A (B) |
| 52 | Two-Way Stop | 4.4 (9.6) | A (A) | 6.8 (10.0) | A (A) |
| 53 | One-Way Stop | 5.8 (10.1) | A (B) | 5.4 (9.2) | A (A) |
| 54 | One-Way Stop | 0.6 (9.5) | A (A) | 0.8 (10.5) | A (B) |
| 55 | One-Way Stop | 2.5 (9.5) | A (A) | 5.7 (10.3) | A (B) |
| 56 | All-Way Stop | 13.4 | B | 31.4 | D |
| 57 | One-Way Stop | 3.7 (10.2) | A (B) | 1.7 (10.8) | A (B) |
| 58 | Roundabout | 3.9 | A | 4.0 | A |
| 59 | Roundabout | 3.6 | A | 4.1 | A |
| 60 | Signalized | 28.8 | C | 41.2 | D |
| 61 | Signalized | 38.3 | D | 33.0 | C |
| 62 | Signalized | 36.7 | D | 27.4 | C |
| 63 | Signalized | 11.9 | B | 20.1 | C |
| 64 | Signalized | 12.5 | B | 25.7 | C |
| 65 | One-Way Stop | 32.1 (>120) | D (F) | 5.7 (<120) | A (F) |
| 66 | Signalized | 6.1 | A | 7.9 | A |
| 67 | One-Way Stop | 4.0 (13.5) | A (B) | 10.1 (28.0) | B (D) |
| 68 | One-Way Stop | 2.6 (9.8) | A (A) | 4.7 (11.7) | A (B) |
| 69 | One-Way Stop | 1.8 (9.1) | A (A) | 2.6 (10.0) | A (A) |
| 70 | One-Way Stop | 1.9(15.6) | A(C) | 4.4 (36.5) | A(E) |



City of Stockton
 Mariposa Lakes Traffic Study
2035 General Plan Plus Project Internal Turning Movement Volumes



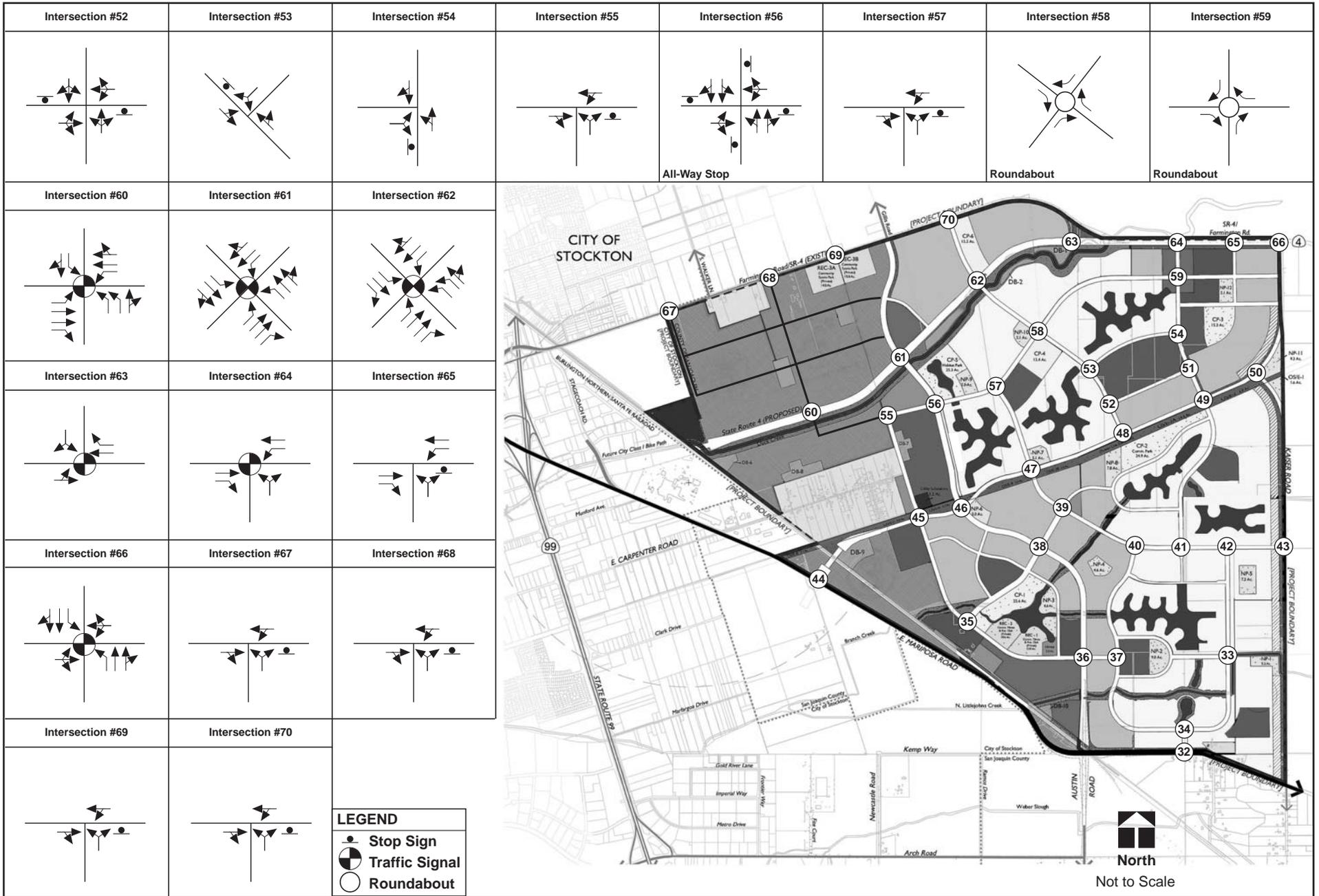
City of Stockton
 Mariposa Lakes Traffic Study
2035 General Plan Plus Project Internal Turning Movement Volumes

Figure
36
 Cont.



City of Stockton
 Mariposa Lakes Traffic Study
2035 General Plan Plus Project Internal Lane Geometry

Figure **37**



City of Stockton
 Mariposa Lakes Traffic Study
2035 General Plan Plus Project Internal Lane Geometry

Figure 37
 Cont.

Arterial Levels of Service

Table XVI depicts the analysis of lane requirements for arterials in the 2035 Plus Project scenario. The purpose of this analysis is to evaluate the ultimate lane requirements for arterials in the study area. Using *Highway Capacity Manual 2000* methodology, the required number of lanes to satisfy the City's LOS D criteria is depicted in the table. Appendix E contains the description of the methodology and the factors utilized in the arterial LOS calculations. These results are summarized in the following chapter "Summary of Mitigation Measures." Appendix O contains the a.m. and p.m. arterial levels of service worksheets.

TABLE XV: ARTERIAL LEVELS OF SERVICE – 2035 GENERAL PLAN PLUS PROJECT CONDITIONS

| Roadway Segment | Peak Direction Existing Lanes | Time of Day | Peak Direction | Volume | Average Speed (mph) | LOS | Mitigation | | |
|-------------------------------------|-------------------------------|-------------|----------------|--------|---------------------|-----|------------|---------------------|-----|
| | | | | | | | Lanes | Average Speed (mph) | LOS |
| Main Street | | | | | | | | | |
| Crosstown Freeway to SR 99 | 2 | AM | WB | 1,039 | 28.5 | C | — | — | — |
| | 2 | PM | WB | 1,031 | 28.1 | C | — | — | — |
| SR 99 to Walker Lane | 2 | AM | WB | 807 | 28.1 | C | — | — | — |
| | 2 | PM | EB | 1157 | 27.4 | C | — | — | — |
| Walker Lane to Gillis Expressway | 1 | AM | EB | 558 | 33.8 | C | — | — | — |
| | 1 | PM | WB | 692 | 32.8 | B | — | — | — |
| Gillis Expressway to Jack Tone Road | 1 | AM | WB | 521 | 42.3 | A | — | — | — |
| | 1 | PM | EB | 538 | 42.2 | A | — | — | — |
| Mariposa Road | | | | | | | | | |
| Charter Way to 8th Street | 1 | AM | WB | 1,191 | 20.1 | E | 3 | 24.5 | D |
| | 1 | PM | EB | 1,831 | 8.0 | F | 3 | 23.7 | D |
| 8th Street to SR 99 | 1 | AM | WB | 1,448 | 16.0 | E | 3 | 21.7 | D |
| | 1 | PM | EB | 1,599 | 13.5 | F | 3 | 21.5 | D |
| SR 99 to Stagecoach Road | 1 | AM | WB | 3,165 | 2.3 | F | 4 | 21.5 | D |
| | 1 | PM | WB | 3,621 | 1.6 | F | 4 | 21.1 | D |
| Stagecoach Road to Viceroy Avenue | 1 | AM | EB | 1,547 | 12.3 | F | 3 | 22.4 | D |
| | 1 | PM | WB | 2,087 | 4.8 | F | 3 | 21.4 | D |
| Viceroy Avenue to Austin Road | 1 | AM | WB | 482 | 30.7 | C | — | — | — |
| | 1 | PM | EB | 617 | 29.8 | C | — | — | — |
| Austin Road to Kaiser Road | 1 | AM | WB | 1,193 | 18.7 | E | 2 | 23.6 | D |
| | 1 | PM | EB | 1,195 | 18.7 | E | 2 | 23.6 | D |
| 8th Street/Farmington Road | | | | | | | | | |
| Mariposa Road to SR 99 | 1 | AM | EB | 461 | 21.4 | D | 2 | 22.6 | D |
| | 1 | PM | WB | 1,017 | 17.9 | E | 2 | 21.4 | D |
| SR 99 to Gillis Road | 1 | AM | EB | 461 | 32.5 | C | — | — | — |
| | 1 | PM | WB | 1,017 | 28.3 | C | — | — | — |
| Gillis Road to Proposed SR 4 | 1 | AM | WB | 380 | 33.0 | C | — | — | — |
| | 1 | PM | EB | 600 | 31.6 | C | — | — | — |
| East of Proposed SR 4 | 1 | AM | WB | 1,002 | 28.4 | C | — | — | — |
| | 1 | PM | EB | 1,239 | 25.9 | D | — | — | — |
| Austin Road | | | | | | | | | |
| Mariposa Road to Arch Road | 1 | AM | SB | 2,285 | 6.2 | F | 2 | 21.9 | D |
| | 1 | PM | NB | 2,615 | 4.0 | F | 2 | 21.1 | D |
| Farmington Road to Main Street | 1 | AM | SB | 1,194 | 27.1 | C | 2 | 32.6 | C |
| | 1 | PM | NB | 1,522 | 14.9 | F | 2 | 31.6 | C |
| Arch Road | | | | | | | | | |
| SR 99 to Newcastle Road | 1 | AM | EB | 2,406 | 4.3 | F | 2 | 21.3 | D |
| | 1 | PM | WB | 2,486 | 3.9 | F | 2 | 21.2 | D |
| Newcastle Road to Austin Road | 1 | AM | WB | 1,674 | 9.5 | F | 2 | 28.8 | C |
| | 1 | PM | WB | 2,027 | 5.8 | F | 2 | 27.5 | C |
| Arch Airport Road | | | | | | | | | |
| SR 99 to Qantas Lane | 4 | AM | EB | 3,710 | 21.3 | D | — | — | — |
| | 4 | PM | WB | 3,265 | 21.7 | D | — | — | — |
| Qantas Lane to S. Airport Way | 2 | AM | EB | 3,195 | 20.5 | E | 3 | 24.1 | D |
| | 2 | PM | WB | 3,649 | 17.4 | E | 3 | 24.7 | D |

FREEWAY LEVELS OF SERVICE – ALL SCENARIOS

Freeway Levels of Service

Table XV summarizes the results of the freeway level of service analysis for all scenarios. In the capacity analysis of SR 99, the freeway was analyzed both in its current four-lane configuration and the planned six-lane configuration for the existing and all EPAP scenarios. Because the 2006 General Plan is recommending a 10-lane pattern for SR 99 by 2035, both long term scenarios (1990 General Plan and 2035 General Plan) were analyzed under both six-lane and ten-lane alternatives.

The freeway was analyzed in three basic areas – north of the project, alongside the project, and south of the project - that is, north of Mariposa Road, north of Arch Road, and south of Arch Road. For Existing through EPAP plus Phase I Conditions, both directions north of Mariposa Road were analyzed as a weaving section due to spacing of ramps of less than 2,500 feet between Farmington and Mariposa Roads. Beginning with the EPAP plus Project scenario, the Farmington Road Interchange is removed, thereby eliminating the weaving section. Therefore, for all other scenarios, the section north of Mariposa Road was analyzed as a basic mainline section using a Caltrans-recommended capacity of 1,850 vehicles per hour per lane. This basic mainline procedure was also utilized for the other two freeway sections (north and south of Arch Road) under all scenarios.

As shown in Table XV, under Existing Conditions, the southbound section south of Arch Road is operating at LOS E, while all other sections operate at LOS D or better. Caltrans is currently planning to widen these three sections from four to six lanes as soon as funding becomes available. For this reason, the near term scenarios were analyzed both under the current four-lane configuration as well as the six-lane configuration.

Under EPAP, EPAP plus Phase I, and EPAP plus Project Conditions, all three sections consist of some LOS E or F service levels with the four-lane configuration. Under these three scenarios all segments improve to acceptable LOS B, C, or D conditions with a six-lane configuration, with the exception of the northbound section north of Mariposa (LOS E during p.m. peak for both EPAP and EPAP plus Project Conditions). Under EPAP plus Project Conditions, the improved service levels are most likely due to the northward extension of Austin Road through the project, providing capacity for motorists to travel to and from the project with an additional north-south arterial, and thereby reducing reliance on the freeway.

In the 1990 General Plan scenarios with or without the project, there are a few sections that are expected to operate under LOS E or F conditions with a six-lane configuration. However, under a 10-lane configuration, all sections are expected to operate at very acceptable conditions, with the exception of the section north of Mariposa (LOS E both with and without project). Under these scenarios, an eight-lane freeway could suffice for many of the sections.

Under the 2035 scenarios, the section of freeway north of Mariposa Road (nearest the cross town freeway) is expected to operate at LOS F both with and without the project. Also, the northbound section north of Arch Road is expected to operate at LOS E during the p.m. peak with the project. These results reflect the fact that the new General Plan model forecasts higher traffic volumes along SR 99 than the 1990 General Plan model.

