

SECTION 5.0

MITIGATION MEASURES

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5.1 INTRODUCTION

The Council on Environmental Quality (CEQ) NEPA Regulations and guidance documents require that mitigation measures be developed for all of a proposal's effects on the environment where it is feasible to do so (46 Fed. Reg. 18026, 19a; 40 CFR Sections 1502.14(f) and 1502.16(h)). The NEPA Regulations define mitigation as "avoiding the impact altogether by not taking a certain action or parts of an action, minimizing impacts by limiting the degree or magnitude of the action and its implementation, rectifying the impact by repairing, rehabilitating, or restoring the affected environment, reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, compensating for the impact by replacing or providing substitute resources or environments" (40 CFR Section 1508.20). These principles have been applied to guide design and siting criteria for the alternatives. Where potential effects on the environment were identified in early stages of project design and EIS preparation, appropriate changes in the project description were made to minimize or eliminate them. Other applications of mitigation have been incorporated into the design of the alternatives and have been mentioned throughout the EIS. In addition to the mitigation measures that have been incorporated into the design of the alternatives, the following section provides measures to mitigate specific effects identified in the preparation of the EIS. Mitigation measures have been identified where feasible to address specific effects regardless of whether they are considered "significant" (46 Fed. Reg. 18026, 19a).

5.2 MITIGATION MEASURES

5.2.1 LAND RESOURCES

The following measures are recommended for Alternatives A, B, C and D:

SEISMICITY

- A. Construction of facilities shall adhere to the Uniform Building Code. Specifically, Chapter 16 of the 1997 UBC addresses structural design requirements for buildings and other structures (including hazardous materials storage facilities) that are consistent with rational analyses and well-established principles of mechanics. Division IV covers earthquake design, which has provisions to safe guard against major structural failures and loss of life. In this regard, the 1997 UBC design requirements include seismically

induced characterization, and near-source attenuation effects. Use of the 1997 UBC will allow for ground shaking-related hazards to be managed from a geologic, geotechnical, and structural standpoint such that risks to the health or safety of workers or members of the public would be reduced to a less than significant level.

Adoption of the above mitigation will reduce seismicity impacts to a less than significant level.

The following measures are recommended for Alternative D:

TOPOGRAPHY

- B. Creation of soil stabilization areas around the building pad shall be properly compacted and shall be subject to a geotechnical review prior to construction of the areas. Proper hydroseeding, use of straw fiber rolls, and other soil erosion protection measures shall be utilized as part of a comprehensive erosion control plan.

Adoption of the above mitigation will reduce topography impacts to a less than significant level.

5.2.2 WATER RESOURCES

SURFACE WATER

The following measures are recommended for Alternatives A, B, C, and D:

Flooding

- A. To reduce the project's potential to increase surface runoff, impervious surfaces shall be minimized where feasible. Where feasible, all areas outside of buildings and roads will be kept as permeable surfaces, either as vegetation or high infiltration cover such as mulch, gravel, or turf block. Pedestrian pathways shall use a permeable surface where possible, such as crushed aggregate or stone with sufficient permeable joints (areas between stone or brick if used). Rooftops shall drain to vegetated driplines to maximize infiltration prior to concentrating runoff.

Adoption of the above mitigation will further reduce already less than significant impacts to flooding.

Construction Impacts

- B. An erosion control plan will be developed with the primary intent to decrease pollutants entering the water columns, with a secondary intent of trapping pollutants before they exit the site.

- C. The Tribe shall comply with all provisions stated in the Clean Water Act (CWA). As required by the General Construction NPDES permit issued by the U.S. Environmental Protection Agency (USEPA) under the CWA, a Storm Water Pollution Prevention Plan (SWPPP) shall be prepared that will address water quality impacts associated with construction of the project. Water quality control measures identified in the Storm Water Pollution Prevention Plan shall include, but not be limited to, Best Management Practices (BMPs) described below:
- a. Existing vegetation shall be retained where possible. To the extent feasible, grading activities shall be limited to the immediate area required for construction.
 - b. Temporary erosion control measures (such as silt fences, staked straw bales, and temporary revegetation) shall be employed for disturbed areas.
 - c. No disturbed surfaces shall be left without erosion control measures in place during the winter and spring months.
 - d. Sediment shall be retained on-site by a system of sediment basins, traps, or other appropriate measures.
 - e. A spill prevention and countermeasure plan shall be developed, if necessary, which will identify proper storage, collection, and disposal measures for potential pollutants (such as fuel, fertilizers, pesticides, etc.) used on-site.
 - f. Petroleum products shall be stored, handled, used, and disposed of properly.
 - g. Construction materials, including topsoil and chemicals, shall be stored, covered, and isolated to prevent runoff losses and contamination of groundwater.
 - h. Fuel and vehicle maintenance areas shall be established away from all drainage courses and designed to control runoff.
 - i. Sanitary facilities shall be provided for construction workers.
 - j. Disposal facilities shall be provided for soil wastes, including excess asphalt produced during construction.
 - k. All workers and contractors shall be educated in the proper handling, use, cleanup, and disposal of all chemical materials used during construction activities.
 - l. All contractors involved in the project shall be educated on the potential environmental damages resulting from soil erosion prior to development by conducting a pre-construction conference. Copies of the project's erosion control plan shall be distributed at this time. All construction bid packages, contracts, plans and specifications shall contain language that requires adherence to the plan.

- m. Construction activities shall be scheduled to minimize land disturbance during peak runoff periods. Soil conservation practices shall be completed during the fall to reduce erosion during the rainy seasons.
- n. Construction zones shall be created and only one part of a construction zone shall be graded at a time to minimize exposed areas. If possible, grading on a particular zone shall be delayed until protective cover is restored on the previously graded zone.
- o. Utility installations shall be coordinated to limit the number of excavations.
- p. Disturbed soils shall be protected from rainfall during construction by preserving as much natural cover, topography, and drainage as possible. Trees and shrubs shall not be removed unnecessarily.
- q. Disturbed areas shall be stabilized as promptly as possible, especially on long or steep slopes. Recommended plant materials and mulches shall be used to establish protective ground cover. Vegetation such as fast growing annual and perennial grasses shall be used to shield and bind the soil. Mulches and artificial binders shall be used until vegetation is established. Where truck traffic is frequent, gravel approaches shall be used to reduce soil compaction and limit the tracking of sediment off site.
- r. Surface water runoff shall be controlled by directing flowing water away from critical areas and by reducing runoff velocity. Diversion structures such as terraces, dikes, and ditches shall collect and direct runoff water around vulnerable areas to prepared drainage outlets. Surface roughening, berms, check dams, hay bales, or similar devices shall be used to reduce runoff velocity and erosion.
- s. Sediment shall be contained when conditions are too extreme for treatment by surface protection. Temporary sediment traps, filter fabric fences, inlet protectors, vegetative filters and buffers, or settling basins shall be used to detain runoff water long enough for sediment particles to settle out.
- t. Topsoil removed during construction shall be carefully stored and treated as an important resource. Berms shall be placed around topsoil stockpiles to prevent runoff during storm events.

- u. The disturbance of soils shall be avoided and minimized as fully as possible.

Adoption of the above mitigation will further reduce the less than significant impacts of construction on surface water.

Operational Impacts

- D. Fertilizer use shall be limited to the minimum amount necessary, taking into account any nutrient levels in the recycled water source. Fertilizer shall not be applied prior to a rain event.

- E. Landscape irrigation shall be adjusted based on weather conditions and shall be reduced or eliminated during the wet portion of the year in order to prevent excessive runoff.

Adoption of the above mitigation will further reduce the less than significant operational impacts of the alternatives on surface waters.

The following measures are recommended for Alternative D:

- F. The Tribe shall implement a stream flow monitoring program for all on-site streams as soon as is feasible after project approval and preferably at least one year before opening of the project facilities to the public (to allow for baseline monitoring).

- G. Should project pumping (considered separately from other new projects in the area and weather considerations) cause the reduction of on-site stream flows by 25 percent or more, the Tribe shall implement a program to reduce surface water flow impacts in consultation with the USEPA and Madera County.

Adoption of the above mitigation will reduce potentially significant surface water impacts of to a less than significant level.

GROUNDWATER

The following measures are recommended for Alternatives A, B, C and D:

- H. Stormwater BMPs that promote infiltration of water from stormwater runoff and on-site disposal of treated wastewater shall be implemented. BMPs for enhancing infiltration of stormwater runoff have the potential to increase the rate of natural recharge at the site, while on-site disposal of treated wastewater will return groundwater originating from the casino wells back to the aquifer. The effectiveness of these measures to reduce drawdown impacts is directly proportional to the rate of new recharge compared with the pumping rate (see **Appendix L**). Given the limited amount of rainfall received in Madera County, additional recharge from stormwater BMPs would have a minimal effect

on the drawdown effects of on-site pumping, offsetting such effects by only 1.6 percent. Irrigating on-site landscaping combined with the use of on-site sprayfields and/or leachfields would have a far greater offsetting effect on the aquifer, reducing drawdown from 7 to 67 percent. Under each alternative, if treated wastewater is disposed via a leachfield, the recharge rate would be at the upper end of this range; whereas, if the treated wastewater is disposed in a sprayfield, the recharge rate would be in the lower end of the range (see **Appendix L**, Section 6.7.2 for a detailed breakdown of potential recharge rates for each disposal option).

- I. If on-site groundwater resources are used for water supply, groundwater sampling and analysis shall be performed to determine if treatment is necessary. If treatment is necessary, an on-site water treatment plant shall be constructed to treat drinking water to USEPA standards.
- J. The Tribe shall adopt water conservation measures, such as electronic dispensing devices in faucets, low flow toilets, low flow showerheads, and the use of native plants in landscaping, to reduce the consumption of groundwater as mandated by the regional groundwater management plan.
- K. Effects to regional overdraft shall be reduced by Tribal contributions to a reserved water bank or groundwater recharge area in an amount at least equivalent to property pumping rates. Possible groundwater recharge areas include areas operated or proposed by the Madera Irrigation District (MID) (**Appendix L**). The Tribe has negotiated a Memorandum of Understanding (MOU) with MID (**Appendix C**) that provides for equivalent water contributions to a MID recharge area should development under Alternative A occur. Therefore this mitigation measure would not apply to Alternative A.

Adoption of the above mitigation will reduce the operational impacts of the alternatives on groundwater resources to a less than significant level.

The following measures are recommended for Alternatives A, B, C:

- L. The Tribe shall implement a groundwater monitoring program (described in **Appendix L**) as soon as is feasible after project approval and preferably at least one year before opening of the project facilities to the public (to allow for baseline monitoring).
- M. The Tribe shall implement a program to compensate neighboring well owners for impacts to well operation. The actual amount of interference drawdown associated with the project and the future rate of regional groundwater level decline shall be estimated from the groundwater monitoring program (**Appendix L**). At least one year of baseline data

and one year of data after project pumping begins should be collected prior to implementation of the following well impact compensation program:

- a. Reduction in usable well life – Based on the available data, we estimate the lifespan of existing wells in the Site vicinity that are less than 250 feet deep may be shortened by 1 to 3 years due to project pumping (see **Appendix L**). The average lifespan of these wells without the casino project is estimated to be about 34 years, so the project’s impact on well lifespan is generally well under 10 percent. The tribe shall reimburse the owners of wells that become unusable within 30 years of the onset of project pumping for a portion of the prevailing, customary cost for well replacement, rehabilitation or deepening. The percentage of the cost reimbursed by the tribe shall depend upon the degree to which the well’s usable life is shortened: 5 % for one year, 10% for two years and 15 % for three years. In order to be eligible, the well owner will need to provide the tribe with documentation of the well location and completion data, and prove that the well was constructed and usable before project pumping was initiated.
- b. Groundwater level falling near or below pump intake – The concept of usable well life can also be applied to this impact, except that the well’s usable life is extended by lowering the pump intake. The impact of project pumping on shortening this time period would be similar to the impact on shortening well life, and shall be determined by dividing the amount of interference drawdown at the off-Site well by the regional rate of groundwater decline. The tribe shall reimburse the owners of wells with pumps that require lowering within 30 years of the onset of project pumping for a portion of the prevailing, customary cost for this service. The percentage of the cost reimbursed by the tribe shall depend upon the degree to which the time period until a well’s pump intakes require lowering at a rate of 10% for each year. In order to be eligible, the well owner will need to provide the tribe with documentation of the well location and completion data, including pump intake depth, and prove that the well was constructed and usable before project pumping was initiated. The Tribe must be made aware of the cost reimbursement claim prior to lowering of the pump intake, so that the need for possible well deepening, replacement or rehabilitation can be assessed and inefficiencies can be avoided. At the Tribe’s discretion, compensation may be paid toward well deepening, replacement or rehabilitation in lieu of toward lowering the pump intake.
- c. Increased Electrical and Maintenance Cost – The Tribe shall reimburse well owners pumping more than 100 AF/year for their additional annual electrical costs (for no longer than 30 years) at the prevailing electrical rate based on the following formula:

$$\text{KWhr/year} = \frac{(\text{gallons Pumped/year}) \times (\text{feet of interference drawdown})}{1621629}$$

In order to qualify for reimbursement, the well owner must provide proof of the actual annual volume of water pumped. As an alternative to annual payments, a one-time lump sum payment of a mutually agreeable amount could be made.

- d. No reimbursement would be made available for wells installed after operation of the project.
- e. For any of the above impacts, the Tribe may choose at its discretion to provide the well owner with a connection to a local public or private water supply system in lieu of the above mitigation measures, at a reduced cost in proportion to the extent the impact was caused by project pumping.
- f. The known owners of identified wells within two miles of the project pumping well shall be notified of the well impact compensation program outlined above before project pumping begins.
- g. The Tribe shall contract with a third party such as the County of Madera to oversee this well impact compensation program.

Adoption of the above mitigation will further reduce the less than significant operational impacts of the alternatives on neighboring wells.

The following measures are recommended for Alternative D:

- N. The Tribe shall implement a groundwater monitoring program (described in **Appendix L**) as soon as is feasible after project approval and preferably at least one year before opening of the project facilities to the public (to allow for baseline monitoring).
- O. The Tribe shall implement a program to compensate neighboring well owners for impacts to well operation. The actual amount of interference drawdown associated with the project and the future rate of regional groundwater level decline shall be estimated from the groundwater monitoring program (**Appendix L**). At least one year of baseline data and one year of data after project pumping begins should be collected prior to implementation of the following well impact compensation program:
 - a. Reduction in usable well life –The tribe shall reimburse the owners of wells that become unusable within 30 years of the onset of project pumping for a portion of the prevailing, customary cost for well replacement, rehabilitation or deepening. The percentage of the cost reimbursed by the tribe shall depend upon the degree to which the well’s usable life is shortened: 5 % for one year, 10% for two years and 15 % for three years. In order to be eligible, the well owner will need to provide the tribe with documentation of the well location and completion data,

and prove that the well was constructed and usable before project pumping was initiated.

- b. Groundwater level falling near or below pump intake – The concept of usable well life can also be applied to this impact, except that the well’s usable life is extended by lowering the pump intake. The impact of project pumping on shortening this time period would be similar to the impact on shortening well life, and shall be determined by dividing the amount of interference drawdown at the off-Site well by the regional rate of groundwater decline. The tribe shall reimburse the owners of wells with pumps that require lowering within 30 years of the onset of project pumping for a portion of the prevailing, customary cost for this service. The percentage of the cost reimbursed by the tribe shall depend upon the degree to which the time period until a well’s pump intakes require lowering at a rate of 10% for each year. In order to be eligible, the well owner will need to provide the tribe with documentation of the well location and completion data, including pump intake depth, and prove that the well was constructed and usable before project pumping was initiated. The Tribe must be made aware of the cost reimbursement claim prior to lowering of the pump intake, so that the need for possible well deepening, replacement or rehabilitation can be assessed and inefficiencies can be avoided. At the Tribe’s discretion, compensation may be paid toward well deepening, replacement or rehabilitation in lieu of toward lowering the pump intake.
- c. Increased Electrical and Maintenance Cost – The Tribe shall reimburse well owners pumping more than 100 AF/year for their additional annual electrical costs (for no longer than 30 years) at the prevailing electrical rate based on the following formula:

$$\text{KWhr/year} = \frac{(\text{gallons Pumped/year}) \times (\text{feet of interference drawdown})}{1621629}$$

In order to qualify for reimbursement, the well owner must provide proof of the actual annual volume of water pumped. As an alternative to annual payments, a one-time lump sum payment of a mutually agreeable amount could be made.

- d. No reimbursement would be made available for wells installed after operation of the project.
- e. For any of the above impacts, the Tribe may choose at its discretion to provide the well owner with a connection to a local public or private water supply system in lieu of the above mitigation measures, at a reduced cost in proportion to the extent the impact was caused by project pumping.

- f. The known owners of identified wells within two miles of the project pumping well shall be notified of the well impact compensation program outlined above before project pumping begins.
- g. The Tribe shall contract with a third party such as the County of Madera to oversee this well impact compensation program.

Adoption of the above mitigation will reduce the operational impacts of Alternative D on neighboring wells to a less than significant level.

5.2.3 AIR QUALITY

CONSTRUCTION IMPACTS

A Construction Emissions Mitigation Plan, that includes the below mitigation measures for construction impacts, is included in **Appendix T**.

The following mitigation measures are recommended for Alternatives A, B, C, and D:

- A. All construction mitigation measures shall be incorporated into a Construction Emissions Mitigation Plan.
- B. During construction, the Tribe shall comply with San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII (Fugitive Dust Rules).
- C. Prior to the start of any construction activity on the site, the Tribe shall create a Dust Control Plan pursuant to SJVAPCD Rule 8021. Implementation of SVAPCD Rule 8021 would limit visible dust emissions to 20 percent opacity.
- D. In addition to full compliance with all applicable Regulation VIII requirements, the Tribe shall implement the following dust control practices, drawn from Tables 6-2 and 6-3 of SJVAPCD's *Guide for Assessing and Mitigating Air Quality Impacts* (GAMAQI), during construction:
 - a. All disturbed areas, including soil stockpiles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, or vegetative ground cover.
 - b. All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
 - c. All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.

- d. When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or at least six inches of freeboard space from the top of the container shall be maintained.
 - e. All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.)
 - f. Following the addition of materials to, or the removal of materials from, the surface of outdoor soil stockpiles, piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
 - g. Limit traffic speeds on unpaved roads to 15 mph; and
 - h. Install erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- E. The Tribe shall prepare an inventory of all equipment prior to construction and identify the suitability of add-on emission controls for each piece of equipment before groundbreaking. Control technologies such as particle traps control approximately 80 percent of diesel particulate matter. Specialized catalytic converters (oxidation catalysts) control approximately 20 percent of diesel particulate matter, 40 percent of carbon monoxide emissions, and 50 percent of hydrocarbon emissions.
- F. The Tribe shall ensure that diesel-powered construction equipment is properly tuned and maintained, and shut off when not in direct use.
- G. The Tribe shall prohibit engine tampering to increase horsepower, except when meeting manufacturer's recommendations.
- H. The Tribe shall locate diesel engines, motors, and equipment staging areas as far as possible from the closest residences.
- I. The Tribe shall require the use of low sulfur diesel fuel (<15 parts per million sulfur) for diesel construction equipment, if available.
- J. The Tribe shall reduce construction-related trips of workers and equipment, including trucks. A construction traffic and parking management plan shall be developed that minimizes traffic interference and maintains traffic flow.
- K. The Tribe shall lease or buy newer, cleaner equipment (1996 or newer model), using a minimum of 75 percent of the equipment's total horsepower.
- L. The Tribe shall use lower-emitting engines and fuels, including electric, liquefied gas, hydrogen fuel cells, and/or alternative diesel formulations.

Adoption of the above mitigation will reduce the construction impacts of the alternatives on air quality to a less than significant level.

OPERATIONAL IMPACTS

The following mitigation measures are recommended for Alternatives A, B, and C:

- M. The Tribe shall provide transportation (e.g., shuttles) to major transit stations and multi-modal centers.
- N. The Tribe shall provide transit amenities such as bus turnouts; shelter benches; street lighting, route signs, and displays in and around the transit shelter benches to encourage public use of the transit service.
- O. The Tribe shall provide for, or contribute to, dedication of land for off-site bicycle trails linking the project to designated bicycle commuting routes in accordance with the regional Bikeway Master Plan.
- P. The Tribe shall maximize the potential of passive solar design principles where feasible.
- Q. The Tribe shall ensure the use of clean fuel vehicles in the vehicle fleet where practicable.
- R. The Tribe shall provide a parking lot design that includes clearly marked and shaded pedestrian pathways between transit facilities and building entrances.
- S. The Tribe shall provide amenities such as personal lockers and showers, bicycle lockers and racks, bus pass subsidies and flexible schedules for employees who walk, bike, or utilize public transit to work.
- T. The Tribe shall provide electric vehicle charging facilities.
- U. The Tribe shall provide preferential parking for vanpools and carpools.
- V. The Tribe shall provide on-site pedestrian facility enhancements such as walkways, benches, proper lighting, vending machines, and building access, which are physically separated from parking lot traffic.

The following measures are recommended for Alternatives A and B only:

- W. A parking structure is proposed in Alternatives A and B. If the parking structure includes mechanical ventilation and exhaust, the exhaust should be vented in a direction away from inhabited areas.
- X. The Tribe shall provide adequate ingress and egress at entrances to the Casino to minimize vehicle idling and traffic congestion.
- Y. The Tribe shall contract only with commercial landscapers who operate equipment that complies with the most recent California Air Resources Board certification standards, or standards adopted no more than three years prior to date of use.

The following mitigation measures are recommended for Alternative C only:

- Z. The Tribe shall encourage reduced setbacks for retail and employment land uses on streets with bus services consistent with zoning code requirements.
- AA. The Tribe shall provide adequate ingress and egress at entrances to public facilities to minimize vehicle idling and traffic congestion.
- BB. The Tribe shall encourage a development pattern that discourages auto-oriented uses in areas adjacent to bus stops and other transit facilities.

The following mitigation measure is recommended for Alternatives A, B, C, and D:

- CC. The Tribe shall adopt an anti-idling ordinance for the facility. To help maintain compliance with this ordinance, the Tribe should consider creating a driver's lounge, where drivers can wait and occupy themselves comfortably instead of sitting in their buses or trucks.

