DRAFT
ENVIRONMENTAL IMPACT REPORT

49ers SANTA CLARA STADIUM PROJECT

VOLUME I of III
EIR Text

City of Santa Clara

July 2009

PREFACE

The document has been prepared by the City of Santa Clara as the Lead Agency, in conformance with the California Environmental Quality Act (CEQA). The purpose of this Environmental Impact Report (EIR) is to inform decision makers and the general public of the environmental effects of the proposed project.

This document provides environmental review appropriate for the approval of the proposed 49ers Santa Clara Stadium project in accordance with CEQA Guidelines Sections 15121, 15145, and 15151.

Purpose of the EIR

In accordance with CEQA, this EIR provides objective information regarding the environmental consequences of the proposed project to the decision makers who will be considering and reviewing the proposed project. The CEQA Guidelines contain the following general information on the role of an EIR and its contents:

> **§15121(a). Informational Document**. An EIR is an informational document, which will inform public agency decision makers, and the public of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project. The public agency shall consider the information in the EIR, along with other information that may be presented to the agency.
>
> **§15145. Speculation.** If, after thorough investigation, a Lead Agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact.
>
> **§15151. Standards for Adequacy of an EIR**. An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information that enables them to make a decision that intelligently considers environmental consequences. An evaluation of the environmental effects of the proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good-faith effort at full disclosure.

In accordance with Section 15082 of the CEQA Guidelines, a Notice of Preparation (NOP) was circulated to the public and responsible agencies for input regarding the analysis in this EIR. This EIR addresses those issues which were raised by the public and responsible agencies in response to the NOP. The NOP and the responses to the NOP are presented in Appendix M of this EIR.

This EIR, and all documents referenced in this EIR, are available for public review in the Department of Planning and Inspection, 1500 Warburton Ave Santa Clara, California, on weekdays during normal business hours.

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The project proposes to construct a 68,500 seat open-air stadium and a new shared parking structure on two existing surface parking lots in the City of Santa Clara. The project would also relocate an existing substation to the Northern Receiving Station and construct a surface parking lot on the current substation site.

The following is a brief summary of significant impacts and mitigation measures addressed within the body of this EIR. The complete project description and discusion of impacts and mitigation measures can be found in the Sections 2.0 and 4.0 of this EIR, respectively.

Significant Impacts	Mitigation Measures
	Hydrology
Implementation of the revised General Plan land use designation allowing up to 75 percent building coverage could impede or redirect flood flows, substantially increase runoff, and impact stormwater systems and groundwater discharge.	Implementation of relevant General Plan policies will reduce impacts from increased building coverage to a less than significant level. Relevant General Plan policies are listed in Section 4.4.3 of this EIR. The City of Santa Clara is one of 13 co-permittees under a Municipal Stormwater National Pollutant Discharge Elimination System (NPDES) Permit issued to the municipalities in Santa Clara Valley, the County of Santa Clara, and the Santa Clara Valley Water District. Under provisions of the NPDES Municipal Permit, projects that disturb more than 10,000 square feet are required to incorporate Best Management Practices for operational non-point pollution control. Specific measures are listed in Section 4.4.3 of this EIR. **Less Than Significant Impact with Mitigation.**
Construction activities would result in a significant temporary stormwater quality impact.	1. Burlap bags filled with drain rock will be installed around storm drains to route sediment and other debris away from the drains. 2. Earthmoving or other dust-producing activities would be suspended during periods of high winds. 3. All exposed or disturbed soil surfaces would be watered at least twice daily to control dust as necessary. 4. Stockpiles of soil or other materials that can be blown by the wind would be watered or covered. 5. All trucks hauling soil, sand, and other loose materials would be covered and all trucks would be required to maintain at least two feet of freeboard. 6. All paved access roads, parking areas, staging areas and residential streets adjacent to the construction sites would be swept daily (with water sweepers). 7. Vegetation in disturbed areas would be replanted as quickly as possible. 8. All unpaved entrances to the site would be filled with rock to knock mud from truck tires prior to entering City streets. A tire wash system may also be employed at the request of the City. 9. A Storm Water Permit will be administered by the Regional Water Quality Control Board. Prior to construction grading for the proposed land uses, the project proponent will file a “Notice of Intent” (NOI) to comply with the General Permit and prepare a Storm Water Pollution Prevention Plan (SWPPP) which addresses measures that would be included in the project to minimize and

Significant Impacts	Mitigation Measures
	Hydrology *Continued*
Please see previous page.	control construction and post-construction runoff. Measures will include, but are not limited to, the aforementioned RWQCB mitigation. As part of the mitigation for post-construction runoff impacts addressed in the SWPPP, the project will implement regular maintenance activities (i.e., sweeping, maintaining vegetative swales, litter control, and other activities as specified by the City) at the site to prevent soil, grease, and litter from accumulating on the project site and contaminating surface runoff. Storm water catch basins will be stenciled to discourage illegal dumping. The proposed project will be required to record an Operation & Management (O&M) agreement with the City to insure continued maintenance and performance of post-construction measures including CDS units and roof-drainage systems. **Less Than Significant with Mitigation**
	Vegetation and Wildlife
Construction activities could result in the abandonment of active raptor nests or destruction of other migratory bird's nests.	1) Construction shall be scheduled to avoid the nesting season to the extent feasible. The nesting season for most birds, including most raptors, in the San Francisco Bay area extends from February through August, and 2) If it is not possible to schedule demolition and construction between September and January, then pre-construction surveys for nesting birds shall be completed by a qualified ornithologist to ensure that no nests will be disturbed during project implementation. This survey shall be completed no more than 14 days prior to the initiation of construction activities during the early part of the breeding season (February through April) and no more than 30 days prior to the initiation of these activities during the late part of the breeding season (May through August). During this survey, the ornithologist will inspect all trees and other possible nesting habitats immediately adjacent to the construction areas for nests. If an active nest is found sufficiently close to work areas to be disturbed by construction, the ornithologist, in consultation with CDFG, will determine the extent of a construction-free buffer zone to be established around the nest, typically 250 feet, to ensure that raptor or migratory bird nests will not be disturbed during project construction. **Less Than Significant With Mitigation**

Significant Impacts	Mitigation Measures
	Hazards and Hazardous Materials
Implementation of the proposed project could expose construction workers and future site users to contaminated soil.	1) Prior to the issuance of grading permits, shallow soil samples shall be taken to determine the location of contaminated soils with concentrations above established construction/trench worker thresholds. The soil sampling plan must be reviewed and approved by the Santa Clara Fire Chief prior to initiation of work. Any contaminated soils found in concentrations above established thresholds shall be removed and disposed of according to California Hazardous Waste Regulations. The contaminated soil removed from the site shall be hauled off-site and disposed of at a licensed hazardous materials disposal site, and 2) A Site Management Plan (SMP) will be prepared to establish management practices for handling impacted groundwater and/or soil material that may be encountered during site development and soil-disturbing activities. Components of the SMP will include: a detailed discussion of the site background; preparation of a Health and Safety Plan by an industrial hygienist; notification procedures if previously undiscovered significantly impacted soil or free fuel product is encountered during construction; on-site soil reuse guidelines based on the California Regional Water Quality Control Board, San Francisco Bay Region's reuse policy; sampling and laboratory analyses of excess soil requiring disposal at an appropriate off-site waste disposal facility; soil stockpiling protocols; and protocols to manage ground water that may be encountered during trenching and/or subsurface excavation activities. Prior to issuance of grading permits, a copy of the SMP must be approved by the City's Director of Planning and Inspection, and the Santa Clara Fire Chief. **Less Than Significant Impact with Mitigation**
Implementation of the proposed project could expose construction workers and/or nearby sensitive receptors to air-borne asbestos particles and lead-based paint.	The proposed project will conform with the following regulatory programs and implement the following standard measures to reduce impacts due to the presence of ACMs: 1) In conformance with state and local laws, a visual inspection/pre-disassemble survey, and possible sampling, shall be conducted prior to the dismantling of the substation to determine the presence of asbestos containing materials, 2) All potentially friable ACMs shall be removed in accordance with NESGAP guidelines prior to dismantling that may disturb the materials. All dismantling activities will be undertaken in accordance with Cal/OSHA standards contained in Title 8 of CCR, Section 1529, to protect workers from exposure to asbestos, 3) A registered asbestos abatement contractor shall be retained to remove and dispose of ACMs identified in the asbestos survey performed for the site in accordance with the standards stated above, and 4) Materials containing more than one percent asbestos are also subject to BAAQMD regulations. Removal of materials containing more than one percent asbestos shall be completed in accordance with BAAQMD requirements.

Significant Impacts	Mitigation Measures
Hazards and Hazardous Materials *Continued*	
Please see previous page	1) In conformance with state and local laws, a visual inspection/pre-demolition survey, and possible sampling, shall be conducted prior to the demolition of on-site buildings to determine the presence of lead-based paint, and 2) During demolition activities, all building materials containing lead-based paint shall be removed in accordance with the Cal/OSHA Lead in Construction Standard, Title 8, California Code of Regulations 1532.1, including employee training, employee air monitoring, and dust control. Any debris or soil containing lead-based paint or coatings would be disposed of at landfills that meet acceptance criteria for the waste being disposed. **Less Than Significant Impact with Mitigation**
The stadium site is located within the worst-case release impact zone for two toxic gas facilities and could expose event attendees to toxic chemicals if a worst-case release were to occur.	The proposed project will have to prepare an emergency response plan in coordination with first-responders and other emergency agencies. The plan will include an evacuation plan, medical response plan, and advance warning system, and will detail what parties are responsible for specific response actions. The plan will need to be approved by the City's Director of Planning and Inspection and the Santa Clara Fire Chief prior to issuance of occupancy permits. **Significant Unavoidable Impact**
Cultural Resources	
Implementation of the proposed project could have a significant impact on unknown buried prehistoric and/or historic resources.	1) A qualified archaeologist will be on site to monitor the initial excavation of native soil once all pavement and engineered soil is removed from the project site. After monitoring the initial excavation, the archaeologist will make recommendations for further monitoring if it is determined that the site has cultural resources. If the archaeologist determines that no resources are likely to be found on site, no additional monitoring will be required, 2) In the event that prehistoric or historic resources are encountered during excavation and/or grading of the site, all activity within a 150-foot radius of the find will be stopped, the Director of Planning and Inspection will be notified, and the archaeologist will examine the find and make appropriate recommendations. Recommendations could include collection, recordation, and analysis of any significant cultural materials. A report of findings documenting any data recovery during monitoring would be submitted to the Director of Planning and Inspection, 3) In the event that human remains are discovered during excavation and/or grading of the site, all activity within a 50-foot radius of the find will be stopped. The Santa Clara County Coroner will be notified and shall make a determination as to whether the remains are of Native American origin or whether an investigation into the cause of death is required. If the remains are determined to be Native American, the Coroner will notify the Native American Heritage Commission (NAHC)

Significant Impacts	Mitigation Measures
	Cultural Resources *Continued*
Please see previous page	immediately. Once NAHC identifies the most likely descendants, the descendants will make recommendations regarding proper burial, which will be implemented in accordance with Section 15064.5(e) of the CEQA Guidelines. **Less Than Significant with Mitigation**
	Transportation
The project could impact 17 intersections (eight Santa Clara intersections, six San José intersections, one Sunnyvale intersection, and two Milpitas intersections) during at least one weekday study period on up to four NFL event days per year. The project would impact two CMP intersections in San José during at least one weekend study period on up to 20 NFL event days per year. For a maximum of four times per year (depending on whether one team or two plays at the stadium), the project would exceed the adopted threshold on all 16 of these directional freeway segments and one HOV lane under project conditions during at least one of the weekday study periods.	CEQA requires that an EIR identify feasible measures that minimize each significant adverse impact identified in the EIR, and that the discussion of mitigation measures shall distinguish between measures proposed by the project proponents and those not included in the project. [Guidelines §15126.4(a)(1)(A)] As discussed in Section 4.8 of this EIR, the project's traffic impacts will not occur very often. The weekday impacts (which might occur for Monday or Thursday night games), would only occur (if at all) once or twice a year if one team occupies the stadium, up to a maximum of four times a year if two teams use the stadium. The Sunday impacts could occur up to ten times a year if one team occupies the stadium and up to 20 times a year if two teams occupy the stadium. This means that the project would only exceed the adopted LOS threshold of significance a maximum of four times per year. For games on Sundays, the Traffic Management Plan will move traffic efficiently in and out of the area, will preclude access, parking and cut-through impacts to residential neighborhoods, and will allow emergency vehicle access if necessary. The project does not, therefore, propose to implement any physical improvements. The project does propose to implement the traffic control plan described in Section 4.8 and Appendix H of this EIR. **Significant Unavoidable Impact**

Significant Impacts	Mitigation Measures
Transportation *Continued*	
The 17 large non-NFL events could significantly impact local intersections and freeway segments on up to four weekdays and 22 weekend days per year but to a lesser extent than NFL events.	*Please see Previous Page*
Air Quality	
Regional Air Quality Impacts	***Regional Air Quality Mitigation***
The proposed project would cause an increase in NOx emissions that exceed the significance thresholds established by BAAQMD on NFL event days. The proposed project would cause an increase in emissions that exceed the significance thresholds established by BAAQMD on large non-NFL event days. NFL events in summer and early fall would have significant NO_x emissions that could increase ozone concentrations in downwind portions of the Bay Area up to 12 times per year.	1) Develop a Transportation Demand Management program that would include financial incentives for employees provided by the project to reduce automobile vehicle trips, 2) Encourage use of public transit for events, through advertising and financial incentives, 3) Provide shuttle service between LRT and Caltrain stations, 4) Bicycle amenities should be provided for the project. This would include secure bicycle parking for employees and attendees and safe bike lane connections, 5) Enforce State law idling restrictions of trucks or buses and include signage indicating the restriction and associated fines, 6) Where appropriate, provide 110- and 220-volt electrical outlets at loading docks to or areas where media operations occur to eliminate any idling of trucks or generators to operate auxiliary equipment, 7) Provide exterior electrical outlets to encourage use of electrical landscape equipment, 8) Implement a landscape plan that provides shade trees along pedestrian pathways, and 9) Implement "Green Building" designs, such a Leadership in Energy and Environmental Design (LEED) into buildings to increase energy efficiency, which would reduce the future energy demand caused by the project, and therefore, reduce air pollutant emissions indirectly. **Significant Unavoidable Impact**

Significant Impacts	Mitigation Measures
Air Quality *Continued*	
Non-NFL events with an attendance over 20,000 would significantly contribute to emissions of ROG, NO_x, and non-NFL events with an attendance of 15,000 would significantly contribute to emissions of PM_{10} up to 26 times per year.	*Please see previous page*
Construction activities would result in significant, temporary impacts to local air quality.	1) The following dust control measures will be implemented during all construction phases: • Water all active construction areas at least twice daily and more often during windy periods. • Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard. • Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites. • Sweep daily (preferably with water sweepers) all paved access roads on-site, parking areas and staging areas at construction sites. • Sweep streets daily (preferably with water sweepers) if visible soil material is carried onto adjacent public streets. • Hydroseed or apply non-toxic soil stabilizers to inactive construction areas. • Enclose, cover, water twice daily or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.). • Limit traffic speeds on unpaved roads to 15 mph. • Install sandbags or other erosion control measures to prevent silt runoff to public roadways. • Replant vegetation in disturbed areas as quickly as possible. • Suspend construction activities on windy days that cause visible dust plumes that extend beyond the construction site. 2) A Disturbance Coordinator will be designated by the applicant. The Coordinator shall be responsible for responding to any local complaints about construction activities. The Coordinator will determine the cause of the complaint and implement reasonable measures to correct the problem. A telephone number for the Coordinator will be clearly posted at the construction site and included in the notice sent to nearby properties regarding the construction schedule, 3) The project shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired

Significant Impacts	Mitigation Measures
	Air Quality *Continued*
Please see previous page	immediately. This measure means that equipment with continuous dark emissions is in violation of the requirement, 4) Signs shall be posted that indicate diesel equipment standing idle for more than five minutes shall be turned off or operators would be subject to fines. This would include trucks waiting to deliver or receive soil, aggregate or other bulk materials. Rotating drum concrete trucks could keep their engines running continuously as long as they were onsite, and 5) Reduce vehicle emissions. Properly tune and maintain equipment for low emissions. **Less Than Significant Impact with Mitigation**
Numerous barbeque activities occurring within 700 feet of the residences could be result in odor complaints which would be an indication of a significant impact.	1) Reserve surface parking within 750 feet of residences for vehicles only. Prohibit tailgating within these areas, and 2) Designate a "disturbance coordinator" to investigate and respond to odor or air quality complaints. Provide the name and contact information for the disturbance coordinator to residents within 750 feet of the stadium or surface parking lots. **Less Than Significant with Mitigation**
	Noise
The increase in allowable building size could lengthen construction periods, exposing sensitive receptors to additional construction noise.	Implementation of relevant General Plan policies will reduce noise impacts to a less than significant level. Relevant General Plan policies are listed in Section 4.10.3.1 of this EIR.
Stadium Event Impacts	***Stadium Event Mitigation***
1) Tailgating activities would have a significant noise impact on nearby sensitive receptors on game days, 2) Noise from NFL games would have a significant noise impact on nearby sensitive	1) Tailgating activities shall not occur prior to 9:00 am on game days in the Great America Theme Park, Golf and Tennis Club, and stadium parking areas. These parking areas will be barricaded until 9:00 am to preclude event attendees from arriving prior to 9:00 am, 2) Tailgating in surface parking areas within 750 feet of residences will be prohibited. Posted signs and security patrols of these parking areas prior to, during, and after game times will enforce this restriction, 3) The use of loudspeakers, stereo systems, or fireworks within the Great America Theme Park, Golf and Tennis Club, and stadium parking areas would be prohibited. Posted signs and security patrols of these parking areas prior to, during, and after game times will enforce this

Significant Impacts	Mitigation Measures
	Noise *Continued*
receptors on game days, 3) Noise from large non-NFL sporting events would have a significant noise impact on nearby sensitive receptors on game days, and 4) Concert noise would have a significant impact on the surrounding residential neighborhoods on the one day a year that a concert occurs.	restriction, 4) Post-event clean up activities in parking lots located within 750 feet of residences shall be completed prior to 10:00 pm the day of the game or no earlier than 9:00 am the following morning, 5) A Disturbance Coordinator will be designated by the Stadium Authority to investigate and respond to noise complaints. The name and contact information of the Disturbance Coordinator will be made readily available to all residents and businesses within the project area, and 6) Even with the proposed mitigation, noise levels generated by all NFL game related activities would not be reduced to background noise levels at nearby residences. As a result, NFL events would have a significant unavoidable noise impact. **Significant Unavoidable Impact**
Construction activities will temporarily impact nearby sensitive receptors.	The applicant will be required to develop a Construction Mitigation Plan that will schedule construction activities to minimize noise disturbances to sensitive land uses. The Construction Mitigation Plan will include but is not limited to the following: • The holes for the piles will be pre-drilled, • Pile driving shall be prohibited on weekends and holidays to minimize disturbances at the theme park, Golf and Tennis Club, and residences. • Construction within 300 feet of any residentially zoned property shall only occur within designated time limits. Construction within 300 feet of any residence will only occur between the hours of 7:00 am to 6:00 pm on weekdays (other than holidays) and between 9:00 am and 6:00 pm on any Saturday that is not a holiday. No construction will be permitted on Sundays or holidays. • The contractors shall utilize “quiet” models of air compressors and other stationary noise sources where technology exists. • Contractors shall equip all internal combustion engine-driven equipment with mufflers that are in good condition and appropriate for the equipment. • Temporary noise barriers shall be used during grading and foundation work. • Staging areas and construction material storage areas will be located as far away as possible from adjacent sensitive land uses. • Unnecessary idling of internal combustion engines shall be prohibited. • All nearby noise sensitive land uses within the area of impact shall be notified in writing of the

Significant Impacts	Mitigation Measures
	Noise *Contunued*
Please see previous page	construction schedule. • A Disturbance Coordinator will be designated by the applicant. The Coordinator shall be responsible for responding to any local complaints about construction noise. The Coordinator will determine the cause of the noise complaint and implement reasonable measures to correct the problem. A telephone number for the Coordinator will be clearly posted at the construction site and included in the notice sent to nearby properties regarding the construction schedule. **Significant Unavoidable Temporary Impact**
	Energy
The proposed project would have a significant impact on projected electricity and natural gas supplies. The proposed project would increase vehicle miles traveled for game attendees resulting in increased gasoline usage.	1) The project shall be certified in accordance with the Leadership in Energy and Environmental Design (LEED) requirements, a nationally acceptable benchmark for the design, construction, and operation of high performance green buildings. The level of LEED certification will be at the discretion of the project applicant, 2) The project shall exceed Title 24 energy requirements by 10 percent to the satisfaction of the Director of Electric Utility, 3) The project shall include a minimum of 27,000 square feet of green roofs, 4) The project shall include reflective, *EnergyStar*™ cool roofs. Cool roofs decrease roofing maintenance and replacement costs, improve building comfort, reduce impact on surrounding air temperatures, reduce peak electricity demand, and reduce waste stream of roofing debris, 5) The project shall utilize local and regional building materials in order to reduce energy consumption associated with transporting materials over long distances, 6) The project shall utilize building products that contain post-consumer recycled materials, 7) Although there is not a formal EnergyStar program for non-residential buildings, the stadium shall be constructed to meet the same standards as those that apply to the residential program to the extent feasible, 8) The stadium shall include a photovoltaic (i.e., solar electric) system. The project proposes a minimum of 20,000 square feet of photovoltaic cells, and 9) Geothermal heat pumps should be installed to provide heating, cooling, and hot water. Geothermal heat pumps are generally more efficient and less expensive to operate and maintain than conventional systems. **Less Than Significant with Mitigation**

Cumulative Impacts

The proposed project will result in significant cumulative Transportation, Air Quality, and Global Climate Change impacts. Please see Section 6.0 of this EIR for a complete discussion of cumulative impacts.

Summary of Alternatives to the Proposed Project

CEQA requires that an EIR identify alternatives to the project as proposed. The CEQA Guidelines specify that an EIR identify alternatives which "would feasibly attain the most basic objectives of the project but avoid or substantially lessen many of the significant environmental effects of the project."

Below is a summary of the project alternatives. A full analysis of the project alternatives is provided in Section 7.0 of this EIR.

Candlestick Point

The 86-acre Candlestick Point site contains the existing 49ers stadium and surface parking. The site is surrounded by San Francisco Bay, several recreational areas, residences, and offices. The site is owned by the City and County of San Francisco.

Because there is already a stadium on the Candlestick Point site of comparable size to the proposed project, the Candlestick Point alternative would only result in new significant temporary noise, air quality, and traffic impacts associated with demolition and construction activities comparable to the construction impacts identified for the proposed project site. All other impacts would be avoided because the operation of the stadium would be comparable to the existing conditions.

In June 2008, a plan for redevelopment of Candlestick Point was voted on by the residents of San Francisco as part of the proposed Bayview Waterfront development (Proposition G – Bayview Jobs, Parks and Housing Initiative). The result of the vote was that the residents of San Francisco approved a plan that includes only housing, retail, and open space on Candlestick Point. The voter referendum would preclude a new stadium being built on the Candlestick Point site.

A full analysis of this alternative is provided in Section 7.4.1 of this EIR.

Hunters Point

The 172-acre Hunters Point site, located approximately 0.85 miles northeast (as the crow flies) of the existing Candlestick Park, is currently a mix of undeveloped land and an inactive naval shipyard. The site is surrounded by San Francisco Bay, two large parks, and military housing. Portions of this site are currently owned by the City and County of San Francisco and the remainder of the site is owned by the U.S. Navy.

The Hunters Point site is part of the larger 780-acre Bayview Waterfront Project site which includes the Hunters Point Shipyard, Candlestick Point, and the India Basin Shoreline area. The Bayview Waterfront Project, which was initiated by the City of San Francisco, proposes up to 9,000 dwelling units, 645,000 square feet of retail, 2.15 million square feet of office/R&D/Industrial, and a 69,000 seat football stadium. The stadium and associated surface parking would occupy approximately 97 acres of the Hunters Point site. Environmental review has not yet been completed for this project.

The cost and time required for hazardous materials clean up, infrastructure and roadway/transit improvements, and permitting make the Hunters Point site inconsistent with the following objectives:

- Locate the stadium on a site that can be readily assembled and that enables the development of the stadium within budget and on schedule;
- Locate the stadium on a site that is served by existing streets and highway infrastructure adequate to reasonably accommodate local and regional game-day automobile circulation;
- Locate the stadium on a site that is readily accessible by public transportation, preferably two or more modes of regional public transit.

While air quality impacts from cars would be less than those from the proposed project, air quality impacts from demolition, grading, and hazardous materials clean up are unknown and could be significant. It is not currently known if the noise impacts would be greater than or comparable to the proposed project. In addition, the secondary impacts of the proposed roadway and transit improvements are unknown.

A full analysis of this alternative is provided in Section 7.4.2 of this EIR.

Pier 70

The 74-acre Pier 70 site, located approximately 2.8 miles (as the crow flies) north of Candlestick Park, is currently developed with warehouses, offices, industrial buildings, and surface parking lots. The proposed stadium would replace several warehouses, a garage, two powerhouses, an industrial building, and an office building. The site is surrounded by San Francisco Bay and industrial buildings, and is currently owned by the Port of San Francisco.

Hazardous materials, site access, and permitting issues make the Pier 70 site inconsistent with the following objectives:

- Locate the stadium on a site that can be readily assembled and that enables the development of the stadium within budget and on schedule;
- Locate the stadium on a site that is served by existing streets and highway infrastructure adequate to reasonably accommodate local and regional game-day automobile circulation;
- Locate the stadium on a site where a substantial percentage of the parking needed on game days and during other major events could be provided in existing parking facilities which are not in use during evenings and weekends and are located within a 20-minute walking distance of the stadium.

This site has size constraints and, as a result, there would be insufficient area for all parking to be located on-site in surface lots. Because of the minimal surface parking provided by the surrounding industrial land uses, there would not be sufficient parking in the surrounding area to make up the difference. Some of the parking would likely require one or more parking structures, which would the 49ers team believes, be more expensive than the proposed project. Development of the site is further constrained by the presence of multiple historic structures and the presence of weak soils/bay mud. There are no historic structures on the proposed project site. Therefore, the demolition, alternation, or relocation of historic structures to accommodate the stadium would be a new significant impact.

While air quality impacts from cars would be less than those from the proposed project, air quality impacts from demolition, grading, and hazardous materials clean up are unknown and could be significant. Lack of adequate roadway capacity, unstable soils, and possible loss of historic structures could also result in new or more significant impacts than those from the proposed project. Noise impacts would, however, be less than those from the proposed project because the site is not located near sensitive receptors.

It is not know if the property would be sold or leased by the Port of San Francisco to the team for a stadium.

A full analysis of this alternative is provided in Section 7.4.3 of this EIR.

Pier 80

The 74-acre Pier 80 site, located approximately 2.3 miles (as the crow flies) north of Candlestick Park, is currently used to load and unload cargo ships. The proposed stadium would replace several warehouses and a cargo storage area. The site is surrounded by San Francisco Bay and industrial buildings, and is currently owned by the Port of San Francisco.

Site size, access, and permitting issues make the Pier 80 site inconsistent with the following objectives:

- Locate the stadium on a site that can be readily assembled and that enables the development of the stadium within budget and on schedule;
- Locate the stadium on a site that is served by existing streets and highway infrastructure adequate to reasonably accommodate local and regional game-day automobile circulation;
- Locate the stadium on a site where a substantial percentage of the parking needed on game days and during other major events could be provided in existing parking facilities which are not in use during evenings and weekends and are located within a 20-minute walking distance of the stadium.

This site has size constraints and, as a result, there would be insufficient area for all parking to be located on-site in surface lots. Because of the minimal surface parking provided by the surrounding industrial land uses, there would not be sufficient parking in the surrounding area to make up the difference. Some parking would have to be provided in very large parking structures which would be more expensive than the proposed project.

Air quality impacts would be less than the proposed project and noise impacts would be avoided.

It is not known if the Port of San Francisco would be willing to sell or lease the property to the team for a stadium.

A full analysis of this alternative is provided in Section 7.4.4 of this EIR.

Piers 90-94 Backlands/Piers 94-96

The Piers 90-94 Backlands/Piers 94-96 site, located approximately 1.9 miles (as the crow flies) northeast of Candlestick Park, is currently used to load and unload cargo ships. For this alternative, the stadium would be located on a currently vacant area of the site within the Pier 90-94 development

site which is described below. The site is surrounded by San Francisco Bay and industrial buildings, and the property is currently owned by the Port of San Francisco.

In March 2003, the Port initiated a public planning process to produce a development strategy for the Piers 90-94 Backlands. In March 2004, after several public meetings and workshops, the Port presented draft development concepts for the Piers 90-94 Backlands. The development concept is for 740,000 square feet of warehouse/light industrial space which, if developed, would limit the availability of land for development of a stadium

Site access, parking, and permitting issues make this site inconsistent with the following objectives:

- Locate the stadium on a site that can be readily assembled and that enables the development of the stadium within budget and on schedule;
- Locate the stadium on a site that is served by existing streets and highway infrastructure adequate to reasonably accommodate local and regional game-day automobile circulation;
- Enhance the game day experience for fans by accommodating activities such as tailgating;
- Locate the stadium on a site where a substantial percentage of the parking needed on game days and during other major events could be provided in existing parking facilities which are not in use during the evenings and weekends and are located within a 20-minute walking distance of the stadium.

Planned redevelopment of the site could be incompatible with the land area requirements for a stadium. Furthermore, the geological constraints of the site (landfill on top of bay mud) are much greater than the other pier sites or the proposed project site and could pose a significant public safety threat or would require substantially more expensive design solutions. Air quality impacts would be less than the proposed project and noise impacts would be avoided.

A full analysis of this alternative is provided in Section 7.4.5 of this EIR.

Baylands

The Baylands site is a 540-acre area located approximately 0.7 miles southwest of Candlestick Park, of which a portion could be used for the proposed stadium. The portion of the site analyzed is located within the City of Brisbane and is privately owned by the Universal Paragon Corporation.

The Baylands site is part of a proposed Specific Plan currently being analyzed by the City of Brisbane. The owner of the site indicated that they were planning for office and retail uses at the site and that a stadium may not be compatible with the proposed Specific Plan.

Inadequate site access and the possible need for a freeway interchange would substantially increase costs and might result in a significantly longer implementation period than would the currently proposed project. This would be inconsistent with the project proponent's objective of locating the stadium on a site that can be readily assembled and that enables the development of the stadium within budget and on schedule. In addition, the construction of roadway improvements could result in unknown secondary impacts.

The property owners have indicated that they do not want a stadium constructed on this site. The applicant's inability to procure title to the site would make the site infeasible. If the property owner

were to agree to sell a portion of the property for the construction of an NFL stadium, the need to construct a freeway interchange and other roadway improvements could produce additional noise and air pollution and could have growth inducing impacts that cannot be known at this time.

A full analysis of this alternative is provided in Section 7.4.6 of this EIR.

San Francisco Airport

The 65-acre San Francisco Airport (SFO) site, located approximately 6.0 miles (as the crow flies) south of Candlestick Park on the opposite side of Highway 101 from SFO, is currently vacant land. The site is surrounded by SFO, a residential neighborhood, and Highway 101. The site is currently owned by the San Francisco Airport Authority.

The relatively narrow configuration of the site would make site design difficult and could be incompatible with a large stadium.

The size of the site and the surrounding residential neighborhood would result in insufficient parking for a stadium on this site. This would be inconsistent with the applicant's objectives to 1) ensure that adequate parking for patrons (estimated to require approximately 19,000 spaces) and employees is available for use on game days and during other major events; and 2) locate the stadium on a site where a substantial percentage of the parking needed on game days and during other major events could be provided in existing parking facilities which are not in use during evenings and weekends and are located within a 20-minute walking distance of the stadium.

The City and County of San Francisco has indicated that they do not want a stadium constructed on this location. The applicant's inability to procure title to the site would make the site infeasible. In addition, this site may result in greater noise impacts than the proposed project site, may contain endangered species, and could be incompatible with SFO operations. There are no endangered species on the proposed project site. Therefore, the loss of individual garter snakes and their habitat to accommodate the stadium would be a new significant impact.

A full analysis of this alternative is provided in Section 7.4.7 of this EIR.

Moffett Airfield

The Moffett Airfield site is a 750-acre site, located approximately 28 miles southeast of Candlestick Park and 3.9 miles east of the proposed project site. The property is a former Naval Air Station and is owned by the federal government (under stewardship of NASA Ames). NASA Ames and the California Air National Guard currently occupy a portion of the site. No specific site on Moffett Airfield was identified for the proposed stadium.

NASA Ames intends to redevelop part of the site into a research and development center for the nation's space program. According to representatives of the team, the federal government has not indicated that any other portion of the site is available for private development. If, however, a portion of the site were to be made available, the development of the NASA R&D center would not preclude other development on-site because of the size of the site.

Air quality impacts would be similar to the proposed project. Noise impacts would be avoided because there are currently no sensitive receptors in the immediate project area.

The applicant's inability to procure title to the site would make the site infeasible.

A full analysis of this alternative is provided in Section 7.4.8 of this EIR.

Zanker Road

The Zanker Road site is approximately 450 acres and is located approximately 30 miles southeast of Candlestick Park and 2.3 miles southwest of the proposed project site in the City of San José. Approximately 90 of the 450 acres are used for the operation of the San José/Santa Clara Water Pollution Control Plant (WPCP) and the remaining 360 acres is used for buffer lands. The site is jointly owned by the City of San José and the City of Santa Clara with San José being the majority share holder. The City of Santa Clara is an 18 percent joint owner of the treatment plant lands and both San José and Santa Clara and the other tributary agencies for the plant would have to concur on any uses proposed on the buffer lands.

The buffer lands serve to protect nearby land uses from odors and safety hazards (i.e., chlorine and sulfur dioxide) associated with operations of the plant and for the disposal of recycled water to assist in limiting dry weather flows to the Bay and minimizing the WPCPs impact on salt marsh habitat. The applicant has not had any discussions with the City of San José to determine the availability of the land for use as a stadium.

The stadium might be considered an incompatible land use next to the WPCP. The site serves a specific function as a buffer zone between the WPCP and other land uses in the area. While no formal analysis has been completed, it is possible that construction of any large structure on this site could interfere with WPCP operations. The interference with plant operations could have secondary unknown impacts and could preclude the expansion of the plant in the future.

This site would have air quality and noise impacts comparable to the proposed project site. The site could have jurisdictional wetlands. There are no jurisdictional wetlands on the proposed project site so the loss of wetland habitat to accommodate the stadium would be a new significant impact. There are also no endangered species on the proposed project site. The loss of individual Burrowing Owls and their habitat to accommodate the stadium would be a new significant impact. The available area is, however, larger than the area needed to construct a stadium with surface parking. Therefore, it might be possible to avoid construction in designated wetlands and Burrowing Owl habitat.

The City of San José has not indicated that any portion of the WPCP buffer lands is available for private development. Previous proposals to place private land uses on the buffer lanes have been found inconsistent with the basic purpose of protecting the plant from complaints about odors and concerns about hazardous materials impacts. The applicant's inability to procure title to the site would make the site infeasible.

A full analysis of this alternative is provided in Section 7.4.9 of this EIR.

San José State

The 55-acre San José State site is located approximately 40.0 miles (as the crow flies) southeast of Candlestick Park and 8.9 miles southeast of the proposed project site in San José. It is currently occupied by Spartan Stadium and a vacant field used for parking. Surrounding land uses include an

up-gradient paved-over Superfund site used to store cars, a residential neighborhood (located approximately 550 feet north for the site), a recycling facility, San José Sharks Ice Center (an indoor ice center), sports fields, and the San José Municipal stadium. The property is currently owned by San José State University. The applicant has not had any discussions with San José State University to determine the availability of the land for purchase.

This property has size constraints, which means insufficient area for surface parking. In addition, there is not enough parking in nearby existing lots which makes this site inconsistent with the project proponent's objectives to 1) ensure that adequate parking for patrons and employees is available for use on game days and during other major events, and 2) locate the stadium on a site where a substantial percentage of the parking needed on game days and during other major events could be provided in existing parking facilities which are not in use during evenings and weekends and are located within a 20-minute walking distance of the stadium. In addition, the lack of available surface parking would require a change in the project design to utilize structured parking and there is no obviously suitable and/or available location(s) for parking structures.

The site does not have adequate site access and is, therefore, inconsistent with the project proponent's objective to locate the stadium on a site that is served by existing streets and highway infrastructure adequate to reasonably accommodate local and regional game-day automobile circulation.

This site would have air quality and noise impacts comparable to the proposed project site.

San José State University has not indicated that site is available for sale. The applicant's inability to procure title to the site would make the site infeasible.

A full analysis of this alternative is provided in Section 7.4.10 of this EIR.

Santa Clara Fairgrounds

The 136-acre Santa Clara Fairgrounds (fairgrounds) site, located approximately 42.0 miles (as the crow flies) southeast of Candlestick Park and 9.2 miles southeast of the proposed project site in an unincorporated area of Santa Clara County. It is currently a mix of vacant land, pavement, and several large pavilions. The property is surrounded by a residential neighborhoods, industrial development, and Oak Hill Cemetery. The land is currently owned by the County of Santa Clara.

As of June 2009, the County is no longer in negotiations with any private developer to sell and redevelop the property. A County supervisor has recently stated that the County would be open to negotiations with the 49ers team should the proposed project not be approved. While the redevelopment of the fairgrounds has been the subject to public controversy for several years, the County's willingness to allow a stadium to be constructed on the site would make this a viable alternative to the project site. The proposed stadium and associated surface parking would occupy most of this site. If a stadium were approved on this site additional development would be severely restricted and new residential land uses would be unlikely. It could, however, be constructed with some structured parking and some use could be made of parking on low intensity industrial properties in the area.

The site has sufficient roadway capacity and there is currently bus service to the site; however, train services are 1.25 miles or more away from the site. The lack of multiple public transit modes within a reasonable walking distance of this site makes the site inconsistent with project proponent's objective

to locate the stadium on a site that is readily accessible by public transportation, preferably two or more modes of regional public transit.

This site is adjacent to residential neighborhood, although it would be possible to place the stadium on the site and have greater separation between the residences and the stadium than at the project site. This would reduce noise impacts compared to the proposed project. This site would have greater air quality impacts than the proposed project site given there are fewer public transportation options.

A County supervisor has recently stated that the County would be open to constructing a stadium on this site. If, however, the County were to find a new private developer for the site, the applicant's inability to procure title to the site, should the County sell to a private developer, would make the site infeasible.

A full analysis of this alternative is provided in Section 7.4.11 of this EIR.

No Project Alternative

The CEQA Guidelines [§15126(d)4] require that an EIR specifically discuss a "no project" alternative, which should address both "the existing conditions, as well as what would be reasonably expected to occur in the foreseeable future if the project is not approved, based on current plans and consistent with available infrastructure and community services."

The No Project alternative could have two possible scenarios since the site is virtually all developed. The first is to retain the existing land uses on the four Sub-Areas with no modifications to any part of the site. The second would be to redevelop any or all of the Sub-Areas with land uses consistent with the current General Plan designation. Under either scenario, the substation would remain in its current location so there would be no modification to Sub-Areas B or D and no new impacts on either site.

The "No Project" alternative could result in significant traffic impacts and, as a result, it could also have significant regional air quality impacts. While there would be an incremental increase in ambient noise due to the increase in traffic it would likely not be a perceptible increase within the residential neighborhoods. This alternative would avoid the significant noise impacts identified in this EIR which are the result of crowd noise and amplified music. Neither scenario under the No Project alternative would meet any of the objectives of the project proponent (the 49ers team). Should conditions remain physically unchanged on all of the properties, other than construction of the previously approved parking structure, the impacts of that scenario would be substantially less than those of the proposed project. That alternative would be environmentally superior to the proposed project.

A full analysis of this alternative is provided in Section 7.5.1 of this EIR.

Reduced Stadium Size Alternative

NFL teams operate in stadiums of varying sizes, the smallest being Lucas Oil Stadium with 63,000 seats and the largest being FedEx Field with 80,000 seats. More than half of the 31 existing NFL stadiums have between 63,000 and 69,000 seats. The number of seats per stadium is critical to the economic viability of the franchise. To reduce the identified traffic and, subsequently, air quality impacts of the proposed project, the stadium seating capacity would need to be reduced.

The Reduced Stadium Size alternative would reduce the impacts from traffic and air quality to a less than significant level. It would not, however, be large enough to be support standard NFL operations. The size would make the project infeasible because it would be inconsistent with its fundamental purpose. Furthermore, it would not meet the applicant's objectives of 1) developing a state-of-the-art stadium with approximately 68,500 seats and 2) designing the stadium so that it is expandable to 75,000 seats for hosting NFL Super Bowls. While the reduction in traffic and air quality impacts makes this alternative environmentally superior to the proposed project, it is not a feasible alternative.

A full analysis of this alternative is provided in Section 7.5.2 of this EIR.

Enclosed Stadium Design Alternative

The Enclosed Stadium alternative would have most of the same impacts as the proposed project except that the stadium would be fully enclosed with a roof. Impacts identified for the proposed project would remain the same under this alternative with the exception of lighting, noise, and energy.

The Enclosed Stadium alternative would meet all of the project proponent's objectives. In addition, this alternative would reduce the impacts from crowd noise in the stadium to a less than significant level and would eliminate the visible light increases from stadium lighting, further reducing a less than significant impact. Energy use could increase significantly with the enclosed stadium because it would require more of the stadium area to be climate controlled. The project, however, proposes solar power and other design features to reduce overall energy consumption. An enclosed stadium design would offer more opportunities for solar panels, heat-reflective roofs, and other design features to reduce energy consumption. The extent to which enclosing the stadium would increase energy use for heating and cooling and the project's contribution to global climate change could be substantial. This alternative is environmentally superior to the proposed project.

A full analysis of this alternative is provided in Section 7.5.3 of this EIR.

Great America Main Lot Design Alternative

The Great America Main Lot Alternative would locate the proposed stadium and parking garage west of project site on what is now the main parking lot of the theme park. The existing 51-acre parking lot is surrounded by the theme park and a residential neighborhood to the south, office buildings and Great America Parkway to the west, Tasman Drive and the convention center to the north, and San Tomas Aquino, the overflow parking lot, and the Northern Receiving Station to the east.

The size (including height and massing), seating capacity, and uses of the stadium would be the same as that of the proposed project. The substation would be relocated to the receiving station site and the stadium would utilize existing parking within the project area through shared use agreements with the property owners. The main differences between the Main Lot alternative and the proposed project is that a larger parking garage would be built adjacent to the stadium site, Centennial Boulevard would not be vacated or altered, and the existing 49ers training facility would not be modified.

The Great America Main Lot alternative would avoid noise impacts to the residential neighborhood to the east and reduce noise impacts to some residences to the south. The southern neighborhood would still experience significant impacts from crowd noise. The stadium would still be clearly visible but would appear farther away from the residential land uses and less prominent. All other impacts would be comparable to the proposed project. The avoidance in noise impacts to one residential area and the

reduction of noise impacts in another residential area makes this alternative environmentally superior to the proposed project.

A full analysis of this alternative is provided in Section 7.5.4 of this EIR.

Areas of Known Controversy

Issues raised by residents of Santa Clara and staff of nearby cities included concerns related to increased traffic and spillover impacts from traffic on residential neighborhoods, noise, and land use compatibility.

SECTION 1.0 INTRODUCTION AND PURPOSE

1.1 OVERVIEW/BACKGROUND

This Environmental Impact Report (EIR) has been prepared in accordance with the requirements of the California Environmental Quality Act (CEQA) and the City of Santa Clara. The purpose of this EIR is to provide objective information regarding the environmental consequences of the proposed stadium project to the decision makers who will be reviewing and considering the proposed project.

The San Francisco 49ers, a National Football League (NFL) team, was granted an NFL franchise in 1950. The team originally played home games at Kezar Stadium (built in 1923) located in the southeastern corner of Golden Gate Park in San Francisco. The team relocated to Candlestick Park (built in 1960) on the outskirts of San Francisco in 1971. Candlestick Park, which was originally built for the San Francisco Giants Major League Baseball team, underwent extensive modifications to accommodate the NFL team. Currently, all San Francisco 49ers home games are played at Candlestick Park.

Given that Candlestick Park is one of the oldest stadiums in the NFL and in poor condition, the team determined that Candlestick Park was no longer adequate. It was concluded by the 49ers team that the remodeling of the stadium was not practical and that a new stadium should be constructed. A proposal to redevelop Candlestick Point (the location of Candlestick Park) with a new stadium and a mixed-use residential project was initially considered and then rejected by the team due to concerns about the compatibility of the land uses proposed within close proximity to each other. After an extensive search for a new stadium site (see Section 7.0 *Project Alternatives* for a complete discussion) the 49ers team concluded that the proposed stadium site adjacent to the team's existing training facility was the best option and submitted a formal project application to the City of Santa Clara for the proposed 68,500 seat stadium.

This EIR evaluates the proposed development of a 68,500 seat open-air stadium and a new shared parking structure in the City of Santa Clara.

1.2 PROJECT LOCATION

The proposed project is comprised of multiple sites which are not directly adjacent to one another (see Figure 1). The general location of the project is the area bounded by Highway 101, State Route 237, Lawrence Expressway, and the Guadalupe River in the City of Santa Clara. Figures 2 and 3 below have been provided to show the general location of the project area.

As shown on Figures 1 and 4 (below), the project site is comprised of four separate properties including the proposed parking garage site (A), the existing substation (B), the proposed stadium site (C), and the proposed substation receiver site (D). In addition, numerous public and privately owned properties have been identified for possible use of existing off-site surface parking.

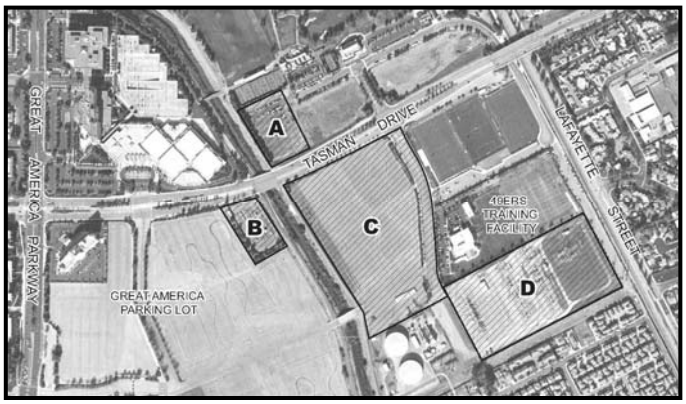
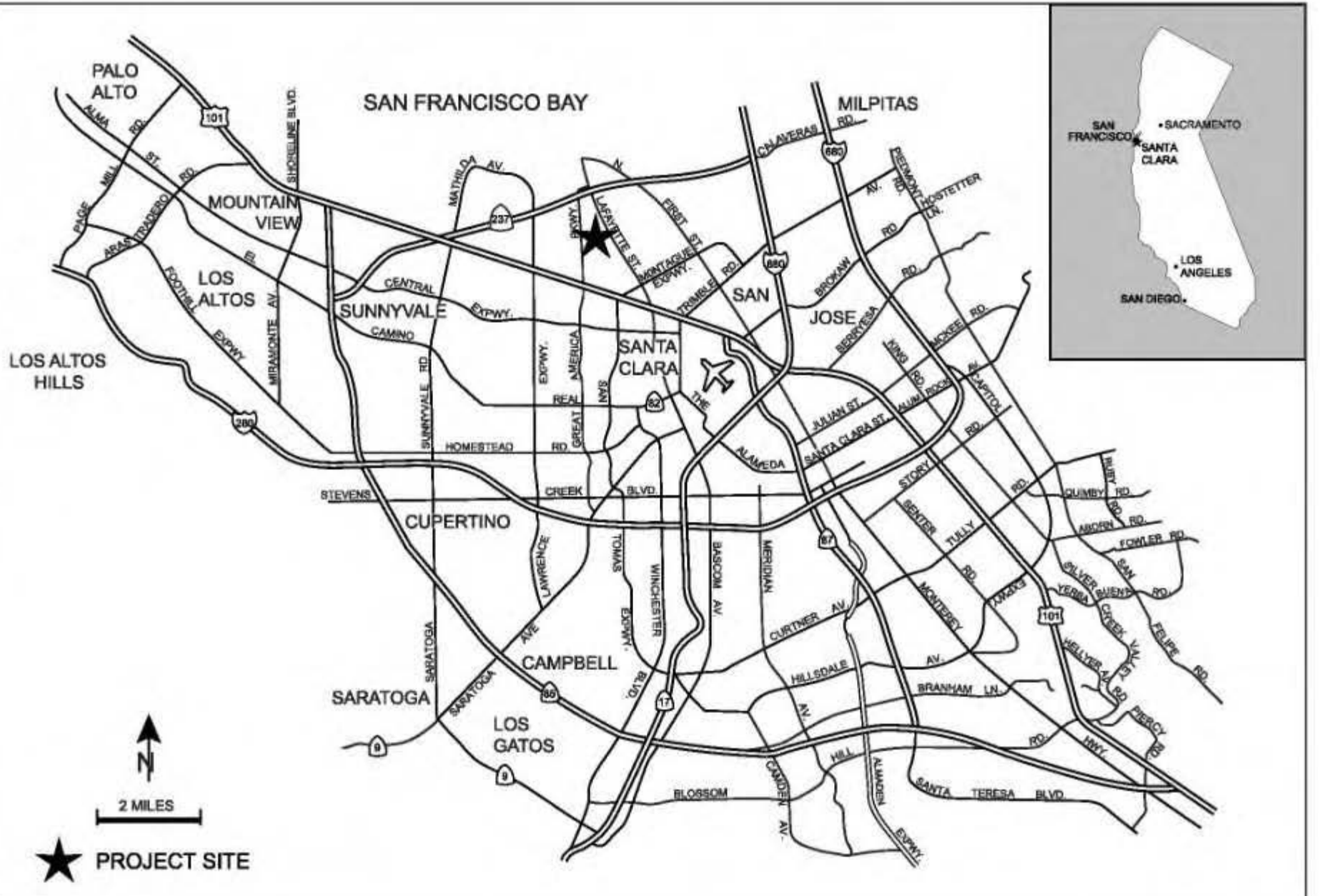
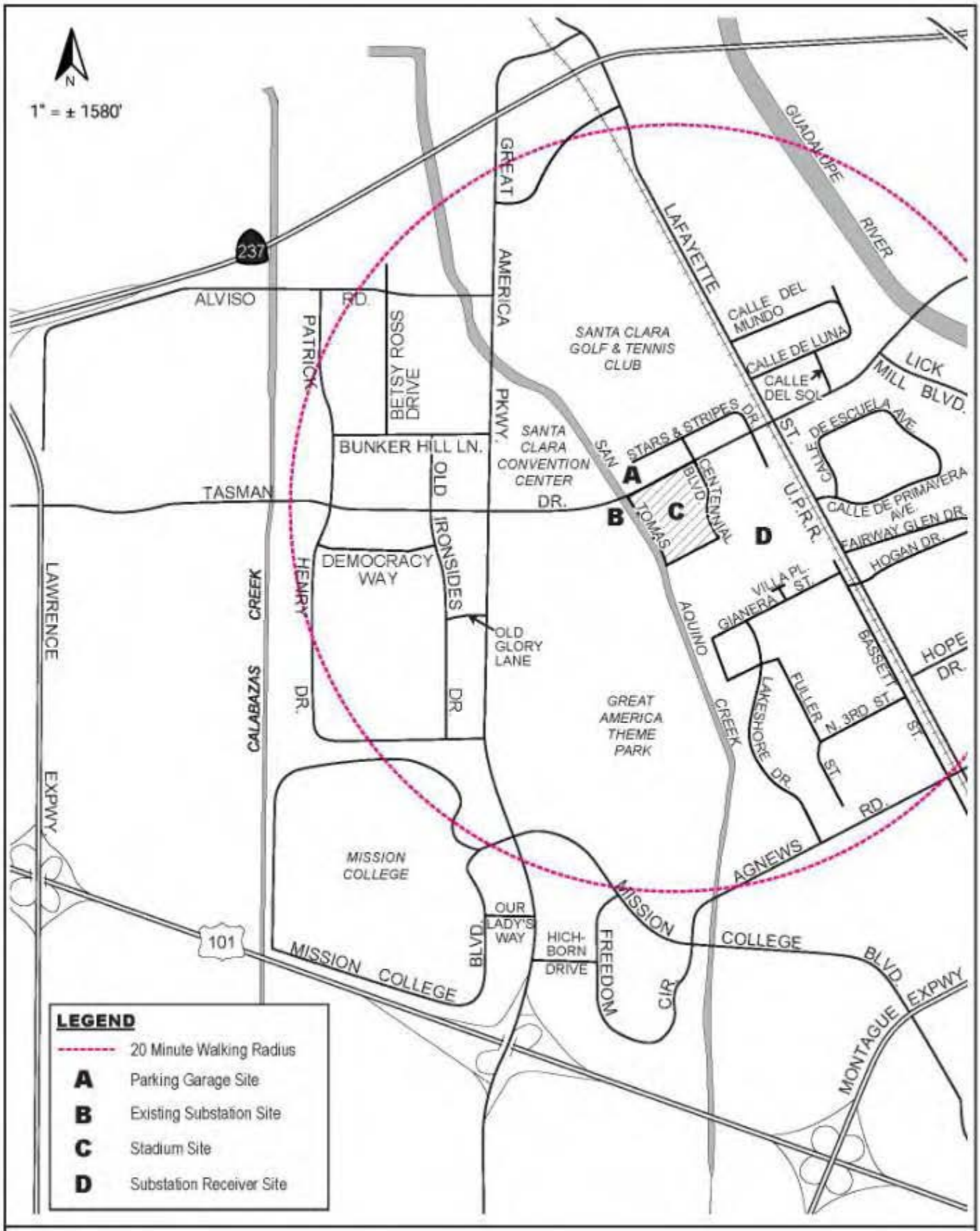


Figure 1 – Project Locations



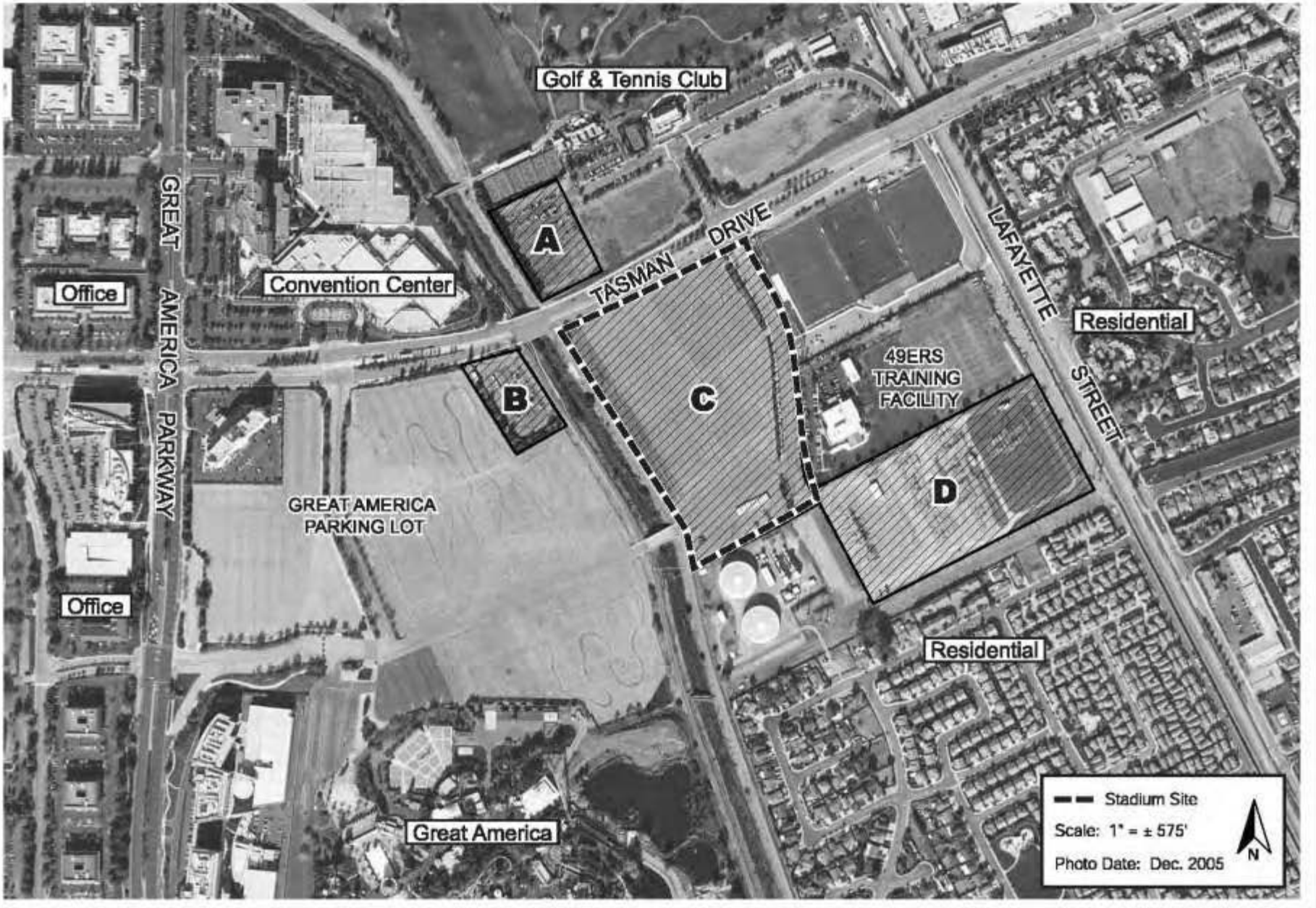
REGIONAL MAP

FIGURE 2



VICINITY MAP

FIGURE 3



AERIAL PHOTOGRAPH AND SURROUNDING LAND USES

FIGURE 4

The stadium site is an approximately 22-acre parking lot located at the southwest corner of the intersection of Tasman Drive and Centennial Boulevard in the City of Santa Clara.

The parking garage is proposed on a 2.0 acre parking lot that is part of a 4.0-acre site on the north side of Tasman Boulevard, immediately east of San Tomas Aquino Creek.

The existing substation is on 2.10 acres located at the southwest corner of San Tomas Aquino Creek and Tasman Drive. The proposed substation receiver site is southeast of the stadium site, on a vacant portion of a 14.2-acre property occupied by the Silicon Valley Power's Northern Receiving Station.

The off-site parking is proposed to be located in existing parking facilities throughout the industrial office area that surrounds the proposed stadium site. Rights to the parking would be subject to the regulations of a parking overlay district and parking program approved by the City and would be secured by contractual arrangements for large stadium events. Figure 5 shows the locations of the proposed parking areas.

For the purposes of this analysis, the four specific locations delineated on Figure 1 (A-D) will be collectively referred to as the "project site." Each individual location will be referred to as Sub-Area A, B, C, or D. While off-site parking is part of the proposed project, it is not (as the name implies) on the project *site*. The proposed Planned Development zoning entitlement address only the stadium and Training Facility area; all of the other developments and locations included in the overall project site are covered by this EIR but are subject to other approvals by the City.

1.3 PROJECT OBJECTIVES

Pursuant to CEQA Guidelines Section 15124, the EIR must identify the objectives sought by the proposed project.

The stated objectives of the project proponent are to:

- Develop a state-of-the-art stadium with approximately 68,500 seats, including premium seats, that will create a stimulating environment for the 49ers home games;
- Design the stadium so that it is expandable to approximately 75,000 seats for the purpose of periodically hosting the NFL Super Bowl;
- Secure the public and private investment necessary to make the stadium financially feasible;
- Locate the stadium on a site that can be readily assembled and that enables the development of the stadium within budget and on schedule[1];
- Locate, develop, and design that stadium so that it is usable for other major entertainment and civic events when it is not in use for 49ers home games, potentially including future use by a second NFL team;
- Locate the stadium on a site where it will be compatible with and enhance the surrounding area;
- Enhance the game day experience for fans by accommodating activities such as tailgating;
- Locate the stadium on a site that is readily accessible by public transportation, preferably two or more modes of regional public transit;
- Locate the stadium on a site that is served by existing streets and highway infrastructure adequate to reasonably accommodate local and regional game-day automobile circulation;

[1] The 49ers team has set a construction schedule of 28 months.

xxx Parking Supply

15 Minute Walking Radius

20 Minute Walking Radius

AVAILABLE PARKING AREAS FIGURE 5

- Ensure that adequate parking for patrons (estimated to require approximately 19,000 spaces) and employees is available for use on game days and during other major events; and
- Locate the stadium on a site where a substantial percentage of the parking needed on game days and during other major events could be provided in existing parking facilities which are not in use during evenings and weekends and are located within a 20-minute walking distance of the stadium.