TABLE XVI: FREEWAY LEVELS OF SERVICE – ALL SCENARIOS

| Scenario | ID | SR 99 Freeway Segment Location | 2-Way Total Lanes | Dir. | A.M. Peak Hour | | | | P.M. Peak Hour | | | |
|---|----|--------------------------------|-------------------|------|----------------|-------------|-------------|-----|----------------|-------------|-------------|-----|
| | | | | | Volume | V/C | Density | LOS | Volume | V/C | Density | LOS |
| <i>Existing Conditions</i> ¹ | 2 | N. of Mariposa Road | 4 | SB | 4,180 | - | 34.8 | D | 4,000 | - | 33.2 | D |
| | | | | NB | 3,370 | - | 32.1 | D | 3,490 | - | 34.7 | D |
| | 3 | N. of Arch Road | 4 | SB | 3,219 | 0.87 | - | D | 3,080 | 0.83 | - | D |
| | | | | NB | 2,595 | 0.70 | - | C | 2,687 | 0.73 | - | D |
| | 4 | S. of Arch Road | 4 | SB | 2,189 | 0.59 | - | C | 3,499 | 0.95 | - | E |
| | | | | NB | 2,995 | 0.81 | - | D | 2,671 | 0.72 | - | D |
| <i>Existing plus Approved Projects Conditions</i> ¹ | 2 | N. of Mariposa Road | 4 | SB | 4,844 | - | 41.9 | E | 4,312 | - | 35.9 | E |
| | | | | NB | 3,899 | - | 34.1 | D | 5,241 | - | > 45 | F |
| | | | 6 | SB | 4,844 | - | 29.1 | D | 4,312 | - | 25.1 | D |
| | | | | NB | 3,899 | - | 23.5 | C | 5,241 | - | 38.4 | E |
| | 3 | N. of Arch Road | 4 | SB | 3,942 | 1.07 | - | F | 3,592 | 0.97 | - | E |
| | | | | NB | 3,251 | 0.88 | - | D | 3,912 | 1.06 | - | F |
| | | | 6 | SB | 3,942 | 0.71 | - | C | 3,592 | 0.65 | - | C |
| | | | | NB | 3,251 | 0.59 | - | C | 3,912 | 0.70 | - | C |
| | 4 | S. of Arch Road | 4 | SB | 2,400 | 0.65 | - | C | 3,190 | 0.86 | - | D |
| | | | | NB | 3,414 | 0.92 | - | E | 2,671 | 0.72 | - | D |
| | | | 6 | SB | 2,400 | 0.43 | - | B | 3,190 | 0.57 | - | C |
| | | | | NB | 3,414 | 0.62 | - | C | 2,671 | 0.48 | - | B |
| <i>Existing plus Approved Projects plus Project Phase I Conditions</i> ¹ | 2 | N. of Mariposa Road | 4 | SB | 4,923 | - | 38.9 | E | 4,532 | - | 33.8 | D |
| | | | | NB | 4,377 | - | 34.4 | D | 5,325 | - | > 45 | F |
| | | | 6 | SB | 4,923 | - | 27.3 | C | 4,532 | - | 23.9 | C |
| | | | | NB | 4,377 | - | 23.8 | C | 5,325 | - | 34.8 | D |
| | 3 | N. of Arch Road | 4 | SB | 3,914 | 1.06 | - | F | 3,722 | 1.01 | - | F |
| | | | | NB | 3,529 | 0.95 | - | E | 3,912 | 1.06 | - | F |
| | | | 6 | SB | 3,914 | 0.71 | - | C | 3,722 | 0.67 | - | C |
| | | | | NB | 3,529 | 0.64 | - | C | 3,912 | 0.70 | - | C |
| | 4 | S. of Arch Road | 4 | SB | 2,403 | 0.65 | - | C | 3,144 | 0.85 | - | D |
| | | | | NB | 3,409 | 0.92 | - | E | 2,684 | 0.73 | - | D |
| | | | 6 | SB | 2,403 | 0.43 | - | B | 3,144 | 0.57 | - | C |
| | | | | NB | 3,409 | 0.61 | - | C | 2,684 | 0.48 | - | B |
| <i>Existing plus Approved Projects plus Project Conditions</i> | 2 | N. of Mariposa Road | 4 | SB | 4,738 | 1.28 | - | F | 4,504 | 1.22 | - | F |
| | | | | NB | 4,574 | 1.24 | - | F | 5,287 | 1.43 | - | F |
| | | | 6 | SB | 4,738 | 0.85 | - | D | 4,504 | 0.81 | - | D |
| | | | | NB | 4,574 | 0.82 | - | D | 5,287 | 0.95 | - | E |
| | 3 | N. of Arch Road | 4 | SB | 3,995 | 1.08 | - | F | 3,809 | 1.03 | - | F |
| | | | | NB | 3,691 | 1.00 | - | E | 4,114 | 1.11 | - | F |
| | | | 6 | SB | 3,995 | 0.72 | - | D | 3,809 | 0.69 | - | C |
| | | | | NB | 3,691 | 0.67 | - | C | 4,114 | 0.74 | - | D |
| | 4 | S. of Arch Road | 4 | SB | 2,469 | 0.67 | - | C | 3,221 | 0.87 | - | D |
| | | | | NB | 3,476 | 0.94 | - | E | 2,809 | 0.76 | - | D |
| | | | 6 | SB | 2,469 | 0.44 | - | B | 3,221 | 0.58 | - | C |
| | | | | NB | 3,476 | 0.63 | - | C | 2,809 | 0.51 | - | C |

TABLE XV (CONT): FREEWAY LEVELS OF SERVICE – ALL SCENARIOS

| Scenario | ID | SR 99 Freeway Segment Location | 2-Way Total Lanes | Dir. | A.M. Peak Hour | | | P.M. Peak Hour | | |
|--|----|--------------------------------|-------------------|------|----------------|-------------|-----|----------------|-------------|-----|
| | | | | | Volume | V/C | LOS | Volume | V/C | LOS |
| 1990 General Plan No Project Conditions | 2 | N. of Mariposa Road | 6 | SB | 8,323 | 1.50 | F | 4,701 | 0.85 | D |
| | | | | NB | 3,542 | 0.64 | C | 8,736 | 1.57 | F |
| | | | 10 | SB | 8,323 | 0.90 | E | 4,701 | 0.51 | C |
| | | | | NB | 3,542 | 0.38 | B | 8,736 | 0.94 | E |
| | 3 | N. of Arch Road | 6 | SB | 6,924 | 1.25 | F | 4,083 | 0.74 | D |
| | | | | NB | 3,074 | 0.55 | C | 7,086 | 1.28 | F |
| | | | 10 | SB | 6,924 | 0.75 | D | 4,083 | 0.44 | B |
| | | | | NB | 3,074 | 0.33 | B | 7,086 | 0.77 | D |
| | 4 | S. of Arch Road | 6 | SB | 3,255 | 0.59 | C | 3,105 | 0.56 | C |
| | | | | NB | 2,572 | 0.46 | B | 2,615 | 0.47 | B |
| | | | 10 | SB | 3,255 | 0.35 | B | 3,105 | 0.34 | B |
| | | | | NB | 2,572 | 0.28 | A | 2,615 | 0.28 | A |
| 1990 General Plan plus Project Conditions | 2 | N. of Mariposa Road | 6 | SB | 7,990 | 1.44 | F | 5,519 | 0.99 | E |
| | | | | NB | 4,325 | 0.78 | D | 8,277 | 1.49 | F |
| | | | 10 | SB | 7,990 | 0.86 | D | 5,519 | 0.60 | C |
| | | | | NB | 4,325 | 0.47 | B | 8,277 | 0.89 | E |
| | 3 | N. of Arch Road | 6 | SB | 6,754 | 1.22 | F | 3,885 | 0.70 | C |
| | | | | NB | 2,752 | 0.50 | B | 6,813 | 1.23 | F |
| | | | 10 | SB | 6,754 | 0.73 | D | 3,885 | 0.42 | B |
| | | | | NB | 2,752 | 0.30 | A | 6,813 | 0.74 | D |
| | 4 | S. of Arch Road | 6 | SB | 3,278 | 0.59 | C | 2,740 | 0.49 | B |
| | | | | NB | 2,086 | 0.38 | B | 2,593 | 0.47 | B |
| | | | 10 | SB | 3,278 | 0.35 | B | 2,740 | 0.30 | A |
| | | | | NB | 2,086 | 0.23 | A | 2,593 | 0.28 | A |

TABLE XV (CONT): FREEWAY LEVELS OF SERVICE – ALL SCENARIOS

| Scenario | ID | SR 99 Freeway Segment Location | 2-Way Total Lanes | Dir. | A.M. Peak Hour | | | P.M. Peak Hour | | |
|--|----|--------------------------------|-------------------|------|----------------|-------------|-----|----------------|-------------|-----|
| | | | | | Volume | V/C | LOS | Volume | V/C | LOS |
| 2035 General Plan Buildout No Project Conditions | 2 | N. of Mariposa Road | 6 | SB | 9,466 | 1.71 | F | 7,524 | 1.36 | F |
| | | | | NB | 6,159 | 1.11 | F | 9,963 | 1.80 | F |
| | | | 10 | SB | 9,466 | 1.02 | F | 7,524 | 0.81 | D |
| | | | | NB | 6,159 | 0.67 | C | 9,963 | 1.08 | F |
| | 3 | N. of Arch Road | 6 | SB | 7,832 | 1.41 | F | 6,165 | 1.11 | F |
| | | | | NB | 5,072 | 0.91 | E | 8,191 | 1.48 | F |
| | | | 10 | SB | 7,832 | 0.85 | D | 6,165 | 0.67 | C |
| | | | | NB | 5,072 | 0.55 | C | 8,191 | 0.89 | D |
| | 4 | S. of Arch Road | 6 | SB | 5,753 | 1.04 | F | 5,542 | 1.00 | E |
| | | | | NB | 5,219 | 0.94 | E | 6,571 | 1.18 | F |
| | | | 10 | SB | 5,753 | 0.62 | C | 5,542 | 0.60 | C |
| | | | | NB | 5,219 | 0.56 | C | 6,571 | 0.71 | C |
| 2035 General Plan plus Project Conditions | 2 | N. of Mariposa Road | 6 | SB | 9,443 | 1.70 | F | 7,375 | 1.33 | F |
| | | | | NB | 6,320 | 1.14 | F | 10,097 | 1.82 | F |
| | | | 10 | SB | 9,443 | 1.02 | F | 7,375 | 0.80 | D |
| | | | | NB | 6,320 | 0.68 | C | 10,097 | 1.09 | F |
| | 3 | N. of Arch Road | 6 | SB | 7,957 | 1.43 | F | 6,121 | 1.10 | F |
| | | | | NB | 5,198 | 0.94 | E | 8,339 | 1.50 | F |
| | | | 10 | SB | 7,957 | 0.86 | D | 6,121 | 0.66 | C |
| | | | | NB | 5,198 | 0.56 | C | 8,339 | 0.90 | E |
| | 4 | S. of Arch Road | 6 | SB | 5,985 | 1.08 | F | 5,627 | 1.01 | F |
| | | | | NB | 5,437 | 0.98 | E | 6,784 | 1.22 | F |
| | | | 10 | SB | 5,985 | 0.65 | C | 5,627 | 0.61 | C |
| | | | | NB | 5,437 | 0.59 | C | 6,784 | 0.73 | D |

Source: Highway Capacity Manual 2000, Chapters 23 (Basic Freeway Segments) and 24 (Freeway Weaving).

Notes: 1) **Bold** values indicate unacceptable LOS conditions.

2) **Boxed** entries signify unacceptable LOS conditions under 10 lane conditions.

3) V/C = volume-to-capacity ratio; density = passenger cars / mile / lane; LOS = level of service

¹ Segment 2 analyzed as weaving section (Farmington Road to E. Mariposa Road) through EPAP plus Phase 1 scenario, using density relationship to LOS. It is analyzed as a weaving section since the section distance is less than 2,500 feet. After the Phase 1 scenario, the SR 99 / Farmington Road Interchange will be removed, thereby eliminating the weaving section. All other freeway segments analyzed as basic freeway segments with capacity of 1,850 vehicles / hour / lane, using v / c relationship to LOS.

Ramp Merging Levels of Service

TJKM analyzed the following two ramp merging areas for all study scenarios, which were referenced earlier in the report as Intersections 1 and 2:

1. SR 99 Southbound Off-Ramp to E. Fremont Street Westbound
2. SR 99 Northbound Off-Ramp to E. Fremont Street Eastbound

Currently, both merges consist of a two-lane “mainline” on E. Fremont Street (an arterial) and a one-lane merging ramp from the SR 99 freeway. Table XVII summarizes the LOS results for the two ramp merges for all study scenarios. Appendix N contains the ramp analysis sheets. As shown in the table, both merges operate acceptably at LOS B or better during both peak hours under Existing Conditions. Under all subsequent conditions, the merge areas are expected to operate acceptably at LOS D or better during both peak hours.

TABLE XVII: RAMP MERGING LEVELS OF SERVICE – ALL SCENARIOS

| Scenario | ID | Merging Location | A.M. Peak Hour | | P.M. Peak Hour | |
|---|----|---|----------------|-----|----------------|-----|
| | | | Density | LOS | Density | LOS |
| Existing Conditions | 1 | SR 99 SB Off-Ramp to E. Fremont Street WB | 8.7 | A | 9.3 | A |
| | 2 | SR 99 NB Off-Ramp to E. Fremont Street EB | 8.6 | A | 13.2 | B |
| Existing plus Approved Projects (EPAP) Conditions | 1 | SR 99 SB Off-Ramp to E. Fremont Street WB | 13.5 | B | 12.2 | B |
| | 2 | SR 99 NB Off-Ramp to E. Fremont Street EB | 24.4 | C | 22.6 | C |
| EPAP plus Project Phase I Conditions | 1 | SR 99 SB Off-Ramp to E. Fremont Street WB | 13.3 | B | 11.7 | B |
| | 2 | SR 99 NB Off-Ramp to E. Fremont Street EB | 24.7 | C | 22.6 | C |
| EPAP plus Project Conditions | 1 | SR 99 SB Off-Ramp to E. Fremont Street WB | 14 | B | 13 | B |
| | 2 | SR 99 NB Off-Ramp to E. Fremont Street EB | 25.3 | C | 23.8 | C |
| 1990 General Plan No Project Conditions | 1 | SR 99 SB Off-Ramp to E. Fremont Street WB | 12.2 | B | 14.4 | B |
| | 2 | SR 99 NB Off-Ramp to E. Fremont Street EB | 17 | B | 16.5 | B |
| 1990 General Plan plus Project | 1 | SR 99 SB Off-Ramp to E. Fremont Street WB | 12.5 | B | 15.2 | B |
| | 2 | SR 99 NB Off-Ramp to E. Fremont Street EB | 18.5 | B | 16.8 | B |
| 2035 General Plan Buildout No Project Conditions | 1 | SR 99 SB Off-Ramp to E. Fremont Street WB | 13.1 | B | 12.4 | B |
| | 2 | SR 99 NB Off-Ramp to E. Fremont Street EB | 28.7 | D | 30.9 | D |
| 2035 General Plan plus Project Conditions | 1 | SR 99 SB Off-Ramp to E. Fremont Street WB | 13.1 | B | 13.7 | B |
| | 2 | SR 99 NB Off-Ramp to E. Fremont Street EB | 29.4 | D | 32.2 | D |

Source: Highway Capacity Manual 2000, Chapter 25

Note: Density = passenger cars per mile per lane (pc / mi / ln)

SUMMARY OF MITIGATION MEASURES

This section of the report summarizes the mitigation requirements described earlier in the report, indicates project percent contributions and presents the proposed project improvement schedule for transportation facilities.