Adoption of the above mitigation will reduce the operational impacts of the alternatives on air quality, but not to a less than significant level.

ODOR IMPACTS

To avoid/reduce potential adverse odor effects associated with potential wastewater treatment and disposal facility, the following mitigation measures are recommended for Alternatives A, B, C, and D:

- DD. The wastewater treatment plant shall be constructed with comprehensive odor control facilities, including the injection of odor control oxidants at the sewage lift station and construction of a covered headworks with odor scrubber at the wastewater treatment plant.
- EE. Spray drift from the wastewater treatment plant or spray disposal field shall not migrate out of the disposal field boundaries.
- FF. Spray field irrigation shall cease when winds exceed 30 mph.
- GG. The WWTP shall be staffed with operators who are qualified to operate the plant safely, effectively, and in compliance with all permit requirements and regulations. The operators shall have qualifications similar to those required by the State Water Resources Control Board Operator Certification Program for municipal wastewater treatment plants. This program specifies that for tertiary level wastewater treatment plants with design capacities of 1.0 MGD or less, the chief plant operator must be a Grade III operator. Supervisors and Shift Supervisors must be Grade II operators. An Operations and Maintenance Program must be followed by the plant operators. Emergency preparedness shall include all appropriate measures, including a high level of redundancy in the major systems.

The following mitigation measure is recommended for Alternative C only:

- HH. Prior to construction, the Tribe shall obtain a letter from the SJVAPCD confirming that the proposed use will not create an objectionable odor.

Adoption of the above mitigation will reduce the odor air quality impacts of the alternatives to a less than significant level.

TOXIC AIR CONTAMINANTS IMPACTS

To avoid/reduce potential adverse toxic air contaminant effects associated with this facility, the following measures are recommended for Alternatives A, B, C and D:

- II. Air intakes associated with the heating and cooling system for buildings shall not be located next to potential TAC-emitting locations (e.g., loading docks) in accordance with CARB's Air Quality and Land Use Handbook.

Adoption of the above mitigation will reduce the toxic air contaminant air quality impacts of the alternatives to a less than significant level.

ASBESTOS IMPACTS

To avoid/reduce potential adverse effects associated with asbestos, the following measures are recommended for Alternative D:

- JJ. Prior to any grading activities at the site, the Tribe shall ensure that a geologic evaluation is conducted to determine if naturally occurring asbestos (NOA) is present within the construction area. Should NOA or evidence of NOA be found on-site, the primary contractor shall be notified of and required to comply with construction standards equivalent to CARB's Asbestos Airborne Toxic Control Measure (ATCM) regulating serpentine and asbestos-bearing ultramafic rock materials used for surfacing applications subjected to vehicular, pedestrian, or non-pedestrian use, such as cycling and horse-back riding.

Adoption of the above mitigation will reduce the asbestos air quality impacts of Alternative D to a less than significant level.

INDOOR AIR QUALITY IMPACTS

The following mitigation measures are recommended for Alternatives A, B, and D:

- KK. The casino floor shall be ventilated to at least the standards of the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), *Ventilation for Acceptable Indoor Air Quality*, ASHRAE Standard 62-2001.
- LL. The Tribe shall ensure that comfort levels are acceptable to most occupants, and consistent with ASHRAE Standard 55-1992, under all operating conditions.

- MM. The Tribe shall ensure that significant expected sources of pollutant emissions are isolated from occupants using physical barriers, exhausts, and pressure controls.
- NN. The Tribe shall ensure that outdoor air entering the building is protected from contamination from local outdoor sources and from building exhausts and sanitation vents.
- OO. The Tribe shall ensure that provisions are made for easy access to heating, ventilation, and air conditioning (HVAC) equipment requiring periodic maintenance.
- PP. The Tribe shall ensure the use of low-emitting building products pursuant to Integrated Waste Management Board's Section 01350 where feasible.
- QQ. The Tribe shall ensure that occupant exposure to construction contaminants is minimized using protocols for material selection, preventive installation procedures, and special ventilation and pressure control isolation techniques.
- RR. A non-smoking gaming area shall be provided.
- SS. Signage shall be displayed or brochures made available to casino patrons describing the health effects of second-hand smoke.
- TT. The Tribe shall provide notice of the health effects of secondhand smoke exposure to employees upon hire.

The following mitigation measure is recommended for Alternative C:

- UU. A non-smoking area shall be provided in restaurants.
- VV. Signage shall be displayed or brochures made available to restaurant (that permit smoking) guests describing the health effects of second-hand smoke.
- WW. The Tribe shall provide notice of the health effects of secondhand smoke exposure to employees upon hire.
- XX. The Tribe shall ensure that significant expected sources of pollutant emissions are isolated from occupants using physical barriers, exhausts, and pressure controls.
- YY. The Tribe shall ensure that outdoor air entering the building is protected from contamination from local outdoor sources and from building exhausts and sanitation vents.
- ZZ. The Tribe shall ensure that occupant exposure to construction contaminants is minimized using protocols for material selection, preventive installation procedures, and special ventilation and pressure control isolation techniques.
- AAA. The Tribe shall ensure that provisions are made for easy access to HVAC equipment requiring periodic maintenance.

Adoption of the above mitigation will reduce the indoor air quality impacts of the alternatives to a less than significant level.

The following measure is recommended, but not required to reduce indoor air quality impacts to a less than significant level for Alternatives A, B, C, and D:

- BBB. The Tribe shall seek LEED certification for project components, where possible.

CLIMATE CHANGE

As noted in **Table 5-1**, a less than significant cumulative impact to global climate change would result for all Alternatives after the implementation of Mitigation Measure CCC. In addition, the implementation of mitigation measures DDD through KKK are recommended for all Alternatives to further reduce project climate change impacts.

- CCC. Buses and other commercial diesel-fueled vehicles shall comply with the California Air Resource Board's (CARB) Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (California Code of Regulations, Title 13, Division 3, Article 1, Chapter 10, Section 2485), which requires that the driver of any diesel bus shall not idle for more than five minutes at any location, except in the case of passenger boarding where a ten minute limit is imposed, or when passengers are onboard. Furthermore, the Tribe will provide a "Drivers Lounge" for bus and truck drivers to discourage idling.
- DDD. A solid waste management plan shall be adopted by the Tribe that addresses recycling and solid waste reduction on-site. The plan shall have a goal of at least 50% diversion of materials from disposal, which includes reduction, recycling, and reuse measures.
- EEE. The developer shall ensure the use of low-emitting building products pursuant to Integrated Waste Management Board's Section 01350 where feasible.
- FFF. The Tribe shall ensure use of, low-emission, central, or tankless water heaters and install wall insulation that shall exceed Title 24 requirements.
- GGG. The Tribe shall use energy efficient appliances in the hotel and casino.
- HHH. Environmentally preferable materials shall be used to the extent practical for construction of facilities.
- III. Implementation of Mitigation Measures P, Q, U, and V
- JJJ. The Tribe shall maintain all vehicles to manufactures specifications. This mitigation measure would reduce emission that occurs when vehicles are not maintained.

- KKK. The developer shall ensure that the project will provide multiple and/or direct pedestrian access to adjacent, complementary land uses and throughout the project. This mitigation measure would encourage walking to destinations adjacent to the proposed project and thus, reducing vehicle trips.

TABLE 5-1
COMPLIANCE WITH STATE EMISSIONS REDUCTION STRATEGES

CAT Strategies and Early Action Measures	Project Design / Mitigation Measure Compliance
Diesel Anti-Idling: In July 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	Development alternatives would be in compliance after implementation of Mitigation Measure CCC.
Achieve 50 percent statewide Recycling Goal: Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent has been achieved on a statewide basis. Therefore, a 2 percent additional reduction is needed.	Solid waste services are expected to be provided by the City or County of Madera, which are subject to the state's recycling requirements. The development would not affect City or County diversion goals as waste from tribal land is classified as out-of-state waste and is not calculated in local waste diversion statistics. Thus, all development alternatives would be in compliance with this strategy.
Water Use Efficiency: Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions	As discussed in Section 2.0, the alternatives include substantial water conservation measures, including the extensive use of recycled water, thus complying with the strategy to use water efficiently.

Source: State of California, Environmental Protection Agency, and Climate Action Team, 2006

5.2.4 BIOLOGICAL RESOURCES

The following mitigation measures are recommended for Alternatives A, B, and C:

Migratory and Nesting Birds

- A. If feasible, vegetation removal activities shall occur outside of the nesting season (approximately March through September) for migratory birds. If vegetation removal activities are to be conducted during the nesting season, a qualified biologist shall conduct a pre-construction survey for active migratory bird nests in and around proposed disturbance areas within one month prior to vegetation removal. If vegetation removal activities are delayed or suspended for more than one month after the pre-construction survey, the site shall be resurveyed. If active migratory bird nests are identified,

vegetation removal that would disturb these nests shall be postponed until after the nesting season, or a qualified biologist has determined the young have fledged and are independent of the nest site. No active nests shall be disturbed without a permit or other authorization from the U.S. Fish and Wildlife Service (USFWS).

Waters of the U.S.

- B. Temporary fencing shall be installed around areas of wetlands and identified jurisdictional waters of the U.S., as shown on the U.S. Army Corps of Engineers (USACE) verified, waters of the U.S. map. Fencing shall be located no closer than a minimum of 25 feet in accordance with the USACE. Fencing shall be installed prior to any construction and shall remain in place until all construction activities on the site have been completed.

- C. Construction staging areas shall be located away from the wetlands and identified jurisdictional waters of the U.S. Temporary stockpiling of excavated or imported material shall occur only in approved construction staging areas. Excess excavated soil shall be used on site or disposed of at a regional landfill or other appropriate facility. Stockpiles that are to remain on the site through the wet season shall be protected to prevent erosion (e.g. seeding and silt fences or straw bales).

Aquatic Habitat

- D. To prevent impacts to aquatic habitat due to a change in water temperature, the water temperature of Dry Creek above its confluence with Schmidt Creek shall be monitored. Measures such as a cooling pond or cooling tower shall be used if necessary to decrease the temperature of the effluent to within five degrees Fahrenheit of the temperature of the creek. In accordance with the RWQCB Basin Plan, at no time shall the temperature of the receiving body of water be altered more than five degrees Fahrenheit.

Roosting Bats

- E. Within one month prior to tree removal, a qualified bat biologist shall conduct surveys to determine whether special-status bat species are roosting in the trees. If tree removal activities are delayed or suspended for more than one month after the pre-construction survey, the trees shall be resurveyed. If special-status bat species are roosting in trees at the site, a qualified bat biologist will remove or relocate the bats.

The following mitigation measures are recommended for Alternative D:

Native Species

- F. Where appropriate, vegetation removed as a result of project activities shall be replaced with native species that are of value to local wildlife. Native plants have a significant cultural value, are generally more valuable as wildlife food sources and require less irrigation, fertilizers, and pesticides than exotic species.

Mariposa Pussypaws

- G. Protocol-level plant surveys for the Mariposa pussypaws, the Federally-listed plant species identified in **Section 4.5** shall occur prior to development activities. Surveys shall be conducted within the blooming period for this species (April to August). If this species is not detected on site, no mitigation is necessary. However, if this species is detected and will be affected by the development of Alternative D, avoidance, preservation, and/or compensation measures shall be implemented in accordance with the USFWS requirements.

Valley Elderberry Longhorn Beetle

Suitable habitat for the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) occurs on the North Fork site in the form of elderberry (*Sambucus* sp.) shrubs. According to the elderberry survey conducted by AES biologists, Alternative D has the potential to impact 50 elderberry plants. The two elderberry shrubs at location eld7 shall be avoided. The following mitigation measures will reduce potential project impacts to less than significant impacts:

- H. Two of the elderberry plants on the North Fork site (location eld7) shall be avoided using the following measures.

- a. If feasible, the elderberry shrubs shall be completely avoided using a 100-foot buffer. This buffer shall be fenced using standard construction fencing material. Signs shall be placed every 50 feet along the fencing with the following information:

“This area is habitat for the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment.”

These signs shall be clearly readable from a distance of 20 feet and shall be maintained for the duration of the construction activity.

- b. If it is necessary to disturb areas within the 100-foot avoidance buffers, USFWS shall be consulted before any disturbance is begun. In areas where encroachment on the 100-foot avoidance buffer has been approved by the USFWS, a buffer at least 20 feet from the dripline of the shrubs shall be maintained. Any habitat

within the 100-foot buffer that was damaged during construction shall be restored once the construction activities have been completed. This includes erosion control and re-vegetation with appropriate native plants.

- c. Once the construction of the Alternative D facilities has been completed, permanent measures shall be taken to protect the elderberry shrubs from adverse impacts from the project. These measures can include fencing, signs, weeding, and trash removal. Additionally, no mowing shall take place within five feet of the driplines of the elderberry shrubs.
- I. Alternative D will impact 50 of the elderberry shrubs on the North Fork site. The following mitigation measures will ensure that the impacts to elderberry shrubs are less than significant:
- a. All elderberry shrubs with at least one stem greater than one inch in diameter at ground level and are healthy enough to survive transplanting shall be transplanted to a USFWS-approved conservation area. The transplanting shall take place between November and January, when the shrubs will be dormant. Transplanting methods shall be in accordance with the USFWS' conservation guidelines (**Appendix H**). If it is not possible to transplant one or more of the elderberry shrubs, the USFWS may increase the minimization ratios shown in **Table 5-1** to mitigate for the loss of the shrub.
 - b. For each elderberry stem at least one inch in diameter at ground level that is impacted by Alternative D (e.g. pruned, damaged, or transplanted), additional elderberry seedlings or cuttings shall be planted in a USFWS-approved conservation area at the ratios given in **Table 5-2**. These ratios are based upon the ratios given in Table 1 of the USFWS VELB conservation guidelines (**Appendix E**). Additionally, for each elderberry stem at least one inch in diameter at ground level impacted by Alternative D, a variety of associated species native to the conservation area shall be interspersed with the elderberry seedlings. The number of individual plants (of the associated species) required to mitigate for the impacts to the elderberry shrubs is listed in **Table 5-2**.

As shown in **Table 5.2-2**, mitigation measures for impacts to VELB from Alternative D would require the transplanting of 50 elderberry shrubs from the North Fork site and the additional planting of 241 elderberry seedlings or cuttings in a USFWS-approved conservation area. The mitigation measures would also require the planting of 146 native plants of various species that are associated with elderberry shrubs.

TABLE 5-2
ELDERBERRY IMPACT MINIMIZATION RATIOS

No. of Stems	Riparian	Stem Size	Exit Holes	Mitigation Ratio	Elderberry Seedlings Required	Assoc. Native Plant Ratio	Assoc. Native Plants Required
37	No	1"-3"	No	1:1	37	1:1	37
7	No	1"-3"	Yes	2:1	14	2:1	14
2	No	3"-5"	No	2:1	4	1:1	2
19	Yes	1"-3"	No	2:1	38	1:1	19
37	Yes	1"-3"	Yes	4:1	148	2:1	74
Totals					241		146

SOURCE: AES 2006.

Migratory and Nesting Birds

- J. If feasible, vegetation removal shall occur outside of the nesting season (the nesting season is approximately March through September) for migratory birds. If vegetation removal activities are to be conducted during the nesting season, a pre-construction survey for active migratory bird nests in and around proposed disturbance areas shall be conducted by a qualified biologist within one month prior to vegetation removal. If vegetation removal activities are delayed or suspended for more than one month after the pre-construction survey, the site shall be resurveyed. If active migratory bird nests are identified, vegetation removal that would disturb these nests shall be postponed until after the nesting season, or a qualified biologist has determined the young have fledged and are independent of the nest site. Avoidance of an active nest can include a 100 to 500-foot buffer depending on the topography of the immediate area and the species of bird. No active nests shall be disturbed without a permit or other authorization from the USFWS.

Waters of the U.S.

- K. USACE verification of identified waters of the U.S shall be obtained and a 404 permit shall be obtained from USACE prior to any discharge of dredged or fill material into "waters of the U.S." The Tribe shall comply with all the terms and conditions of the permit and compensatory mitigation shall be in place prior to any direct effects to "waters of the U.S."
- L. A wetland mitigation plan to mitigate impacts to jurisdictional wetlands shall be developed as part of the USACE permit process. Wetland mitigation shall be accomplished through creation/restoration of seasonal wetlands within an open space preserve subject to conservation easements. This creation/restoration shall provide an

increase in the inventory of seasonal wetlands for the area. The scale of seasonal wetland restoration (ratio to be set by USACE when they issue their permit) shall be sufficient to satisfy the ratio of replacement acreage to impacted acreage required by regulatory agencies based on wetland functions and values present on the North Fork site. However, the proposed 2:1 ratio is subject to USACE mitigation guidelines. A detailed mitigation plan shall be designed that shall include monitoring and reporting requirements, responsibilities, performance success criteria, reporting procedures and contingency requirements.

- M. A 401 permit shall be obtained from the USEPA prior to the discharge of tertiary-treated effluent into any of the drainages on the site. The Tribe shall comply with all the terms and conditions of the permit as mitigation for all impacts to downstream habitat and fish species.

Aquatic Habitat

- N. To prevent impacts to aquatic habitat due to a change in water temperature, the water temperature of Willow Creek above its confluence with the unnamed stream shall be monitored. Measures such as a cooling pond or cooling tower shall be used if necessary to decrease the temperature of the effluent to within five degrees Fahrenheit of the temperature of the creek. In accordance with the RWQCB Basin Plan, at no time shall the temperature of the receiving body of water be altered more than five degrees Fahrenheit.

Roosting Bats

- O. Within one month prior to tree removal or building demolition, a qualified bat biologist shall conduct surveys to determine whether special-status bat species are roosting in the trees or buildings. If tree removal or building demolition activities are delayed or suspended for more than one month after the pre-construction survey, the trees or buildings shall be resurveyed. If special-status bat species are roosting in trees or buildings at the site, a qualified bat biologist will remove or relocate the bats.

Adoption of the above mitigation will reduce the impacts of the alternatives on biological resources to a less than significant level.

5.2.5 CULTURAL AND PALEONTOLOGICAL RESOURCES

The following mitigation measures are recommended for Alternatives A, B, C and D:

- A. Any inadvertent discovery of archaeological resources, shall be subject to Section 106 of the National Historic Preservation Act as amended (36 CFR 800), the Native American

Graves Protection and Repatriation Act (25 USC 3001 et seq.), and the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-mm). Specifically, procedures for post review discoveries without prior planning pursuant to 36 CFR 800.13 shall be followed.

All work within 50 feet of the find shall be halted until a professional archaeologist, or paleontologist if the find is of a paleontological nature, can assess the significance of the find. If any find is determined to be significant by the archaeologist, or paleontologist as appropriate, then representatives of the Tribe, the NIGC and the BIA shall meet with the archaeologist, or paleontologist, to determine the appropriate course of action, including the development of a Treatment Plan, if necessary. All significant cultural or paleontological materials recovered shall be subject to scientific analysis, professional curation, and a report prepared by the professional archaeologist, or paleontologist, according to current professional standards.

- B. If human remains are discovered during ground-disturbing activities on Tribal lands, work shall halt in the vicinity, the Madera County Coroner should be notified immediately, and, pursuant to the Native American Graves Protection and Repatriation Act (NAGPRA), Section 10.4 Inadvertent Discoveries, a Tribal Official and BIA representative will be contacted immediately. No further ground disturbances shall occur until the Tribal Official and BIA representative have examined the findings and agreed on the appropriate course of action.

The following mitigation measure is recommended for Alternative D:

- A. Temporary protective construction fencing shall be placed around site P-20-2358, including a 5 foot buffer, to prevent damage to the resource from slope stabilization activities. If the site can not be avoided during construction, a professional archaeologist will consult with the Tribe and the BIA to determine the appropriate action.

Adoption of the above mitigation will reduce the impacts of the alternatives on cultural resources to a less than significant level.

5.2.6 SOCIOECONOMIC CONDITIONS

The following mitigation measures are recommended for Alternatives A, B, C, and D:

- A. The Tribe would pay the fair-share cost of traffic mitigation, including the cost of any required land acquisition.

The following mitigation measures are recommended for Alternatives A, B, and D:

- B. The Tribe shall contract with a gambling treatment professional to train management and staff to develop strategies for recognizing and addressing customers whose gambling behavior may strongly suggest they are experiencing serious to severe difficulties.
- C. The Tribe shall refuse service to any customer whose gambling behavior convincingly exhibits indications of problem or pathological gambling.
- D. The Tribe shall respectfully and confidentially provide the customer (as described above) with written information that includes a list of professional gambling treatment programs and self-help groups.
- E. The Tribe shall implement procedures to allow for voluntary self-exclusion, enabling gamblers to ban themselves from a gambling establishment for a specified period of time.

The following mitigation measures are recommended for Alternative B:

- F. The Tribe shall reimburse Madera County in the following amounts: \$1,790,191 (one-time, prior to the opening of the Alternative B developments to the public) and \$1,257,989 (annually) for fiscal impacts.
- G. The Tribe shall reimburse the City of Madera for \$43,579 annually for fiscal impacts.

The following mitigation measures are recommended for Alternative C:

- H. The Tribe shall reimburse Madera County in the following amounts: \$1,947,256 (one-time, prior to the opening of the Alternative C developments to the public) and \$430,299 (annually) for fiscal impacts.
- I. The Tribe shall reimburse the City of Madera for \$15,832 annually for fiscal impacts.

The following mitigation measures are recommended for Alternative D:

- J. The Tribe shall reimburse Madera County in the following amounts: \$1,539,065 (one-time, prior to the opening of the Alternative D developments to the public) and \$871,256 (annually) for fiscal impacts.
- K. The Tribe shall reimburse the City of Madera for \$1,959 annually for fiscal impacts.

Adoption of the above mitigation will reduce the impacts of the alternatives on socioeconomic resources to a less than significant level.

The following mitigation measures are recommended for Alternatives B and C:

- L. The Tribe shall reimburse the MID in the amount of \$6,800 (annually) for fiscal impacts.
- M. The Tribe shall implement groundwater mitigation measures discussed in **Section 5.2.2**.

Adoption of the above mitigation measure will further reduce less than significant fiscal impacts to the MID and neighboring well owners.