The stated objectives of the City of Santa Clara, who is the owner of the underlying property, are to:

- Promote the Bayshore North Entertainment District with projects and activities that create vitality and economic benefits for the City beyond normal business enterprises;
- Promote activities that support the Convention Center and the hotels and restaurants in the City and encourage new restaurant and retail services that support the daily business activity in the area;
- Develop entertainment and sports facilities on public lands that provide a return to the City's General Fund and/or provide civic, cultural, and sporting amenities that serve a wide range of public interests in the City and the region;
- Encourage uses that are compatible with both the corporate/business character of the Bayshore North area and the entertainment and cultural uses in the area;
- Support uses that are compatible with or complementary to normal business activities, parking, and traffic in the area;
- Promote activities that take advantage of mass transit infrastructure by creating uses that can be served by transit both during the regular business week and on weekends;
- Encourage shared parking throughout the Convention Center area to minimize excess costs associated with development of parking and promote creative parking arrangements that are compatible with activities on nearby properties; and
- Foster job growth in an area served by mass transit.

1.4 USES OF THE EIR

This Environmental Impact Report (EIR) is intended to provide the City of Santa Clara, other public agencies, and the general public with the relevant environmental information needed in considering the proposed project.

The City of Santa Clara anticipates that discretionary approvals by the City, including but not limited to the following, will be required to implement the project addressed in this EIR:

1. General Plan Text Amendment
2. Bayshore North Redevelopment Plan Amendment
3. Planned Development Zoning
4. Street Vacation/Abandonment
5. Tentative Map
6. Disposition and Development Agreement
7. Creation of a Parking Overlay Zone
8. Formation of a Stadium Authority

The proposed project includes four specific components:

- Stadium
- Substation Relocation
- Off-Site Surface Parking
- Parking Garage

Each of these project components are described in detail below and shown on Figure 6.

2.1 Stadium Component

The proposed stadium would be constructed on an approximately 22-acre site bounded on the north by Tasman Drive, on the east by the Santa Clara Youth Soccer Park (soccer park) and the existing Marie P. DeBartolo Sports Centre[2], on the south by Silicon Valley Power's Northern Receiving Station (receiving station) and the City of Santa Clara's North Side Water Storage Tanks (water storage tanks), and on the west by San Tomas Aquino Creek. Most of the stadium site is currently designated under the Santa Clara Redevelopment Agency's lease with Cedar Fair as an overflow parking lot for the nearby California's Great America theme park (Great America). The stadium site currently provides approximately 1,823 surface parking spaces that are assumed to be available for the theme park.

The stadium would be developed and owned by a public agency to be formed by the City of Santa Clara and the City's Redevelopment Agency. The name of the proposed public agency has not yet been identified and will be referred to as the Stadium Authority in this document. The Stadium Authority would control the use of the stadium. The stadium would be leased to the San Francisco 49ers (49ers team), a National Football League (NFL) franchise, for playing home games during the NFL pre-season, regular season, and post-season and for other NFL related events. In addition to football events, use of the stadium may range from incidental use of meeting room facilities within the main building, including support of Convention Center activities, to larger activities such as concerts and other sporting events that would use a significant amount of the available seating. Approximately 17 non-NFL large events per year are contemplated and as many as 250 smaller events.

The NFL is encouraging any franchise proposing a new stadium in a large market (i.e., capable of supporting more than one team in a relatively close geographic area), such as the Bay Area, to evaluate shared use of the stadium by a second NFL team. There are currently no specific plans for use of the stadium by a second NFL team. Nevertheless, the analysis in this EIR will evaluate impacts from two NFL teams using the stadium to comply with the NFL recommendation. Given that teams typically play half of all pre-season and regular season games at home, the use of the stadium by two NFL teams could result in one NFL event at the stadium every week from the beginning of pre-season in August through the end of December for a minimum of 20 NFL events per year.[3]

[2] The Marie P. DeBartolo Sports Centre is the current training facility and corporate headquarters for the San Francisco 49ers football team and will be referred to in this document as the training facility.

[3] The NFL has a 17-week regular season schedule. Every NFL team, however, has a "bye" week each season during which they do not play. As a result, each team plays sixteen regular season games during a 17 week period. Depending on the schedule for each of the two teams, it is possible that there would be one week out of the regular season where no games are played.

CONCEPTUAL SITE PLAN

FIGURE 6

In addition to the pre-season and regular season games, there is also the possibility that either team could host up to two post-season play-off games. A maximum of four post-season games would only occur at the proposed stadium if 1) both teams were in separate divisions (American Football Conference and National Football Conference), 2) each team hosted and won either a first round wild-card play-off game or a second round divisional play-off game, and 3) each team then hosted a conference championship game. The likelihood of four post-season games occurring is so remote that the EIR analysis only assumes up to two play-offs games per year total.[4]

There is also the likelihood that a new stadium would be asked to host a Superbowl game. The Superbowl is considered an extraordinary event and would likely only occur approximately once every five to 10 years.

The proposed stadium would have a permanent seating capacity of up to 68,500 seats and will be designed to expand to approximately 75,000 seats for special events. An NFL Super Bowl game would be an example of a special event requiring additional seating. The stadium structure would have a maximum height of 175 feet above the ground surface with light standards on top of the structure reaching a maximum height of 200 feet above the ground surface (a full description of the proposed lighting is provided below). The stadium will be five levels on the east, north, and south sides and nine levels (referred to as the Suite Tower) on the west side. The event level of the stadium (i.e., ground level) would include the playing field, locker rooms, main commissary, facilities for grounds keeping staff, operations (including management, security, and janitorial), truck docks, and facilities for various other support functions. The event level will be constructed at approximately the existing site elevation (an average of 15 feet above sea level[5]). The press as well as TV and/or radio broadcast personnel will have facilities at the Press Level located on the top floor of the west side. The box office, 49ers Team store, Stadium Authority office, and for-lease retail commercial space will be located on ground level along the Tasman Drive frontage.

In order to accommodate the stadium as proposed, Centennial Boulevard south of Tasman Drive is proposed to be abandoned and the roadway removed. Existing utilities located in Centennial Boulevard will be relocated. A two-lane access driveway will be added along the eastern boundary of the stadium site to provide access to the soccer park and surface parking. With the new two-lane driveway, access to the soccer park will not change. New access and circulation improvements are proposed for the stadium site, facilities adjacent to the stadium site, and the proposed parking structure. Vehicular access to the training facility and the receiving station will be from Stars and Stripes Boulevard which is accessed via Centennial Boulevard north of Tasman Drive. Various improvements will also be made to the surrounding transportation infrastructure including new signage, cameras, and pedestrian pathways, as well as a new in-stadium traffic control center to aid in the management of traffic during stadium events. The new in-stadium traffic control center would be connected to and integrated with the City of Santa Clara's existing electronic traffic control system. During large events, including NFL games, Tasman Drive would be temporarily closed to vehicle access (with the exception of emergency vehicles) between Great America Parkway and Centennial Boulevard to accommodate crowds entering and leaving the stadium. Automobiles parking in the surface lots directly adjacent to the stadium would have access to the lots from Stars and Stripes Boulevard, immediately east of the road closure. To further facilitate pedestrian traffic, two new pedestrian bridges are proposed over San Tomas Aquino Creek. A 30-foot clear span pedestrian bridge would be built south of and immediately adjacent to the Tasman Drive bridge. A 54-foot

[4] The two post-season game scenarios assumes that either both teams would host a first round play-off game or one team hosts and wins a first round play-off game and then hosts the conference championships.
[5] USGS, Milpitas Quadrangle California 7.5 Minute Topographic Map, NW/4 San José 15" Quadrangle.

wide clear span bridge would be built immediately adjacent to the automotive bridge that connects the Great America main parking lot to the stadium site.

2.1.1 Stadium Lighting

Lighting on the project site will be comprised of event field lighting, exterior stadium lighting (i.e., building perimeter lighting and parking lot lighting), and emergency lighting. The event lighting is proposed to be outdoor metal halide floodlights with internal reflector systems to control spill light and glare. The lighting will be a minimum of 1,500 watts per fixture and the fixtures will be mounted on a cantilevered structure along the north, east, and south elevations and on the roof of the nine-level Suite Tower on the west side of the stadium. The exact quantity of lights will be determined by the manufacturer's ability to achieve the performance criteria required for players, spectators, and television broadcasts. The lighting criteria for television broadcasts are the most stringent. These criteria will apply to the entire playing field and an additional 15 feet beyond the end zones and sidelines. Lighting levels in the stands will gradually taper off from the maximum light intensity levels on the playing field. Similar lighting needs are anticipated for other large non-NFL nighttime events.

Exterior lighting will be designed to provide clear, safe pedestrian paths between the stadium and the site perimeter in accordance with applicable City of Santa Clara policies.

Approximately 10 percent of the event lighting will be "hot restrike" lighting (i.e., lights with a separate power source such as battery) that will provide emergency lighting in the case of a power outage. The emergency lighting would provide approximately two foot candles[6] average illumination for emergency exit from the seating area and from the playing field.

2.1.2 Stadium Operations

Operation of the stadium will require cooling towers which will be located south of the stadium. The conceptual design includes two towers with 750 tons of cooling capacity to be mounted at grade in a service yard area. The purpose of the cooling towers is to serve as a source of heat rejection for the air conditioning system. The cooling towers will be operational as needed during stadium events. The towers would only operate at full capacity during an event in August or September. The remainder of the year, there would be reduced capacity usage depending on how much of the stadium is in use at any given time.

2.1.3 Stadium Patron Facilities

Stadium patron facilities available during stadium events will include restrooms, concession stands, and merchandise stands. Restrooms will be provided on all levels of the stadium. The ultimate location and total number of restrooms provided will be based on the requirements of the California Building Code in use by the City of Santa Clara at the time the Planned Development is approved. Concession stands will be provided throughout the stadium at an average ratio of one stand per 178 patrons. Food and alcoholic beverage sales could occur during any events. In addition, event related retail sales (i.e., team sportswear, programs, etc.) will also be allowed.

[6] A foot candle is the amount of illumination produced by a standard candle at a distance of one foot.

2.1.4 Stadium Hours of Operation

2.1.4.1 Box Office

As stated above, the box office will be located on the ground level of the stadium along the Tasman Drive frontage. The box office is expected to be open year-round from 9:00 AM to 5:00 PM Monday through Saturday and for three hours prior to kick-off on Sunday game days during football season.

2.1.4.2 Ground Floor Commercial Space

As stated above, the approximately 10,000 square feet of for-lease commercial space will be located on the ground level of the stadium along the Tasman Drive frontage. The hours of operation will be dependant upon the tenant. It is anticipated, however, that the for-lease space would operate during normal business hours on weekdays. If a restaurant were to occupy the space, it is assumed that the hours of operation would be weekday evenings (with possible lunch service as well) and weekends. The team store will be located within the commercial space along Tasman Drive. The team store would likely operate Monday through Saturday throughout the year and also on Sunday game days.

2.1.4.3 NFL Football Events

Pre-Game Event Times

Tailgating

Many attendees participate in tailgating activities prior to the start of each game. Based on historic and current times of arrival for attendees at Candlestick Park (the current stadium location of the 49ers team), approximately 24,500 ticket holders arrive more than two hours prior to the start of each game. Approximately 3,429 of those 24,500 early arriving attendees arrive more than five hours prior to the start of each game. It is assumed that the times of arrival for attendees would remain consistent with development of the new stadium.

Tailgating activities will be restricted to attendees parking in open surface parking lots which are authorized for tailgating under the parking contracts. Attendees arriving by charter bus and those parked within the proposed parking structure will not have areas available for tailgating.

Warm-Ups

Each team typically enters the field for warm-ups one hour prior to kick-off. The stadium will be open to ticket holders up to three hours prior to kick-off for early seating and viewing warm-up activities.

Press Coverage

Based on historic and current press activity at Candlestick Park, media personnel arrive up to three hours prior to kick-off for interviews and pre-game announcing. Network TV personnel arrive more than three hours prior to kick-off to set up equipment and prepare for broadcasting the game. It is assumed that the arrival times for media and network personnel would remain the same in the new stadium.

Standard Game Times

NFL football events would occur on weekends with occasional Monday evening and/or Thursday evening games. Weekend games can occur on either Saturday (typically only during preseason and post-season) or Sunday (all season) with start times of around 1:00 PM or 5:30 PM. Weekday games typically have a start time of 5:30 PM. A Super Bowl event would only occur on Sunday with pre-game activities typically starting six to eight hours prior to kick-off and kick-off typically occurring at 3:00 PM. Weekday NFL games (which take place at the team's discretion) would only be scheduled if there is sufficient parking available in the off-site parking lots, which is subject to the approval of the businesses who control the off-site parking lots.

Post-Game Event Times

Press Coverage

Based on historic and current press activity at Candlestick Park, media personnel remain at the stadium for up to three hours after completion of the game for interviews and post-game commentary. Network TV personnel remain more than three hours after completion of the game to pack up the broadcasting equipment. It is assumed that the times of departure for media and network personnel from the proposed stadium would remain consistent with that in the existing stadium.

Practices

Team practices will continue to be conducted on the practice fields at the existing training facility and would not be a new use on the site. Practice times will remain consistent with the current operations. These practices are typically closed to the public[7]. Non-game day practices for the 49ers team will not typically occur on the stadium field.

Standard procedure in the NFL allows visiting teams to practice on the game field on the day prior to game day. These practices are closed to the public. On average, visiting teams request team practices on the game field approximately 50 percent of the time. This rate, however, tends to be higher for new stadiums.

2.1.4.4 Non-Football Events

Non-football events that would require the use of off-site parking would be limited to evenings and weekends to avoid conflict with the surrounding office and commercial businesses including Great America. Smaller events which would use only a portion of the stadium and not require the use of parking in nearby office/commercial lots, including Great America, will not have time-of-use restrictions.

2.1.5 Stadium Uses

The proposed stadium has been designed specifically for use by an NFL team. The stadium, however, is expected to be used for other non-NFL events that are compatible with the type of venue

[7] The team occasionally holds open practices to allow ticket holders, community groups, and other interested parties a chance to see the team. Open practices already occur at the training facility and would not be a new use on the site.

proposed. Other uses could include concerts and non-football sporting events. A detailed description of anticipated NFL football events and non-NFL football events is provided below.

2.1.5.1 NFL Football Events

The NFL season generally occurs between August and January and consists of 24 total game days, with each team participating in a minimum of 20 games (with 10 of those games played on their home field). Training camp typically opens in late July. The 49ers team currently hosts training camp at the existing training facility on the project site. Training camp would not be a new use on the site. A breakdown of games and general times of occurrence in a standard NFL season is listed in Table 1 below.

TABLE 1
NFL Team Season Breakdown[8]

Type of Game	Number of Total Games Per Season	Time of Occurrence
Guaranteed Games		
Pre-Season	4 games per season (2 home games)	August – September (Weekdays or Weekends)
Regular Season	16 games per season (8 home games)	September – December (Weekdays or Weekends)
Possible Games		
Post-Season (Playoffs)	3 games per season (home games vary)	January (Weekends Only)
Super Bowl	1 game per season (location varies by year)	Last Weekend of January or First Weekend of February

2.1.5.2 Non-Football Events

In addition to the NFL football events, it is proposed that the stadium would provide a venue for non-NFL sporting events and other community events. Non-football events that would require the use of parking in the existing parking lots of surrounding businesses would be limited to evenings and weekends to avoid conflict with those businesses. Smaller events which would use only a portion of the stadium and could be parked in the proposed parking structure or the currently vacant lots adjacent to the Santa Clara Golf and Tennis Club will not have time of use restrictions. Table 2 below provides a list of likely non-NFL events that could occur in any given year ranked by estimated attendance. Additional non-NFL events may be pursued by the Stadium Authority in any given year subject to the availability of parking during the proposed times of the events.

[8] The NFL may increase the number of regular season games beginning in the 2011 season. The additional regular season games would replace existing pre-season games. Therefore, each team would still play a minimum of 20 games per season (excluding post-season games) and the modification to the game schedule would not increase the number of yearly NFL events at the proposed stadium.

TABLE 2 Possible Non-NFL Events				
Event Type	**Estimated Attendance for Entire Event**	**No. of Events per Year**	**No. of Days per Event**	**Estimated Parking Demand per Day**
X-Games	50,000	1	4	4,500
Moto-Cross	42,500	1	1	13,005
International Soccer	40,000	2	1	12,240
Concerts	37,500	1	1	11,475
College Football	37,500	1	1	11,475
Festivals/Antiques Shows	25,000	8	1	9,000
College Bowl Game	25,000	1	1	7,650
Car Shows (parking lot event)	12,000	2	4	1,200
Small Events[9]	50 to 500+	250	250+	varies

2.2 Substation Relocation Component

The existing electrical substation equipment located on the Tasman Substation site, west of San Tomas Aquino Creek, will be relocated to the Silicon Valley Power Northern Receiving Station. Specifically, the electrical equipment would be placed west of the 60k bus structure and just south of the Control House building. Relocation of the substation would include abandonment, removal, and relocation of portions of the transmission lines serving the substation and surrounding properties. An existing electric service that serves the Light Rail line would remain along Tasman. The abandoned substation site would be developed with additional surface parking.

2.3 Parking Component

The proposed 68,500 seat stadium would require 17,125 on-site parking stalls under the City's current zoning requirements. It is estimated, however, based on historic usage of the existing 49ers team stadium that approximately 19,000 attendee parking stalls and 1,740 employee parking stalls will be required for NFL Football events and other large non-NFL events. The anticipated parking demand cannot be accommodated on the stadium site and will require approval of a parking arrangement or master plan that utilizes off-site parking facilities for large events. The breakdown of the types and number of automobiles typically found at a 49ers team game at Candlestick Park is shown in Tables 3 and 4 below. Events, such as a Super Bowl, that would require the expansion of stadium seating to the maximum capacity of 75,000 would require additional parking.

TABLE 3 Candlestick Park Modal Split for Attendees				
Mode	**Percent**	**Attendees by Mode**	**Persons Per Vehicle**	**Number of Vehicles**
Private Auto	82	57,150	3	19,050
Transit Buses	8	5,450	45	121[10]
Charter Buses	10	7,100	44	161
Total	**100**	**69,700**	**---**	**19,211**

[9] Small events would include, for example, corporate meetings, weddings, and other private functions.
[10] Transit buses do not factor into the parking demand since they do not occupy parking stalls.

TABLE 4 Candlestick Park Modal Split for Employees				
Mode	**Percent**	**Employees by Mode**	**Persons Per Vehicle**	**Number of Vehicles**
Private Auto	90	2,610	1.5	1,740
Transit Buses	10	290	---	---
Total	**100**	**2,900**	**---**	**1,740**[11]

The required parking will be provided in existing and planned commercial and public parking facilities in the immediate project area. New parking facilities will include the proposed parking structure north of Tasman Drive (discussed below), proposed on-site surface parking immediately east and south of the stadium, the new surface parking proposed to replace the existing Tasman substation, and the vacant lots (which are currently not utilized for any purpose) adjacent to the parking structure site (south of and adjacent to the Santa Clara Golf and Tennis Club). Existing parking lots in the area that could be utilized for large event parking include the main Great America parking lot and the existing surface parking lots and structured parking of nearby businesses (most of which are located west of San Tomas Aquino Creek on both sides of Great America Parkway). It is proposed that a minimum of 19,000 parking spaces in these existing parking facilities would be made available through the use of parking agreements with the property owners (and tenants if necessary). Overall, there are approximately 41,300 existing and planned parking stalls within a 20-minute walk (the 20-minute walk distance is based on a walking speed of four feet per second as referenced in the Highway Capacity Manual) of the stadium site, most of which serve existing businesses in the area during weekdays. These parking facilities, many of which are underutilized during weeknights and weekends, could be made available by contractual arrangements for large events at the stadium. Large stadium events requiring off-site parking would not be scheduled during normal business hours when the off-site surface lots would be utilized by local businesses unless arrangements could be made to assure that adequate parking is available for event patrons. City control of parking use entitlements and restrictions on off-site event parking on private properties and public streets would be defined by establishment of a parking control district in the area around the stadium. Circumstances related to development or redevelopment of any or all of these parking sites could result in changes to the master parking plan over time. It is contemplated that rights to use off-site parking facilities will require land use entitlements within a prescribed parking overlay. The PD Zoning would also include restrictions on stadium uses tied to the availability of adequate parking.

For areas within the identified 20 minute walking distance to the stadium, including residential areas, the City will implement a parking program in order establish both parking rights and restrictions by property or area. Under this program, a City permit will be required for each property owner willing to participate. Properties not in the program will be restricted from using available parking for stadium events

Much of the proposed parking is to be provided on property owned or controlled by others and used by various businesses. Some of the transit assumed in the traffic analysis is in addition to the regular transit services provided by the various agencies. It is reasonable to assume that use of approximately 20,000 parking spaces can be secured from more than 40,000 spaces available in the project area. It is also reasonable to assume that, based on past practice with the existing Candlestick

[11] The total number of employees arriving by private vehicle may be lower at the proposed stadium then at Candlestick Park because more public transit options are available at the Santa Clara site. The more conservative estimate of 10 percent transit use was used to prepare the parking plan and analyze possible impacts from employee automobile trips.

Park, arrangements can be made with the transit agencies to supply extra service to the stadium area on game days and on days planned for very large non-NFL events.

Each year, the team(s) will inform the NFL of any constraints to their schedule related to playing weeknight games. As part of the planning for each upcoming season, the team(s), the City, and the Stadium authority will evaluate the various conditions that could influence implementation of the Transportation Management Plan (TMP), the parking management plan, and the provision of transit services. Variables that may need to be taken into account include: 1) The status of parking leases or agreements with the various property owners in the area (including Great America) for use of their parking; 2) The locations and physical conditions of those properties and parking lots; 3) The status of agreements with the various transit agencies (VTA, CalTrain, ACE); and 4) The availability of rolling stock[12]. Another element in the annual evaluation will be the proposed public outreach for the upcoming season, including the degree of publicity considered appropriate to encourage use of transit and other alternative transportation modes.

The amount of parking needed, above and beyond the minimum zoning requirement, and the transit available to game attendees as identified in this EIR is the estimated support necessary for a sold out game (68,500 seats occupied). In order to monitor the ongoing status of the impact avoidance measures included in the proposed project (specifically the parking and transportation management plans), the City as the Lead Agency will do the following:

1. Prior to the season opening each year, the team(s), the City, and the Stadium Authority will have an approved implementation program and schedule for providing adequate parking and transit support for the season such that the identified parking demand for the stadium use is satisfied. Prior to issuance of any entitlements for the stadium, the City will establish a procedure for annually determining the parking supply which will be incorporated into relevant agreements and permits.

2. Should there be any proposal to provide less than the amount of parking discussed in this EIR (20,740 spaces including employee parking), the team(s), with City concurrence, will ensure that alternative parking locations, a combination of other transportation options, or enhanced transit services will be implemented. These may include but are not limited to: provision of parking at more distant locations combined with shuttle service; increased transit access and any subsidy or other support necessary to ensure adequate transit use; construction of structured parking; or reduction of seats sold for any game(s) for which adequate parking is not available. Note that any substantive alternative to the parking and transportation management plans as proposed could result in different traffic impacts than those identified in this EIR and may require subsequent environmental review.

3. Should the shared use of parking lots or the provision of adequate transit services be unattainable for any given year for potential weekday games, the team(s) will inform the NFL that they will forego weeknight games on their schedule for that year.

A breakdown of available parking is provided in Table 5 below. Figure 7 shows the location of the proposed and available parking areas in the project area.

[12] Rolling Stock refers to the inventory of wheeled vehicles that a rail line has available for service.

xxx Parking Supply

15 Minute Walking Radius

20 Minute Walking Radius

PROPOSED AND AVAILABLE PARKING AREAS FIGURE 7

TABLE 5 Breakdown of Proposed and Available Parking		
Site No.	**Parking Location**	**No. of Parking Stalls Available**
Proposed		
1	Tasman Drive Parking Structure	1,708
2	Tasman Substation	380
3	Immediate vicinity of Stadium Site	593
4	Vacant Lots Adjacent to Parking Structure	790
	Subtotal	*3,471*
Available		
5	Great America Parking Lot	6,234
6	Nearby Businesses	31,668
	Subtotal	*37,902*
	Total Parking	**41,373**

For NFL Football events, season ticket holders will be assigned a specific parking lot for the duration of the season.[13] Parking passes and specific directions to assigned lots will be distributed with tickets to allow vehicles to arrive at their assigned parking lots as quickly as possible and minimize traffic congestion in the stadium area. Employees arriving in private automobiles will be restricted to specific parking lots on the east side of Lafayette Street that are served by the VTA light rail, allowing the employees to take the light rail train to the stadium.

Charter buses would be parked on-street along the Patrick Henry Drive/Old Ironsides Drive loop. There is sufficient space for approximately 195 buses to park. The charter buses would remain at this location for the duration of the events. All the charter buses would enter and exit that parking area via Tasman Drive.

2.3.1 Parking Lot Security and Maintenance

Parking lot security and maintenance will be managed by the Stadium Authority through a contract with an independent parking operator. The parking operator will provide parking lot security during stadium events and post-event clean up of all parking areas. In order to ensure that sufficient security is provided for all events and that the parking areas are properly maintained, the Stadium Authority will review the parking security and maintenance plans on a yearly basis.

2.3.2 Pedestrian Access

Pedestrian access to the stadium from the off-site parking lots would mainly be on existing sidewalks along Great America Parkway and Tasman Drive and an existing automobile bridge which spans San Tomas Aquino Creek at the southern end of the stadium site. In order to facilitate the movement of event attendees to and from the parking areas and the light rail station, the project proposes a temporary closure of Tasman Drive from the Tasman driveway entrance to the Great America parking lot to what is now Centennial Boulevard during NFL Football events and other large non-NFL events that require off-site parking. The Tasman Drive road closure would be in effect from approximately four hours prior to the start of the event to approximately two hours after completion

[13] The average number of season ticket holders for the 49ers team varies by year but is typically within the 85 – 90 percent range. The historical average for the past 10 years is 88 percent of all available seating.

of the event. In addition to the temporary road closure, the project proposes two new pedestrian bridges over San Tomas Aquino Creek. A 30-foot clear span bridge would be built south of and immediately adjacent to the Tasman Drive bridge. A 54-foot wide clear span bridge would be built immediately adjacent to the automotive bridge that connects the Great America main parking lot to the stadium site.

2.4 Parking Garage Component

The new six-story parking garage would be located on approximately two acres of a four-acre site directly across Tasman Drive from the proposed stadium. As stated above, the parking structure would have up to 1,708 parking stalls which would be utilized by the stadium, the convention center, and the Great America theme park[14]. Vehicular access will be provided directly from Tasman Drive and from Stars & Stripes Boulevard via Centennial Boulevard.

2.5 General Plan and Zoning Designations

The stadium site, garage site, and existing substation site are currently designated *Tourist Commercial* in the City of Santa Clara General Plan. The receiver site is currently designated *Institutional*. All the aforementioned sites are zoned *B – Public/Quasi-Public.*

The project proposes a General Plan Text Amendment to the existing *Tourist Commercial* designation as shown below. Underlined text is proposed to be added; ~~crossed out text~~ is proposed to be deleted.

(e) Tourist

Centered on the Great America Amusement Park and the City's Convention Center, these areas are generally located north of the Bayshore Freeway (State Highway 101) near the Tasman Light Rail Line. Quality hotel, recreation and other tourist-oriented uses such as theatres, museums, stadiums, arenas, sports and cultural facilities and specialty retail are encouraged within this designation. Through the zoning and architectural review processes, all building designs, parking areas, proposals for accessory structures, and proposals for mixed uses will be reviewed.

Ground floor retail along the Light Rail line and at Tasman Stations is encouraged. Outdoor seating at restaurants and other public oriented uses such as areas for street performers will be reviewed to ensure a pedestrian orientation and visibility from public right-of-ways. Uses oriented to surrounding employment areas such as carry-out restaurants will be carefully monitored to ensure that they are a minor part of and not a distraction from tourist oriented uses. Drive-through or other similar uses are generally not encouraged. Shared parking arrangements are encouraged and may be approved in circumstances where one or more uses are complementary in their nature and peak times of activities.

Typically, landscaping and public seating is to be incorporated into public plaza areas in each development. Landscaping along public right-of-way areas should be in scale with the size and bulk of the building(s) and be designed to minimize possible wind impacts from taller structures.

[14] The proposed stadium site is currently used as an overflow parking lot for the Great America theme park with 1,823 parking spaces. The proposed reconfiguration of the Great America surface lot west of the proposed stadium site as well as the designation of a certain number of spaces in the proposed garage for use by Cedar Fair would compensate for the loss of the overflow parking on the stadium site.

Tall structures should be located or designed so as to not cast shadows over ~~the public right-of-way~~ nearby uses for most of the day. Building height is typically limited to 150 feet, but may be increased through zoning approval of specific designs that are appropriate for the nature of the proposed use. Building coverage shall not exceed 25 percent of the area of the lot, where open parking is provided. Building coverage is typically no more than 25 percent of the lot, but may be up to 75 percent or more for special facilities, including stadiums, arenas, theatres and the like, and for structured or shared parking provided for the site or for use by surrounding properties where substantial landscape and pedestrian plazas are incorporated as site features or amenities.

The project proposes a rezoning to Planned Development (PD) zoning for the 22.0 acre stadium site to allow for the proposed uses, height and floor area ratio (FAR) and off-site parking (the PD Zoning proposal is available for review in the City Planning Department during normal business hours). The existing training facility will be incorporated into the stadium site (Sub-Area C) PD zoning designation, but the zoning designations on Sub-Areas A, B, and D will not change.

2.6 Bayshore North Redevelopment Plan

The project site is located within the Bayshore North Redevelopment Plan area. The project site is currently designated *Tourist Commercial/Parking.* The adjacent training facility and soccer fields are designated *Recreational.*

The City is proposing to amend the Redevelopment Plan as shown below. Underlined text is proposed to be added; ~~crossed out text~~ is proposed to be deleted.

2) Recreational

The following areas are intended to include facilities and open space whose primary purpose is recreation. Building height and coverage, where applicable, should be considerate of the most restrictive adjacent land use.

The area generally southerly of Yerba Buena Way but northerly of Stars and Stripes Drive and northeasterly of San Tomas Aquino Creek between Great America Parkway and the Union Pacific Railroad Tracks/Lafayette Street, is primarily a closed landfill site on which is located the Santa Clara Golf Club and Tennis Club, restaurant and banquet facilities (approximately 121 acres total). A public safety facility, Fire Station #10, is located in this area north of Stars and Stripes Drive and east of Centennial Boulevard. Pedestrian bridges connect the first holes of the golf course to the last holes across Lafayette Street, as well as to the Santa Clara Convention Center complex.

The recreational designation also applies to that area at the southeast corner of Centennial Boulevard and Tasman Drive, totaling approximately 22 acres. While not limited to such uses, that area contains a youth-oriented Soccer Facility with ~~up to~~ three playing fields ~~is planned beside the existing~~ and the San Francisco 49er's Football Training Facility near the Santa Clara Great America Train Station. The boundary between this area and the adjoining Tourist Commercial and Parking area to the west across Centennial Boulevard may be adjusted to accommodate uses in the Tourist Commercial and Parking Area.

4) Tourist Commercial and Parking

Located generally between Stars and Stripes Drive and Tasman on both sides of Centennial Boulevard and southeasterly of Great America Parkway and Tasman Drive to Centennial Boulevard, these areas are near the Great America Theme Park and the City's Convention Center, and adjacent to the Tasman Light Rail Line. Quality hotel, office, recreation and other tourist-oriented uses such as theatres, museums, stadiums and arenas and specialty retail and restaurants are encouraged within this designation. Building height typically does not exceed 150 feet, except that a stadium may be as high as 200 feet. Besides landscaped surface parking areas, the City may construct a parking structure across Tasman Drive or in other areas currently in use for surface parking for public users of the facilities at the Convention Center, theme park and other nearby uses. The boundary between this area and the adjoining Recreational area to the east across Centennial Boulevard may be adjusted to accommodate uses in the Tourist Commercial and Parking Area.

SECTION 3.0 CONSISTENCY WITH ADOPTED PLANS & POLICIES

In conformance with Section 15125(d) of the CEQA Guidelines, the following section discusses the consistency of the proposed project with relevant adopted plans and policies.

3.1 Bay Area 2005 Ozone Strategy

The Bay Area Air Quality Management District (BAAQMD), in cooperation with the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), prepared the Bay Area 2005 Ozone Strategy (Ozone Strategy). The Ozone Strategy serves as a roadmap showing how the San Francisco Bay Area will achieve compliance with the state one-hour air quality standard for ozone as expeditiously as practicable and how the region will reduce transport of ozone and ozone precursors to neighboring air basins. The Ozone Strategy updates Vehicle Miles Traveled (VMT) and other assumptions in the 2000 Clean Air Plan (CAP) related to the reduction of ozone in the atmosphere and serves as the current CAP for the Bay Area. The consistency of the proposed project with this regional plan is primarily a question of consistency with population/employment assumptions utilized in developing the Ozone Strategy, which were based on ABAG *Projections 2002*.

Consistency: The proposed change in land use would allow a 68,500 seat open-air stadium to be constructed on the project site. As discussed in Section 4.9 of this EIR, the stadium would not increase the local population or significantly increase jobs in Santa Clara. The effect of the project would be an increase in Vehicle Miles Traveled on event days due to differences in travel distance to the proposed new stadium versus to Candlestick Park. While the project will implement Transportation Control Measures (TCM) consistent with the 2005 Ozone Strategy to the extent feasible, the project cannot implement all the measures necessary to off-set the effects of the increased vehicle miles. Therefore, the project is inconsistent with the Bay Area 2005 Ozone Strategy.

3.2 Santa Clara County Congestion Management Program

The Santa Clara Valley Transportation Authority (VTA) oversees the *Santa Clara County Congestion Management Program* (CMP). The relevant state legislation requires that all urbanized counties in California prepare a CMP in order to obtain each county's share of the increased gas tax revenues. The CMP legislation requires that each CMP contain the following five mandatory elements: 1) a system definition and traffic level of service standard element; 2) a transit service and standards element; 3) a trip reduction and transportation demand management element; 4) a land use impact analysis program element; and 5) a capital improvement element. The Santa Clara County CMP includes the five mandated elements and three additional elements, including: a county-wide transportation model and data base element, an annual monitoring and conformance element, and a deficiency plan element.

Consistency: The CMP addresses the management of county-wide congestion primarily through peak hour traffic patterns. The CMP methodology for assessing traffic impacts is tied to peak hour congestion, and the likelihood of regular (daily) impacts and associated need for mitigations are expressed as relating to weekday peak hours. As described in the traffic section of this EIR (Section 4.8), the proposed project may have weekday peak hour impacts on freeways and other CMP facilities (regional roadway intersections) up to eight times per year. The infrequency of the impacts precludes them from creating an inconsistency with the CMP.

3.3 State Water Quality Control Board National Pollutant Discharge Elimination System Permit

The Porter-Cologne Water Quality Control Act and Federal Clean Water Act require local municipalities to implement measures to control construction and post-construction pollution entering local storm drainage systems to the maximum extent practicable. To comply with the requirements of the Porter-Cologne Water Quality Control Act and Federal Clean Water Act, the State Water Resources Control Board (SWRCB) implemented a National Pollution Discharge Elimination System (NPDES) permit for the Santa Clara Valley. Subsequent to implementation of the permit, the San Francisco Regional Water Quality Control Board (RWQCB) issued a Municipal Storm Water NPDES Permit to fifteen co-permittees. The fifteen co-permittees are the City of Santa Clara, twelve other municipalities within the Santa Clara Basin watershed area, the County of Santa Clara, and the Santa Clara Valley Water District (SDVWD). Two programs, the Nonpoint Source Pollution Program and the Santa Clara Valley Urban Runoff Pollution Prevention Program, have been implemented under the NPDES permit to regulate construction and post-construction runoff.

Nonpoint Source Management Plan

In 1988 the SWRCB adopted the Nonpoint Source Management Plan in an effort to control nonpoint source pollution in California. In December 1999, the Plan was updated to comply with the requirements of Section 319 of the Clean Water Act and Section 6217 of the Coastal Zone Act Reauthorization Amendment of 1990. The Nonpoint Source Management Plan requires individual permits to control discharge associated with construction activities. The Nonpoint Source Management Plan is administered by the RWQCB under the NPDES General Permit for Construction Activities. Projects must comply with the requirements of the Nonpoint Source Program if:

- they disturb one acre or more of soil; or
- they disturb less than one acre of soil but are part of a larger development that, in total, disturbs one acre or more of soil.

The NPDES General Permit for Construction Activities requires the developer to submit a Notice of Intent (NOI) to the RWQCB and to develop a Stormwater Pollution Prevention Plan (SWPPP) to control discharge associated with construction activities.

Consistency: Implementation of the proposed project would disturb more than one acre of soil and would require compliance with the Nonpoint Source Program. For a discussion of the measures proposed by the project to achieve compliance with the Nonpoint Source Program, refer to Section 4.4, *Hydrology and Water Quality*. With implementation of the proposed measures, the project will be consistent with the Nonpoint Source Management Plan.

Santa Clara Valley Urban Runoff Pollution Prevention Program

The Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) was developed by the RWQCB to assist co-permittees to implement the provisions of the NPDES permit. This program was also designed to fulfill the requirements of Section 304(1) of the Federal Clean Water Act, which mandated that the Environmental Protection Agency develop NPDES application requirements for storm water runoff. The Program's Municipal NPDES storm water permit includes provisions requiring regulation of storm water discharges associated with new development and development of an area-wide watershed management strategy. The permit also identifies

recommended actions for the preservation, restoration, and enhancement of the San Francisco Bay Delta Estuary.

Applicable projects consist of all new public and private projects that create 10,000 square feet or more of impervious surface collectively over the entire project site and redevelopment projects that add or replace 10,000 square feet or more of impervious surface area on the project site. Additional requirements must be met by large projects (formerly known as Group 1 projects) that create one acre or more of impervious surfaces. These large projects must control increases in runoff peak flow, volume, and duration (referred to as Hydromodification) caused by the project if the increase in stormwater runoff have the potential to cause erosion or other adverse impacts to receiving streams.

Consistency: As discussed in Section 4.4., *Hydrology and Water Quality*, the proposed project includes applicable Best Management Practices to ensure that there is no increase in erosion or sedimentation that could impact local waterways. The implementation of erosion control and storm water management practices during and after project construction will be in accordance with the SCVURPPP, NPDES permit requirements, and the City's Stormwater C.3 Guidebook. The proposed project would not result in an impact upon the conservation and restoration of streams and riparian zones or areas of special or unique ecological significance. For these reasons, the proposed project would be consistent with the SCVURPPP and NPDES permit process.

3.4 Airport Land Use Commission Land Use Plan

The Santa Clara Airports Land Use Commission (ALUC) has adopted a Land Use Plan for those areas in the vicinity of Norman Y. Mineta San José International, Reid-Hillview, Palo Alto, and South County airports. The current plan was adopted in September 1992. The goal of the Land Use Plan[15] is to ensure that new land uses near the airports are such that the public's exposure to excessive noise and safety hazards are minimized. The Land Use Plan includes policies that set forth maximum noise exposure levels. It also includes safety zones that limit the type and density of development and building heights near airports.

The project site is located within the ALUC Land Use Referral Boundary for nearby San José International Airport. This means that the ALUC is required to review the proposed stadium development for consistency with its Land Use Plan. Recommendations made by the ALUC are advisory, not mandatory. Nevertheless, if the ALUC determined that the proposed development is inconsistent with the Land Use Plan, there must be a two-thirds vote by the Santa Clara City Council to override the ALUC's decision. Override votes must be accompanied by specific findings.

Consistency: The ALUC reviewed the proposed project and determined that it is consistent with ALUC policies as defined in the Land Use Plan for Areas Surrounding Santa Clara County Airports. The ALUC made three recommendations for conditions of approval which will be considered by the City.

3.5 City of Santa Clara General Plan

The Santa Clara General Plan is a comprehensive, long-term plan that represents the City's official development policy. The following is a summary of major strategies and policies that apply to the proposed project.

[15] The Land Use Plan is in the process of being updated but the new plan has not yet been adopted so the proposed project was analyzed for consistency with the 1992 plan.

Land Use Element

The Land Use Element has been developed to promote the best use of land through protection of desirable existing uses and the orderly development and consideration of the City's future needs while recognizing property owner's rights.

Policy 10: Support the continued development of a visitor economy in the Bayshore North area, including lodging, entertainment, recreation, retail and a lively urban character.

Policy 19: Develop the Bayshore North area as a long term financial resource for the City.

Policy 23: Protect and preserve archaeological resources wherever possible.

Policy 24: Ensure a distinctive character and a high quality standard of development for structures and outdoor uses in all zoning districts in the City.

Consistency: The proposed project would develop a multi-use open-air stadium and a parking garage in the Bayshore North area adjacent to the Great America Theme Park and the Convention Center. The development of a stadium for NFL games and non-NFL sporting and cultural events (and increasing available parking for all nearby recreational land uses) would increase the visitor economy by providing additional recreational opportunities for Bay Area residents. The stadium would be owned by the City and leased by the 49ers team (and any secondary team). The City would benefit from the revenue generated by both NFL and non-NFL events at the stadium. The project is, therefore, consistent with Policies 10 and 19 of the General Plan Land Use Element.

As discussed in Section 4.7, *Cultural Resources* of this EIR, the project site is located in a moderately sensitive area for buried prehistoric and historic resources. The project proposes mitigation to reduce any impacts to unknown buried resources to a less than significant level. The project is, therefore, consistent with Policy 23 of the General Plan Land Use Element.

As discussed in Section 4.2, *Aesthetics,* the proposed stadium would have to go through site and architectural review to ensure the design of the structure and the proposed building materials are complementary to the surrounding land uses. The project is, therefore, consistent with Policy 24 of the General Plan Land Use Element.

Environmental Quality Element

The purpose of the Environmental Quality Element is to conserve and improve the environmental quality of the City and to continue an emphasis on improving the physical environment of Santa Clara.

Policy 10: Allow urban development only if there exists an adequate domestic water supply to serve the development and the development would not result in a reduction of water quality below standards set forth in the California Health and Safety Code and the California Administrative Code.

Policy 11: Maximize the use of reclaimed water for construction, maintenance and irrigation, and encourage its use elsewhere, as appropriate.

Policy 16: Participate on a regional basis in a Non-Point Source Control Program in order to reduce pollutants in stormwater runoff.

Policy 17: Maximize water retention and reduce the quantity of water runoff.

Policy 18: Encourage programs to improve the quality of stormwater runoff.

Policy 19: Protect the air quality of the City of Santa Clara and its sphere of influence. Promote land use and transportation policies which maintain air quality.

Policy 20: Protect to the extent possible existing developed areas of the City of Santa Clara from unacceptable noise levels.

Policy 24: Reduce noise from fixed sources, construction, and special events.

Policy 33: Seek construction of appropriate facilities for recreation and cultural events in areas which minimize conversion of existing open space.

Consistency: As discussed in Section 4.11, *Utilities*, the proposed project is consistent with the water demand assumptions in the City of Santa Clara Urban Water Management Plan. As a result, the project will comply with Policy 10 of the General Plan Environmental Quality Element.

As discussed in Section 4.11, *Utilities*, the project proposes to utilize recycled water to the extent feasible. It is estimated that the project can meet approximately 84 percent of its total water demand with recycled water. As a result, the project will comply with Policy 11 of the General Plan Environmental Quality Element.

The proposed project will comply with the provisions of the NPDES permit (see Section 4.4, *Hydrology* of this document). The project, therefore, is consistent with policies 16, 17, and 18 of the General Plan Environmental Quality Element.

The proposed project will result in a significant unavoidable regional air quality impact as discussed in Section 4.9, *Air Quality*. As a result, the project does not comply with Policy 19 of the General Plan Environmental Quality Element.

The project has mitigation measures to reduce construction related noise to a less than significant level. The project cannot, however, fully mitigate noise levels generated during large events at the stadium (see Section 4.10, *Noise* of this document). The nearby residential neighborhoods would be impacted by large event noise. Since the project does include all feasible mitigation, it is consistent with Policies 20 or 24 of the General Plan Environmental Quality Element.

The proposed project would construct a multi-use open air stadium on an existing surface parking lot in an urban area. The stadium would provide an additional venue in the City for sporting and cultural events without reducing the amount of existing open space within the City. As a result, the project is consistent with Policy 33 of the General Plan Environmental Quality Element.

Public Facilities and Services Element

The purpose of the Public Facilities and Services Element is to provide and encourage, within economic capabilities, needed facilities and services that contribute to the City's safety, convenience, amenity, education and cultural enrichment.

Policy 7: Maximize solid waste disposal capacity through effective recycling.

Policy 8: Do not allow new development to exceed the City's share of wastewater treatment capacity at the San José/Santa Clara Water Pollution Control Plant.

Policy 9: Maintain the integrity and capacity of the City's stormwater drain facilities.

Policy 13: Land uses approved by the City shall be compatible with the safety policies of the Santa Clara County Airport Land Use Commission.

Consistency: The proposed project will comply with the City's mandate for recycling (see Section 4.11, *Utilities* for a full explanation). As a result, the project will comply with Policy 7 in the General Plan Public Facilities and Services Element.

As discussed in Section 4.11, *Utilities,* the proposed project will not exceed the capacity of sanitary sewer system or the City's capacity share at the San José/Santa Clara Water Pollution Control Plant. As a result, the project will comply with Policy 8 in the General Plan Public Facilities and Services Element.

As discussed in Section 4.11, *Utilities,* the proposed project will slightly increase the amount of impermeable surfaces on the project site but will not exceed the capacity of the existing storm drainage system. Therefore, the proposed project would be consistent with Policy 9 of the General Plan Public Facilities and Services Element.

The project site is outside the jurisdiction of the Santa Clara County Airport Land Use Commission. The project will, however, comply with the operational requirements of the Mineta San José International Airport. Therefore, the project will not conflict with Policy 13 in the General Plan Public Facilities and Services Element.

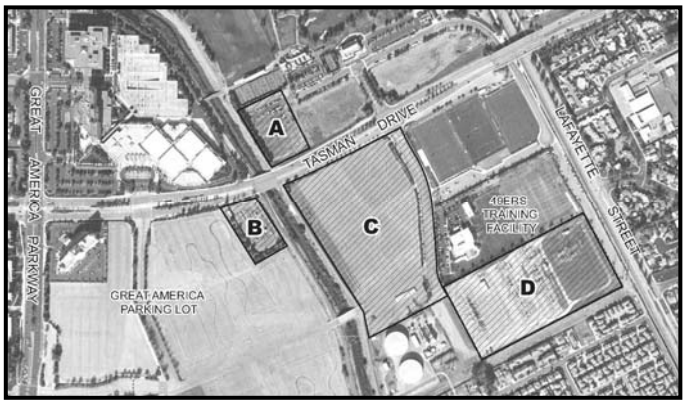
4.1 LAND USE

4.1.1 Existing Setting

The following discussion identifies the existing conditions on and adjacent to the proposed project site.

4.1.1.1 Existing Land Use

As shown on the adjacent figure, the main project site is comprised of four separate properties which, combined, total 40.3 acres. The main project site includes the proposed parking garage site (Sub-Area A), the existing substation (Sub-Area B), the proposed stadium site (Sub-Area C), and the proposed substation receiver site (Sub-Area D). In addition, numerous public and privately owned properties have been identified for possible use of existing off-site surface parking.



Sub-Area A – Parking Garage Site

The parking garage is proposed on 2.0 acres on the north side of Tasman Drive, immediately east of San Tomas Aquino Creek. The garage site is currently developed as a paved surface parking lot for the Santa Clara Golf and Tennis Club. The site has access from the western terminus of Stars and Stripes Drive (via Centennial Boulevard) which is a two-lane roadway (with parking stalls on either side of the road) that generally runs parallel to Tasman Drive. Stars and Stripes Drive ends at the entrance to the parking lot. The parking lot is accessed via a narrow driveway that slopes downward to the parking area. There is no vegetation within the parking lot. The lot currently has seven light standards.

Sub-Area B – Substation Site

The existing substation is on 2.10 acres located at the southwest corner of San Tomas Aquino Creek and Tasman Drive. The substation houses a collection of transformers and transmission lines as well as the existing electric service for the Light Rail line. The site has access from Tasman Drive via a designated driveway. The west and south sides of the site are vegetated with large trees which separate the substation from the adjacent Great America Theme Park main parking lot.

Sub-Area C – Stadium Site

The stadium site is approximately 22 acres located at the southwest corner of the intersection of Tasman Drive and Centennial Boulevard. The stadium site is currently developed as a paved overflow surface parking lot for the Great America Theme Park. There is currently a two lane bridge over San Tomas Aquino Creek (at the southern end of the site) that connects the site to the main parking lot. The site has access from Centennial Boulevard which is a four-lane roadway that dead ends near the southern boundary of the site. There is no vegetation within the parking lot but there is

some landscaping along the north and east boundaries of the site. There are 24 light standards spread throughout the site.

Sub-Area D – Substation Receiver Site

The proposed substation receiver site is the 14.2-acre Silicon Valley Power Northern Receiving Station site. The station is located immediately southeast of the stadium site and has access from Centennial Boulevard which dead ends at the receiving station entrance.

None of the project sites or any nearby property is now or has recently been farmed.

Figure 4 shows an aerial of the project site and surrounding land use.

4.1.1.2 Surrounding Land Uses

Development in the project area is a mix of office, light industrial, commercial, recreational, and residential land uses. The largest structures are office buildings with heights up to 15 stories.

Sub-Area A – Parking Garage Site

The parking garage site is bounded by the tennis courts of the golf and tennis Club to the north, a vacant parcel to the east, Tasman Drive to the south, and San Tomas Aquino Creek to the west. The site is separated from the creek by a levee and a group of approximately 54 pine trees that run the length of the levee along the site boundary. Behind the trees, on top of the east levee, is a non-contiguous (due to Tasman Drive) maintenance road. There is a trail on the west side of the creek that runs under Tasman Drive. Just west of the creek is the Santa Clara Convention Center. The Convention Center is a 302,000 square foot, two-story building with an attached parking structure[16]. The Convention Center is part of a larger development that also includes the 15-story, 501-room Hyatt Regency hotel.

As stated above, the tennis courts are part of the Santa Clara Golf and Tennis Club. The club is located on a 155-acre City owned property. The club is part of the Santa Clara Trade and Convention Center Complex which also includes the Convention Center, Hyatt Regency Santa Clara, and Techmart office building. The club includes an 18-hole championship golf course, lighted driving ranges, seven lighted tennis courts, and a restaurant.

Sub-Area B – Substation Site

The substation site is bounded by Tasman Drive to the north, San Tomas Aquino Creek to the east, and the Great America Theme Park main parking lot to the south and west. The Great America Theme Park main lot is a 51-acre asphalt lot built without tree wells or landscape islands. South of the parking lot is the Great America Theme Park, an approximately 100-acre combination water and theme park. East of San Tomas Aquino Creek is the stadium site (see description above in Section 4.1.1.1).

[16] A 22,400 square foot ballroom was constructed at the convention center and opened July 16, 2009. With the new ballroom, the total square footage is 302,000.

Sub-Area C – Stadium Site

The stadium site is bounded by Tasman Drive to the north, Centennial Boulevard to the east, the Silicon Valley Power Northern Receiving Station (see description above in Section 4.1.1.1) and two 40-foot tall, four million gallon water tanks to the south, and San Tomas Aquino Creek to the west. Just east of Centennial Boulevard is the Santa Clara Youth Soccer Park and the Marie P. DeBartolo Sports Centre. The soccer park is an 11-acre state-of-the-art soccer facility with three full-size regulation soccer fields. There are two grass fields and one artificial turf field that each has sports field lighting. The Sports Centre is the current training facility for the 49ers football team. The facility is located on an 11.22-acre site that houses the training center (with business offices) and three practice fields (two natural grass fields and one synthetic surface practice field). Unlike the soccer fields, the football practice fields are not lit.

East of the practice fields is the Amtrak/ACE rail line and Lafayette Street. Just beyond Lafayette Street is a residential neighborhood, which is approximately 1,200 feet east of the stadium site. This residential neighborhood is a mix of apartments, two-story attached townhouses, and one- to two-story single family houses. None of the single family houses near Lafayette Street face the stadium site. Some of the apartments and townhouses do face Lafayette Street, but are somewhat shielded by a sound wall and large trees.

South of the water tanks and the receiving station is the Hetch-Hetchy right-of-way and a residential neighborhood. The residential neighborhood is approximately 700 feet south of the stadium site and is comprised of single-family one- and two-story houses, two-story attached townhouses, and small two-story apartments. The northernmost residential properties (residences on the north side of Gianera/6th Street) in this neighborhood all face south. There is a vacant parcel on Gianera near Lake View Drive which allows a clear view of the receiving station and water tanks.

As discussed above, west of San Tomas Aquino Creek is the Great America Theme Park main parking lot and the substation site. West of the main parking lot is a Hilton Hotel (at the southwest corner of Great America Parkway and Tasman Drive) and Great American Parkway. On the west side of Great America Parkway are several office buildings. The nearest office building to the stadium is approximately 1,833 feet west of the stadium site.

Sub-Area D – Receiving Station Site

The receiving station site is bound by Centennial Boulevard, the stadium site (see description above in Section 4.1.1.1) and the Marie P. DeBartolo Sports Centre to the north, a surface parking lot to the east, a residential neighborhood to the south, and the water tanks and San Tomas Aquino Creek to the west. As described above, the Great America Theme Park main parking lot is located west of San Tomas Aquino Creek. East of the parking lot adjacent to the practice fields (which is at the end of the Stars and Stripes Drive cul-de-sac) is the Amtrak/ACE rail line and Lafayette Street. Just beyond Lafayette Street is another residential neighborhood.

The neighborhood to the south is comprised mostly of single-family one- and two-story houses. There are also some small two-story apartments on the northern side of Gianera/6th Street. The residences on the northern side of Gianera/6th Street back up to the Hetch-Hetchy right-of-way which is vacant. The neighborhood to the east is also a mix of single-family houses, attached townhouses, and apartments.

4.1.1.3 General Plan Designations

The stadium site, garage site, and existing substation site are currently designated *Tourist Commercial* in the City of Santa Clara General Plan. The receiver site is currently designated *Institutional*.

Centered on the Great America Theme Park and the City's Convention Center, the *Tourist Commercial* designated lands are generally located north of Highway 101 near the Tasman Light Rail Line. Quality hotel, recreation and other tourist-oriented uses such as theaters, museums, and specialty retail are encouraged within this designation. Through the zoning and architectural review processes, all building designs, parking areas, proposals for accessory structures, and proposals for mixed uses are reviewed.

Ground floor retail along the Light Rail line and at the Transit Stations is encouraged. Outdoor seating at restaurants and other public oriented uses such as areas for street performers are reviewed to ensure a pedestrian orientation and visibility for public rights-of-way. Uses oriented to surrounding employment areas such as carry-out restaurants are carefully monitored to ensure that they are a minor part of and not a distraction from tourist oriented uses. Drive-through or other similar uses are generally not encouraged.

Typically, landscaping and public seating is incorporated into public plaza areas in each development. Landscaping along public right-of-way areas should be in scale with the size and bulk of the building(s) and be designed to minimize possible wind impacts from taller structures. Tall structures should be located or designed so as to not cast shadows over the public right-of-way for most of the day. Building height is limited to 150 feet and building coverage shall not exceed 25 percent of the lot area.

The *Institutional* land use designation includes activities such as (1) hospitals and museums; and (2) other activities of a welfare or philanthropic nature that can not be considered a residential, commercial, or industrial activity. Churches and other religious sites that are not significant enough to be identified on the Land Use and Circulation Diagram are embedded in the residential land uses. The major institutional facility in Santa Clara is the City's Civic Center, including City Hall, the Triton Museum and the Headen-Inman and Jamison Brown houses. Other designated sites are the Our Lady of Peace Statue and church, the City's Corporation Yard, the Carmelite Monastery, the Central Library, the Catholic Cemetery, the Santa Clara Cemetery, and Kaiser Hospital.

4.1.1.4 Zoning Designations

The entire project site is zoned *B – Public/Quasi-Public.* This designation is intended to provide for public, quasi-public, and public park facilities. As defined in Chapter 18.52 of the Santa Clara Municipal Code, this designation allows the following land uses:

- Landscaped public utility facilities without a substantial structure where activity would be limited to occasional maintenance and servicing such as City-owned well sites, City-owned pumping stations, public utility substations whether City-owned or privately owned, telephone company switching stations, and operations which in the opinion of the Planning Commission are similar.

- Public parks without recreational facilities where there will be no evening activity or concentration of people such as a memorial site, the Civic Center Park, and other quiet park facilities which in the opinion of the Planning Commission are similar.

- Additions to existing public or quasi-public facilities not exceeding fifteen percent of the existing development within a single calendar year and not substantially changing the nature of the operation.

In addition to the permitted uses, this designation also allows for the following conditional land uses with the approval of a use permit:

- Public or private general educational facilities such as elementary, intermediate or high schools, junior colleges, and universities. This provision does not apply to single-purpose educational facilities.

- Municipal and public utility facilities such as fire houses, telephone company business office, post office and the like.

- Churches and similar nonprofit facilities such as museums, art galleries, monasteries, and youth facilities.

- Cemeteries, airports, golf course of ten acres or more, public utility corporation yards, and other facilities which in the opinion of the Planning Commission are similar.

- Public park or recreational facility.

- Neighborhood recreational enterprises.

- Other public and quasi-public facilities not specifically provided for herein or within other districts of this title which in the opinion of the Planning Commission would most appropriately be placed in the B zoning district.

The *B – Public/Quasi-Public* zone restricts building height and coverage so that maximum height and coverage shall not exceed that allowed in the most restrictive abutting zone district. The most restrictive adjacent zoning district is the R1-6L zoning which has a building height limit of 25 feet and does not allow building coverage to exceed 40 percent of the lot area (Santa Clara Municipal Code 18.12.070).

The project proposes rezoning the parcels that will encompass the stadium and Training Facility, as well as immediate on-site parking areas, to *PD – Planned Development* to reflect the project as it is proposed.

4.1.1.5 Bayshore North Redevelopment Plan

The project site is located within the Bayshore North Redevelopment Plan area. The Bayshore North Redevelopment Plan was adopted in 1973 to encompass an area of approximately 1,200 acres within the north of Bayshore area in the City of Santa Clara. The Redevelopment Plan provides for various redevelopment activities that expedite the orderly development of land uses designated in the Santa Clara General Plan. The redevelopment activities consist of removal of economic and physical

blight, elimination of impediments to development such as awkward or cumbersome parcelization, provision of costly infrastructure improvements that would be too burdensome for individual property owners, and marketing to draw development into the area. The Redevelopment Plan was intended to provide needed infrastructure improvements to facilitate private redevelopment and enhance the generation of tax increment revenue, thereby achieving the interrelated goals of Project Area blight elimination and regional economic development.

4.1.2 Land Use Impacts

4.1.2.1 Thresholds of Significance

For the purposes of this EIR, a land use impact is considered significant if the project would:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect;
- Conflict with an applicable habitat conservation plan or natural community conservation plan;
- Convert prime farmland, unique farmland, or farmland of statewide importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural lands;
- Conflict with existing zoning for agricultural use, or a Williamson Act Contract;
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland, to non-agricultural use;
- Induce substantial population growth in an area, either directly or indirectly;
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; or
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

4.1.2.2 Proposed Amendment to Existing Land Use Plans

Proposed General Plan Text Amendment

The project proposes a General Plan Text Amendment to the existing *Tourist Commercial* designation. The text amendment, if approved, would allow stadiums, arenas, sports and cultural facilities under this land use designation, in addition to the currently allowed land uses. It would also encourage shared parking arrangements which may be approved in circumstances where one or more uses are complementary in their nature and peak times of activities. The proposed text amendment would also allow building heights in excess of 150 feet through zoning approval of specific designs that are appropriate for the nature of the proposed use. Furthermore, building coverage may be 75 percent or more of the total lot for special facilities, including stadiums, arenas, theatres, and other similar land uses where substantial landscape and pedestrian plazas are also provided. It would also allow parking garages as a specific and independent land use.