Intersection Mitigation Requirements

Figures 38 through 48 show sketches of intersection mitigation requirements at most of the external study intersections. Most of the external study intersections require some sort of mitigation measures, at least for the buildout of the proposed 2035 General Plan. Sketches are not included where the specific mitigation measure might be obvious, such as signaling the intersection. The mitigation measures presented in the sketches are expected to be sufficient for all analyzed traffic conditions in this report.

Figure 49, Intersection Lane Geometry Summary, shows intersection improvements required under each of the scenarios studied in this report at all 31 external study intersections. The figure shows (in a bold-face indication) when a lane or traffic signal addition is first needed. It should be noted that this approach is different from mitigation descriptions earlier in the report, where all mitigation measures are described in each scenario they are required. This is not intended to imply that the developer is not required to provide fair-share funding for mitigation measures in all scenarios. When the same mitigation is required in subsequent scenarios, it is not shown in bold face. The General Plan scenarios, both 1990 and 2035, assume that mitigation measures required by the EPAP scenarios are in place.

Study Area Link Level Summary

Figures 50 and 51 show the estimated lane requirements for the study area. Figure 50 provides study area lane requirements needed for the first phase of the project plus the buildout of the entire EPAP scenario. Minimum internal lane requirements are also shown. Figure 51 depicts the lane requirements for the buildout of the project and the full buildout of the proposed 2006 General Plan for 2035 conditions. Minimum lane requirements for the internal streets are also shown. It is noted that there are instances where it may be appropriate to construct more than the minimum lanes needed to satisfy capacity requirements.

Internal Roadway Requirements

The internal roadway requirements for project streets have been determined at various levels. Minimum roadway lane requirements between intersections are described in Figure 51 and lane requirements at each key internal intersection is depicted in Figure 37. The lanes shown in Figure 37 are those that would be required to satisfy LOS D at each intersection.

Percent Project Contribution

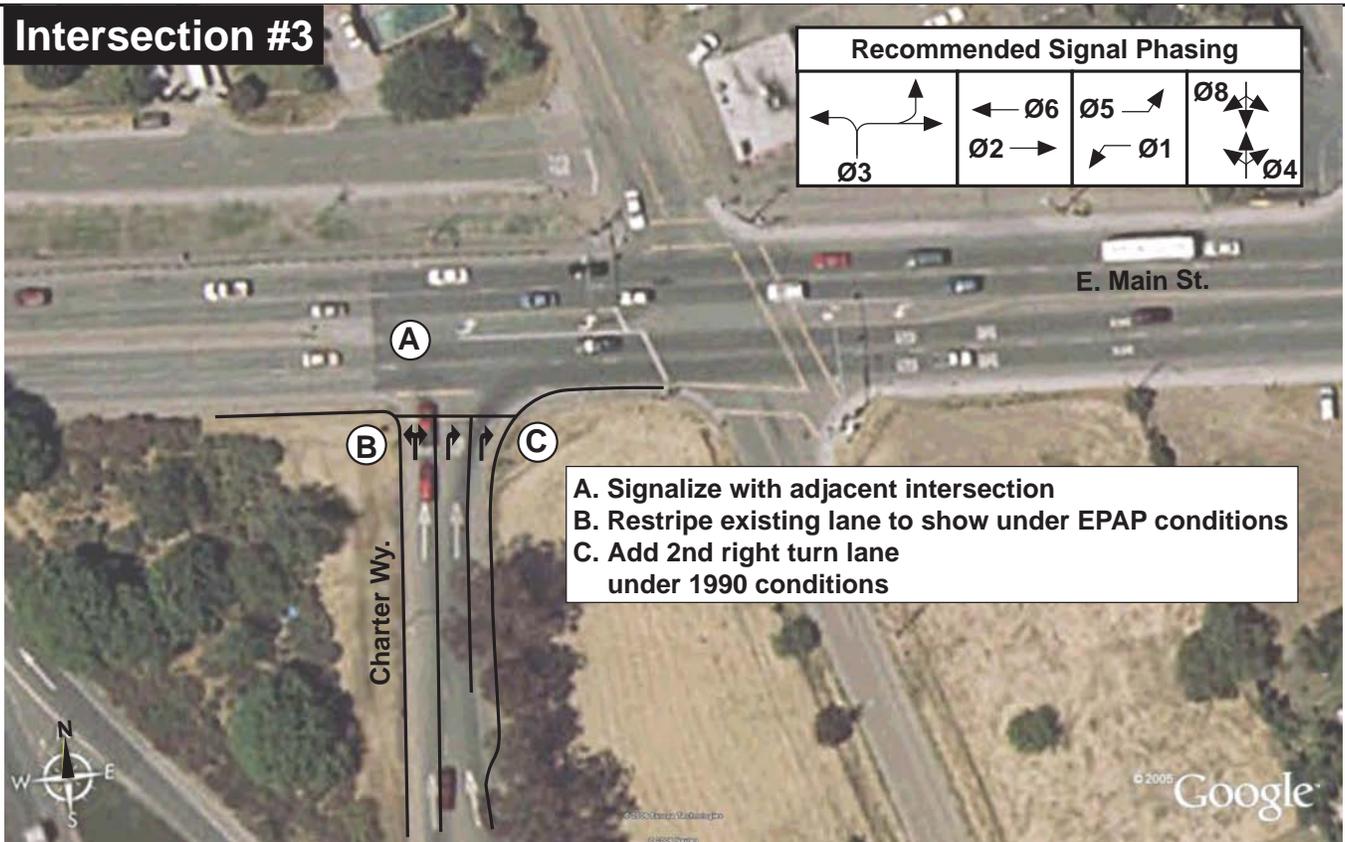
TJKM has also performed an analysis to determine the percent project traffic at each study intersections under the 2035 General Plan plus Project conditions. Table XVIII shows the amount of project traffic at each study intersection, along with the total traffic. The percent of total traffic contributed by the project is also shown.

Freeway Lane Requirements

A summary table showing lane requirements under the study scenarios for the major SR 99 segments is shown in Table XIX. This table summarizes the amount of lanes needed on SR 99 under the conditions studied in this report. Caltrans is conducting studies that will lead toward the widening of the freeway to six lanes initially.

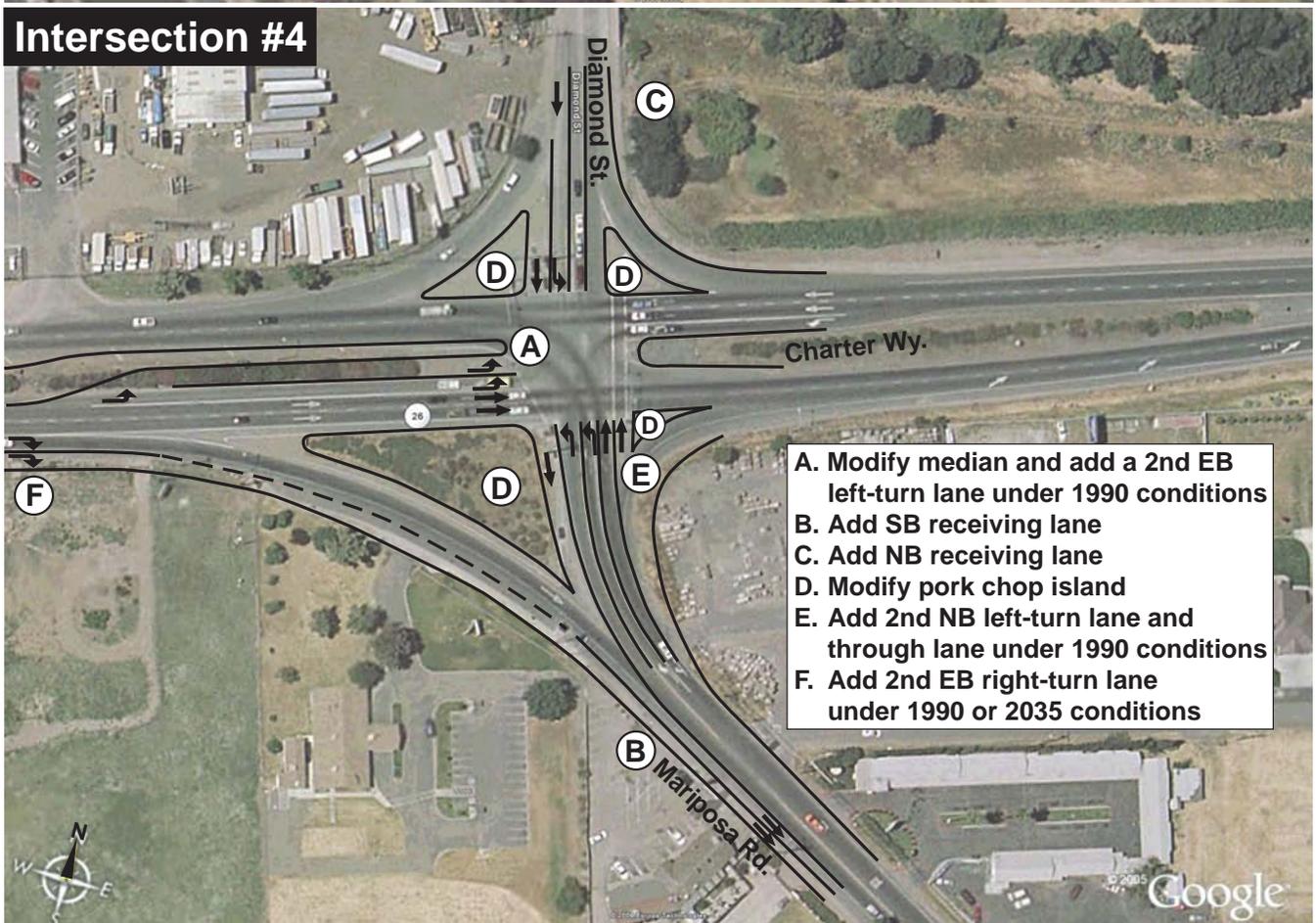
Intersection #3

| Recommended Signal Phasing | | | |
|----------------------------|--------|--------------|--------------|
| Ø3 | Ø2 | Ø5 Ø1 | Ø8 Ø4 |