The following mitigation measure is recommended for Alternative D:

- N. The Tribe shall implement groundwater mitigation measures discussed in **Section 5.2.2**.

Adoption of the above mitigation measure will reduce the potentially significant impact of Alternative D groundwater pumping on neighboring well owners to a less than significant level.

5.2.7 RESOURCE USE PATTERNS

TRANSPORTATION

Signal Warrants

Traffic signals may be justified when traffic operations fall below acceptable thresholds and when one or more signal warrants are satisfied. Traffic volumes at the unsignalized study intersections were compared against the peak hour warrant in the Caltrans Traffic Manual. Traffic Signal Warrant #3 – Peak Hour Volume Warrant is satisfied when traffic volumes on the major and minor approaches exceed thresholds for one hour of the day. This warrant is generally the first warrant to be satisfied. The warrant applies to traffic conditions during a one-hour peak that are sufficiently high such that minor street traffic experiences excessive delay in entering and crossing the street.

IMPROVEMENTS

Roadway segment and intersection improvements recommended under each alternative are listed chronologically below. Mitigation measures for each roadway segment and intersection are identified in the year of need. Measures identified in 2008 are considered in place for the cumulative plus project (any build alternative) scenario. If additional measures are needed to mitigate cumulative year impacts, mitigation measures are recommended and indicated as being needed in 2030. Post mitigation Level of Service (LOS) and volume information is contained in **Tables 5-3, 5-4, 5-5, and 5-6**.

Where roadway segments and intersections are shown as having an unacceptable LOS with the addition of traffic from the project alternatives (and caused at least in part from project traffic) the Tribe shall pay for a proportionate share of costs for the recommended mitigation. The

proportionate share percentage is calculated using the following formula: Proportionate Share Percentage = Project Trips / (2030 Project Volume - Existing Volume). Proportionate share percentages are listed in **Appendix M** (see Table 19).

Mitigation measures recommended in 2008 and 2030 are presented in graphic format for each alternative. **Figures 5-1 through 5-7** display Alternatives A through D measures for 2008, while **Figures 5-8 through 5-14** display Alternatives A through D measures for 2030.

TABLE 5-3
MITIGATED INTERSECTION AND ROAD SEGMENT PERFORMANCE – ALTERNATIVE A

County Segment	Existing		2008 No Project		2008 Project		Mitigated 2008 Project		2030 No Project		2030 Project		Mitigated 2030 Project	
	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM
Avenue 18 ½ – Road 24 to Road 23	B/B		B/B		B/B		B/B		C/D		C/D		A/A	
Road 23 – Avenue 18 ½ to Avenue 17	B/B		B/C		B/C		B/C		D/D		D/D		D/D	
Avenue 17 – Road 23 to SR 99	A/A		A/F		B/F		A/B		A/D		A/E		A/B	
Avenue 17 – SR 99 to Road 27	E/C		F/F		F/F		A/B		B/E		A/B		A/B	
Golden State Blvd – Avenue 17 to Road 23	A/A		A/A		A/A		A/A		A/A		A/B		A/B	
Freeway Segment	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM
SR 99 north of Avenue 18 ½														
• NB	C/C	21.5/21.0	C/C	24.1/25.7	C/D	24.3/26.3	B/B	16.0/17.0	C/D	25.2/26.1	C/D	25.4/26.5	C/C	18.6/19.3
• SB	B/D	17.6/26.5	C/D	19.9/33.6	C/D	20.3/34.6	B/C	13.5/20.4	C/E	20.3/35.2	C/E	20.6/36.0	B/C	15.4/23.6
SR 99 between Avenue 18 ½ and Avenue 17														
• NB	C/C	23.8/23.2	D/D	26.9/28.2	D/D	26.9/28.2	B/B	17.3/17.9	D/D	28.3/28.9	D/D	28.3/28.9	C/C	20.2/20.5
• SB	C/D	19.3/30.1	C/E	21.6/39.1	C/E	21.6/39.1	B/C	14.3/21.7	C/E	22.2/41.9	C/E	22.2/41.9	B/C	16.6/25.6
SR 99 south of Avenue 17														
• NB	C/C	22.9/22.3	D/F	31.6/---	E/F	35.4/---	C/C	20.6/25.4	D/F	33.1/---	E/F	36.8/---	C/D	23.9/29.9
• SB	C/D	18.6/28.5	C/F	23.1/---	C/F	24.1/---	B/C	11.9/21.2	C/F	23.3/---	B/E	17.9/35.7	B/E	17.9/35.7
Intersection	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)
Avenue 18 ½ at SR 99 SB ramps/Road 23							B/C	19.7/22.4	A/B	9.4/14.8	B/C	10.1/20.9	A/B	8.3/13.2
• WB Left-Through	A/A	8.1/8.2	A/A	8.9/8.9	A/A	9.0/9.0								
• NB Approach	B/B	12.1/13.2	D/F	25.6/63.3	E/F	45.1/---								
• SB Approach	B/C	13.0/15.7	D/F	30.0/178.0	F/F	56.6/397.7								
Avenue 18 ½ at SR 99 NB ramps							C/C	28.8/27.6	C/C	27.9/30.2	C/C	27.8/28.3	C/C	21.7/21.6
• EB Left	A/A	8.3/7.8	A/A	8.5/8.3	A/A	8.7/8.6								
• NB Approach	C/C	15.8/15.8	E/F	44.3/144.0	F/F	62.7/284.2								
Avenue 17 at SR 99 SB ramps							A/A	4.5/9.8	A/F	7.9/87.5	A/F	8.3/176.1	A/C	6.3/22.0
• SB Approach	B/B	12.5/14.5	F/F	153.6/8216	F/F	564.7/29611								
Avenue 17 at SR 99 NB ramps							B/C	17.8/34.7	C/F	26.5/113.6	D/F	36.1/146.5	B/D	17.3/49.9
• EB Left	A/A	8.7/8.0	B/C	10.2/15.7	B/C	10.6/16.9								
• NB Approach	C/C	16.5/15.5	F/F	738.0/5934	F/F	1610/13114								
Avenue							B/B	13.1/16.8	D/F	41.8/245.9	D/F	51.2/251.3	B/C	17.9/22.2

5.0 Mitigation Measures

	Existing		2008 No Project		2008 Project		Mitigated 2008 Project		2030 No Project		2030 Project		Mitigated 2030 Project	
12/Golden State Boulevard at SR 99 SB ramps														
• SB Left-Through	A/A	8.3/8.7	A/A	8.4/9.0	A/A	8.4/9.0								
• WB Approach	B/E	11.3/44.9	C/F	15.6/303.5	C/F	16.4/331.3								
Avenue 12 at Golden State Boulevard			C/C	20.9/29.8	C/C	22.8/30.8	B/C	19.6/32.4	F/F	126.8/418.3	F/F	126.0/420.3	B/D	18.5/37.6
• EB Left	A/A	8.5/8.7												
• WB Left	A/A	8.1/8.6												
• NB Approach	C/F	20.9/279.6												
• SB Approach	D/F	31.9/111.1												
Avenue 12 at SR 99 NB ramps			B/B	13.9/14.6	B/B	14.8/17.5	A/B	9.7/10.5	D/F	41.7/243.3	D/F	44.5/251.7	B/C	11.2/21.2
• EB Left-Through	A/A	8.9/8.9												
• NB Approach	E/F	46.9/95.1												
Avenue 18 at Road 23													B/B	11.3/13.9
• NB Left-Through-Right	A/A	7.5/7.6	A/A	7.7/8.0	A/A	7.7/8.0	A/A	7.7/8.0	A/A	8.1/8.7	A/A	8.1/8.7		
• SB Left-Through-Right	A/A	7.6/7.6	A/A	7.8/8.0	A/A	8.0/8.2	A/A	8.0/8.2	A/A	8.2/8.6	A/A	8.4/9.0		
• WB Approach	B/A	10.5/9.8	B/B	10.8/11.0	B/B	11.0/11.7	B/B	10.9/11.6	B/C	14.3/15.6	B/C	14.2/17.0		
• EB Approach	A/B	9.8/10.2	B/B	11.1/13.4	B/C	12.5/16.5	B/C	12.5/16.2	B/C	14.8/25.0	C/E	18.0/39.4		
Avenue 17 at Road 23							B/C	13.2/21.3	B/C	18.1/26.4	B/C	18.5/27.7	B/C	18.5/27.7
• NB Left-Through-Right	A/A	7.4/7.4	A/A	7.5/7.6	A/A	7.5/7.7								
• SB Left-Through-Right	A/A	7.5/7.6	A/A	7.8/8.2	A/A	7.9/8.4								
• WB Approach	B/B	11.2/11.5	B/F	14.7/50.5	C/F	16.2/100.9								
• EB Approach	B/B	10.5/11.2	B/C	12.5/7.0	B/C	13.2/20.0								
Avenue 17 at Golden State Boulevard							B/D	17.4/40.7	C/F	24.1/125.9	C/F	26.2/241.8	B/D	17.7/44.5
• EB Left-Through-Right	A/A	7.5/7.4	A/B	9.1/11.0	B/B	10.5/14.1								
• WB Left-Through-Right	A/A	7.6/7.6	A/B	8.9/13.7	A/B	8.9/13.7								
• NB Approach	A/A	9.5/9.7	F/F	73.0/ -	F/F	417.0/ -								
• SB Approach	B/B	13.5/13.3	F/F	282.2/ -	F/F	- / -								
Ellis Street at Road 26	B/C	11.51/16.47	B/F	14.62/96.48	C/F	15.31/110.19	A/B	10.0/14.5	C/C	22.2/24.4	C/C	22.4/25.0	C/C	22.4/25.0
Avenue 15 ½ at Road 23													A/A	6.8/9.1
• NB Left-Through-Right	A/A	7.6/7.8	A/A	7.8/8.5	A/A	7.8/8.6	A/A	7.8/8.6	A/A	8.2/9.1	A/A	8.2/9.2		
• SB Left-Through-Right	A/A	7.6/7.6	A/A	7.9/8.2	A/A	8.0/8.3	A/A	8.0/8.3	A/A	8.2/8.8	A/A	8.3/8.9		
• WB Approach	B/A	10.3/9.9	B/B	11.9/14.6	B/C	12.5/15.9	B/C	12.5/15.9	C/D	15.8/25.8	C/D	16.5/28.8		
• EB Approach	B/B	10.2/11.8	B/C	12.5/16.9	B/C	13.1/18.4	B/C	13.1/18.4	B/D	14.6/25.3	C/D	15.1/27.8		
Avenue 14 at Road 23	A/B	8.72/10.03	A/C	9.77/16.62	B/C	10.09/19.49	B/B	15.9/19.9	B/C	15.9/22.8	B/C	18.7/23.0	B/C	18.7/23.0
Avenue 16 at Schnoor Avenue							C/B	25.3/18.0	n/a	n/a	n/a	n/a	n/a	n/a
• NB Left	A/A	7.3/7.4	A/A	7.4/7.6	A/A	7.4/7.6								
• SB Left-Through-	A/A	7.5/7.3	A/A	7.8/7.7	A/A	7.8/7.8								

5.0 Mitigation Measures

	Existing		2008 No Project		2008 Project		Mitigated 2008 Project		2030 No Project		2030 Project		Mitigated 2030 Project	
Right														
• WB Approach	A/B	9.5/11.4	B/F	11.5/63.4	B/F	12.4/125.2								
• EB Approach	B/B	10.3/11.7	B/E	14.2/49.5	C/F	15.9/84.3								
Avenue 16 at SR 99 SB ramps	A/B	9.34/11.26	B/C	14.8/21.3	B/C	14.9/21.4	B/B	11.1/14.6	n/a	n/a	n/a	n/a	n/a	n/a
Avenue 16 at SR 99 NB ramps	n/a	n/a	n/a	n/a	n/a	n/a	B/B	11.4/14.5	n/a	n/a	n/a	n/a	n/a	n/a
Avenue 16/Avenue 16 connector at SR 99 NB ramps							n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
• EB Left	B/B	10.1/10.6	B/D	12.6/26.5	B/D	13.2/32.8								
Avenue 16 at SR 99 NB ramp connector							n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
• SB Left-Through	A/A	7.6/8.0	A/A	8.2/9.5	A/A	8.2/9.6								
• WB Right	A/A	8.8/9.3	A/B	9.6/12.8	A/B	9.6/12.8								
Gateway/Avenue 16 at SR 99 NB ramps							n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
• WB Left	A/B	9.6/10.6	B/C	11.1/15.4	B/C	11.2/16.1								
Avenue 16/Ellis Street at Golden State Boulevard	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	C/E	22.8/72.4	C/E	22.6/78.5	C/D	24.4/42.9
Avenue 16/Ellis Street at SR 99 SB ramps	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	B/E	13.7/69.9	B/E	14.1/79.0	A/B	7.7/20.0
Avenue 16/Ellis Street at SR 99 NB ramps	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	C/F	27.5/153.0	C/F	29.5/163.6	B/C	16.1/34.8
Cleveland Avenue/Avenue 15 ½ at SR 99 NB ramps	B/B	12.3/16.4	B/D	14.2/35.1	B/D	14.5/36.4	B/C	11.0/27.2	C/F	24.5/177.3	C/F	25.4/178.2	B/C	13.2/30.4
Cleveland Avenue/Avenue 15 ½ at SR 99 SB ramps	B/B	11.6/15.3	B/C	13.0/34.3	B/D	13.1/41.7	A/B	8.9/19.6	C/F	27.1/202.0	B/F	15.5/113.4	B/C	12.1/27.8
SR 145/Madera Avenue at SR 99 NB ramps	C/C	27.3/21.9	D/D	36.5/54.8	D/E	39.4/64.5	B/B	13.7/13.0	C/D	20.3/53.2	C/E	21.0/59.6	B/C	17.4/25.7
Olive Avenue/Avenue 14 at SR 99 SB off-ramp	B/B	13.9/15.3	B/C	15.4/29.8	B/C	15.6/32.1	B/C	14.6/23.2	F/F	101.7/273.1	F/F	103.5/280.1	B/C	13.4/20.8
Olive Avenue/Avenue 14/SR 99 SB on-ramp at SR 145	C/C	25.1/34.9	C/E	26.6/61.1	C/E	30.2/69.5	B/C	12.0/31.8	F/F	102.5/357.7	F/F	104.1/368.9	B/C	11.3/32.5
Avenue 18 ½ at Pistachio Drive														
• EB Approach	A/A	8.3/8.4	A/A	8.9/9.1	A/A	8.9/9.1	A/A	8.9/9.1	A/B	9.9/11.1	A/B	9.9/11.1	B/B	10.4/11.8
• SB Approach	B/B	12.4/13.8	C/D	22.5/25.5	C/D	23.3/27.0	C/D	23.3/27.0	n/a	n/a	n/a	n/a	n/a	n/a
• SB Right	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	C/D	19.8/33.4	C/D	19.8/33.4	C/C	15.7/19.4
Avenue 18 ½ at Golden State Boulevard														
• EB Approach	A/A	7.6/7.7	A/A	7.7/7.8	A/A	7.7/7.8	A/A	7.7/7.8						
• SB Approach	B/B	10.6/11.0	B/B	11.1/12.2	B/B	11.3/12.5	B/B	11.3/12.5						
Avenue 18 ½ at Golden State Boulevard / Road 23	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a					C/C	29.0/23.7
• NB Left-Through-Right									A/A	7.7/7.8	A/A	7.7/7.8		
• SB Left-Through-Right									B/B	10.0/12.7	B/B	10.0/12.7		
• WB Approach									F/F	974.3/---	F/F	974.3/---		
• EB									F/F	---/---	F/F	---/---		

5.0 Mitigation Measures

	Existing	2008 No Project	2008 Project	Mitigated 2008 Project	2030 No Project	2030 Project	Mitigated 2030 Project
Approach							

NOTES: **Bold** text denotes unacceptable LOS (but not necessarily a significant project impact).
 OF = overflow
 --- = beyond software limitations

SOURCE: TPG Consulting, Inc., 2006; AES 2006.

TABLE 5-4
 MITIGATED INTERSECTION AND ROAD SEGMENT PERFORMANCE – ALTERNATIVE B

County Segment	2008 No Project		2008 Project		Mitigated 2008 Project		2030 No Project		2030 Project		Mitigated 2030 Project			
	LOS AM/PM	LOS AM/PM	LOS AM/PM	LOS AM/PM	LOS AM/PM	LOS AM/PM	LOS AM/PM	LOS AM/PM	LOS AM/PM	LOS AM/PM	LOS AM/PM	LOS AM/PM		
Avenue 18 ½ – Road 24 to Road 23	B/B	B/B	B/B	B/B	B/B	B/B	C/D	C/D	C/D	C/D	A/A	A/A		
Road 23 – Avenue 18 ½ to Avenue 17	B/B	B/C	B/C	B/C	B/C	B/C	D/D	D/D	D/D	D/D	D/D	D/D		
Avenue 17 – Road 23 to SR 99	A/A	A/F	A/F	A/F	A/A	A/A	A/D	A/D	A/E	A/E	A/B	A/B		
Avenue 17 – SR 99 to Road 27	E/C	F/F	F/F	F/F	A/B	A/B	B/E	B/E	A/B	A/B	A/B	A/B		
Golden State Blvd – Avenue 17 to Road 23	A/A	A/A	A/A	A/A	A/A	A/A	A/A	A/A	A/A	A/A	A/A	A/A		
Freeway Segment	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM
SR 99 north of Avenue 18 ½														
• NB	C/C	21.5/21.0	C/C	24.1/25.7	C/D	24.3/26.1	B/B	16.0/16.9	C/D	25.2/26.1	C/D	25.3/26.4	C/C	18.6/19.2
• SB	B/D	17.6/26.5	C/D	19.9/33.6	C/D	20.2/34.3	C/C	20.2/21.8	C/E	20.3/35.2	C/E	20.5/35.7	B/C	15.4/23.5
SR 99 between Avenue 18 ½ and Avenue 17														
• NB	C/C	23.8/23.2	D/D	26.9/28.2	D/D	26.9/28.2	B/B	17.3/17.9	D/D	28.3/28.9	D/D	28.3/28.9	C/C	20.2/20.5
• SB	C/D	19.3/30.1	C/E	21.6/39.1	C/E	21.6/39.1	B/C	14.3/21.7	C/E	22.2/41.9	C/E	22.2/41.9	B/C	16.6/25.6
SR 99 south of Avenue 17														
• NB	C/C	22.9/22.3	D/F	31.6/---	D/F	34.2/---	C/C	20.2/24.8	D/F	33.1/---	E/F	35.6/---	C/D	23.5/29.2
• SB	C/D	18.6/28.5	C/F	23.1/---	C/F	23.8/---	B/C	11.7/20.8	C/F	23.3/---	B/D	17.7/34.8	B/D	17.7/34.8
Intersection	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)
Avenue 18 ½ at SR 99 SB ramps/Road 23							B/C	14.4/21.3	A/B	9.4/14.8	A/B	9.8/16.6	A/B	8.3/11.1
• WB Left-Through	A/A	8.1/8.2	A/A	8.9/8.9	A/A	8.9/9.0								
• NB Approach	B/B	12.1/13.2	D/F	25.6/63.3	E/F	37.0/458.3								
• SB Approach	B/C	13.0/15.7	D/F	30.0/178.0	E/F	45.9/324.1								
Avenue 18 ½ at SR 99 NB ramps							C/C	28.5/27.3	C/C	27.9/30.2	C/C	27.9/31.1	C/C	21.4/21.2
• EB Left	A/A	8.3/7.8	A/A	8.5/8.3	A/A	8.6/8.5								
• NB Approach	C/C	15.8/15.8	E/F	44.3/144.0	F/F	55.4/239.1								
Avenue 17 at SR 99 SB ramps							A/A	4.4/9.4	A/F	7.9/87.5	A/F	8.1/150.0	A/B	6.0/6.9
• SB Approach	B/B	12.5/14.5	F/F	153.6/821.6	F/F	402.7/196.27								