Proposed Rezoning

The proposed stadium project does not conform to the existing zoning designation. Therefore, the project proposes to rezone the stadium site (including the existing training facility) to Planned Development (PD) zoning.

Proposed Bayshore North Redevelopment Plan Amendment

The City is proposing to amend the Redevelopment Plan as shown below. Underlined text is proposed to be added; ~~crossed out text~~ is proposed to be deleted.

2) Recreational

The following areas are intended to include facilities and open space whose primary purpose is recreation. Building height and coverage, where applicable, should be considerate of the most restrictive adjacent land use.

The area generally southerly of Yerba Buena Way but northerly of Stars and Stripes Drive and northeasterly of San Tomas Aquino Creek between Great America Parkway and the Union Pacific Railroad Tracks/Lafayette Street, is primarily a closed landfill site on which is located the Santa Clara Golf Club and Tennis Club, restaurant and banquet facilities (approximately 121 acres total). A public safety facility, Fire Station #10, is located in this area north of Stars and Stripes Drive and east of Centennial Boulevard. Pedestrian bridges connect the first holes of the golf course to the last holes across Lafayette Street, as well as to the Santa Clara Convention Center complex.

The recreational designation also applies to that area at the southeast corner of Centennial Boulevard and Tasman Drive, totaling approximately 22 acres. While not limited to such uses, that area contains a youth-oriented Soccer Facility with ~~up to~~ three playing fields ~~is planned beside the existing~~ and the San Francisco 49er's Football Training Facility near the Santa Clara Great America Train Station. The boundary between this area and the adjoining Tourist Commercial and Parking Area to the west across Centennial Boulevard may be adjusted to accommodate uses in the Tourist Commercial and Parking Area.

4) Tourist Commercial and Parking

Located generally between Stars and Stripes Drive and Tasman on both sides of Centennial Boulevard and southeasterly of Great America Parkway and Tasman Drive to Centennial Boulevard, these areas are near the Great America Theme Park and the City's Convention Center, and adjacent to the Tasman Light Rail Line. Quality hotel, office, recreation and other tourist-oriented uses such as theatre, museums, stadiums and arenas and specialty retail and restaurants are encouraged within this designation. Building height typically does not exceed 150 feet, except that a stadium may be as high as 200 feet. Besides landscaped surface parking areas, the City may construct a parking structure across Tasman Drive or in other areas currently in use for surface parking for public users of the facilities at the Convention Center, theme park and other nearby uses. The boundary between this area and the adjoining Recreational area to the east across Centennial Boulevard may be adjusted to accommodate uses in the Tourist Commercial and Parking Area.

4.1.2.3 Land Use Conflicts

Land use conflicts can arise from two basic causes: 1) a new development or land use may cause impacts to persons or the physical environment in the vicinity of the project site or elsewhere; or 2) conditions on or near the project site may have impacts on the persons or development introduced onto the site by the new project. Both of these circumstances are aspects of land use compatibility. Potential incompatibility may arise from placing a particular development or land use at an inappropriate location, or from some aspect of the project's design or scope. Depending on the nature of the impact and its severity, land use compatibility conflicts can range from minor irritations and nuisance to potentially significant effects on human health and safety. The discussion below distinguishes between potential impacts *from* the proposed project *upon* persons and the physical environment, and potential impacts *from* the existing surroundings *upon* the project itself.

The project proposes a General Plan text amendment to the *Tourist Commercial* land use designation, a rezoning to *PD – Planned Development*, and an amendment to the Bayshore North Redevelopment Plan to allow for the construction of an approximately 200-foot tall, 68,500 seat open-air stadium and a six-story parking structure.

Consistency with the General Plan Land Use Designation and Zoning

The parking structure and stadium sites are currently designated *Tourist Commercial* in the City of Santa Clara General Plan and zoned *B – Public/Quasi Public*. This General Plan designation allows for quality hotel, recreation and other tourist-oriented uses such as theaters, museums, and specialty retail. Currently the proposed stadium is not a permitted uses under the *Tourist Commercial* designation. This designation has a building height limit of 150 feet and does not allow building coverage to exceed 25 percent of the area of the parcel. Under the existing zoning, building height and coverage must be such that maximum height and coverage shall not exceed that allowed in the most restrictive abutting zone district.

The proposed development includes a stadium structure up to 200 feet tall with a building coverage area equal to 56.6 percent of Sub-Area C. The proposed stadium would not meet the building height or site coverage limits of either the General Plan or zoning and is not an allowable land use.

The proposed General Plan text amendment would allow a stadium and a stand alone parking garage to serve the stadium. With the proposed rezoning to *PD – Planned Development*, the proposed building heights and site coverage area of structures would be permissible. If the proposed General Plan text amendment and rezoning are not approved, the project cannot be implemented as proposed.

Impact LU-1: The proposed project would be consistent with the General Plan as amended and proposed zoning. **(Less Than Significant Impact)**

Consistency with the Bayshore North Redevelopment Plan

As discussed above, the stadium project is not an allowable land use under the Bayshore North Redevelopment Plan and, as proposed, is not consistent with the height restrictions. In addition, the abandonment of Centennial Boulevard south of Tasman Drive to allow for pedestrian areas and surface parking in conjunction with the adjacent soccer fields and training facility is not currently allowed.

The proposed project would be consistent with the Bayshore North Redevelopment Plan as it is proposed to be amended, because it would allow for a 200-foot tall stadium and the inclusion of land currently occupied by Centennial Boulevard in overall stadium design. If the proposed Bayshore North Redevelopment Plan amendment is not approved, the project cannot be implemented as proposed.

Impact LU-2: The proposed project would be consistent with the proposed Bayshore North Redevelopment Plan amendment. **(Less Than Significant Impact)**

Land Use Impacts

Impacts of the proposed General Plan Amendment

Land use changes resulting from the proposed General Plan amendment would primarily result from the new uses allowed (stadiums, arenas, sports and cultural facilities), and from the increased height and building coverage allowed. Stadium impacts are addressed throughout this EIR. The other land uses are general and not dissimilar from those already existing in the area. Any specific proposal for a substantial additional facility of the types listed will require future project-specific CEQA review.

Impacts from buildings that could be built to an indefinite height and/or could cover up to 75 percent of the site would be primarily visual and aesthetic, increased shade and shadow, diversion of flood waters, and decreased water percolation on-site. The visual and aesthetic impacts of future development will be reduced by the design review procedures required by the General Plan and City policies, and also referenced in the land use designation. Shade and shadow is an issue already addressed in the General Plan land use designation being amended.

The recreational/tourist commercial land uses are long planned for at this location. The Great America Theme Park has been in place for 32 years and dominates the man-made improvements in the area.

Other development in the area is a mix of office, light industrial, commercial, recreational, and residential land uses. The proposed land uses allowed by the amendment (stadiums, arenas, sports and cultural facilities) would be generally compatible with the adjacent and nearby tourist and recreational facilities that include Great America, the soccer facilities, convention center, hotels, and the golf and tennis club.

Sources of conflict could be issues such as traffic, ingress/egress, parking availability, and pedestrian safety. Since the City of Santa Clara will own the stadium and is the underlying property owner for the adjacent facilities, the city will retain the ability to oversee event scheduling and planning. The City and the 49ers team have both stated their intentions of scheduling football games and other non-football events at times that do not conflict with the planned use of nearby facilities. With two teams using the facility, games would occur virtually every week at the stadium from August through December. Saturday or Sunday home games from August through October will always require coordination with Great American Theme Park to avoid traffic conflicts.

Impact LU-3: The proposed land uses added to the General Plan designation would be compatible with the adjacent and nearby tourist and recreational facilities including Great America, the soccer facilities, convention center, and the golf and tennis club. **(Less Than Significant Impact)**

Project Specific Impact

Possible sources of land use incompatibility from the proposed project would include noise, visual and aesthetic impacts (including light spillover), parking spillover, and windblown litter. See Section 4.10 for a complete discussion of noise impacts, Section 4.8 for a discussion of parking spillover, and Section 4.2 for visual and aesthetic impacts.

The project proposes to encourage tailgating in designated parking lots that are more than 750 feet from residential properties. After the tailgate parties, the company responsible for security and maintenance of the off-site parking facilities will sweep through the lots, picking up trash and litter. After the lots have been vacated, a more thorough clean-up, including vacuum trucks and/or street sweeping, will be implemented if necessary. Waste bins and recycling containers will be provided at convenient locations. Garbage and litter inside the stadium will be collected and disposed or recycled in conformance with City regulations.

Impact LU-4: Trash and litter will be managed by immediate collection before it becomes windblown and will be disposed or recycled in conformance with City requirements. **(Less Than Significant Impact)**

Sub-Area B is currently a surface parking lot used for overflow parking for the Great America Theme Park. When not in use by the Theme Park, the parking lot is used by the Santa Clara Police Department (SCPD) for training and by the North Valley Baptist Church for bus parking through an lease agreement with Great America Theme Park.

The development of the parking lot will not preclude the SCPD from conducting their training exercises as there are many other large parking lots within the City that could be utilized. The loss of bus parking is also not significant as the buses could park on the Great America main lot or find other parking arrangements.

Impact LU-5: Implementation of the proposed project would not conflict with SCPD training or impact the operations of North Valley Baptist Church. **(Less Than Significant Impact)**

There is currently no habitat conservation plan (HCP) or natural community conservation plan (NCC) for the project area and very little undeveloped land. The proposed project would not, therefore, impact any applicable HCP or NCCP.

Impact LU-6: The proposed project would not impact any applicable HCP or NCCP. **(Less Than Significant Impact)**

Norman Y. Mineta San José International Airport Operations

Height Restrictions

Due to the project's proximity to the San José Airport flight paths, development on the site is subject to height limits under Federal Aviation Regulations, Part 77, which is administered by the Federal Aviation Administration (FAA) and incorporated into the Santa Clara County Airport Land Use Commission (ALUC) policy. Under these regulations, any proposed structure that would exceed an FAA imaginary surface restriction, or which stands at least 200 feet above ground level, is required

to be referred to the FAA for an airspace safety evaluation. The proposed stadium would be 175 feet tall with light standards up to 200 feet, thereby creating a potentially significant impact.

The western portion of the stadium site and most of the parking structure site are within the flight path for Runway 30L. The average elevation of the site above mean sea level is 15 feet. Structures within this area are restricted in height by San José International Airport based on multiple departure criteria. At the southernmost boundary of the stadium site, the maximum height can be 255.5 feet above mean sea level. At the northernmost boundary of the stadium site, the maximum height can be 275 feet above mean sea level. The height restriction increases to 280 feet above mean sea level on the parking structure site. The stadium is proposed to be 175 feet tall with light standards up to 200 feet and the parking garage is proposed to be six stories (approximately 72 feet). Therefore, the proposed structures will be a minimum of 40.5 feet below the most restrictive height limit.

The project applicant submitted the stadium plans to the FAA designating eight high points on the building. These high points included six light standards around the south, east, and north sides of the structure, and two points along the tops of the solar panels on the west side of the structure. The light standards on the south, east, and north elevations will be 200 feet above ground level (AGL) or 215 feet above mean sea level (AMSL). The solar panels on the western elevation will be 171 feet AGL and 186 feet AMSL.

In June 2009, the FAA issued a Determination of No Hazard to Air Navigation (see Appendix A) for the proposed stadium project. The No Hazard determination was issued because the light standards and solar panels are within the 200 foot AGL obstruction standards and will not interfere with airport operations.

Impact LU-7: The project will comply with the height restrictions for the Mineta San José International Airport and the FAA and will not impact airport operations. **(Less Than Significant Impact)**

Construction of the proposed project will require the use of tall construction cranes for the lifting and moving of building materials. Prior to start of construction, the applicant will be required to file form 7460-1, *Notice of Proposed Construction,* with the FAA for approval. All large construction equipment that will be used on-site will be included in the submittal and will have to be approved by the FAA prior to use. If any of the equipment proposed is not approved by the FAA, then an alternative construction plan will need to be submitted for approval.

Impact LU-8: The project will comply with the FAA determination for large construction equipment and will not temporarily impact airport operations during construction of the proposed project. **(Less Than Significant Impact)**

Temporary Restrictions to Airport Operations

The FAA requires that temporary flight restrictions (TFRs) be imposed on any stadium when stadium events exceed 30,000 attendees. During NFL game days and any other large non-NFL event days with attendance in excess of 30,000 persons, a TFR would be issued which prohibits planes from flying below 3,000 feet above ground level within three nautical miles of the stadium.[17]
The TFR would require aircraft operators to be in radio contact with, and have approval of, FAA controllers in order to fly within a certain radius and altitude over the site. While some general

[17] Department of Transportation – Division of Aeronautics, comment letter dated September, 2008.

aviation aircraft may have to avoid overflying the stadium on large event days, the TFRs will not significantly impact operations at San José International Airport.[18]

Impact LU-9: Temporary flight restrictions over the stadium on large events days will not significantly impact operations at San José International Airport. **(Less Than Significant Impact)**

4.1.2.4 Agricultural Impacts

The four sub-areas of the proposed project site are all developed and are not designated and have not been used as farmland for many years. Because the project will not conflict with existing agricultural zoning or a Williamson Act contract, or convert prime farmland to non-agricultural uses, implementation of the proposed project will have no impact on farmland.

Impact LU-10: The proposed project will have no impact on farmland. **(No Impact)**

4.1.2.5 Population and Housing Impacts

The jobs/housing ratio quantifies the relationship between the number of housing units and the number of jobs available in the City. When the ratio reaches 1.0, a balance is struck between the supply of local housing and local jobs. The jobs/housing ratio is determined by dividing the number of local jobs by the number of employed residents that can be housed in local housing.

According to the Association of Bay Area Governments (ABAG) *Projections 2007*, the population in the year 2005 in the City of Santa Clara's Sphere of Influence was 108,700 in 41,520 households. For 2025, the projected population is 135,400 in 51,090 households. The average number of persons per household in Santa Clara is 2.58 based on the 2000 Census[19].

The City of Santa Clara has a strong employment base with approximately 2.22 jobs per employed resident. The proposed project would construct a 68,500 seat stadium and parking structure on two existing surface parking lots which do not currently generate any jobs. The proposed stadium would generate various jobs including, maintenance workers, event staff, and operations staff. All jobs created by the proposed project would be a net increase over the total number of jobs currently located within the City. The project would create additional job opportunities within the City and increase the jobs/housing imbalance. Because Santa Clara already has a strong employment base, new workers could either have to commute from housing in the southern areas of Santa Clara County or from outside the County. Many of the stadium jobs would, however, be seasonal in nature and would not necessarily attract workers from outside the City. Many of the part-time or seasonal jobs could be filled by students or seniors and would not be a viable option for working professionals.

Therefore, it is unlikely that the project would induce any substantial housing growth in other areas. Since the project site has not been used for residential purposes in the past, the proposed project will not displace existing housing or people and will not divide an established neighborhood.

Impact LU-11: Implementation of the proposed project would slightly increase the City's jobs/housing imbalance but would not displace existing housing. Since the

[18] Personal Communication – Cary Greene, Airport Planner, San José International Airport, June, 2009.
[19] http://census.abag.ca.gov/cities/SantaClara.htm

proposed project will not likely induce substantial population growth at other locations, the impact is not significant. **(Less Than Significant Impact)**

4.1.3 Mitigation and Avoidance Measures for Land Use Impacts

Please refer to Section 4.10.3, *Mitigation and Avoidance Measures for Noise Impacts,* for a complete list of proposed noise mitigation.

The stadium lighting, as proposed, would not have a significant impact on nearby land uses and as a result no mitigation is required or proposed.

Please refer to Section 4.8, *Transportation*, for a discussion of the proposed parking plan.

4.1.4 Conclusion

With approval of the proposed General Plan text amendment, PD Zoning application, and proposed amendment to the Bayshore North Redevelopment Plan, the proposed development project would comply with relevant land use policies and regulations. **(Less Than Significant Impact)**

Implementation of the proposed project will not significantly impact operations at San José International Airport. **(Less Than Significant Impact)**

Implementation of the proposed project will result in a net increase in full and part-time jobs within the City of Santa Clara. Even though Santa Clara has more jobs than available housing, the nature of many of the jobs generated by the project would not induce substantial housing growth in areas outside the City. It would, however, exacerbate the existing jobs/housing imbalance. **(Less Than Significant Impact)**

4.2 VISUAL AND AESTHETICS

4.2.1 Existing Setting

4.2.1.1 Visual Character of the Project Site

The approximately 40.3-acre, four parcel project site is located in an urban/commercial/office area of northern Santa Clara near the Convention Center. Below is a description of the visual characterizes of the project area and accompanying photographs. Figure 8 shows the locations the photos were taken from.

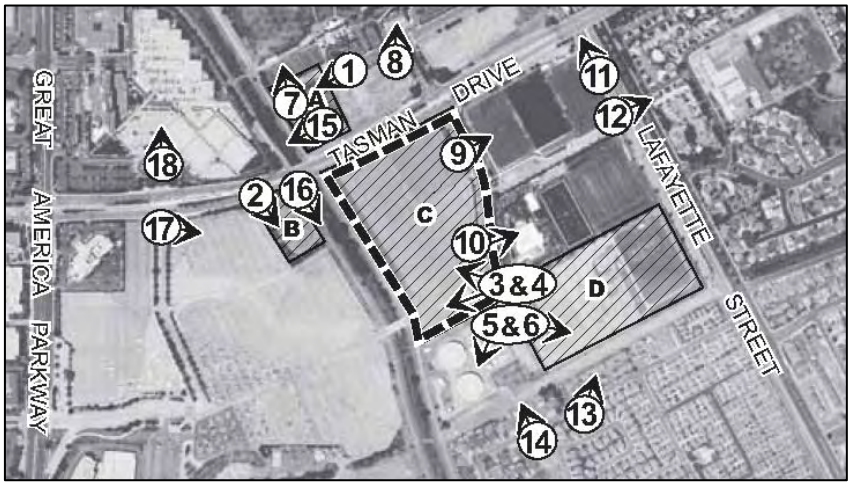


Figure 8 - Photo locations

Sub-Area A – Parking Garage Site

The parking garage site is currently developed as a paved surface parking lot that is used by the Santa Clara Golf and Tennis Club. The site has access from Stars and Stripes Drive (via Centennial Boulevard) which is a two-lane roadway (with parking stalls on either side of the road) that generally runs parallel to Tasman Drive. Stars and Stripes drive ends at the entrance to the parking lot on Sub-Area A. The parking lot is accessed via a narrow driveway that slopes downward to the parking area. There is no vegetation within the parking lot. The lot currently has seven light standards and no other structures on the site (see Photo 1).

Tasman Drive is elevated in the area and the site is clearly visible from the roadway.

Sub-Area B – Substation Site

The existing substation is on 2.10 acres located at the southwest corner of San Tomas Aquino Creek and Tasman Drive. The substation is surrounded by a six-foot chain-link fence on all sides and mature plum and pine trees on the west and southerly boundaries. The substation is paved and contains a collection of transformers and transmission lines and provides the existing electric service for the Light Rail (see Photo 2). There is a small stucco building on-site that houses the monitoring and operational equipment necessary to run the substation. A second accessory structure which looks like a small shed is separated from the main area of the site by a six-foot fence. This structure is located near Tasman Drive along the western property line and contains the light rail electrical equipment. Both buildings are well maintained and the site is clear of debris.

The site is gated and has access from Tasman Drive via a designated driveway. The west and south sides of the site are lined with large trees which separate the substation from the adjacent Great America Theme Park main parking lot. Tasman Drive is elevated in this area and the view from the

Photo 1 - View of the parking structure site, looking west from Stars and Stripes Drive.

Photo 2 - View of the existing substation, looking south from Tasman Drive.

PHOTOS 1 AND 2

Photo 3 - View of the stadium site, looking northwest from Centennial Boulevard.

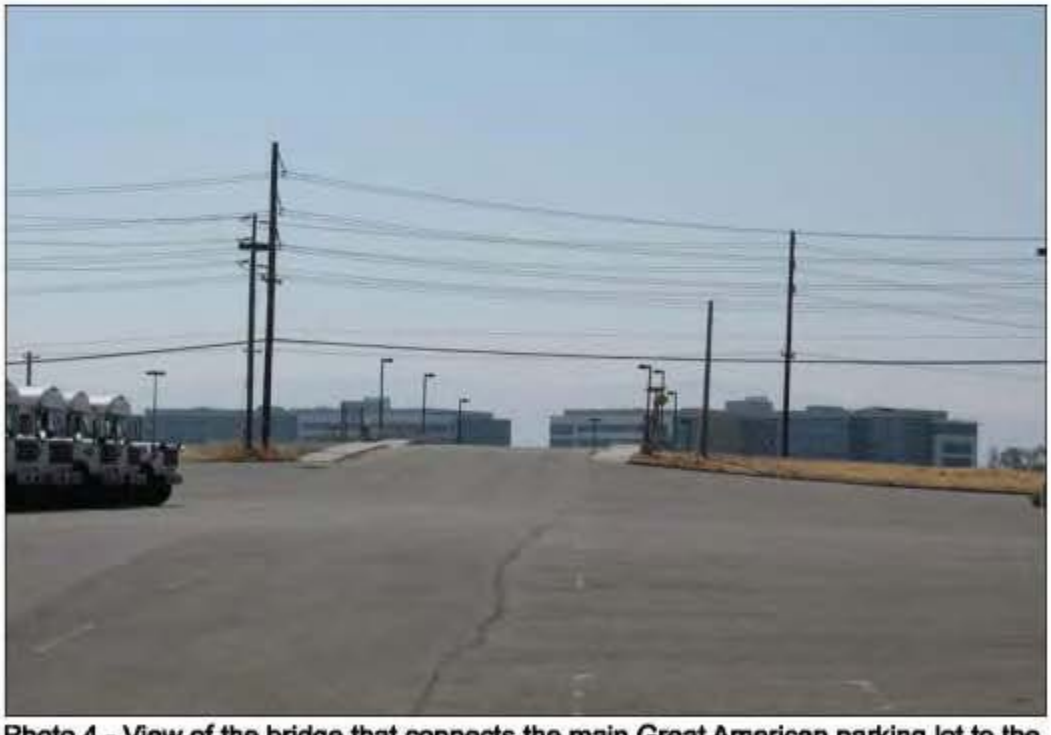


Photo 4 - View of the bridge that connects the main Great American parking lot to the stadium site, looking west from Centennial Boulevard.

PHOTOS 3 AND 4

Photo 5 - View of the receiving station, looking south from Centennial Boulevard.

Photo 6 - View of the receiving station, looking south from Centennial Boulevard.

PHOTOS 5 AND 6

Photo 7 - View of the tennis courts, looking north from the parking garage site.

Photo 8 - View of the restaurant at the golf and tennis club, looking north from Stars and Stripes Drive.

PHOTOS 7 AND 8

Photo 9 - View of the Santa Clara Youth Soccer Fields, looking east from Centennial Boulevard.

Photo 10 - View of the existing 49ers training facility, looking east from Centennial Boulevard.

PHOTOS 9 AND 10

Photo 11 - View of the Amtrak/ACE train platform station and stairway access to Tasman Drive, looking north from Stars and Stripes Drive.

Photo 12 - View of the townhouses on the east side of Lafayette Street, looking east from Stars and Stripes Drive.

PHOTOS 11 AND 12

Photo 13 - View of the single-family houses and townhouses on Gianera/6th Street, looking northeast from Gianera/6th Street.

Photo 14 - View of the receiving station and water tanks, looking north from Gianera/6th Street.

PHOTOS 13 AND 14

Photo 15 - View of the San Tomas Aquino Creek levee, looking west from the parking garage site.

Photo 16 - View of the trail/maintenance road on top of the levee on the east side of San Tomas Aquino Creek, looking south from Tasman Drive.

PHOTOS 15 AND 16

Photo 17 - View of the main parking lot for the Great America Theme Park, looking east from the Great America driveway off Tasman Drive.

Photo 18 - View of the Convention Center (with the Hyatt Regency Hotel in the background), looking north from Tasman Drive.

PHOTOS 17 AND 18

roadway is somewhat obscured by a small group of redwood and sycamore trees on the east side of the site driveway.

Sub-Area C – Stadium Site

The stadium site is an approximately 22.0-acre property located at the southwest corner of the intersection of Tasman Drive and Centennial Boulevard. The stadium site is currently developed as a paved surface parking lot for the Great America Theme Park (see Photo 3). There is currently a two lane bridge over San Tomas Aquino Creek (at the southern end of the site) that connects Sub-Area C to the Great America Theme Park main parking lot (see Photo 4). Sub-Area C currently has access from Centennial Boulevard which is a four-lane roadway that dead ends near the southern boundary of the existing parking lot. There is no vegetation within the parking lot but there are some landscape trees, shrubs, and lawn along its north and east boundaries. There are 24 light standards spread throughout the parking lot and no other structures. Tasman Drive is elevated in this area relative to the stadium site and drivers can see the stadium site from the roadway because the trees along the northern property line are spaced far apart.

Sub-Area D – Substation Receiver Site

The proposed substation receiver site is a 14.2-acre property located immediately southeast of the stadium site on the Silicon Valley Power Northern Receiving Station (see Photos 5 and 6). The station has access from Centennial Boulevard which dead ends at its entrance. The receiving station has numbers of transformers and several very tall metal utility poles. West of the transformers are two 40-foot tall, four-million gallon water tanks. The 80-foot wide Hetch-Hetchy right-of-way is located between the receiver site and the northern property line of the nearby residential properties. The Hetch-Hetchy right-of-way is vacant, so there is nothing to obstruct the views of the utility equipment above the backyard fences. The utility poles are clearly visible from the street when looking north from Gianera/6th Street. The 40-foot tall water tanks are also somewhat visible from the street when looking in between the houses on the north side of Gianera/6th Street.

4.2.1.2 Visual Character of the Project Area

Development in the project area is a mix of office, light industrial, commercial, recreational, and residential land uses with the largest buildings being the office buildings and hotels with heights up to 15 stories. North of the main project area is the Santa Clara Golf and Tennis Club. The golf course itself is not visible from the project site due the tennis courts, restaurant, trees, and club house located between Stars and Stripes Drive and the golf course. The tennis courts, which are elevated relative to the surface elevation of the Sub-Area A parking lot, are also not visible due to a screened eight-foot tall fence and a row of trees that separate the courts from Sub-Area A (see Photo 7). The restaurant is a single-story wood-frame stucco building with no particular architectural style that is well maintained with a small lawn and minimal vegetation in front of the building (see Photo 8).

East of the stadium site is Centennial Boulevard, the Santa Clara Youth Soccer Park, and the Marie P. DeBartolo Sports Centre. The soccer park is an 11-acre facility with three full-size regulation soccer fields (see Photo 9). There are two grass fields and one artificial turf field. Each field has sports field lighting. The Sports Centre is located on a 11.22-acre site that houses the training center (with business offices) and three practice fields. The training center is a two-story, flat roofed, concrete building surrounded by surface parking lots and well maintained landscaping (see Photo 10). The practice fields behind the training center include two natural grass fields and one synthetic surface practice field. Unlike the soccer fields, the football practice fields are not lit. The practice

field in the southeast corner of the property has bleacher seating along its southern and eastern boundaries.

East of the practice fields is the Amtrak/ACE rail line, Lafayette Street, and a residential neighborhood. The Amtrak/ACE rail line is a single track that is slightly elevated compared to Lafayette Street. There is an elevated platform station between Stars and Stripes Drive and Lafayette Street at Tasman Drive. A large, multi-level staircase connects rail passengers between Tasman Drive and the station platform (see Photo 11). Lafayette Street is a four lane roadway in the vicinity of the project site with raised landscaped medians. Immediately east of Lafayette Street is a residential neighborhood that is a mix of apartments, two-story attached townhouses, and one- and two- story single family houses. None of the single family houses near Lafayette Street face the project site. Some of the apartments and townhouses do face Lafayette Street, but are somewhat shielded by a sound wall and large trees (see Photo 12). The view from this neighborhood to the west is visually cluttered by power poles, electricity lines, and other equipment.

South of the project site is another residential neighborhood comprised of single-family one- and two-story houses, two-story attached townhouses, and small two-story apartment structures (see Photo 13). The northernmost residential properties (residences on the north side of Gianera/6th Street) in this neighborhood all face south. There is a vacant parcel on Gianera near Lake View Drive which allows a clear view of the receiving station and water tanks from the neighborhood (see Photo 14). There is a large utility easement that transects the neighborhood. This easement contains several high-voltage overhead power lines. The neighborhood is a mix of older (approximately 35 years old) and newly constructed residences and is well maintained. The view from this neighborhood to the north is visually cluttered by power poles, electricity lines, and other equipment.

West of the stadium site is San Tomas Aquino Creek, the Great America Theme Park, Sub-Area B, and the Santa Clara Convention Center. All elements of the project site are separated from the creek by levees. Along the western boundary of Sub-Area A, there is a group of approximately 54 pine trees adjacent to the levee (see Photo 15). Behind the trees, on top of the east levee, is a maintenance road (see Photo 16). Beyond the creek, south of Tasman Drive, is the main parking lot for the Great America Theme Park and the park itself (see Photo 17). The main parking lot is a vast surface lot with approximately 6,234 parking spaces. Immediately south of the parking lot is the theme park which has several large roller coasters and other rides. The tallest and most visible ride is the Drop Zone Stunt Tower which is approximately 224 feet tall. Other large rides in the park have maximum heights of approximately 90 to 140 feet.[20]

The approximately 60-foot tall convention center is a 302,000 square foot, two-story, flat-roofed, concrete and glass structure with an attached multi-level parking garage (see Photo 18). The convention center is part of a larger development that includes the 15-story Hyatt Regency Hotel. The entire site is surrounded by well maintained landscaping and surface parking lots.

4.2.1.3 Scenic Views and Resources

All parts of the project site and the surrounding area are relatively flat and, therefore, the property is only visible from the immediate area. The project area is not located within a scenic area designated in City of Santa Clara General Plan or elsewhere. There are no scenic views within the project area.

[20] California's Great America Web Site. www.pgathrills.com

4.2.1.4 Light and Glare

Sources of light and glare are abundant in the urban environment of the project area, including but not limited to street lights, parking lot lights, security lights, vehicular headlights, internal building lights, and reflective building surfaces and windows. When open, Great America Theme Park is brightly lit from a multitude of sources.

The soccer fields have stadium lighting in place which is used regularly for games and/or practices that begin after 5pm. The artificial turf soccer field operates year-round except for a two week closure during the Christmas and New Years holidays. The grass fields are open from mid-January to August and from mid-September to December. The remainder of the year (including one week in April) the grass fields are closed for maintenance. When open, the fields are available for use on weekends, weekday afternoons, and Monday through Thursday from 5:00 pm to 10:00 pm.

4.2.2 Visual Impacts

4.2.2.1 Thresholds of Significance

For the purposes of this EIR, a visual impact is considered significant if the project would:

- have a substantial adverse effect on a scenic vista;
- substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- substantially degrade the existing visual character or quality of the site and its surroundings; or
- create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

4.2.2.2 Visual and Aesthetics

Generally, visual effects discussed in a CEQA document would be of two types: impacts from the project's appearance (including both what the project will look like and what views, if any, it obscures) and the degree to which a project might allow visual intrusion, such as windows overlooking someone's private open space. The distance of the proposed stadium and parking structure from the residential neighborhoods and the design of the stadium would preclude visual intrusion into the nearby neighborhoods.

Aesthetic values are very subjective. Opinions as to what constitutes a degradation of visual character will differ among individuals. The best available statement of what constitutes a visually acceptable standard for new structures is the Design Guidelines adopted by the City Council and implemented through the Architectural Review Committee. The proposed stadium will be reviewed for consistency with the Design Guidelines by the Architectural Review Committee prior to issuance of building permits.

As with all CEQA impacts, the effects of a project must be considered in the physical context of the project site and they must be compared to the existing conditions. The project is not proposed in a pristine natural environment or a rural area. In is in an established urban community.

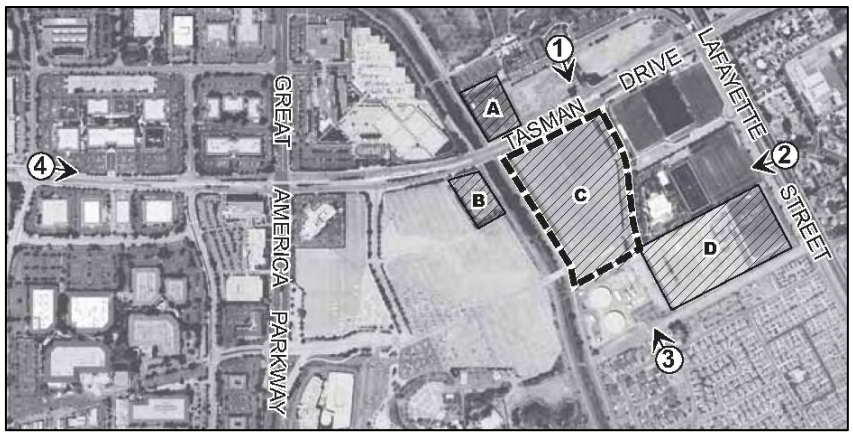
The parking structure and the stadium will be visible from several public vantage points. The parking structure will be visible from traffic on Tasman Drive and northbound traffic on Lafayette

Street, from the upper deck of the convention center parking structure, and from the Great America main parking lot. It will also be somewhat visible (i.e., between buildings, trees, utility poles, etc.) from users of the golf course and tennis club, from the Hilton Hotel, and from Great America Parkway.

At night when it is lit up, the stadium will be visible from vehicles driving on US 101, Great America Parkway, Lafayette Street, and Tasman Drive. Residents in Agnew Village and the residential areas east of Lafayette Street will be able to see it from various vantage points in their neighborhoods. Patrons of Great America would also be able to see it as would guests at the Hilton, Marriott, and Hyatt Regency Hotels. The stadium will be less visible during the day, but could still be seen from the surrounding land uses.

The CEQA thresholds of significance state that a project would have a significant visual impact if it would substantially affect a scenic vista, substantially damage scenic resources (including, but not limited to trees, rock outcroppings, historic buildings, and state scenic highway), or substantially degrade the existing visual character or quality of a project site or the surrounding area. There are no City or County designated scenic vistas, highways, or other scenic resources visible within the project area.

The proposed project will allow a 200-foot stadium and a six-story, approximately 72-foot tall parking structure to be constructed on two sites that are currently developed with surface parking lots. Due to the location and distance of the parking structure from sensitive land uses (e.g., the residential neighborhoods), the construction of the parking structure will not have a significant aesthetic impact. The proposed parking structure would be comparable to other parking structures in the area such as those at the convention center and Marriott Hotel.



The various structures in the project area vary substantially in height and massing and the proposed stadium would be the largest structure in the project area. In order to determine the visual affect of the proposed stadium in the appropriate context, four visual simulations (Figures 10-13) were prepared. Figure 9 (at left) shows the location and viewpoint from which the existing condition photographs were made for each visual simulation.[21]

View 1 (Figure 10) shows the stadium as it would appear from the end of the golf and tennis club driveway (at the intersection of Centennial Boulevard and Stars and Stripes Drive). As was discussed in Section 4.2.1.2, the golf course is separated from the project site by multiple buildings and the tennis courts are surrounded by an eight-foot screened fence. Therefore, while the massing of the structure is substantial, only the uppermost portion of the stadium would likely be visible from either location. The players on the tennis courts are completely enclosed by the fence and would

[21] View 4 was taken near the Sunnyvale border to determine if there would be a visual impact to the residential neighborhoods immediately west of Calabazas Creek. These residential areas are the nearest sensitive land uses west of the project site.

Existing View

Simulated View

EXISTING AND SIMULATED VIEW OF PROPOSED PROJECT SITE - VIEW 1

FIGURE 10

Existing View

Simulated View

EXISTING AND SIMULATED VIEW OF PROPOSED PROJECT SITE - VIEW 2

FIGURE 11

Existing View

Simulated View

EXISTING AND SIMULATED VIEW OF PROPOSED PROJECT SITE - VIEW 3 FIGURE 12

Existing View

Simulated View

EXISTING AND SIMULATED VIEW OF PROPOSED PROJECT SITE - VIEW 4

FIGURE 13

have views of the stadium blocked by the proposed parking structure, so they would not be impacted by a stadium structure being built on Sub-Area C. The important views from the golf course are of the golf course itself. There are no scenic resources south of the golf course that would be obstructed or degraded by the project structures.

View 2 (Figure 11) shows the stadium as it would appear from the median of the intersection of Lafayette Street and Calle de Primavera. As stated in Section 4.2.1.2, the neighborhood east of Lafayette Street includes single-family houses that back up to Lafayette Street and there are five houses which have views of the project site from their backyards. Approximately one dozen townhouses and apartments face Lafayette Street and the stadium site. All other residences in the neighborhood have views that do not include the stadium site or their views of the stadium site are obstructed by the residential buildings, trees, fences, etc.

Currently, residents can see the large utility poles and overhead lines around the project site and the existing 49ers training facility. There are no designated "scenic vistas" visible in or from the neighborhood east of the project site. Where there are no tall fences, houses, or trees, there are glimpses of the foothills that surround the Santa Clara Valley available from within the area. These views are intermittent, usually obtained between building and tree. From the neighborhood perspective, the height and massing of the stadium would be substantial relative to the surrounding visible land uses and the proposed stadium may incrementally reduce the availability of views of the foothills for some viewpoints. As demonstrated in Figure 12, the stadium will obscure distant views from nearby residential neighborhoods, most noticeably for houses closest to the stadium.

The west view from the existing neighborhood is not a designated view corridor. The stadium will be visible from some areas within the neighborhood, but will not obscure any scenic vistas, damage scenic resources, or degrade the visual quality of the area. Private views are not scenic resources. It is not a significant environmental impact for a structure to be visible in an existing urban setting. All new structures, by their existence, change the appearance of their location and immediate setting.

View 3 (Figure 12) shows the stadium as it would appear from the intersection of Gianera/6th Street and Lake Shore Drive in the residential neighborhood south of the project site. As stated in Section 4.2.1.2, the residences on the north side of Gianera/6th Street back up to the Hetch-Hetchy right-of-way and have views of the project site from their backyards. All other residences in the neighborhood have views that do not include the stadium site or their views of the stadium site are partially obstructed by the houses, fences, and trees on the north side of Gianera/6th Street.

Currently, residents with north facing views can see the large utility poles, overhead lines, and other equipment on the receiving station site as well as the two water tanks (see Figure 13). There are no "scenic vistas" visible in or from the neighborhood south of the project site. The foothills are not visible to the north from within the area.

The north view from the existing neighborhood is not a designated view corridor. The stadium will be visible from some areas within the neighborhood, but will not obscure any scenic vistas, damage scenic resources, or degrade the visual quality of the area. Individual private views are not scenic resources. The cooling towers will not be visible because they will be blocked by the existing water towers. The vapor plumes from the cooling towers will be visible when the towers are operating on cold days, but will not impact the visual aesthetic of the area. As previously stated, it is not a significant environmental impact for a structure to be visible in an existing urban setting. All new structures, by their existence, change the appearance of their location and immediate setting.

View 4 (Figure 13) shows the stadium as it would appear from a viewpoint just west of the Santa Clara/Sunnyvale border (at the intersection of Tasman Drive and Reamwood Avenue), west of the project site. This view was evaluated to determine if there would be a visual impact to the Sunnyvale residential neighborhoods immediately west of Calabazas Creek. These residential areas are the nearest sensitive land uses west of the project site. As a result of the neighborhoods being approximately 4,200 feet (0.78 miles) from the western edge of the stadium site, the low elevation of the stadium site relative to the surrounding area, and the intervening presence of various buildings, trees, LRT improvements, and the 10-story Hilton Hotel at the corner of Great American Parkway and Tasman Drive the stadium would be barely visible from Sunnyvale.

Impact AES-1: The project will be reviewed by the City's Site and Architectural Review Committee prior to issuance of building permits. The stadium and the parking structure will be visible from some locations within the project area, but will not obscure any scenic vistas, damage scenic resources, or degrade the visual quality of the area. The proposed project will not have a significant visual or aesthetic impact. **(Less Than Significant Impact)**

4.2.2.3 Shade and Shadow

As stated above, the proposed stadium will be up to 200 feet in height and the proposed parking structure will be six stories (approximately 72 feet) tall. These structures will shade portions of the surrounding roadways, creek, and sports fields throughout the year. The nearest residences are approximately 700 feet away from these structures and would not be shaded. Shade and shadow analyses are typically prepared for March 20, June 21, September 22, and December 21. This provides an analysis of each season as well as the longest and shortest days of the year, covering the full spectrum of possible shade and shadow issues. For each day the analysis provides data for 9:00 am and 3:00 pm. The results of the analysis are shown in Table 6 below and Figures 14 to 21.

TABLE 6
Shade and Shadow Analysis

Structure	Date	Time	Area of Impact
Stadium	March	9:00am	East bank of the creek
Stadium	March	3:00pm	Approximately one-third of westernmost soccer field
Stadium	June	9:00am	Small portion of the eastern trail/maintenance road
Stadium	June	3:00pm	Small area adjacent to but outside the soccer fields
Stadium	Sept	9:00am	East bank of the creek
Stadium	Sept	3:00pm	Approximately one-half of the westernmost soccer field
Stadium	Dec	9:00am	East bank of the creek and a small portion of the creek channel and west bank
Stadium	Dec	3:00pm	All of the westernmost soccer field and approximately one-third of the center soccer field
Parking Structure	March	9:00am	Southern edge of three westernmost tennis courts
Parking Structure	March	3:00pm	No off-site impact
Parking Structure	June	9:00am	No off-site impact
Parking Structure	June	3:00pm	No off-site impact
Parking Structure	Sept	9:00am	Southern edge of three westernmost tennis courts
Parking Structure	Sept	3:00pm	No off-site impact

SHADE AND SHADOW ANALYSIS - MARCH 9AM

FIGURE 14

SHADE AND SHADOW ANALYSIS - MARCH 3PM

FIGURE 15

SHADE AND SHADOW ANALYSIS - JUNE 9AM

FIGURE 16

SHADE AND SHADOW ANALYSIS - JUNE 3PM

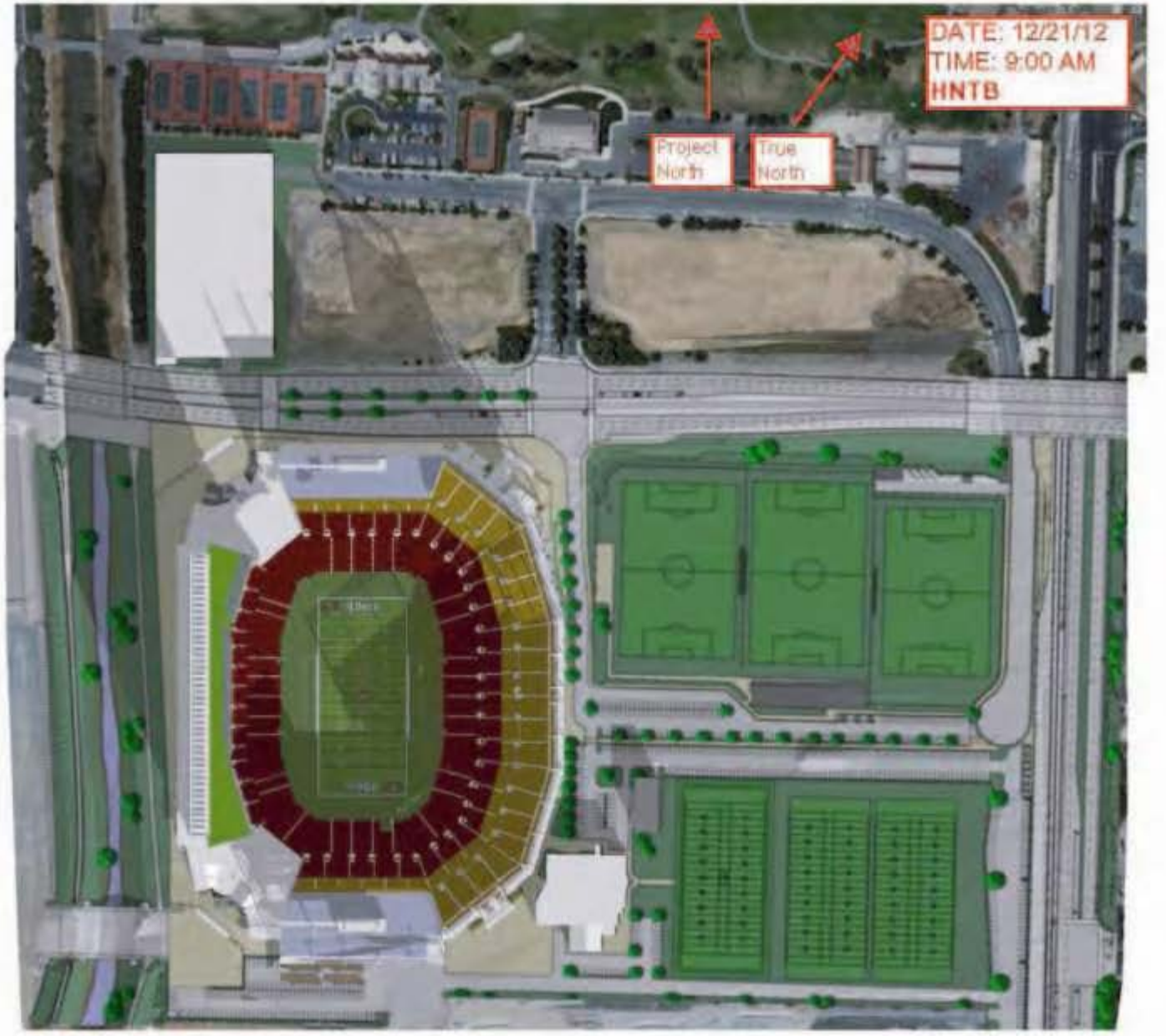
FIGURE 17

SHADE AND SHADOW ANALYSIS - SEPTEMBER 9AM

FIGURE 18

SHADE AND SHADOW ANALYSIS - SEPTEMBER 3PM

FIGURE 19



SHADE AND SHADOW ANALYSIS - DECEMBER 9AM

FIGURE 20

SHADE AND SHADOW ANALYSIS - DECEMBER 3PM

FIGURE 21

TABLE 6 *Continued* Shade and Shadow Analysis			
Structure	**Date**	**Time**	**Area of Impact**
Parking Structure	Dec	9:00am	All of the three westernmost tennis courts and half the fourth westernmost court
Parking Structure	Dec	3:00pm	Two-thirds of the easternmost tennis courts and one-half or less of the next two adjacent courts to the west

As shown by the analysis, the parking structure will not impact any adjacent land use for most of the year. The parking structure will cast shadows on four of the tennis courts in late winter (i.e., December) and partially shade the three of the courts during the morning hours in March and September. It should be noted that the westernmost courts are already shaded by the existing trees on the levee along the creek. The shadows would not preclude players from using the courts.

Impact AES-2: The parking structure will have a less than significant shade and shadow impact. **(Less Than Significant Impact)**

The stadium will be up to 200 feet tall (including the light standards). Morning shadows from the stadium would shade a portion of the San Tomas Aquino Creek channel throughout the year. Natural creek channels are typically shaded by lush riparian vegetation. While the San Tomas Aquino Creek channel is no longer in a natural state, there is some riparian vegetation growing within the channel and wildlife adapted to the creek environment. The shading of the creek channel will not inhibit any vegetation from growing within the riparian corridor and would not impact any wildlife species that may live within the creek channel or the creek itself. Shadows on the trail/maintenance road would at most cover a length of approximately 500 to 600 feet during morning hours at any given time of the year. This is a relatively small section of the entire trail and would not preclude people from using the trail. In addition, the trail on the western bank would be shade free for most of the year.

Impact AES-3: The stadium will have a less than significant shade and shadow impact on the creek. **(Less Than Significant Impact)**

The stadium site is approximately 100 feet from the Santa Clara Youth Soccer Fields. Afternoon shadows from the stadium would shade a portion of one or more fields throughout most of the year. Based on the shade and shadow analysis, the soccer fields will not be impacted by shadows during the summer months. The westernmost field will, however, be either partially or completely shaded throughout the rest of the year during the afternoon hours. The middle field will be partially shaded in the later winter months during the afternoon hours. Only the easternmost soccer field will be completely unaffected by shading from the proposed stadium. The soccer fields are used year round for school activities and organized sports such as the Santa Clara Youth Soccer League. Most league play is after 5:00 pm with school activities and programs happening before 5:00 pm. Any activities occurring in the afternoon hours (between approximately 2:00 to 4:00 pm) during the fall, winter, or spring months will be impacted to some extent by shadows. The shading of the fields would not prevent players from using the facility. The shading of the westernmost field could require modifications to the current lawn maintenance program, but would not have a significant environmental impact.

Impact AES-4: The stadium will have a less than significant shade and shadow impact on the soccer facility. **(Less Than Significant Impact)**

4.2.2.4 Light and Glare

Lighting on the project site will be comprised of event field lighting, exterior stadium lighting (i.e., building perimeter lighting and parking lot lighting), and emergency lighting. The event lighting is proposed to be outdoor metal halide floodlights with internal reflector systems to control spill light and glare. The lighting will be a minimum of 1,500 watts per fixture and the fixtures will be mounted on a cantilevered structure along the north, east, and south elevations and on the roof of the nine-level Suite Tower on the west side of the stadium. The exact quantity of light bulbs and fixtures will be determined by the manufacturer's ability to achieve the performance criteria required for players, spectators, and television broadcasts. These criteria will apply to the entire playing field including an additional 15 feet beyond the end zones and sidelines. Lighting levels in the stands will gradually taper off from the maximum light intensity levels on the playing field. Field lighting would only be required for large events during evening hours such as a late afternoon or evening sporting event or a concert. Most NFL games would begin around 1:00 pm and would not require the use of the stadium lights. There are, however, occasional Sunday, Monday, and Thursday evening (5:30 pm) NFL events. Of the 37 large events per year, it is assumed that approximately 19 percent (seven events)[22] would require the use of the field lighting.

Modern field lights are designed for specific directional light and reduction of spill light. While the overall ambient light levels in the project area would noticeably increase when the field lights are in use, the lighting would not spill over or directly impact (i.e., interfere with normal activities such as watching TV or sleeping) the residences to the south and east of the stadium. It is estimated that the event lighting would be used seven times per year.

Both the stadium and the parking garage would include outdoor security lighting along walkways, driveways, entrance areas, and within the parking structure and parking lots. This outside lighting would comply with the City's lighting requirements (Municipal Code Section 18.48.140) and be comparable in brightness to the ambient lighting currently on Sub-Areas A and C and in the surrounding area. Increased lighting on the site, relative to the existing outdoor lighting, would increase the level of illumination in the area. Nevertheless, compliance with the City's lighting requirements would result in a less than significant light and glare impact.

Impact AES-5: Implementation of the proposed project would have a less than significant visual impact on the project area. **(Less Than Significant Impact)**

4.2.3 Mitigation and Avoidance Measures for Visual and Aesthetic Impacts

No mitigation is required or proposed.

4.2.4 Conclusion

Implementation of the proposed project will have less than significant visual and aesthetic impacts. **(Less Than Significant Impact)**

[22] This number assumes that the X-games, the motocross event, and the concert event would occur in the evening hours. It also assumes two evening games per football team per season.

4.3 GEOLOGY AND SOILS

The following information is based on five geotechnical reports prepared by URS Corporation (July 2006 and May 2007), Woodward Clyde Consultants (August 1990 and July 1993), and Lowney Associates (September 2003). All the reports are in Appendix B of this EIR in chorological order.

4.3.1 Existing Setting

4.3.1.1 Regional Geology

The City of Santa Clara is located in the Santa Clara Valley, a relatively flat alluvial basin, bounded by the Santa Cruz Mountains to the southwest and west, the Diablo Mountain Range to the east, and San Francisco Bay to the north. In Santa Clara, the soil is comprised of clay soils that contain groundwater at shallow depths (less than 25 feet). Below surface (subsurface) conditions on all of Sub-Areas B, C, and D (existing substation, proposed stadium, and proposed substation receiver site, respectively), consist of deposits of moderately to highly expansive[23] clays and silts with interbedded sand layers. The clays are low in permeability[24] and hydraulic conductivity[25].

Soils in Sub-area A (proposed parking garage) was initially excavated in 1985 to create a series of trenches which were then filled in with waste material as part of the nearby landfill operations. When the landfill debris was removed from the site, it was noted that the bottom of the trenches extended below the shallow groundwater level. The trenches were backfilled with rock and other undocumented fill. Approximately three feet of fill material was also placed above the trenches and compacted prior to construction of the existing parking lot. Below the trench fill the native soil is predominately medium stiff to very stiff clay with occasional interbedded layers of dense sand with variable quantities of silt and clay. As with the soils on Sub-Areas B, C, and D, these soils are moderately to highly expansive and are low in permeability and hydraulic conductivity.

These soil conditions may present geotechnical constraints to foundation design and construction.

Seismicity

The San Francisco Bay Area is classified as Zone 4 for seismic activity, the most seismically active region in the United States. Strong ground shaking can therefore be expected at the site during moderate to severe earthquakes in the general region. The significant earthquakes that occur in the Bay Area are generally associated with crustal movement along well defined, active fault zones of the San Andreas Fault system, which regionally trends in a northwesterly direction.

The project site is located within a seismic hazard zone as designated by the California Division of Mines and Geology (CDMG). The site is not, however, located within a currently designated Alquist-Priolo Earthquake Fault Zone (formerly known as a Special Studies Zone) or Santa Clara County Fault Hazard Zone. Fault rupture through the site, therefore, is not anticipated. The most active fault zones near the project site are the San Andreas, Hayward, Monte Vista-Shannon, and Calaveras, which are located approximately 10.4 miles southwest, seven miles northeast, 7.6 miles

[23] Highly expansive refers to a property of the soil which allows for high rates of expansion and shrinkage. This creates a less stable foundation on which to build.
[24] Permeability is the rate at which a substance allows the passage of liquid.
[25] Hydraulic conductivity refers to the ability of water to flow through soil.

southwest, and 9.2 miles northeast of the project site, respectively. Additional fault zones located within 50 miles of the project site include Sargent, San Gregorio, and Mt. Diablo.

Groundwater

Soil sampling on the stadium site found groundwater in two borings at 8.5 and 10 feet below the ground surface. These levels were comparable to the water level in the adjacent creek at the time of the investigation. The project site has cohesive soils which can hinder groundwater entering boreholes and attaining equilibrium with the actual groundwater table. Soil sampling on the west side of the creek, across from the proposed parking garage site, found groundwater at six and nine feet below the ground surface. The high groundwater was found at the end of the rainy season and the low groundwater was found at the end of the dry season. It is assumed, based on the findings of several geotechnical reports, that high groundwater levels fluctuate seasonally in the project area based on the water level in the creek.

Liquefaction

Liquefaction is the transformation of water-saturated soil from a solid to a liquid state during ground shaking. Soils most susceptible to liquefaction are loose to moderately dense, saturated granular soils with poor drainage, such as silty sands or sands and gravels capped by or containing seams of impermeable sediment. A review of the State of California Seismic Hazards Zone map (San Jose West Quadrangle Official Map, February 7, 2002) indicates that the project area is located within a liquefaction zone. There has been historic ground failure as a result of ground settlement along the Guadalupe River which is located 0.64 miles east of Sub-Area C.

A series of investigations from1990 to 2007 looked at soil conditions within and around the project site. The investigations found that there are liquefiable interbedded dense to medium dense sand layers throughout the project site ranging in depth from seven to 110 feet below the ground surface. In the event of a major earthquake, the interbedded sand layers would liquefy. The soil materials within the upper twenty feet of the overall project site are, however, predominately cohesive clay and generally not at risk of liquefaction. Nevertheless, the risk of ground failure on the project site is moderate.

Lateral Spreading

Lateral spreading occurs when a continuous layer of soil liquefies at depth and the soil layers above move toward an unsupported face, such as a shoreline slope of creek channel, or in the direction of a regional slope or gradient. Lateral spreading is commonly associated with liquefaction.

San Tomas Aquino Creek is located directly adjacent to the project site. Loose to medium dense layers of saturated sandy soil were found between the historic high groundwater table and 80 feet below the existing ground surface. These layers vary in thickness and were relatively discontinuous. The geotechnical analysis of the soil determined that likelihood of significant lateral spreading on the site during a major earthquake is low though some minor displacement or structure damage could occur.

Differential Compaction

Differential compaction occurs when earthquake vibrations cause non-saturated sand (i.e., sandy soil above the groundwater table) to settle or compact. Up to one inch of liquefaction induced long-term

settlement is predicted to occur throughout the project site in isolated sandy layers. This could result in surface elevation changes of up to 1.5 inches.

Mineral Resources

The Santa Clara Valley was formed when sediments derived from the Santa Cruz Mountains and the Mt. Hamilton-Diablo Range were exposed by continued tectonic uplift and regression of the inland sea that had previously inundated this area. As a result of this process, the topography of the City is relatively flat and there are no significant mineral resources.

4.3.1.2 California Building Standards Code

The California Building Standards code is the California Code of Regulations (CCR), Title 24, which applies to all occupied buildings. The California Building Standards Code is a compilation of three types of building standards from three different origins:

- Building standards that have been adopted by state agencies without change from building standards contained in national model codes
- Building standards that have been adopted and adapted from the national model code standards to meet California conditions
- Building standards, authorized by the California legislature, that constitute extensive additions not covered by the model codes that have been adopted to address particular California concerns

The project shall be required to conform to the latest adopted California Building Standards code, as amended by the City of Santa Clara, in effect at the time of project approval.

4.3.2 Geologic and Soils Impacts

4.3.2.1 Thresholds of Significance

For the purposes of this EIR, a geologic impact is considered significant if the project would:

- expose people or structures to substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure (including liquefaction), landslides, or expansive soils;
- cause substantial erosion or siltation;
- expose people or property to major geologic hazards that cannot be mitigated through the use of standard engineering design and seismic safety techniques.
- result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or
- result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

4.3.2.2 Geologic Impacts to the Project Site

The project site is located in a seismically active region and, therefore, strong ground shaking is expected during the lifetime of the proposed project. While no active faults are known to cross the

project site, ground shaking on the site could damage buildings and threaten the welfare of future site users. Furthermore, soils on the project site have a moderate potential for liquefaction and lateral spreading.

Geologic conditions in the project area mean that the proposed structures must be designed and built in conformance with the requirements of the Uniform Building Code for Seismic Zone 4. Geologic and soils impacts resulting from conditions on the site can be avoided by utilizing standard engineering and construction techniques.

Buildings will be designed and constructed in accordance with a design-level geotechnical investigation prepared for the site, which identifies specific design features that will be required for the project, including site preparation, compaction, trench excavations, foundation and subgrade design, drainage, and pavement design. Based on the preliminary geotechnical analysis, it is recommended that piles be used to support the proposed stadium. The design-level geotechnical investigation shall be reviewed and approved by the City prior to issuance of a building permit for the project.

With incorporation of these measures the project will not expose people or property to significant impacts from the geologic conditions of the site. Erosion or landslide related hazards will be minimal due to the flat topography of the site.

Impact GEO-1: The proposed project will be built in conformance with the requirements of the Uniform Building Code for Seismic Zone 4 and, therefore, will not expose people or property to significant impacts associated with the geologic conditions of the site. **(Less Than Significant Impact)**

4.3.2.3 Mineral Resources

The proposed project site is within a developed urban area and it does not contain any known or designated mineral resources.

Impact GEO-2: Implementation of the proposed project will not result in the loss of availability of any known mineral resources within the City of Santa Clara. **(Less Than Significant Impact)**

4.3.3 Mitigation and Avoidance for Geology and Soils Impacts

There is no mitigation required or proposed.

4.3.4 Conclusion

Implementation of the proposed project will, in conformance with all relevant laws, codes, and regulations, have a less than significant geologic and soils impact. **(Less Than Significant Impact)**

4.4 HYDROLOGY & WATER QUALITY

The following information is based on the FEMA Flood Insurance Rate Map and the preliminary Stormwater Control Plan prepared by HNTB Architects. The preliminary stormwater control plan can be found in the plan set on file at the City of Santa Clara Planning Department.

4.4.1 Existing Setting

4.4.1.1 Flooding

Based on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (Map No. 0603500001D, as revised by a Letter of Map Revision, October 2006), Sub-Areas A and B and most of Sub-Areas C and D are in Flood Zone X. The remaining portions of Sub-Areas C and D are within Flood Zone AH. Flood Zone X is defined as areas of 500 year flooding or areas of 100-year flooding with average depths of less than one foot or within drainage areas less than one square mile, and areas protected by levees from a 100-year flood.