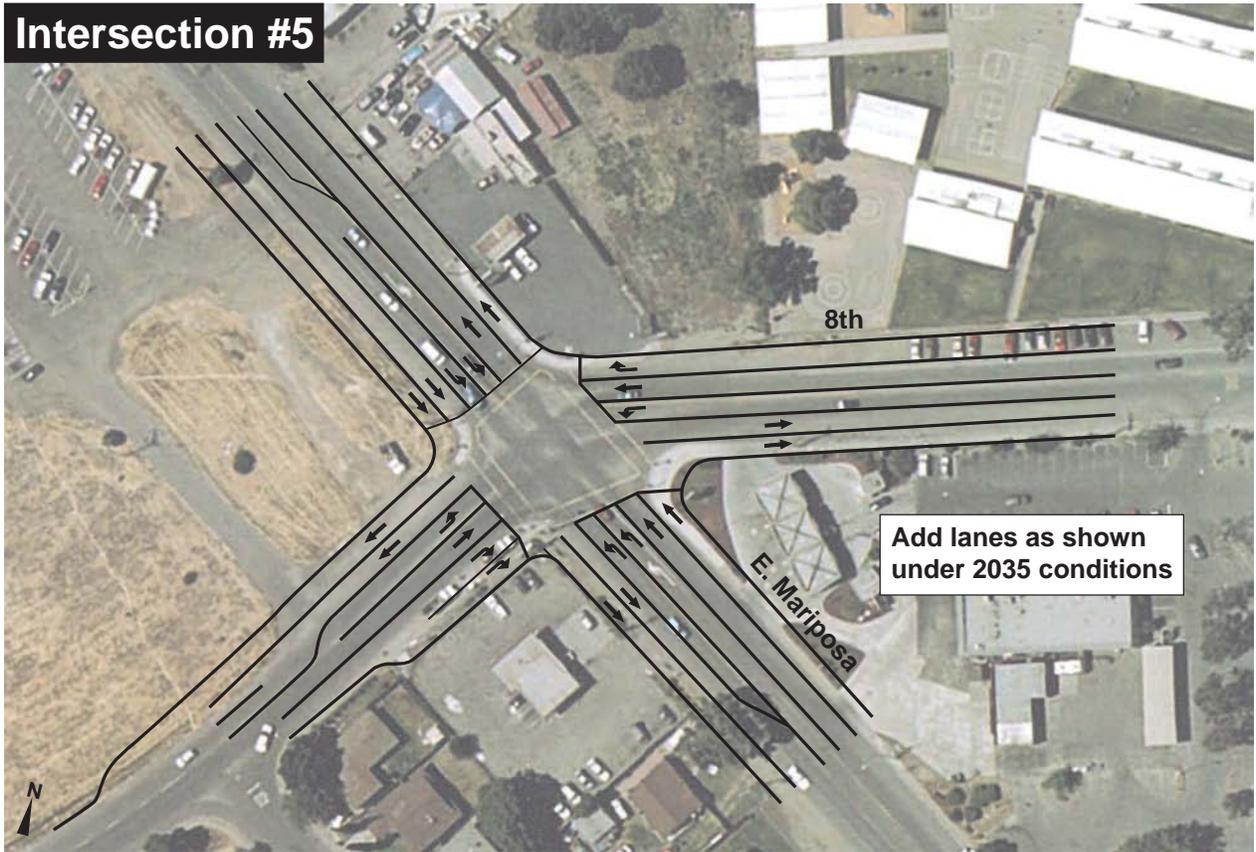


Intersection #4

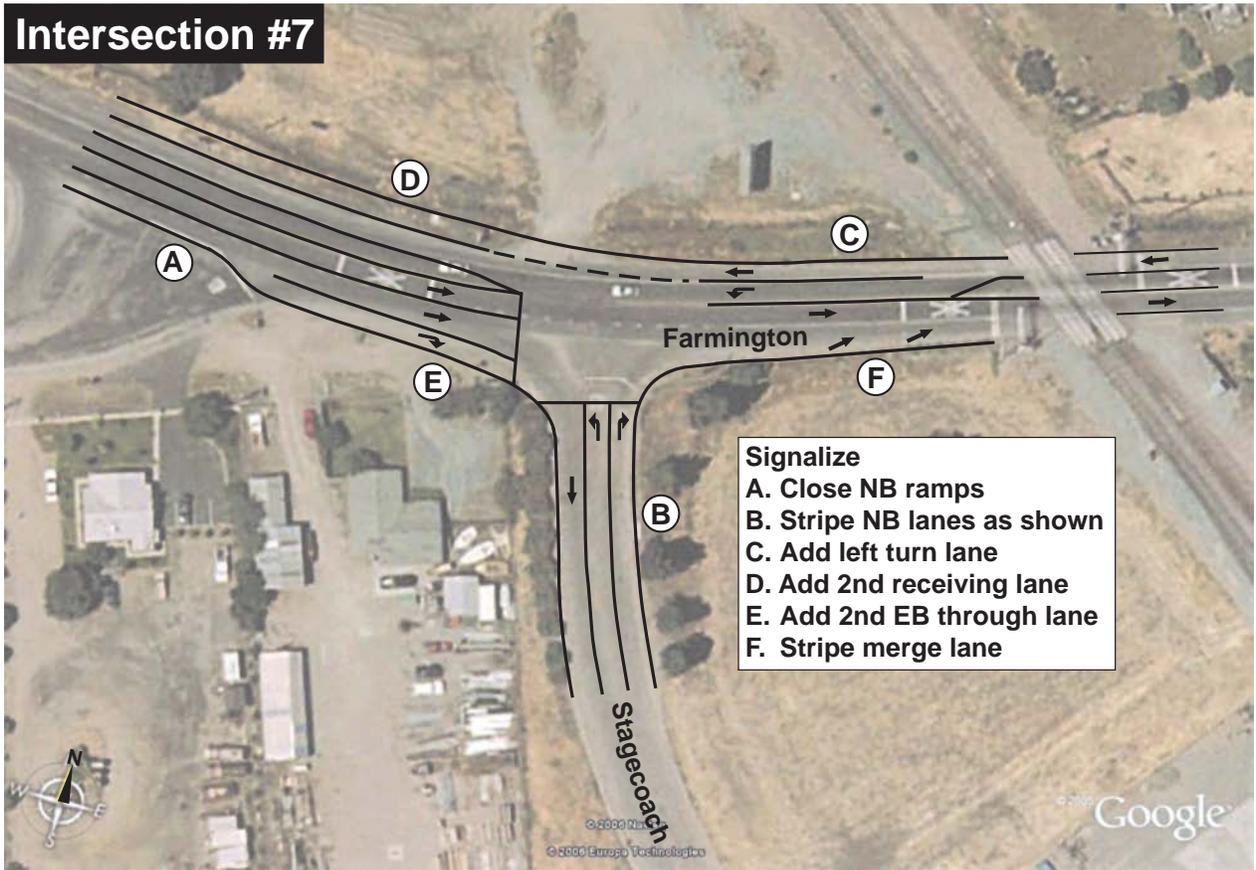
- A. Modify median and add a 2nd EB left-turn lane under 1990 conditions
- B. Add SB receiving lane
- C. Add NB receiving lane
- D. Modify pork chop island
- E. Add 2nd NB left-turn lane and through lane under 1990 conditions
- F. Add 2nd EB right-turn lane under 1990 or 2035 conditions



Intersection #5

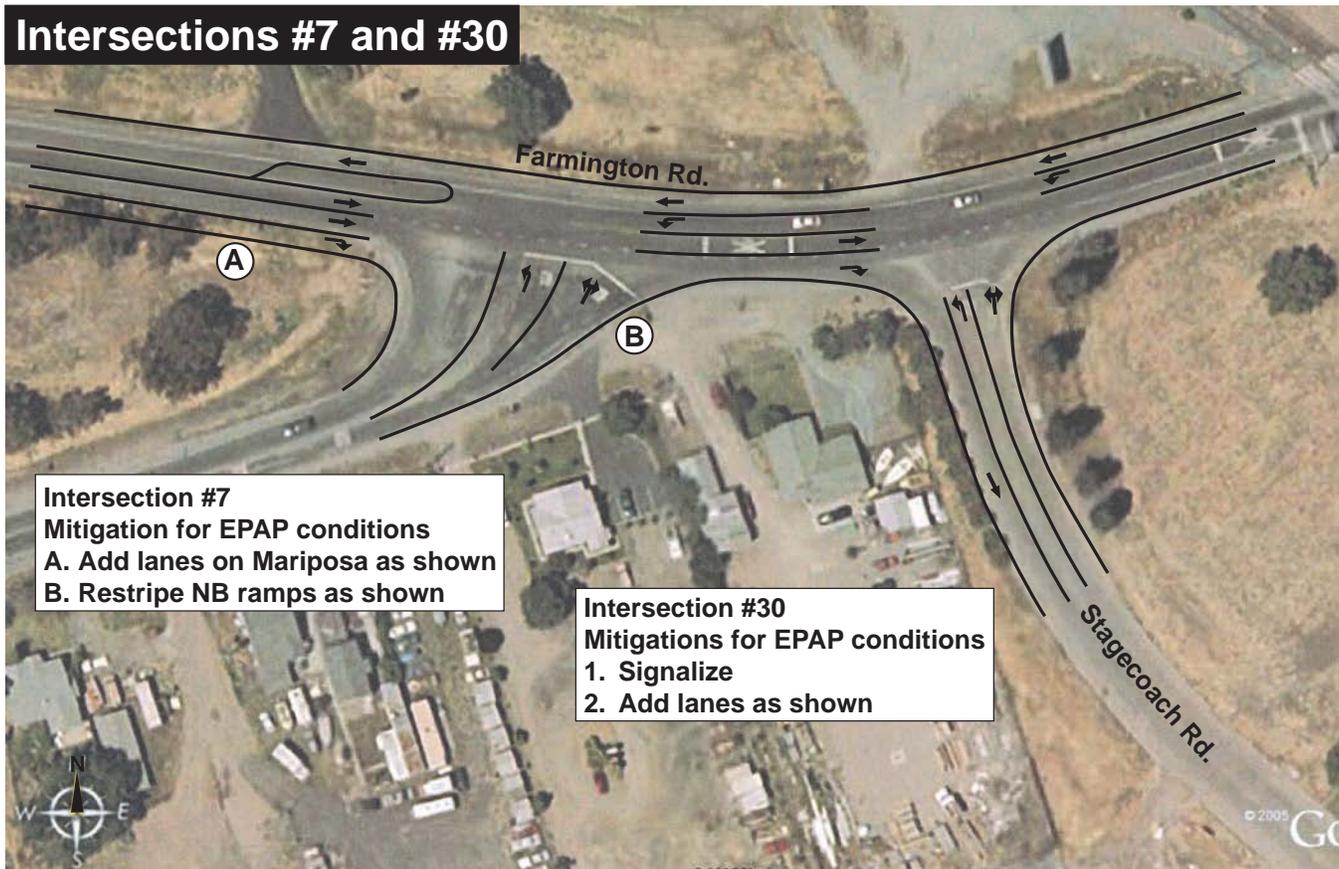


Intersection #7



City of Stockton
Mariposa Lakes Traffic Study
Mitigation Measure—Intersections #5 and #7

Intersections #7 and #30



Intersection #7
 Mitigation for EPAP conditions
 A. Add lanes on Mariposa as shown
 B. Restripe NB ramps as shown

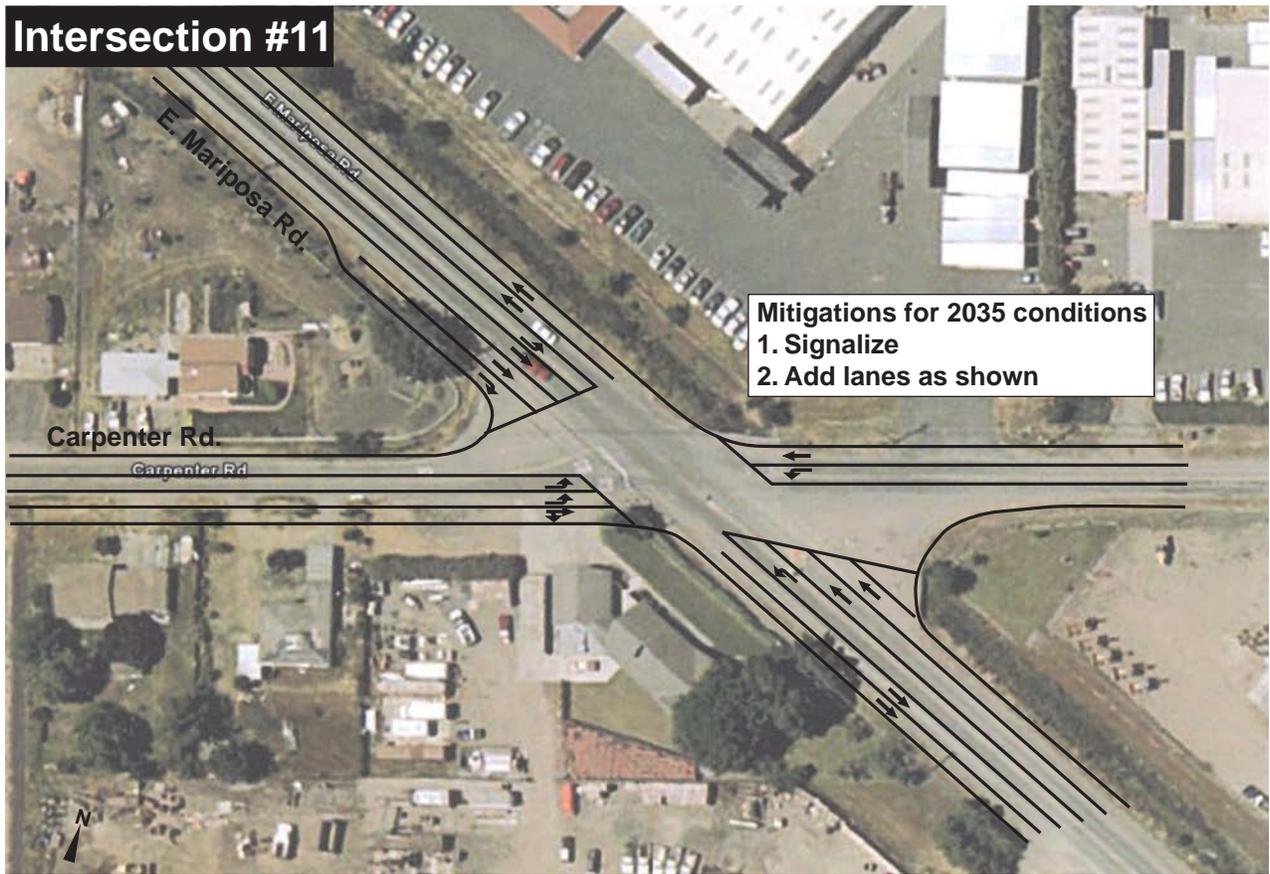
Intersection #30
 Mitigations for EPAP conditions
 1. Signalize
 2. Add lanes as shown