5.0 Mitigation Measures

			2008 No Project		2008 Project		Mitigated 2008 Project		2030 No Project		2030 Project		Mitigated 2030 Project	
Avenue 17 at SR 99 NB ramps							B/C	16.4/32.4	C/F	26.5/113.6	C/F	32.3/135.6	B/D	17.0/47.8
• EB Left	A/A	8.7/8.0	B/C	10.2/15.7	B/C	10.5/16.5								
• NB Approach	C/C	16.5/15.5	F/F	738.0/5934	F/F	1301/10493								
Avenue 12/Golden State Boulevard at SR 99 SB ramps							B/B	13.0/16.8	D/F	41.8/245.9	D/F	50.6/251.5	B/C	17.9/20.7
• SB Left-Through	A/A	8.3/8.7	A/A	8.4/9.0	A/A	8.4/9.0								
• WB Approach	B/E	11.3/44.9	C/F	15.6/303.5	C/F	16.2/323.1								
Avenue 12 at Golden State Boulevard			C/C	20.9/29.8	C/D	23.1/35.1	B/C	19.8/32.8	F/F	126.8/418.3	F/F	124.9/419.5	B/D	18.4/39.4
• EB Left	A/A	8.5/8.7												
• WB Left	A/A	8.1/8.6												
• NB Approach	C/F	20.9/279.6												
• SB Approach	D/F	31.9/111.1												
Avenue 12 at SR 99 NB ramps			B/B	13.9/14.6	B/C	15.1/20.2	A/B	9.7/10.5	D/F	41.7/243.3	D/F	43.8/249.3	B/C	11.2/21.4
• EB Left-Through	A/A	8.9/8.9												
• NB Approach	E/F	46.9/95.1												
Avenue 18 at Road 23													A/B	9.4/12.6
• NB Left-Through-Right	A/A	7.5/7.6	A/A	7.7/8.0	A/A	7.7/8.0	A/A	7.7/8.0	A/A	8.1/8.7	A/A	8.1/8.7		
• SB Left-Through-Right	A/A	7.6/7.6	A/A	7.8/8.0	A/A	7.9/8.2	A/A	7.9/8.2	A/A	8.2/8.6	A/A	8.3/8.9		
• WB Approach	B/A	10.5/9.8	B/B	10.8/11.0	B/B	10.9/11.3	B/B	10.9/11.3	B/C	14.3/15.6	B/C	14.2/16.2		
• EB Approach	A/B	9.8/10.2	B/B	11.1/13.4	B/C	12.0/15.4	B/C	12.0/15.3	B/C	14.8/25.0	C/D	26.9/33.5		
Avenue 17 at Road 23							B/C	13.2/21.1	B/C	18.1/26.4	B/C	18.3/27.7	B/C	18.3/27.7
• NB Left-Through-Right	A/A	7.4/7.4	A/A	7.5/7.6	A/A	7.5/7.6								
• SB Left-Through-Right	A/A	7.5/7.6	A/A	7.8/8.2	A/A	7.9/8.3								
• WB Approach	B/B	11.2/11.5	B/F	14.7/50.5	C/F	15.7/83.6								
• EB Approach	B/B	10.5/11.2	B/C	12.5/7.0	B/C	12.9/19.2								
Avenue 17 at Golden State Boulevard							B/D	17.5/35.6	C/F	24.1/125.9	C/F	25.4/201.9	B/C	17.8/34.2
• EB Left-Through-Right	A/A	7.5/7.4	A/B	9.1/11.0	B/B	10.1/13.1								
• WB Left-Through-Right	A/A	7.6/7.6	A/B	8.9/13.7	A/B	8.9/13.7								
• NB Approach	A/A	9.5/9.7	F/F	73.0/ -	F/F	205.9/ -								
• SB Approach	B/B	13.5/13.3	F/F	282.2/ -	F/F	3462/ -								
Ellis Street at Road 26			B/C	11.51/16.47	B/F	14.62/96.48	C/F	15.09/106.43	A/B	9.9/15.2	C/C	22.2/24.4	C/C	22.9/24.8
Avenue 15 1/2 at Road 23													A/A	6.8/8.9
• NB Left-Through-Right	A/A	7.6/7.8	A/A	7.8/8.5	A/A	7.8/8.6	A/A	7.8/8.6	A/A	8.2/9.1	A/A	8.2/9.2		
• SB Left-Through-Right	A/A	7.6/7.6	A/A	7.9/8.2	A/A	7.9/8.3	A/A	7.9/8.3	A/A	8.2/8.8	A/A	8.3/8.8		
• WB Approach	B/A	10.3/9.9	B/B	11.9/14.6	B/C	12.4/15.5	B/C	12.4/15.5	C/D	15.8/25.8	C/D	16.3/27.8		
• EB Approach	B/B	10.2/11.8	B/C	12.5/16.9	B/C	12.9/17.9	B/C	12.9/17.9	B/D	14.6/25.3	B/D	14.9/26.8		
Avenue 14 at Road 23			A/B	8.72/10.03	A/C	9.77/16.62	A/C	9.99/18.41	B/B	15.3/19.8	B/C	15.9/22.8	B/C	16.0/22.9

5.0 Mitigation Measures

			2008 No Project		2008 Project		Mitigated 2008 Project		2030 No Project		2030 Project		Mitigated 2030 Project	
Avenue 16 at Schnoor Avenue							C/B	25.4/17.5	n/a	n/a	n/a	n/a	n/a	n/a
• NB Left	A/A	7.3/7.4	A/A	7.4/7.6	A/A	7.4/7.6								
• SB Left-Through-Right	A/A	7.5/7.3	A/A	7.8/7.7	A/A	7.8/7.7								
• WB Approach	A/B	9.5/11.4	B/F	11.5/63.4	B/F	12.2/105.0								
• EB Approach	B/B	10.3/11.7	B/E	14.2/49.5	C/F	15.4/72.9								
Avenue 16 at SR 99 SB ramps	A/B	9.34/11.26	B/C	14.8/21.3	B/C	14.9/21.4	B/B	11.1/14.4	n/a	n/a	n/a	n/a	n/a	n/a
Avenue 16 at SR 99 NB ramps	n/a	n/a	n/a	n/a	n/a	n/a	B/B	11.5/14.6	n/a	n/a	n/a	n/a	n/a	n/a
Avenue 16/Avenue 16 connector at SR 99 NB ramps							n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
• EB Left	B/B	10.1/10.6	B/D	12.6/26.5	B/D	12.9/30.5								
Avenue 16 at SR 99 NB ramp connector							n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
• SB Left-Through	A/A	7.6/8.0	A/A	8.2/9.5	A/A	8.2/9.6								
• WB Right	A/A	8.8/9.3	A/B	9.6/12.8	A/B	9.6/12.8								
Gateway/Avenue 16 at SR 99 NB ramps							n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
• WB Left	A/B	9.6/10.6	B/C	11.1/15.4	B/C	11.2/15.9								
Avenue 16/Ellis Street at Golden State Boulevard	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	C/E	22.8/72.4	C/E	22.6/76.7	C/D	24.5/42.4
Avenue 16/Ellis Street at SR 99 SB ramps	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	B/E	13.7/69.9	B/E	13.8/76.3	A/B	7.6/19.2
Avenue 16/Ellis Street at SR 99 NB ramps	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	C/F	27.5/153.0	C/F	28.9/160.5	B/C	16.1/34.2
Cleveland Avenue/Avenue 15 ½ at SR 99 NB ramps	B/B	12.3/16.4	B/D	14.2/35.1	B/D	14.5/36.7	B/C	11.0/27.2	C/F	24.5/177.3	C/F	25.3/176.6	B/C	13.2/30.8
Cleveland Avenue/Avenue 15 ½ at SR 99 SB ramps	B/B	11.6/15.3	B/C	13.0/34.3	B/D	13.0/40.0	A/B	8.8/19.2	C/F	27.1/202.0	B/F	15.4/109.6	B/C	12.0/26.7
SR 145/Madera Avenue at SR 99 NB ramps	C/C	27.3/21.9	D/D	36.5/54.8	D/E	38.5/61.7	B/B	13.6/13.0	C/D	20.3/53.2	B/E	19.9/57.3	B/C	17.3/25.0
Olive Avenue/Avenue 14 at SR 99 SB off-ramp	B/B	13.9/15.3	B/C	15.4/29.8	B/C	15.7/31.7	B/C	14.7/22.7	F/F	101.7/273.1	F/F	102.8/272.6	B/C	13.3/20.6
Olive Avenue/Avenue 14/SR 99 SB on-ramp at SR 145	C/C	25.1/34.9	C/E	26.6/61.1	C/E	30.1/67.2	B/C	12.2/29.5	F/F	102.5/357.7	F/F	103.3/361.6	B/C	11.3/31.1
Avenue 18 ½ at Pistachio Drive														
• EB Approach	A/A	8.3/8.4	A/A	8.9/9.1	A/A	8.9/9.1	A/A	8.9/9.1	A/B	9.9/11.1	A/B	9.8/11.0	B/B	10.2/11.6
• SB Approach	B/B	12.4/13.8	C/D	22.5/25.5	C/D	23.0/26.5	C/D	23.0/26.5	n/a	n/a	n/a	n/a	n/a	n/a
• SB Right	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	C/D	19.8/33.4	C/D	19.0/30.9	C/C	15.5/18.8
Avenue 18 ½ at Golden State Boulevard														
• EB Approach	A/A	7.6/7.7	A/A	7.7/7.8	A/A	7.7/7.8	A/A	7.7/7.8						
• SB Approach	B/B	10.6/11.0	B/B	11.1/12.2	B/B	11.2/12.4	B/B	11.2/12.4						
Avenue 18 ½ at Golden State Boulevard / Road 23	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a					C/C	29.2/23.9
• NB Left-Through-Right									A/A	7.7/7.8	A/A	7.7/7.8		
• SB Left-Through-									B/B	10.0/12.7	A/B	9.8/12.3		

5.0 Mitigation Measures

		2008 No Project		2008 Project		Mitigated 2008 Project		2030 No Project		2030 Project		Mitigated 2030 Project	
Right													
• WB Approach								F/F	974.3/---	F/F	687.0/---		
• EB Approach								F/F	---/---	F/F	---/---		

NOTES: **Bold** text denotes unacceptable LOS (but not necessarily a significant project impact).
 OF = overflow
 --- = beyond software limitations

SOURCE: TPG Consulting, Inc., 2006; AES 2006.

TABLE 5-5
 MITIGATED INTERSECTION AND ROAD SEGMENT PERFORMANCE – ALTERNATIVE C

	Existing		2008 No Project		2008 Project		Mitigated 2008 Project		2030 No Project		2030 Project		Mitigated 2030 Project	
County Segment	LOS AM/PM	LOS AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM
Avenue 18 ½ – Road 24 to Road 23	B/B		B/B		B/B		B/B		C/D		C/D		A/A	
Road 23 – Avenue 18 ½ to Avenue 17	B/B		B/C		C/C		C/C		D/D		D/D		D/D	
Avenue 17 – Road 23 to SR 99	A/A		A/F		A/F		A/B		A/D		A/F		A/B	
Avenue 17 – SR 99 to Road 27	E/C		F/F		F/F		A/B		B/E		A/B		A/B	
Golden State Blvd – Avenue 17 to Road 23	A/A		A/A		A/A		A/A		A/A		A/B		A/B	
Freeway Segment	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM	LOS AM/PM	Density (pc/mi/ln) AM/PM
SR 99 north of Avenue 18 ½														
• NB	C/C	21.5/21.0	C/C	24.1/25.7	C/D	24.4/26.3	B/B	16.0/17.0	C/D	25.2/26.1	C/D	25.4/26.5	C/C	18.6/19.3
• SB	B/D	17.6/26.5	C/D	19.9/33.6	C/D	20.2/34.6	B/C	13.4/20.4	C/E	20.3/35.2	C/E	20.5/35.9	B/C	15.4/23.6
SR 99 between Avenue 18 ½ and Avenue 17														
• NB	C/C	23.8/23.2	D/D	26.9/28.2	D/D	26.9/33.9	B/B	17.3/17.9	D/D	28.3/28.9	D/D	28.3/28.9	C/C	20.2/20.5
• SB	C/D	19.3/30.1	C/E	21.6/39.1	C/E	21.6/39.1	B/C	14.3/21.7	C/E	22.2/41.9	C/E	22.2/41.9	B/C	16.6/25.6
SR 99 south of Avenue 17														
• NB	C/C	22.9/22.3	D/F	31.6/---	D/F	33.9/---	C/C	20.1/25.3	D/F	33.1/---	E/F	35.4/---	C/D	23.4/29.8
• SB	C/D	18.6/28.5	C/F	23.1/---	C/F	24.3/---	B/C	12.0/21.2	C/F	23.3/---	B/E	18.0/35.9	B/E	18.0/35.9
Intersection	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)
Avenue 18 ½ at SR 99 SB ramps/Road 23							B/C	14.1/22.1	A/B	9.4/14.8	B/C	10.1/20.7	A/B	8.4/13.0
• WB Left-Through	A/A	8.1/8.2	A/A	8.9/8.9	A/A	8.9/A								
• NB Approach	B/B	12.1/13.2	D/F	25.6/63.3	E/F	35.6/---								
• SB Approach	B/C	13.0/15.7	D/F	30.0/178.0	E/F	43.8/387.0								
Avenue 18 ½ at SR 99 NB ramps							C/C	30.0/27.8	C/C	27.9/30.2	C/C	28.6/28.4	C/C	21.6/24.0
• EB Left	A/A	8.3/7.8	A/A	8.5/8.3	A/A	8.7/8.6								
• NB Approach	C/C	15.8/15.8	E/F	44.3/144.0	F/F	65.3/286.9								
Avenue 17 at SR 99 SB ramps							A/A	4.2/9.8	A/F	7.9/87.5	A/F	8.0/174.4	A/C	6.0/20.5
• SB Approach	B/B	12.5/14.5	F/F	153.6/821.6	F/F	458.3/296.10								
Avenue 17 at SR 99 NB ramps							B/C	16.1/34.6	C/F	26.5/113.6	C/F	31.4/155.0	B/D	16.9/48.6
• EB Left	A/A	8.7/8.0	B/C	10.2/15.7	B/C	10.4/16.9								
• NB Approach	C/C	16.5/15.5	F/F	738.0/593.4	F/F	1294/129.66								
Avenue							B/B	13.1/16.8	D/F	41.8/245.	D/F	43.3/252.	B/C	18.1/22.2

5.0 Mitigation Measures

	Existing		2008 No Project		2008 Project		Mitigated 2008 Project		2030 No Project		2030 Project		Mitigated 2030 Project	
12/Golden State Boulevard at SR 99 SB ramps										9		1		
• SB Left-Through	A/A	8.3/8.7	A/A	8.4/9.0	A/A	8.4/9.0								
• WB Approach	B/E	11.3/44.9	C/F	15.6/303.5	C/F	16.5/333.5								
Avenue 12 at Golden State Boulevard			C/C	20.9/29.8	C/C	22.3/30.4	B/C	19.5/32.4	F/F	126.8/418.3	F/F	134.6/420.5	B/D	18.2/37.6
• EB Left	A/A	8.5/8.7												
• WB Left	A/A	8.1/8.6												
• NB Approach	C/F	20.9/279.6												
• SB Approach	D/F	31.9/111.1												
Avenue 12 at SR 99 NB ramps			B/B	13.9/14.6	B/B	15.1/17.0	A/B	9.7/10.5	D/F	41.7/243.3	D/F	43.3/251.7	B/C	11.2/21.2
• EB Left-Through	A/A	8.9/8.9												
• NB Approach	E/F	46.9/95.1												
Avenue 18 at Road 23													A/B	9.4/13.8
• NB Left-Through-Right	A/A	7.5/7.6	A/A	7.7/8.0	A/A	7.7/8.0	A/A	7.7/8.0	A/A	8.1/8.7	A/A	8.1/8.7		
• SB Left-Through-Right	A/A	7.6/7.6	A/A	7.8/8.0	A/A	7.9/8.2	A/A	7.9/8.2	A/A	8.2/8.6	A/A	8.3/9.0		
• WB Approach	B/A	10.5/9.8	B/B	10.8/11.0	B/B	10.7/11.8	B/B	10.6/11.5	B/C	14.3/15.6	B/C	13.5/17.2		
• EB Approach	A/B	9.8/10.2	B/B	11.1/13.4	B/C	12.0/16.7	B/C	12.0/16.2	B/C	14.8/25.0	C/E	17.0/38.8		
Avenue 17 at Road 23							B/C	14.0/21.3	B/C	18.1/26.4	B/C	18.4/27.7	B/C	18.4/27.7
• NB Left-Through-Right	A/A	7.4/7.4	A/A	7.5/7.6	A/A	7.5/7.7								
• SB Left-Through-Right	A/A	7.5/7.6	A/A	7.8/8.2	A/A	7.9/8.4								
• WB Approach	B/B	11.2/11.5	B/F	14.7/50.5	C/F	16.1/104.5								
• EB Approach	B/B	10.5/11.2	B/C	12.5/7.0	B/C	13.1/20.3								
Avenue 17 at Golden State Boulevard							B/D	19.0/42.8	C/F	24.1/125.9	C/F	28.5/259.6	B/D	18.7/42.7
• EB Left-Through-Right	A/A	7.5/7.4	A/B	9.1/11.0	A/B	9.9/14.0								
• WB Left-Through-Right	A/A	7.6/7.6	A/B	8.9/13.7	A/B	8.9/13.7								
• NB Approach	A/A	9.5/9.7	F/F	73.0/-	F/F	224.1/---								
• SB Approach	B/B	13.5/13.3	F/F	282.2/-	F/F	4224/---								
Ellis Street at Road 26	B/C	11.51/16.47	B/F	14.62/96.48	C/F	15.12/110.38	B/B	10.0/15.3	C/C	22.2/24.4	C/C	22.9/24.9	C/C	22.9/24.9
Avenue 15 1/2 at Road 23													A/A	6.7/9.0
• NB Left-Through-Right	A/A	7.6/7.8	A/A	7.8/8.5	A/A	7.8/8.6	A/A	7.8/8.6	A/A	8.2/9.1	A/A	8.2/9.2		
• SB Left-Through-Right	A/A	7.6/7.6	A/A	7.9/8.2	A/A	7.9/8.3	A/A	7.9/8.3	A/A	8.2/8.8	A/A	8.3/8.9		
• WB Approach	B/A	10.3/9.9	B/B	11.9/14.6	B/C	12.4/16.0	B/C	12.4/16.0	C/D	15.8/25.8	C/D	16.4/28.6		
• EB Approach	B/B	10.2/11.8	B/C	12.5/16.9	B/C	13.0/18.4	B/C	13.0/18.4	B/D	14.6/25.3	B/D	15.0/27.4		
Avenue 14 at Road 23	A/B	8.72/10.03	A/C	9.77/16.62	B/C	10.04/19.38	B/B	15.3/19.8	B/C	15.9/22.8	B/C	16.0/23.0	B/C	16.0/23.0
Avenue 16 at Schnoor Avenue							C/B	20.1/17.7	n/a	n/a	n/a	n/a	n/a	n/a
• NB Left	A/A	7.3/7.4	A/A	7.4/7.6	A/A	7.4/7.6								
• SB Left-Through-	A/A	7.5/7.3	A/A	7.8/7.7	A/A	7.8/7.8								

5.0 Mitigation Measures

	Existing		2008 No Project		2008 Project		Mitigated 2008 Project		2030 No Project		2030 Project		Mitigated 2030 Project	
Right														
• WB Approach	A/B	9.5/11.4	B/F	11.5/63.4	B/F	12.2/121.5								
• EB Approach	B/B	10.3/11.7	B/E	14.2/49.5	C/F	15.2/82.8								
Avenue 16 at SR 99 SB ramps	A/B	9.34/11.26	B/C	14.8/21.3	B/C	14.9/21.4	B/B	12.5/14.6	n/a	n/a	n/a	n/a	n/a	n/a
Avenue 16 at SR 99 NB ramps	n/a	n/a	n/a	n/a	n/a	n/a	B/B	15.2/14.5	n/a	n/a	n/a	n/a	n/a	n/a
Avenue 16/Avenue 16 connector at SR 99 NB ramps							n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
• EB Left	B/B	10.1/10.6	B/D	12.6/26.5	B/D	13.0/32.3								
Avenue 16 at SR 99 NB ramp connector							n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
• SB Left-Through	A/A	7.6/8.0	A/A	8.2/9.5	A/A	8.2/9.6								
• WB Right	A/A	8.8/9.3	A/B	9.6/12.8	A/B	9.6/12.8								
Gateway/Avenue 16 at SR 99 NB ramps							n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
• WB Left	A/B	9.6/10.6	B/C	11.1/15.4	B/C	11.2/16.1								
Avenue 16/Ellis Street at Golden State Boulevard	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	C/E	22.8/72.4	C/E	22.6/78.7	C/D	24.6/41.8
Avenue 16/Ellis Street at SR 99 SB ramps	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	B/E	13.7/69.9	B/E	14.1/79.3	A/C	7.8/20.6
Avenue 16/Ellis Street at SR 99 NB ramps	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	C/F	27.5/153.0	C/F	28.7/163.2	B/C	16.0/34.8
Cleveland Avenue/Avenue 15 ½ at SR 99 NB ramps	B/B	12.3/16.4	B/D	14.2/35.1	B/D	14.5/36.5	B/C	11.0/27.2	C/F	24.5/177.3	C/F	25.4/178.4	B/C	13.2/30.4
Cleveland Avenue/Avenue 15 ½ at SR 99 SB ramps	B/B	11.6/15.3	B/C	13.0/34.3	B/D	13.3/42.1	A/B	8.9/19.7	C/F	27.1/202.0	B/F	15.6/113.9	B/C	12.1/27.9
SR 145/Madera Avenue at SR 99 NB ramps	C/C	27.3/21.9	D/D	36.5/54.8	D/E	38.0/64.5	B/B	13.3/13.0	C/D	20.3/53.2	C/E	20.7/59.4	B/C	17.3/25.6
Olive Avenue/Avenue 14 at SR 99 SB off-ramp	B/B	13.9/15.3	B/C	15.4/29.8	B/C	16.1/32.1	B/C	14.9/23.4	F/F	101.7/273.1	F/F	110.5/280.4	B/C	13.5/20.8
Olive Avenue/Avenue 14/SR 99 SB on-ramp at SR 145	C/C	25.1/34.9	C/E	26.6/61.1	C/E	29.7/69.8	B/C	12.0/32.1	F/F	102.5/357.7	F/F	103.9/369.1	B/C	11.4/32.6
Avenue 18 ½ at Pistachio Drive														
• EB Approach	A/A	8.3/8.4	A/A	8.9/9.1	A/A	8.9/9.1	A/A	8.9/9.1	A/B	9.9/11.1	A/B	9.8/11.1	B/B	10.2/11.8
• SB Approach	B/B	12.4/13.8	C/D	22.5/25.5	C/D	23.1/27.0	C/D	23.1/27.0	n/a	n/a	n/a	n/a	n/a	n/a
• SB Right	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	C/D	19.8/33.4	C/D	18.8/33.0	C/C	15.4/19.3
Avenue 18 ½ at Golden State Boulevard														
• EB Approach	A/A	7.6/7.7	A/A	7.7/7.8	A/A	7.7/7.8	A/A	7.7/7.8						
• SB Approach	B/B	10.6/11.0	B/B	11.1/12.2	B/B	11.2/12.5	B/B	11.2/12.5						
Avenue 18 ½ at Golden State Boulevard / Road 23	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a					C/C	29.2/23.7
• NB Left-Through-Right									A/A	7.7/7.8	A/A	7.7/7.8		
• SB Left-Through-Right									B/B	10.0/12.7	A/B	9.8/12.6		
• WB Approach									F/F	974.3/---	F/F	684.1/---		

5.0 Mitigation Measures

	Existing		2008 No Project		2008 Project		Mitigated 2008 Project		2030 No Project		2030 Project		Mitigated 2030 Project	
	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)
• EB Approach									F/F	---/---	F/F	---/---		

NOTES: **Bold** text denotes unacceptable LOS (but not necessarily a significant project impact).

OF = overflow

--- = beyond software limitations

SOURCE: TPG Consulting, Inc., 2006; AES 2006.