Flood Zone AH is defined as areas of 100-year floods with average depths of one to three feet. San Tomas Aquino Creek is designated Zone AE and, while confined within the drainage channel with levees on either side, is the source of the 100-year flood waters in this area.

4.4.1.2 Storm Drainage System

The City of Santa Clara owns and maintains the storm drainage system which serves the project site. The parking garage site drains into a 36-inch line that is located in the golf course area. The substation site drains into a 42-inch line that is located in Tasman Drive. The stadium site drains into a 30-inch line in Centennial Boulevard. The receiving station site drains into two 30-inch lines in Centennial Boulevard and Stars and Stripes Drive. The lines discharge into San Tomas Aquino Creek and Guadalupe River. The creek and the river carry the runoff into San Francisco Bay.

4.4.1.3 Stormwater Runoff

Water Quality

The water quality of San Tomas Aquino Creek is directly affected by pollutants contained in stormwater runoff from a variety of urban and non-urban uses. Stormwater from urban uses contains metals, pesticides, herbicides, and other contaminants, including oil, grease, asbestos, lead, and animal wastes. Currently, San Tomas Aquino Creek is not listed on the California 303(d) list[26] or on the Total Maximum Daily Load (TMDL)[27] high priority schedule.

Under existing conditions, the project site is almost entirely covered with impermeable surfaces, most of which are parking lots. Runoff from the site likely already contains sediments, debris, oils, metals, and other pollutants related to automobiles and the urban environment.

[26] The Clean Water Act, section 303, establishes water quality standards and TMDL programs. The 303(d) list is a list of impaired water bodies.

[27] A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards. The TMDL high priority schedule denotes the most severely impaired water bodies on the 303(d) list

The Santa Clara Valley Urban Runoff Pollution Prevention Program was developed in accordance with the requirements of the revised 1995 San Francisco Bay Basin Water Quality Control Plan, for the purpose of reducing water pollution associated with urban storm water runoff. The State Water Resources Control Board (SWRCB) also administers the National Pollutant Discharge Elimination System (NPDES) General Permit for Construction Activities, which is intended to reduce construction-related stormwater pollution.

The SWRCB NPDES General Permit for Construction Activities requires Stormwater Pollution Prevention Plans (SWPPPs) to control discharge associated with construction activities for sites impacting one acre or more of soil. Development on such sites is required to submit a Notice of Intent (NOI) to the SWRCB and prepare a SWPPP prior to construction.

The City of Santa Clara is a co-permittee to the Santa Clara Valley Urban Runoff Pollution Prevention Program's (SCVURPPP) NPDES permit for municipal storm water discharges, issued by the Regional Water Quality Control Board (RWQCB). The NPDES permit includes requirements for water quality monitoring, identification and elimination of illicit connections and illegal dumping to the storm drainage system, increases to the municipal storm drainage system and street cleaning and public education programs. All projects that create, add, or replace 10,000 square feet or more of impervious surface area must comply with the provisions of the SCVURPPP NPDES Permit.

Hydromodification

Hydromodification is a change in stormwater runoff characteristics from a watershed caused by changes in land use conditions (i.e., urbanization) that alter the natural cycling of water. Changes in land use conditions can cause runoff volumes and velocity to increase which can result in a decrease in natural vegetation, changing of river/creek bank grades, soil compaction, and the creation of new drainages.

In addition to water quality controls, the SCVURPPP NPDES permit has hydromodification controls as defined in the Hydromodification Management Plan (HMP). The NPDES permit requires all new and redevelopment projects that create or replace one acre or more of impervious surface to manage development-related increases in peak runoff flow, volume, and duration, where such hydromodification is likely to cause increased erosion, silt pollutant generation or other impacts to beneficial uses of local rivers, streams, and creeks. Project may be deemed exempt from the permit requirements if they do not meet the size threshold, drain into tidally influenced areas or directly into the Bay, drain into hardened channels, or are infill projects in subwatersheds that are 90 or more built out.

Based on the SCVUPPP watershed map for the City of Santa Clara, the project site is exempt from the NPDES hydromodification requirements because it drains into a hardened channel.[28]

4.4.1.4 Groundwater

Borings taken at the project site found groundwater at a depth of approximately six to 10 feet below the ground surface (bgs). Groundwater levels will typically fluctuate seasonally depending on the variations in rainfall, irrigation from landscaping, and other factors.

[28] Santa Clara Valley Urban Runoff Pollution Prevention Program web site. http://www.scvurppp-w2k.com/hmp_maps.htm

4.4.2 Hydrology Impacts

4.4.2.1 Thresholds of Significance

For the purposes of this EIR, a hydrology, drainage, or flooding impact is considered significant if the project would:

- violate any water quality standards or waste discharge requirements;
- substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table (e.g., the production rate of preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- otherwise substantially degrade water quality;
- place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- inundation of the site by seiche, tsunami, or mudflow.

4.4.2.2 Impacts of the Proposed General Plan Amendment

The proposed text revisions to the land use designations would allow building coverage of up to 75 percent, instead of the 25 percent currently allowed. The parking structure, stadium, and new substation site are all subject to some shallow flooding from 100-year events. For properties within a 100 year flood zone where the buildings may impede or redirect flood flows City ordinance requires: 1) flood proofing of the new structures, 2) the lowest levels of any structure to be elevated about the base flood elevation, and 3) on sloped areas, drainage paths must be installed around new structures to guide flood waters around and away from the structures (Section 501C of the City of Santa Clara Flood Damage Prevention Code).

Much of the North of Bayshore area (like the project site) is already developed, including substantial areas that are paved for parking lots. Redevelopment of developed or paved properties will not necessarily result in increased runoff, even with 75 percent building coverage.
New development that causes substantial increase in runoff could adversely impact existing stormwater collection systems, and decrease groundwater recharge.

Impact HYD-1: Implementation of the revised General Plan land use designation allowing up to 75 percent building coverage could impede or redirect flood flows, substantially increase runoff, and impact stormwater systems and groundwater discharge. **(Significant Impact)**

4.4.2.3 Project Specific Impacts

Flooding

The project site is located in an area of 500-year flooding or certain areas subject to 100-year flooding with flood depths of one to three feet. Within the project area portions of Sub-Areas ~~B,~~ C, D, and San Tomas Aquino Creek are within a 100-year flood zone. The City of Santa Clara Municipal Code requires all new buildings within a Special Flood Hazard Area (SFHA) to have the lowest floor elevation (excluding garages) flood proofed or raised a minimum of one foot above the base flood elevation, which is nine feet on the project site. The proposed project will comply with the City's floodplain requirements. Compliance with this ordinance requirement is verified prior to issuance of building permits.

Impact HYD-2: The proposed project would not expose persons and property to impacts from flooding. **(Less Than Significant Impact)**

Storm Drainage

Table 7 below gives a breakdown (in square feet) of the pervious[29] and impervious[30] surfaces on the project site under both existing and project conditions.[31] The project site is currently about 51.5 percent impervious. The 48.5 percent pervious area is comprised of the existing landscaped areas located throughout the property, the practice fields at the training facility, and the vacant lots north of Tasman Drive. The proposed project will have approximately 53.1 percent impervious surface area.

TABLE 7
Pervious and Impervious Surfaces On-Site

Site Surface	Existing Conditions	%	Project Conditions	%	Net Difference	%
Impervious						
Building Footprint	34,513	1.7	555,364	27.8	520,851	26.1
Parking Lots	846,943	42.5	243,843	12.2	-603,100	-30.2
Driveways/Sidewalks	146,690	7.4	260,148	13.0	113,458	5.7
Subtotal	1,028,146	51.5	1,059,355	53.1	31,209	1.6
Pervious						
Landscaping & Pervious Pavement	966,380	48.5	935,170	46.9	-31,209	-1.6
Total	1,994,525	100	1,994,525	100		

[29] Pervious surfaces are surfaces that permit liquids, such as water, to pass through.
[30] Impervious surfaces are those surfaces which preclude the passage of liquid such as cement.
[31] The total square footage numbers in the table include the main project site, the training facility, and the vacant land located between the golf and tennis club and Tasman Drive. The sites outside the main project area were included in the calculations because there will be some change to the percentage of pervious and impervious surface areas to these sites with implementation of the proposed project, mostly due to additional surface parking.

The project site is almost completely paved and covered with impervious surfaces. Under these conditions, the existing storm drainage system has sufficient capacity to accommodate the existing runoff from the project site. The amount of impervious surfaces on-site will increase with the project, but the increase will be negligible. The increase in impervious surfaces will result in a small increase in stormwater runoff entering the storm drainage system.

The project proposes to include a retention system on-site capable of holding up to one acre-foot of runoff. This retention system will ensure that the runoff is metered out at a rate that will not impact the capacity of the existing system.

Impact HYD-3: As the project is proposed, the existing storm drainage system will continue to be sufficient to support the proposed development. **(Less Than Significant Impact)**

4.4.2.4 Water Quality Impacts

Operational Impacts

Because the project will replace more than 10,000 square feet of impervious surface area on the project site, the project must comply with the City of Santa Clara Stormwater C.3 requirements and the SWRCB NPDES permit. In order to meet C.3. and NPDES requirements, the project will include the following measures to reduce runoff pollutant loads.

1. Some of the new surface parking areas around the stadium will be constructed using pervious pavement.
2. Impervious pathways, driveways, and surface parking lots will drain into bio-swales and/or structural stormwater treatment systems (i.e., CDS units) installed at the on-site storm drainage inlets to filter the runoff prior to it entering the storm drainage system.
3. Rooftop runoff from the stadium and runoff from the parking structure will be routed to landscape infiltration areas and bio-retention areas surrounding the perimeters of each structure. Excess water that is not absorbed into the ground will be conveyed to the on-site storm drainage system.

The proposed treatment facilities will be numerically sized in accordance with City requirements to ensure that they will have sufficient capacity to treat all the stormwater runoff entering the storm drainage system. In addition, the project will be required to record an Operation & Management agreement to insure continued maintenance and performance of post-construction measures.

Impact HYD-4: The proposed treatment systems, combined with the BMPs proposed in the Stormwater Control Plan, will result in a less than significant adverse impact on water quality and may improve the quality of site runoff. **(Less Than Significant Impact)**

Construction Impacts

Construction will involve demolition, excavation and grading activities at the project site. These construction activities could degrade water quality in San Tomas Aquino Creek and Guadalupe River because the existing on-site storm drainage system discharges directly into these waterways. Construction activities would generate dust, sediment, litter, oil, paint, and other pollutants that would temporarily contaminate runoff from the site.

Impact HYD-5: Construction activities would result in a significant temporary stormwater quality impact. **(Significant Temporary Impact)**

4.4.2.5 Groundwater Impacts

Depth to groundwater at the project site is anticipated to be six to 10 feet below the ground surface. All proposed structures will be above-grade. Structural footings and utility trenches could, however, exceed six feet in depth and could expose the shallow groundwater aquifer. To ensure that no contaminants enter the shallow aquifer during construction, dewatering of the site will be required.

The project site is currently 48.5 percent permeable but does not contribute to recharging of the underground aquifers (i.e., is not in a designated recharge area). The City of Santa Clara does rely on groundwater for a portion of its domestic water needs as do other cities in the Bay Area. With implementation of the proposed project, the permeable surface area on the project site will decrease by approximately 1.6 percent. While the proposed project will result in a small decrease in permeable surface area on the site, designated recharge areas have been established to help maintain the groundwater supply and will not be affected by the proposed project. It is unlikely that the decrease in permeable surface area on the project site will have a measurable impact to the groundwater supply.

Impact HYD-6: The proposed project will not have a significant impact on groundwater. **(Less Than Significant Impact).**

4.4.3 Mitigation and Avoidance Measures for Hydrology Impacts

The following General Plan Policies would reduce hydrology impacts from development allowed by the proposed General Plan amendment to a less than significant level:

- *Water Resources Policy No. 14* states that the City should regulate the type, location and intensity of land uses within flood-prone areas.

- *Water Resources Policy No. 16* states that the City should participate on a regional basis in a Non-Point-Source Control Program in order to reduce pollutants in storm water runoff.

- *Water Resources Policy No. 17* states that the City should maximize water retention and reduce the quantity of water runoff.

- *Water Resources Policy No. 18* states that the City should encourage programs to improve the quality of stormwater runoff.

The following program mitigation would reduce hydrology impacts to a less than significant level:

- The City of Santa Clara is one of 13 co-permittees under a Municipal Stormwater National Pollutant Discharge Elimination System (NPDES) Permit issued to the municipalities in Santa Clara Valley, the County of Santa Clara, and the Santa Clara Valley Water District. Under provisions of the NPDES Municipal Permit, projects that disturb more than 10,000 square feet are required to incorporate Best Management Practices for operational non-point pollution control. These measures may include:

- Installing bioswales in new landscape and surface parking areas to treat runoff prior to discharge to the stormwater system;
- Installation of landscaping that will facilitate the infiltration of stormwater;
- Use of landscape species that minimize irrigation, runoff, pesticide and fertilizer application;
- Design landscape areas to be lower in elevation than surrounding paved areas;
- Planting new trees within 30 feet of impervious surfaces;
- Use efficient irrigation systems to minimize runoff;
- Stencil stormwater catch basins to discourage illegal dumping;
- Installation of oil/water separators in parking structures;
- Cover dumpsters and other storage areas and/or protect by a berm or curb;
- Use source control BMPs in vehicle areas, roofs, gutters, downspouts, dumpster/trash areas, floor drains, etc.
- Maintenance of landscaped areas as necessary to maintain soil structure and permeability;
- Site maintenance, including routine catch basin cleaning; and
- Maintenance of landscaping with minimal pesticide use, including landscape maintenance techniques listed in the Fact Sheet on Landscape Maintenance Techniques for Pest Reduction prepared by the Santa Clara Valley Urban Runoff Pollution Prevention Program.

The following project-specific measures, based on Regional Water Quality Control Board Best Management Practices, have been included in the project to reduce construction-related water quality impacts. All mitigation will be implemented prior to the start of earthmoving activities on-site and will continue until the construction is complete.

- Burlap bags filled with drain rock shall be installed around storm drains to route sediment and other debris away from the drains.

- Earthmoving or other dust-producing activities shall be suspended during periods of high winds.

- All exposed or disturbed soil surfaces shall be watered at least twice daily to control dust as necessary.

- Stockpiles of soil or other materials that can be blown by the wind shall be watered or covered.

- All trucks hauling soil, sand, and other loose materials shall be covered and all trucks would be required to maintain at least two feet of freeboard.

- All paved access roads, parking areas, staging areas and residential streets adjacent to the construction sites shall be swept daily (with water sweepers). In addition, a tire wash system may be required.

- Vegetation in disturbed areas shall be replanted as quickly as possible.

- All unpaved entrances to the site shall be filled with rock to knock mud from truck tires prior to entering City streets. A tire wash system may also be employed at the request of the City.

- A Storm Water Permit will be administered by the Regional Water Quality Control Board. Prior to construction grading for the proposed land uses, the project proponent will file a "Notice of Intent" (NOI) to comply with the General Permit and prepare a Storm Water Pollution Prevention Plan (SWPPP) which addresses measures that would be included in the project to minimize and control construction and post-construction runoff. Measures will include, but are not limited to, the aforementioned RWQCB mitigation.

- The project proponent will submit a copy of the draft SWPPP to the City of Santa Clara for review and approval prior to start of construction on the project site. The certified SWPPP will be posted at the project site and will be updated to reflect current site conditions.

- When construction is complete, a Notice of Termination (NOT) for the General Permit for Construction will be filed with the Regional Water Quality Control Board and the City of Santa Clara. The NOT will document that all elements of the SWPPP have been executed, construction materials and waste have been properly disposed of, and a post-construction storm water management plan is in place as described in the SWPPP for the site.

The following project specific measures, based on Regional Water Quality Control Board Best Management Practices, have been included in the project to reduce post-construction water quality impacts.

- As part of the mitigation for post-construction runoff impacts addressed in the SWPPP, the project will implement regular maintenance activities (i.e., sweeping, maintaining vegetative swales, litter control, and other activities as specified by the City) at the site to prevent soil, grease, and litter from accumulating on the project site and contaminating surface runoff. Storm water catch basins will be stenciled to discourage illegal dumping.

The following project specific mitigation measure has been included in the project to reduce storm water drainage impacts:

- The proposed project will be required to record an Operation & Management (O&M) agreement with the City to insure continued maintenance and performance of post-construction measures including CDS units and roof-drainage systems.

4.4.4 Conclusion

With implementation of the identified General Plan policies and mitigation measures listed above, the project will result in less than significant impacts on storm water quality. The project will not deplete the groundwater supply, substantially alter the existing drainage pattern, substantially degrade water quality, or subject residents to flood hazards or increased storm water runoff beyond the capacity of the existing stormwater drainage system. **(Less Than Significant Impact with Mitigation)**

4.5 VEGETATION AND WILDLIFE

The following information is based in part on a Burrowing Owl survey prepared by *H.T. Harvey & Associates* in April 2008 and two tree surveys prepared by *John Steinbach – Certified Arborist* in May 2008 and January 2009 (see Appendices C and D, respectively).

4.5.1 Regulatory Setting

Biological resources include plants and animals and the habitats that support them. Individual plant and animal species that are listed as rare, threatened or endangered under the state and/or federal Endangered Species Act, and the natural communities of habitats that support them, are of particular concern. Sensitive natural communities (e.g., wetlands, riparian woodlands, and oak woodland) that are critical to wildlife or ecosystem function are also important biological resources.

The avoidance and mitigation of significant impacts to biological resources under CEQA is consistent with and complimentary to various federal, state, and local laws and regulations that are designed to protect these resources. These regulations often mandate that project sponsors obtain permits that include measures to avoid and/or mitigate impacts required as permit conditions, prior to the commencement of development activities.

4.5.2 Existing Setting

4.5.2.1 Overview of Habitat Found on the Project Site

The project site is comprised of four lots currently developed with two surface parking lots, an electrical substation, and an electrical receiver station. All four lots have some landscape vegetation around the perimeter of the properties. Three of the four lots are directly adjacent to San Tomas Aquino Creek, which is channelized in the project area and has little to no riparian vegetation and no trees within the creek channel or on the top of the banks. There are, however, some pine trees on the east side of the east levee adjacent to Sub-Area A.

Landscape vegetation on the project site consists of mostly shade trees with some shrubs and small grass areas. As stated above, all the existing vegetation on the project site is located along the lot boundaries. The electric utility sites do not have any landscaping within the interior of the sites. In addition, neither of the existing parking lots was designed with landscaped islands to allow for vegetation within the interior of the sites. The project site is located in a developed urbanized area adjacent to two major roadways (Tasman Drive and Lafayette Street).

4.5.2.2 Special Status Animal Species

Special status species are those plants and animals listed under the state and federal Endangered Species Acts (including candidate species); plants listed on the California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (1994); and animals designated as Species of Special Concern by the California Department of Fish and Game. Most special status animal species occurring in the Bay Area use habitats that are not present on the project site. Salt march, freshwater marsh, and serpentine grassland habitats are not present within or immediately adjacent to the site.

The San Tomas Aquino Creek channel is adjacent to sub-areas A, B, and C. Chinook salmon and steelhead trout are not known to occur in San Tomas Aquino Creek though the species do spawn in other San Francisco Bay drainages in the area.

The levee between the creek and sub-areas A and C is populated with ornamental pines. Wildlife use of the creek corridor is sparse due to the intensity of surrounding development and the lack of vegetation and food sources within the riparian corridor.

Burrowing Owls

Prior analysis of part of the project site (Bayshore North Redevelopment Projects DEIR, May 1998) found Burrowing Owl habitat on-site and concluded that redevelopment of the project site would result in a significant loss of Burrowing Owl habitat and could directly impact Burrowing Owls occupying the site. Because Burrowing Owls were known to occupy the project site at one time, a protocol-level survey for Burrowing Owls was completed on the project site.

Burrowing owls typically occupy California ground squirrel burrows for nesting and roosting. They will also occasionally roost (and on rare occasions nest) in artificial burrows created by culverts or other cavities. Pursuant to the California Department of Fish and Game's protocol, the project site and all areas within 250 feet of the project site were examined for evidence of Burrowing Owls, California ground squirrel burrows, and artificial cavities that could provide nesting or roosting sites for owls. No evidence of Burrowing Owls or suitable squirrel burrows was found.

All four lots are predominately asphalt which limits habitat for squirrels to landscaped areas and open grassland/ruderal areas adjacent to the site. No suitable burrows were found within the landscaped portions of the project site. Most areas within 250 feet of the site are also paved with no ground squirrels present. Ruderal areas, such as along the creek levees adjacent to the site, also lacked ground squirrel burrows suitable for use by burrowing owls. There was a large dirt mound noted within the Great America Theme Park, but it appears to be disturbed regularly and did not contain any ground squirrel burrows.

4.5.2.3 Trees

Mature trees (both native and non-native) are beneficial because they provide nesting and foraging habitat for raptors and other migratory birds and, therefore, a tree survey was conducted to document and evaluate the mature trees on the site.

Trees located on the project site are a mixture of native and non-native species, in varying sizes and levels of health. For the purposes of this report, trees were considered mature if they had a diameter of six inches or greater measured at two feet above grade. Within the boundaries of the project site, there are a total of 266 trees of which 206 measured six inches in diameter or greater at two feet above the ground surface. Trees measuring less than six inches in diameter are considered too small to be viable habitat. Of the 206 mature trees surveyed 13 trees are Redwoods, 33 are ash, 65 are pines, and 22 are sycamores, all of which are species native to California. The remaining 36 mature trees are non-native.

The following tables lists all 266 trees identified during the tree survey. Figures 22 and 23 show the locations of the trees on the project site. The tables list the trees by the numbers referred to on the figures and in the arborist's report in Appendix D.

TREE SURVEY - SUB-AREA A (PARKING GARAGE SITE)

FIGURE 22

TREE SURVEY - SUB-AREAS B AND C (SUBSTATION & STADIUM SITES)

FIGURE 23

TABLE 8 Tree Survey – Sub-Area A			
Tree No.	**Common Name**	**Diameter[32]**	**Condition**
469	Pine	18	Fair
470	Pine	14	Fair
471	Pine	10	Fair
472	Pine	17	Average
473	Pine	14	Fair
474	Pine	12	Fair
475	Pine	11	Average
476	Pine	12	Average
477	Pine	10	Average
478	Pine	11	Average
479	Pine	7	Fair
480	Pine	11	Average
481	Pine	11	Fair
482	Pine	12	Average
483	Pine	9	Fair
484	Pine	13	Average
485	Pine	17	Fair
486	Pine	9	Fair
487	Pine	9	Average
488	Pine	14	Average
489	Pine	16	Fair
490	Pine	11	Average
491	Pine	6	Average
492	Pine	15	Fair
493	Pine	14	Fair
494	Pine	12	Fair
495	Pine	13	Fair
496	Pine	13	Fair
497	Pine	4	Fair
498	Pine	11	Average
499	Pine	14	Fair
500	Pine	6	Fair
501	Pine	14	Fair
502	Pine	14	Fair
503	Pine	14	Fair
504	Pine	6	Fair
505	Pine	11	Average
506	Pine	11	Average
507	Pine	16	Fair
508	Pine	13	Average
509	Pine	13	Average
510	Pine	16	Average

[32] The diameter is measured in inches.

TABLE 8 *Continued* Tree Survey – Sub-Area A			
Tree No.	**Common Name**	**Diameter**	**Condition**
511	Pine	11	Average
512	Pine	11	Average
513	Pine	13	Fair
514	Pine	13	Average
515	Pine	6	Fair
516	Pine	11	Average
517	Pine	13	Average
518	Pine	6	Fair
519	Pine	13	Average
520	Pine	13	Average
521	Pine	11	Average

TABLE 9 Tree Survey – Sub-Areas B and C			
Tree No.	**Common Name**	**Diameter**[33]	**Condition**
91	Sycamore	10	Fair
92	Sycamore	14	Average
93	Sycamore	10	Fair
94	Sycamore	13	Average
95	Sycamore	14	Average
96	Sycamore	14	Average
97	Sycamore	12	Average
98	Sycamore	15	Average
99	Sycamore	11	Average
100	Ash	14	Average
101	Ash	9	Fair
102	Ash	14	Fair
103	Crape Myrtle	1	Fair
104	Crape Myrtle	1	Fair
105	Ash	15	Average
106	Ash	6	Fair
107	Ash	11	Average
108	Ash	5	Average
109	Ash	18	Average
110	Ash	5	Fair
111	Ash	12	Poor
112	Ash	10	Fair
113	Ash	9	Fair

[33] The diameter is measured in inches.

TABLE 9 *Continued* Tree Survey – Sub-Areas B and C			
Tree No.	**Common Name**	**Diameter**	**Condition**
113a	Ash	9	Fair
114	Ash	11	Fair
115	Pear	9	Average
116	Pear	8	Average
117	Pear	6	Average
118	Elm	8	Average
119	Purple-Leaf Plum	11	Fair
120	Purple-Leaf Plum	7	Fair
121	Purple-Leaf Plum	7	Fair
122	Fan Palm	19	Fair
123	Ash	13	Average
124	Ash	11	Average
125	Ash	11	Average
126	Ash	12	Average
127	Ash	12	Fair
128	Ash	9	Fair
129	Ash	12	Fair
130	Ash	10	Average
131	Ash	14	Average
132	Ash	6	Average
133	Ash	5	Average
134	Sycamore	9	Average
135	Sycamore	9	Average
136	Sycamore	9	Average
137	Sycamore	5	Average
138	Sycamore	11	Average
139	Sycamore	11	Average
140	Sycamore	11	Average
141	Sycamore	11	Average
142	Sycamore	12	Average
143	Sycamore	13	Average
144	Sycamore	6	Average
161	Arbutus	2	Fair
162	Arbutus	2	Fair
163	Bottle Brush	14	Average
164	Black Walnut	19	Average
165	Bottle Brush	10	Average
166	Bottle Brush	10	Average
167	Purple-Leaf Plum	6	Poor

TABLE 9 *Continued* Tree Survey – Sub-Areas B and C			
Tree No.	**Common Name**	**Diameter**	**Condition**
168	Bottle Brush	10	Average
169	Purple-Leaf Plum	6	Poor
170	Bottle Brush	10	Average
171	Privet	10	Fair
172	Plum	8	Fair
173	Purple-Leaf Plum	10	Dead
174	Plum	6	Fair
175	Bottle Brush	10	Average
176	Pine	15	Fair
177	Bottle Brush	6	Fair
178	Plum	3	Fair
179	Plum	3	Fair
180	Plum	3	Fair
181	Plum	3	Fair
182	Plum	3	Fair
183	Plum	3	Fair
184	Plum	3	Fair
185	Plum	3	Fair
186	Pine	17	Average
187	Pine	21	Average
188	Pine	21	Average
189	Bottle Brush	13	Average
190	Pine	21	Average
191	Ash	7	Average
192	Fan Palm	10	Fair
193	Fan Palm	10	Fair
194	Purple-Leaf Plum	9	Fair
195	Purple-Leaf Plum	5	Fair
196	Purple-Leaf Plum	6	Fair
197	Purple-Leaf Plum	7	Fair
198	Purple-Leaf Plum	7	Fair
199	Purple-Leaf Plum	7	Fair
200	Purple-Leaf Plum	7	Fair
201	Purple-Leaf Plum	9	Fair
202	Bottle Brush	11	Average
203	Pine	20	Average
204	Pine	19	Average
205	Pine	8	Average

TABLE 9 *Continued* Tree Survey – Sub-Areas B and C			
Tree No.	**Common Name**	**Diameter**	**Condition**
206	Pine	13	Dead
207	Pine	11	Fair
208	Pine	15	Average
209	Pine	18	Average
210	Purple-Leaf Plum	8	Fair
211	Purple-Leaf Plum	7	Fair
212	Bottle Brush	4	Average
213	Purple-Leaf Plum	9	Fair
214	Purple-Leaf Plum	6	Fair
215	Purple-Leaf Plum	6	Fair
216	Purple-Leaf Plum	10	Fair
217	Fan Palm	15	Fair
218	Bottle Brush	10	Average
219	Redwood	24	Fair
220	Redwood	14	Fair
221	Sycamore	10	Average
222	Sycamore	12	Average
223	Sycamore	12	Average
227	Fir	8	Average
225	Fir	8	Average
226	Fir	8	Average
227	Pepper	17	Average
228	Pepper	15	Average
229	Pepper	14	Average
230	Elm	6	Fair
231	Elm	6	Poor
232	Elm	3	Poor
233	Elm	5	Poor
234	Elm	5	Poor
235	Pepper	8	Average
236	Pepper	8	Fair
237	Pepper	8	Fair
238	Pepper	8	Fair
239	Pepper	8	Fair
240	Pepper	8	Fair
241	Pepper	7	Fair
242	Pepper	8	Fair
243	Elm	6	Fair
244	Elm	6	Fair

TABLE 9 *Continued* Tree Survey – Sub-Areas B and C			
Tree No.	**Common Name**	**Diameter**	**Condition**
245	Elm	8	Fair
246	Crape Myrtle	4	Average
247	Crape Myrtle	4	Average
248	Crape Myrtle	4	Average
249	Crape Myrtle	4	Average
250	Crape Myrtle	4	Average
251	Crape Myrtle	4	Average
252	Crape Myrtle	4	Average
253	Crape Myrtle	4	Average
254	Crape Myrtle	4	Average
255	Crape Myrtle	4	Average
256	Crape Myrtle	4	Average
257	Ash	3	Fair
258	Redwood	8	Average
259	Redwood	8	Average
260	Redwood	8	Average
261	Ash	7	Average
262	Ash	4	Average
263	Ash	5	Average
264	Ash	9	Average
265	Ash	3	Fair
266	Ash	3	Fair
267	Ash	3	Fair
268	Ash	3	Fair
269	Ash	7	Average
270	Ash	5	Average
271	Ash	4	Average
272	Ash	5	Average
273	Redwood	10	Average
274	Redwood	10	Average
275	Ash	3	Fair
276	Ash	3	Fair
277	Redwood	6	Average
278	Redwood	8	Average
279	Camphor	6	Average
280	Camphor	5	Average
281	Camphor	5	Average
282	Camphor	5	Average
283	Camphor	5	Average

TABLE 9 *Continued* Tree Survey – Sub-Areas B and C			
Tree No.	**Common Name**	**Diameter**	**Condition**
284	Camphor	6	Average
285	Camphor	6	Average
286	Ash	3	Fair
287	Ash	3	Fair
288	Ash	3	Fair
289	Camphor	5	Average
290	Camphor	5	Average
291	Camphor	6	Average
292	Camphor	6	Average
293	Camphor	6	Average
294	Camphor	5	Average
295	Camphor	5	Average
296	Redwood	11	Average
297	Ash	3	Fair
298	Ash	3	Fair
299	Ash	4	Fair
300	Ash	3	Fair
301	Ash	9	Average
302	Ash	7	Average
303	Ash	8	Average
304	Ash	6	Average
305	Ash	7	Average
306	Fir	8	Average
307	Fir	8	Average
308	Fir	8	Average
309	Redwood	10	Average
310	Ash	7	Average
311	Redwood	10	Average
312	Redwood	11	Average
313	Elm	11	Average
314	Elm	11	Average
315	Elm	11	Average
316	Elm	11	Average
317	Elm	11	Average

4.5.3 Vegetation and Wildlife Impacts

4.5.3.1 Thresholds of Significance

For the purposes of this EIR, a vegetation and wildlife impact is considered significant if the project would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local ordinances protecting biological resources, such as a tree preservation ordinance; or
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

4.5.3.2 Impacts From the Proposed General Plan Amendment

The proposed amendment to *Tourist Commercial* land use destination will allow substantially greater site coverage within the project area. Future development of this and other projects with that much building coverage will require removal of more mature trees than would otherwise be the case. Not only will it be more difficult to save existing trees, it will be harder to implement the Design Guidelines policy requiring 1:1 replacement with box specimens of all trees removed.

Since Santa Clara has no policy or ordinance for preserving trees, the loss of the trees is not of itself a significant impact. Elimination of most or all of the mature trees in the *Tourist Commercial* area would likely reduce the number of birds and bird species in the North Santa Clara area, and would result in microclimate changes (i.e., increased heat) due to the substantial building and pavement coverage in the area. These localized impacts would not constitute a significant impact, but may contribute to cumulative effects (see Section 6.1.4.10 of this EIR).

Impact BIO-1: Approval of the proposed General Plan text amendment and subsequent development will have a less than significant impact on biological diversity within the north Santa Clara area. **(Less Than Significant Impact)**

4.5.3.3 Vegetation, Habitats, and Wildlife

The project site is mostly paved. Vegetation on the project site consists solely of landscape trees, shrubs, and small grass areas around the perimeter of the project site lots. Because of the history of development on the site, no natural or sensitive habitats exist that would support endangered, threatened, or special status wildlife species. As a result, no significant vegetation and wildlife

impacts are anticipated to occur, except for the loss of mature trees and possible impacts to migratory birds, raptors, and their nests.

While the site is in an urbanized area, there are some large trees on-site that may provide perching or nesting habitat for raptors, such as falcons, hawks, eagles, and owls, and other migratory birds. The large trees on-site are likely important to birds due to the lack of trees within the adjacent riparian corridor. The trees to be removed are highlighted in Figure 24. Nesting raptors are among the species protected under both provisions of the Migratory Bird Treaty Act and California Department of Fish and Game (CDFG) Code Sections 3503, 3503.5, and 2800.

Demolition and construction disturbance near raptor or other migratory bird nests can result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes abandonment and/or loss of reproductive effort is considered a taking by the CDFG. Any loss of fertile eggs, nesting raptors or other migratory birds, or any activities resulting in nest abandonment would constitute a significant impact.

Impact BIO-2: Construction activities could result in the abandonment of active raptor nests or destruction of other migratory bird's nests. **(Significant Impact)**

To further facilitate pedestrian traffic, the project proposes two new pedestrian bridges over San Tomas Aquino Creek. The new pedestrian bridges would be clean span bridges that will not require supports within the creek channel. The bridges would be designed to provide sufficient clearance for Santa Clara Valley Water District (SCVWD) maintenance vehicles and would not interfere with SCVWD maintenance operations or trail use.

There are few wildlife species within the creek channel and no known special status species within the creek itself. A clear span design would not damage the existing habitat or increase turbidity within the creek channel. Therefore, construction of two clear span pedestrian bridges over San Tomas Aquino Creek would have a less than significant impact on wildlife.

It should be noted that the final design of the bridges will require approval by the SCVWD prior to issuance of construction permits which will ensure that the SCVWD maintenance and trail operations are not affected by the proposed project.

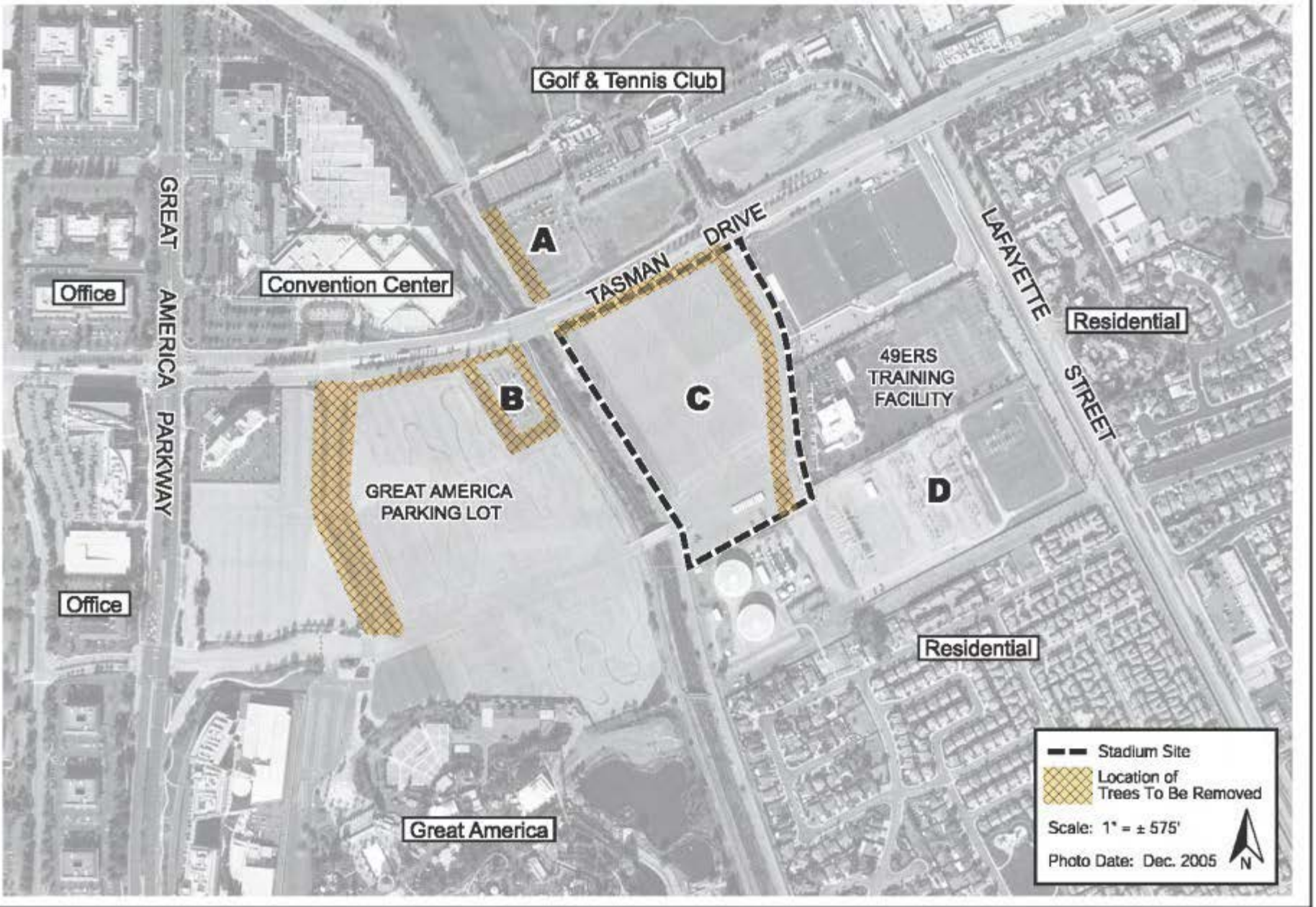
Depending on the placement of the bridge supports, the project may be required to obtain permits from the California Department of Fish and Game (CDFG). If CDFG permits are required, the final design of the bridges will also require CDFG approval. CDFG permits will have to be obtained prior to issuance of construction permits by the City.

Impact BIO-3: Implementation of the proposed project will have a less than significant impact on San Tomas Aquino Creek. **(Less Than Significant Impact)**

4.5.3.4 Trees

Loss of Individual Trees

The project proposes to remove most all of the existing trees on the project site. The trees to be removed are highlighted in Figure 24. The loss of up to 206 mature trees throughout the project site will likely decrease the number and variety of bird species in the project vicinity. There is



TREES TO BE REMOVED

FIGURE 24

currently no City policy or ordinance in place to protect trees within the City of Santa Clara. As a result, the loss of the trees in and of itself does not exceed any identified threshold of significance.

The City's Design Guidelines do, however, require that mature trees that are proposed to be removed be replaced on-site to the extent feasible at a 1:1 ratio with a 24-inch or 36-inch box specimen tree. Because the project will be required to comply with the City's Design Guidelines, the loss of trees will be somewhat offset. The size, species, and location of the replacement trees will be determined by the Director of Planning and Inspection.

Impact BIO-4: The proposed project will have a less than significant impact on trees. **(Less Than Significant Impact)**

Loss of Habitat

While the site is in an urbanized area, there are some large trees on-site that may provide perching or nesting habitat for raptors, such as falcons, hawks, eagles, and owls, and other migratory birds. The large trees on-site are likely important to birds due to the lack of trees within the area. Nevertheless, there is habitat in around Guadalupe River where non-nesting birds could relocate.

Impact BIO-5: The loss of the mature trees on-site outside the nesting/breeding season would be a less than significant impact. **(Less Than Significant Impact)**

4.5.4 Mitigation and Avoidance Measures for Biology Impacts

The following General Plan Policy would reduce biological impacts from development allowed by the proposed General Plan amendment to a less than significant level:

- *Flora and Fauna Policy No. 6* states that the City should support programs for the protection of fish and wildlife and their habitats, including rare and endangered species.

The following project specific mitigation measures will be implemented during construction to avoid abandonment of raptor and other protected migratory bird's nests:

- Construction shall be scheduled to avoid the nesting season to the extent feasible. The nesting season for most birds, including most raptors, in the San Francisco Bay area extends from February through August.

- If it is not possible to schedule demolition and construction between September and January, then pre-construction surveys for nesting birds shall be completed by a qualified ornithologist to ensure that no nests will be disturbed during project implementation. This survey shall be completed no more than 14 days prior to the initiation of construction activities during the early part of the breeding season (February through April) and no more than 30 days prior to the initiation of these activities during the late part of the breeding season (May through August). During this survey, the ornithologist will inspect all trees and other possible nesting habitats immediately adjacent to the construction areas for nests. If an active nest is found sufficiently close to work areas to be disturbed by construction, the ornithologist, in consultation with CDFG, will determine the extent of a construction-free buffer zone to be established around the nest, typically 250 feet, to ensure that raptor or migratory bird nests will not be disturbed during project construction.

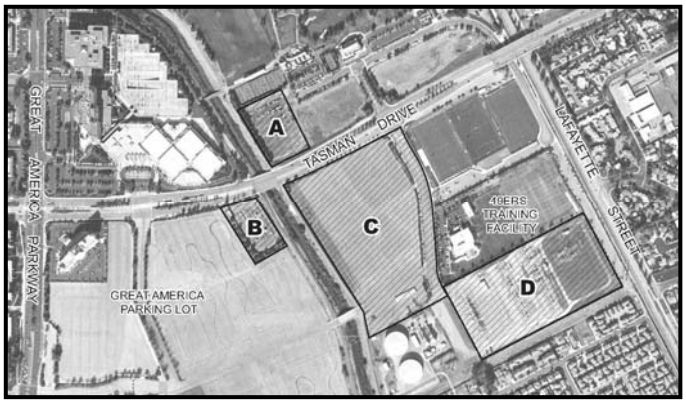
4.5.5 Conclusion

Implementation of the identified General Plan policy and proposed mitigation measures will reduce impacts to raptors and other migratory birds to a less than significant level. The project will have a less than significant impact on trees. **(Less Than Significant With Mitigation)**

4.6 HAZARDS & HAZARDOUS MATERIALS

The following information is based on a hazardous materials users survey prepared by *Belinda Blackie P.E., R.E.A*, a Phase I Environmental Site Assessment prepared by *Geomatrix*, and an accidental release assessment prepared by *Environ.* These reports can be found in Appendices E, E, and G of this document respectively.

4.6.1 Existing Setting



The proposed project site is located in an area of Santa Clara that is developed with a mix of industrial, commercial, residential, and recreational land uses. The project site is relatively flat and groundwater flow is in a north northeast direction. Depth to groundwater varies throughout the year but was found at a minimum of six feet below the ground surface (bgs)[34]. Sub-area A is currently used as overflow parking for the Santa Clara Golf and Tennis Club. Sub-area B is currently a 12 kilovolt (Kv) electrical substation which is owned and operated by the City of Santa Clara. Sub-area C is currently designated as overflow parking for the Great America Theme Park. Sub-area D is currently occupied by the Silicon Valley Power Northern Receiving Station.

4.6.1.1 Historical Uses of the Project Area

A 1953 topographic map shows the project site and surrounding area as mostly undeveloped. The only development in the area was the Southern Pacific Railroad line adjacent to the site. Topographic maps from 1961 to 1980 show the project site as it was in 1953. Aerial photographs show Sub-Areas A, C, and D of the project site as farmland until 1982. The substation on Sub-Area B was also farmland until its construction in 1975. The surrounding area was also farmland until 1974 when the residential neighborhood to the south of the site and Great America Theme Park were constructed. By 1976 Tasman Drive has been constructed and additional residential and commercial development had occurred. The first large water tank is seen by 1985. The Gianera Power Plant and the golf course to the north of the site are present by 1990. The Northern Receiving Station is present by 2005.

4.6.1.2 On-Site Sources of Contamination

Sub-Area A – The Garage Site

Based on aerial photographs of Sub-Area A, the site was actively farmed until at least 1982. It is reasonable to assume that the native soil on-site is contaminated with pesticides and herbicides (including arsenic and DDT). Groundwater samples taken from the site have not shown detectible amounts of pesticide and/or herbicide contaminates that could have leached into the groundwater aquifer.

[34] Shallow groundwater was found between six to 10 feet below the ground surface.

Sub-Area B – The Substation Site

Based on aerial photographs of Sub-Area B, the site was actively farmed until at least 1975 when the existing substation was constructed. It is reasonable to assume that the native soil on-site is contaminated with pesticides and herbicides (including arsenic and DDT). There is no record of leaks, spills, or contamination of any kind from this facility.

Sub-Area C – The Stadium Site

Based on aerial photographs of Sub-Area C, the site was actively farmed until 1982. It is reasonable to assume that the native soil on-site is also contaminated with pesticides and herbicides (including arsenic and DDT). It is not known, however, if the contaminates have leached into the shallow groundwater aquifer.

Sub-Area D – The Receiving Station Site

The Silicon Valley Power Northern Receiving Station generates, transports, stores, treats, and/or disposes of less than 1,000 kilograms of hazardous waste per month. Hazardous materials at this facility are limited to mineral oil (non-PCB) in the transformers and battery acid from secondarily-contained back up batteries.

The receiving station is connected to the PG&E Los Esteros Substation by a 230 kilovolt (kV) transmission line.

There is no record of leaks, spills, or contamination of any kind from this facility.

Asbestos and Lead Based Paint

Friable asbestos is any asbestos containing material (ACM) that, when dry, can easily be crumbled or pulverized to a powder by hand allowing the asbestos particles to become airborne. Common examples of products that have been found to contain friable asbestos include acoustical ceilings, plaster, wallboard, and thermal insulation for water heaters and pipes. Non-friable ACMs are materials that contain a binder or hardening agent that does not allow the asbestos particles to become airborne easily. Common examples of non-friable ACMs are asphalt roofing shingles, vinyl asbestos floor tiles, and transite siding made with cement. Non-friable ACMs can pose the same hazard as friable asbestos during remodeling, repairs, or other construction activities that would damage the material. Use of friable asbestos products was banned in 1978.

In 1978, the Consumer Products Safety Commission banned paint and other surface coating materials containing lead. The only existing structures on the project site, the substation and receiving station buildings, were constructed in 1975 and 2005 respectively. Due to their age, the building on the substation site could contain lead-based paint. The buildings on the receiving station site are relatively new and would not contain lead-based paint.

Sub-Area A

The property is currently a paved parking lot. There are no buildings or other structures or facilities on-site that would have ACMs or lead-based paint. In addition, there is no indication from aerial photographs or topographic maps that there was historically any structure on-site. Therefore, it is unlikely that any lead-based paint flakes would be found in the native soil.

Sub-Area B

The substation was constructed in 1975. Due to its age, it is possible that ACMs or lead-based paint were used in the construction of the facility.

Sub-Area C

The stadium site is currently a paved parking lot with pole mounted lighting. There are no buildings or other structures or facilities on-site that would have ACMs or lead-based paint. In addition, there is no indication from aerial photographs or topographic maps that there was historically any structure on-site. Therefore, it is unlikely that any lead-based paint flakes would be found in the native soil.

Sub-Area D

The Northern Receiving Station was constructed in 2005. Due to its age, no ACMs or lead-based paint were used in the construction of the facility. In addition, there is no indication from aerial photographs or topographic maps that there was historically any structure on-site prior to construction of the existing facility. Therefore, it is unlikely that any lead-based paint flakes would be found in the native soil.

4.6.1.3 Land Uses Surrounding the Project Site

North of the project site are the Santa Clara Golf and Tennis Club which includes undeveloped areas, Stars and Stripes Drive, a restaurant, tennis courts (directly adjacent to Sub-Area B, the garage site) and a golf course. East of the stadium site are the Marie P. DeBartolo Sport Centre, the Santa Clara Youth Soccer Park, Amtrak/ACE tracks, a train station, Lafayette Street, and a residential neighborhood. South of the project site is the Gianera Power Plant, two 4.7 million-gallon above-ground water storage tanks which belong to the City of Santa Clara, the Hetch-Hetchy Regional Water System right-of-way, and a single-family neighborhood. West of the project site are San Tomas Aquino Creek, the main parking lot for the Great America Theme Park, and the Santa Clara Convention Center. Beyond the immediate project area, land uses include a mix of commercial, industrial, and office developments.

Historic Land Uses in the Project Vicinity

The former City of Santa Clara All Purpose Sanitary Landfill (a Class III facility) encompassed 260 acres in the North Bayshore area of Santa Clara. The landfill operated from 1934 to 1993 at which time it stopped accepting waste materials and began closure proceedings. The landfill accepted municipal waste, construction debris, and non-hazardous industrial and commercial waste. Small quantities of hazardous materials, including solvents, organic compounds, heavy metals, and acids were also disposed of at this facility. Most of the closed landfill site was developed with the existing golf course north of the project site.

The remaining land around the project site was either undeveloped or used for farming until development of the existing land uses.

Hazardous Materials Use and Storage in the Project Area

In April 2008, a visual survey of businesses within approximately one-half mile of the project site was completed to try to identify those facilities currently using and/or storing hazardous materials.

The following information reflects only what is publicly available in existing files or can be observed from public streets. It may not reflect current conditions on any or all of the referenced sites. In addition, it is acknowledged that hazardous substances used on industrial sites in the area are likely to change over time.

Petroleum Pipelines

The only petroleum pipelines in the project area are the Kinder Morgan pipeline and the Chevron pipeline. Both pipelines are more than one mile from the project site.

Registered Toxic Gas Facilities

There is one toxic gas facility, Supertex (71 Vista Montana), located within one mile of the project site.

Registered CalARP Facilities

CalARP facilities are those that use or store specific quantities of toxic and flammable substances that can have off-site consequences if accidentally released. There are no CalARP facilities located within one mile of the project site.

Hazardous Materials Users in the Project Area

Great America Theme Park (1 Great America Parkway) – Based on the hazardous materials business plan (HMBP) for this site, this facility has underground storage tanks (USTs) and uses and stores hazardous materials on-site. Maximum container sizes for hazardous materials in inventory include 55 gallons for assorted oils, 8,000 gallons for diesel, 55 gallons for ethylene glycol, and 10 gallons for paint. Maximum container sizes for hazardous waste stored on-site include 55 gallons for waste oil, 300 gallons for solids with solvents and petroleum, 55 gallons for paint thinner and paint waste, 110 gallons for water with oils and heavy metals, 55 pounds for lead-acid batteries, waste PCB ballast, and asbestos pipes.

NTL Precision Machining, Inc (2268 Calle de Luna) – Based on the HMBP for this business, this facility uses and stores minimal quantities of hazardous materials. Maximum container sizes for hazardous materials in inventory include 100 gallons for coolant and 55 gallons for lube oil. Maximum container sizes for hazardous waste are limited to one 55 gallon container for waste water with oil and coolant.

INTA Technologies (2281 Calle de Luna) – Based on the HMBP for this business, this facility has a 1,200 gallon container for liquid nitrogen, a 1,200 cubic foot container for hydrogen, and a 291 cubic foot container for helium.

Nu-Metal Finishing, Inc. (2262 Calle del Mundo) – Based on the HMBP for this business, this facility uses and stores a variety of hazardous materials on-site. Maximum container sizes for hazardous materials inventory include 330 cubic feet for acetylene, 281 cubic feet for oxygen, 547 cubic feet for nitrous oxide, 350 cubic feet for argon, 6,360 cubic feet for liquid nitrogen, and 197 cubic feet for hydrogen. In addition, the site has containers ranging from 21 to 273 gallons and 34 to 500 pounds each of assorted metal finishing/plating chemicals including acids, caustics, cyanide, and metals. Maximum container sizes for hazardous waste include 100 pounds for filters with cyanide

and containers ranging from 55 to 275 gallons and 400 to 600 pounds each for assorted spent metal finishing/plating solutions and chemicals.

L.P. Glassblowing Inc. (2322 Calle del Mundo) – Based on the HMBP for this business, this facility uses and stores large quantities of hazardous materials. Maximum container sizes for hazardous materials in inventory include 1,200 gallons for cryogenic oxygen and 30,000 cubic feet for hydrogen.

Italix Company, Inc. (2232 Calle del Mundo) – Based on the HMBP for this business, this facility uses and stores small quantities of various hazardous materials. Maximum container sizes for hazardous materials in inventory include 30 gallons for spent sodium persulfate solution, 150 pounds for non-RCRA waste solids, 55 gallons for spent photo-resist stripper solution, five gallons for fluoride solution, five gallons for hydrochloric acid, and five gallons for resist stripper.

W&K Automotive, Inc. (2338 Calle del Mundo) – Based on the HMBP for this business, this facility uses and stores small quantities of automotive related hazardous materials. Maximum container sizes for hazardous materials in inventory include 55 gallons for transmission fluid, 75 gallons for engine oil, and 55 gallons for cleaning solvent. Maximum container sizes for hazardous waste on-site include 160 gallons for used oil and 80 gallons for used antifreeze.

Watts Machining, Inc. (2339 Calle del Mundo) – Based on the HMBP for this business, this facility uses and stores small quantities of hazardous materials. Maximum container sizes for hazardous materials in inventory include 55 gallons for Blasocut (coolant), 55 gallons for lube oil, 55 gallons for solvent, and five gallons for Spindle oil. Maximum container sizes for hazardous waste include 55 gallons for used coolant and 55 gallons for used solvent.

Alzeta Corporation (2434 Calle del Mundo) – Based on a UNIDOCS (an on-line hazardous materials reporting service) inventory for this business, this facility uses and stores a large variety of hazardous materials. There is no HMBP for this facility. Maximum container sizes for hazardous materials in inventory include 55 gallons for acetic acid, 55 gallons for aluminum nitrate, 550 pounds for aluminum powder, seven cubic feet of ethylene (in air), 200 cubit feet for propane, 55 pounds for dispersal/alumina, 50 pounds for polyvinyl alcohol, 50 pounds for sodium hydroxide pellets, 132 cubic feet for acetylene, 80 cubic feet for argon, 181 cubic feet for oxygen, 1,500 pounds for polymethylmethacrylate beads, 17.7 cubic feet for hydrogen, 144 cubic feet for nitrogen/nitric oxide, 144 cubic feet for nitrogen/nitric oxide/nitrogen dioxide mix, 181 cubic feet nitrogen/oxygen/carbon dioxide mix, and 440 cubic feet for carbon dioxide.

Solaicx (5102 Calle del Sol) – Based on the HMBP for this business, this facility uses and stores mostly small quantities of hazardous materials. Maximum container sized for hazardous materials in inventory include 55 gallons for lubricating oil, 55 gallons for grinding fluid, 1,500 gallons for argon, 55 gallons for alkaline detergent, 55 gallons for glycol, and 55 gallons for proprietary lubricant. Maximum container size for hazardous waste is limited to 55 gallons for waste oil.

Gianera Combustion Turbine (2339 Gianera Street) – Based in the hazardous materials/waste inventory for this business, which was provided by Silicon Valley Power, this facility contains large quantities of hazardous materials. There was no available HMBP for this facility. Maximum container sizes for hazardous materials in inventory include 100,000 gallons for dodecane in an AST, 200 cubic feet for carbon dioxide, 2,000 gallons for severely refined paraffinic distillate oil, and 250 cubic feet for methane. Maximum container size for hazardous waste is limited to 550 gallons for waste oil.

Nortel Networks (4555, 4559, 4655, and 4659 Great America Parkway) – Based on the HMBP for this business, these facilities use and store small quantities of hazardous materials mostly for operation of back-up generators on-site. Maximum container sizes for hazardous materials in inventory include 185 gallons for diesel (4555 GAP), 350 gallons for diesel for an emergency generator (4559 GAP), 185 gallons for diesel and 70 gallons for sealed UPS batteries (4655 GAP), and 660 gallons for diesel for an emergency generator (4659 GAP).

Hilton Santa Clara (4949 Great America Parkway) – Based on the HMBP for this business, this facility has only a 60 gallon diesel container for operation of an emergency generator.

Alcatel-Lucent (5200 Great America Parkway) – Based on the HMBP for this business, this facility is limited to 200 gallons for diesel in an AST and 280 pounds of sulfuric acid.

Techmart (5201 Great America Parkway) – Based on the HMBP for this business, this facility uses and stores large quantities of hazardous materials. Maximum container sizes for hazardous materials in inventory include 1,000 gallons for diesel and 1,000 gallons for trichloromonofluoromethane. Maximum container size for hazardous waste on-site is limited to five gallons for used refrigerant oil.

Micro Lithography, Inc. (5101 Lafayette Street) – Based on the HMBP for this business, this facility uses and stores a maximum of 300 cubic feet of nitrogen. Maximum container size for hazardous waste on-site is limited to 200 pounds for absorbent with mixed solvents.

Santa Clara Golf and Tennis Club (5101 Stars and Stripes Drive) – Based on the HMBP for this business, this facility uses and stores small quantities of hazardous materials. Maximum container sizes for hazardous materials in inventory include 500 gallons for diesel, 200 gallons for unleaded gasoline, 55 gallons for hydraulic oil, 55 gallons for motor oil, and 50 pounds for ammonium nitrate. Maximum contain sizes for hazardous waste on-site includes 55 gallons for used motor oil and 30 gallons for parts washer solution.

4.6.1.4 Off-Site Sources of Soil and Groundwater Contamination

Former Landfill Facility

Samples collected from beneath the landfill location show chlorinated volatile organic compounds (CVOCs) in the groundwater. The plume of contaminated groundwater is approximately 1,000 feet wide and 1,500 feet long. There is no evidence of the contaminated groundwater, or soil contaminated by groundwater leaching, extending beyond the original boundary of the landfill site. Monitoring of the landfill site shows that the concentrations of CVOCs in the groundwater have stabilized or are declining depending on the monitoring location.

The project site is upgradient from the landfill site. The monitoring well on Sub-Area A, which is directly adjacent to the former landfill site, did not contain any detectable concentrations of CVOCs. Other monitoring wells upgradient of the landfill site do contain low levels of volatile organic compounds (VOCs) below regulatory thresholds which are the result of low level contamination in San Tomas Aquino Creek from upstream sources.

Landfill gases are collected on-site by a collection and conversion facility operated by the City and Ameresco.

Other Sources of Off-site Contamination

A review of environmental databases was completed to evaluate whether any nearby subject properties could impact the project site. A brief description of the relevant databases is provided below.

Resource Conservation and Recovery Act: The Resource Conservation and Recovery Act (RCRA) Notifiers List identifies any RCRA treatment, storage, or disposal sites. The RCRA Corrective Activity (CORRACTS) list identifies all nationally defined corrective action core activities that have occurred for every handler that has had a corrective action activity. The database was reviewed for sites within one mile of the project site.

California Regional Water Quality Control Board Spills, Leaks, Investigations, and Cleanup: The Spills, Leaks, Investigations, and Cleanup (SLIC) is a California Regional Water Quality Control Board (RWQCB) list of sites that have reported spills, leaks, investigative activities, and/or cleanup actions. The list was reviewed for any sites within one mile of the project site.

Department of Toxic Substances Control: The Department of Toxic Substances Control (DTSC) lists sites under investigation for actual or potential contamination risks to human health or the environment. The HAZNET database contains information extracted from hazardous waste manifests submitted each year to DTSC. The ENVIROSTOR database identifies sites that have known contamination or sites for which there may be reasons to investigate further. It also identifies facilities that are authorized to treat, store, dispose, or transfer hazardous waste. The DTSC databases were reviewed for any sites within one mile of the project site. The VCP database lists sites participating in the Voluntary Cleanup Program. The VCP allows DTSC to provide oversight to property owners to address Brownfield sites

Leaking Underground Storage Tanks: The Leaking Underground Storage Tank (LUST) database lists all facilities underground storage tanks (UST) which have reported leaks. The HIST UST contains a historical list of registered USTs.

The following is a summary of the database results.

D&H Manufacturing Company (2301 Calle De Luna) – D&H Manufacturing is located between one-quarter and one-half mile northeast of the project site. The facility is listed on the RCRA-SQG, FINDS, HAZNET and SLIC databases.