Intersection #10



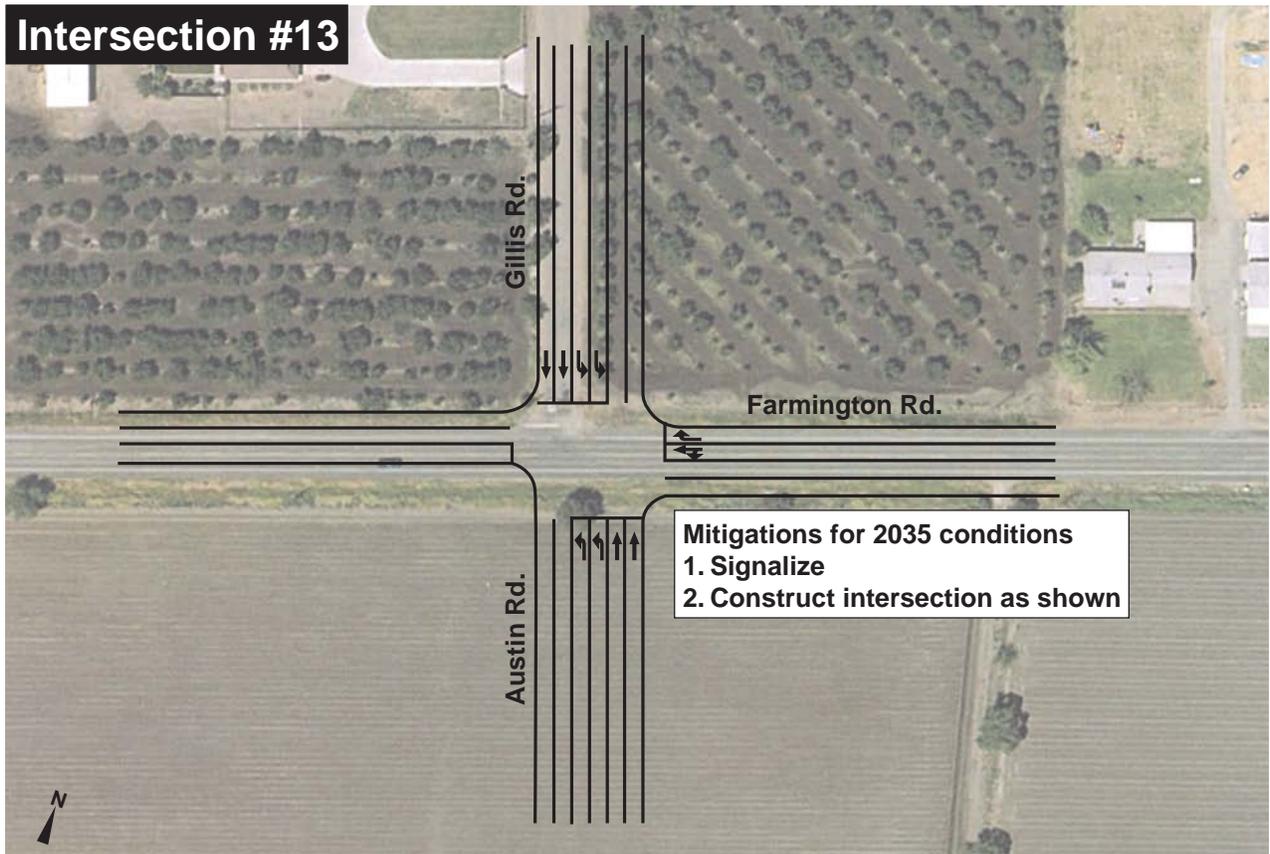
1. Signalize
 2. Add lanes as shown

Intersection #11



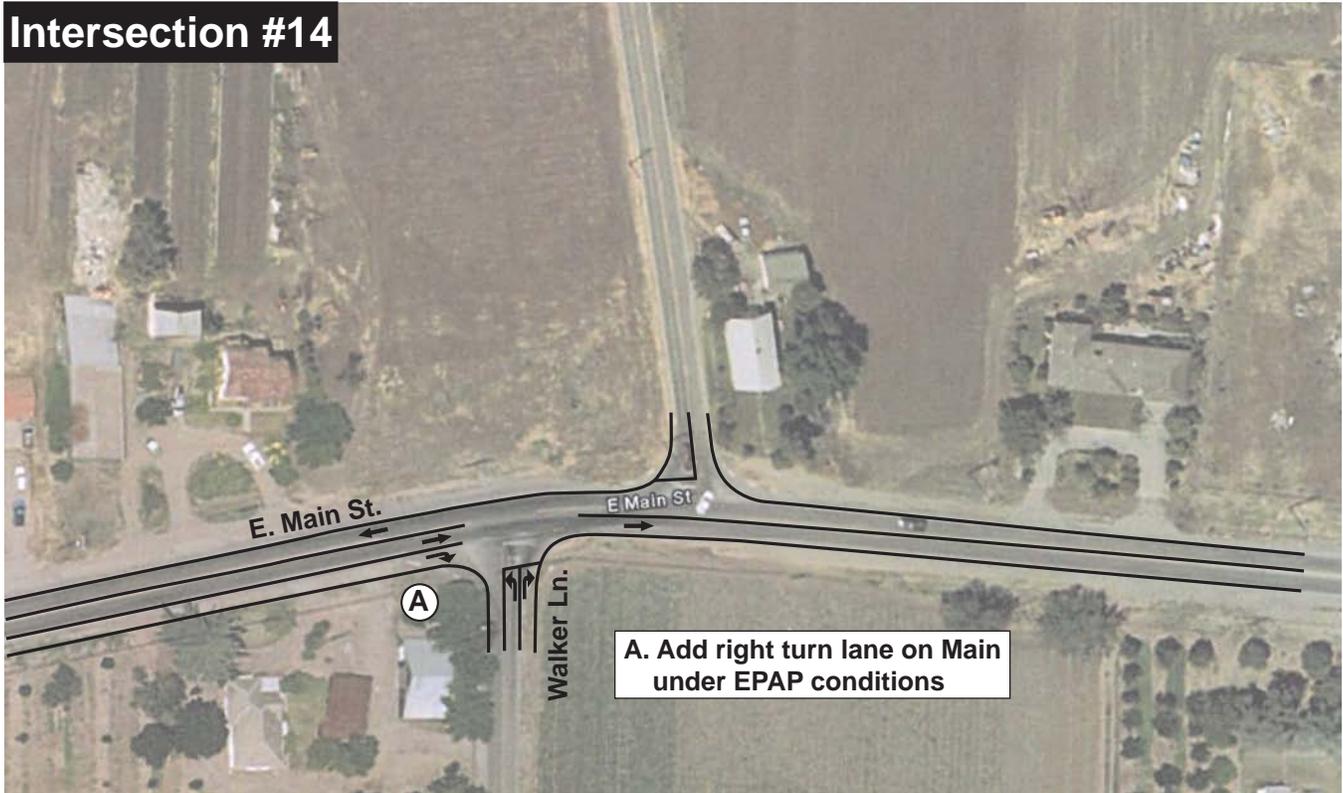
Mitigations for 2035 conditions
1. Signalize
2. Add lanes as shown

Intersection #13

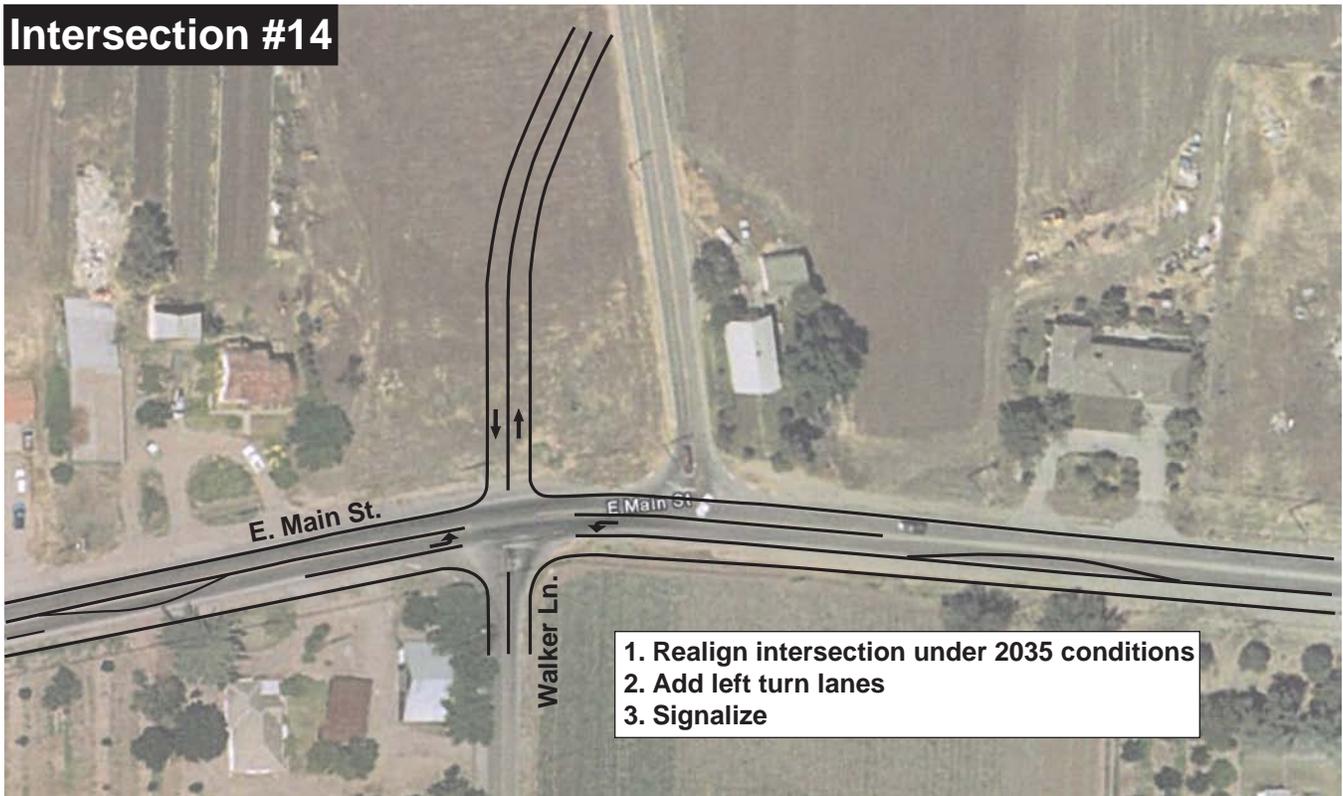


Mitigations for 2035 conditions
1. Signalize
2. Construct intersection as shown

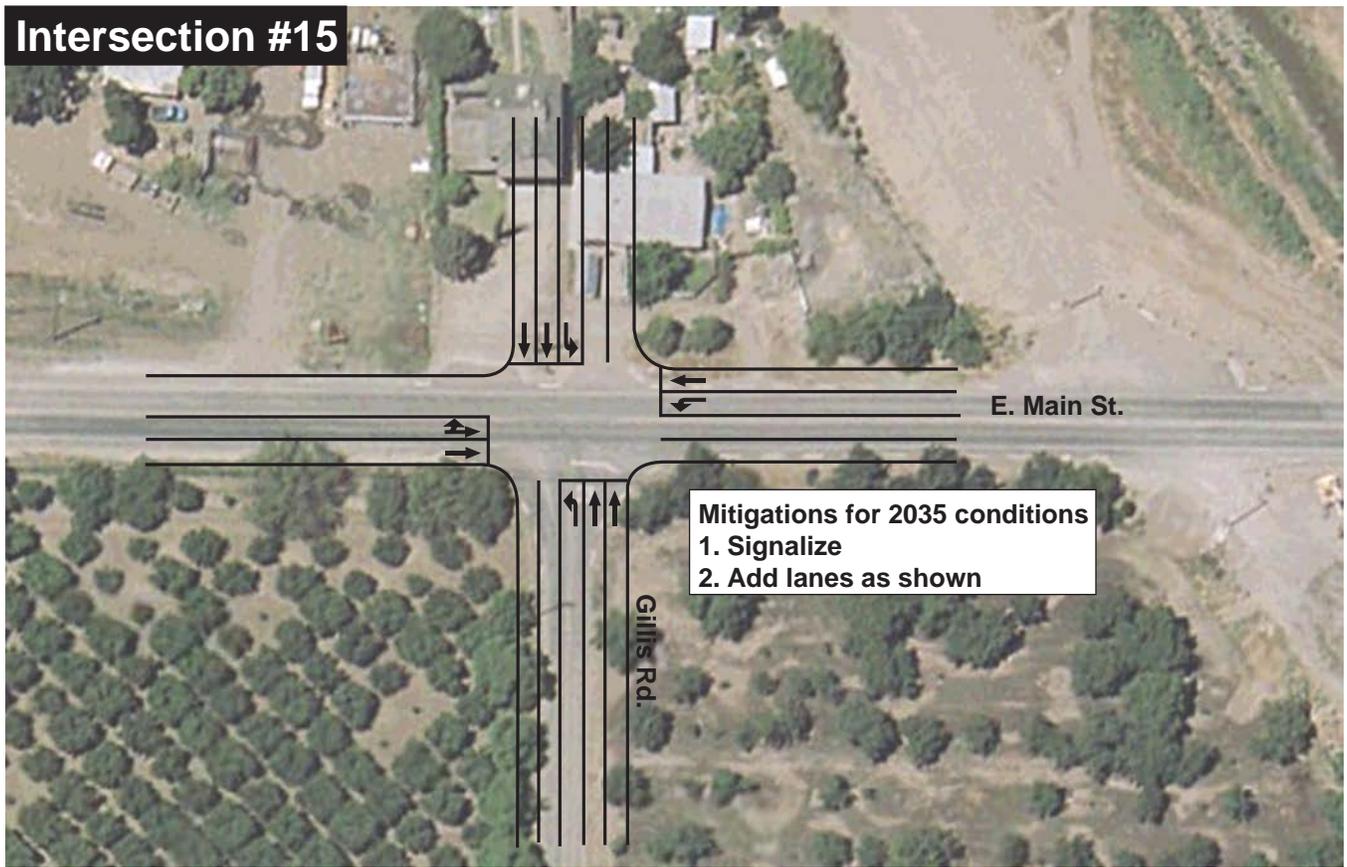
Intersection #14



Intersection #14



Intersection #15



Intersection #17



Intersection #18

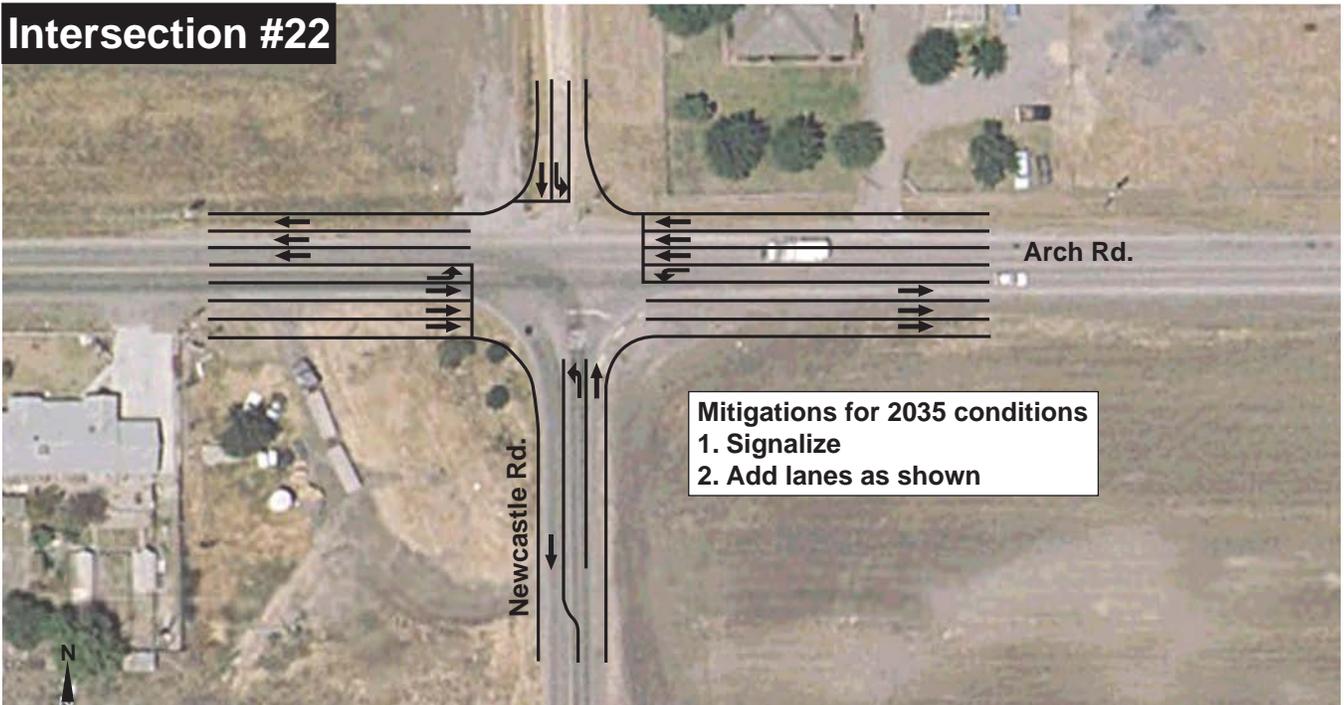
1. Add left turn lanes on Mariposa
2. Signalize