TABLE 5-6
MITIGATED INTERSECTION AND ROAD SEGMENT PERFORMANCE – ALTERNATIVE D

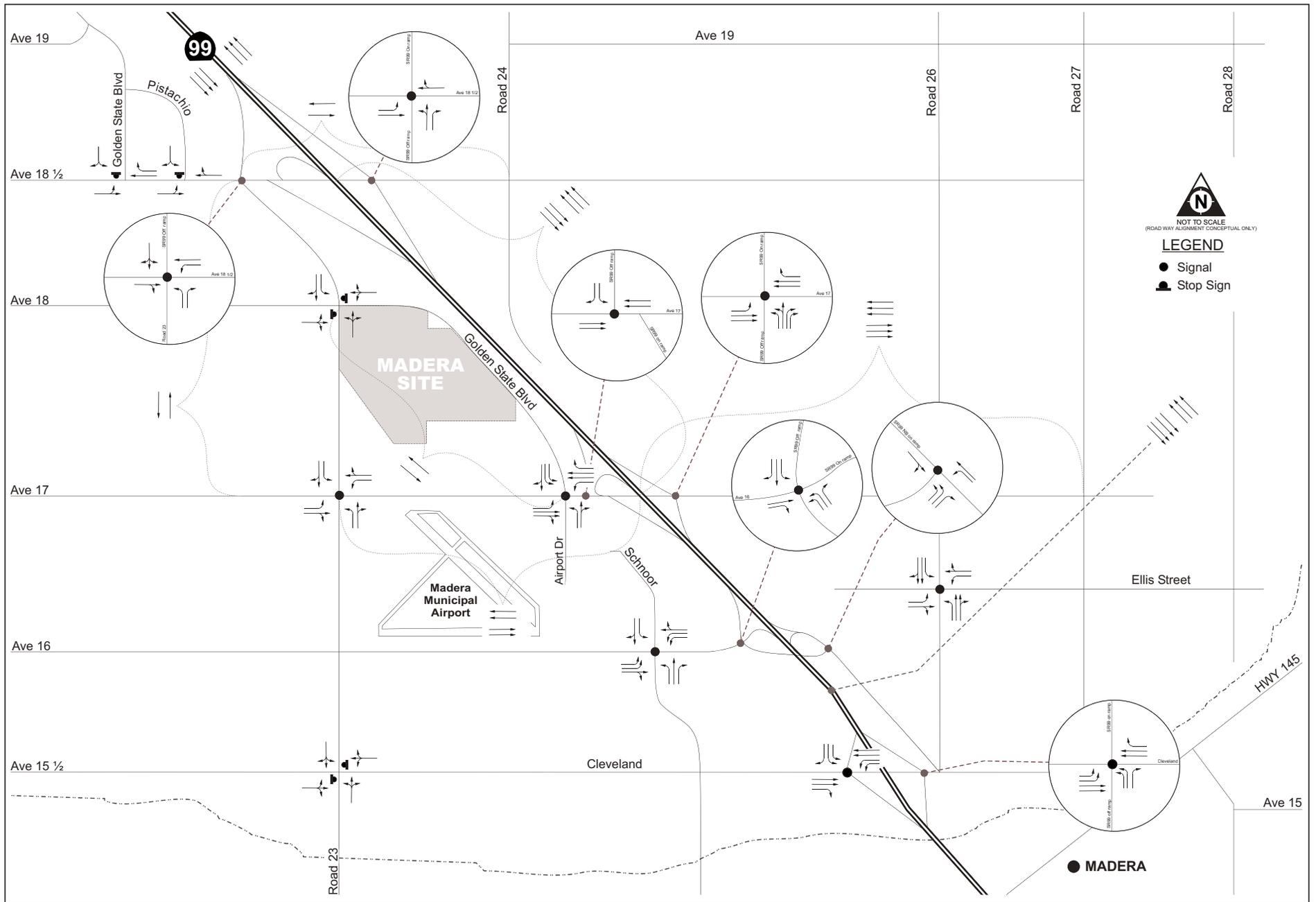
Intersection	Existing		2008 No Project		2008 Project		Mitigated 2008 Project		2030 No Project		2030 Project		Mitigated 2030 Project	
	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)	LOS AM/PM	Delay ¹ AM/PM (secs)
SR 145 at SR 41	B/C	16.3/22.1	B/C	19.7/25.1	B/C	19.8/25.2	B/C	19.8/25.2	F/F	102.3/146.6	F/F	101.5/150.9	C/C	23.9/29.8
SR 41 at Road 200							B/A	11.3/9.0			B/C	18.1/23.7	B/C	18.1/23.7
• SB Left	A/B	8.0/10.2	A/B	8.3/10.7	A/B	8.3/10.7			B/C	10.7/15.3				
• WB Approach	E/D	40.2/29.9	F/E	87.7/47.5	F/F	88.7/50.9			F/F	1494/197.6				
SR 41 at Road 420 (Thornberry Rd)							A/A	6.1/4.3			A/A	9.5/8.1	A/A	9.5/8.1
• SB Left	A/A	9.1/9.1	A/A	9.5/9.4	A/A	9.5/9.4			B/B	12.7/12.5				
• WB Approach	C/C	18.0/15.3	C/C	22.2/17.7	C/C	22.2/17.7			F/F	391.7/116.5				
SR 41 at SR 49	A/B	9.8/16.2	B/C	16.6/24.2	B/C	16.6/24.5	B/C	16.6/24.5	E/F	75.0/104.2	E/F	75.0/104.7	B/B	11.5/16.0
Road 274 (Malum Ridge Rd) at Road 225 (Mammoth Pool Rd)	A/A	8.18/8.57	A/A	8.36/8.85	A/A	8.57/8.87	A/A	8.57/8.87	B/B	10.04/10.31	B/B	10.37/10.99	B/B	10.47/10.98
Road 225 (Mammoth Pool Rd) at Cascadel Road														
• SB Left	A/A	7.4/7.3	A/A	7.4/7.3	A/A	7.5/7.4	A/A	7.5/7.4	A/A	7.5/7.5	A/A	7.6/7.6	A/A	7.6/7.6
• WB Approach	A/A	8.8/8.6	A/A	8.8/8.6	A/A	8.9/8.8	A/A	8.9/8.8	A/A	9.4/9.2	A/A	9.6/9.4	A/A	9.6/9.4
Cascadel Rd at Mission Dr														
• WB Left-Through	A/A	7.3/7.3	A/A	7.3/7.3	A/A	7.4/7.4	A/A	7.4/7.4	A/A	7.3/7.4	A/A	7.4/7.5	A/A	7.4/7.5
• NB Approach	A/A	8.7/8.7	A/A	8.8/8.8	A/A	8.9/9.0	A/A	8.9/9.0	A/A	9.1/9.1	A/A	9.3/9.4	A/A	9.3/9.4
North Fork Rd at Auberry Rd														
• NB Left-Through-Right	A/A	7.4/7.5	A/A	7.5/7.6	A/A	7.5/7.6	A/A	7.5/7.6	A/A	7.6/7.7	A/A	7.6/7.7	A/A	7.6/7.7
• SB Left-Through-Right	A/A	7.6/7.5	A/A	7.6/7.5	A/A	7.6/7.6	A/A	7.6/7.6	A/A	7.8/7.8	A/A	8.6/7.8	A/A	8.6/7.8
• WB Approach	A/A	9.4/9.9	A/B	9.6/10.1	A/B	9.7/10.2	A/B	9.7/10.2	B/B	11.0/12.2	C/B	16.9/12.5	C/B	16.9/12.5
• EB Approach	A/A	10.0/9.9	B/A	10.2/9.7	B/A	10.4/9.8	B/A	10.4/9.8	B/B	11.7/11.0	C/B	20.0/11.2	C/B	20.0/11.2
North Fork Rd at Crane Valley Rd														
• EB Left-Through	A/A	7.5/7.4	A/A	7.5/7.5	A/A	7.5/7.5	A/A	7.5/7.5	A/A	7.7/7.7	A/A	7.7/7.7	A/A	7.7/7.7
• SB Approach	A/A	9.2/9.8	A/B	9.3/10.0	A/B	9.4/10.2	A/B	9.4/10.2	B/B	10.6/12.1	B/B	10.6/12.3	B/B	10.6/12.3

NOTES: **Bold** text denotes unacceptable LOS (but not necessarily a significant project impact).

OF = overflow

--- = beyond software limitations

SOURCE: TPG Consulting, Inc., 2006; AES 2006.

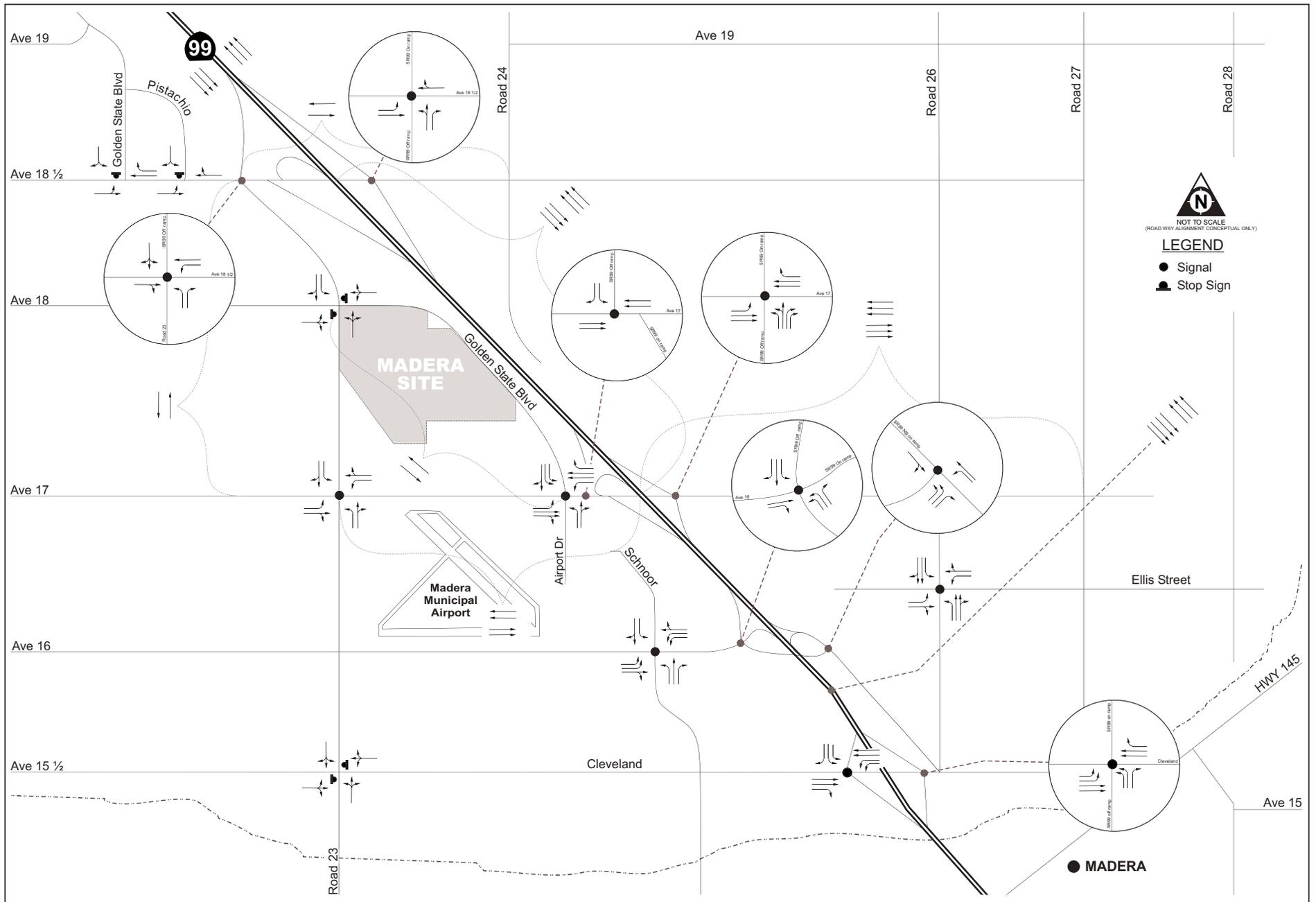


See Map 5-2

Figure 5-1
Madera Site – 2008 Lane Configuration and Intersection Control With Alternative A Mitigation



Figure 5-2
Madera Site – 2008 Lane Configuration and Intersection Control With Alternative A Mitigation



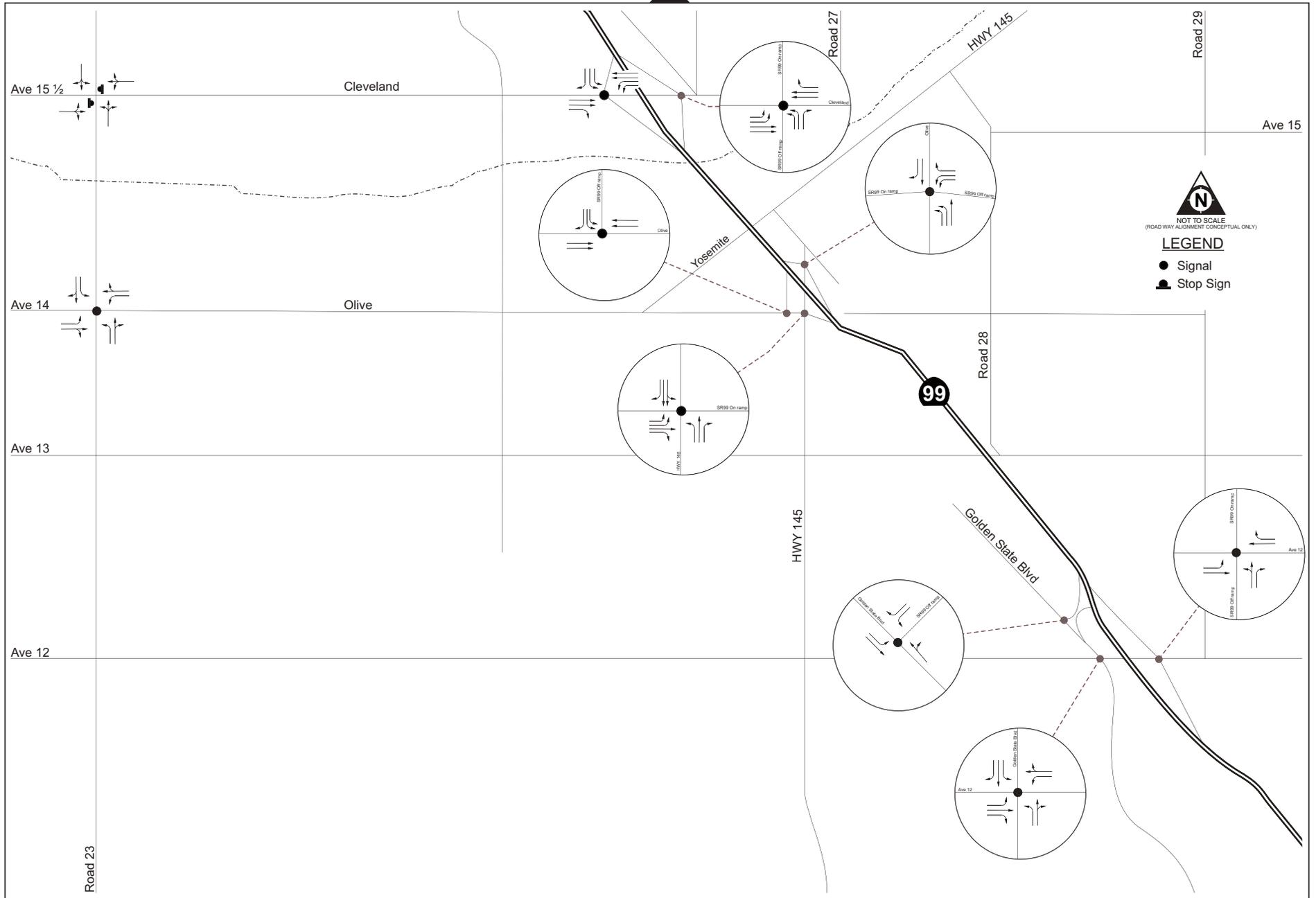


Figure 5-4
Madera Site – 2008 Lane Configuration and Intersection Control With Alternative B Mitigation

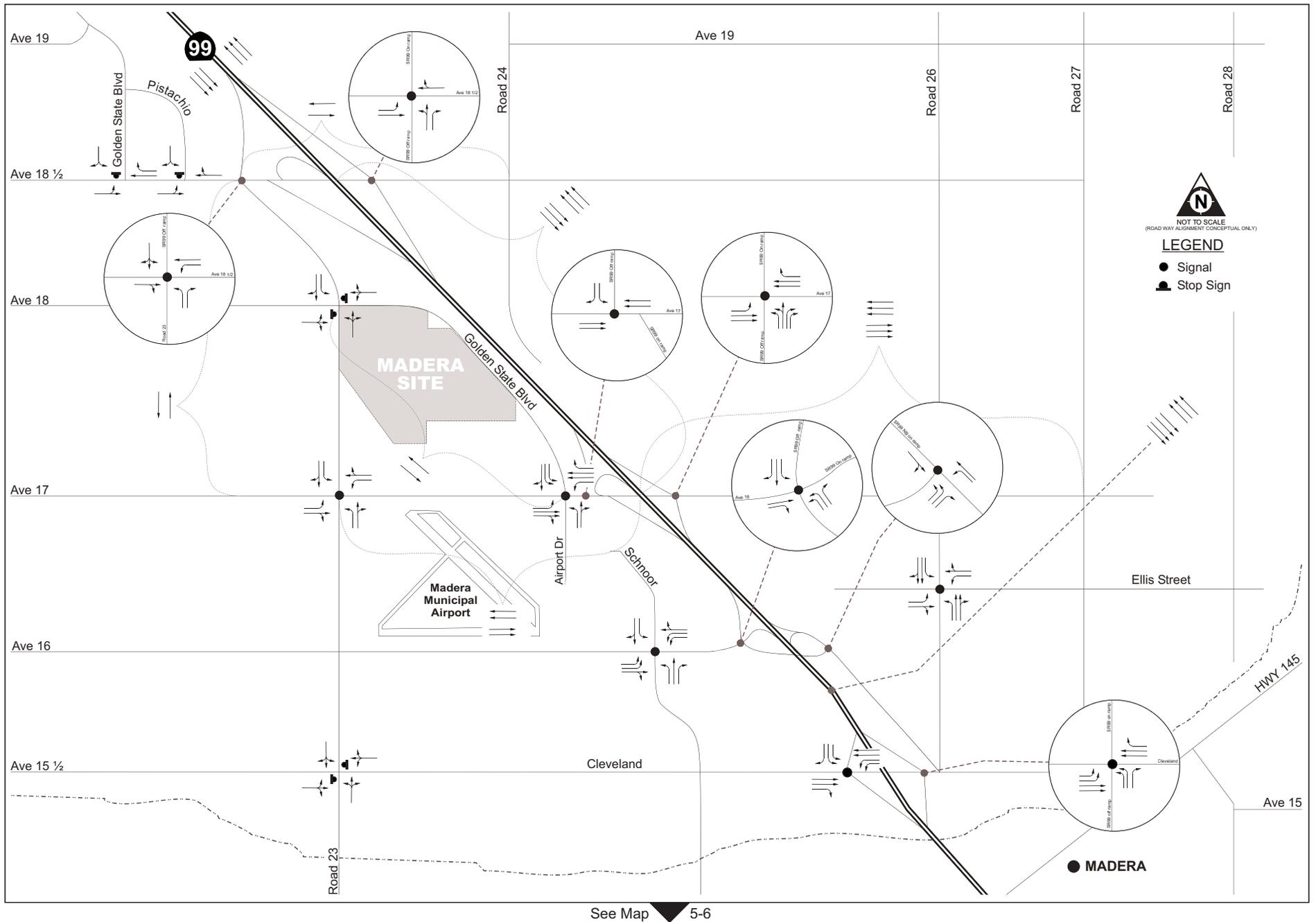


Figure 5-5
Madera Site – 2008 Lane Configuration and Intersection Control With Alternative C Mitigation

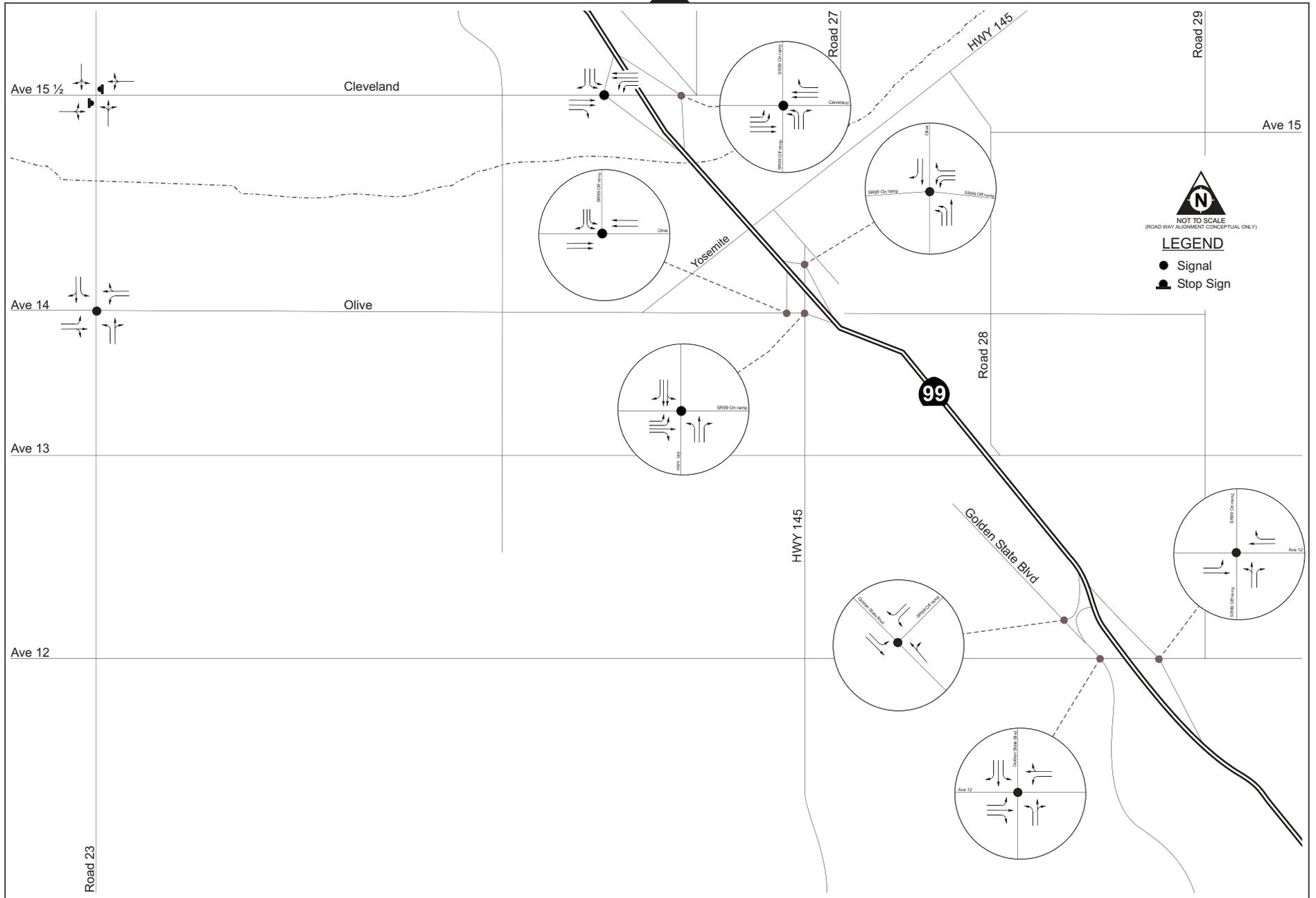


Figure 5-6
Madera Site – 2008 Lane Configuration and Intersection Control With Alternative C Mitigation