D&H Manufacturing Company manufactured precision metal parts for the semiconductor industry at the listed facility from 1984 to 2005. There was an 8,000 square foot, single-story building on-site that had a chemical storage area with a sump to contain fluids drained from metal chip bins. Soil and groundwater in the area of the sump have been impacted by CVOCs. Sampling in 2001 found high concentrations of tetrachloroethylene (PCE), trichloroethane (TCA), and methylene chloride. The groundwater contamination plume is located beneath the sump building and extends downgradient to 2281 Calle de Luna.

In 2003, approximately 55 cubic yards of contaminated soil was excavated from the sump area and hydrogen releasing compounds (HRC) were added prior to backfilling with clean soil to enhance subsurface conditions and promote biological degradation of the residual CVOCs.

Based on the distance and location of the facility relative to the project site (2301 Calle de Luna is located downgradient from the project site), there is a very low potential for the project site to be impacted by this facility.

Shaheen Property (4767 Lafayette Street) – The Shaheen Property is located between one-quarter and one-half mile northeast of the project site. The facility is listed on the LUST, SLIC, and HIST UST databases.

A gas station occupied the Shaheen property from 1964 to 1989. There were three 4,000 gallon underground gasoline tanks and one 500 gallon underground waste oil storage tank which were removed in 1989. Samples collected in October 1989 did not contain any detectable amounts of petroleum hydrocarbons (TPH) or benzene, toluene, ethylbenzene, and xylene (collectively known as BTEX) beneath the gasoline tanks. Moderate concentrations of these pollutants were detected beneath the waste oil tank along with high concentrations of oil and grease. Low levels of CVOCs were also detected.

Additional sampling was conducted in December 1989 at the request of the Santa Clara Fire Department. Soil samples contained gasoline (TPHg) at concentrations up to 6 milligrams per kilogram (mg/kg) and ground samples showed the presence of TPHx in concentrations up to 3,300 milligrams per liter (mg/L).

Excavation of the contaminated soil was completed in 1990. The excavation sites were backfilled with clean fill. The Santa Clara Valley Water District (SCVWD) has not yet issued a closure letter for this property, but it was redeveloped in 1991 with a two story office/retail building.

Based on the distance and location of the facility relative to the project site (4767 Lafayette Street is located crossgradient from the project site) and the limited extent of petroleum hydrocarbons remaining on-site, there is a very low potential for the project site to be impacted by this facility.

Hogan Drive Property (Hogan Drive and Lafayette Street) – The Hogan Drive property is located between one-quarter and one-half mile northeast of the project site. This facility is listed on the VCO and ENVIROSTOR databases.

A dry cleaning facility occupied the Hogan Drive property (within the Fairway Glen Shopping Center) from approximately 1960 to 2005. There were three storage tanks and one 55-gallon drum in a hazardous materials storage shed behind the shop on a concrete pad (with no secondary containment) where the wastewater was stored prior to off-site disposal. The confirmation of PCE and TCE on an adjacent property (4764 Lafayette Street) prompted an investigation of the Fairway Glen Shopping Center.

Approximately 900 cubic yards of PCE-contaminated soil was excavated from beneath the former dry cleaning facility in 2006. Contamination remains on-site approximately 14 feet below the ground surface (bgs) but excavation is constrained by streets and utility lines. Additional testing found PCE and TCE in the groundwater.

Additional investigations are ongoing. Soil, soil vapor, and groundwater sampling was completed in October 2007 but the results of the sample analyses has not yet been reported.

Based on the distance and location of the facility relative to the project site (Hogan Drive and Lafayette Street is located crossgradient from the project site), there is likely a low potential for the

project site to be impacted by this facility. The full potential for impacts cannot, however, be determined until the investigation is completed and the results are known.

Ogden Power Pacific, Inc. (5401 Lafayette Street) – The Ogden Power Pacific facility ~~is~~ was located less than one-quarter mile north of the project site. This facility was listed on the EMI and ENVIROSTOR databases.

Ogden Power Pacific (also known as Pacific Energy, Pacific Lighting Energy Systems, and Pacific Recovery Corporation) was located on former landfill property north of the project site. There are no recorded releases or contamination from the former facility.

A new landfill gas conversion facility is currently being constructed on the same site for the same purpose by Ameresco, Inc.

Gianera Power Plant (1228 Gianera Street) – The Gianera Power Plant is located adjacent to the project site, south of Sub-area C and west of Sub-area D.

The Gianera Power Plant is an 8.5 acre facility operated by the City of Santa Clara Electric Department. Electric power is generated with two natural gas-fired combustion turbines. Distillate oil is used as an emergency backup fuel and is stored at the facility in a 100,000 gallon above ground tank. The tank is located within a 6-foot concrete dike which acts as a secondary containment facility. Drainage within the containment area and an adjacent concrete loading pad flow to a sump connected to a gravity oil/water separator. Treated effluent from the separator is discharged to the storm drainage system under the NPDES permit and then into San Tomas Aquino creek. There are no records of hazardous materials leaks, spills, or contamination from this facility.

4.6.2 Hazardous Materials Impacts

4.6.2.1 Thresholds of Significance

For the purposes of this EIR, a hazardous materials impact is considered significant if the project would:

- create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- be located on a site which is included on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;
- for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area;
- for a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area;

- impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

4.6.2.2 Impacts From the Proposed General Plan Amendment

The proposed amendments to the text of the General Plan should not result in any new or more significant impacts associated with hazardous materials, or hazards from airport operations.

Impact HAZ-1: The proposed text amendment would have a less than significant hazardous materials impact. **(Less Than Significant Impact)**

4.6.2.3 Impacts From On-Site Hazards

Agricultural Land Uses

The project site was farmed until approximately 1982. Because of the past agricultural uses on-site, it is reasonable to assume that pesticides and other agricultural chemicals were used as part of the normal agricultural operations. It is common to find arsenic, lead, and DDT residue in the soil in Santa Clara County from historic farming operations.

More than 53 percent of the project site will be completely capped with buildings and hardscape. The remaining portion of the site will be landscaped and direct exposure to the soil for future site maintenance workers and persons playing on the field is possible. Construction workers could also be exposed to soil contamination from agricultural operations.

Impact HAZ-2: Implementation of the proposed project could expose construction workers and future site users to contaminated soil. **(Significant Impact)**

Asbestos and Lead Based Paint

Sub-areas A, C, and D do not currently have any buildings or other structures that would contain asbestos or lead-based paint. Furthermore, there is no indication from aerial photographs or topographic maps that there were historically any structures on these sites prior to construction of the existing land uses. Therefore, it is unlikely that any lead-based paint flakes would be found in the native soil.

The substation on Sub-Area B was constructed in 1975. Asbestos and lead-based paints were not banned until 1978, after construction of the substation. Therefore, it is possible that the facility may contain ACMs or lead-based paint.

The project proposes to relocate the existing substation to the Northern Receiving Station site south of Sub-Area C. If any ACMs or surfaces with lead-based paint are damaged, it could result in air-borne asbestos particles or loose paint flakes. Air-borne asbestos could create a substantial health risk to construction workers and nearby sensitive receptors if inhaled.

If lead-based paint is still bonded to the building materials, its removal is not required prior to demolition. It will be necessary, however, to follow the requirements outlined by Cal-OSHA Lead in

Construction Standard, Title 8, California Code of Regulation (CCR) 1532.1 during demolition activities; these requirements included employee training, employee air monitoring, and dust control. If lead based paint is peeling, flaking, or blistered, it should be removed prior to demolition. It is assumed that such paint will become separated from the building components during demolition activities and must be managed and disposed of as a separate waste stream. Any debris or soil containing lead paint or coating must be disposed of at landfills that are permitted to accept such waste.

Impact HAZ-3: Implementation of the proposed project could expose construction workers and/or nearby sensitive receptors to air-borne asbestos particles and lead-based paint. **(Significant Impact)**

4.6.2.4 Off-Site Hazards

Soil and Groundwater Contamination

As discussed in Section 4.6.1.3., several contaminated sites listed on various state and federal hazardous materials lists were identified within one mile of the project site. All of the sites have been issued case-closed status, are a substantial distance from the project site, or are located down-gradient or cross-gradient from the project site. Due to the distance of these facilities and the direction of groundwater flow, there is a very low probability for contaminated groundwater from those identified sites to migrate onto the project site.

The depth to groundwater on the project site is a minimum of six feet below the ground surface. Contaminants in the groundwater could, over time, leach into the soil around the shallow aquifer. Because of the depth of the groundwater, it is unlikely that the soil contamination resulting from the leaching of contaminants would migrate to the ground surface. In addition, because the site will be developed with a sports stadium, a parking structure, and surface parking lots, there would be no long term exposure to any persons on-site.

Impact HAZ-4: Off-site soil and/or groundwater contamination will have a less than significant impact on the project site and future site occupants. (**Less Than Significant Impact)**

Toxic Gas Facilities

There are four facilities within 1.5 miles of the project site that store sizeable quantities of toxic and/or flammable gases that have been identified as chemicals of concern under the United States Environmental Protection Agency's (USEPA) Risk Management Plan (RMP) Rule (Federal Code of Regulations Title 40 Part 68) and the California Accidental Release Prevention (CalARP) program (California Code of Regulations Title 19, Division 2, Chapter 4.5). The chemicals of concern are arsine, chlorine, ammonia, hydrogen chloride, trichlorosilane, hydrogen selenide, potassium cyanide, and sodium cyanide. These gases could become airborne if a release of one or more were to occur. An analysis was completed to determine if a release from any of these facilities would impact the proposed stadium. The analysis was based on USEPA RMP "worst-case" release scenario which assumes the entire chemical content of a tank (of any size) is released over a 10 minute period with a wind speed of 4.9 feet (1.5 meters) per second and an air temperature of 77 degrees F.

The worst-case release scenario does not consider the possible causes of a release or the probability of a release; the release is simply assumed to occur. In addition, the worst-case scenario assumes that

no passive protection measures, such as the tanks being enclosed within a building, are present. The combination of conditions necessary to trigger a worst-case release scenario rarely occurs and is unlikely to persist for an extended period of time.[35] The chance of a worst-case cylinder release is approximately one in one million. A more likely release scenario, which takes into account existing protective measures in place at the identified facilities, would have a much smaller impact zone than that identified for the worst case scenario.

The facilities that were analyzed are listed in Table 10 along with the chemicals of concern and the quantities stored.

TABLE 10
Toxic Air Contaminant Facilities

Facility	Chemical	Quantity Stored (in pounds)
1375 Norman Avenue	Arsine	50
	Chorine	100
	Ammonia	500
	Hydrogen Chloride	599
	Hydrogen Selenide	22
2201 Laurelwood Road	Trichlorosilane	550
2262 Calle del Mundo	Potassium Cyanide (acidified to hydrogen cyanide)	110
1650 Russell Avenue	Sodium Cyanide (Acidified to hydrogen cyanide)	100

The analysis of non-flammable toxic gases concluded that the stadium site would be within the worst-case release impact radius of the arsine and hydrogen selenide stored at 1375 Norman Avenue. In addition, the site would be within the worst-case release impact radius from hydrogen chloride generated from a trichlorosilane release at 2201 Laurelwood Road. The stadium site is not within the impact radius of three remaining chemicals at the Norman Avenue facility or the hydrogen cyanide at the Calle del Mundo or Russell Avenue facilities (see Figure 25).

The analysis of flammable toxic gases[36] concluded that the stadium site is not within the worst-case overpressure impact radius of the trichlorosilane at the Laurelwood Road facility.

Impact HAZ-5: The stadium site is located within the worst-case release impact zone for two toxic gas facilities and could expose event attendees to toxic chemicals if a worst-case release were to occur. **(Significant Impact)**

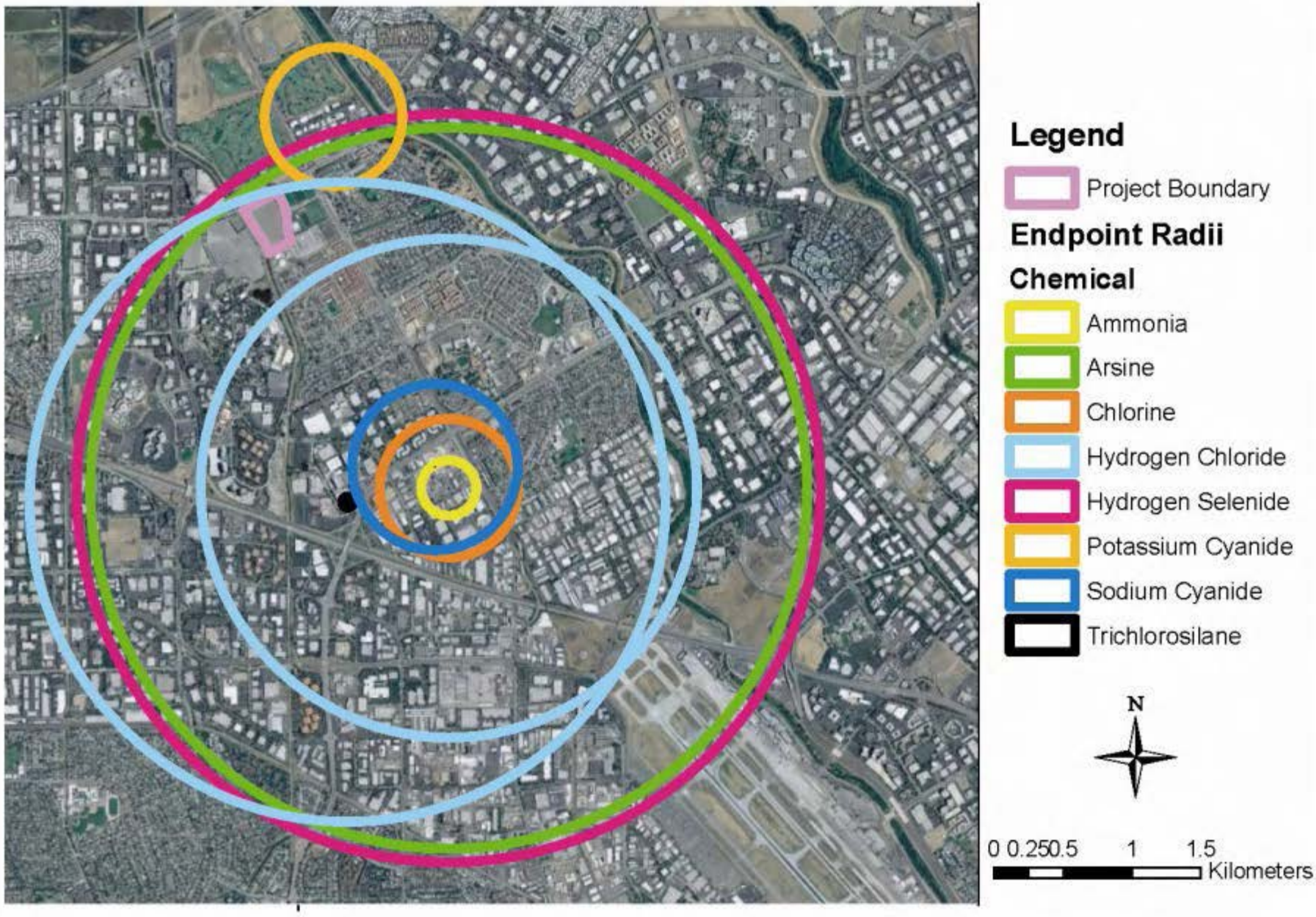
Norman Y. Mineta San José International Airport Operations

Please refer to Section 4.1.2.3 for a complete discussion of the airport.

4.6.3 Mitigation and Avoidance Measures for Hazardous Materials Impacts

The following General Plan Policy would reduce most hazardous materials impacts from development allowed by the proposed General Plan amendment to a less than significant level:

[35] USEPA Risk Management Plan Guidelines, 2009
[36] Trichlorosilane is the only identified chemical in this analysis that is considered flammable.



HAZARDOUS RELEASE IMPACT ZONE

FIGURE 25

- *Hazardous Materials Policy No. 4* states that the City should regulate hazardous materials use, storage, disposal and clean-up to protect the health of humans and the environment within the City of Santa Clara.

The following project specific mitigation measures will be implemented during construction to reduce significant hazardous materials impacts:

On-Site Soil Contamination from Agricultural Land Uses

- Prior to the issuance of grading permits, shallow soil samples shall be taken to determine the location of contaminated soils with concentrations above established construction/trench worker thresholds. The soil sampling plan must be reviewed and approved by the Santa Clara Fire Chief prior to initiation of work. Any contaminated soils found in concentrations above established thresholds shall be removed and disposed of according to California Hazardous Waste Regulations. The contaminated soil removed from the site shall be hauled off-site and disposed of at a licensed hazardous materials disposal site.

- A Site Management Plan (SMP) will be prepared to establish management practices for handling impacted groundwater and/or soil material that may be encountered during site development and soil-disturbing activities. Components of the SMP will include: a detailed discussion of the site background; preparation of a Health and Safety Plan by an industrial hygienist; notification procedures if previously undiscovered significantly impacted soil or free fuel product is encountered during construction; on-site soil reuse guidelines based on the California Regional Water Quality Control Board, San Francisco Bay Region's reuse policy; sampling and laboratory analyses of excess soil requiring disposal at an appropriate off-site waste disposal facility; soil stockpiling protocols; and protocols to manage ground water that may be encountered during trenching and/or subsurface excavation activities. Prior to issuance of grading permits, a copy of the SMP must be approved by the City's Director of Planning and Inspection and the Santa Clara Fire Chief.

Asbestos

The proposed project will conform with the following regulatory programs and implement the following standard measures to reduce impacts due to the presence of ACMs:

- In conformance with state and local laws, a visual inspection/pre-disassemble survey, and possible sampling, shall be conducted prior to the dismantling of the substation to determine the presence of asbestos containing materials.

- All potentially friable ACMs shall be removed in accordance with NESGAP guidelines prior to dismantling that may disturb the materials. All dismantling activities will be undertaken in accordance with Cal/OSHA standards contained in Title 8 of CCR, Section 1529, to protect workers from exposure to asbestos.

- A registered asbestos abatement contractor shall be retained to remove and dispose of ACMs identified in the asbestos survey performed for the site in accordance with the standards stated above.

- Materials containing more than one percent asbestos are also subject to BAAQMD regulations. Removal of materials containing more than one percent asbestos shall be completed in accordance with BAAQMD requirements.

Lead-Based Paint

- In conformance with state and local laws, a visual inspection/pre-demolition survey, and possible sampling, shall be conducted prior to the demolition of on-site buildings to determine the presence of lead-based paint.
- During demolition activities, all building materials containing lead-based paint shall be removed in accordance with Cal/OSHA Lead in Construction Standard, Title 8, California Code Regulations 1532.1, including employee training, employee air monitoring, and dust control. Any debris or soil containing lead-based paint or coatings would be disposed of at landfills that meet acceptance criteria for the waste being disposed.

Toxic Air Contaminants

- The proposed project will have to prepare an emergency response plan in coordination with first-responders and other emergency agencies. The plan will include an evacuation plan, medical response plan, and advance warning system, and will detail what parties are responsible for specific response actions. The plan will need to be approved by the City's Director of Planning and Inspection and the Santa Clara Fire Chief prior to issuance of occupancy permits.

4.6.4 Conclusion

Implementation of the proposed mitigation measures for handling soil contamination, should it be present, would reduce hazardous materials impacts to construction workers and nearby sensitive receptors to a less than significant level. **(Less Than Significant Impact with Mitigation)**

Implementation of the proposed mitigation measure will reduce the impacts from a worst-case toxic gas release, but not to a less than significant level. Because of the proposed design of the stadium, a shelter-in-place would not be a viable option. As a result, the impact will be significant and unavoidable. **(Significant Unavoidable Impact)**

4.7 CULTURAL RESOURCES

The following information is based on an archaeological assessment prepared by *Basin Research Associates* in June 2008. The report is on file at the City of Santa Clara Department of Planning and Inspection.

4.7.1 Existing Setting

The following information is based on an analysis of existing site records on file with the California Historical Resources Information System at the Northwest Information Center at Sonoma State University, reference material from the Bancroft Library at UC Berkeley, historic maps, and the files of Basin Research Associates. In addition, two archaeological field surveys of the four project sites were completed.

There are no existing conditions or immediate evidence that would suggest the presence of historic or prehistoric resources on the project site. Nevertheless, the site is located in a culturally sensitive area due to known prehistoric and historic occupation of Santa Clara. In addition, Native American settlements are commonly associated with the abundant food supply in the Santa Clara Valley, and because the project site is adjacent to San Tomas Aquino Creek the likelihood that historic artifacts may be located on the project site is increased. A full discussion of prehistoric and historic conditions in the project area is provided below.

4.7.1.1 Prehistoric Resources

The Guadalupe River (located approximately 0.60 miles east of the stadium site) and Coyote Creek (located approximately 1.5 miles east of Guadalupe River) were focal points of prehistoric occupation in the Santa Clara Valley. Due to an abundance of water and a variety of ecological niches available for resource exploitation, Native American occupation of the general project area appears to have extended over a 5,000 to 7,000+ year time frame. Archeological information suggests an increase in the local population over time as food procurement changed from hunting and gathering to agriculture. Also, an increased ability to store food and the development of social and political systems that allowed for long-distance trade networks enabled the development of permanent settlements and an increase in population.

The aboriginal inhabitants of the Santa Clara Valley, a group known as the Costanoan or Ohlone, occupied central California from the coast to the Diablo Mountain Range. By 1770, the Costanoan tribelets were politically autonomous groups of 50-500 individuals with an average population of 200. Each tribelets territory usually had one or more permanent villages and a number of temporary camps used to exploit seasonally available food resources. The locations of the villages and tribelet boundaries are inexact due to incomplete historic records. Within the project area, however, Native American populations have been linked to occupations along the Guadalupe River. Historic accounts from the 1770s-1790s suggest that the Native Americans had temporary camps in the general vicinity of the project site throughout the prehistoric period and into the Hispanic period.

None of the known or inferred trails/roads used by Native Americans were located on or adjacent to the project site. Historic reconstruction of the 1776 Juan Bautista de Anza National Historic Trail route shows the expedition corridor as generally north, but as currently mapped includes the project site. None of the known Mission Santa Clara locations is within close proximity to the project site.

Evidence suggests that Native Americans occupied the area near the Guadalupe River until the mid-nineteenth century. Following the secularization of the mission, a number of the Mission Indians took up residence on former mission lands between the Guadalupe River and the historic alignment of San Tomas Aquino Creek. Around this time, the aboriginal way of life disappeared due to EuroAmerican diseases, declining birth rates, and the impact of the mission system. The Native American population was transformed from hunter/gatherers to manual farm labor.

Based on the archaeological literature review conducted at the Northwest Information Center (at Sonoma State University), four previous archaeological surveys have been completed in the project area which included portions of the project site. All the surveys were negative for the presence of significant prehistoric era archaeological resources. In addition, no prehistoric era sites have been reported within one-quarter mile of the project site. A field survey of the complete project site was performed in May and June, 2008. No evidence of significant prehistoric features or sites was observed during the field survey.

The property has been determined to have a moderately high potential for containing buried prehistoric resources. This determination was made based on the site's close proximity to San Tomas Aquino Creek and, to a lesser extent, Guadalupe River. While San Tomas Aquino Creek is currently located within an artificial channel, the entire project site would have been located within the prehistoric/historic riparian zone of the creek which was an ideal habitat in prehistoric times for seasonal camps and villages. Many villages of this type were buried by three to 10 feet of silt deposited during flooding episodes.

4.7.1.2 Historic Resources

Hispanic Period

Spanish explorers in the late 1760s and 1770s were the first Europeans to traverse the Santa Clara Valley. The first group of explorers arrived in the Alviso area in the fall of 1769 and likely forded both the mouth of the Guadalupe River and Coyote Creek. The following year, another expedition was undertaken which explored Santa Clara Valley. In 1776, Juan Bautista de Anza and Father Pedro Font traveled through the region. Their visit led to the establishment of both Mission Santa Clara and the Pueblo San José de Guadalupe in 1777. The Juan Bautista de Anza National Historic Trail (authorized by Congress in 1990) is mapped to include the project site.

The Mission Santa Clara de Asis was one of seven missions located within the Costanoan territory and had the greatest impact on the aboriginal population living in the project area. Most of the project site was located within Rancho Ulistac with the exception of Sub-Area B which was part of the ungranted lands. None of the known locations of Hispanic era dwellings or related features have been identified on or adjacent to any portion of the project site.

American Period

By the mid-19th century, most of the rancho and pueblo lands and some of the ungranted land in California were subdivided as a result of population growth, the American takeover, and the confirmation of property titles. Growth in the area can be attributed to the Gold Rush (1848) followed by the completion of the transcontinental railroad (1869). In the 1880s, the development of the refrigerator rail car used for the transportation of agricultural produce had a major impact on the Santa Clara Valley. During the later American period and into the contemporary period, fruit

production became a major industry and remained so until after World War II when the electronics industry developed.

The 1958 *USDA Santa Clara Area California Soil Survey* shows no kitchen middens on or adjacent to the project site. A 1940 survey of Spanish and Mexican adobe and other buildings determined that no known adobe buildings, roads, or other associated features were located on or adjacent to the project site. The 1851-1866 Survey by the Bureau of Land Management found no American period buildings or features on or adjacent to the project site.

The 1897 topographic map of the area shows that the closest notable feature to the project site was a house/ranch complex with an associated orchard located south/southwest of the project site. The 1943 topographic map shows a single transmission line through Sub-Area C and adjacent to Sub-Area A, but no other features on or adjacent to the project site. By 1961, a second transmission line was located on-site, but no other notable improvements had occurred. The substation and receiving station were built after 1980.

As stated above, four previous archaeological surveys have been completed in the project area which included portions of the project site. All the surveys were negative for the presence of significant historic era archaeological resources. A field survey of the complete project site was performed in May and June, 2008. No evidence of significant historic features or sites was observed during the field survey.

The property has been determined to have a moderately high potential for containing buried historic resources. This determination was made based on the site's close proximity to San Tomas Aquino Creek and, to a lesser extent, Guadalupe River.

4.7.1.3 Historic Buildings

There are no existing buildings on Sub-Areas A and C of the project site. The structures on Sub-Areas B and D are simple utilitarian structures associated with the operation of the substation and receiver station, are less than 30 years old, and are of no particular architectural style. None of the buildings on the project site would be eligible for the California or National Registers and none of the structures have been identified by the City of Santa Clara as architecturally or historically significant.

4.7.2 Cultural Resources Impacts

4.7.2.1 Thresholds of Significance

For the purpose of this EIR, a cultural resources impact is considered significant if the project would:

- cause a substantial adverse change in the significance of a historical resource;
- cause a substantial adverse change in the significance of an archaeological resource;
- directly or indirectly destroy a unique paleontological resource or site or unique geological feature; or
- disturb any human remains, including those interred outside of formal cemeteries.

4.7.2.2 Impacts From the Proposed General Plan Amendment

The proposed amendments to the text of the General Plan should not result in any new or more significant impacts to cultural resources.

Impact CUL-1: The proposed text amendment would have a less than significant cultural resources impact. **(Less Than Significant Impact)**

4.7.2.3 Impacts to Cultural Resources

In spite of the fact that work on and near the project site over the last 30 years has failed to generate reports of archaeological finding, the site has a moderate to high potential for containing prehistoric archaeological resources due to the close proximity of San Tomas Aquino Creek and Guadalupe River and its association with Rancho Ulistac. As a result, any disturbance of native soil caused by implementation of the proposed project could result in the discovery of Native American artifacts and/or human remains.

Impact CUL-2: Implementation of the proposed project could have a significant impact on unknown buried prehistoric and/or historic resources. **(Significant Impact)**

4.7.2.4 Impacts to Historic Buildings

As stated above, none of the buildings on the project site would be eligible for the California or National Registers and none of the structures have been identified by the City of Santa Clara as architecturally or historically significant.

Impact CUL-3: Implementation of the proposed project would have a less than significant impact on historic structures. **(Less Than Significant Impact)**

4.7.3 Mitigation and Avoidance Measures for Cultural Resources

The following project-specific mitigation measures will be implemented during construction to avoid significant impacts to unknown cultural resources:

- A qualified archaeologist will be on site to monitor the initial excavation of native soil once all pavement and engineered soil is removed from the project site. After monitoring the initial excavation, the archaeologist will make recommendations for further monitoring if it is determined that the site has cultural resources. If the archaeologist determines that no resources are likely to be found on site, no additional monitoring will be required.

- In the event that prehistoric or historic resources are encountered during excavation and/or grading of the site, all activity within a 150-foot radius of the find will be stopped, the Director of Planning and Inspection will be notified, and the archaeologist will examine the find and make appropriate recommendations. Recommendations could include collection, recordation, and analysis of any significant cultural materials. A report of findings documenting any data recovery during monitoring would be submitted to the Director of Planning and Inspection.

- In the event that human remains are discovered during excavation and/or grading of the site, all activity within a 50-foot radius of the find will be stopped. The Santa Clara County Coroner will be notified and shall make a determination as to whether the remains are of Native American origin or whether an investigation into the cause of death is required. If the remains are determined to be Native American, the Coroner will notify

the Native American Heritage Commission (NAHC) immediately. Once NAHC identifies the most likely descendants, the descendants will make recommendations regarding proper burial, which will be implemented in accordance with Section 15064.5(e) of the CEQA Guidelines.

4.7.4 Conclusion

Implementation of the proposed mitigation measures will reduce cultural resources impacts to a less than significant level. **(Less Than Significant Impact With Mitigation)**

4.8 TRANSPORTATION AND CIRCULATION

Because of the unusual nature of the project, the traffic section below is not written or formatted as it would be for a typical development in Santa Clara County. The discussion below is based in part on the Transportation Impact Analysis (TIA) prepared by *Hexagon Transportation Consultants, Inc*. and the Transportation Management Plan (TMP) prepared by *DMJM Harris*. The TIA was peer reviewed by *Fehr & Peers Transportation Consultants*. Copies of the TIA and TMP are found in Appendices H and I, respectively.

4.8.1 Existing Setting

The following brief discussion summarizes how the TIA was prepared, and how it is organized.

The description of existing traffic and transportation conditions follows the sections describing the Scope of Study and the Methodology. The existing setting is followed by an analysis of the impacts of the proposed project. The specific details of this analysis were based primarily on information provided by the 49ers organization which reflects their historic experience in the Bay Area. Since this EIR assumes that two teams might occupy the stadium, there could be some minor variations in attendance bases and patterns of commuting for a second team. While no assumption is made about the identity of the other team, traditional rivalries between the East Bay and the San Francisco Peninsula in sports franchises is likely to be reflected in whichever other team uses this facility. The location of the proposed stadium at the southerly tip of the Bay would mean that attendees will utilize the well-developed freeway systems that link the South Bay area to both the East Bay and the Peninsula.

4.8.1.1 Scope of Study

This section of the EIR is an analysis of the near-term project traffic and transportation impacts likely to result from the stadium project. Although the proposed project is located in the City of Santa Clara, facilities outside of the City of Santa Clara will also be affected by the proposed project. The impacts of the project are therefore evaluated according to the standards and methodologies adopted by the Cities of Santa Clara, San José, Sunnyvale, and Milpitas for facilities that are under their jurisdiction.

While the standards sometimes vary, all of the jurisdictions use methodologies that are generally consistent with the Santa Clara County Congestion Management Plan (CMP).

The proposed project is different than a development project for a more ordinary land use (residential or commercial, for example) in a number of areas. The hours during which most of the traffic will be generated are not the typical peak or "commute" hours in the morning and early evening. Although not typical of most land uses, the proposed project will be typical of most NFL stadiums in the number and times of events. Based, therefore, on available information about game scheduling, with special attention given to the history of the 49ers at their existing home stadium, this analysis is structured to evaluate the impacts of the project as it is proposed and likely to function. This subsection establishes the structure and scope of the study.

Time Periods of Analysis

Based upon the time periods when the stadium will be used, the study includes an analysis of the standard weekday PM peak hour (which usually occurs between 4:00 and 6:00 pm), the weekday PM

peak hour of the stadium (anticipated to occur between 3:00 and 5:00 pm), and the Sunday peak hours of the stadium (11:00 am-1:00 pm and 3:00 – 5:00 pm), which are referred to as "early" and "late" Sunday study periods, respectively. In order to capture a maximum impact condition, the Sunday peak hour analysis assumes that traffic associated with concurrent events at both the proposed stadium and Great America Amusement Park will be present. Each study scenario is discussed below.

Each of these study periods captures the peak arrival of event attendees. Departure will occur during the late evening hours (8:00 – 10:00 pm) for weekday and late Sunday games, and 4:00 – 6:00 pm for early Sunday games. Both activities and ambient traffic volumes for surrounding land uses during the departure times will be minimal in the project area. Full implementation of the TMP will occur for departures, and all signalized intersections in the immediate area will either be controlled by police officers and/or the timing will be adjusted during that time period. It would not, therefore, be possible to do a typical intersection level of service (LOS) study under those conditions; an evaluation of roadway capacity for departure conditions has been provided, however.

Sunday Games

Sunday football games with a 1:00 pm start will generally be the events when the stadium will generate the greatest amount of traffic. Ambient traffic volumes on the roadway system are lower on Sundays, compared to standard weekday commute periods.[37] Because this is not a time period that is consistently monitored, special counts were collected on Sundays between 11:00 am and 1:00 pm. The counts were collected during the summer to capture the seasonal traffic associated with Great America[38].

There is also the possibility of games being held Sunday nights, though not as frequently as Sunday day games. It is expected that traffic volumes on the roadway system during Sunday evenings are lower than Sunday afternoons.[39] The time frames for the Sunday games are the following:

Sunday (Day Games –1:00 pm start time)	Sunday (Night Games – 5:00 pm start time)
Arrival 8am-1:00 pm	Arrival 12-5:00 pm
Departure 3-6:00 pm	Departure 8-10:00 pm
Study Period 11:00 am-1:00 pm	Study Period 3-5:00 pm

The arrival times are several hours long because a substantial number of attendees have tailgate parties before the games.

Weekday Games

It is likely that as many as four football games during the season could be held on a weekday, on a Monday or Thursday night. The weekday evening games could be the maximum impact scenario for

[37] Typical methodology for development-related traffic analyses prepared in Santa Clara County evaluates a project's impacts during the AM and PM peak hours because typical development will generate maximum traffic during those time periods. Because the stadium is not typical, this analysis must look at different times of impact.
[38] Great America Theme Park is typically closed between November and March and, as a result, will not conflict with late season games. Nevertheless, the analysis conservatively assumes that Great America operates year round.
[39] To validate this assumption, a sampling of counts was collected during the 3:00 – 5:00 pm period to compare with the 11:00 am to 1:00 pm period.

traffic operations on the roadway system. It is during the weekday peak hours that ambient traffic volumes on the roadway system will be largest and could conflict with the arrival of traffic bound for the stadium.

The proposed parking plan will require coordination and formal agreements with owners of the nearby office/industrial developments to provide stadium event parking in the existing parking lots in the area. The buildings will generally be unoccupied on Sundays, but on weekdays, use of the parking lots by stadium attendees will require that those parking lots be vacated in advance. Although the agreements stipulate that the parking lots be vacated prior to 3:00 pm on game days, it is assumed that human nature will cause delays in the departures. Therefore for the early weekday study period (3-5:00 pm), this analysis assumes that office workers would begin to depart at 3:00 pm, concurrent with a significant number of stadium event attendees beginning to arrive in the area. The standard weekday PM commute peak hour (which occurs between 4:00 and 6:00 pm) will be studied.

Monday/Thursday (Night Games – 5:30 pm start time)
Arrival 12-5:30 pm
Departure 8-10:00 pm
Study Period 4-6:00 pm

Special Events

Special events such as concerts and soccer games will also be held at the stadium. The events would likely have start and end times similar to start and end times of both the weekday and Sunday football games. It is assumed that traffic conditions resulting from special events would be within the scope of traffic from NFL football games but, in all or nearly all cases, with substantially less volume. Unlike the planned football games, other special events including the very large events may occur during the summer, in conflict with greater volumes of traffic generated by Great America Theme Park.

Special Events (Concerts/Soccer)
Similar start times as football games

Study Scenarios

Traffic conditions on the roadway network were identified for each of the time periods described above for the following scenarios:

Existing Conditions: Existing conditions are represented by existing peak-hour traffic volumes and by modified volumes based on known conditions, on the existing roadway network.

Background Conditions: To more accurately represent conditions that are likely to be present when the proposed project's traffic is on the roads, background traffic volumes are estimated by adding to existing peak-hour volumes, the projected traffic volumes from approved but not yet completed developments within each jurisdiction.[40]

[40] Said another way, this includes projected traffic from projects that have their legal entitlements and have completed the CEQA process.

Project Conditions: Future traffic volumes likely to exist if the proposed project is approved were estimated by adding trips from the proposed project to background traffic volumes. Comparing Project Conditions to Background Conditions will most accurately determine the increment of difference created by project traffic and, thus, the project's true impacts.

4.8.1.2 Methodology

This discussion summarizes the methods and information used to evaluate traffic conditions and impacts from the proposed project and includes data requirements, analytic methodologies, and applicable level of service standards for the various jurisdictions.

The data required for the analysis were obtained from new traffic counts from each of the applicable cities, the 2006 CMP Annual Monitoring Report (which was the most recent available when this report was prepared), and Caltrans. The following data were collected from these sources:

- existing traffic volumes
- lane configurations
- signal timing and phasing (for signalized intersections only)
- average speed (for freeway segments only)
- existing traffic volumes on freeway mainlines and ramps.

Intersection Analysis

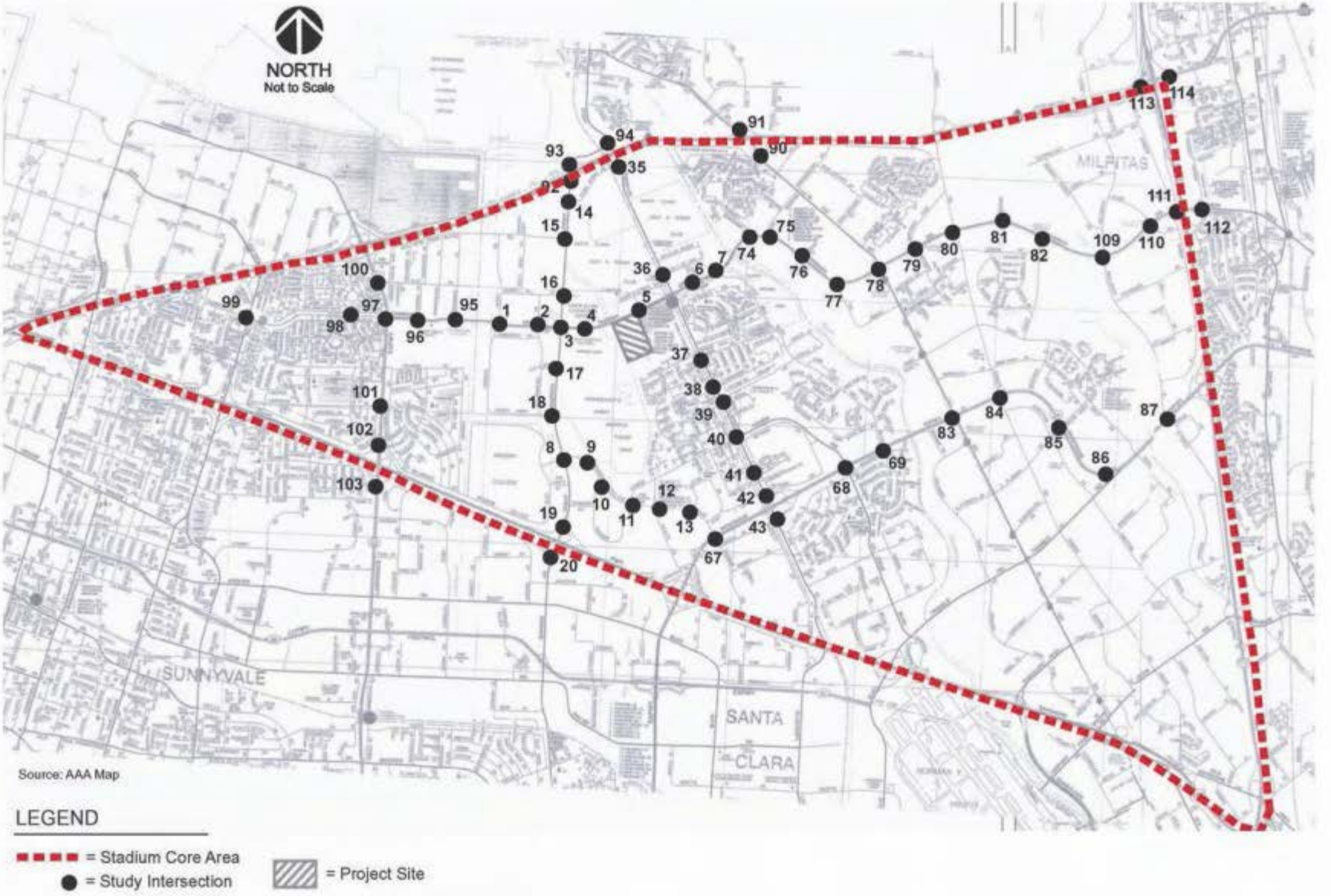
Based on project trip volumes, distribution, and dispersion, the study analyzed 120 existing intersections located in the cities of Santa Clara, San Jose, Sunnyvale, and Milpitas. In Santa Clara, the study intersections include 18 regional, or CMP-designated intersections and 55 otherwise undesignated intersections. In the City of San Jose, the 20 study intersections include 10 CMP intersections. In the City of Sunnyvale, the 14 study intersections include four CMP-designated intersections. In the City of Milpitas, the study includes 12 intersections of which two are CMP intersections.

Study intersections are those currently operating at LOS D or worse conditions and to which the project would likely add a significant amount of traffic, 10 trips or more per lane as specified by CMP criteria. Departing project traffic will dissipate and disperse significantly once outside of the freeway system surrounding the project area. The immediate stadium vicinity will have the most complex traffic conditions and is mapped separately as the "Stadium Core Area".

The study intersections are listed below by city and shown graphically in Figures 26 through 31. To minimize confusion with so many intersections, the numbers assigned to them in the list below will be used throughout this EIR. Those intersections with an asterisk (*) are also listed as regional intersections in the adopted Congestion Management Plan and are monitored by Santa Clara County Congestion Management Agency.

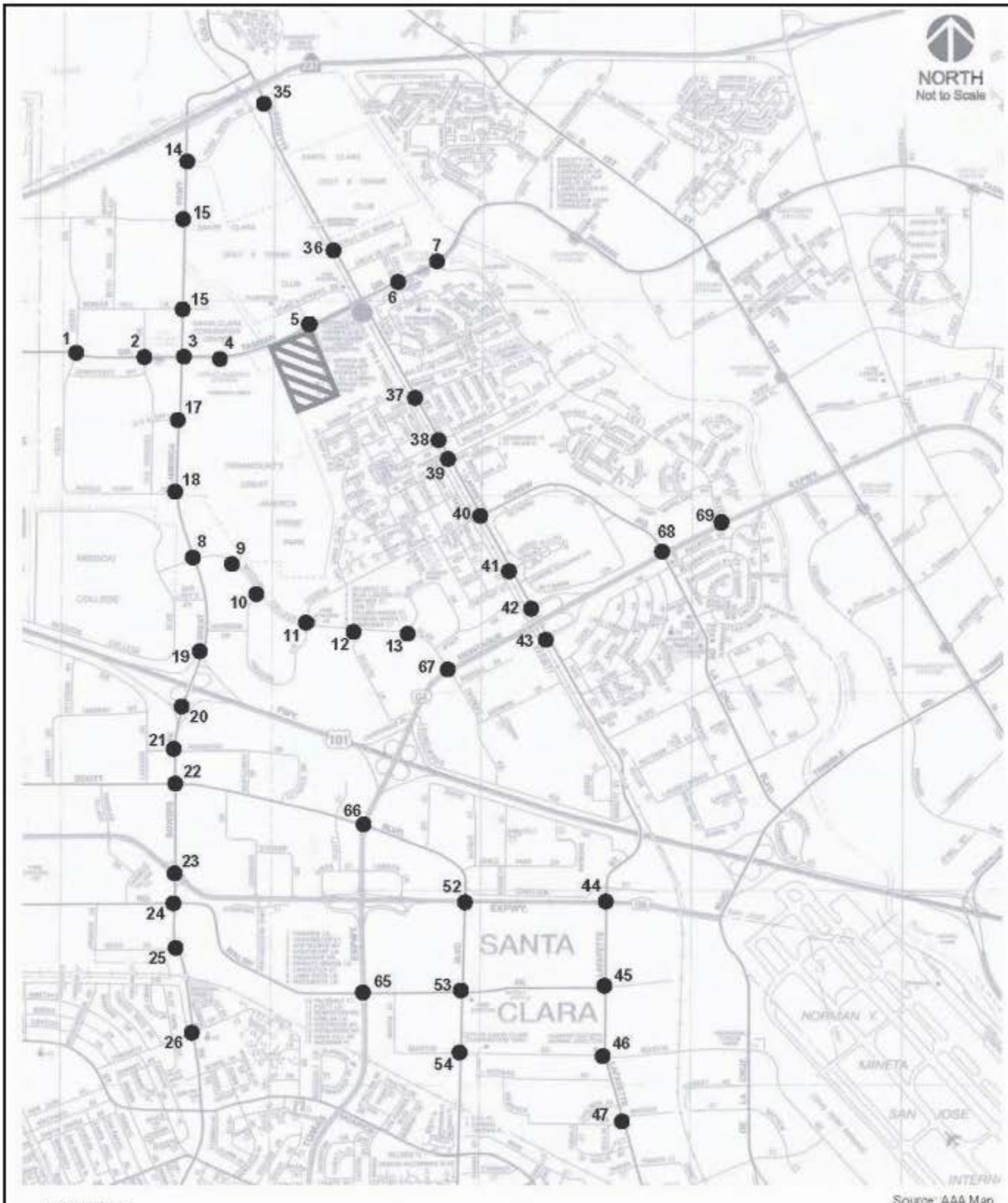
Signalized Intersections Analysis Methodologies

Traffic conditions at the study intersections were evaluated using level of service (LOS). Level of Service is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays. Table 11 defines each of the levels of service and shows the correlation between average control delay and level of service.

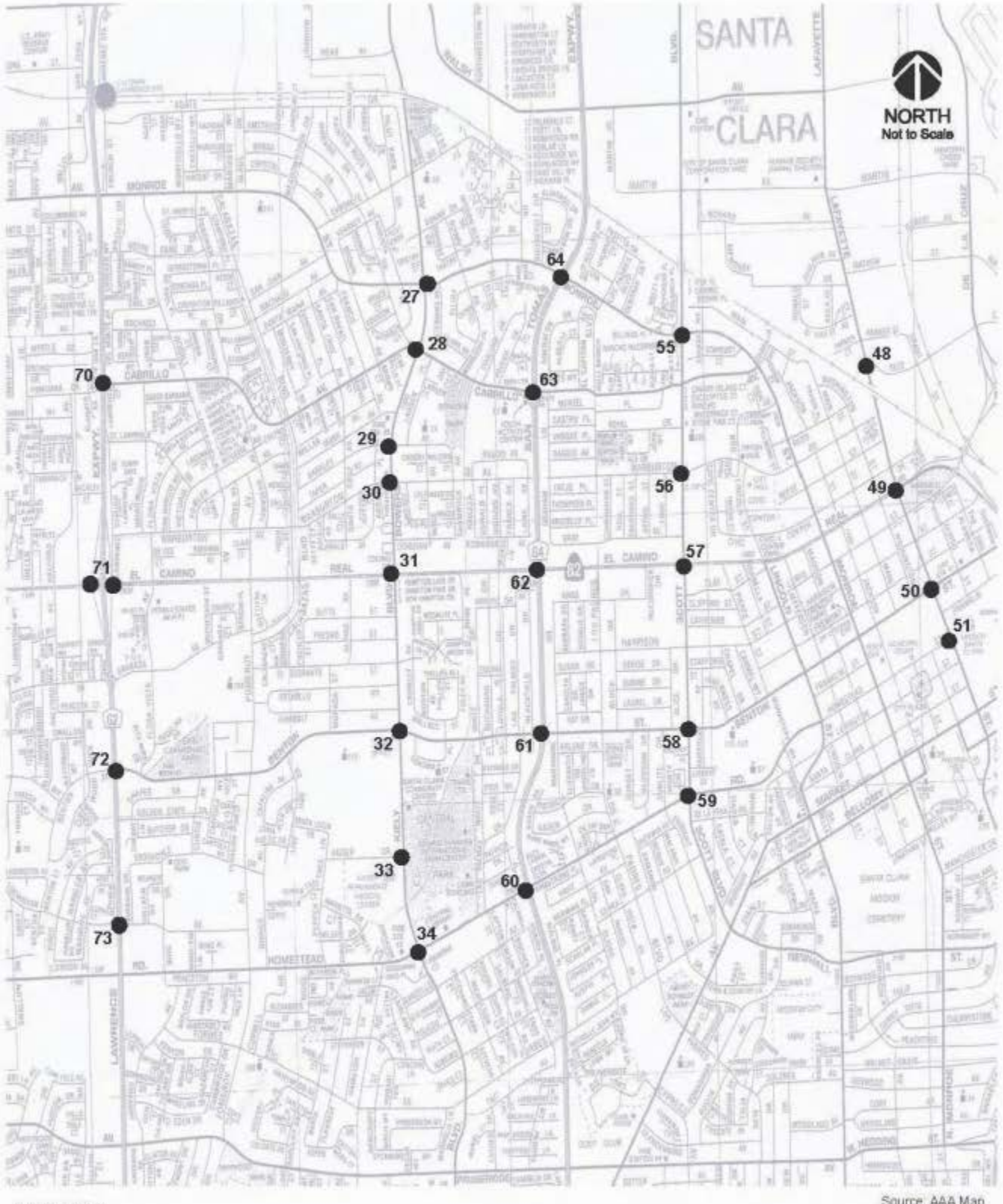


STADIUM CORE AREA STUDY INTERSECTIONS

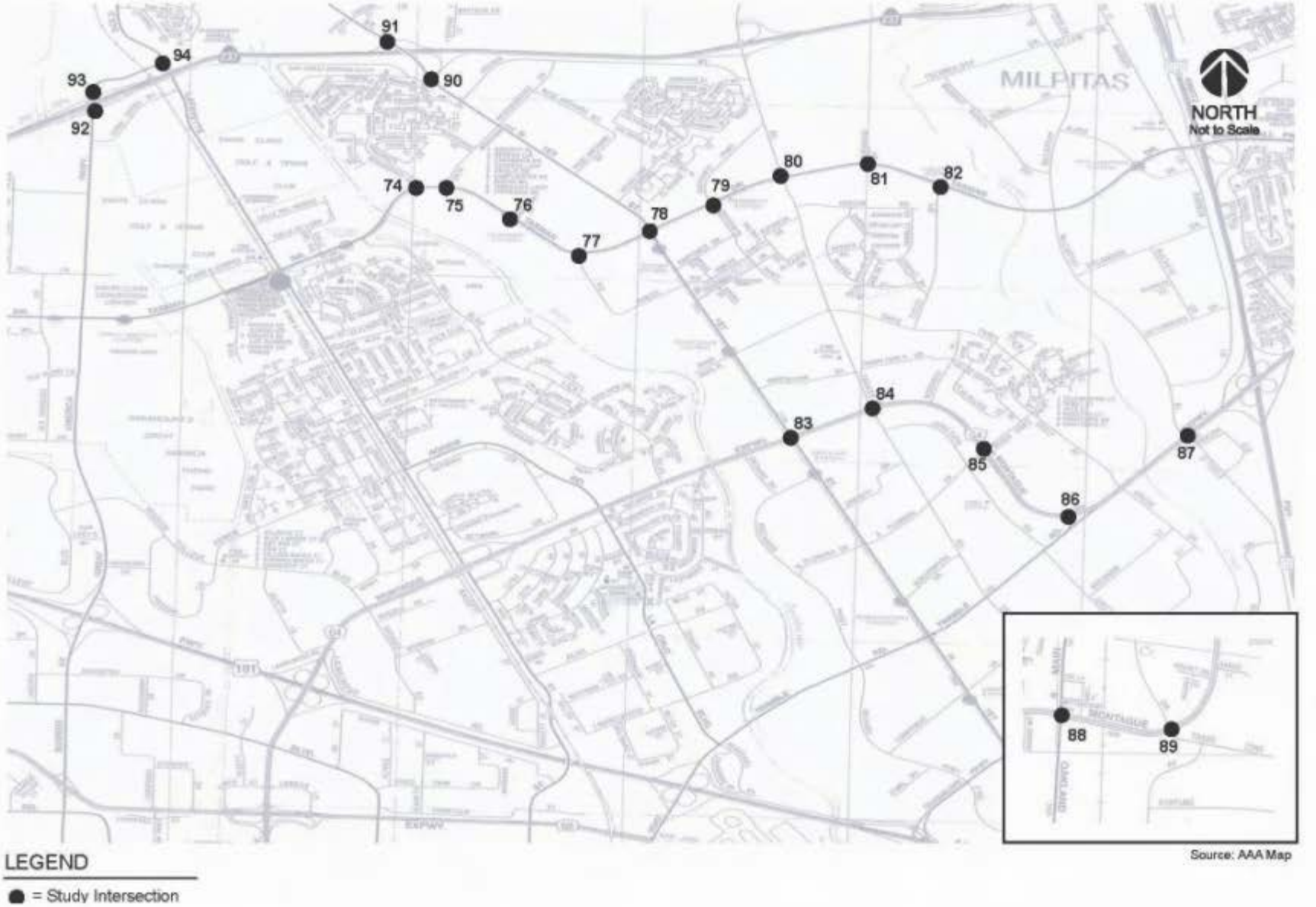
FIGURE 26



CITY OF SANTA CLARA STUDY INTERSECTIONS **FIGURE 27**

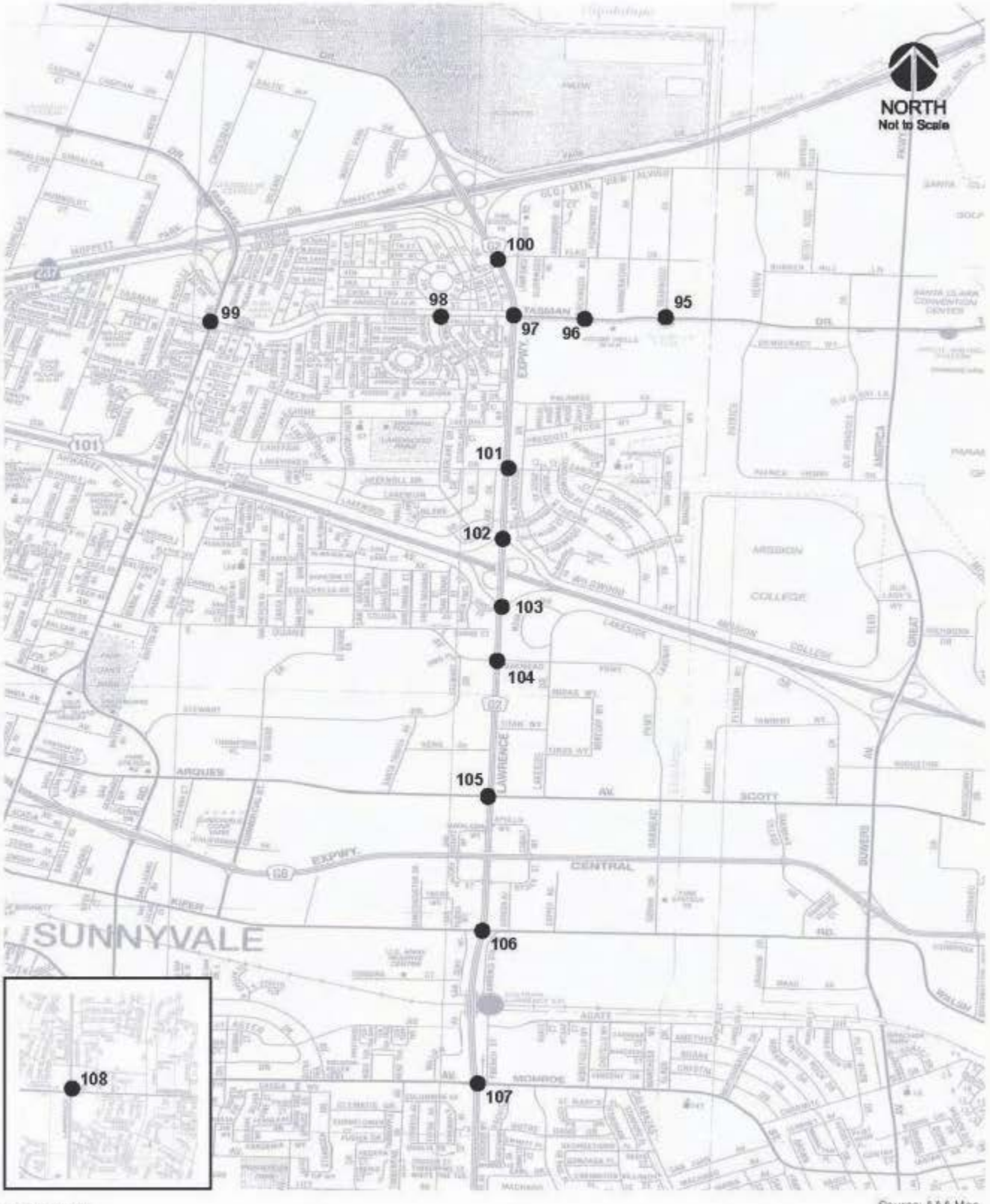


CITY OF SANTA CLARA STUDY INTERSECTIONS **FIGURE 28**

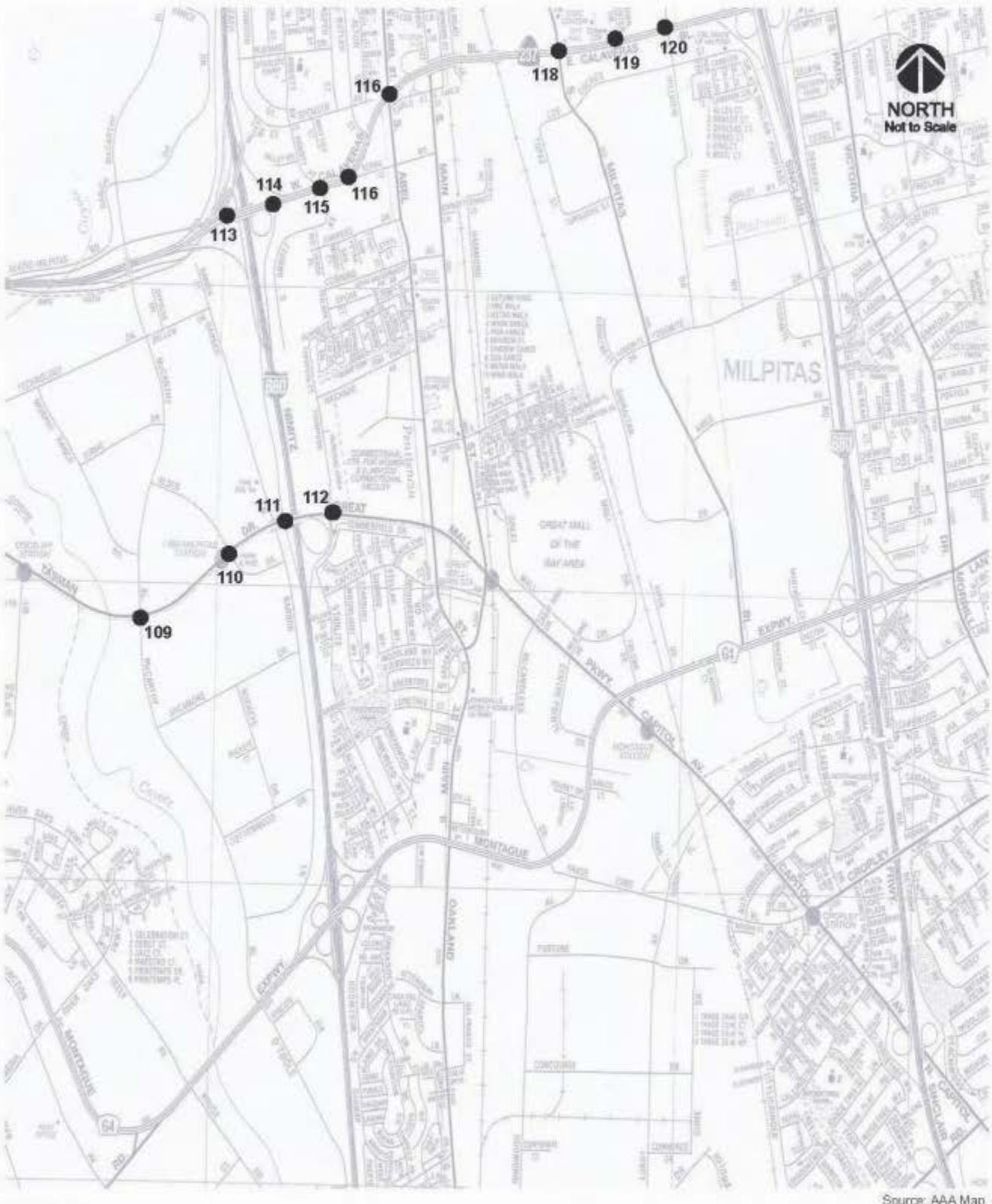


CITY OF SAN JOSE STUDY INTERSECTIONS

FIGURE 29



CITY OF SUNNYVALE STUDY INTERSECTIONS **FIGURE 30**



CITY OF MILPITAS STUDY INTERSECTIONS **FIGURE 31**

City of Santa Clara Intersections	
1 Patrick Henry Drive & Tasman Drive	37 Lafayette Street & Hogan Drive
2 Old Ironsides Drive & Tasman Drive	38 Lafayette Street & Eisenhower Drive
3 Great America Parkway & Tasman Drive*	39 Lafayette Street & Hope Drive
4 Convention Center & Tasman Drive	40 Lafayette Street & Agnew Road
5 Centennial Boulevard & Tasman Drive	41 Lafayette Street & Palm Drive
6 Calle Del Sol & Tasman Drive	42 Lafayette Street (North) & Montague Expressway
7 Lick Mill Boulevard & Tasman Drive	43 Lafayette Street (South) & Montague Expressway
8 Great America Parkway & Mission College Blvd *	44 Lafayette Street & Central Expressway *
9 Marriott Entrance & Mission College Boulevard	45 Lafayette Street & Walsh Avenue
10 Freedom Circle (W) & Mission College Blvd	46 Lafayette Street & Martin Avenue
11 Freedom Circle (E) & Mission College Boulevard	47 Lafayette Street & Matthew Street/ Memorex Drive
12 Juliette Lane & Mission College Boulevard	48 Lafayette Street & Reed Street
13 Burton Drive & Mission College Boulevard	49 Lafayette Street & El Camino Real *
14 Great America Parkway & Yerba Buena Way	50 Lafayette Street & Benton Street
15 Great America Parkway & Alviso Road	51 Lafayette Street & Homestead Road
16 Great America Parkway & Bunker Hill Lane	52 Scott Boulevard & Central Expressway *
17 Great America Parkway & Old Glory Lane	53 Scott Boulevard & Walsh Avenue
18 Great America Parkway & Patrick Henry Drive	54 Scott Boulevard & Martin Avenue
19 Great America Parkway & US 101 NB *	55 Scott Boulevard & Monroe Street
20 Bowers Avenue & US 101 SB *	56 Scott Boulevard & Warburton Avenue
21 Bowers Avenue & Augustine Drive	57 Scott Boulevard & El Camino Real *
22 Bowers Avenue & Scott Boulevard *	58 Scott Boulevard & Benton Street
23 Bowers Avenue & Central Expressway *	59 Scott Boulevard & Homestead Road
24 Bowers Avenue and Walsh Avenue	60 San Tomas Expressway & Homestead Road *
25 Bowers Avenue and Mead Avenue	61 San Tomas Expressway & Benton Street
26 Bowers Avenue and Chromite Avenue	62 San Tomas Expressway & El Camino Real *
27 Bowers Avenue and Monroe Street	63 San Tomas Expressway & Cabrillo Avenue
28 Bowers Avenue and Cabrillo Avenue	64 San Tomas Expressway & Monroe Street *
29 Bowers Avenue and Barkley Avenue	65 San Tomas Expressway & Walsh Avenue
30 Bowers Avenue and Warburton Avenue	66 San Tomas Expressway & Scott Boulevard *
31 Bowers Avenue & El Camino Real *	67 Mission College Boulevard & Montague Expway *
32 Kiely Boulevard & Benton Street	68 De La Cruz Boulevard & Montague Expressway *
33 Kiely Boulevard & Kaiser Drive	69 Lick Mill Boulevard & Montague Expressway
34 Kiely Boulevard & Homestead Road	70 Lawrence Expressway & Cabrillo Avenue
35 Lafayette Street & Yerba Buena Way	71 Lawrence Expway Ramps & El Camino Real *
36 Lafayette Street & Calle de Luna	72 Lawrence Expressway & Benton Street
	73 Lawrence Expressway & Lochinvar Avenue

City of San José Intersections	
74 Renaissance Drive & Tasman Drive	85 Montague Expressway & River Oaks Parkway
75 Vista Montana & Tasman Drive	86 Trimble Road & Montague Expressway *
76 Champion Court & Tasman Drive	87 O'Toole Avenue & Montague Expressway *
77 Rio Robles & Tasman Drive	88 Oakland Road/Main Street & Montague Expway *
78 North First Street & Tasman Drive	89 Trade Zone Boulevard & Montague Expressway *
79 Baypointe Parkway & Tasman Drive	90 North First Street (South) & SR-237 *
80 Zanker Road & Tasman Drive	91 North First Street (North) & SR-237 *
81 Morgridge Way & Tasman Drive	92 Great America (South) & SR 237 *
82 Cisco Way & Tasman Drive	93 Great America (North) & SR 237 *
83 North First Street & Montague Expressway *	94 Great America Parkway & Gold Street
84 Zanker Road & Montague Expressway *	

City of Sunnyvale Intersections	
95 Reamwood Avenue & Tasman Drive	102 Lawrence Expressway (North) & US 101
96 Birchwood Avenue & Tasman Drive	103 Lawrence Expressway (South) & US 101
97 Lawrence Expressway & Tasman Drive *	104 Lawrence Expressway & Oakmead Parkway
98 Vienna Drive & Tasman Drive	105 Lawrence Expressway & Arques Avenue *
99 Fair Oaks Avenue & Tasman Drive	106 Lawrence Expressway & Kifer Road
100 Lawrence Expressway & Elko Drive	107 Lawrence Expway & Reed Avenue/ Monroe St *
101 Lawrence Expway & Sandia Ave/ Lakehaven Dr	108 Lawrence Expressway & Homestead Road *

City of Milpitas Intersections	
109 McCarthy Boulevard & Tasman Drive	115 Abbott Avenue & Calaveras Boulevard
110 Alder Drive & Tasman Drive	116 Serra Way & Calaveras Boulevard
111 I-880 & Tasman Drive (West)	117 Abel Street & Calaveras Boulevard *
112 I-880 & Tasman Drive (East)	118 Milpitas Boulevard & Calaveras Boulevard *
113 I-880 & Calaveras Boulevard (West)	119 Town Center Drive & Calaveras Boulevard
114 I-880 & Calaveras Boulevard (East)	120 Hillview Drive & Calaveras Boulevard

TABLE 11
Intersection Level of Service Definitions

Level of Service	Description	Average Control Delay per Vehicle (seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	Less than 10.0
B	Operations with low density occurring with good progression and/or short cycle lengths.	10.1 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.1 to 80.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	Greater than 80.0

Source: Transportation Research Board, Highway Capacity Manual (Washington D.C., 2000), page 16-2

All four of the cities' level of service methodology for signalized intersections is the 2000 Highway Capacity Manual (HCM) method, which is applied using the TRAFFIX software. The 2000 HCM operations method, via TRAFFIX, evaluates signalized intersection operations on the basis of average control delay time for all vehicles at the intersection. Since TRAFFIX is also the CMP-designated intersection level of service methodology, each of the cities' methodology employs the CMP default values for the analysis parameters. While the methodology used to calculate LOS is the same, there are some variations in the standards themselves. The local city LOS standards for signalized intersections are described in the next section.