Intersection #21



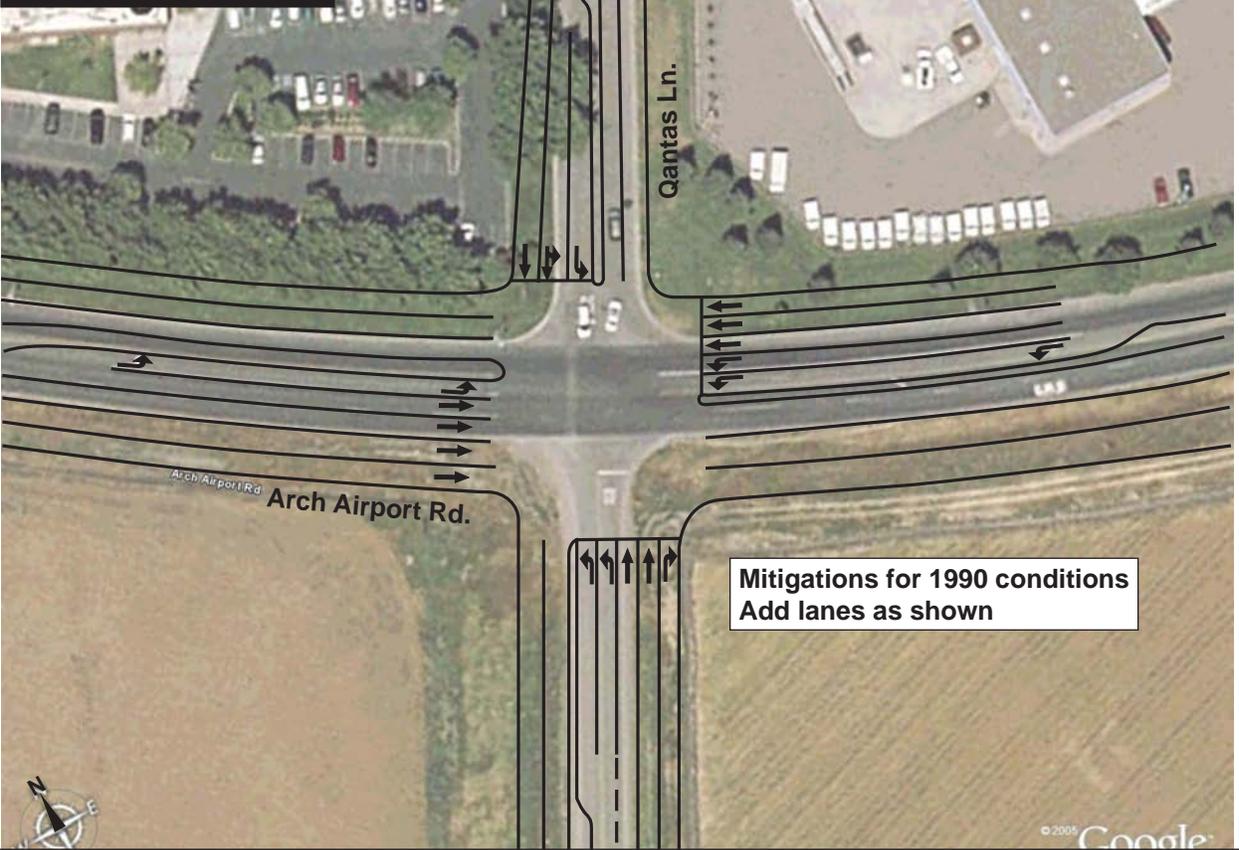
Intersection #22



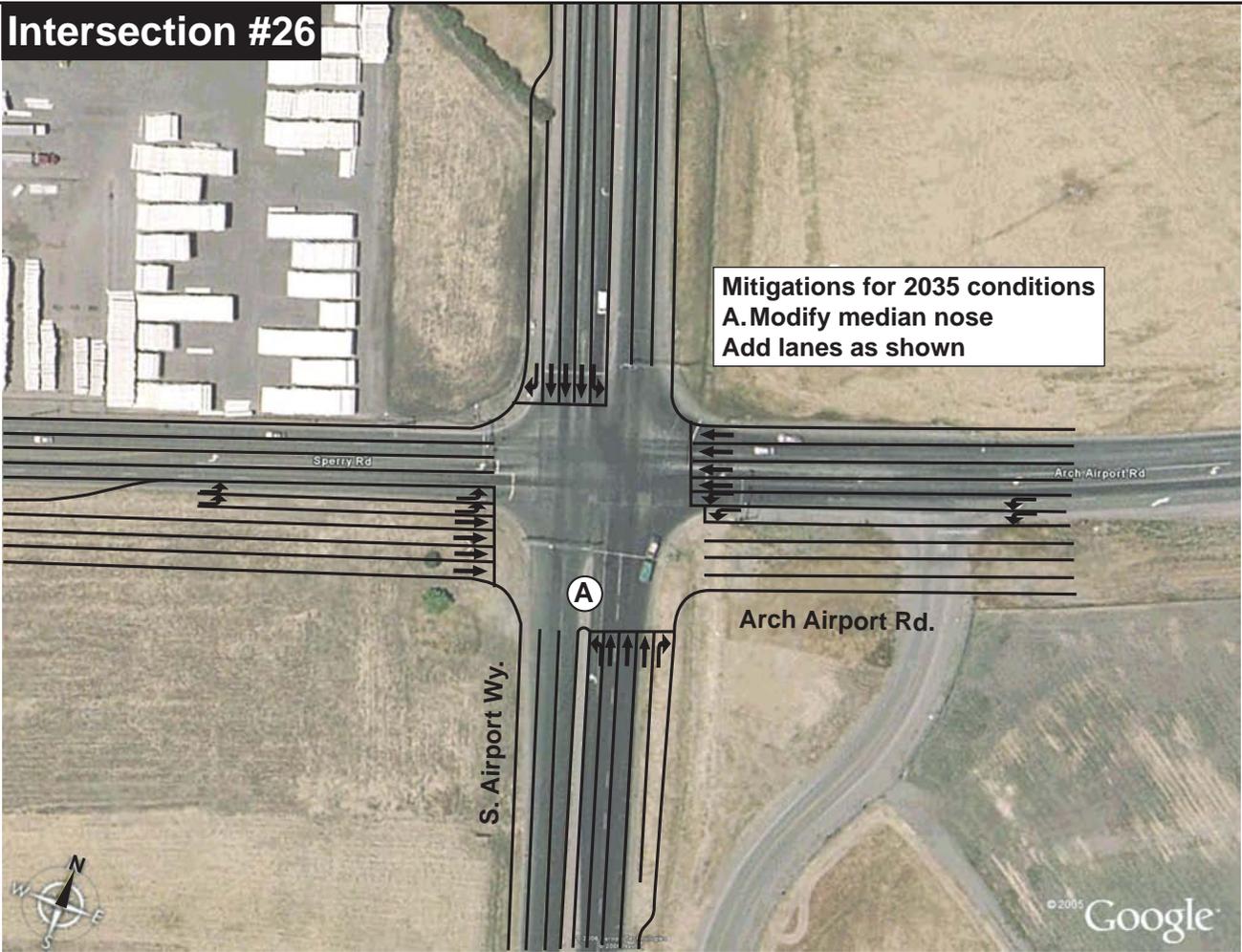
Intersection #23



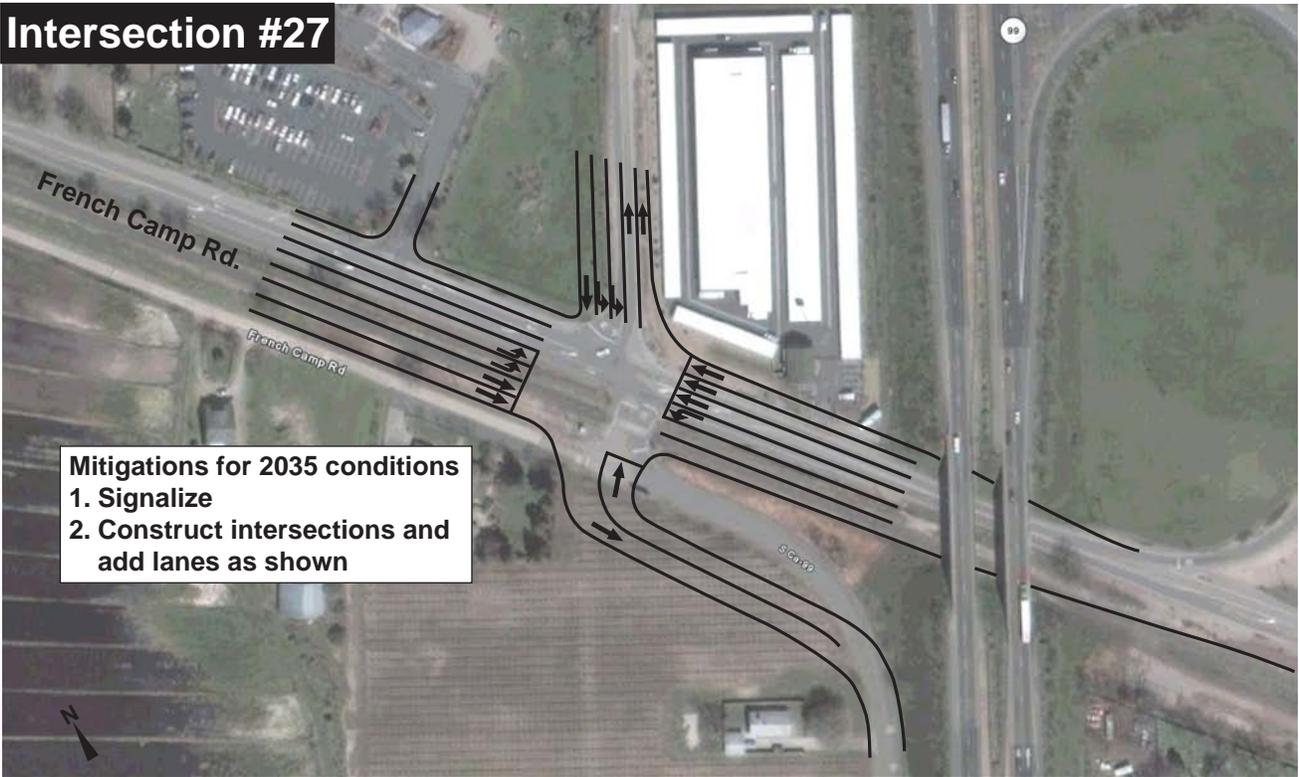
Intersection #25



Intersection #26



Intersection #27



Intersection #28



| ID | Scenario | Existing | EPAP No Project | EPAP + Phase I | EPAP + Project | 1990 General Plan No Project | 1990 General Plan + Project | 2035 General Plan No Project | 2035 General Plan + Project |
|----|------------------------------------|----------|--|--|---------------------------------|---------------------------------|---------------------------------|---|---------------------------------|
| 1 | SR 99 SB Ramps/ E. Fremont St. | | | | | | | | |
| 2 | SR 99 NB Ramps/ E. Fremont St. | | | | | | | | |
| 3 | E. Charter Way/ E. Main St. | | | | | | | | |
| 4 | E. Charter Way/ E. Mariposa Rd. | | | | | | | | |
| 5 | E. Mariposa Way/ E. 8th St. | | | | | | | <small>Significant unavoidable impact</small> | |
| 6 | SR 99 SB Ramps/ Farmington | | | | Not a Study Intersection | Not a Study Intersection |
| 7 | SR 99 NB Ramps/ Farmington | | | | Not a Study Intersection | Not a Study Intersection |
| 8 | E. Mariposa Rd./ SR 99 SB Ramps | | <small>Signal Installed as of October 2006</small> | <small>Signal Installed as of October 2006</small> | | | | | |
| 9 | SR 99 NB Ramps/ E. Mariposa Rd. | | <small>Signal Installed as of October 2006</small> | <small>Signal Installed as of October 2006</small> | | | | | |
| 10 | Stagecoach Rd./ E. Mariposa Rd. | | | | | | | | |
| 11 | E. Mariposa Rd./ Carpenter Rd. | | | | | | | | |
| 12 | Farmington Rd./ Walker Ln. | | | | | | | | |
| 13 | Gillis Rd./ Farmington Rd. | | | | | | | | |
| 14 | Walker Ln./ E. Main St. | | | | | | | | |
| 15 | Gillis Rd./ E. Main St. | | | | | | | | |
| 16 | Kaiser Rd./ Farmington Rd. | | | | | | | | |

City of Stockton
Mariposa Lakes Traffic Study
Intersection Lane Geometry Summary

NOTE:
Mitigation measures are shown in bold only when they are initially triggered.