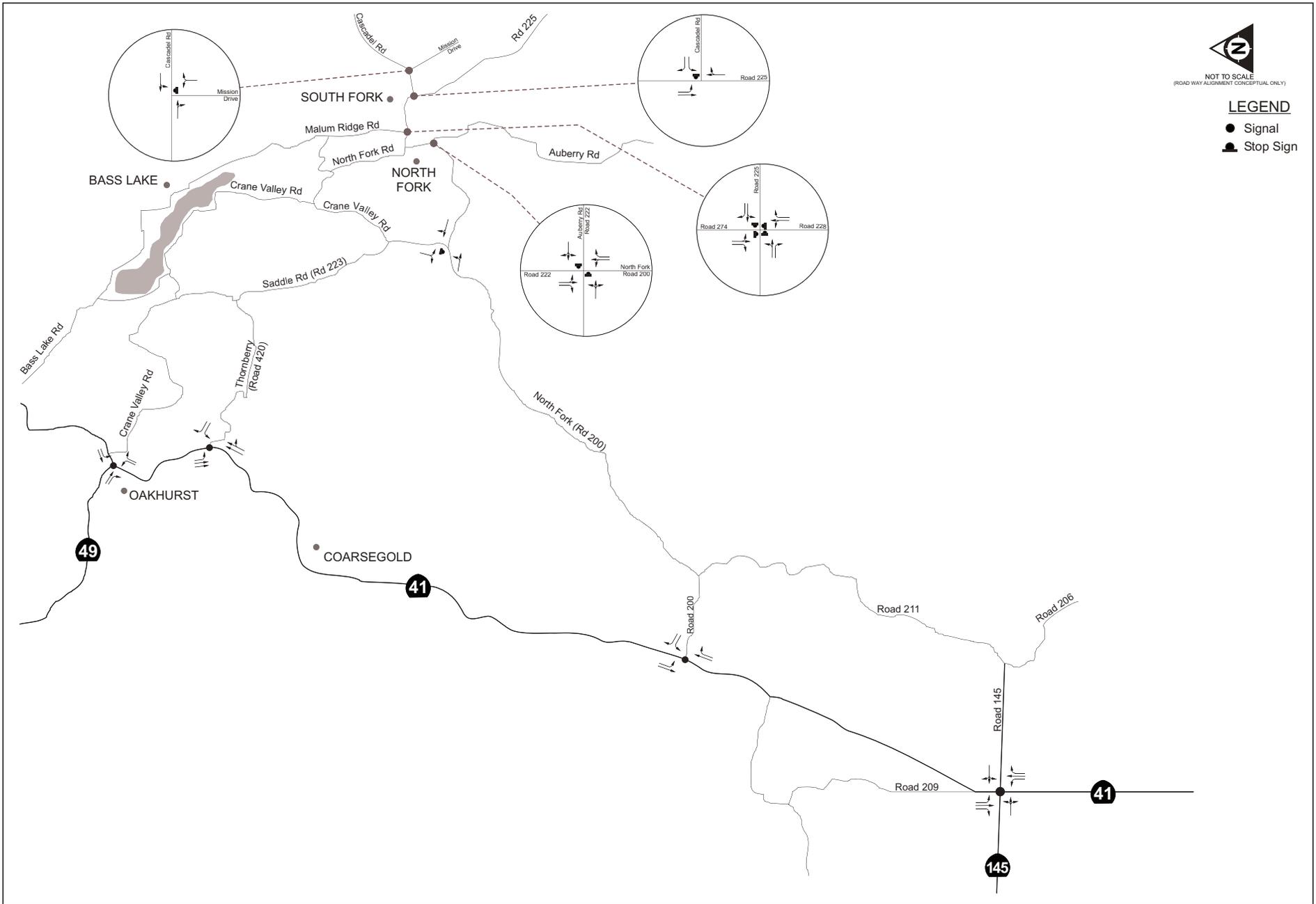


Figure 5-7
 North Fork Site – 2008 Lane Configuration and Intersection Control With Alternative D Mitigation

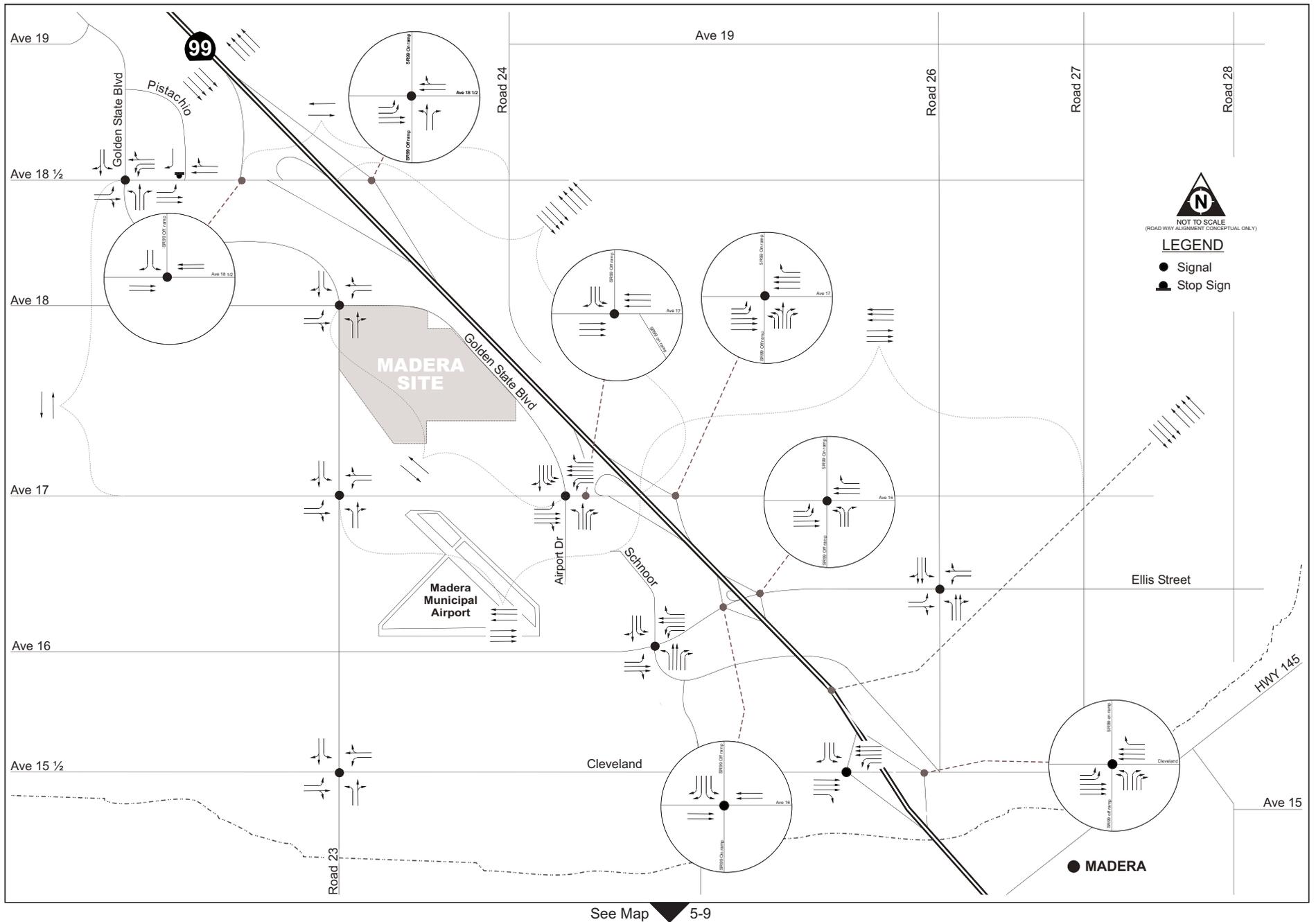
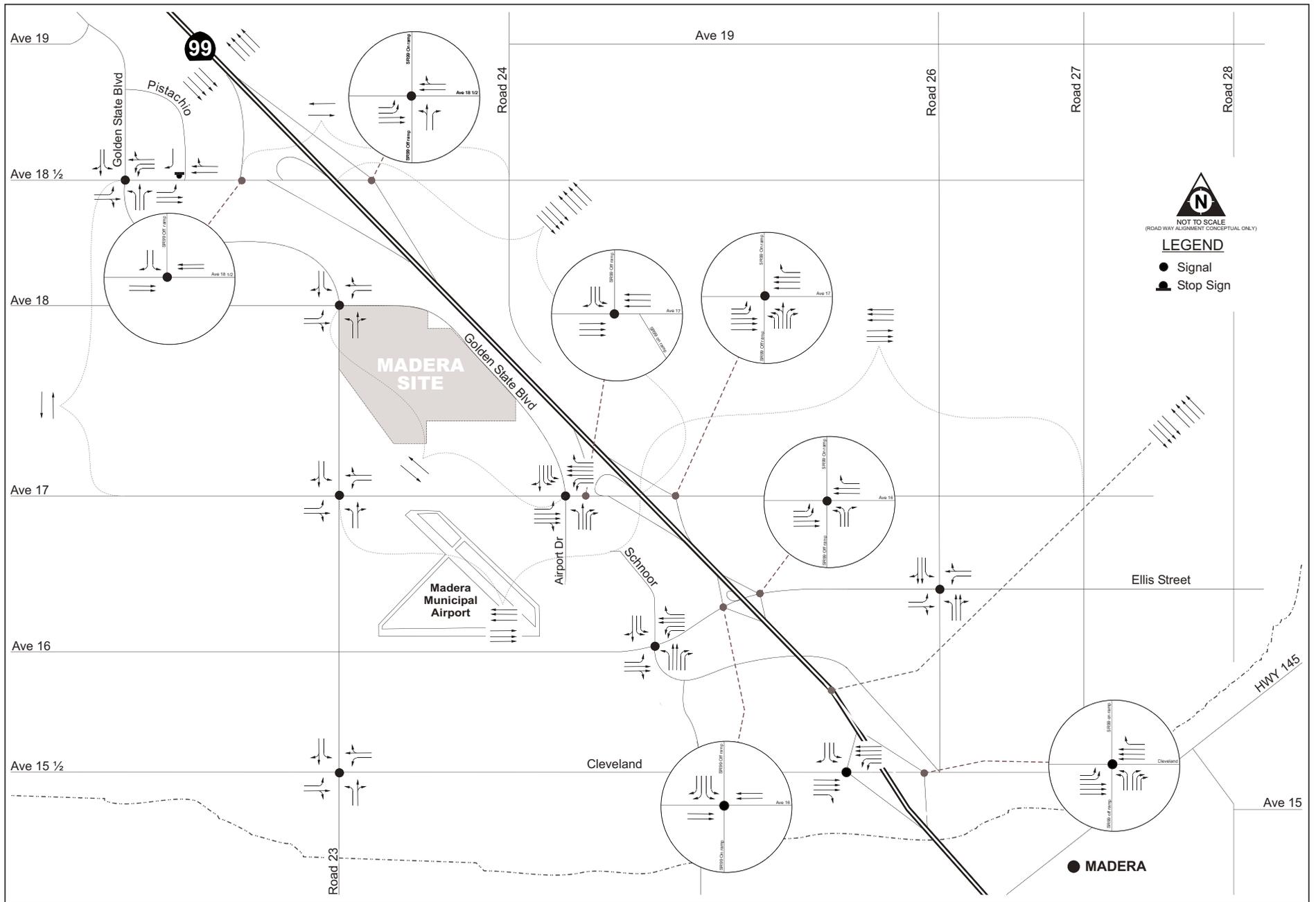




Figure 5-9
Madera Site – 2030 Lane Configuration and Intersection Control With Alternative A Mitigation



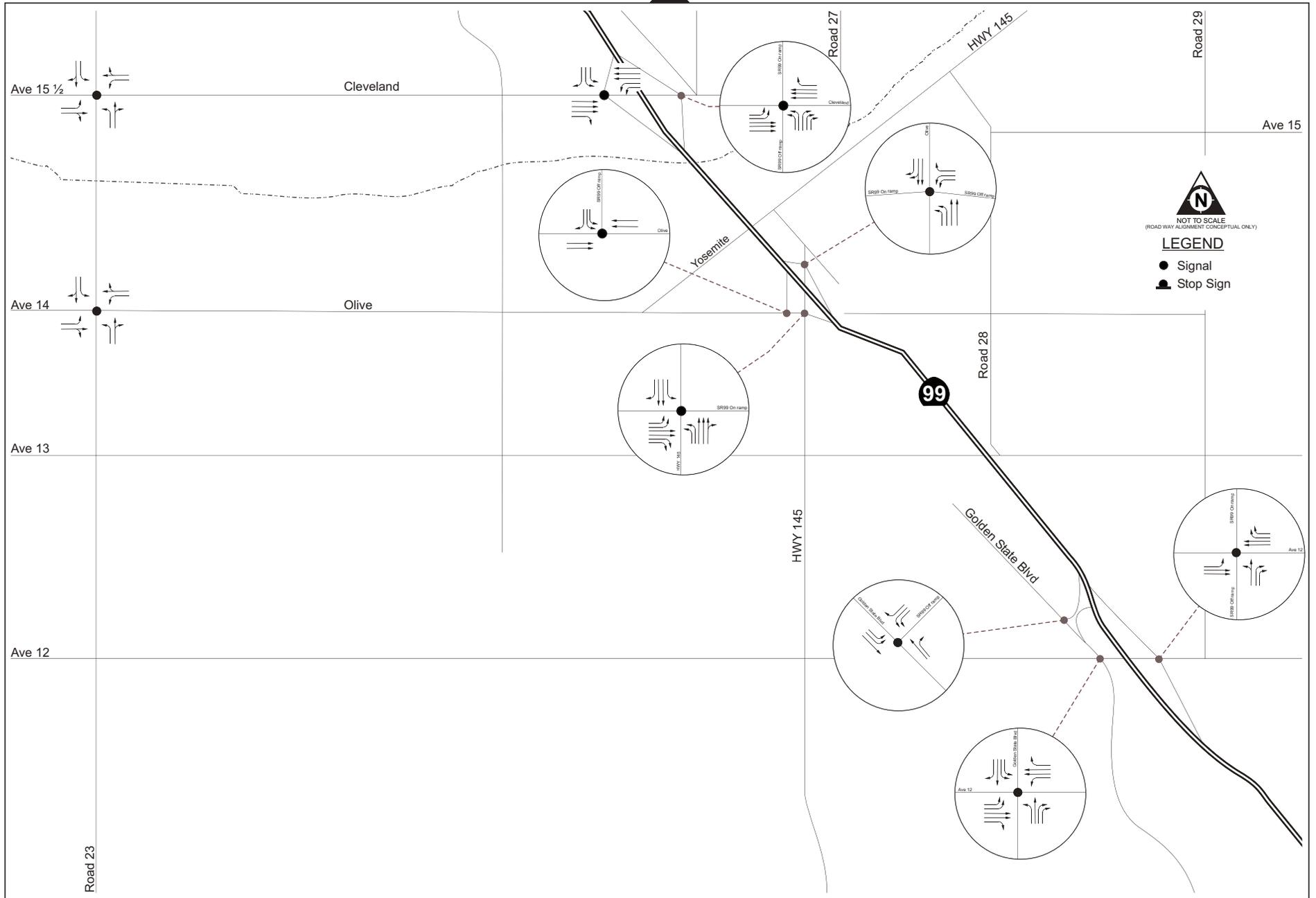
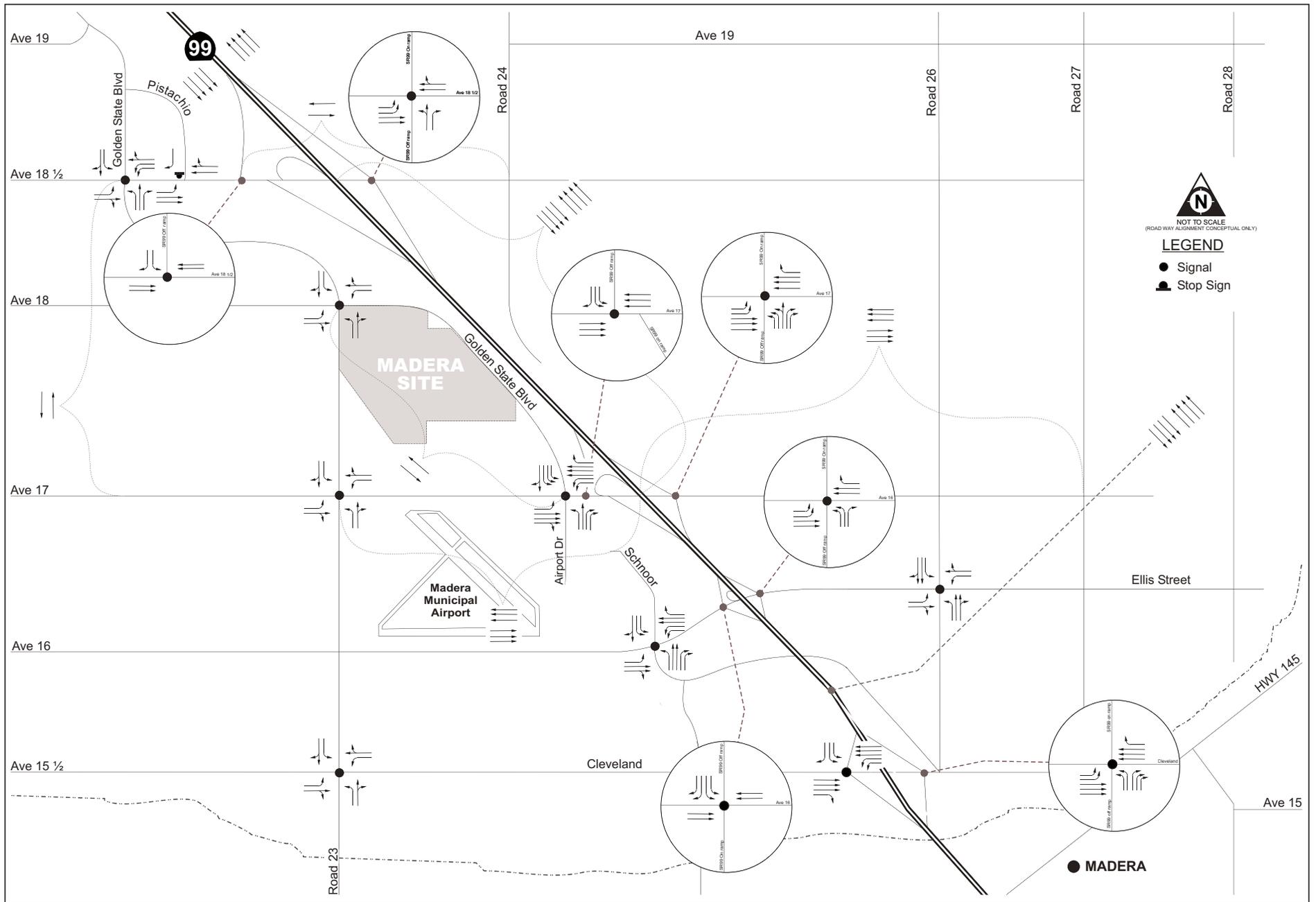


Figure 5-11
Madera Site – 2030 Lane Configuration and Intersection Control With Alternative B Mitigation