Level of Service Standards and Impact Criteria by City

Cities of Santa Clara and Milpitas Intersection LOS Standard and Impact Criteria

All non-CMP intersections within the Cities of Santa Clara and Milpitas are required to meet a standard of LOS D.

For the Cities of Santa Clara and Milpitas, a project is said to create a significant adverse impact on traffic conditions at signalized intersections if for either peak hour:

1. The level of service at the intersection degrades from an acceptable LOS D or better under background conditions to an unacceptable LOS E or F under project conditions, or

2. The level of service at the intersection is an unacceptable LOS E or F under background conditions and the addition of project trips causes both the critical-movement delay at the intersection to increase by four or more seconds and the demand-to-capacity ratio (V/C) to increase by 0.01 or more.

An exception to this rule occurs when the addition of project traffic reduces the amount of average control delay for critical movements (*i.e.*, the change in average control delay for critical movements is negative). In this case, the threshold of significance is an increase in the critical V/C value by 0.01 or more.

City of San Jose Intersection LOS Standard and Impact Criteria

All intersections within the City of San Jose, including CMP designated intersections, are required to meet a standard of LOS D.

For the City of San José, a project is said to create a significant adverse impact on traffic conditions at signalized intersections if for either peak hour:

1. The level of service at the intersection degrades from an acceptable LOS D or better under background conditions to an unacceptable LOS E or F under project conditions, or

2. The level of service at the intersection is an unacceptable LOS E or F under background conditions and the addition of project trips causes both the critical-movement delay at the intersection to increase by four or more seconds and the demand-to-capacity ratio (V/C) to increase by 0.01 or more.

An exception to this rule occurs when the addition of project traffic reduces the amount of average control delay for critical movements (*i.e.*, the change in average control delay for critical movements is negative). In this case, the threshold of significance is an increase in the critical V/C value by 0.01 or more.

City of Sunnyvale Intersection LOS Standard and Impact Criteria

For non-CMP intersections in Sunnyvale, a project is said to create a significant adverse impact on traffic conditions at a signalized intersection if for any peak hour:

1. The level of service at the intersection degrades from an acceptable LOS D or better under background conditions to an unacceptable LOS E or LOS F under project conditions, or

2. The intersection is already operating at an unacceptable LOS E or LOS F under background conditions and the addition of project traffic causes the intersection critical movement delay to increase by more than four seconds per vehicle and causes an increase in V/C of 0.01 or greater.

In addition, City of Sunnyvale policy stipulates that reasonable improvement measures be identified where the addition of project traffic changes the level of service at a local intersection by one or more levels (i.e., LOS B to LOS C).[41]

Congestion Management Agency Intersection LOS Standard and Impact Criteria

The only difference between the local cities' and CMA level of service analyses is that, the CMP level of service standard for signalized intersections is LOS E or better.

Freeway Segment Analysis

Freeway segments that serve the project area were also analyzed as part of the study. The following 22 freeway segments were studied:

US 101, I-880 to Old Bayshore Highway
US 101, Old Bayshore Highway to North First Street
US 101, North First Street to SR-87
US 101, SR-87 to De La Cruz Boulevard
US 101, De La Cruz Boulevard to Montague Expressway
US 101, Montague Expressway to Great America Parkway
US 101, Great America Parkway to Lawrence Expressway
US 101, Lawrence Expressway to Fair Oaks Avenue
US 101, Fair Oaks Avenue to Mathilda Avenue
US 101, Mathilda Avenue to SR-237
I 880, US-101 to Brokaw Road
I 880, Brokaw Road to Montague Expressway
I 880, Montague Expressway to Great Mall Parkway
I 880, Great Mall Parkway to SR-237
SR 237, US-101 to Mathilda Avenue
SR 237, Mathilda Avenue to North Fair Oaks Avenue
SR 237, North Fair Oaks Avenue to Lawrence Expressway
SR 237, Lawrence Expressway to Great America Parkway
SR 237, Great America Parkway to North First Street
SR 237, North First Street to Zanker Road
SR 237, Zanker Road to McCarthy Boulevard
SR 237, McCarthy Boulevard to I-880

Freeway Segment Level of Service Methodology

As prescribed in the CMP technical guidelines, the level of service for freeway segments is estimated based on vehicle density. Density is calculated by the following formula:

$$D = V / (N*S)$$

where:

D= density, in vehicles per mile per lane (vpmpl)
V= peak hour volume, in vehicles per hour (vph)
N= number of travel lanes
S= average travel speed, in miles per hour (mph)

[41] While part of the City's LOS Policy, this provision does not qualify as a CEQA threshold, since the City does not routinely require a statement of overriding considerations when the improvement measures are not implemented.

The vehicle density on a segment is correlated to level of service as shown in Table 12. The CMP requires that mixed-flow lanes and auxiliary lanes be analyzed separately from HOV (carpool) lanes. The CMP specifies that a capacity of 2,300 vehicles per hour per lane (vphpl) be used for segments six lanes or wider in both directions and a capacity of 2,200 vphpl be used for segments four lanes wide in both directions. The CMP defines an acceptable level of service for freeway segments as LOS E or better.

TABLE 12
Freeway Level of Service Based on Density

Level of Service	Density (vehicles/mile/lane)
A	< 11.0
B	11.0 – 18.0
C	18.0 – 26.0
D	26.0 – 46.0
E	46.0 – 58.0
F	> 58.0

CMP Definition of Significant Freeway Segment Impacts

The adopted Santa Clara County Congestion Management Plan defines a significant project impact on a freeway segment identified in the CMP if for either peak hour:

1. The level of service on the freeway segment is an unacceptable LOS F under project conditions, and the number of project trips on that segment constitutes at least one percent of capacity on that segment; or

2. The level of service on the freeway segment degrades from an acceptable LOS under existing conditions to an unacceptable LOS F under project conditions.

4.8.1.3 Operational Conditions

Freeway Ramp Analysis

Caltrans' *Guide to the Preparation of Traffic Impact Studies* recommends that freeway ramps that serve a project area be analyzed as part of a traffic study. The following 11 freeway interchanges and associated ramps were studied:

US 101 and Mathilda Avenue
US 101 and North Fair Oaks Avenue
US 101 and Lawrence Expressway
US 101 and Great America Parkway
US 101 and San Tomas Expressway
I 880 and Tasman Drive
SR 237 and Mathilda Avenue
SR 237 and North Fair Oaks Avenue
SR 237 and Lawrence Expressway
SR237 and Great America Parkway
SR 237 and North First Street

Levels of service for freeway ramps were calculated based on a volume-to-capacity ratio (V/C). Freeway ramps levels of service based on V/C are shown in Table 13. The Caltrans level of service

standard for freeway facilities is stated as the transition between LOS C and D.[42] No standard is identified for ramps. This standard has not been promulgated as an adopted threshold of significance consistent with Section 15064.7 of the CEQA Guidelines. Consistent with Caltrans methodology, however, the information was calculated as part of the operational analysis and is provided here.

TABLE 13
Freeway Ramps Level of Service Based on Volume-to-Capacity Ratio

Level of Service	Description	V/C Ratio
A	Primarily free-flow operations. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.	Less than 0.33
B	Reasonably free-flow conditions. The ability to maneuver within the traffic stream is only slightly restricted.	0.33 – 0.53
C	Provides for stable operation, however flows approach the range in which small increases will cause a substantial deterioration in service. Freedom to maneuver within the traffic is noticeably restricted.	0.54 – 0.74
D	Borders on unstable flow. Small increases in flow cause substantial deterioration in service. Freedom to maneuver within the traffic stream is severely limited. Minor incidents can be expected to create substantial queuing, as the traffic stream has little space to absorb disruptions.	0.75 – 0.90
E	Operations are extremely unstable. Any incident can be expected to produce a serious breakdown with extensive queuing. Maneuverability within the traffic stream is extremely limited.	0.91 – 1.00
F	Forced or breakdown conditions. Such conditions generally exist within queues forming behind breakdown points.	Greater Than 1.00

Source: 2000 Highway Capacity Manual for freeway sections with a 70 mph free flow speed.

4.8.2 Traffic and Transportation Existing Conditions

This chapter describes the existing physical and operational conditions for all of the major transportation facilities serving the project area, including the roadway network, transit service, and bicycle and pedestrian facilities. It includes an evaluation of existing traffic conditions at signalized intersections and freeways within and surrounding the project area.

4.8.2.1 Existing Roadway Network

Regional access to the project site is provided via US 101 and SR 237 as described below and as shown on Figures 1 and 2.

US 101 is an eight-lane (three mixed-flow lanes and one HOV lane in each direction) freeway in the vicinity of the site. It extends north through San Francisco and south through Gilroy. Regional access to the project area is provided via its interchanges with Lawrence Expressway, Great America Parkway/Bowers Avenue and San Tomas Expressway/Montague Expressway.

I-880 is a six-lane freeway that extends north to Oakland and south to SR 17 to Santa Cruz. I-880 provides connections to both US 101 and SR 237.

[42] This standard has not been promulgated consistent with CEQA Guidelines Section 15064.7 as a Threshold of Significance, unlike the regional roadway and freeway levels of service standards and methodologies adopted by the CMA in 1993 and subsequently modified. Those standards were widely promulgated to all effected public agencies (including Caltrans) and subsequently adopted.

SR 237 is a six-lane freeway and extends in an east/west direction between Sunnyvale and Milpitas and provides access to I-880 and US 101. Two of the six lanes (one in each direction) are designated as HOV lanes. Access to the project area is provided via its interchanges with Lawrence Expressway, Great America Parkway, and North First Street.

Local access to the site is provided by Lawrence Expressway, San Tomas Expressway, Montague Expressway, Great America Parkway, Bowers Avenue, Central Expressway, Tasman Drive, Lafayette Street, and Mission College Boulevard. These roadways are described below.

Lawrence Expressway is an eight-lane north-south expressway. South of US 101, the right-most lane in each direction of travel is designated as a carpool lane, which is also known as a high-occupancy vehicle (HOV) lane. The HOV lane designation is in effect in both directions of travel during both the AM and PM peak commute hours. During other times, the lane is open to all users. Lawrence Expressway begins at its junction with SR 237 and extends southward into Saratoga, where it transitions into Quito Road at Saratoga Avenue. Full interchanges are located at US 101 and SR 237.

Great America Parkway is a north-south thoroughfare that begins at US 101 and extends northward to SR 237. Full interchanges are located at both US 101 and SR 237. Great America Parkway is primarily a six-lane road, with an additional northbound lane between Tasman Drive and US 101.

Bowers Avenue is the southern extension of Great America Parkway. It begins at US 101 as a six-lane roadway and extends southward to Kifer Road, where it transitions into a four-lane roadway with a divided median. At Chromite Drive to the south, Bowers Avenue becomes a four-lane road with no median divider. Bowers Avenue continues south to its intersection with El Camino Real (SR 82) where it transitions to Kiely Road. A half interchange is located at US 101. Bowers Avenue provides access to and from the project site via Great America Parkway.

San Tomas Expressway is a north-south expressway that begins at US 101 and extends southward through Santa Clara and San José and into Campbell, where it transitions into Camden Avenue at SR 17. Full interchanges are located at US 101 and SR 17. In the north, San Tomas Expressway is an eight-lane roadway including carpool (HOV) lanes. The HOV lane designation is in effect in both directions of travel during both the AM and PM peak commute hours. During other times, the lane is open to all users. South of El Camino Real, San Tomas narrows to a 6-lane facility including HOV lanes. The HOV lane designation in this segment is in effect for only the peak direction of travel (northbound in the AM and southbound in the PM). San Tomas Expressway provides access to and from the project area via its interchange with US 101.

Montague Expressway is generally an east-west expressway that begins at US 101 and extends northward to Lafayette Street and then northeastward to Milpitas where it transitions into Landess Avenue at I-680. Full interchanges are located at I-680, I-880, and US 101. Montague Expressway transitions to San Tomas Expressway at US101. In the project area, Montague Expressway is a six-lane roadway. Approximately 3 miles to the northeast, Montague Expressway acquires carpool (HOV) lanes. The HOV lane designation is in effect in both directions of travel during both the AM and PM peak commute hours. During other times, the lane is open to all users. Montague Expressway provides access to and from the project area via its interchange with US 101.

Central Expressway is a six-lane east-west expressway with carpool (HOV) lanes within the study area. The HOV lane designation is in effect in both directions of travel during both the AM and PM peak commute hours. Central Expressway begins at its junction with De la Cruz Boulevard and

extends westward into Palo Alto, where it transitions into Alma Street at San Antonio Road. Central Expressway provides access to and from the project area via Bowers Avenue and San Tomas Expressway.

Tasman Drive is an east-west arterial that extends from Morse Avenue in Sunnyvale eastward to I-880 in Milpitas, where it transitions into Great Mall Parkway. Within the project area, Tasman Drive is a four-lane arterial. The LRT line runs down the median of Tasman Drive between North First Street and Fair Oaks Avenue. Tasman Drive provides direct access to the project site.

Lafayette Street is a north-south arterial that extends from SR 237 south to Poplar Street in Santa Clara where it transitions into Washington Street. Between SR 237 and El Camino Real, Lafayette Street is a four-lane roadway. South of El Camino Real, the cross-section of this facility varies from two to four lanes.

Mission College Boulevard to the west of Great America Parkway is a loop road circumnavigating Mission College and the Mercado Shopping Center. The eastern portion of Mission College Boulevard is a four-lane east-west thoroughfare, running between Great America Parkway and Montague Expressway. This segment of Mission College Boulevard provides access to numerous industrial and office uses, as well as some hotel uses and the major entertainment venue of Great America Amusement Park.

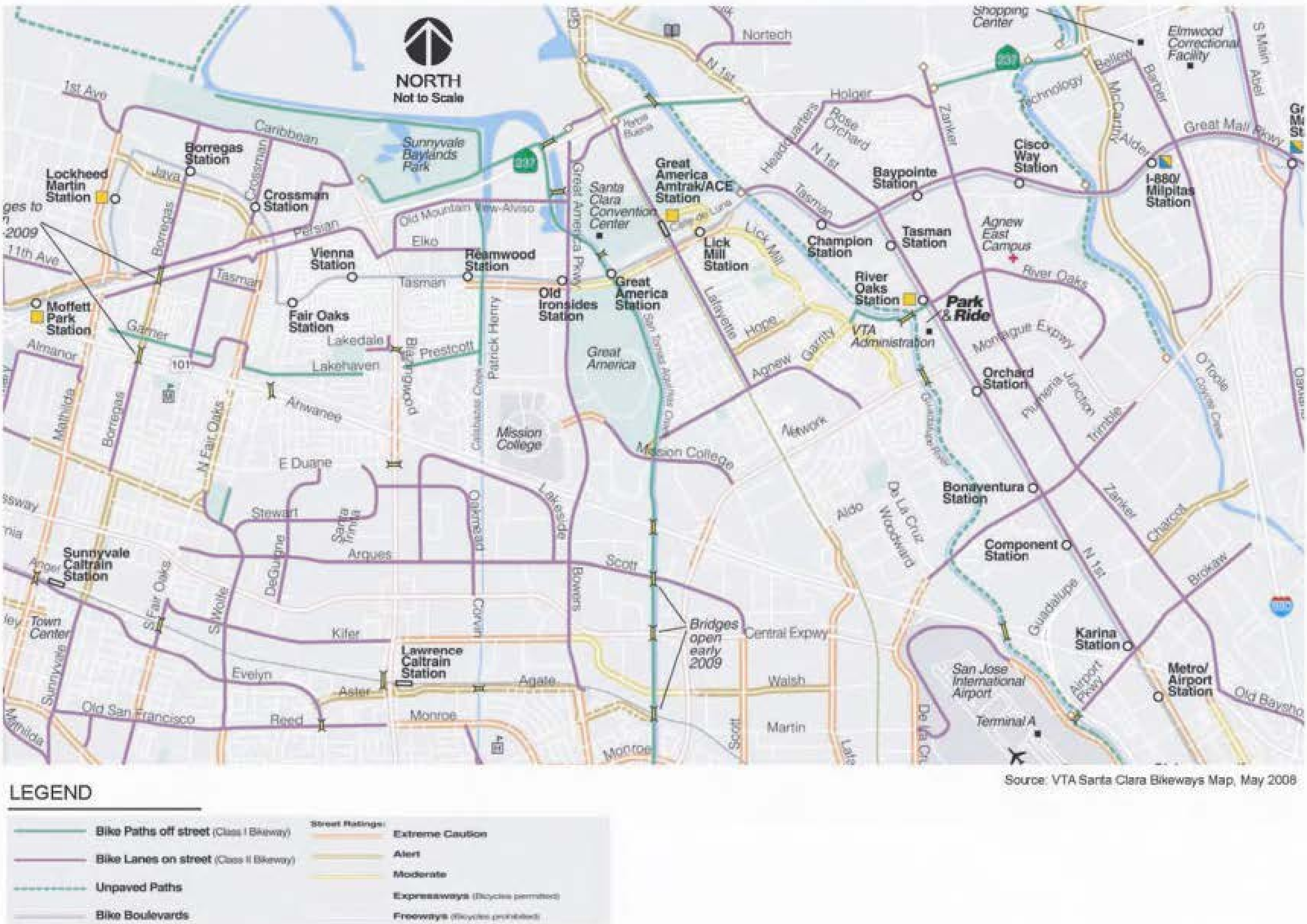
4.8.2.2 Existing Bicycle and Pedestrian Facilities

There are several bike lanes and bike paths in the vicinity of the project site. Bowers Avenue has bike lanes from Mead Avenue to Great America Parkway. Great America Parkway has bike lanes from US 101 to Gold Street. Scott Boulevard has bike lanes from Central Expressway to Arques Avenue in Sunnyvale. There is a bike path adjacent to San Tomas Aquino Creek that extends from Scott Boulevard to Great America Parkway and Sunnyvale Baylands Park. A trail access point is located on Tasman Drive at the northeast of the project site. Bicycle lanes are present on Mission College Boulevard from Wyatt Drive to Great America Parkway. Bicycles are permitted on Great America Parkway, San Tomas Expressway, Montague Expressway and Central Expressway. The existing bicycle facilities within the study area are shown on Figure 32.

Tasman Drive has a continuous sidewalk on the south side of the street between North First Street and Lawrence Expressway. The north side of Tasman Drive has continuous sidewalks from North First Street to Patrick Henry Drive and intermittent sidewalks thereafter to Lawrence Expressway. Pedestrian crosswalks and signal heads with pushbutton actuators are present at all signalized intersections, including the Tasman Drive and Great America Parkway and Tasman Drive and Centennial Boulevard intersections.

4.8.2.3 Existing Transit Service

Existing local transit service to the study area is provided by the VTA and other agencies and consists of bus and light rail service. Regional transit is provided by Caltrain, ACE, and the Capitol Corridor which have shuttle bus routes along Tasman Drive. The transit service is described below and shown on Figure 33.



EXISTING BICYCLE FACILITIES **FIGURE 32**

Source: VTA Santa Clara Bus and Rail Map, Jan 2008

LEGEND

VTA Service

- Local Bus Routes
- Local Bus Routes (Scheduled Peak Only)
- Community Bus Routes
- Limited Stop Bus Routes
- Express Bus Routes

- Light Rail: Mountain View – Winchester
- Light Rail: Alum Rock – Santa Teresa
- Light Rail: Ohlone/Chynoweth – Almaden
- Light Rail Station
- Light Rail Station with Park & Ride Lot
- Light Rail Transfer Station
- Free Shuttles to Light Rail Stations

EXISTING TRANSIT SERVICE **FIGURE 33**

VTA Transit Service

Bus Service

The VTA operates several bus routes in the vicinity of the project site. The VTA bus service is described below and shown on Figure 33. The VTA bus lines that operate within walking distance of the project site are listed in Table 14.

TABLE 14
VTA Bus Service in the Study Area

Route	Route Description	Headways* (minutes)
Local Route 55	De Anza College to Great America	15
Local Route 57	West Valley College to Great America	30
Local Route 60	Winchester Transit Center to Great America	15
Express Route 121♦	Gilroy Transit Center to Lockheed Martin Transit Center/Moffett Park	30-60
Express Route 140♦	Fremont BART to Mission College & Montague Expressway	25-45
Limited Stop Route 321♦	Great Mall/Main Transit Center to Lockheed Martin/Moffett Park	N/A
Limited Stop Route 330♦	Almaden Expressway/Camden Avenue to Tasman Drive	30-40

*Headways during peak periods
♦Limited hours of operation

Local Route 55 operates on Tasman Drive, Patrick Henry Drive, and Old Ironsides Drive in the study area. It runs from De Anza College to Great America with 15-minute headways in the AM and PM peak hours. Route 55 operates between 5:30 AM and 11:00 PM. The nearest bus stop to the project site is located Tasman Drive and Patrick Henry Drive.

Local Route 57 operates on Bowers Avenue and Great America Parkway in the study area. The nearest stop to the project site is located along Great America Parkway, just west of Tasman Drive. It runs from West Valley College to Old Ironsides Light Rail Station and Great America with 30-minute headways in the AM and PM peak hours. Route 57 operates between 5:30 AM and 10:45 PM during the weekdays and from 8:00 am to 8:00 pm on Sundays.

Local Route 60 operates on Winchester Boulevard, Monroe Street, and Scott Boulevard in the study area. It runs between Winchester Transit Center and Great America with 15-minute headways during the weekday peak hours and 30-minute headways on Sundays. Route 60 runs between 5:00 AM and 10:00 PM with 15 minute headways during the AM and PM peak hours and from 7:00 am to 9:00 pm on Sundays. The nearest bus stop to the project site is located Tasman Drive and Great America Parkway.

Express Route 121 operates on US 101, Great America Parkway, and Tasman Drive during peak hours, with stops at Old Ironsides/Great America Light Rail Station and at all the express stops on its route in the study area. Route 121 operates between Gilroy Transit Center and the Lockheed Martin Transit Center/Moffett Park during the weekday peak hours only and with 30 to 60-minute headways. Express route 121 does not operate on Sundays.

Express Route 140 operates on Great America Parkway, Old Ironsides Drive, and Patrick Henry Drive during peak hours with stops at Old Ironsides/Great America Light Rail Station and at all the express stops on its route in the study area. Route 140 operates between Fremont BART and Mission College and

Montague Expressway only during peak hours and with 30 to 60-minute headways. Express route 140 does not operate on Sundays.

Limited Stop Route 321 operates on Tasman Drive, Great America Parkway, and Patrick Henry Drive in the study area. It makes one westbound trip during with weekday per house between Great Mall/Main Transit Center and Lockheed Martin/Moffett Park., with no service on Sundays.

Limited Stop Route 330 operates on San Tomas Expressway, Montague Expressway, Mission College Boulevard, Great America Parkway, and Tasman Drive on its route between Almaden Expressway and Camden and the I-880/Milpitas Light Rail Station on Tasman Drive at Alder Drive. It operates northbound with 45 to 50 minute headways during weekday peak hours with no service on Sunday. Route 330 observes all limited stops along its route in the study area. Stops for Route 330 are present in both the northbound and southbound directions of travel on San Tomas Expressway, just north of Walsh Avenue.

Light Rail Transit Service (LRT)

The project area is served by two light rail transit lines. Both LRT lines provide service on 15-minute headways during weekday commute and Sunday midday hours. The Guadalupe Corridor LRT line provides service between Santa Teresa in south San Jose and the Tasman Corridor LRT in north San Jose. The Guadalupe line runs along the center of North First Street. The Tasman Corridor LRT line which runs along the center of Tasman Drive provides service between the Mountain View CalTrain Station and The Great Mall in Milpitas. The lines intersect at the Baypointe Station. The Tasman line has a stop at Great America Parkway near the Santa Clara Convention Center (approximately 632 feet from the nearest stadium entrance), which serves as the nearest LRT station to the project site.

Caltrain

The Caltrain system offers service between San Francisco and Gilroy, with the nearest stations being the Lawrence and Santa Clara Caltrain Stations. Limited stop trains stop at the Santa Clara and Lawrence Stations, with 20-45-minute headways northbound and 30-40-minute headways southbound during weekday commute hours, and 60-minute headways southbound and northbound on Sundays. Caltrain operates the Mission College Boulevard Area Caltrain Shuttle, which runs on Bowers Avenue and Mission College Boulevard between the Lawrence Caltrain Station and the Intel campus north of Montague Expressway and Mission College Boulevard. The shuttle operates with 50-60 minute headways during the weekday commute hours and on Sundays.

Amtrak/Ace

The Altamont Commuter Express (ACE) operates between San Jose Diridon Station and Stockton. Service is provided westbound during the weekday AM commute hours and eastbound during the weekday PM commute hours. No service is provided on Sundays. The Great America ACE station is located at Lafayette Street and Tasman Drive. Headways at the Great America ACE station are 45 to 65 minutes during weekday PM commute hours. The ACE Yellow and Green Shuttles operate between the Great America ACE station and San Tomas Expressway/Scott Boulevard and Patrick Henry Drive/Tasman Drive. The nearest shuttle stop to the project site is located on Tasman Drive at the Santa Clara Convention Center. The Yellow and Green shuttles operate northbound and eastbound respectively, with one-hour headways during the weekday PM commute hours. The ACE system is operated by the San Joaquin Regional Rail Commission (SJRRC).

Capitol Corridor

The Capitol Corridor rail line provides service between Sacramento and San José and operates during weekday commute hours and on Sundays. The Capitol corridor line shares the Great America Station with the ACE service.

4.8.2.4 Intersections Existing Conditions

Existing Intersection Lane Configurations

The existing lane configurations at the study intersections were provided by City staffs and confirmed by observations in the field. Lane configurations for each of the study intersections can be found with the level of service calculations in Appendix D of the Traffic Impact Analysis (TIA) which is Appendix H of this EIR.

Existing Traffic Volumes

Existing traffic volumes used in the analysis were based upon collected counts as well as derived by means of factoring for time periods for which no counts were made. The existing counts were generally collected in 2006-2008. New counts completed as part of this study were collected in April-August of 2008. All study intersections within the identified project core area were counted during the early Sunday (11:00 am-1:00 pm) study period. Since ambient traffic on Sundays is typically significantly less when compared to weekday commute periods, Sunday counts were not collected at all study intersections outside the project core area. Sunday volumes for the intersections outside of the project core area were derived by factoring as discussed below. Counts were collected at all study intersections for the weekday study periods and are less than two years old. All new counts and raw data complied as part of this study are in Appendix A of the TIA, which is Appendix H of this EIR.

Weekday Study Periods

Existing standard PM peak-hour intersection traffic volumes were obtained from databases and recently completed traffic studies in each of the respective cities and supplemented with new traffic counts at intersections where counts were outdated. New standard PM peak hour counts were collected at a total of 27 study intersections.

Intersection traffic volumes for the early PM weekday study period (3:00-5:00 pm) were developed by comparing the counts collected during the 4:00-5:00 pm hour with the standard PM peak hour counts for each intersection. The 4:00-5:00 pm hour counts were used because it was assumed that counts collected during the 3:00-5:00 pm time period would indicate a peak hour between 4:00-5:00 pm. The factoring was based upon only the counts collected in April of 2008 since the raw data that is needed for the 4:00-5:00 pm hour is not available for older counts that were not collected as part of this study. Counts at a total of 20 intersections were used for comparison. The comparison of the 4:00-5:00 pm hour counts with the standard PM peak hour counts indicated that the 4:00-5:00 pm hour counts were approximately 20 percent less than the standard PM peak hour counts. Thus, the intersection volumes for the early PM weekday study period at the rest of the intersections were derived by reducing the standard PM peak hour volumes by 20 percent. A summary of information for the intersections along with histograms is included in Appendix B of the TIA, which is Appendix H of this EIR.

Sunday Study Periods

All study intersections within the core study area were counted during the Sunday study period from 11:00 a.m-1:00 pm. Traffic volumes for the Sunday 11:00 am-1:00 pm period for study intersections

outside of the core study area were estimated using factors. The factors were determined by comparing Sunday counts with standard PM counts at intersections along the perimeter of the core study area and along each of the major arterials serving the project area. The comparisons found that Sunday volumes were significantly less than the standard PM weekday volumes. The comparison of the selected locations indicated Sunday volumes ranged from 17 to 70 percent less than the standard weekday PM peak hour volumes. Thus, Sunday volumes for intersections outside the project core area were derived by applying the calculated factors to standard PM peak hour counts. The data used to determine the factors for each of the selected locations are included in Appendix B of the TIA, which is Appendix H of this EIR.

Intersection volumes for the Sunday 3:00-5:00 pm study period were derived based upon a sampling of intersections for which data was collected. A total of eight intersections within the core project area were counted during the 3:00-5:00 pm period on Sunday. Counts at the eight selected intersections were compared with counts collected during the 4:00-6:00 pm period on Sunday for the same intersections. The comparison indicated that the counts collected during the 3:00-5:00 pm period were 2 percent less than the 4:00-6:00 pm counts collected. Thus, the Sunday 3:00-5:00 pm study period volumes were derived by reducing the counts collected during the 4:00-6:00 pm period at all intersections. A summary of the sampled intersections along with histograms is included in Appendix A of the TIA, which is Appendix H of this EIR.

Existing Intersections Level of Service - Weekdays

Intersection levels of service are evaluated against the applicable standards identified in Table 11. The levels of service results are shown graphically in Figures 34 to 39. Tables summarizing the results for all study intersections and levels of service calculation sheets are included in Appendix D of the TIA, which is Appendix H of this EIR.

City of Santa Clara Intersections

The level of service analysis found that all of the City of Santa Clara study intersections currently operate at an acceptable LOS D or better under existing conditions during the weekday study periods.

Santa Clara/CMP Intersections

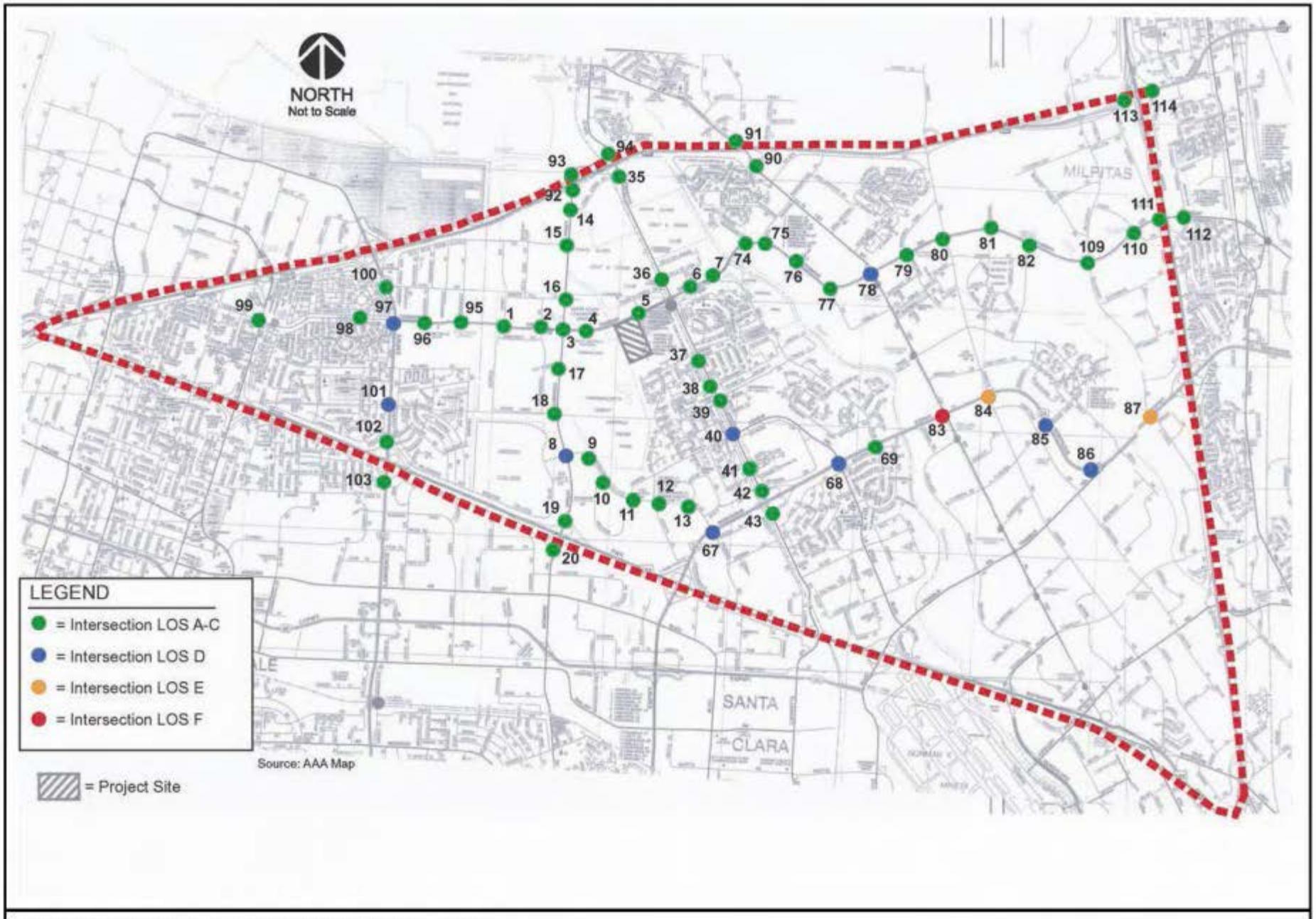
The level of service analysis found that all of the CMP study intersections located within the City of Santa Clara currently operate at an acceptable LOS E or better under existing conditions during the weekday study periods.

City of San José Intersections

The level of service analysis prepared for the City of San José found that five study intersections, all of them CMP intersections, currently operate at LOS E or F under existing conditions during at least one of the weekday study periods. All other study intersections in the City of San José currently operate at LOS D or better under existing conditions during the weekday study period.

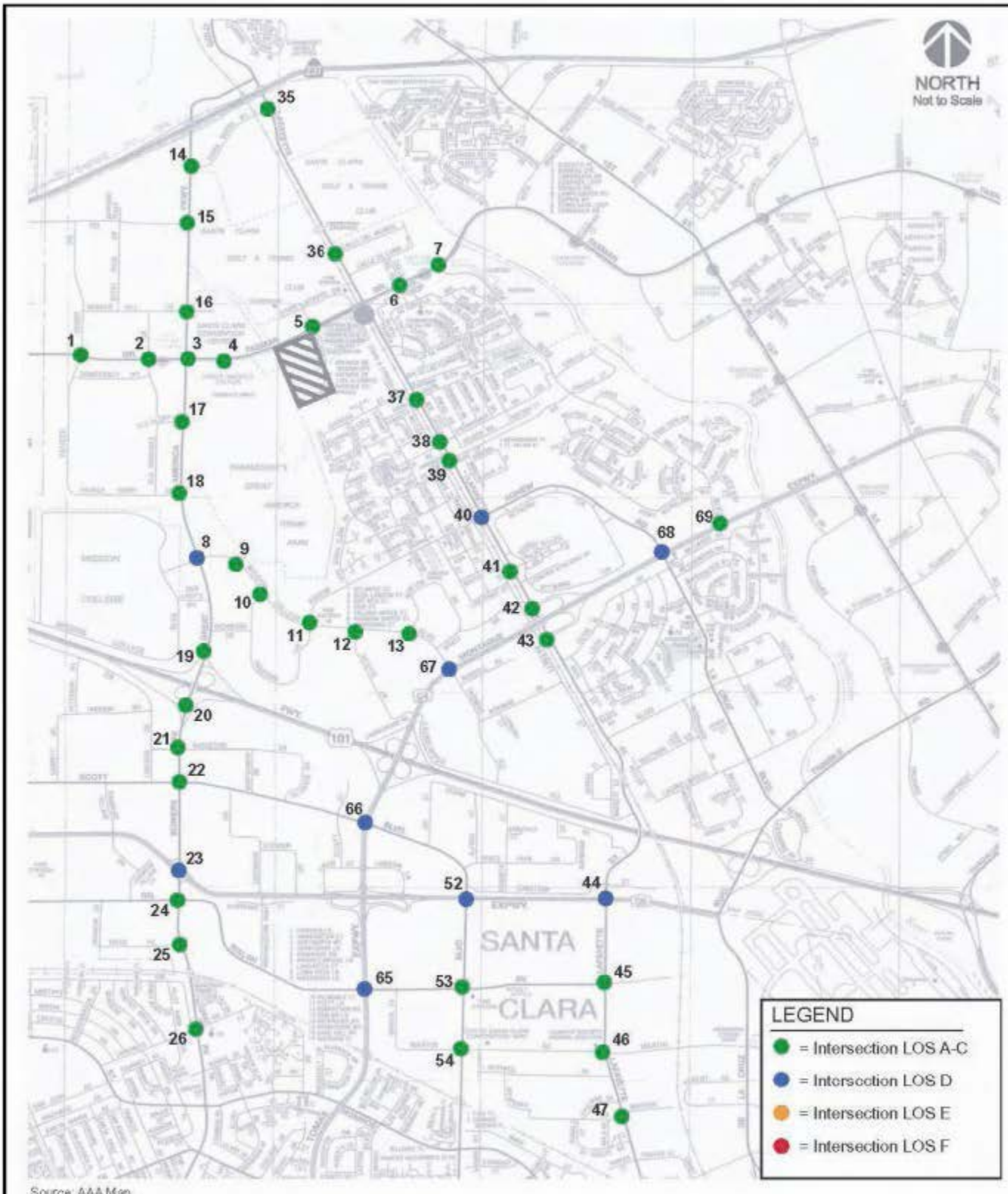
83 North First Street and Montague Expressway *
84 Zanker Road and Montague Expressway *
87 O'Toole Avenue and Montague Expressway *
88 Oakland Road/ Main Street and Montague Expressway *
89 Trade Zone Boulevard and Montague Expressway *

*Indicates CMP Intersection

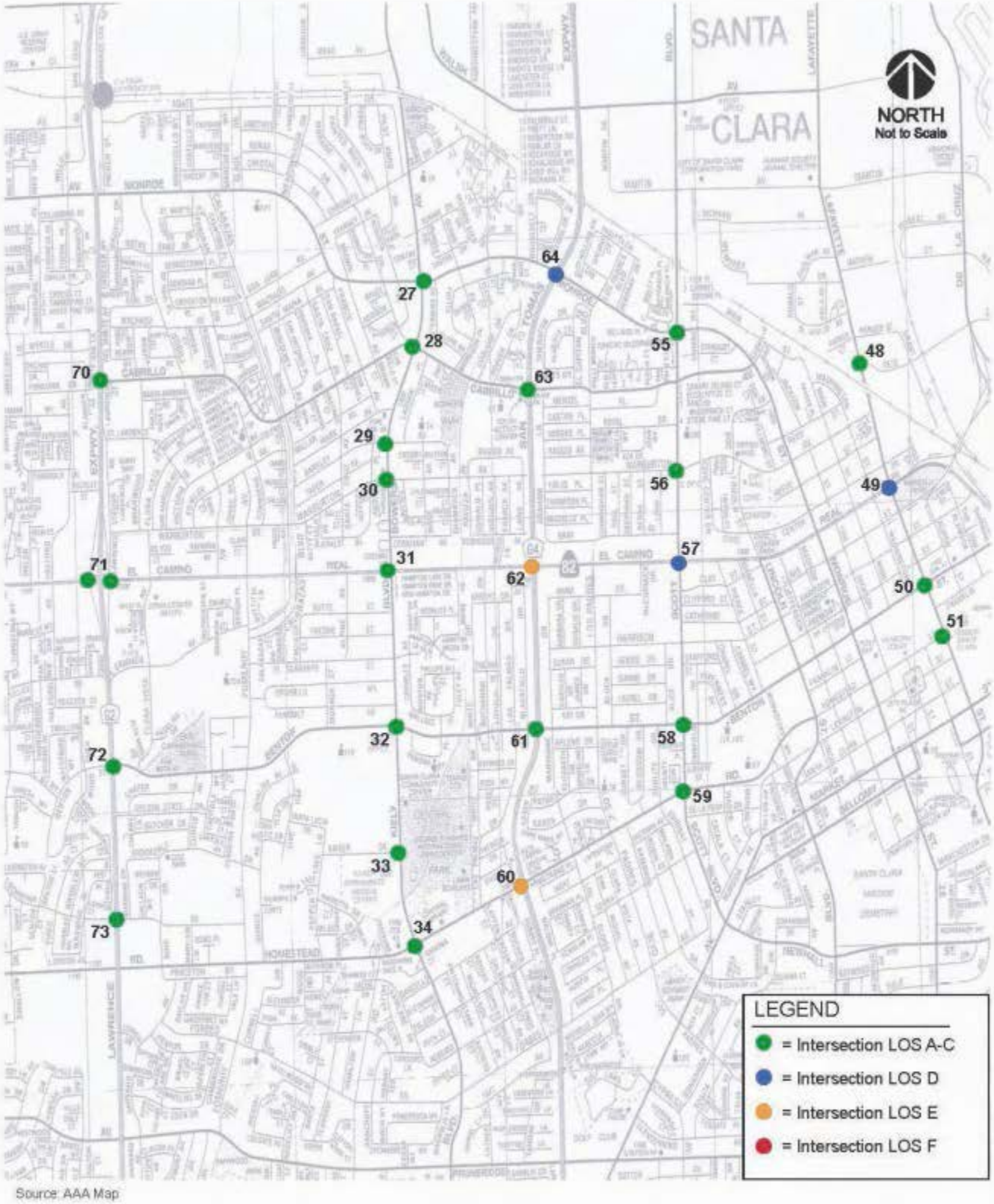


STADIUM CORE AREA WEEKDAY EXISTING INTERSECTION LEVEL OF SERVICE CONDITIONS

FIGURE 34

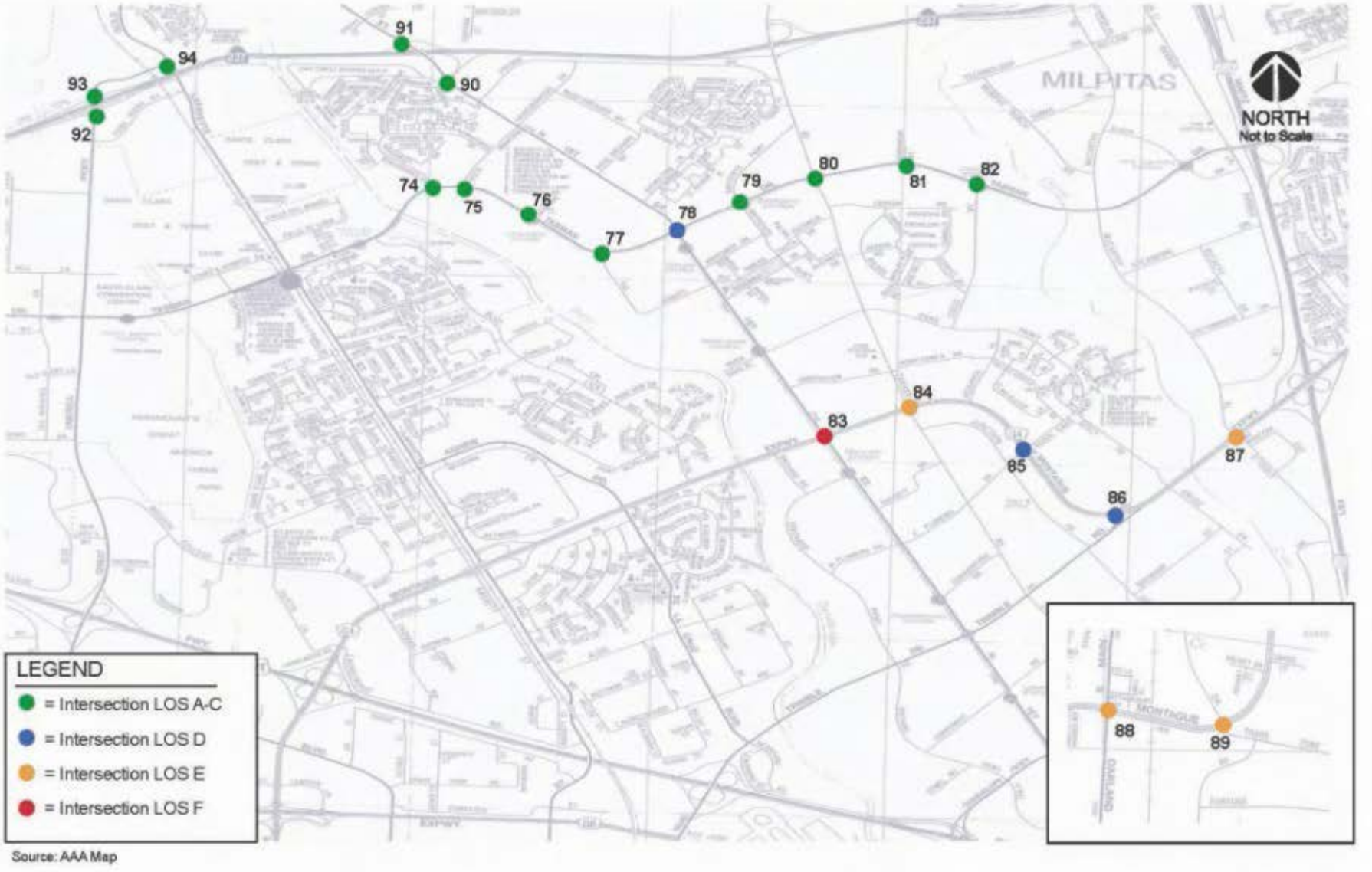


CITY OF SANTA CLARA WEEKDAY
EXISTING INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 35**



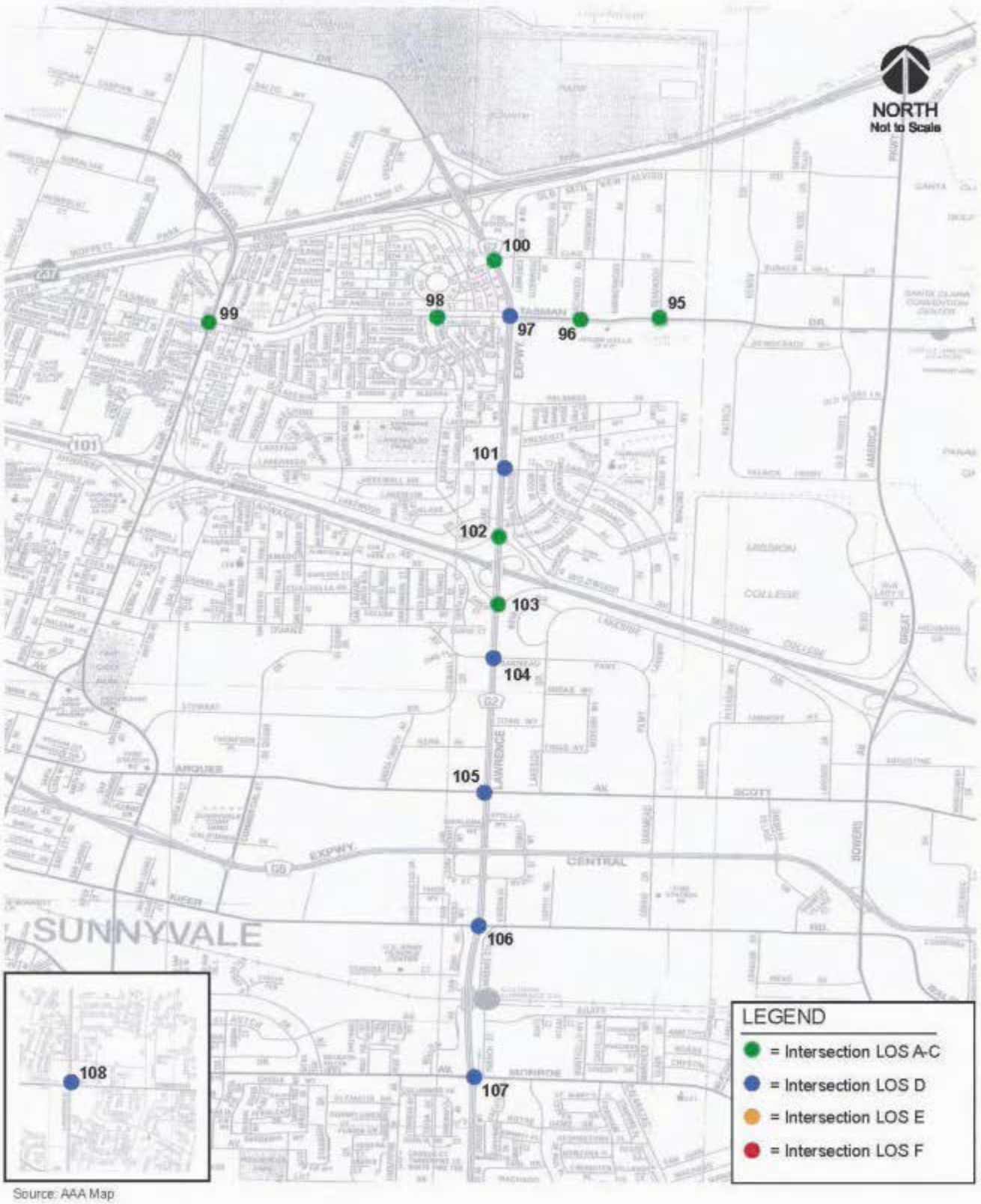
Source: AAA Map

CITY OF SANTA CLARA WEEKDAY
EXISTING INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 36**



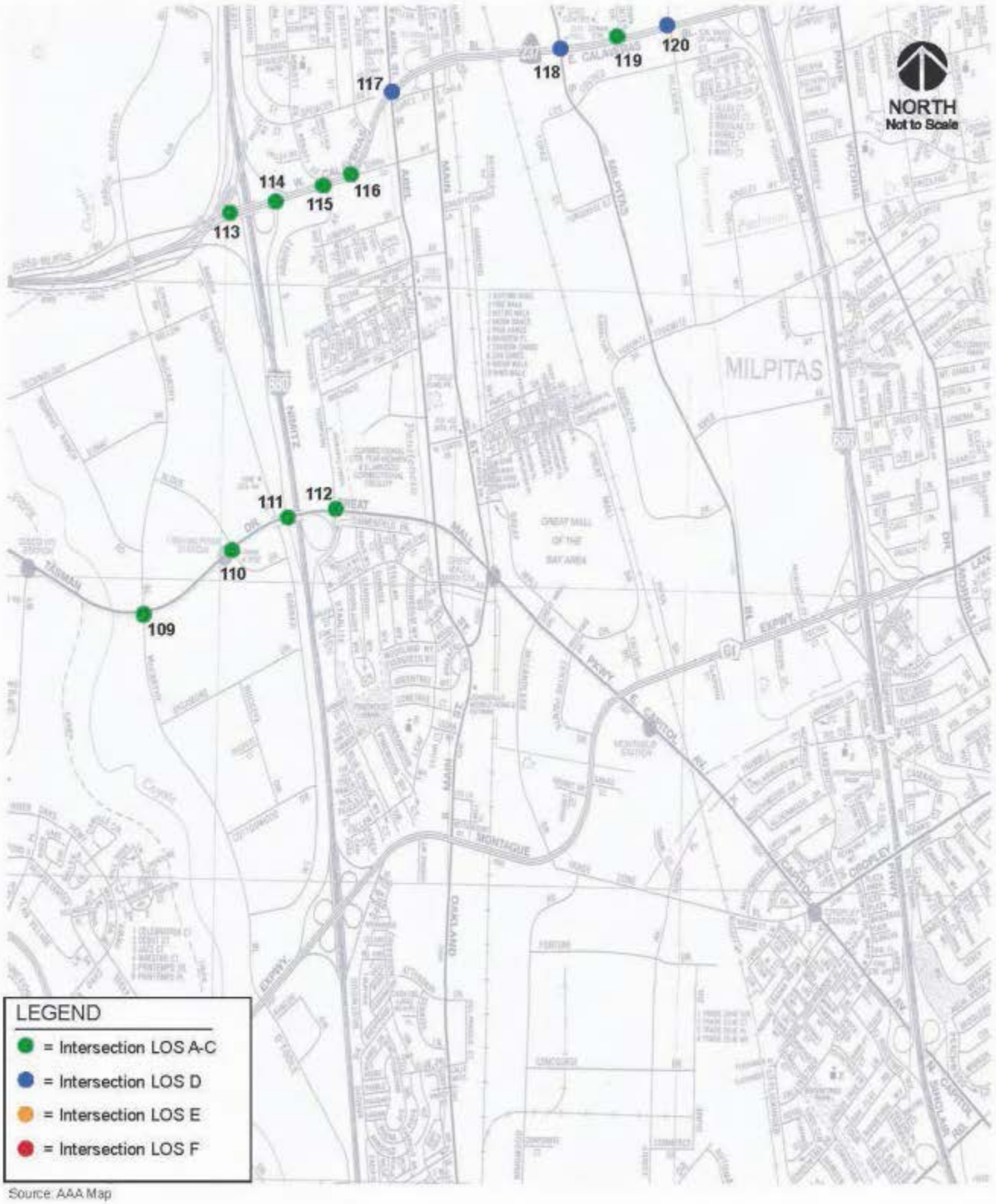
CITY OF SAN JOSE WEEKDAY EXISTING
INTERSECTION LEVEL OF SERVICE CONDITIONS

FIGURE 37



Source: AAA Map

CITY OF SUNNYVALE WEEKDAY
EXISTING INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 38**



Source: AAA Map

CITY OF MILPITAS WEEKDAY
EXISTING INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 39**

San José/CMP Intersections

Only one of the CMP study intersections located within the City of San José currently operates at LOS F under existing conditions during the standard PM weekday study period, which is lower than the CMP adopted LOS criterion of E.