| LEGEND | |
|--------|-------------------------|
| | Stop Sign |
| | Mitigated |
| | Existing Traffic Signal |
| | Install Traffic Signal |



| ID | Scenario | Existing | EPAP No Project | EPAP + Phase I | EPAP + Project | 1990 General Plan No Project | 1990 General Plan + Project | 2035 General Plan No Project | 2035 General Plan + Project |
|----|---|----------|-------------------------------------|-------------------------------------|---------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| 17 | Jack Tone Rd./ Farmington Rd. | | | | | | | | |
| 18 | Jack Tone Rd./ E. Mariposa Rd. | | | | | | | | |
| 19 | Kaiser Rd./ E. Mariposa Rd. | | | | | | | | |
| 20 | Austin Rd./ E. Mariposa Rd. | | | | | | | | |
| 21 | Austin Rd./ Arch Rd. | | | | | | | | |
| 22 | Newcastle Rd./ Arch Rd. | | | | | | | | |
| 23 | E. Frontage Rd./ Arch Rd. | | | | | | | | |
| 24 | Arch Rd./ SR 99 Single-Point Intersection | | | | | | | | |
| | | | | | | Significant unavoidable impact | Significant unavoidable impact | Significant unavoidable impact | Significant unavoidable impact |
| 25 | Qantas Ln./ Arch Airport Rd. | | | | | | | | |
| | | | | | | | | | Significant unavoidable impact |
| 26 | S. Airport Way/ Arch Airport Rd. | | | | | | | | |
| 27 | SR 99 SB Ramps/ French Camp Rd. | | | | | | | | |
| 28 | SR 99 NB Ramps/ French Camp Rd. | | | | | | | | |
| 29 | Austin Rd./ French Camp Rd. | | | | | | | | |
| 30 | Farmington Rd./ Stagecoach Rd. | | | | | | | | |
| | | | Signal Installed as of October 2006 | Signal Installed as of October 2006 | | | | | |
| 31 | Mariposa Rd./ W. Frontage Rd. | | | | | | | | |
| | | | Signal under construction | Signal under construction | Signal under construction | | | | |

City of Stockton
Mariposa Lakes Traffic Study
Intersection Lane Geometry Summary

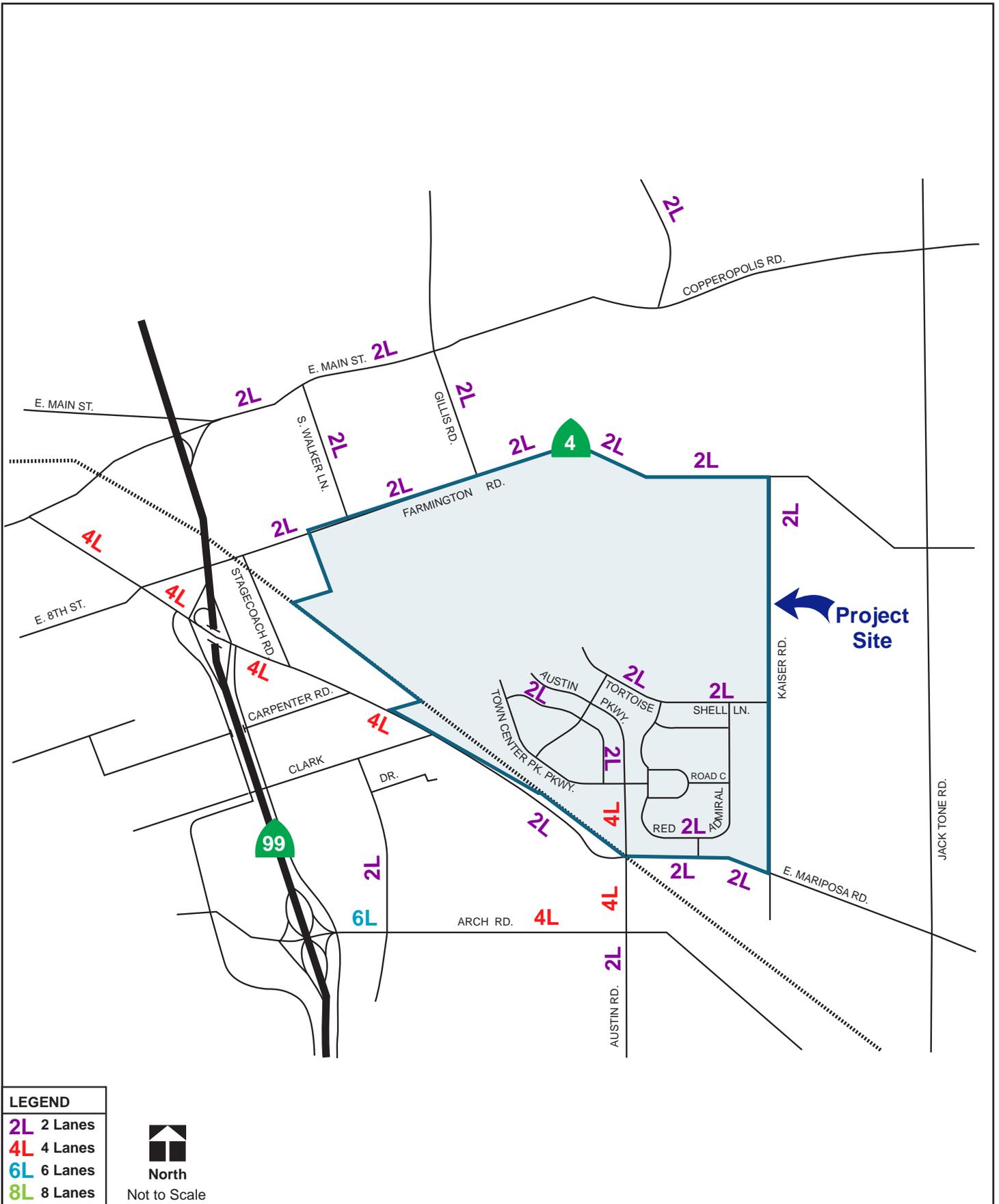
NOTE:
Mitigation measures are shown in bold only when they are initially triggered.

North
Not to Scale

| LEGEND | |
|--------|-------------------------|
| | Stop Sign |
| | Mitigated |
| | Existing Traffic Signal |
| | Install Traffic Signal |

Figure
49
Cont.





City of Stockton
 Mariposa Lakes Traffic Study
**Estimated EPAP plus Phase I Project
 Minimum Lane Requirements**

**TABLE XVIII: PERCENT PROJECT TRAFFIC CONTRIBUTION AT STUDY INTERSECTIONS –
YEAR 2035 PLUS PROJECT CONDITIONS**

| <i>ID</i> | <i>Intersection</i> | <i>Project Traffic</i> | <i>2035+Project Traffic</i> | <i>Percent Project Traffic</i> |
|-----------|---|---|-----------------------------|--------------------------------|
| 1 | SR 99 SB Ramps/E. Fremont Street | 217 | 2128 | 10.2 |
| 2 | SR 99 NB Ramps/E. Fremont Street | 698 | 6902 | 10.1 |
| 3 | E. Charter Way/E. Main Street | 237 | 2057 | 11.5 |
| 4 | E. Charter Way/E. Mariposa Road | 1355 | 5321 | 25.5 |
| 5 | E. Mariposa Way/E. 8 th Street | 1999 | 4608 | 43.4 |
| 6 | SR 99SB Ramps/Farmington Road | Not a study Intersection in this scenario | | |
| 7 | SR 99 NB Ramps/Farmington Road | Not a study Intersection in this scenario | | |
| 8 | SR 99 SB Ramps/E. Mariposa Road | 2409 | 5572 | 43.2 |
| 9 | SR 99 NB Ramps/E. Mariposa Road | 4284 | 7393 | 57.9 |
| 10 | Stagecoach Road/E. Mariposa Road | 5202 | 8430 | 61.7 |
| 11 | E. Mariposa Road/Carpenter Road | 2395 | 4029 | 59.4 |
| 12 | Farmington Road/ Walker Lane | 537 | 751 | 71.5 |
| 13 | Gillis Road/ Farmington Road | 2217 | 2772 | 80.0 |
| 14 | Walker Lane/E. Main Street | 607 | 1596 | 38.0 |
| 15 | Gillis Road/ E. Main Street | 2119 | 3265 | 64.9 |
| 16 | Kaiser Road/Farmington Road | 584 | 1640 | 35.6 |
| 17 | Jack Tone Road/Farmington Road | 431 | 1872 | 23.0 |
| 18 | Jack Tone Road/E. Mariposa Road | 241 | 1680 | 14.3 |
| 19 | Kaiser Road/E. Mariposa Road | 206 | 1507 | 13.7 |
| 20 | Austin Road/E. Mariposa Road | 4144 | 5616 | 73.8 |
| 21 | Austin Road/Arch Road | 3607 | 5152 | 70.0 |
| 22 | Newcastle Road/Arch Road | 1947 | 4826 | 40.3 |
| 23 | E. Frontage Road/Arch Road | 1518 | 6992 | 21.7 |
| 24 | Arch Road/SR 99 Single Point Interchange | 1663 | 6700 | 24.8 |
| 25 | Qantas Lane/Arch Airport Road | 1724 | 7030 | 24.5 |
| 26 | S. Airport Way/Arch Airport Road | 1035 | 7586 | 13.6 |
| 27 | SR 99 SB Ramps/French Camp Road | 25 | 4706 | 0.5 |
| 28 | SR 99 NB Ramps/French Camp Road | 20 | 4418 | 0.5 |
| 29 | Austin Road/French Camp Road | 4 | 1034 | 0.4 |
| 30 | Stagecoach Road/Farmington Road | 892 | 2032 | 43.9 |
| 31 | Mariposa Road/W. Frontage Road | 1472 | 4097 | 35.9 |

TABLE XIX: SUMMARY OF LANE REQUIREMENTS ON SR 99

| <i>Scenario</i> | <i>North of Mariposa Road</i> | <i>North of Arch Road</i> | <i>South of Arch Road</i> |
|------------------------------|-------------------------------|---------------------------|---------------------------|
| Existing | 4 | 4 | 6 |
| EPAP No Project | 6 | 6 | 6 |
| EPAP+ Phase I | 6 | 6 | 6 |
| EPAP+ Project | 8 | 6 | 6 |
| 1990 General Plan No Project | 10 (E*) | 10 | 6 |
| 1990 General Plan+ Project | 10 (E) | 8 | 6 |
| 2035 General Plan No Project | 10 (F) | 10 | 8 |
| 2035 General Plan+ Project | 10 (F) | 10 (E) | 8 |

* *Note:* (E) indicates LOS E will exist after the indicated numbers of lanes are in place.

Queuing Analysis

Figure 52 depicts the results of the queuing analysis conducted for this project. In a few instances, queuing is excessive and the required lanes would not fit well in the available space without spilling over onto adjacent lanes of backing up to the previous intersection. In these instances, it would be desirable to either add lanes to spread the queue or to make provisions at adjacent intersections for the lengthy queues to be served. Generally, left or right turns producing queues greater than 400 to 500 feet should be examined, unless a greater distance is acceptable at the particular location.

Locations where problematic queues are noted include northbound Mariposa at Charter Way, the southbound left turns at the Arch Road/SR 99 single point interchange, and the eastbound left turn lane at the Mariposa Road intersection with the West Frontage Road near the Mariposa Road interchange with SR 99. In some locations, queuing produced by the 1990 or 2035 “No Project” scenarios is excessive because the project network is not in place to accommodate the high traffic volumes. In this case, the queuing is somewhat hypothetical and not a cause for concern. No unacceptable queuing is produced in the EPAP Plus Phase I or the EPAP plus Project scenarios.

| ID | Scenario | Existing | EPAP No Project | EPAP + Phase I | EPAP + Project | 1990 General Plan No Project | 1990 General Plan + Project | 2035 General Plan No Project | 2035 General Plan + Project |
|----|------------------------------------|----------|-----------------|----------------|--------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 1 | SR 99 SB Ramps/ E. Fremont St. | | | | | | | | |
| 2 | SR 99 NB Ramps/ E. Fremont St. | | | | | | | | |
| 3 | E. Charter Way/ E. Main St. | | | | | | | | |
| 4 | E. Charter Way/ E. Mariposa Rd. | | | | | | | | |
| 5 | E. Mariposa Way/ E. 8th St. | | | | | | | | |
| 6 | SR 99 SB Ramps/ Farmington | | | | Not a Study Intersection | Not a Study Intersection | Not a Study Intersection | Not a Study Intersection | Not a Study Intersection |
| 7 | SR 99 NB Ramps/ Farmington | | | | Not a Study Intersection | Not a Study Intersection | Not a Study Intersection | Not a Study Intersection | Not a Study Intersection |
| 8 | E. Mariposa Rd./ SR 99 SB Ramps | | | | | | | | |
| 9 | SR 99 NB Ramps/ E. Mariposa Rd. | | | | | | | | |
| 10 | Stagecoach Rd./ E. Mariposa Rd. | | | | | | | | |
| 11 | E. Mariposa Rd./ Carpenter Rd. | | | | | | | | |
| 12 | Farmington Rd./ Walker Ln. | | | | | | | | |
| 13 | Gillis Rd./ Farmington Rd. | | | | | | | | |
| 14 | Walker Ln./ E. Main St. | | | | | | | | |
| 15 | Gillis Rd./ E. Main St. | | | | | | | | |
| 16 | Kaiser Rd./ Farmington Rd. | | | | | | | | |

City of Stockton
Mariposa Lakes Traffic Study
Queue Length Summary

NOTE:
NA = Not applicable or cannot be calculated Not to Scale



LEGEND
 Stop Sign
 Traffic Signal



| ID | Scenario | Existing | EPAP No Project | EPAP + Phase I | EPAP + Project | 1990 General Plan No Project | 1990 General Plan + Project | 2035 General Plan No Project | 2035 General Plan + Project |
|----|---|----------|-----------------|----------------|----------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| 17 | Jack Tone Rd./ Farmington Rd. | | | | | | | | |
| 18 | Jack Tone Rd./ E. Mariposa Rd. | | | | | | | | |
| 19 | Kaiser Rd./ E. Mariposa Rd. | | | | | | | | |
| 20 | Austin Rd./ E. Mariposa Rd. | | | | | | | | |
| 21 | Austin Rd./ Arch Airport Rd. | | | | | | | | |
| 22 | Newcastle Rd./ Arch Rd. | | | | | | | | |
| 23 | E. Frontage Rd./ Arch Rd. | | | | | | | | |
| 24 | Arch Rd./ SR 99 Single-Point Intersection | | | | | | | | |
| 25 | Qantas Ln./ Arch Airport Rd. | | | | | | | | |
| 26 | S. Airport Way/ Arch Airport Rd. | | | | | | | | |
| 27 | SR 99 SB Ramps/ French Camp Rd. | | | | | | | | |
| 28 | SR 99 NB Ramps/ French Camp Rd. | | | | | | | | |
| 29 | Austin Rd./ French Camp Rd. | | | | | | | | |
| 30 | Farmington Rd./ Stagecoach Rd. | | | | | | | | |
| 31 | Mariposa Rd./ W. Frontage Rd. | | | | | | | | |

City of Stockton
Mariposa Lakes Traffic Study
Queue Length Summary

NOTE:
NA = Not applicable or cannot be calculated



North
Not to Scale

LEGEND
 Stop Sign
 Traffic Signal

Figure
52
Cont.