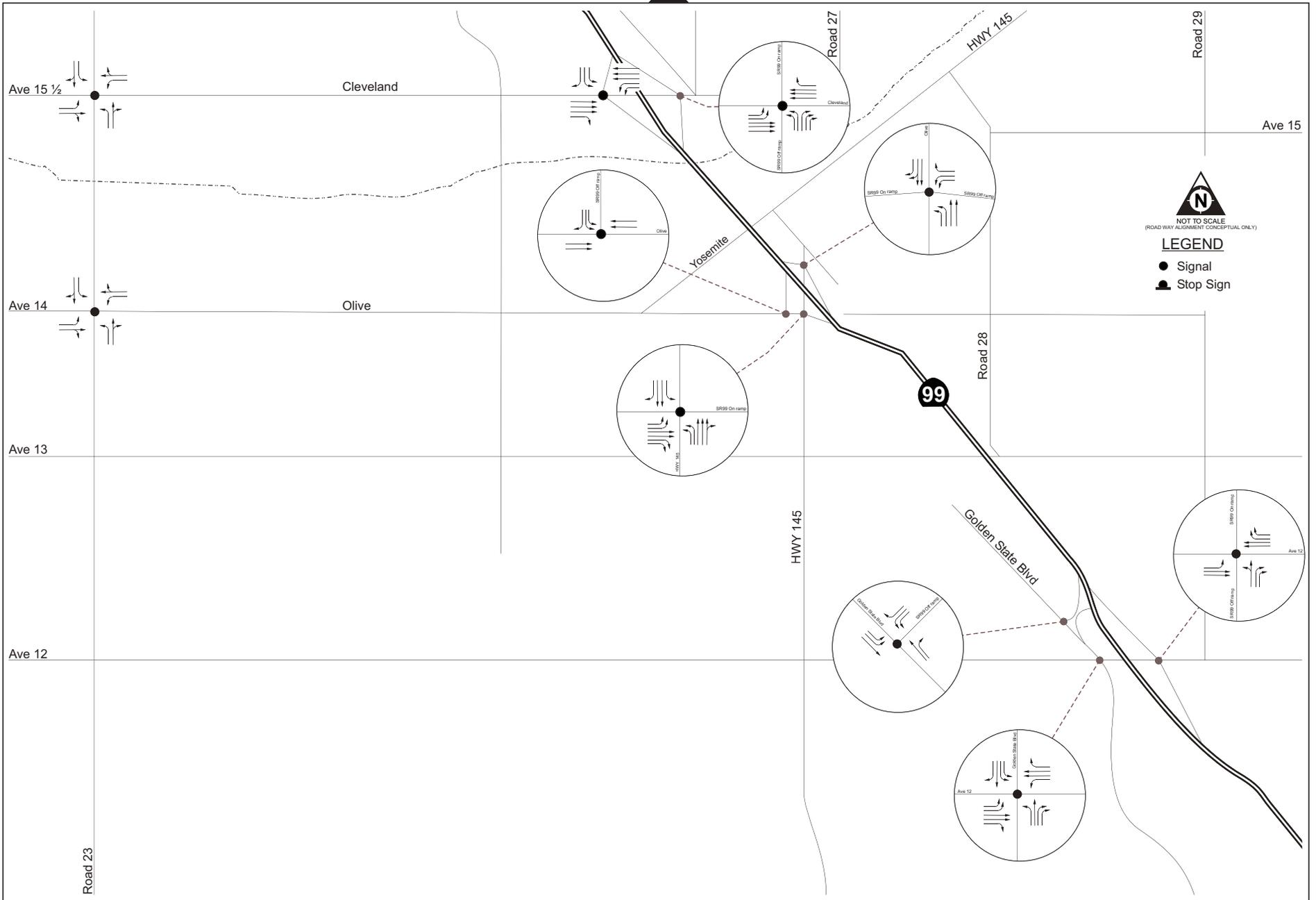
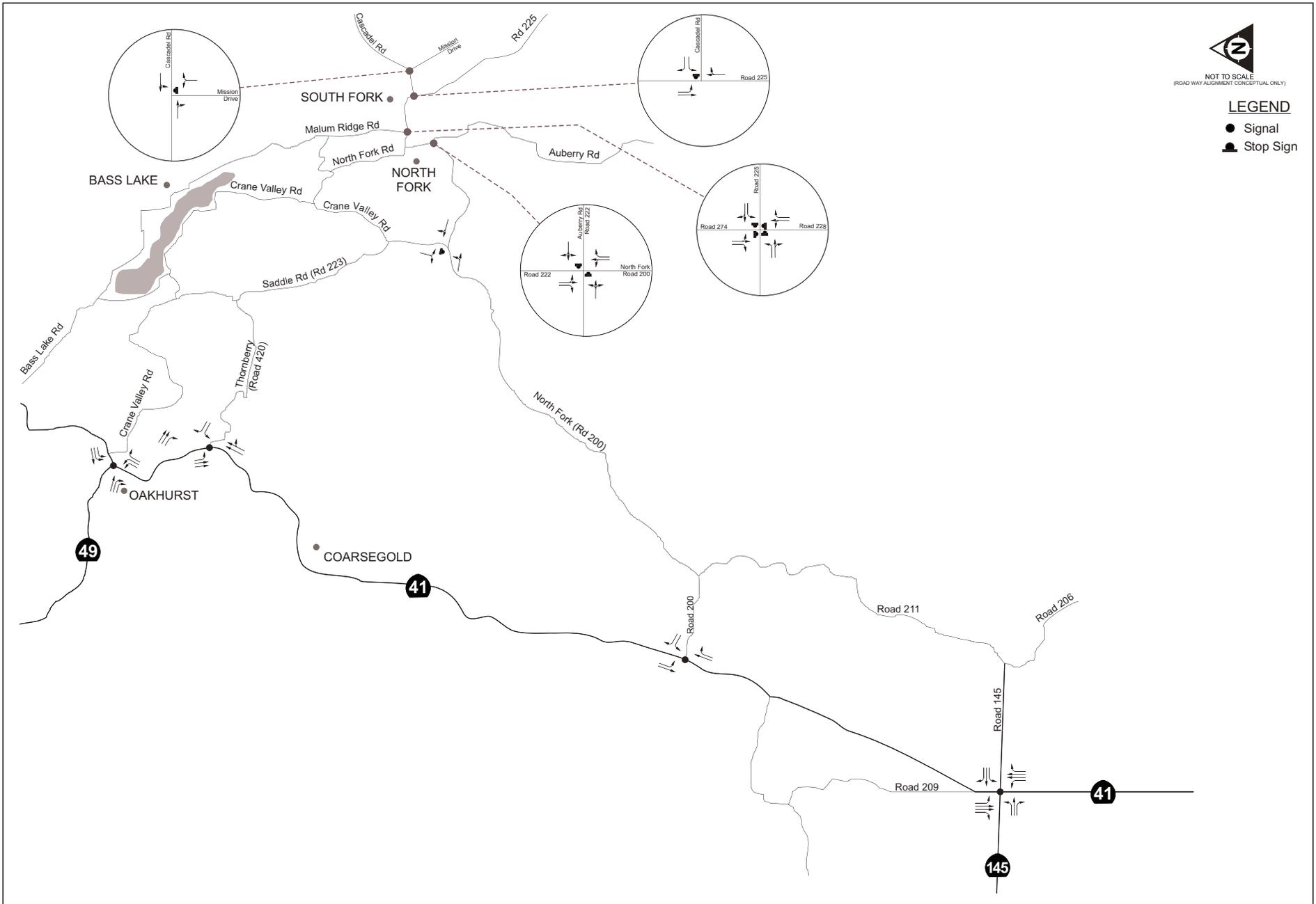


Figure 5-13
Madera Site – 2030 Lane Configuration and Intersection Control With Alternative C Mitigation




 NOT TO SCALE
 (ROAD WAY ALIGNMENT CONCEPTUAL ONLY)

LEGEND

- Signal
- ▲ Stop Sign

Figure 5-14
 North Fork Site – 2030 Lane Configuration and Intersection Control With Alternative D Mitigation

Adoption of the below mitigation measures will reduce the impacts of the alternatives on transportation to a less than significant level:

2005 – Alternative E (No Action)

Avenue 17 – SR-99 to Road 27

- Restripe/widen from two (2) lanes to four (4) lanes

SR-99 north of Avenue 18 ½

- Restripe/widen the southbound (SB) leg from two (2) lanes to three (3) lanes

SR-99 between Avenue 18 ½ to Avenue 17

- Restripe/widen the SB leg from two (2) lanes to three (3) lanes

SR-99 south of Avenue 17

- Restripe/widen the SB leg from two (2) lanes to three (3) lanes

Avenue 17 at SR-99 northbound (NB) ramps

- Signalize the intersection
- Restripe/widen the NB approach, south leg, from a shared left-through and separate right to a separate left-turn lane, a shared left-through lane, and dual (2) right-turn lanes
- Restripe/widen the eastbound (EB) approach, west leg, from a separate left-turn lane and one through lane, to a separate left-turn lane and two (2) through lanes
- Restripe/widen the westbound (WB) approach, east leg, from a shared through-right lane, to two (2) through lanes and a separate right-turn lane

Avenue 12/Golden State Boulevard at SR-99 SB off ramps

- Restripe/widen the SB approach, north leg, from a shared left-through lane to one (1) left-turn lane and one (1) through lane
- Restripe/widen the WB approach, east leg, from a shared left-right lane to one (1) left-turn lane and one (1) right-turn lane

Avenue 12 at Golden State Boulevard

- Signalize the intersection
- Restripe/widen the NB approach, south leg, from a shared left-through lane and one (1) right turn lane to one (1) left-turn lane and a shared through-right lane
- Restripe/widen the SB approach, north leg, from a shared left-through lane and one (1) right turn lane to one (1) left-turn lane, one (1) through lane and one (1) right-turn lane

Note that the signalization and widening of the NB and SB approaches for the Avenue 12 at Golden State Boulevard intersection is part of a current Caltrans project programmed for completion by 2008.

Avenue 12 at SR-99 NB ramps

- Signalize the intersection
- Restripe/widen the EB approach, west leg, from a shared left-through lane to one (1) left-turn lane and one (1) through lane
- Restripe/widen the WB approach, east leg, from a shared through-right lane to one (1) through lane and one (1) right-turn lane

Note that the signalization and widening of EB approach for the Avenue 12 at SR-99 NB ramps intersection is part of a current Caltrans project programmed for completion by 2008.

Avenue 16 at SR-99 SB ramps

- Signalize the intersection
- Restripe/widen the NB approach, south leg, from a separate left-turn lane and a separate right-turn lane, to dual (2) left-turn lanes and a separate right-turn lane
- Restripe/widen the SB approach, north leg, from a shared left-through-right lane to one (1) left-turn lane, one (1) through lane and one (1) right-turn lane
- Restripe/widen the EB approach, west leg, from a shared through-right lane to one (1) through lane and one (1) right-turn lane

SR 41 at Road 200

- Signalize the intersection
- Restripe/widen the WB approach, east leg, from a shared left-right to one (1) left-turn lane and one (1) right-turn lane

2008 – Alternative E (No Action)

Avenue 17 – Road 23 to SR-99

- Restripe/widen from two (2) lanes to four (4) lanes

SR-99 north of Avenue 18 ½

- Restripe/widen the NB leg from two (2) lanes to three (3) lanes

SR-99 south of Avenue 17

- Restripe/widen the NB leg from two (2) lanes to three (3) lanes

Avenue 18 ½ at SR-99 SB ramps/Road 23

- Signalize the intersection
- Restripe/widen the WB approach, east leg, from a shared left-through to a separate left-turn lane and one (1) through lane

Avenue 18 ½ at SR-99 NB ramps

- Signalize the intersection
- Restripe/widen the NB approach, south leg, from a shared left-through-right lane, to a shared left-through lane and a separate right-turn lane

Note that although the Avenue 18 ½ at SR-99 NB ramps intersection does not meet the peak hour volumes signal warrant, Caltrans will require both the Avenue 18 ½ at SR-99 SB ramps/Road 23 and Avenue 18 ½ at SR-99 NB ramps intersections to be signalized at the same time, hence the above signalization recommendation.

Avenue 17 at SR-99 SB ramps

- Signalize the intersection
- Restripe/widen the EB approach, west leg, from one (1) through lane, to two (2) through lanes
- Restripe/widen the WB approach, east leg, from one (1) through lane, to two (2) through lanes

Avenue 17 at SR-99 NB ramps

- Widen the NB off-ramp to two (2) lanes with a NB auxiliary lane on SR-99
- Restripe/widen the NB approach, south leg, to allow storage lanes at least 200 feet in length

Avenue 12/Golden State Boulevard at SR-99 SB off ramps

- Signalize the intersection

Avenue 17 at Road 23

- Signalize the intersection
- Restripe/widen the NB approach, south leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane
- Restripe/widen the SB approach, north leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane
- Restripe/widen the EB approach, west leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane

- Restripe/widen the WB approach, east leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane

Avenue 17 at Golden State Boulevard

- Signalize the intersection
- Restripe/widen the SB approach, north leg, from a shared left-through-right lane to dual (2) left-turn lanes and a shared through-right lane
- Restripe/widen the EB approach, west leg, from a shared left-through-right lane to a separate left-turn lane, one (1) through lane, and a shared through-right lane
- Restripe/widen the WB approach, east leg, from a shared left-through-right lane to one (1) left-turn lane, two (2) through lanes and one (1) right-turn lane

Ellis Street at Road 26

- Signalize the intersection
- Restripe/widen the NB approach, south leg, from a shared left-through lane and a shared through-right lane to one (1) left-turn lane, one (1) through lane and a shared through-right lane
- Restripe/widen the SB approach, north leg, from a shared left-through lane and a shared through-right lane to one (1) left-turn lane, one (1) through lane and a shared through-right lane
- Restripe/widen the EB approach, west leg, from a shared left-through-right lane to a separate left-turn lane and a shared through-right lane
- Restripe/widen the EB approach, west leg, from a shared left-through-right lane to a separate left-turn lane and a shared through-right lane

Avenue 14 at Road 23

- Signalize the intersection
- Restripe/widen the NB approach, south leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane
- Restripe/widen the SB approach, north leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane
- Restripe/widen the EB approach, west leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane
- Restripe/widen the WB approach, east leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane

Avenue 16 at Schnoor Avenue

- Signalize the intersection

- Restripe/widen the SB approach, north leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane
- Restripe/widen the EB approach, west leg, from a shared left-through-right to dual (2) lefts and a shared through-right lane
- Restripe/widen the WB approach, east leg, from one (1) left-turn lane and a shared through right lane to dual (2) left-turn lanes and a shared through-right lane

Avenue 16 at SR-99 NB ramps

- Reconfigure/realign the Avenue 16/Avenue 16 connector at SR-99 NB ramps, Avenue 16 at SR-99 NB ramps connector and Gateway/Avenue 16 at SR-99 NB ramps to one (1) intersection
- Signalize the intersection
- Restripe/widen the NB approach, south leg, from a shared left-through lane, to a separate left turn lane and one (1) through lane
- Restripe/ widen the EB approach, west leg, from a shared left-right, to dual (2) left-turn lanes and a separate right-turn lane

Cleveland Avenue/Avenue 15 ½ at SR-99 NB ramps

- Restripe/widen the EB approach, west leg, from a separate left-turn lane and two (2) through lanes, to dual (2) left-turn lanes and two (2) through lanes
- Widen the NB off-ramp to two (2) lanes with a NB auxiliary lane on SR-99

SR 145/Madera Avenue at SR-99 NB ramps

- Restripe/widen the NB approach, south leg, from one (1) left-turn lane and one (1) through lane to a dual (2) left-turn lanes and one (1) through lane
- Restripe/widen the SB approach, north leg, from a shared through-right lane to one (1) through lane and one (1) right-turn lane
- Restripe/widen the WB approach, east leg, from one (1) left-turn lane and one (1) right-turn lane to dual (2) left-turn lanes and one (1) right-turn lane

Olive Avenue/Avenue 14/SR-99 SB on-ramp at SR 145

- Restripe/widen the EB approach, west leg, from a shared left-through lane and one (1) right turn lane to dual (2) left-turn lanes, one (1) through lane and one (1) right-turn lane

SR 41 at Road 420 (Thornberry Road)

- Signalize the intersection
- Restripe/widen the WB approach, east leg, from a shared left-right to one (1) left-turn lane and one (1) right-turn lane

2008 – Alternative A

Avenue 17 – SR-99 to Road 27

- Restripe/widen from four (4) lanes to six (6) lanes

SR-99 between Avenue 18 ½ and Avenue 17

- Restripe/widen the NB leg from two (2) lanes to three (3) lanes

SR-99 south of Avenue 17

- Restripe/widen the SB leg from three (3) lanes to four (4) lanes

Avenue 18 at Road 23

- Restripe/widen the SB approach, north leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane

Cleveland Avenue/Avenue 15 ½ at SR-99 SB ramps

- Restripe/widen the SB approach, north leg, from a shared left-through and a separate right turn lane, to a separate left-turn lane, a shared left-through, and a separate right-turn lane
- Restripe/widen the WB approach, east leg, from a separate left-turn lane and two (2) through lanes, to dual (2) left-turn lanes and two (2) through lanes

2008 – Alternative B

Avenue 17 – SR-99 to Road 27

- Restripe/widen from four (4) lanes to six (6) lanes

SR-99 between Avenue 18 ½ and Avenue 17

- Restripe/widen the NB leg from two (2) lanes to three (3) lanes

SR-99 south of Avenue 17

- Restripe/widen the SB leg from three (3) lanes to four (4) lanes

Avenue 18 at Road 23

- Restripe/widen the SB approach, north leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane

Cleveland Avenue/Avenue 15 ½ at SR-99 SB ramps

- Restripe/widen the SB approach, north leg, from a shared left-through and a separate right-turn lane, to a separate left-turn lane, a shared left-through, and a separate right-turn lane
- Restripe/widen the WB approach, east leg, from a separate left-turn lane and two (2) through lanes, to dual (2) left-turn lanes and two (2) through lanes

2008 – Alternative C

Avenue 17 – SR-99 to Road 27

- Restripe/widen from four (4) lanes to six (6) lanes

SR-99 between Avenue 18 ½ and Avenue 17

- Restripe/widen the NB leg from two (2) lanes to three (3) lanes

SR-99 south of Avenue 17

- Restripe/widen the SB leg from three (3) lanes to four (4) lanes

Avenue 18 at Road 23

- Restripe/widen the SB approach, north leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane

Cleveland Avenue/Avenue 15 ½ at SR-99 SB ramps

- Restripe/widen the SB approach, north leg, from a shared left-through and a separate right-turn lane, to a separate left-turn lane, a shared left-through, and a separate right-turn lane
- Restripe/widen the WB approach, east leg, from a separate left-turn lane and two (2) through lanes, to dual (2) left-turn lanes and two (2) through lanes

2030 – Alternative E (No Action)

Avenue 17 – SR-99 to Road 27

- Restripe/widen from four (4) lanes to six (6) lanes

SR-99 north of Avenue 18 ½

- Restripe/widen the NB leg from three (3) lanes to four (4) lanes
- Restripe/widen the SB leg from three (3) lanes to four (4) lanes

SR-99 between Avenue 18 ½ and Avenue 17

- Restripe/widen the NB leg from three (3) lanes to four (4) lanes

- Restripe/widen the SB leg from three (3) lanes to four (4) lanes

SR-99 south of Avenue 17

- Restripe/widen the NB leg from three (3) lanes to four (4) lanes
- Restripe/widen the SB leg from three (3) lanes to four (4) lanes

Avenue 18 ½ at SR-99 SB ramps

- Restripe/widen the SB approach, north leg, from a shared left-right lane to a separate left-turn lane and a separate right-turn lane
- Restripe/widen the EB approach, west leg, from one (1) through lane to two (2) through lanes
- Restripe/widen the WB approach, east leg, from one (1) through lane to two (2) through lanes

Avenue 18 ½ at SR-99 NB ramps

- Restripe/widen the EB approach, west leg, from a separate left-turn lane and one (1) through lane, to dual (2) left-turn lanes and two (2) through lanes
- Restripe/widen the WB approach, east leg, from a shared through-right lane, to one through lane and a shared through-right lane

Avenue 17 at SR-99 SB ramps

- Restripe/widen the EB approach, west leg, from two (2) through lanes, to three (3) through lanes
- Restripe/widen the WB approach, east leg, from two (2) through lanes, to three (3) through lanes

Avenue 17 at SR-99 NB ramps

- Restripe/widen the NB approach, south leg, from a separate left-turn lane, a shared left through lane, and dual (2) right-turn lanes, to dual (2) left-turn lanes, a shared left-through lane, and dual (2) right –turn lanes
- Restripe/widen the EB approach, west leg, from a separate left-turn lane and two (2) through lanes, to dual (2) left-turn lanes and three (3) through lanes
- Restripe/widen the WB approach, east leg, from two (2) through lanes and a separate right-turn lane, to three (3) through lanes and a separate right-turn lane
- Lengthen the NB off-ramp by 200 feet to accommodate the projected queues
- Restripe/widen the NB approach, south leg, to allow storage lanes at least 500 feet in length

Avenue 12/Golden State Boulevard at SR-99 SB offramps

- Restripe/widen the SB approach, north leg, from one (1) left-turn lane and one (1) through lane, to dual (2) left-turn lanes and one (1) through lane
- Restripe/widen the WB approach, east leg, from one (1) left-turn lane and one (1) right-turn lane, to dual (2) left-turn lanes and a separate right-turn lane
- Widen the SB off-ramp to two (2) lanes with a SB auxiliary lane on SR-99

Avenue 12 at Golden State Boulevard

- Signalize the intersection
- Restripe/widen the NB approach, south leg, from one (1) left-turn lane and a shared through right lane, to a separate left-turn lane, one (1) through lane, and dual (2) right-turn lanes
- Restripe/widen the SB approach, north leg, from to one (1) left-turn lane, one (1) through lane and one (1) right-turn lane, to dual (2) left-turn lanes, one (1) through lane, and a separate right-turn lane
- Restripe/widen the EB approach, west leg, from a separate left-turn lane, one (1) through lane, and a separate right-turn lane, to dual (2) left-turn lanes, two (2) through lanes, and a separate right-turn lane
- Restripe/widen the WB approach, east leg, from a separate left-turn lane and a shared through-right lane, to a separate left-turn lane, two (2) through lanes, and a separate right-turn lane

Avenue 12 at SR-99 NB ramps

- Signalize the intersection
- Restripe/widen the NB approach, south leg from a shared left-through lane and a separate right-turn lane, to a shared left-through lane and dual (2) right-turn lanes
- Restripe/widen the EB approach, west leg, from one (1) left-turn lane and one (1) through lane, to a separate left-turn lane and two (2) through lanes
- Restripe/widen the WB approach, east leg, from one (1) through lane and one (1) right-turn lane, to two (2) through lanes and dual (2) right-turn lanes
- Widen the NB off-ramp to two (2) lanes with a NB auxiliary lane on SR-99

Avenue 17 at Golden State Boulevard

- Restripe/widen the NB approach, south leg, from a separate left-turn lane and a shared through-right lane, to a separate left-turn lane, one (1) through lane, and dual (2) right-turn lanes
- Restripe/widen the SB approach, north leg, from dual (2) left-turn lanes and a shared through right lane, to triple (3) left-turn lanes and a shared through-right lane

- Restripe/widen the EB approach, west leg, from a separate left-turn lane, one (1) through lane, and a shared through-right lane, to a separate left-turn lane, two (2) through lanes, and a shared through-right lane
- Restripe/widen the WB approach, east leg, from one (1) left-turn lane, two (2) through lanes and one (1) right-turn lane, to dual (2) left-turn lanes, three (3) through lanes, and a separate right-turn lane