83 North First Street and Montague Expressway *

All of the other CMP study intersections currently operate at acceptable levels of service of E or better.

City of Sunnyvale Intersections

The analysis found that all of the City of Sunnyvale study intersections currently operate at LOS D or better under existing conditions during the weekday study periods.

Sunnyvale/CMP Intersections

The analysis found that all of the CMP study intersections located within the City of Sunnyvale currently operate at an acceptable LOS D or better under existing conditions during the weekday study periods.

City of Milpitas Intersections

The analysis found that all of the City of Milpitas study intersections currently operate at LOS D or better under existing conditions during the weekday study periods.

Milpitas/CMP Intersections

The analysis found that all of the CMP study intersections located within the City of Milpitas currently operate at LOS D or better under existing conditions during the weekday study periods.

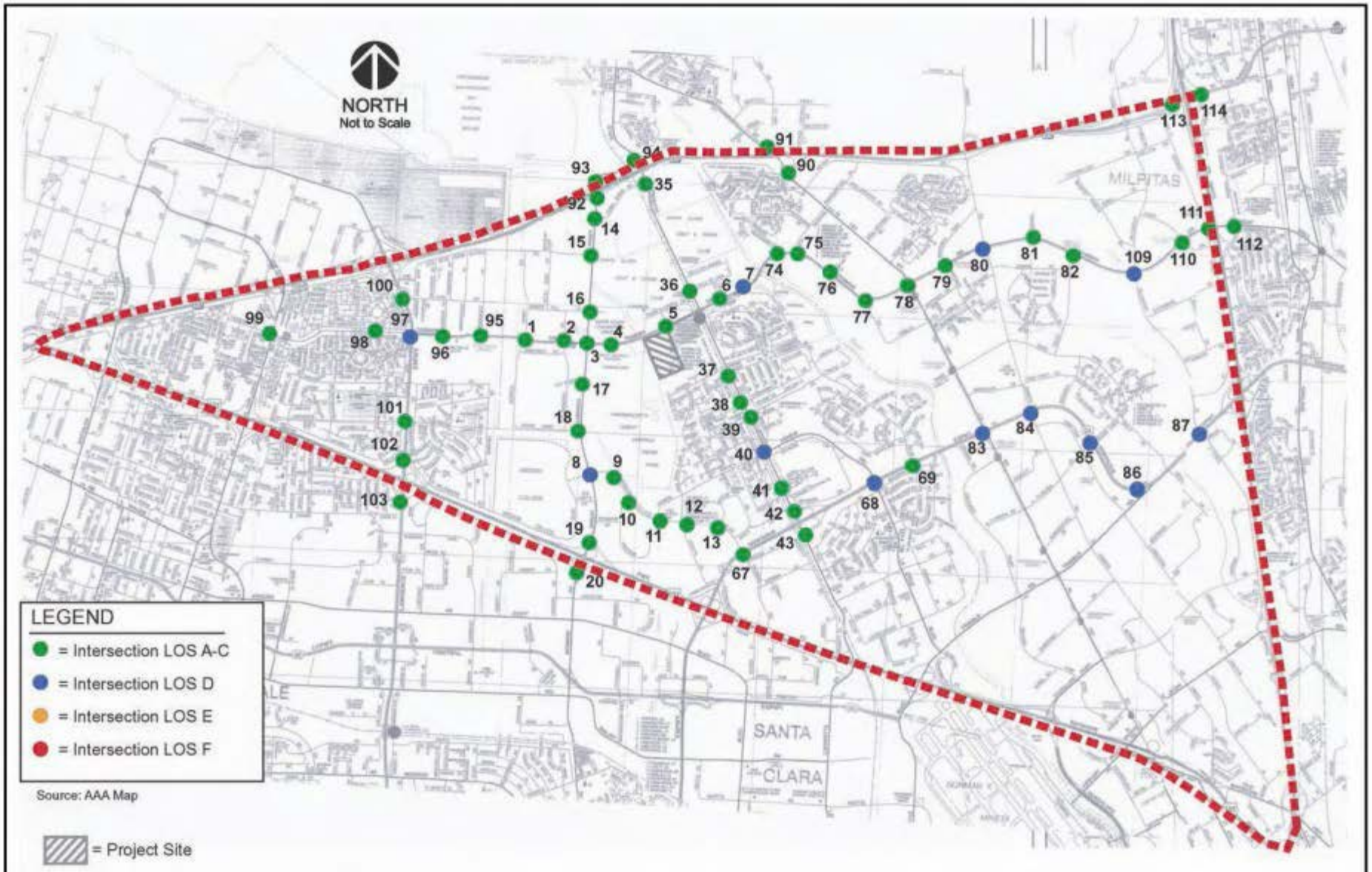
Existing Intersections Level of Service – Sunday

The analysis found that all of the study intersections in all four cities currently operate at LOS D or better under existing conditions during the Sunday study periods. The levels of service results are shown graphically in Figures 40 to 45. Tables summarizing the results for all study intersections as well as levels of service calculation sheets are included in Appendix H.

Existing Freeway Segment Levels of Service

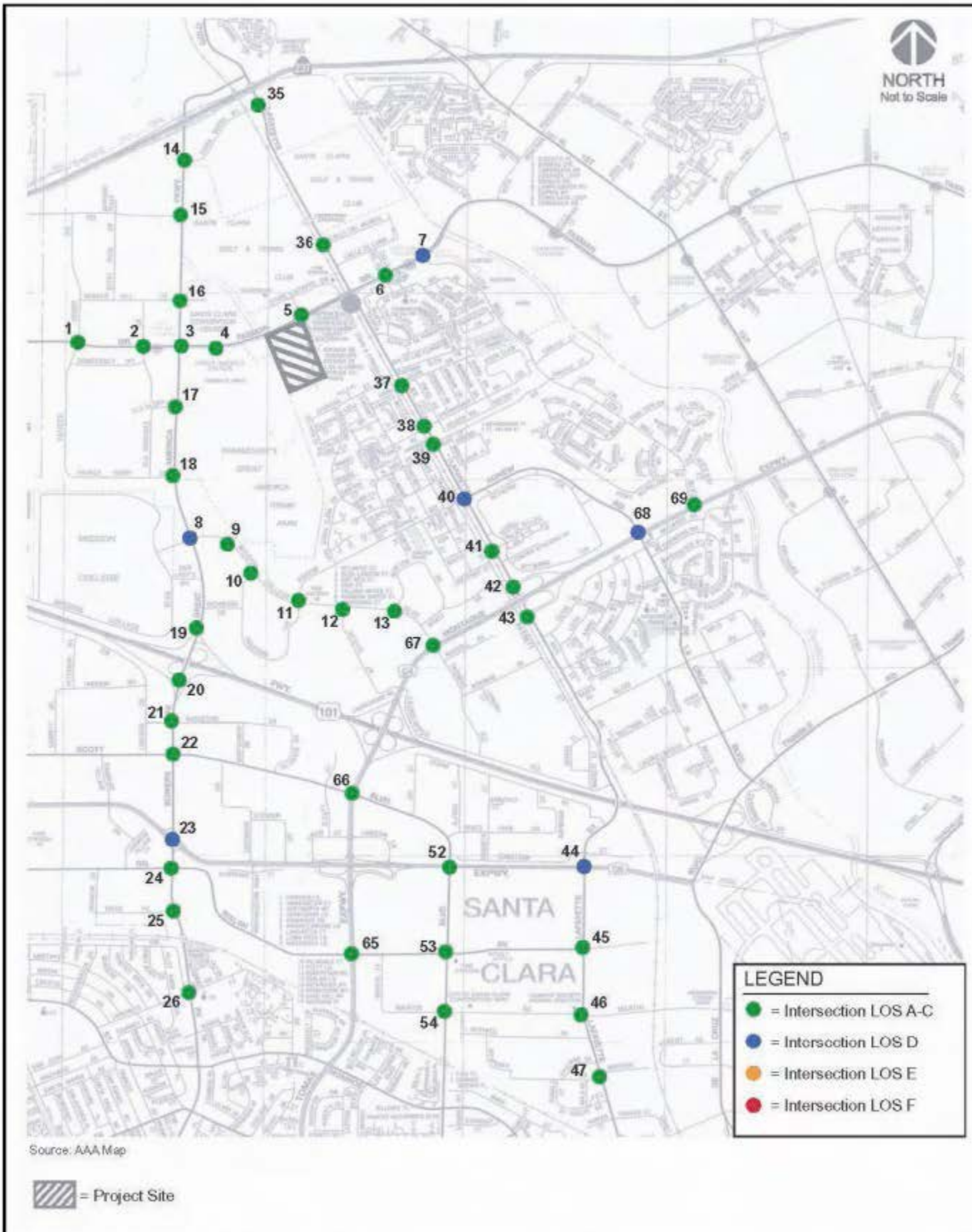
Weekday Study Periods

Standard PM peak hour traffic volumes for the subject freeway segments were obtained from the 2006 CMP Annual Monitoring Report. Freeway segment volume data for time periods other than the standard PM peak hour are not available from the CMP. There also is no Caltrans 24-hour data available for the

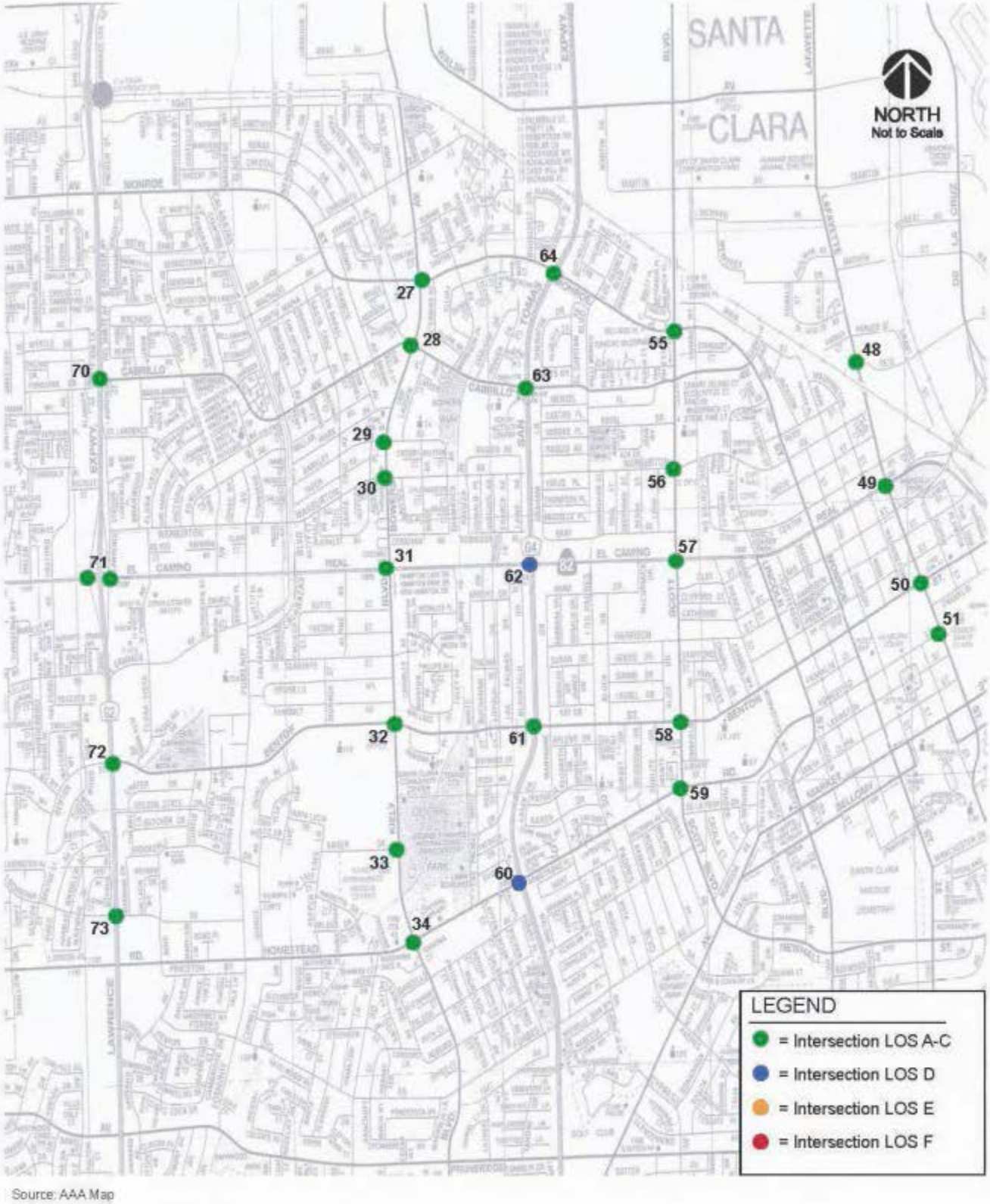


STADIUM CORE AREA SUNDAY EXISTING INTERSECTION LEVEL OF SERVICE CONDITIONS

FIGURE 40

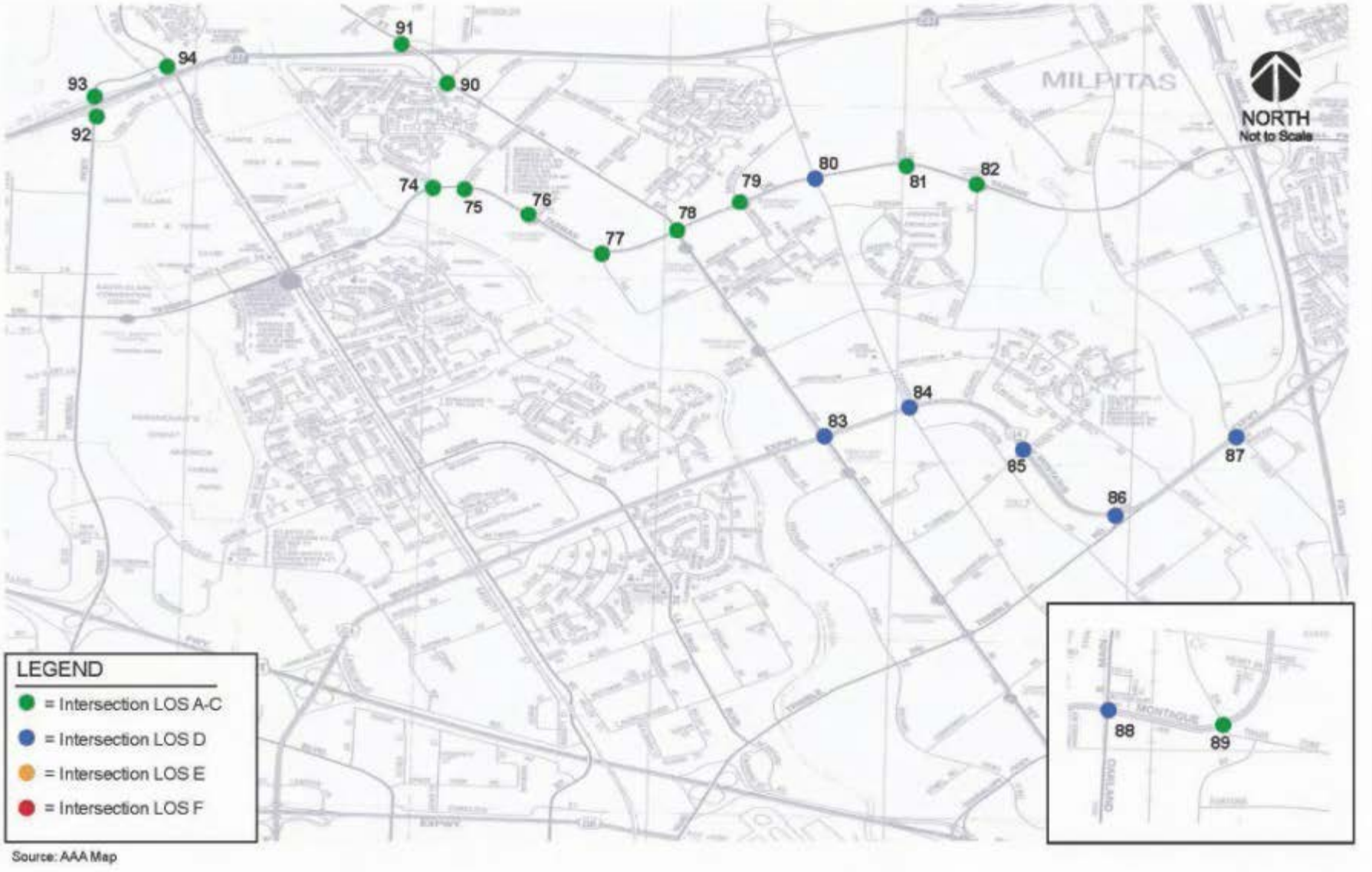


CITY OF SANTA CLARA SUNDAY
EXISTING INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 41**



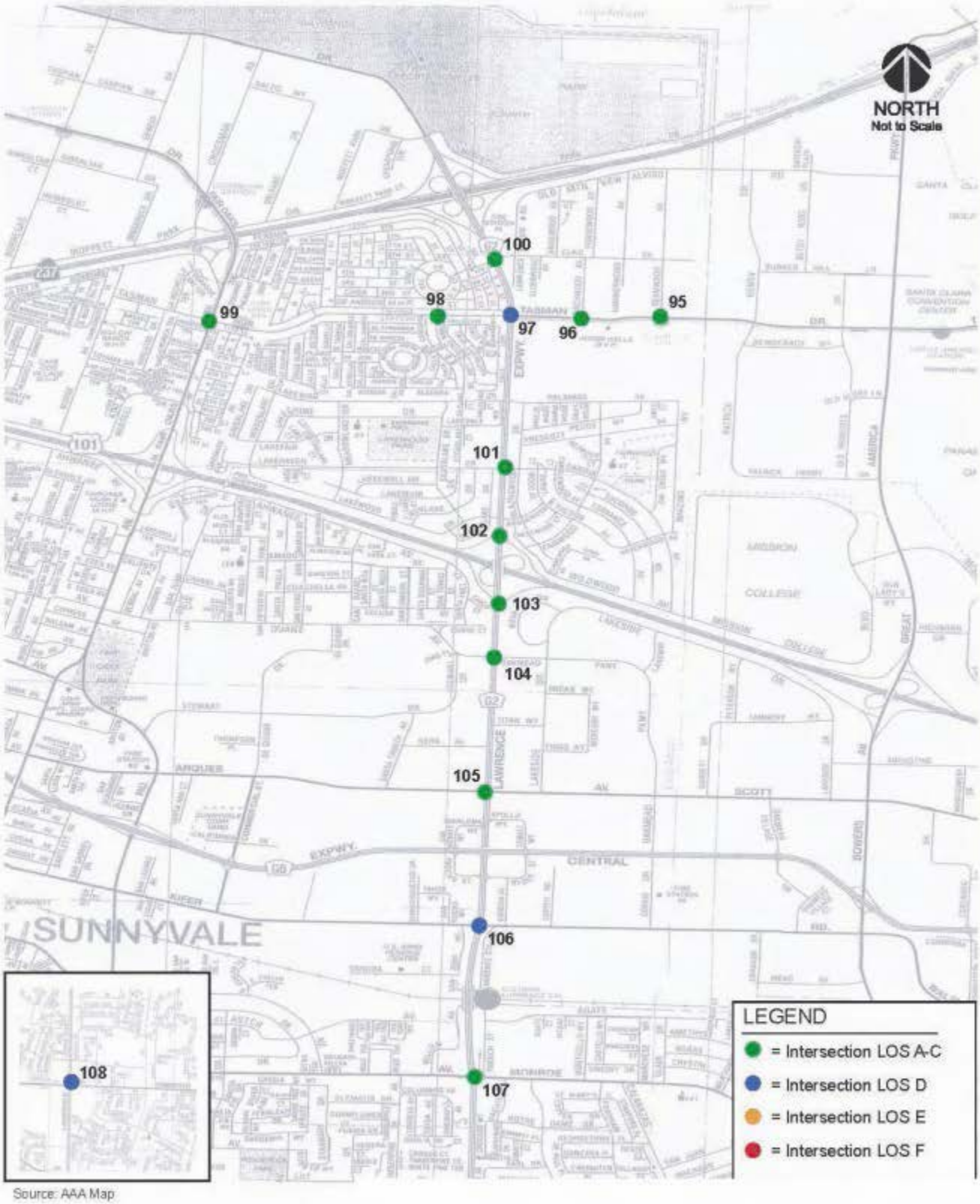
Source: AAA Map

CITY OF SANTA CLARA SUNDAY
EXISTING INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 42**



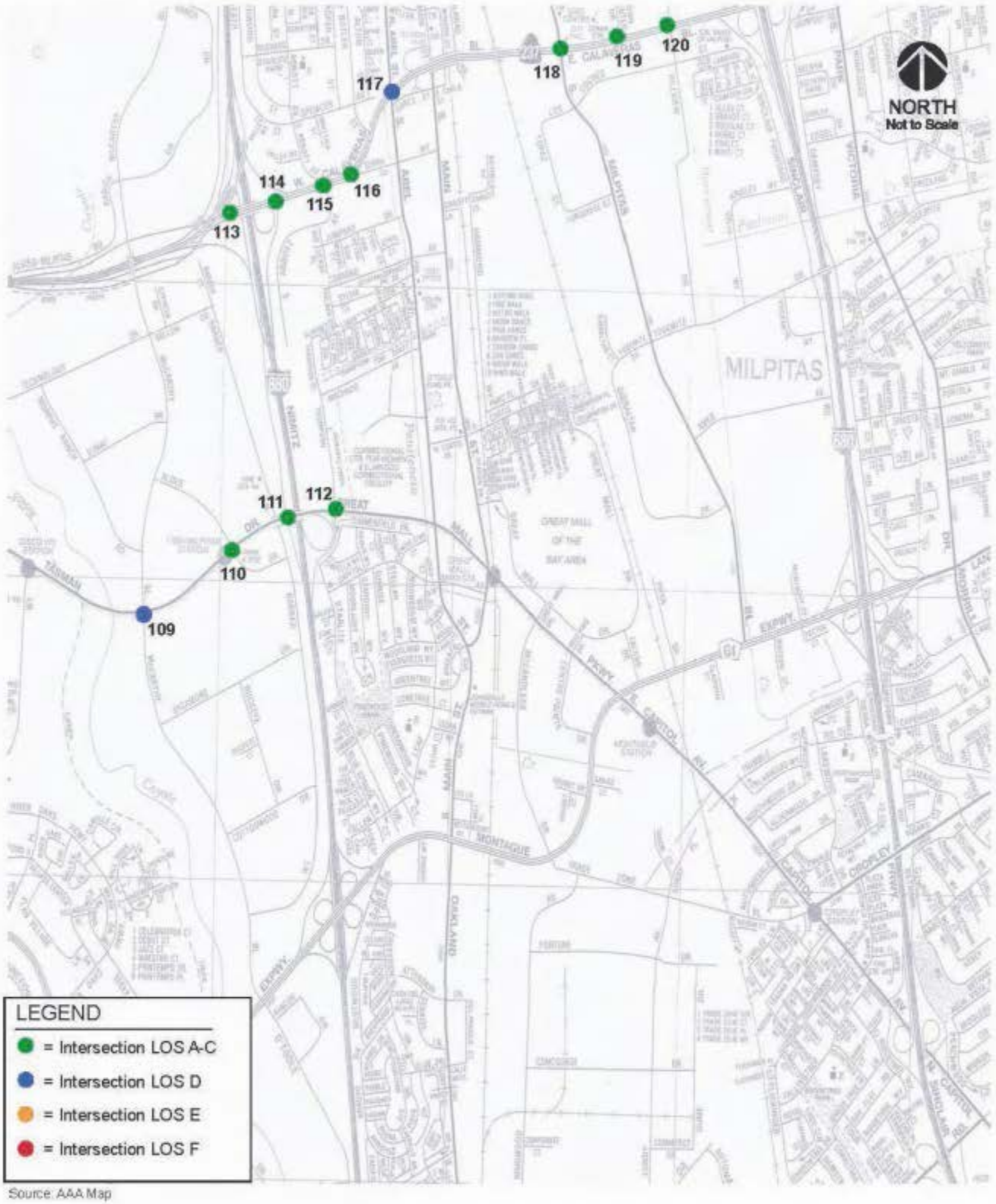
CITY OF SAN JOSE SUNDAY EXISTING
INTERSECTION LEVEL OF SERVICE CONDITIONS

FIGURE 43



Source: AAA Map

CITY OF SUNNYVALE SUNDAY
EXISTING INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 44**



Source: AAA Map

CITY OF MILPITAS SUNDAY
EXISTING INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 45**

selected study segments. Therefore, traffic volumes for the early weekday PM study period were derived utilizing the available freeway ramp volume data. A factor was calculated based upon a comparison of the 3:00-5:00 pm and 4:00-6:00 pm freeway ramp volume data. The factor was then applied to the standard PM peak hour CMP freeway segment volumes to derive the freeway segment volumes for the early weekday PM study period. A summary of the ramp volume histograms is included in Appendix H.

Based on the weekday freeway segment analysis, mixed flow lanes on 17 of the 44 directional freeway segments analyzed currently operate at an unacceptable LOS F during both of the weekday study periods. Three of the 32 HOV lanes on directional freeway segments (with HOV lanes) analyzed currently operate at an unacceptable LOS F during at least one of the weekday study periods. All of the freeway segments and their levels of service plus the calculations are in Appendix H. The following freeway segments are currently operating at LOS F conditions during at least one of the weekday study periods:

SR-237, North Fair Oaks Avenue to Lawrence Expressway (Eastbound)
SR-237, Lawrence Expressway to Great America Parkway (Eastbound)
SR-237, Great America Parkway to North First Street (Eastbound)
SR-237, North First Street to Zanker Road (Eastbound)
SR-237, McCarthy Boulevard to I-880 (Eastbound)
SR-237, McCarthy Boulevard to Zanker Road (Westbound)
I-880, Great Mall Parkway to Montague Expressway (Southbound)
I-880, Montague Expressway to Brokaw Road (Southbound)
I-880, Brokaw Road to US-101 (Southbound)
US-101, Fair Oaks Avenue to Lawrence Expressway (Southbound)
US-101, Lawrence Expressway to Great America Parkway (Southbound)
US-101, Great America Pkwy. to Montague Expressway. (Southbound Mixed-Flow & HOV)
US-101, Montague Expressway to De La Cruz Boulevard (Southbound)
US-101, De La Cruz Boulevard to SR-87 (Southbound)
US-101, SR-87 to North First Street (Southbound)
US-101, North First Street to Old Bayshore Highway (Southbound and Mixed-Flow HOV)
US-101, Old Bayshore Highway to I-880 (Southbound and Mixed-Flow HOV)

Sunday Study Periods

Traffic volumes for the Sunday study periods were derived utilizing the available standard PM peak hour CMP freeway segment volumes and the freeway ramp volume data, as was done for the early weekday PM study period. Factors were calculated based upon comparisons of the 11:00 am-1:00 pm and 3:00-5:00 pm Sunday freeway ramp volume data with the 4:00-6:00 pm weekday data. Since HOV lanes are not operable during the Sunday study periods, the comparison was based upon the total, mixed-flow plus HOV, standard 4:00-6:00 pm weekday volumes. The factors were then applied to the standard PM peak hour CMP freeway segment volumes to derive the freeway segment volumes for the Sunday PM study periods. A summary of the ramp volume histograms is included in Appendix H.

The detailed freeway segment analysis for the Sunday study periods is in Appendix H. All of the studied freeway segments are currently operating at LOS E or better conditions during each of the Sunday study periods.

Existing Freeway Ramps Operational Analysis

Traffic volumes for the studied freeway ramps were obtained from 2007 data collected by the Traffic and Vehicle Data Systems Unit for Caltrans District 4. The collected data provides 24-hour volumes along each freeway ramp. Thus, ramp volumes for each of the study periods were taken directly from the Caltrans data without adjustments. All ramp volume data are in Appendix H. The freeway ramp analysis found that all freeway ramps analyzed currently operate at LOS C or better conditions during each of the study periods. Details of the freeway ramp analysis are in Tables 6 and 7 in Appendix H.

4.8.3 Traffic and Transportation Background Conditions

This section describes background traffic conditions, consistent with the adopted methodology of the CMA and the City of Santa Clara. Background conditions represent the circumstances most likely to exist when the project becomes operational (*i.e.*, it includes traffic from development that has already received discretionary approvals and completed its own CEQA process). The traffic associated with already approved, but not yet constructed development is added to existing conditions traffic. This section also describes the planned roadway system and intersection improvements, the procedure used to determine background traffic volumes, and the resulting traffic conditions.

4.8.3.1 Approved Background Projects

City of Santa Clara staff coordinated meetings with staff from the Cities of San José, Sunnyvale, and Milpitas in December, 2008. In addition to general discussion of the proposed stadium project, each of the cities were asked to provide a list of approved but not yet built projects within their respective jurisdictions to be included in the background conditions of this analysis. Background conditions in this discussion, therefore, include those projects identified within and by each of the studied jurisdictions. The City of Santa Clara TRAFFIX database was utilized to obtain approved project trips within the City of Santa Clara. Trips for approved projects within the City of San José were obtained from that City's Approved Trip Inventory (ATI) database dated September 2008. Approved project trips for the Cities of Sunnyvale and Milpitas were obtained from recent traffic studies.

Though approved project trips for standard weekday commute periods are provided from the identified sources, there are no databases or records maintained for Sunday approved trips. The primary source of Sunday traffic in the immediate project area is Great America, which is an existing use that is not proposing any major traffic-generating changes. As a conservative approach to the Sunday analysis, approved project trips for the Sunday study periods were derived by factoring similar to that which was done to develop existing volumes for the early weekday and late Sunday study periods. A list of approved projects and total approved trips assumed for each of the study intersections is included in Appendix H.

4.8.3.2 Background Roadway Network

Improvements are planned under background conditions at several of the study intersections within the City of San José. The City of San José has identified various improvement projects that will be implemented as part of the first phase of the approved North San José Development Policy. The following intersection improvements included in Phase 1 of the North San José Development Policy are assumed in the background transportation network.[43] These are all Tier 1A improvements

[43] The improvements in North San José are to be funded by the development. Both the traffic and the improvements are in the background. If the development is not built, neither will the improvements be built.

identified in the adopted *VTP 2030* Plan. The identified improvements at Montague/First Street, Montague/Trade Zone, and Montague/Trimble are also part of the Comprehensive County Expressway Planning Study Phase I improvements. No improvements were assumed in the remaining jurisdictions

Montague Expressway and North First Street – Widen Montague Expressway from six to eight mixed-flow lanes.

Montague Expressway and Trade Zone Boulevard – Widen Montague Expressway from six to eight mixed-flow lanes and the addition of separate through lanes on northbound and southbound approaches.

Montague Expressway and Trimble Road – Widen Montague Expressway from six to eight mixed-flow lanes and a flyover constructed to serve the westbound Montague Expressway to southbound Trimble Road movement.

Montague Expressway and Zanker Road – Widen Montague Expressway from six to eight mixed-flow lanes and the addition of second left-turn lanes to the northbound and southbound approaches.

Montague Expressway and River Oak Circle – Widen Montague Expressway from six to eight mixed-flow lanes.

Montague Expressway and McCarthy Boulevard – Widen Montague Expressway from six to eight mixed-flow lanes.

Montague Expressway and Old Oakland Road – Widen Montague Expressway from six to eight mixed-flow lanes.

4.8.3.3 Background Bicycle and Pedestrian Facilities

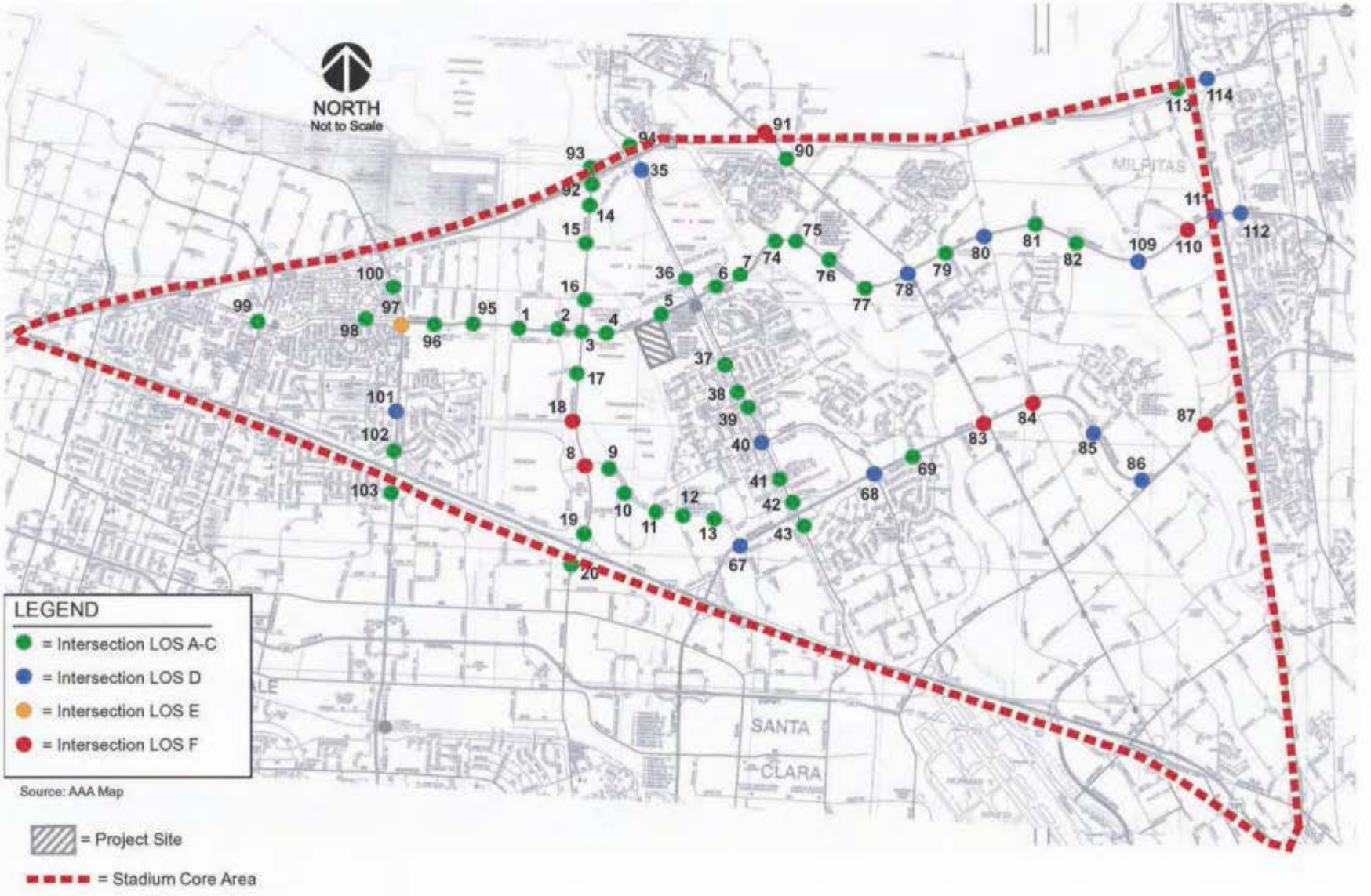
There are no planned or approved improvements to bicycle or pedestrian facilities within the project area. Nor are there any bicycle facilities planned according to the City of Santa Clara Transportation Bicycle Network.

4.8.3.4 Background Transit Service

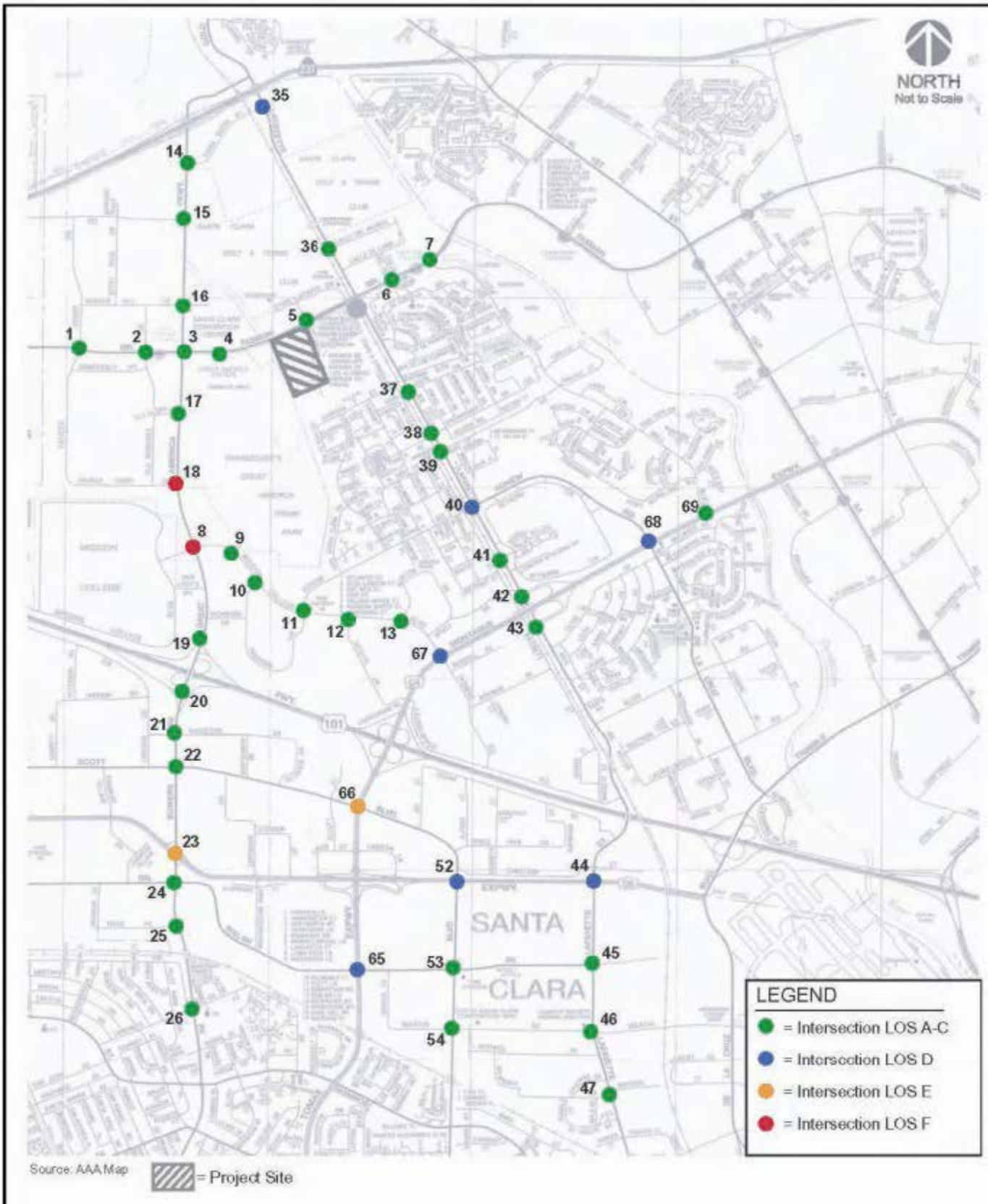
Transit service under background conditions was assumed to remain unchanged from existing conditions.

4.8.3.5 Background Intersection Levels of Service

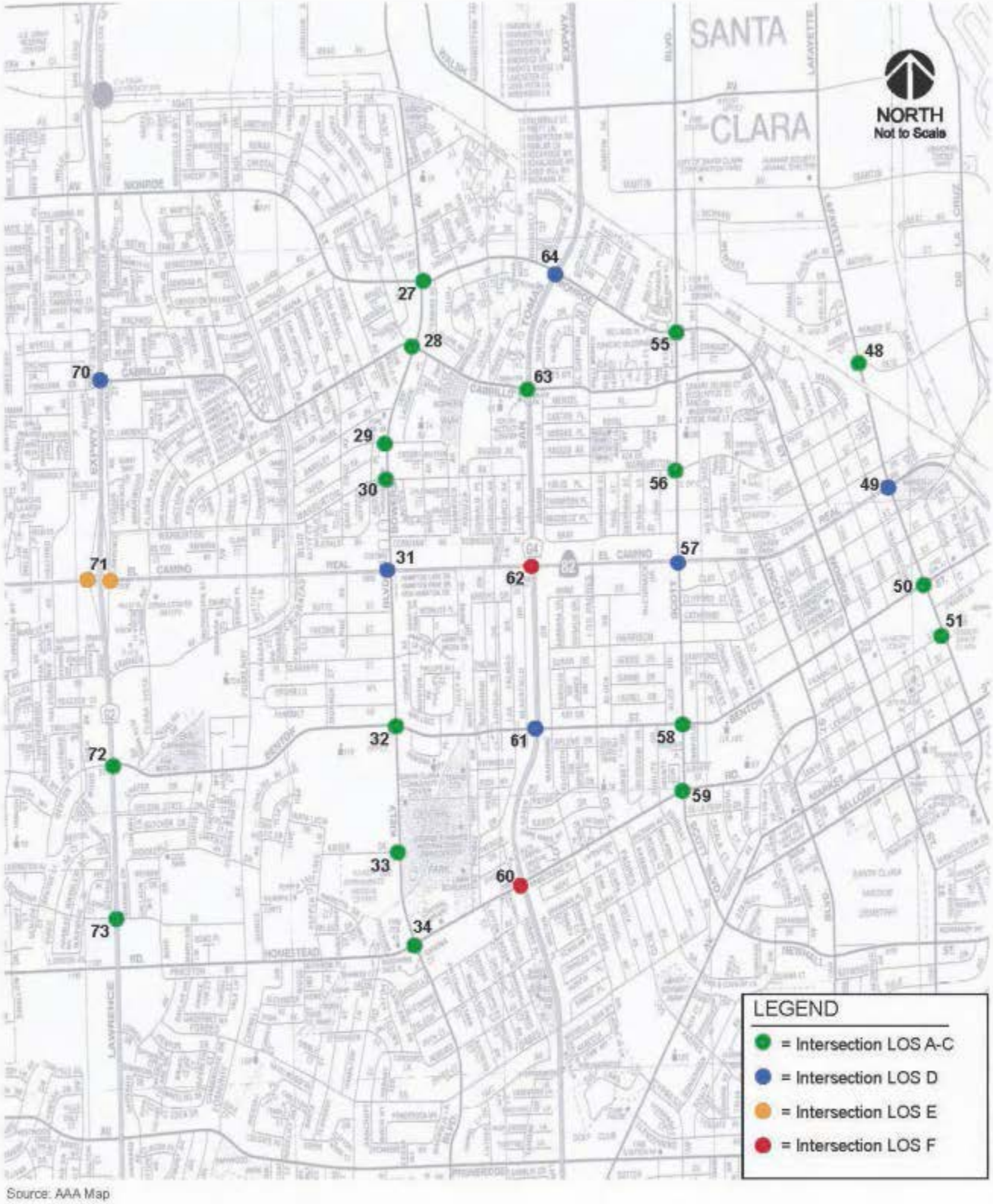
Background intersection levels of service are evaluated against the applicable municipal and CMP standards. The detailed level of service results for the study intersections under weekday background conditions are contained in Appendix H. The levels of service results also are shown graphically in Figures 46 to 51. Tables summarizing the results for all study intersections, as well as level of service calculation sheets are also included in Appendix H.



STADIUM CORE AREA BACKGROUND WEEKDAY INTERSECTION LEVEL OF SERVICE FIGURE 46

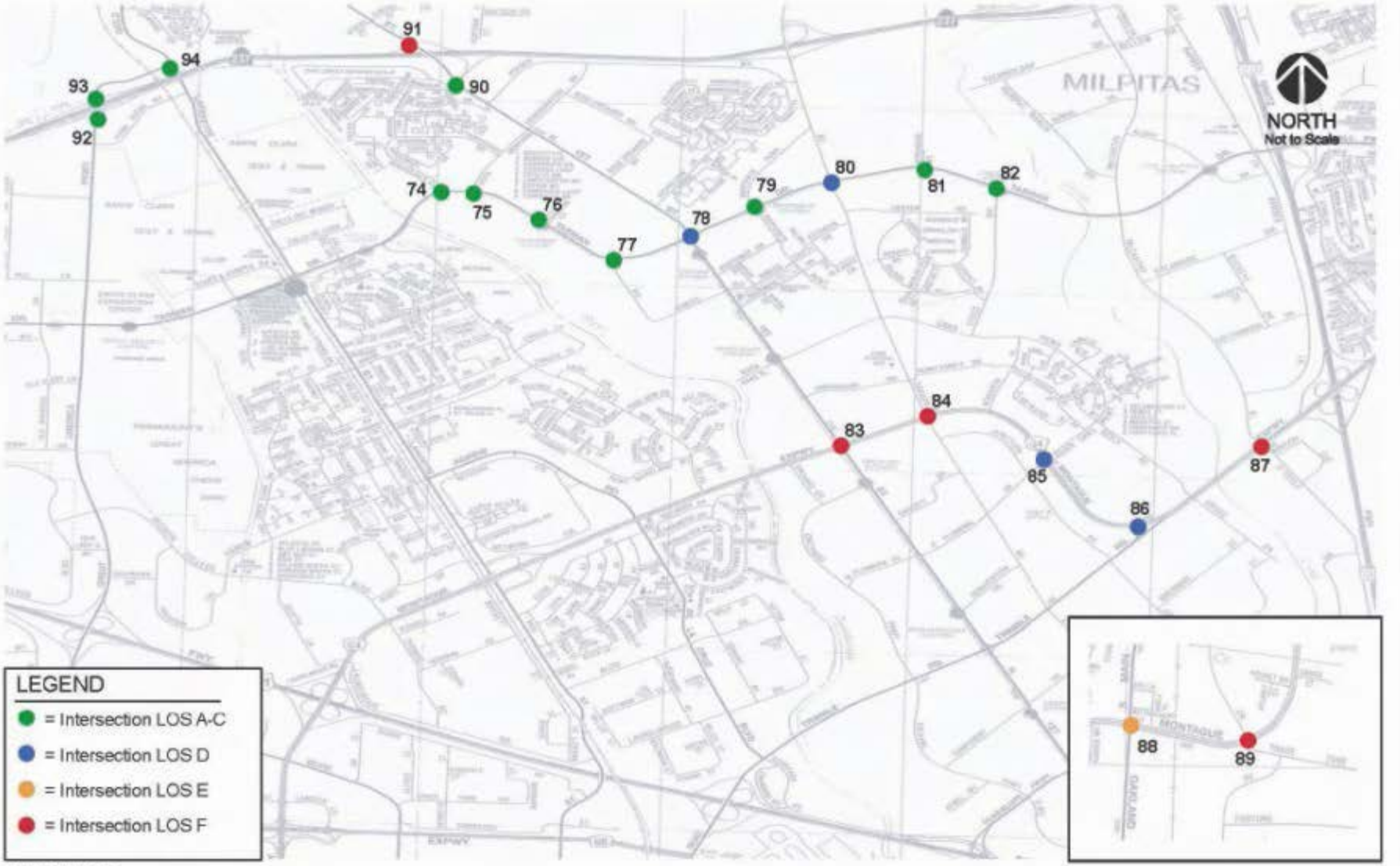


CITY OF SANTA CLARA WEEKDAY BACKGROUND INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 47**



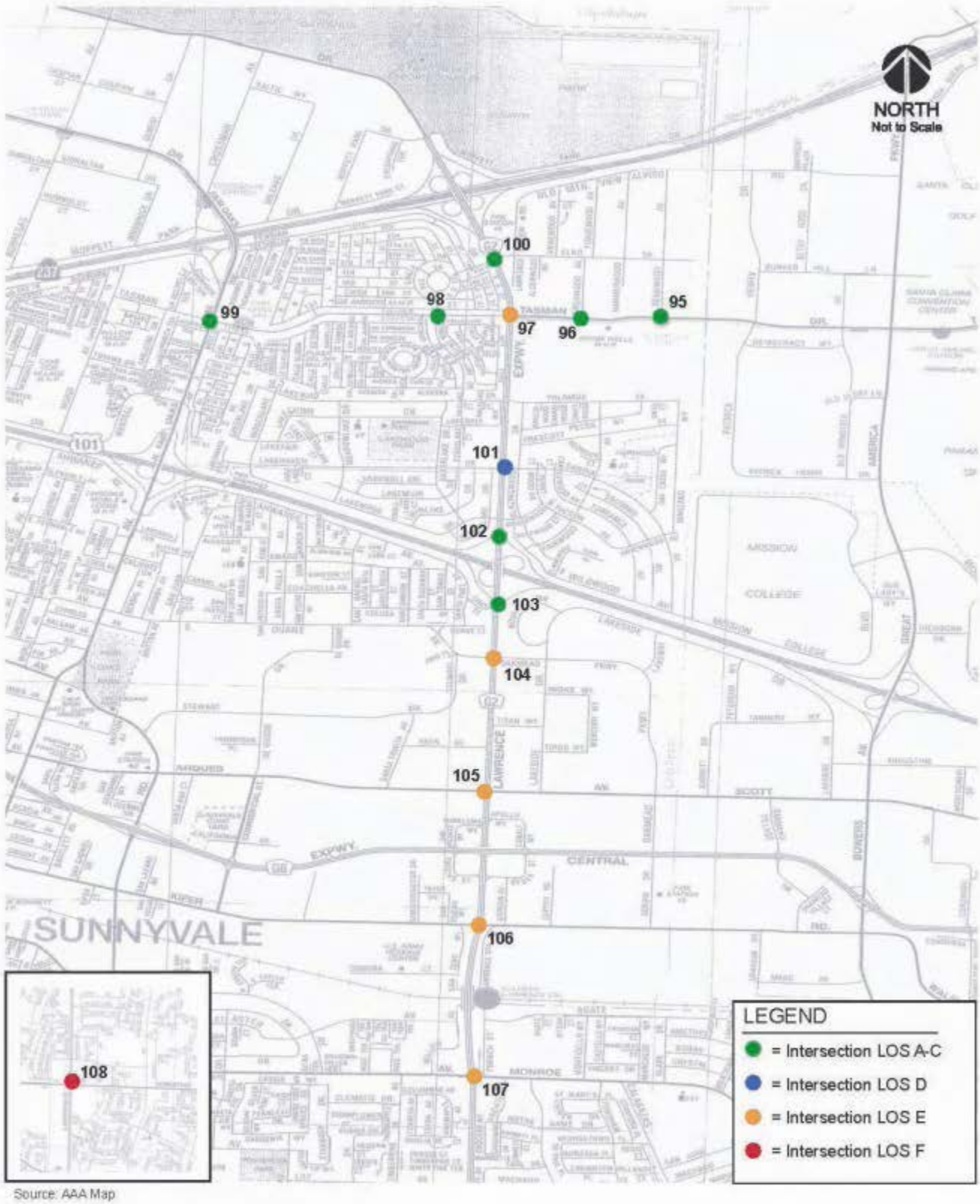
Source: AAA Map

CITY OF SANTA CLARA WEEKDAY BACKGROUND INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 48**



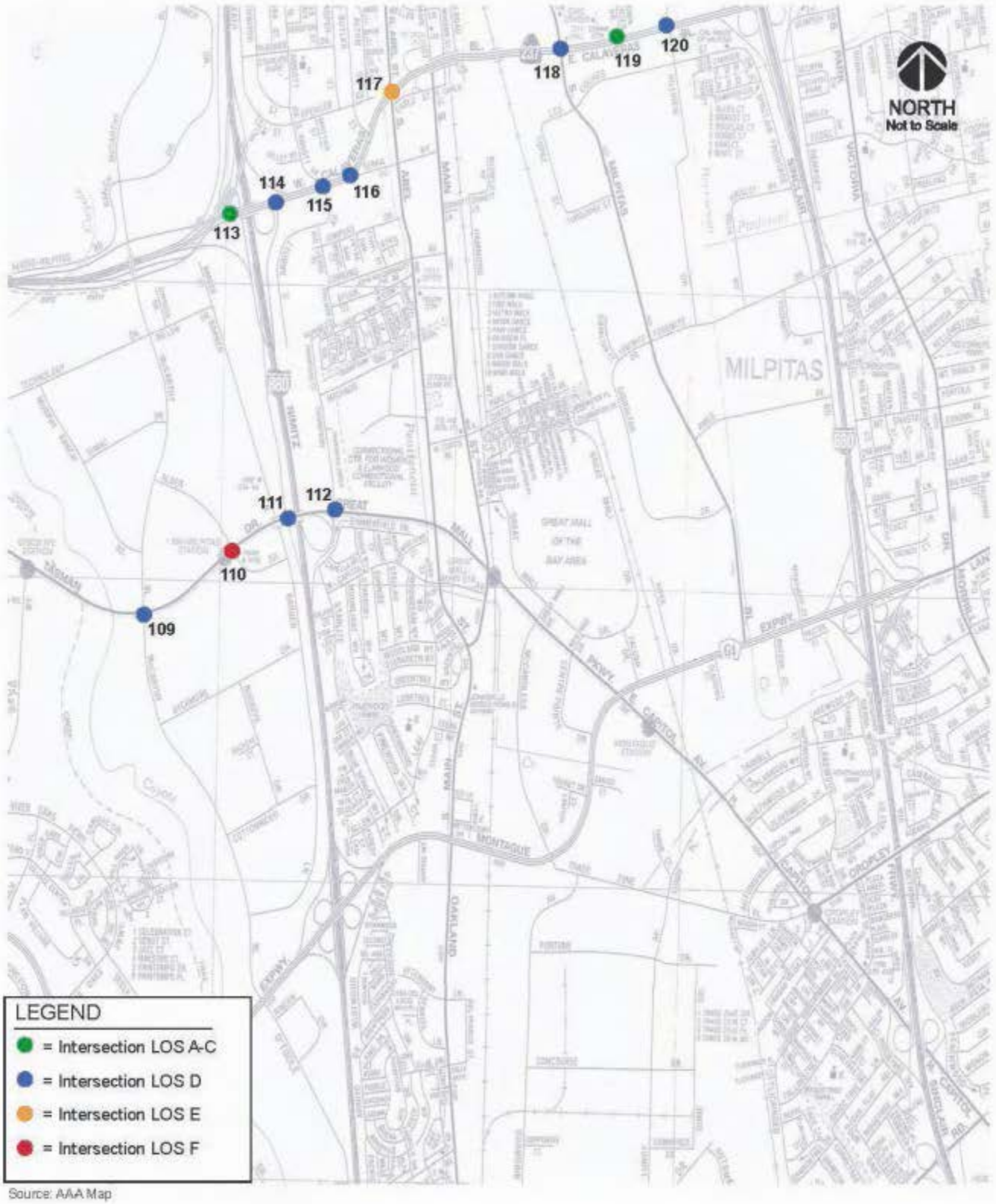
CITY OF SAN JOSE WEEKDAY
BACKGROUND INTERSECTION LEVEL OF SERVICE CONDITIONS

FIGURE 49



Source: AAA Map

CITY OF SUNNYVALE WEEKDAY BACKGROUND INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 50**



Source: AAA Map

CITY OF MILPITAS WEEKDAY BACKGROUND INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 51**

Background Intersection Levels of Service (Weekday Study Period)

City of Santa Clara Intersection Analysis

The analysis found that one of the City of Santa Clara study intersections is projected to operate at LOS F under background conditions during the standard weekday peak hour study period (see Figure 47). All other City of Santa Clara study intersections would operate at an acceptable level of service under background conditions during the weekday study periods.

18 Great America Parkway and Patrick Henry Drive

Santa Clara/CMP Intersections

The analysis found that three CMP intersections in the City of Santa Clara are projected to operate at LOS F under background conditions during the standard weekday study period (see Figures 47 and 48). All other CMP study intersections in the City of Santa Clara would operate at level of service E or better under background conditions during the weekday study periods.

8 Great America Parkway and Mission College Boulevard *
60 San Tomas Expressway and Homestead Road *
62 San Tomas Expressway and El Camino Real *

City of San José Intersection Analysis

The analysis found that six CMP designated intersections in the City of San José are projected to operate at LOS F under background conditions during at least one of the weekday study periods (see Figure 49). All other City of San José study intersections would operate at LOS D or better under background conditions during the weekday study periods.

83 North First Street and Montague Expressway *
84 Zanker Road and Montague Expressway *
87 O'Toole Avenue and Montague Expressway *
88 Oakland Road/Main Street and Montague Expressway *
89 Trade Zone Boulevard and Montague Expressway *
91 North First Street (North) and SR-237 *

*Indicates CMP Intersection

San José/CMP Intersections

The results for the CMP study intersections located within the City of San José found that six intersections are projected to operate at LOS F under background conditions during at least one of the weekday study periods (see Figure 49). All other CMP study intersections located in the City of San José would operate at LOS E or better under background conditions during the weekday study periods.

83 North First Street and Montague Expressway *
84 Zanker Road and Montague Expressway *
87 O'Toole Avenue and Montague Expressway *
88 Oakland Road/Main Street and Montague Expressway *
89 Trade Zone Boulevard and Montague Expressway *
91 North First Street (North) and SR-237 *

City of Sunnyvale Intersection Analysis

The weekday level of service analysis showed that two of the City of Sunnyvale study intersections are projected to operate at LOS E under background conditions during the standard weekday study period (see Figure 50). All other City of Sunnyvale study intersections would operate at an acceptable level of service under background conditions during the weekday study periods.

104 Lawrence Expressway and Oakmead Parkway
106 Lawrence Expressway and Kifer Road

Sunnyvale/CMP Intersections

The level of service results for the CMP study intersections located in the City of Sunnyvale show that one CMP intersection is projected to operate at LOS F, exceeding CMP standards under background conditions during the standard weekday study period (see Figure 50). All other CMP study intersections located in the City of Sunnyvale would operate at an acceptable level of service under background conditions during the weekday study periods.

108 Lawrence Expressway and Homestead Road *

City of Milpitas Intersection Analysis

The traffic analysis found that one of the City of Milpitas study intersections is projected to operate at LOS F under background conditions during the standard weekday study period (see Figure 51). All other City of Milpitas study intersections would operate at an acceptable level of service under background conditions during the weekday study periods.

110 Alder Drive and Tasman Drive

Milpitas/CMP Intersections

The level of service results for the CMP study intersections located within the City of Milpitas show that all of the CMP study intersections located in the City of Milpitas would meet CMP standards under background conditions during the weekday study periods.