Triggered Improvements

Planned growth in southeast Stockton, including the Mariposa Lakes project, will trigger the need for capacity improvements to the existing roadway. This section provides an overview and summary of transportation improvements that are needed in the vicinity of the project, either related to Existing Conditions, Existing Plus Approved Projects, General Plan buildout or the Mariposa Lakes project itself.

State Highways

Caltrans has two state highways in the area that will be inadequate for this projected growth. The State Route (SR) 99 freeway and SR 4, a two lane conventional highway that forms the northern Mariposa Lakes boundary, continues to SR 99 and proceeds north on SR 99 to the Stockton Crosstown Freeway before continuing west on the Crosstown. Caltrans has recently improved the Arch Road Interchange and is in the process of widening SR 99 to the north from the Crosstown Freeway to Hammer Lane. The widening from Arch Road to the Crosstown Freeway is in the planning stages but currently is unfunded for construction.

The developer of Mariposa Lakes is cooperating with the City of Stockton to assist Caltrans in its efforts to plan, and in the future design and construct improvements to the SR 99/ Mariposa Road Interchange, closing the SR 99/ Farmington Road Interchange and rerouting SR 4 through Mariposa Lakes from Farmington Road to Mariposa Road. The Mariposa Lakes developer proposes to construct the portion of realigned SR 4 east of the railroad tracks.

Railroad Grade Separations

The Burlington Northern Santa Fe Railroad (BNSF) parallels Mariposa Road in the vicinity of Mariposa Lakes. It provides a physical barrier between most of Mariposa Lakes and Mariposa Road. Mariposa Road crosses the BNSF on a grade separation structure at Austin Road and crosses SR 4 (Farmington Road) at grade near to the SR 99/ Farmington Road Interchange. This grade crossing is currently being widened to four lanes.

In addition to rerouting SR 4, two future City arterials are planned within the Mariposa Lakes. Both require grade separation structures at the BNSF. Austin Road will be extended as a four-lane roadway across Mariposa Lakes and line up with Gillis Road at Farmington Road. Viceroy Avenue will cross under the BNSF with four lanes and intersect with Mariposa Road.

Arterial Roadways

As noted in this report, the following major improvements to the regional road system will be required to handle traffic from previously approved developments, Mariposa Lakes and growth anticipated by the City of Stockton General Plan. These are further summarized on Figure 39 and Table XVIII.

- ***Mariposa Road***
 - Widen to four lanes from Austin Road to Viceroy Avenue
 - Widen to six lanes from Viceroy Avenue to Stagecoach Drive
 - Widen to eight lanes from Stagecoach Drive to SR 99
 - Widen to six lanes from SR 99 to Charter Way

- ***Farmington Road***
Widen to four lanes from Kaiser Road to SR 4 realigned
- ***Arch Road***
Widen to four lanes from Austin Road to Newcastle Road
Widen to six lanes from Newcastle Road to SR 99
- ***Austin Road***
Widen to six lanes from Mariposa Road to Arch Road
- ***Gillis Road***
Widen to four lanes from Farmington Road to Main Street

Regional Intersections

- Of the 31 external study intersections studied for this project, 28 of them will require improvements. Many of the improvements are triggered either by approved projects or by General Plan improvements. Triggering details are summarized on Figure 49.

Funding

Funding for these improvements is expected to be available from a wide variety of sources. The developer of Mariposa Lakes will fund on-site improvements necessary to the development and will pay his fair share of all off-site improvements. Other funding includes: Developer Fees, Regional Transportation Improvement Fees (RTIF), San Joaquin Council of Governments (SJCOC), Measure K sales tax measure and the anticipated Measure K renewal, State and Federal transportation funds and the proposed California infrastructure bonds and other bond funding.

Staging of Off-site Improvements by Mariposa Lakes Developers

Table XX describes the specific off-site improvements the Mariposa Lakes developer proposes to construct along with the unit-count trigger for each improvement project. The trigger point for each project listed in the table is subject to refinement based on a proposed monitoring plan. Because it is important that the City's level of service standards be adhered to at all times, an annual monitoring program is proposed. The monitoring program will determine when the major off-site improvements will be needed in order to maintain acceptable levels of service. The monitoring program will determine existing traffic counts and will include interviews with developers and city staff. The purpose of the interviews is to determine the amount of development expected in the next two, four and six year periods. From this information calculations will be made in a traffic study to determine the date when the proposed improvements are required in order to maintain proper service levels and circulation within the community.

Table XX includes street widening, railroad grade separations, and improvements to the SR 99/Mariposa Road interchange. The trigger points are estimated based on interpretation of various tables and figures in this report. Actual trigger points will be based on annual monitoring studies.

TABLE XX: OFF-SITE IMPROVEMENT TRIGGERS

| <i>Location</i> | <i>Improvement Description</i> | <i>Trigger</i> |
|---|---|--------------------------------|
| Arch Road: | | |
| 1. E. Frontage Road to Newcastle Road | Construct 4 lanes | 500 d.u. |
| 2. Newcastle Road to Arch Road | Construct 4 lanes | 3,000 d.u. |
| 3. Austin Road – Mariposa Road to Arch Road | Construct 4 lanes | 6,000 d.u. |
| 4. Mariposa Road/Austin Road | Construct RR Grade separation including 4 lanes on Mariposa & 4 lanes on Austin in the vicinity. | 1,500 d.u. |
| 5. Mariposa Road – SR 99 to east of Austin Road | Construct 4 lanes | 4,500 d.u. |
| 6. Mariposa Road / SR 99 Interchange (Includes non-developer funding) | Construct new 4 lane overpass, new SB off-ramp & signals, new NB off-ramp & signals and new WB to SB and EB to NB loop on-ramps | 4,500 d.u. |
| 7. Rerouted SR 4 – Kaiser Road to Mariposa Road | Construct 4/6 lane roadway & grade separation | 6,000 d.u. |
| 8. Mariposa Road – Rerouted SR 4 to SR 99 | Widen to 8 lanes | 6,000 d.u. |
| 9. Viceroy Avenue @ BNSF RR | Construct grade separation, connect with Mariposa Road | 7,000 d.u. |
| 10. Mariposa Road – Viceroy Avenue to Relocated SR 4 | Widen to 6 lanes | 7,000 d.u. |
| 11. Gillis Road Expressway – Farmington Road to Main Street | Construct 4 lanes | 8,000 d.u. |
| 13. Farmington Road – N. Project Frontage | Construct frontage improvements | As abutting development occurs |

Intersection Improvements

The Mariposa Lakes developer will also assume responsibility for improvements of intersections, including widening and signalization, along the following roadways: Mariposa Road from Kaiser Road to SR 99, Farmington Road along the project frontage, Austin Road between the project boundaries and Arch Road, and Arch Road between Newcastle Road and Austin Road. The developer will also participate in all other improvements identified by this report consistent with City policies. The timing of the intersection improvements will be based on results of the annual monitoring program. All new traffic signals will be installed by the time they meet traffic signal warrants and the timing of upgraded intersections and traffic signal modifications will be based on maintaining acceptable levels of service.

State Highway Improvements

State Route 4

As noted elsewhere, the developer proposes to relocate SR 4 from Farmington Road to a location lying largely within the project. Relocated SR 4 will be constructed to Caltrans standards as a four to six lane roadway with limited access. The new alignment will blend in with Mariposa Road just south of the SR 99 interchange – that portion of Mariposa Road between the two state roadways will also become a part of SR 4. In cooperation with the City, the County, Caltrans and the San Joaquin Council of Governments the developer has assumed responsibility for preparing the Project Study Report and all other necessary documents to authorize the relocation of State Route 4. As noted in the table above, the developer will provide major funding for the construction of this relocated facility.

State Route 99

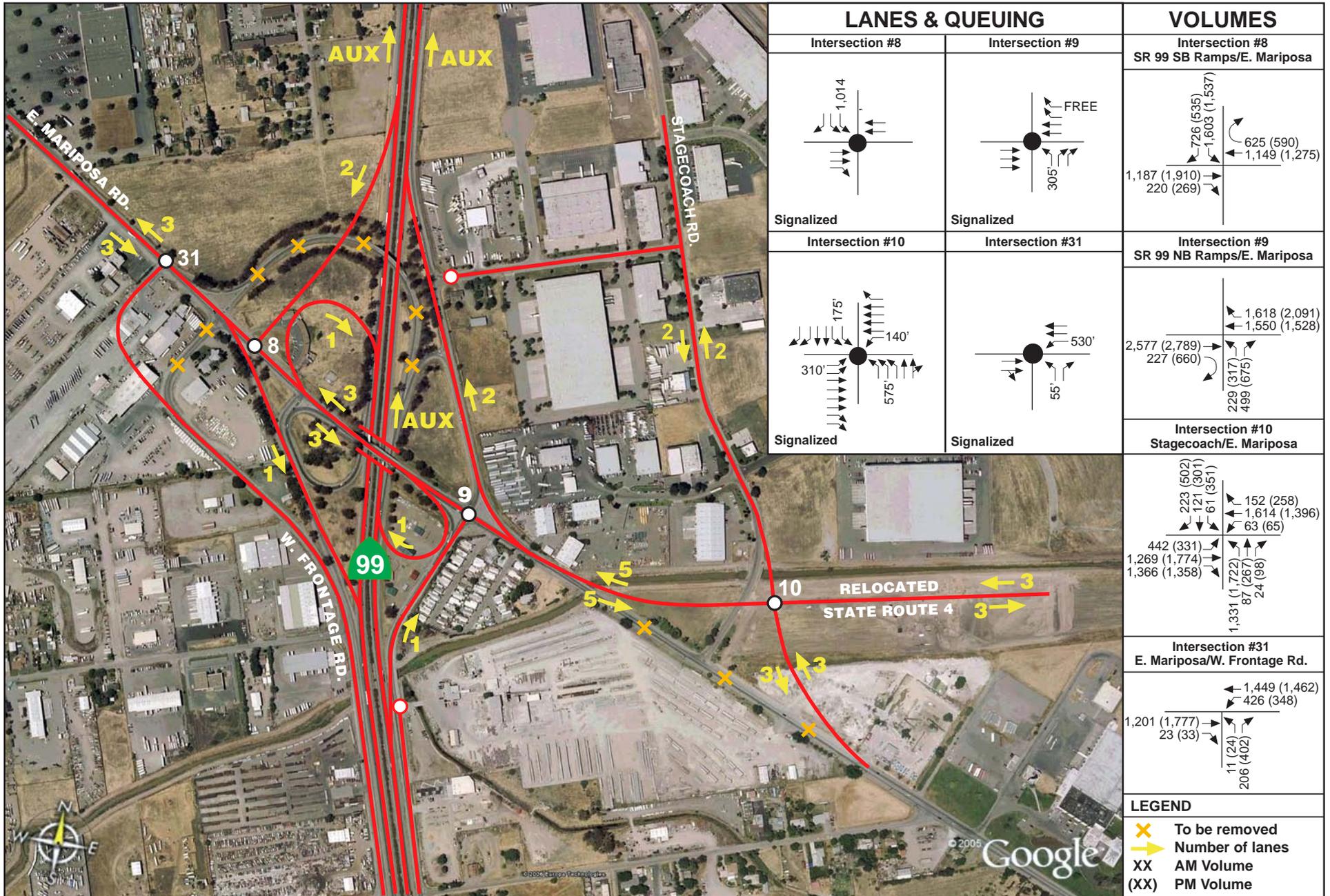
SR 99 is currently over capacity and needs to be widened to six lanes. Caltrans is currently developing planning, environmental and preliminary design studies so that a six-lane improvement project can be constructed as soon as funds are available. The proposed improvement project will extend from Arch Road on the south to the SR 4 Freeway in central Stockton. In addition to the widening of SR 99, the main elements of the project near Mariposa Lakes are the improvement of the Mariposa Road interchange and the removal of the ramps at the Farmington Road interchange (once SR 4 is relocated through the Mariposa Lakes project.) The developer is working with the public agencies in the area to help expedite the preparation of improvement plans so that when Measure K funds, RTIF funds, and potentially state bond funds are available, the SR 99 project will be in a high state of readiness.

The developer will be contributing RTIF and Stockton development fees to assist in the fair-share funding of the SR 99 improvement project.

State Route 99/State Route 4/Mariposa Road Interchange

Figure 53 summarizes the proposed improvements to the Mariposa Road/SR 99 interchange and its relationship to the proposed realignment of SR 4 from Farmington Road. The proposed interchange is a partial cloverleaf interchange with loop on ramps in the northwest and southeast quadrants and signalized diagonal off-ramps for southbound and northbound traffic. The ramps to and from the north require two lane connections with the freeway mainlines, necessitating auxiliary lanes on the freeway. For the loop ramps and the ramps to and from the south, single lane ramps will suffice. The freeway overpass will need to be six lanes. The drawing shows that SR 4 will directly link into the updated interchange and Mariposa Road will be realigned to connect with Stagecoach Road. The Stagecoach Road/Mariposa Road/State Route 4 intersection will require a large number of through and turn lanes, as shown in the sketches. The lengths of queues, in feet, are also shown in the sketches. Peak hour volumes at the four study intersections shown on the figure are also indicated. With the indicated lane patterns, all intersections will operate at acceptable levels.

The Project Study Report for SR 4, described above, will provide additional details of the proposed interchange.



City of Stockton
 Mariposa Lakes Traffic Study
Mariposa Road/SR 99/SR 4 Improvements – 2035 + Project

Figure **53** TJKM

STUDY PARTICIPANTS

TJKM Transportation Consultants

| | |
|-------------------------------|--------------------------------|
| Chris D. Kinzel, P.E. | Principal in Charge |
| Christopher Thnay, P.E., AICP | Project Manager |
| Allen Nie, Ph.D., P.E. | Senior Transportation Modeler |
| Pratyush Bhatia, P.E. | Transportation Engineer |
| Andrew Kluter, P.E. | Senior Transportation Engineer |
| David Mahama, P.E. | Senior Transportation Engineer |
| Vishnu Gandluru | Transportation Engineer |
| Geri Foley | Graphics Specialist |
| Evi Pagh | Word Processing |
| Margie Pfaff | Word Processing |

City of Stockton

| | |
|-------------------|--------------------------------------|
| Gregg S. Meissner | Development Services Program Manager |
| Mike McDowell | Principal Transportation Planner |