Avenue 15 ½ at Road 23

- Signalize the intersection
- Restripe/widen the NB approach, south leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane
- Restripe/widen the SB approach, north leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane
- Restripe/widen the EB approach, west leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane
- Restripe/widen the WB approach, east leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane

Avenue 16/Ellis Street at Golden State Boulevard

- Restripe/widen the NB approach, south leg, from a separate left-turn lane, one (1) through lane, and a shared through-right lane, to a separate left-turn lane, two (2) through lanes, and dual (2) right-turn lanes
- Restripe/widen the WB approach, east leg, from dual (2) left-turn lanes, one (1) through lane, and a shared through-left lane, to dual (2) left-turn lanes, two (2) through lanes, and a separate right-turn lane

Avenue 16/Ellis Street at SR-99 SB ramps

- Restripe/widen the SB approach, north leg, from a separate left-turn lane and a separate right-turn lane, to dual (2) left-turn lanes and dual (2) right-turn lanes
- Widen the SB off-ramp to two (2) lanes with a SB auxiliary lane on SR-99

Avenue 16/Ellis Street at SR-99 NB ramps

- Restripe/widen the EB approach, west leg, from a separate left-turn lane and two (2) through lanes, to dual (2) left-turn lanes and two (2) through lanes
- Restripe/widen the WB approach, east leg from one (1) through lane and a shared through right lane, to two (2) through lanes and a separate right-turn lane
- Widen the NB off-ramp to two (2) lanes with a NB auxiliary lane on SR-99

Cleveland Avenue/Avenue 15 ½ at SR-99 NB ramps

- Restripe/widen the NB approach, south leg, from dual (2) left-turn lanes and a separate right-turn lane, to dual (2) left-turn lanes and triple (3) right-turn lanes
- Restripe/widen the EB approach, west leg, from to dual (2) left-turn lanes and two (2) through lanes, to dual (2) left-turn lanes and three (3) through lanes
- Restripe/widen the WB approach, east leg, from two (2) through lanes and a separate right-turn lane, to three (3) through lanes and a separate right-turn lane

Cleveland Avenue/Avenue 15 ½ at SR-99 SB ramps

- Restripe/widen the EB approach, west leg, from a two (2) through lanes and a separate right-turn lane, to three (3) through lanes and a separate right-turn lane
- Restripe/widen the WB approach, east leg, from dual (2) left-turn lanes and two (2) through lanes to dual (2) left-turn lanes and three (3) through lanes
- Widen the SB off-ramp to two (2) lanes with a SB auxiliary lane on SR-99
- Restripe/widen the SB approach, north leg, to allow storage lanes at least 200 feet in length

SR 145/Madera Avenue at SR-99 NB ramps

- Restripe/widen the NB approach, south leg, from dual (2) left-turn lanes and one (1) through lane to dual (2) left-turn lanes and two (2) through lanes
- Restripe/widen the SB approach, north leg, from one (1) through lane and one (1) right-turn lane, to one (1) through lane, a shared through-right lane, and a separate right-turn lane
- Restripe/widen the WB approach, east leg, from one (1) left-turn lane and one (1) right-turn lane to dual (2) left-turn lanes and one (1) right-turn lane

Olive Avenue/Avenue 14 at SR-99 SB off-ramp

- Restripe/widen the SB approach, north leg, from a separate left-turn lane and a separate right-turn lane to dual (2) left-turn lanes and a separate right-turn lane
- Restripe/widen the WB approach, east leg, from one (1) through lane to two (2) through lanes
- Widen the SB off-ramp to two (2) lanes with a SB auxiliary lane on SR-99

Olive Avenue/Avenue 14/SR-99 SB on-ramp at SR 145

- Restripe/widen the NB approach, south leg, from a separate left-turn lane, one (1) through lane, and a separate right-turn lane, to dual (2) left-turn lane, two (2) through lanes, and a shared through-right lane

- Restripe/widen the SB approach, north leg, from a shared left-through lane, one (1) through lane, and a separate right-turn lane, to a separate left-turn lane, two (2) through lanes, and a separate right-turn lane
- Restripe/widen the EB approach, west leg, from dual (2) left-turn lanes, one (1) through lane and one (1) right-turn lane, to dual (2) left-turn lanes, two (2) through lanes, and dual (2) right-turn lanes

Avenue 18 ½ at Pistachio Drive

- Restripe/widen the EB approach, west leg, from a shared left-through lane, to a separate left-turn lane and two (2) through lanes
- Restripe/widen the WB approach, east leg, from a shared through-right lane, to one (1) through lane and a shared through-right lane

Although the Avenue 18 ½ at Pistachio Drive intersection is projected to meet the urban peak hour volume signal warrant, it will not be signalized due to its proximity to the SR-99 SB off-ramp. The intersection will be restricted to right-in/right-out/left-in access, which reduces the need for a signal and allows the intersection to operate at an acceptable level of service without a signal.

Avenue 18 ½ at Golden State Boulevard / Road 23

- Signalize the intersection
- Restripe/widen the NB approach, south leg, from a shared left-through-right lane, to a separate left-turn lane, one (1) through lane, and a separate right-turn lane
- Restripe/widen the SB approach, north leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane
- Restripe/widen the EB approach, west leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane
- Restripe/widen the WB approach, east leg, from a shared left-through-right lane, to dual (2) left-turn lanes and a shared through-right lane

SR 145 at SR 41

- Restripe/widen the NB approach, south leg, from one (1) left-turn lane, one (1) through lane and one (1) right-turn lane to one (1) left-turn lane, two (2) through lanes and one (1) right-turn lane
- Restripe/widen the SB approach, north leg, from one (1) left-turn lane, one (1) through lane and one (1) right-turn lane to one (1) left-turn lane, two (2) through lanes and one (1) right-turn lane
- Restripe/widen the EB approach, west leg, from a shared left-through-right to a separate left-turn lane, one (1) through lane and a separate right-turn lane

- Restripe/widen the WB approach, east leg, from a shared left-through-right to a separate left-turn lane, one (1) through lane and a separate right-turn lane

SR 41 at SR 49

- Restripe/widen the NB approach, south leg, from one (1) left-turn lane and one (1) right-turn lane to dual (2) left-turn lanes and one (1) right-turn lane
- Restripe/widen the EB approach, west leg, from one (1) through lane and one (1) right-turn lane to one (1) through lane and dual (2) right-turn lanes
- Restripe/widen the WB approach, east leg, from one (1) left-turn lane and one (1) through lane to dual (2) left-turn lanes and one (1) through lane

2030 – Alternative A

Avenue 17 – Road 23 to SR-99

- Restripe/widen from four (4) lanes to six (6) lanes

Avenue 18 at Road 23

- Signalize the intersection
- Restripe/widen the NB approach, south leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane
- Restripe/widen the SB approach, north leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane
- Restripe/widen the EB approach, west leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane
- Restripe/widen the WB approach, east leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane

Two freeway segments and one intersection are still projected to operate below the adopted level of service standard even with the recommended 2008 and 2030 Alternative A improvements (although the project’s contribution to these already unacceptable operations would be fully mitigated with the recommended improvements). Specifically, the NB and SB SR-99 south of Avenue 17 freeway segments are projected to operate at LOS “D” and “E” respectively in the PM peak hour. Per discussions with Caltrans staff, SR-99 is only programmed for eight lanes for this segment. The Avenue 17 at SR-99 NB ramps intersection is still projected to operate at a LOS “D” in the PM peak hour. Per discussions with Caltrans staff, widening Avenue 17 to eight lanes is not recommended. If a NB to WB loop off-ramp were constructed, the Avenue 17 at SR-99 NB ramps intersection would operate at a LOS “C” in the PM peak hour, with a delay of 33.1 seconds. However construction of a NB to WB loop off-ramp is probably not feasible due to the close proximity of railroad tracks.

2030 – Alternative B*Avenue 17 – Road 23 to SR-99*

- Restripe/widen from four (4) lanes to six (6) lanes

Avenue 18 at Road 23

- Signalize the intersection
- Restripe/widen the NB approach, south leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane
- Restripe/widen the SB approach, north leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane
- Restripe/widen the EB approach, west leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane
- Restripe/widen the WB approach, east leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane

Two freeway segments and one intersection are still projected to operate below the adopted level of service standard even with the recommended 2008 and 2030 Alternative B improvements (although the project’s contribution to these already unacceptable operations would be fully mitigated with the recommended improvements). Specifically, the NB and SB SR-99 south of Avenue 17 freeway segments are projected to operate at LOS “D” in the PM peak hour. Per discussions with Caltrans staff, SR-99 is only programmed for eight lanes for this segment. The Avenue 17 at SR-99 NB ramps intersection is projected to operate at a LOS “D” in the PM peak hour. Per discussions with Caltrans staff, widening Avenue 17 to eight lanes is not recommended. If a NB to WB loop off-ramp were constructed, the Avenue 17 at SR-99 NB ramps intersection is projected to operate at a LOS “C” in the PM peak hour, with a delay of 34.0 seconds. However construction of a NB to WB loop off-ramp is probably not feasible due to the close proximity of railroad tracks.

2030 – Alternative C*Avenue 17 – Road 23 to SR-99*

- Restripe/widen from four (4) lanes to six (6) lanes

Avenue 18 at Road 23

- Signalize the intersection
- Restripe/widen the NB approach, south leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane
- Restripe/widen the SB approach, north leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane

- Restripe/widen the EB approach, west leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane
- Restripe/widen the WB approach, east leg, from a shared left-through-right lane, to a separate left-turn lane and a shared through-right lane

Two freeway segments and one intersection are still projected to operate below the adopted level of service standard even with the recommended 2008 and 2030 Alternative C improvements (although the project's contribution to these already unacceptable operations would be fully mitigated with the recommended improvements). The NB and SB SR-99 south of Avenue 17 freeway segments are projected to operate at LOS "D" and "E" respectively in the PM peak hour. Per discussions with Caltrans staff, SR-99 is only programmed for eight lanes for this segment. The Avenue 17 at SR-99 NB ramps intersection is still projected to operate at a LOS "D" in the PM peak hour. Per discussions with Caltrans staff, widening Avenue 17 to eight lanes is not recommended. If a NB to WB loop off-ramp were constructed, the Avenue 17 at SR-99 NB ramps intersection is projected to operate at a LOS "C" in the PM peak hour, with a delay of 34.2 seconds. However construction of a NB to WB loop off-ramp is probably not feasible due to the close proximity of railroad tracks.

2030 – Alternative D

Road 274 (Malum Ridge Rd) at Road 225 (Mammoth Pool Rd)

- Restripe/widen the EB approach, west leg, from a shared left-through and a separate right-turn lane to one (1) left-turn lane and a shared through-right
- Restripe/widen the WB approach, east leg, from a shared left-through and a separate right-turn lane to one (1) left-turn lane and a shared through-right

LAND USE

The following mitigation measures are recommended for Alternatives A, B, and C:

- A. In order to reduce the amount of light that would otherwise escape from the Madera site, the Tribe shall provide nighttime lighting for the parking areas that shines only on the parking areas and not surrounding areas. This can be achieved by employing down pointing lighting fixtures and low-pressure sodium bulbs.
- B. The Tribe shall either maintain current avigation easements within Zones A, B1, and B2 on the Madera site or shall enter into an agreement with the City of Madera to allow for the actions contained in the current avigation easement. This will prevent impacts to human safety or to airport operations. The easement or agreement shall address:

- a. Overflight: A right-of-way for free and unobstructed passage of aircraft through the airspace of the property at any altitude above a surface specified in the easement (set in accordance with Federal Aviation Regulations Part 77 and/or criteria for terminal instrument approaches).
 - b. Impacts: A right to subject the property to noise, vibration, fumes, dust, and fuel particle emissions associated with normal airport activity.
 - c. Height Limits: A right to prohibit the construction or growth of any structure, tree, or other object that would enter the acquired airspace.
 - d. Access and Abatement: A right-of-entry onto the property, with appropriate advance notice, for the purpose of removing, marking, or lighting any structure or other object that enters the acquired airspace.
- C. Other Restrictions: A right to prohibit electrical interference, glare, misleading light sources, visual impairments, and other hazards to aircraft from being created in the property.
- C. The Tribe shall submit a “Notice of Proposed Construction or Alteration” to the Federal Aviation Administration (FAA) due to the temporary use of a crane to construct the projects on the Madera site prior to construction. Cranes shall not operate unless the FAA determines that their operation will not cause a hazard to air navigation.

Adoption of the above mitigation will reduce the impacts of the alternatives on land use to a less than significant level.

The following mitigation measures are recommended to reduce light effects from Alternative D:

- D. In order to reduce the amount of light that would otherwise escape from the North Fork site, the Tribe shall provide nighttime lighting for the parking areas that shines only on the parking areas and not surrounding areas. This can be achieved by employing down pointing lighting fixtures and low-pressure sodium bulbs.

Adoption of the above mitigation will further reduce already less than significant land use effects.

AGRICULTURE

The following mitigation measure is recommended to reduce effects to agricultural land from Alternatives A, B, and C:

- E. An agricultural conservation easement shall be purchased (either directly or through an organization or agency whose purpose includes the acquisition and stewardship of agricultural conservation easements) that is at least as large as the area of agricultural land converted on the Madera site. At least a portion of the agricultural conservation easement site shall be designed as prime farmland, unique farmland, farmland of statewide importance, or farmland of local importance.

Adoption of the above mitigation will further reduce already less than significant effects to agriculture.

5.2.8 PUBLIC SERVICES

OFF-SITE WASTEWATER SERVICE

The following mitigation measure is recommended for Alternatives A, B and C if off-site wastewater service is utilized:

- A. The Tribe would form an agreement with the City of Madera to pay the fair share cost of improvements and upgrades to connect to the City of Madera sewer line. The Tribe would also pay the fair share cost of future expansion/improvements to increase wastewater capacity of the City of Madera wastewater treatment plant.

The following mitigation measure is recommended for Alternative D if off-site wastewater service is utilized:

- B. The Tribe would form an agreement with the County of Madera to pay the fair share cost of improvements and upgrades to connect to the County of Madera sewer line. The Tribe would also pay the fair share cost of future expansion/improvements to increase wastewater capacity of the County of Madera wastewater treatment plant.

Adoption of the above mitigation will reduce the impacts of the alternatives on off-site wastewater service to a less than significant level.

CONSTRUCTION-RELATED SOLID WASTE

The following mitigation measures are recommended for Alternatives A, B, C and D:

- C. Construction waste shall be recycled to the fullest extent practicable by diverting green waste and recyclable building materials from the solid waste stream.
- D. Environmentally preferable materials shall be acquired to the extent practical for construction of facilities.

Adoption of the above mitigation will further reduce less than significant construction-related solid waste impacts.

OPERATIONAL SOLID WASTE

The following mitigation measures are recommended for Alternatives A, B, C and D:

- E. Installation of a trash compactor for cardboard and paper products.
- F. Solid waste shall be recycled to the fullest extent practicable by diverting green waste and recyclable materials from the solid waste stream.
- G. Installation of recycling bins throughout the facilities for glass, cans and paper products.

Adoption of the above mitigation will further reduce less than significant operational solid waste impacts of the alternatives.

PUBLIC HEALTH AND SAFETY

Law Enforcement

The following mitigation measure is recommended for Alternatives B, C, and D:

- H. The Tribe shall make one-time and annual payments to the City of Madera and Madera County as discussed previously under the mitigation measures for Socioeconomic Conditions, **Section 5.2.6**. These payments would fund increased demands on City and County law enforcement services.

Fire Protection / Emergency Medical Service

The following measure is recommended for Alternatives A, B, C and D:

- I. Any construction equipment that normally includes a spark arrester will be equipped with an arrester in good working order. This includes, but is not limited to vehicles, heavy equipment, and chainsaws. During construction, staging areas, wilding areas, or areas slated for development using spark-producing equipment will be cleared of dried vegetation or other materials that could serve as fire fuel. To the extent feasible, the contractor will keep these areas clear of combustible materials in order to maintain a firebreak.

The following measure is recommended for Alternatives B, C and D:

- J. The Tribe shall make one-time and annual payments to the City of Madera and Madera County as discussed above under the mitigation measures for Socioeconomic Conditions, **Section 5.2.6**. These payments would fund increased demands on City and County fire protection and emergency medical services.

Food and Water Safety

The following measures are recommended for Alternative C:

- K. The Tribe shall adopt and comply with standards no less stringent than state public health standards for food and beverage handling.
- L. The Tribe shall allow inspection of food and beverage services by state or county health inspectors, during normal hours of operation, to assess compliance with these standards, unless inspections are routinely made by an agency of the United States government to ensure compliance with equivalent standards of the United States Public Health Service.

Adoption of the above mitigation will reduce the impacts of the alternatives on public health and safety to a less than significant level.

SCHOOLS

The following measure is recommended for Alternatives B, C and D:

- M. The Tribe shall make annual payments to Madera County as discussed previously under the mitigation measures for Socioeconomic Conditions, **Section 5.2.6**. These payments would fund increased demands on County educational services.

Adoption of the above mitigation will reduce the impacts of the alternatives on schools to a less than significant level.

5.2.9 OTHER VALUES

NOISE

Construction Noise Consequences

The following measure is recommended for Alternatives A, B, C, and D:

- A. Where feasible, construction activities shall be restricted to weekdays and normal daytime hours (7:00 a.m. to 7:00 p.m.).

Mechanical Equipment Noise Consequences

The following measure is recommended for Alternatives A, B, C, and D:

- B. All mechanical equipment shall be designed, installed, and screened where feasible, so as to generate average noise levels of 52 dBA or less at the property lines of existing sensitive receptors. This sound level reduction can be achieved through the use of sound walls and berms, noise attenuating building materials, and vegetative screening as well as through regular monitoring of noise generating equipment.

Adoption of the above mitigation will reduce the impacts of the alternatives on noise to a less than significant level.

HAZARDOUS MATERIALS

The following measures are recommended for Alternatives A, B, and C:

- C. The uncontained elemental sulfur located in one of the cattle feeders shall be removed from the site and properly disposed according to State and local regulations.
- D. All 55-gallon drums, one-gallon containers, household debris, farming equipment, and any unmarked containers shall be removed from the site and properly disposed. The contents of any unmarked containers will be identified by a licensed hazardous materials transporter and transferred to Department of Transportation approved containers prior to removal. The hazardous materials contractor would use standard EPA protocols to identify the contents. Once identified a hazardous waste manifest shall be generated by the hazardous materials contractor prior to transport. Madera County Environmental Health shall be notified prior to removal but only after the materials have been identified.
- E. The 500-gallon diesel above ground storage tank shall be removed from the site.
- F. All non-functioning agricultural wells with associated piping and electrical supply boxes shall be abandoned according to Federal/State/local regulations (applicable Federal regulations to control where there is conflict among the regulations).

The following measures are recommended for Alternatives A, B, C, and D:

- G. In the event that contaminated soil and/or groundwater are encountered during construction related earth-moving activities, all work shall be halted until a professional hazardous materials specialist or a qualified individual can assess the extent of contamination. If contamination is determined to be significant representatives of the

Tribe shall consult with USEPA to determine the appropriate course of action, including the development of a Sampling Plan and Remediation Plan if necessary.

- H. In the event that suspected hazardous materials are encountered during construction-related earth-moving activities, all work shall be halted until a professional hazardous materials specialist or an equivalent qualified individual can identify the material. If the material is determined to be hazardous a representative from the Tribe shall meet with USEPA to determine the appropriate course of action, including the appropriate disposal of the material according to State and Federal regulations.
- I. To reduce the potential for accidental releases, fuel, oil, and hydraulic fluids shall be transferred directly from a service truck to construction equipment tanks and shall not otherwise be stored on-site. Paint, thinner, solvents, cleaners, sealants, and lubricants used during construction shall be stored in a locked utility building, handled per the manufacturers' directions, and replenished as needed.
- J. Personnel shall follow written standard operating procedures (SOPs) for filling and servicing construction equipment and vehicles. The SOPs, which are designed to reduce the potential for incidents involving the hazardous materials, shall include the following:
 - a. Refueling shall be conducted only with approved pumps, hoses, and nozzles.
 - b. Catch-pans shall be placed under equipment to catch potential spills during servicing.
 - c. All disconnected hoses shall be placed in containers to collect residual fuel from the hose.
 - d. Vehicle engines shall be shut down during refueling.
 - e. No smoking, open flames, or welding shall be allowed in refueling or service areas.
 - f. Refueling shall be performed away from bodies of water to prevent contamination of water in the event of a leak or spill.
 - g. Service trucks shall be provided with fire extinguishers and spill containment equipment, such as absorbents.
 - h. Should a spill contaminate soil, the soil shall be put into containers and disposed of in accordance with local, state, and federal regulations.
 - i. All containers used to store hazardous materials shall be inspected at least once per week for signs of leaking or failure. All maintenance and refueling areas shall be inspected monthly. Results of inspections shall be recorded in a logbook that would be maintained on-site.

- K. The amount of hazardous materials used in project construction and operation shall be consistently kept at the lowest volumes needed.
- L. The least toxic material capable of achieving the intended result shall consistently be used to the extent practicable.
- M. A hazardous materials and hazardous waste minimization program shall be developed, implemented, and reviewed annually by the Tribe to determine if additional opportunities for hazardous materials and hazardous waste minimization are feasible, for both project construction and operation.
- N. The contractor shall be requested to avoid and minimize the use of hazardous materials during the project's construction to the fullest extent practicable.
- O. The use of pesticides and toxic chemicals shall be minimized or less toxic alternatives shall be used to the greatest extent feasible in landscaping.
- P. All permanent storage tanks shall have double walls with integrated leak detection systems. If a leak occurs within the inner tank, the outer tank shall contain the leak, while a pressure sensor signals the leak on the indicator panel of the generator unit. Security personnel, trained in emergency response procedures, shall regularly monitor the generator units.

The following measure is recommended for Alternative D:

- Q. Before site development work begins groundwater and soil samples shall be collected in the area of the domestic well located on the site. Soil samples, groundwater samples, and water from the well shall be analyzed for total petroleum hydrocarbons and volatile organic compounds. If the analytical results exceed regulatory action levels, appropriate steps shall be taken to identify the source and remediate the contamination if it originates from the site.

Adoption of the above mitigation will reduce the hazardous materials impacts of the alternatives to a less than significant level.