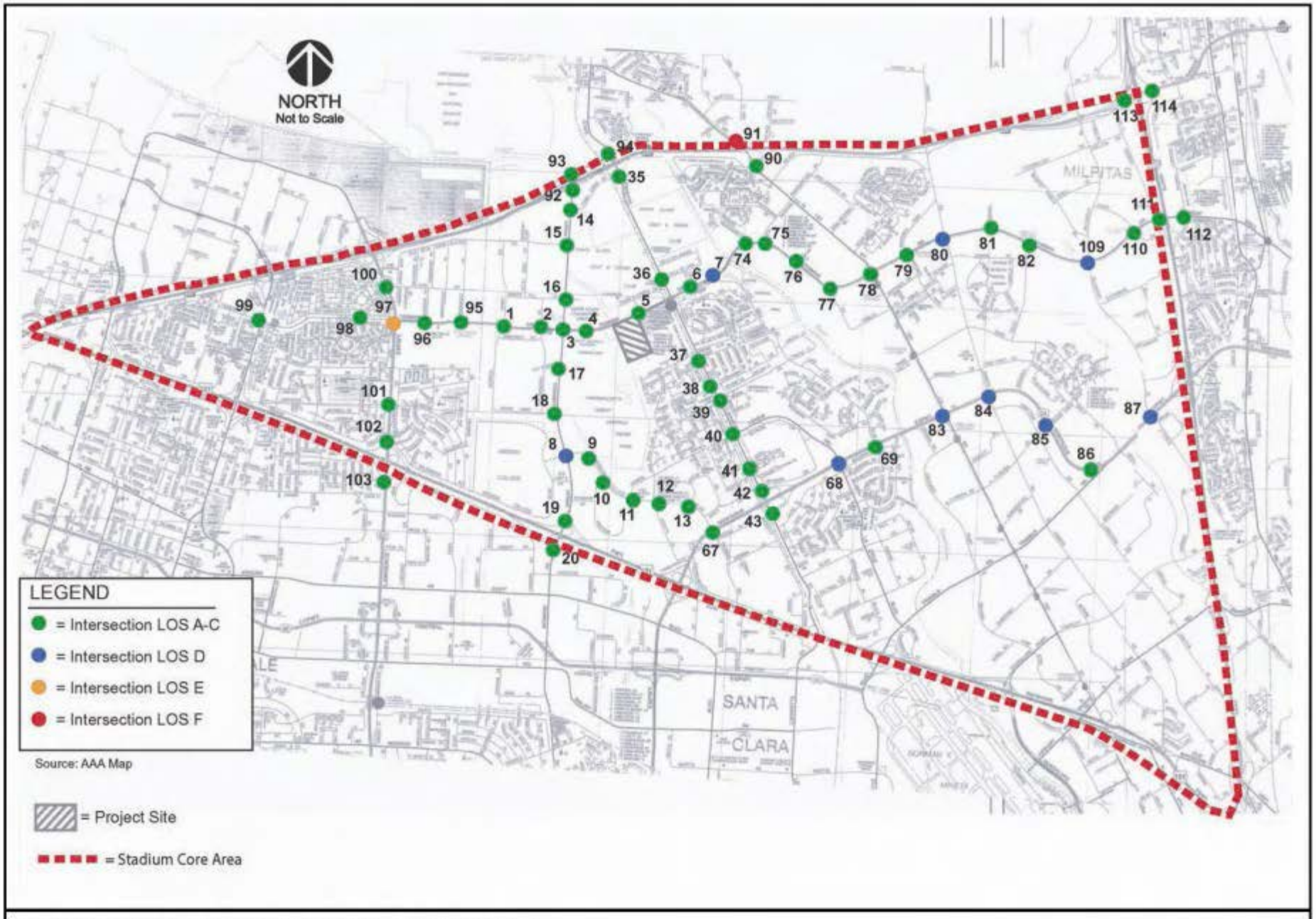
Background Intersection Levels of Service (Sunday Study Period)

City of Santa Clara/CMP Intersection Analysis

The Sunday level of service analysis found that all of the City of Santa Clara study intersections, including CMP intersections located in Santa Clara, are projected to operate at an acceptable LOS under background conditions during the Sunday study periods (see Figures 52 to 57).

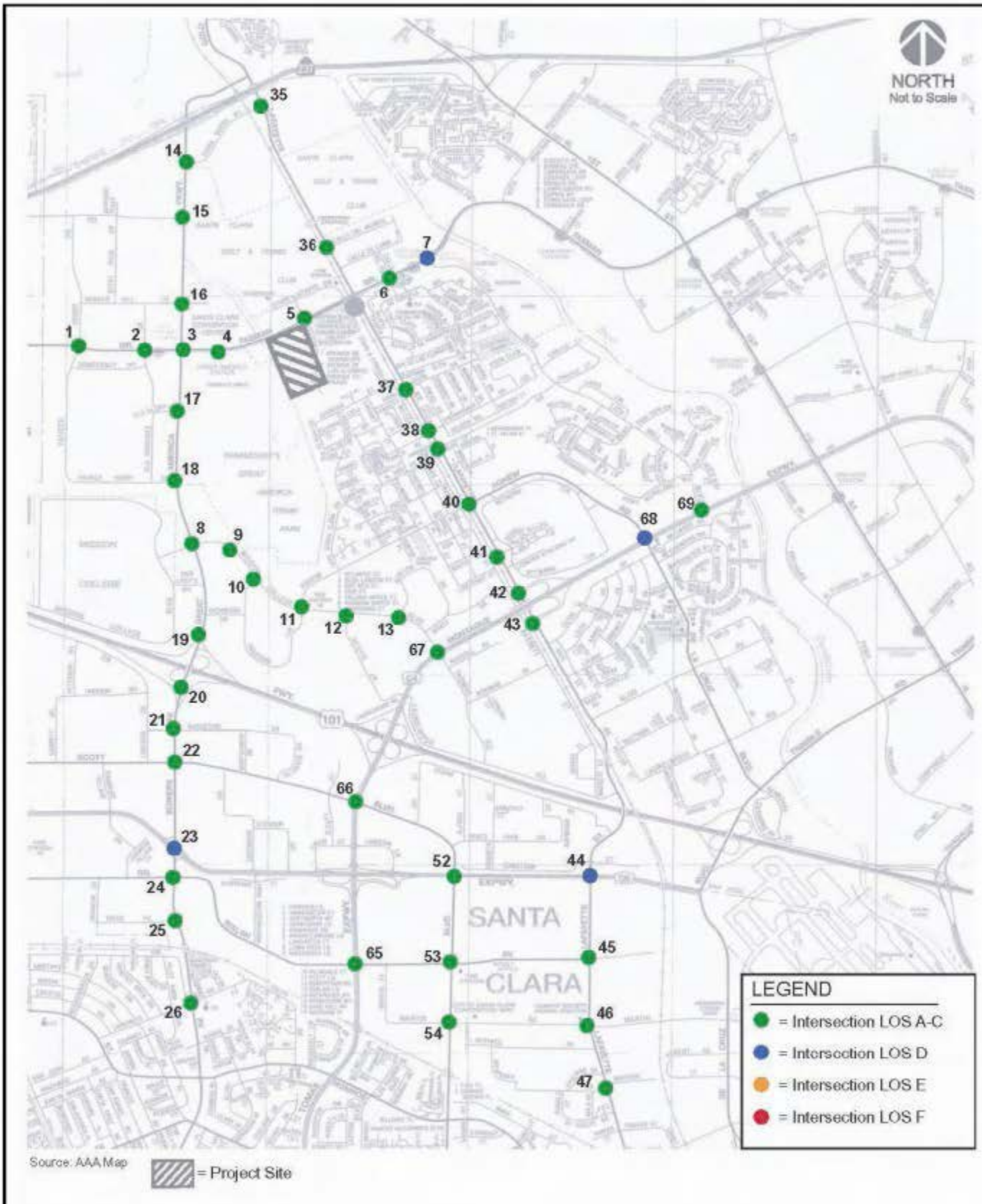
City of San José Intersection Analysis

The analysis found that one of the City of San José study intersections is projected to operate at LOS F under background conditions during the early Sunday study period. All other City of San Jose study intersections would operate at LOS D or better under background conditions during the Sunday study periods (Figure 55).

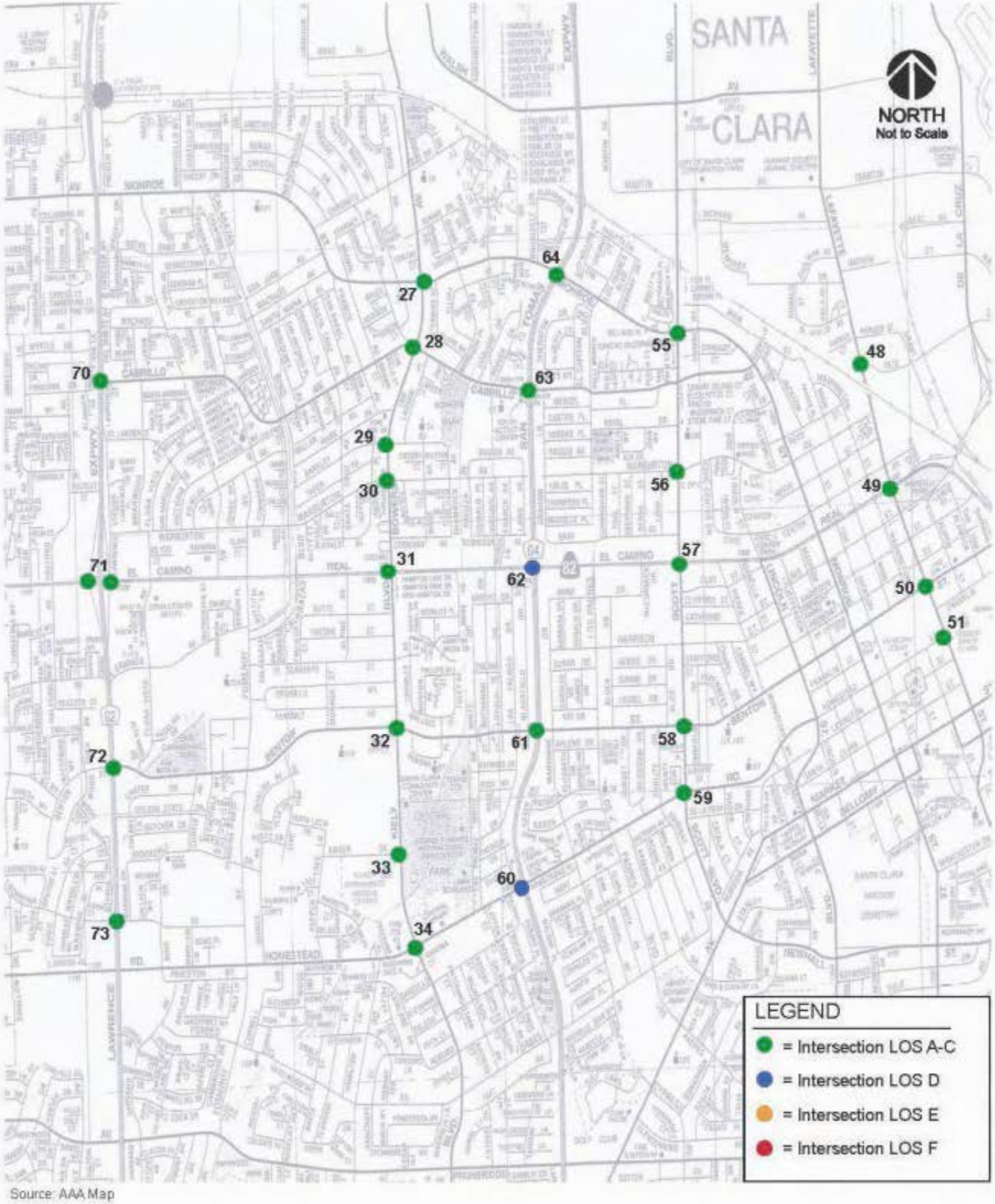


STADIUM CORE AREA SUNDAY BACKGROUND
INTERSECTION LEVEL OF SERVICE CONDITIONS

FIGURE 52

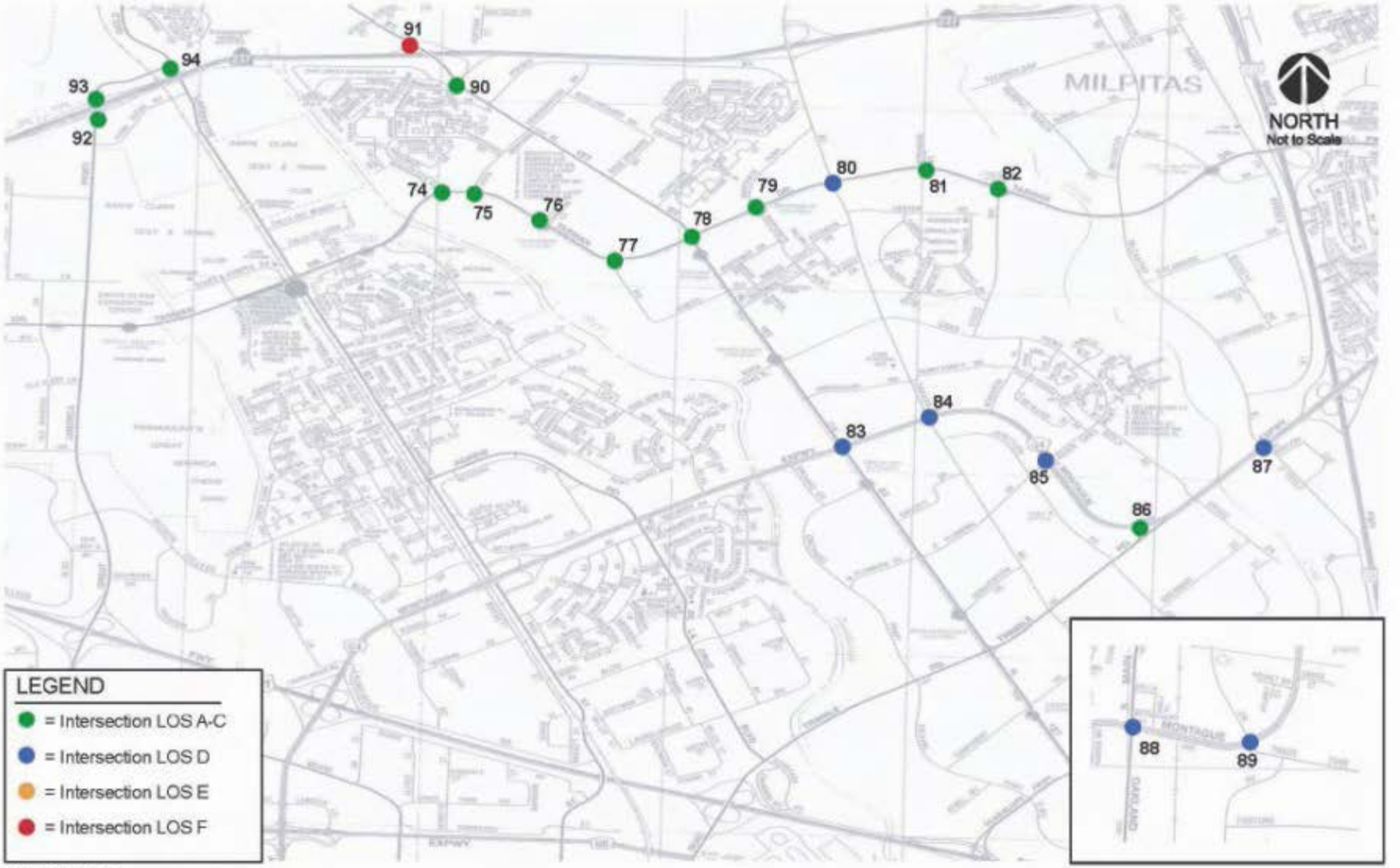


CITY OF SANTA CLARA SUNDAY BACKGROUND INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 53**



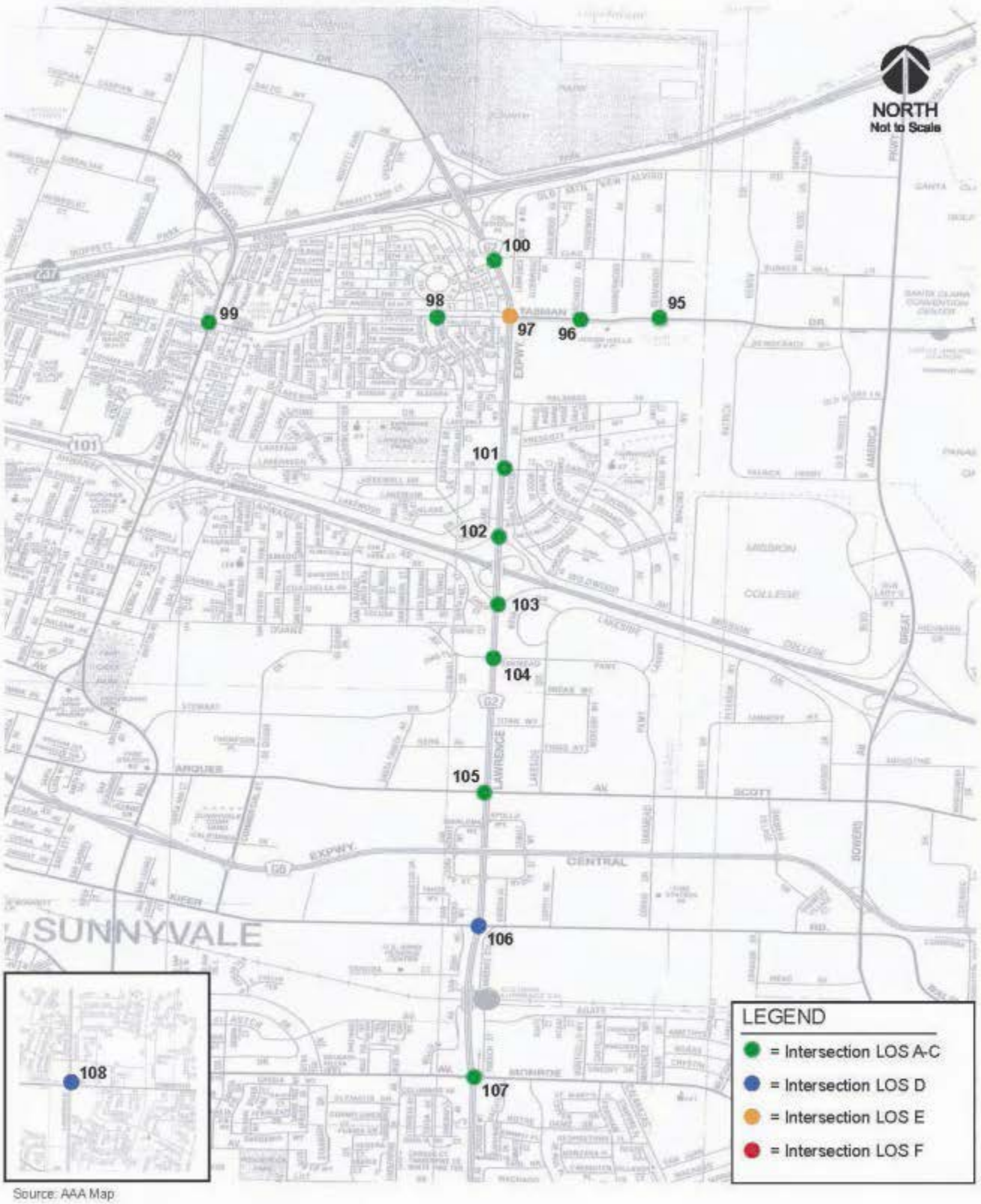
Source: AAA Map

CITY OF SANTA CLARA SUNDAY BACKGROUND INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 54**



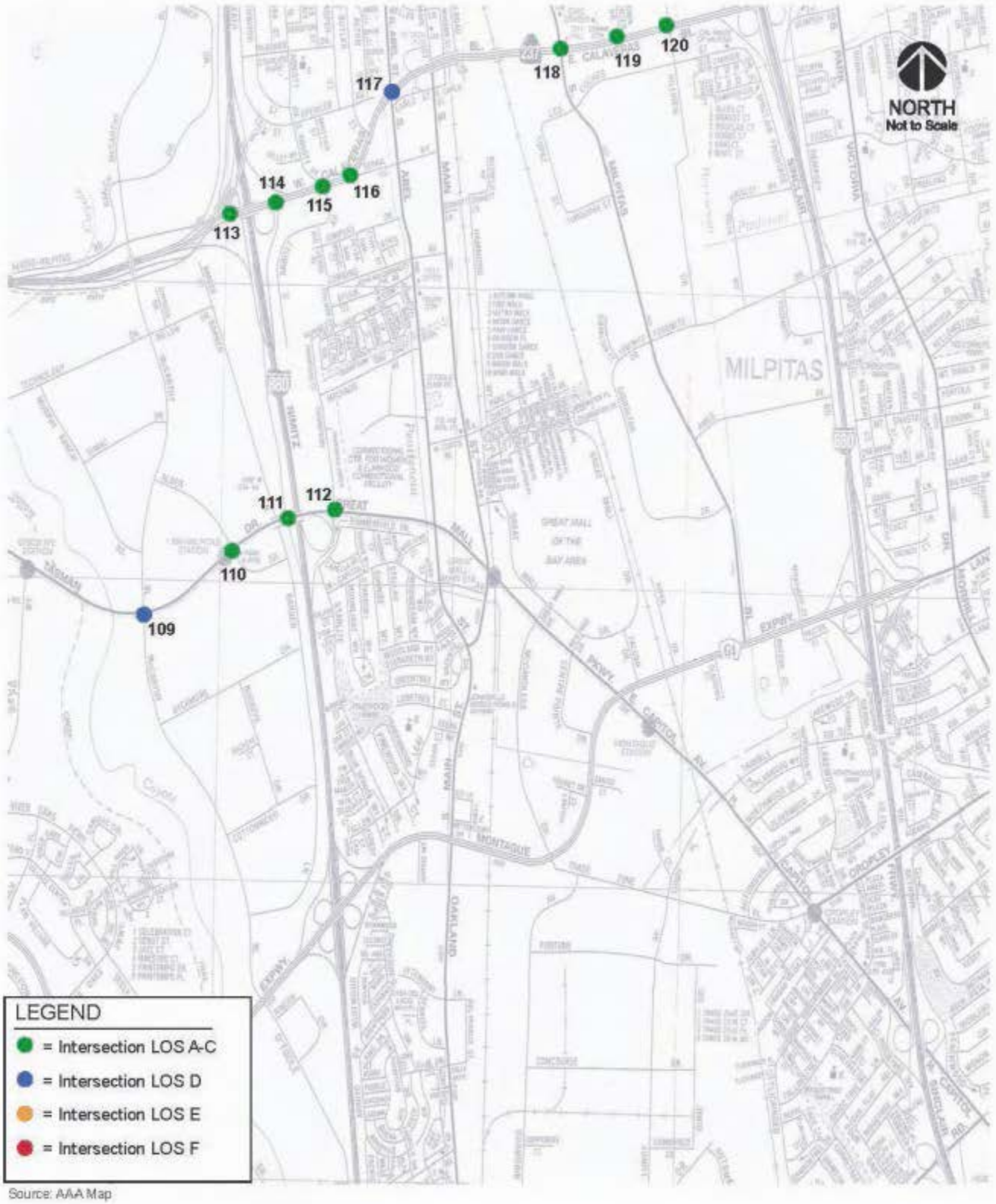
CITY OF SAN JOSE SUNDAY
BACKGROUND INTERSECTION LEVEL OF SERVICE CONDITIONS

FIGURE 55



Source: AAA Map

CITY OF SUNNYVALE SUNDAY
BACKGROUND INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 56**



Source: AAA Map

CITY OF MILPITAS SUNDAY BACKGROUND INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 57**

91 North First Street (North) and SR-237 *

*Indicates CMP Intersection

San José/CMP Intersections

The analysis done for the CMP intersections within the City of San José found that one of the study intersections is projected to operate at LOS F, exceeding CMP LOS E standards under background conditions during the early Sunday study period. All other CMP study intersections located in the City of San José would operate at level of service E or better under background conditions during the Sunday study periods.

91 North First Street (North) and SR-237 *

City of Sunnyvale/CMP Intersection Analysis

The Sunday level of service analysis found that all of the City of Sunnyvale study intersections, including CMP intersections located in Sunnyvale, are projected to operate at an acceptable LOS under background conditions during the Sunday study periods (see Figure 56).

City of Milpitas/CMP Intersection Analysis

The Sunday level of service analysis found that all of the City of Milpitas study intersections, including CMP intersections located in Milpitas, are projected to operate at an acceptable LOS under background conditions during the Sunday study periods (see Figure 57).

Background Freeway Segment Levels of Service

In part because no record is kept of freeway trips from approved but not yet built projects, the CMP methodology does not require evaluation of background conditions.

4.8.4 Traffic Impacts

4.8.4.1 Thresholds of Significance

For the purpose of this EIR, a traffic impact is considered significant if the project would:

- cause the level of service at any local intersection to degrade from an acceptable LOS D or better under background conditions to an unacceptable LOS E or F under project conditions; or
- at any local intersection that is already an unacceptable LOS E or F under background conditions, cause the critical-movement delay at the intersection to increase by four or more seconds and the demand-to-capacity ratio (V/C) to increase by .01 or more; or
- cause the level of service on any freeway segment to degrade from an acceptable LOS E or better under existing conditions to an unacceptable LOS F under project conditions; or
- add more than one percent of the existing freeway capacity to any freeway segment operating at LOS F under existing conditions; or
- substantially impede the operation of a transit system as a result of congestion; or
- create an operational safety hazard.

4.8.4.2 Traffic and Transportation Impacts

The following discussion focuses first on the project assumptions. The 49ers have many years of hard data about their fan base, transportation behavior around games, and game attendance. The proposed project also includes a very specific and detailed Transportation Management Plan which is designed to accommodate both the people who have attended 49ers games in the past and new attendees, and to provide the maximum degree of protection for surrounding neighborhoods.

4.8.4.3 Transportation Management Plan

A Transportation Management Plan (TMP) for the proposed stadium was completed by *DMJM Harris/AECOM* in February 2008, under contract to the 49ers. A detailed discussion of the management of traffic and parking for stadium attendees and employees is included in the TMP. Many of the estimates for the proposed stadium in the TMP are based upon data collected at the existing Candlestick Park 49er stadium and other NFL stadiums across the country. The TMP was provided to the City of Santa Clara as part of the project submittal. The TMP has been used as input to the traffic analysis. Because the TMP reflects both local experience and NFL data, the assumptions are considered applicable to all NFL games at the proposed stadium, not just 49er team games.

The data and estimates of critical importance that were provided in the TMP and utilized in the traffic analysis include the following:

- Modal Split Characteristics
- Transit Operations
- Pedestrian Operations
- Estimates of Vehicular Trip Generation
- Parking Demand and Supply
- Rough Distribution of Attendees
- Proposed Pre-Game and Post-Game Traffic Control Plans

The data and estimates utilized in the traffic analysis are discussed in detail in the following sections. The TMP is provided in Appendix I.

Estimated Attendance and Traffic Projections

The analysis of the effects of the traffic associated with the proposed stadium is based on a sold-out football game. Therefore, trip generation estimates for the stadium are based upon 68,500 attendees and approximately 2,900 employees. The anticipated number of employees assumed for the Santa Clara stadium is based upon existing operations at Candlestick Park. This means that a sold-out football game at the Santa Clara stadium will generate approximately 71,400 person trips. The modal split and other assumptions about trip generation characteristics of the proposed stadium are discussed in the following subsections. The estimated vehicular trips and transit use projections after conversion of person trips to vehicular trips are summarized in Table 15.

Modal Split Characteristics

Attendees and employees will arrive at the games by way of several transportation modes. Based on data for Candlestick Park, other NFL stadiums, and the unique transportation characteristics of the proposed project site, it is anticipated that of all attendees, 74 percent would arrive via automobile,

seven percent by charter bus, and 19 percent would arrive via transit. The estimated transit ridership is based upon both data collected at Candlestick Park and other NFL stadiums with similar transit opportunities. For comparison, data from games held at Candlestick Park, which is restricted to bus service alone, show an eight percent transit use. Thus, applying the specific modal split, the 68,500 attendees equate to approximately 55,500 person trips made via personal vehicle and 13,000 via transit. The employee modal split is estimated to be 80 percent auto (2,320 person trips) and 20 percent (580 person trips) transit.

The transit options available at the Santa Clara site are more varied and convenient than what is available at the Candlestick Park site. See discussion below for services available in Santa Clara.

TABLE 15
Trip Generation Estimates for the Proposed Stadium

Transport Mode	Attendees	Percent	Vehicle Occupancy Rate	Number of Vehicles
Existing Candlestick Park - Fans				
Auto	57,150	82	3.0	19,050
Charter Buses	7,100	10	44.0	161
Transit	5,450	8	45.0	0
Subtotals	69,700	100	---	19,211
Existing Candlestick Park – Employees				
Auto	2,610	90	1.5	1,740
Transit	290	10	45.0	0
Subtotals	2,900	100	---	1,740
			Total Vehicular Trips	20,951
Proposed Santa Clara Stadium - Fans				
Auto	50,500	74	2.7	18,704
Charter Buses	5,000	7	44.0	114
Transit	13,000	19	45.0	0
Subtotals	68,500	100	---	18,818
Proposed Santa Clara Stadium - Employees				
Auto	2,320	80	1.5	1,547
Transit	580	20	45.0	0
Subtotals	2,900	100	---	1,547
			Total Vehicular Trips	20,364

Source: Transportation Plan, DMJM Harris & San Francisco 49ers

Transit Trips

With the availability of an extensive multi-modal transit system in the project area, it is expected that the stadium will place less of a demand on regional roadways. Bus, light rail, and heavy rail service will be available to attendees of events at the stadium. As described above, as many as 13,580 transit trips are estimated to be generated by the stadium. Each of the existing transit services described in Section 4.8.2.3 will need to be enhanced with additional lines, capacity and service frequencies to serve the projected transit demand of the stadium. San Francisco 49ers staff met with each of the individual transit agencies that provide service that could be utilized by stadium attendees. Although no definite service plans were agreed upon, potential service capacities and frequencies to meet projected stadium transit demands were discussed. The assumptions described below regarding ridership and service capacity for each of the individual transit services are based upon the

preliminary capacities discussed at the meetings. Each of the available transit services and projected ridership demands are discussed below.[44]

Bus and Light Rail Service: The Valley Transportation Authority (VTA) provides the bus and light rail services in the project area. Several bus lines run along Tasman Drive and Great America Parkway and have stops within walking distance of the stadium site. VTA as well as other transit agencies in the Bay Area (such as Sam Trans) currently provide special bus service to Candlestick Park. It is anticipated that bus services will be adjusted to serve the proposed Santa Clara stadium site on game days, with staging areas provided along Stars and Stripes Drive and Tasman Drive. It is estimated that up to 4,500 attendees will be served by bus service.

Light Rail service will provide the most convenient access to the stadium. The Great America LRT station is located on Tasman Drive between Centennial Drive and Great America Parkway. With connections to other rail and bus lines and park-and-ride lots throughout the South Bay, light rail service will serve a large portion of stadium transit demands. Improvements to service frequencies and train sizes will be necessary. It is estimated that the light rail system will serve about 4,500 attendees on game days. The LRT service capacities are based on three-car trains running on 10-minute service headways. Each train has the capacity to serve 450 passengers, and trains could operate in both directions of travel. Therefore, up to 5,400 passengers per hour could be served by light rail service. There is, therefore, substantially greater capacity in the system than is assumed as being utilized in this analysis.

Heavy Rail Service: There are several heavy rail lines and services that run in close proximity to the stadium site. Each of the rail services primarily provides service on weekdays, but some trains run on weekends to serve special events.

Commuter rail service between Stockton and San José is provided by the Altamont Commuter Express (ACE). The ACE service runs on the UPRR rail line along the west side of Lafayette Street near the project site with stops at the Great America Station. The Great America Station is located approximately 1,000 feet from the stadium site. ACE currently runs special weekend trains to Great America as well as other events such as Athletics baseball games. It is expected that ACE service will be adjusted to provide special trains to events at the stadium. Each ACE train consists of five cars with a capacity of 100 passengers per car.

The Capitol Corridor rail line provides service between Sacramento and San José and operates on both weekdays and weekends. The Capitol Corridor line shares the Great America Station with the ACE/Amtrak service. As with ACE service, special stadium event trains will be required. Each Capitol Corridor train provides a capacity of 500 passengers per train.

The Caltrain Commuter rail provides service between San Francisco and Gilroy. Though the stadium area is not served directly by Caltrain, there are shuttle services and bus lines that connect Caltrain stations to the stadium area. The nearest Caltrain stations are the Lawrence and Mountain View stations approximately three and six miles from the project area, respectively. Since Caltrain serves a large portion of the South Bay and San Francisco, a substantial number of transit users could benefit from convenient and efficient Caltrain service to the stadium events. As such, the enhancement of Caltrain service and connections to other transit services is vital to accommodate the projected stadium transit ridership demands. Bus transfers to and from the stadium and each Caltrain station

[44] The project proponents have begun discussions with the appropriate transit agencies and the City of Santa Clara is monitoring the discussions.

and coordination with LRT service at the Mountain View station will be necessary to serve the estimated 3,000 attendees of games that would utilize Caltrain. The Caltrain service estimates are based on three five-car trains with a service capacity of 200 passengers per car.

It is estimated that approximately 580 of the 2,900 employees will utilize transit. All employees utilizing private vehicles will be required to park in locations east of Lafayette Street and the Guadalupe River, north and south of Tasman Drive. The location of employee parking along Tasman Drive will allow use of VTA light rail to the stadium. The employees are not factored into stadium transit demand since the employee demands would occur before and after peak demand periods for the stadium. Further detail on potential transit service improvements and accommodations for game days is outlined in a subsequent section of this EIR, and in the TMP in Appendix I.

Vehicle Trips

Most attendees (55,500 of 68,500) will arrive at the stadium in personal vehicles or buses. Of the projected 55,500 person trips, 50,500 will be made by automobile and 5,000 by charter bus. The existing Candlestick Park data indicates an occupancy rate of 3.0 persons per private vehicle. Due to the projected increase in transit use for the new stadium it is expected that the vehicle occupancy rate will decrease slightly for autos. The TMP identifies a vehicle occupancy rate of 2.7 persons per vehicle. Charter buses have an occupancy rate of 44 persons per bus. Therefore, a total of 18,818 vehicle trips, 18,704 via auto and 114 bus trips, are estimated for attendees on game days.

Arrival/Departure Patterns: The arrival and departure times of fans at the proposed stadium is based upon data gathered for football games at Candlestick Park. The data indicates that the arrival of fans is spread over a five hour period prior to game time as shown in Table 16. Data on arrival rates show that the majority, or 39 percent of fans arriving via auto, do so within the hour just prior to the game start time. The majority of fans arriving via charter bus, 65 percent, also arrive within the hour prior to game time. The arrival rates equate to a total peak demand of 7,369 vehicular trips within the hour just prior to the start of a game. The peak arrival equates to nearly 40 percent of all vehicular trips. The arrival of the remainder of attendees will be spread over a four hour period prior to the hour just before the game start time.

The analysis periods for this discussion were selected to coincide with the peak demand of arrivals for the hour just prior to the start of games, *except for the early PM weekday study period*. The early PM weekday study period (3:00-5:00 p.m.) was selected to capture traffic conditions that could, and to some degree will, occur due to the overlap of fan arrival at the stadium and employee departure from nearby offices and industrial businesses. This analysis is necessary because the parking plan proposed for the stadium requires the use of surrounding office/industrial parking lots. As such, the office buildings will need to be vacated prior to game time.

Although the Traffic Management Plan assumes that the office parking lots to be used by the stadium will be vacated prior to 3:00 pm on a weekday game day, the traffic analysis prepared for this EIR utilized a more conservative approach and assumed some overlap of fan arrival and the office employees' departures. Making allowances for human nature and the Silicon Valley work ethic, it was assumed that the office employees would depart between 3:00 and 5:00 pm. Data from Candlestick Park indicates that approximately 19 percent of fans arriving via auto and 28 percent via charter bus arrive more than 60 minutes but less than 120 minutes prior to the game start time. The arrival rates equate to a total of 3,586 vehicular trips within that hour prior to the hour just before the game. The assumed office/commercial departure is discussed in the following section.

Departure of spectators will primarily occur within the hour after the end of game with approximately 65 percent of the autos and 80 percent of the charter buses departing within one hour of end of game. It is estimated that approximately 12,000 vehicles will be departing the area within the hour after the end of game. The remaining fans will depart during or within two hours after the end of the game (see Table 16).

TABLE 16
Arrival and Departure Patterns

General Arrival Pattern

Time Frame	Auto Trips		Charter Buses		Total Vehicle Trips
	Percent	Trips	Percent	Trips	
>5 Hours	6	1,122	0	0	1,122
4-5 Hours	8	1,496	0	0	1,496
3-4 Hours	14	2,619	2	2	2,621
2-3 Hours	14	2,619	5	6	2,624
1-2 Hours	19	3,554	28	32	3,586
<1 Hour	39	7,295	65	74	7,369
Total	**100**	**18,704**	**100**	**114**	**18,818**

General Departure Pattern

Time Frame	Auto Trips		Charter Buses		Total Vehicle Trips
	Percent	Trips	Percent	Trips	
During Game	10	1,870	10	11	1,882
> 1 Hour	64	11,971	80	91	12,062
1-2 Hours	26	4,863	10	11	4,874
Total	**100**	**18,704**	**100**	**114**	**18,818**

Source: Transportation Plan, DMJM Harris, and San Francisco 49ers

Trip Origins and Destinations

The assumed distribution of trips associated with the stadium is largely based upon current season ticket holder information. The existing distribution of season ticket holder data indicates that most attendees' trips for games at Candlestick Park originate in San Francisco, San Mateo and Santa Clara counties. It is expected that the relocation of the stadium to the South Bay will result in some additional season ticket holders and a generally larger fan base in the South Bay and less in other areas. Therefore, there were minor adjustments made to the distribution percentages to account for the relocation of the stadium from San Francisco to Santa Clara. The adjustments consist primarily of route adjustments on the freeway system due to stadium location. If any trips were to originate from locations outside the areas mentioned above or the fan base were to shift over time the assumptions in the TIA would still be relevant. While regional freeway patterns may change, local traffic patterns would remain the same because access routes to the site will not change. Local intersection and freeway impacts would be the same regardless of the starting point of the traffic trips.

The distribution data for Candlestick Park is summarized in Table 17 and identifies place of residence by county (or region for the Central Valley) for current season ticket holders at Candlestick Park. Based upon the Candlestick Park data, an estimate was made as to which regional transportation facility would be used between the stadium and each of the counties. This "macro"

level of analysis accounts for the movements into Santa Clara County. The details of the analysis are provided in Appendix H of the EIR.

TABLE 17
Trip Distribution Estimates

Place of Residence	Attendees	Attendees Driving	Auto Trip Distribution %	Access Route
Central Valley	3,222	3,085	6	I-680/I-880
San Francisco	8,869	5,951	11	US 101 North
San Mateo	12,369	9,367	17	US 101 North
Marin	3,971	3,180	6	US 101 North
Sonoma	2,041	1,954	4	US 101 North
Alameda	4,942	3,242	6	I-680/I-880
Contra Costa	6,444	4,122	7	I-680/I-880
Napa	511	489	1	I-680/I-880
Solano	1,165	1,116	2	I-680/I-880
Sacramento	2,436	2,333	4	I-680/I-880
South	1,843	1,746	3	US 101 South
Other	8,566	8,566	15	US 101 South
Santa Clara	11,006	10,337	19	US 101/I-680/I-880
Total	67,385	55,506	100	

Access Route	Outside SCC	SCC	Total
US 101 North	37	1	38
US 101 South	19	8	27
I-680/I-880	26	2	28
Local Roadways	0	8	8
Total	81	19	100

Source: Transportation Plan, DMJM Harris & San Francisco 49ers

Parking Plan and Trip Assignment

The trips generated by the proposed stadium were assigned to the roadway system based upon the regional trip distribution pattern discussed above and on the proposed parking plan for the stadium. The parking plan does include some on-site parking, but most of the parking will be provided in the existing surface lots of surrounding office/industrial developments. The parking plan will require coordination and written agreements with property owners and tenants on proposed game days. The area containing identified potential parking sites is shown in Figure 58. The parking plan is described in detail in the Project Description in Section 2.0 of this EIR, and in the TMP in Appendix I.

On-Site and Adjacent Parking Supply

The 9,705 proposed parking spaces on or adjacent to the stadium site include the Great America parking lot and its 6,234 parking spaces located immediately west of the stadium's boundary with San Tomas Aquino Creek, and 380 spaces on the land currently occupied by the electric substation immediately adjacent to the creek. A 1,708-space parking structure is proposed to be constructed on City-owned property north of the stadium, on the north side of Tasman Drive. Adjacent to the

Source: Google Earth

LEGEND

xxx = Parking Spaces Available

= 5 Minutes Walking Radius

= Project Site

IDENTIFIED POTENTIAL PARKING AREAS **FIGURE 58**

parking structure would be another 790 parking spaces in two surface lots. On-site spaces (593) will be distributed around the stadium perimeter.

Off-Site Parking Supply

The proposed parking plan includes the use of existing parking lots within the surrounding office and other development. Based upon data compiled for stadiums across the country, fans are willing to walk no more than 20 minutes to a sporting event. Therefore, the TMP identifies all available parking within a 20 minute walking radius of the stadium that could be utilized as parking for the stadium. There are 11,115 spaces within a 15-minute walking radius and a total of 31,668 spaces within a 20-minute walking radius of the stadium.[45] Figure 58 shows both radii.

Stadium employee parking will be restricted to locations east of Lafayette Street, on properties north and south of Tasman Drive. Approximately 1,870 parking spaces are located on privately owned properties east of Lafayette Street. Although it is anticipated that employees will carpool, additional employee parking could be made available.

Office Employees Trip Assignment

It is assumed that the nearby offices and industrial buildings will be vacant on Sundays, but the agreements for use of their parking lots by stadium attendees during weekday games will require that the offices be vacated prior to the arrival of stadium attendees.

In preparing the traffic impact analysis for the early weekday study period (3:00-5:00 pm), it is conservatively assumed that the office developments at which stadium attendees will have assigned parking spaces would begin to vacate at 3:00 pm, although it is likely that the office departure would begin earlier. The assumption of a mass departure of office tenants reflects a worst case scenario in which office departures occur concurrently with a significant amount of fans beginning to arrive in the project area.

The amount of traffic from the departure of office tenants was estimated based upon the quantity of parking provided at each of the identified potential parking sites, with assumptions made about occupancy and vacancy rates. (see Appendix H for a detailed description of how that traffic was estimated). The resulting trips were then assigned to the roadway system based upon typical office travel patterns for north Santa Clara.

This part of the analysis was done to characterize what would be the worst possible level of congestion associated with the use of parking at existing facilities. There are a number of actions that can be taken to reduce this congestion, all of which would result in fewer impacts.

Stadium Trip Assignment

The stadium trips were assigned to the roadway system based upon the proposed parking plan since the location of their parking space will dictate the routes that attendees use to reach them. All season ticket holders will be assigned to specific parking areas in advance and will be provided a map that indicates the preferred route to that parking area. All other stadium attendees will be directed to

[45] A 20-minute walking radius is defined as 4,800 feet or nine-tenths of a mile. This is based on a Highway Capacity Manual defined walking speed of 4 feet per second.

appropriate parking areas by signage oriented to traffic from each of the regional transportation facilities.

Since agreements have not yet been executed with owners of off-site parking lots, the assignment of stadium traffic required grouping the identified parking lots into zones based on their location. The percentage of stadium trips assigned to each of the parking areas was based on the percentage of total parking provided in each zone. The total stadium trips were then assigned to each of the parking zones and the roadway network, based upon the traffic control plan. The TMP will utilize road closures and traffic control officers to efficiently direct stadium attendees to (and from) parking. The road closures, which include the closure of Tasman Drive between Great America Parkway and Centennial Boulevard, required that background traffic be redistributed to alternative routes in the analysis.

The intent of the traffic control plan is to efficiently move stadium traffic, which will require the restriction of conflicting traffic movements, such as that associated with office departures. Since vacating the offices needs to happen as quickly as possible, it would not be possible to fully implement the traffic control plan while office departures are still occurring. Therefore, the maximum impact scenario is one in which office departures occur while stadium attendees are arriving, as described in the previous section. The assignment of stadium traffic during the weekday scenarios, therefore, assumes stadium attendees arriving and office departures occurring during the same period utilizing the existing roadway network with no active (i.e., officers or signal overrides) control and without the road closures that may occur. The signage will be in place, however.

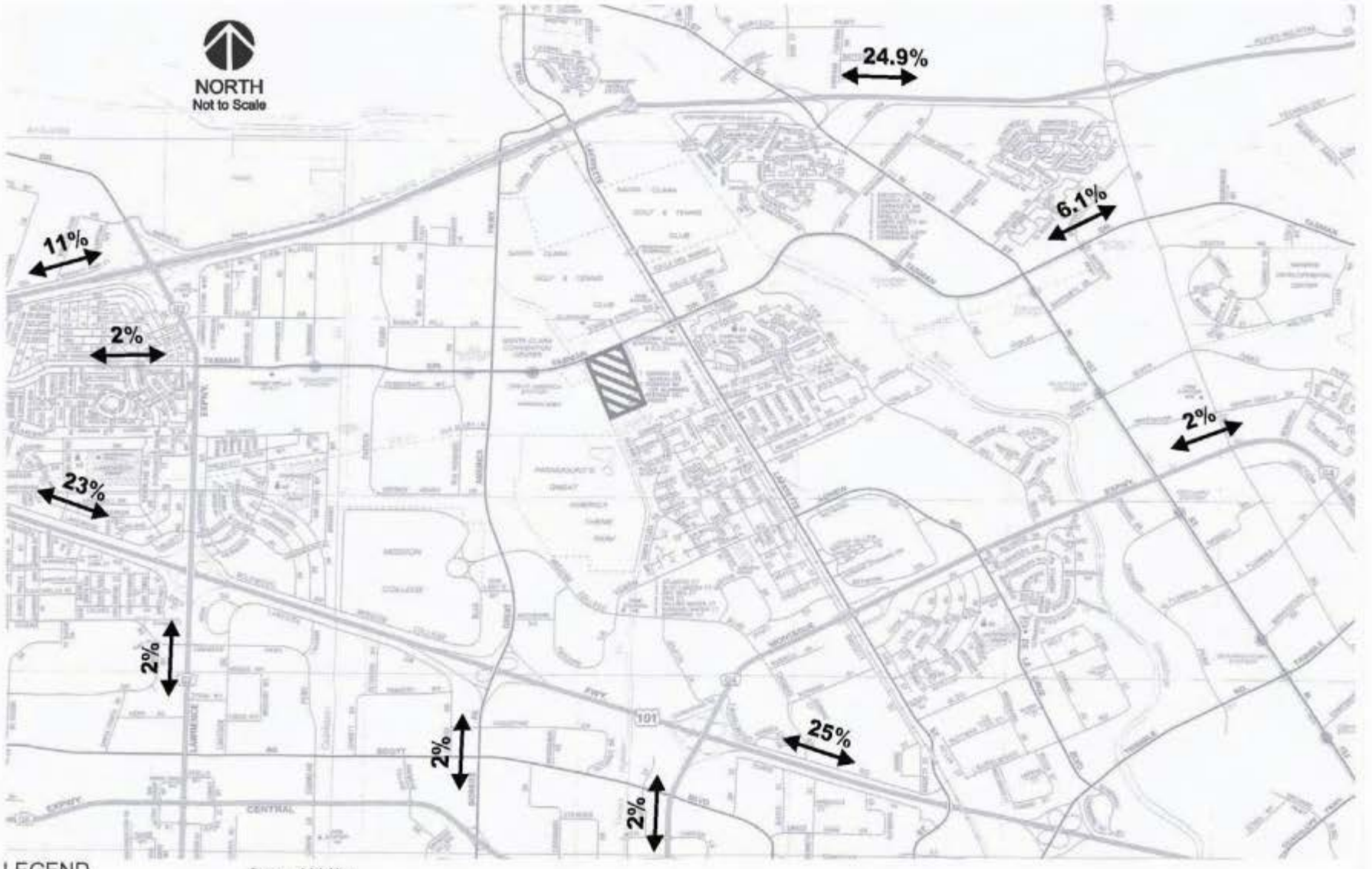
The assignment of stadium traffic for the Sunday study periods assumes road closures and officer control as described in the TMP. Figure 59 shows the distribution of stadium traffic within the boundary of the project core area. The general routes that will be utilized by stadium attendees to and from each of the potential parking areas are shown in Figure 60.

TMP Traffic Control Plan

The traffic control plan is proposed as part of the TMP and is designed to move vehicular traffic associated with the stadium efficiently from regional transportation facilities to arterials and into designated parking areas. The traffic control plan identifies road closures, intersection lane configuration changes and locations that will be controlled by uniformed officers. Planned road closures and officer controlled intersections are shown in Figure 61. The officers will facilitate traffic flow, and minimize congestion, manage pedestrian traffic to minimize conflicts with vehicular traffic, and communicate with the stadium traffic control center to request signal timing adjustments as needed. The traffic control plan includes the following elements to facilitate the efficient arrival and departure of stadium traffic:

- The stadium will include a traffic control center that will be connected and integrated into the City of Santa Clara's existing electronic traffic control system.[46]
- Nearly every intersection along Great America Parkway and Tasman Drive within the project core area will be officer controlled.
- A total of 25 intersections will be controlled by either one or two officers
- Lane configuration adjustments and turn restrictions will be implemented at all intersections within the project core area.

[46] The traffic control center will not have control over intersections outside the City of Santa Clara's jurisdiction.



MICRO STADIUM PROJECT TRIP DISTRIBUTION

FIGURE 59

Source: Google Earth

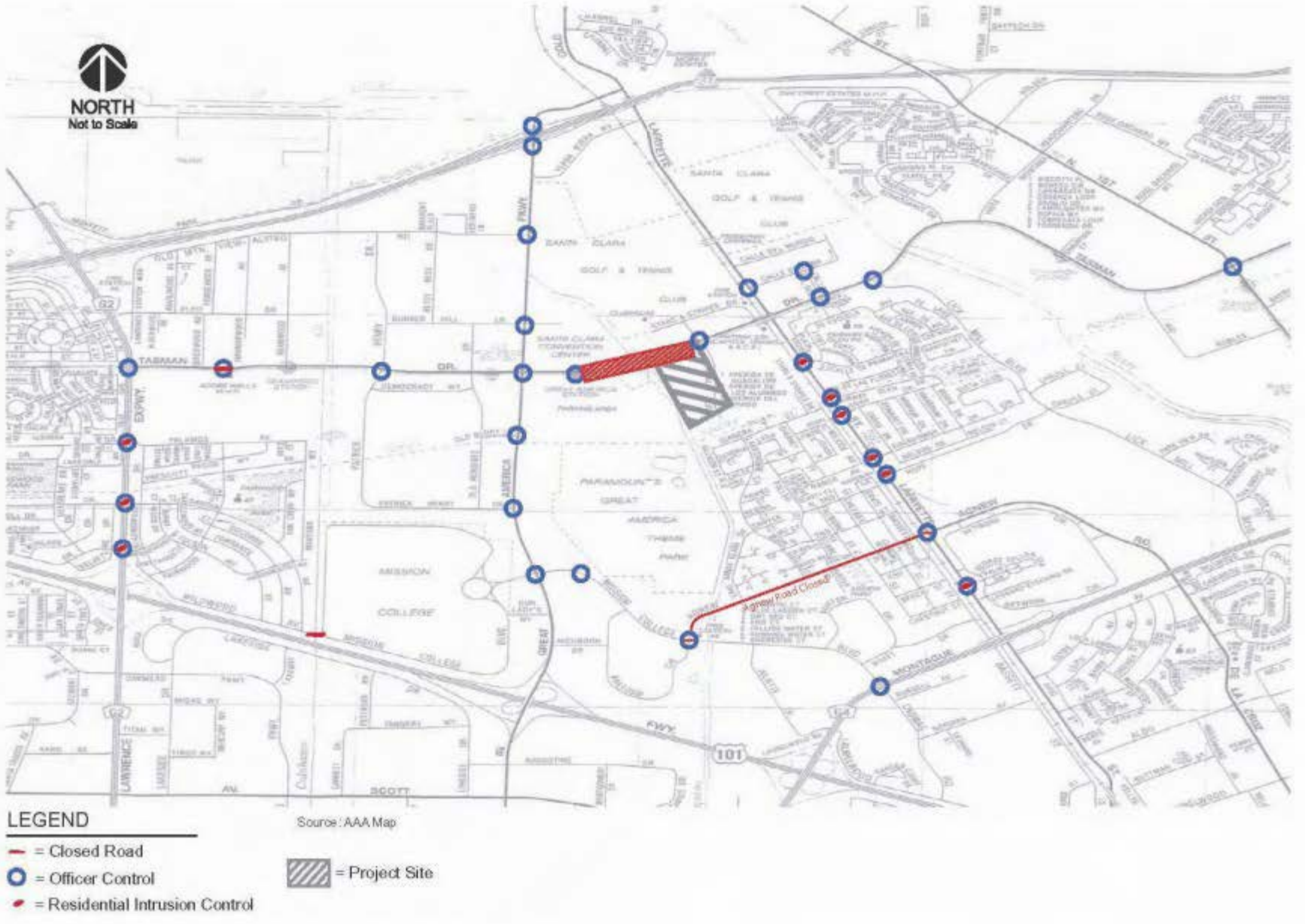
LEGEND

X = Parking Zones

= Identified Routes to Parking Zones

= Project Site

GENERAL ROUTES TO IDENTIFIED PARKING ZONES **FIGURE 60**



PLANNED ROAD CLOSURES AND INTERSECTION CONTROL

FIGURE 61

- The turn restrictions along Great America Parkway and Tasman Drive will allow for a one directional flow of inbound/outbound traffic.
- Signal timing at all intersections within the project core area will be adjusted remotely, where possible, and in the field to provide adequate green time to serve inbound/outbound stadium traffic.
- Advance message signs will be placed at several locations to notify non-stadium traffic of event and associated road closures and delays. Advance message signs will be placed along US 101 and SR 237 at Great America Parkway, and Tasman Drive at Lawrence Expressway and First Street.

The traffic analysis accounts for the proposed restriction of conflicting traffic flow along Great America Boulevard and Tasman Drive by means of a redistribution of background traffic volumes. Similarly, background traffic volumes were also redistributed in the analysis to account for the proposed temporary closure of Tasman Drive between Centennial Boulevard and the Great America parking driveway. Changes in nearby development uses, available parking locations, and residential concerns, will necessitate a re-evaluation of the TMP annually to evaluate the ongoing effectiveness of the TMP and address any concerns that may arise from implementation of the TMP.

Project Traffic Volumes

Following the steps described in the above sections, the anticipated peak hour traffic volumes for various roadways in the project condition were identified and added to each of the applicable background traffic scenarios (by city), to identify project traffic conditions throughout the area. Specific traffic volumes for project conditions are listed in Appendix B to the report in Appendix H of this EIR.

4.8.4.4 Traffic Impacts

Intersection Impacts Weekday Study Periods

Weeknight games are unlikely to occur more than four times a year, with two teams using the proposed stadium as a home field. If a single team is occupying the stadium, weeknight games are unlikely to occur more than twice a year. This is a significant difference from the typical development pattern of impacts, where traffic impacts are assumed to occur up to five times per week, all year. That, however, is the situation assumed in the thresholds of significance for traffic impacts adopted by the CMA and most cities in the County.

As described previously, the weekday project conditions analysis discloses maximum impact scenarios for each study period. The analysis is not reflective of anticipated traffic conditions that will exist with the full implementation of the proposed TMP and traffic control plan. The analysis provides an evaluation of the magnitude of effects the stadium could have on this transportation system utilizing standard traffic analysis and CEQA evaluation methods. In addition, only the arrival time (late afternoon) is quantified. The games will end long after the departure of most of the workforce from nearby office and industrial facilities. The TMP will fully govern how the stadium is emptied, and traffic will be moved along the most efficient routes to nearby freeways and regional roadways. The adopted LOS methodology cannot be used to evaluate that condition because signals would not be working, conflicting traffic movement would be excluded, and in some cases all lanes would be used for exiting traffic.

The results of the analysis show that of the 120 study intersections, the project could impact 17 intersections during at least one weekday study period (see Figures 62 to 67). The detailed impact analysis, including calculation sheets, is found in its entirety in Appendix H.

The identified quantitative thresholds would be exceeded at the following intersections, for maximum occurrences of two to four times per year (depending on whether one team or two play at the stadium):

City of Santa Clara: On weekdays (two to four times per year), the quantitative threshold would be exceeded at eight intersections in Santa Clara, two of which are CMP intersections.

3 Great America Parkway and Tasman Drive *
8 Great America Parkway and Mission College Boulevard*
14 Great America Parkway and Yerba Buena Way
15 Great America Parkway and Alviso Road
16 Great America Parkway and Bunker Hill Lane
17 Great America Parkway and Old Glory Lane
18 Great America Parkway and Patrick Henry Drive
35 Lafayette Street and Yerba Buena Way

City of San José: On weekdays (two to four times per year), the quantitative threshold would be exceeded at six intersections in San José, all of which are CMP intersections.

83 North First Street and Montague Expressway*
86 Trimble Road and Montague Expressway*
87 O'Toole Avenue and Montague Expressway*
88 Oakland Road/Main Street and Montague Expressway*
89 Trade Zone Boulevard and Montague Expressway*
93 Great America (N) and SR 237*

City of Sunnyvale: On weekdays (two to four times per year), the quantitative threshold would be exceeded at one intersection in Sunnyvale, which is a CMP intersection.

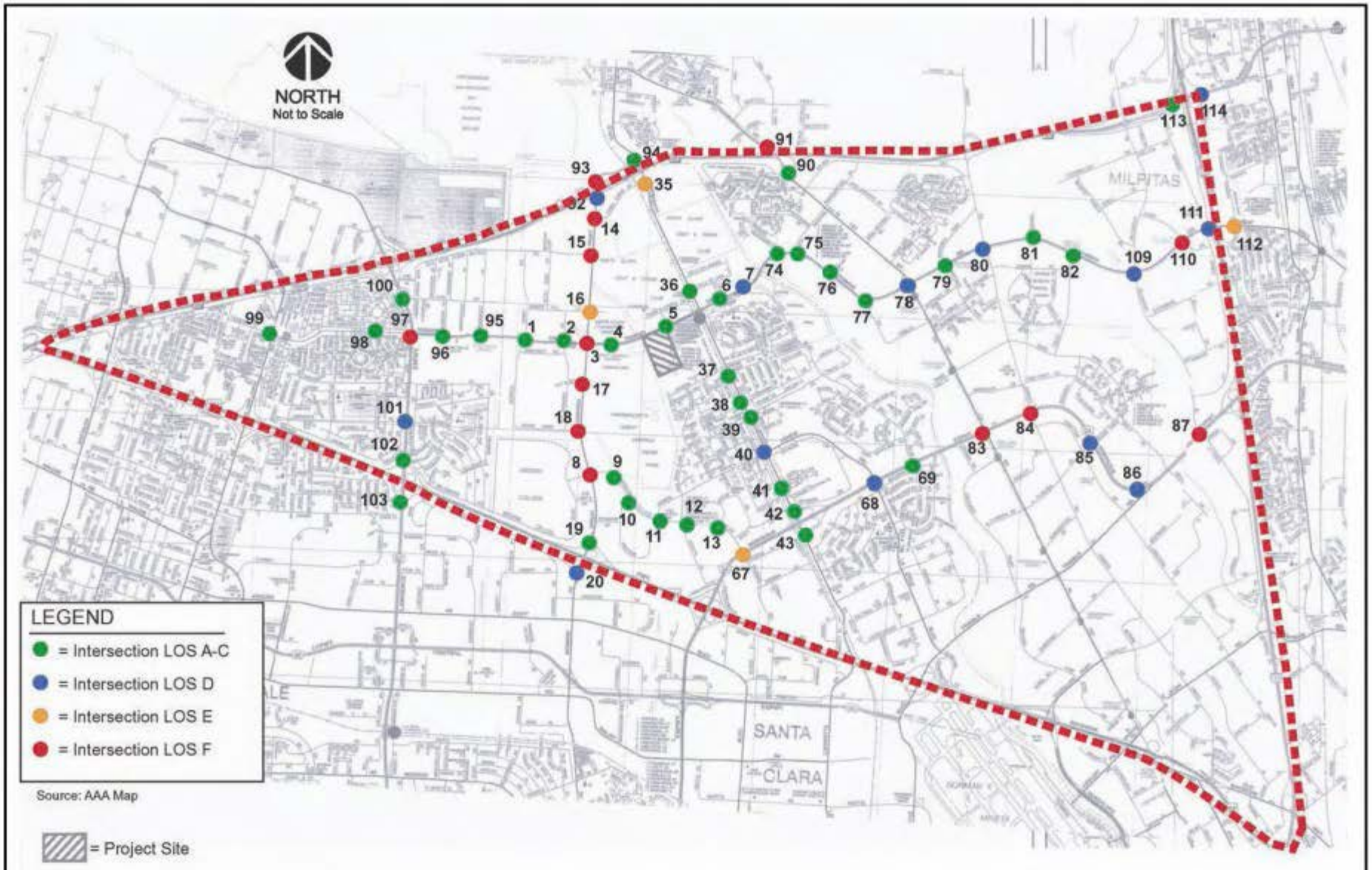
97 Lawrence Expressway and Tasman Drive*

City of Milpitas: On weekdays (two to four times per year), the quantitative threshold would be exceeded at two intersections in Milpitas, neither of which are CMP intersections.

112 I-880 NB and Tasman Drive
115 Abbott Avenue and Calaveras Boulevard

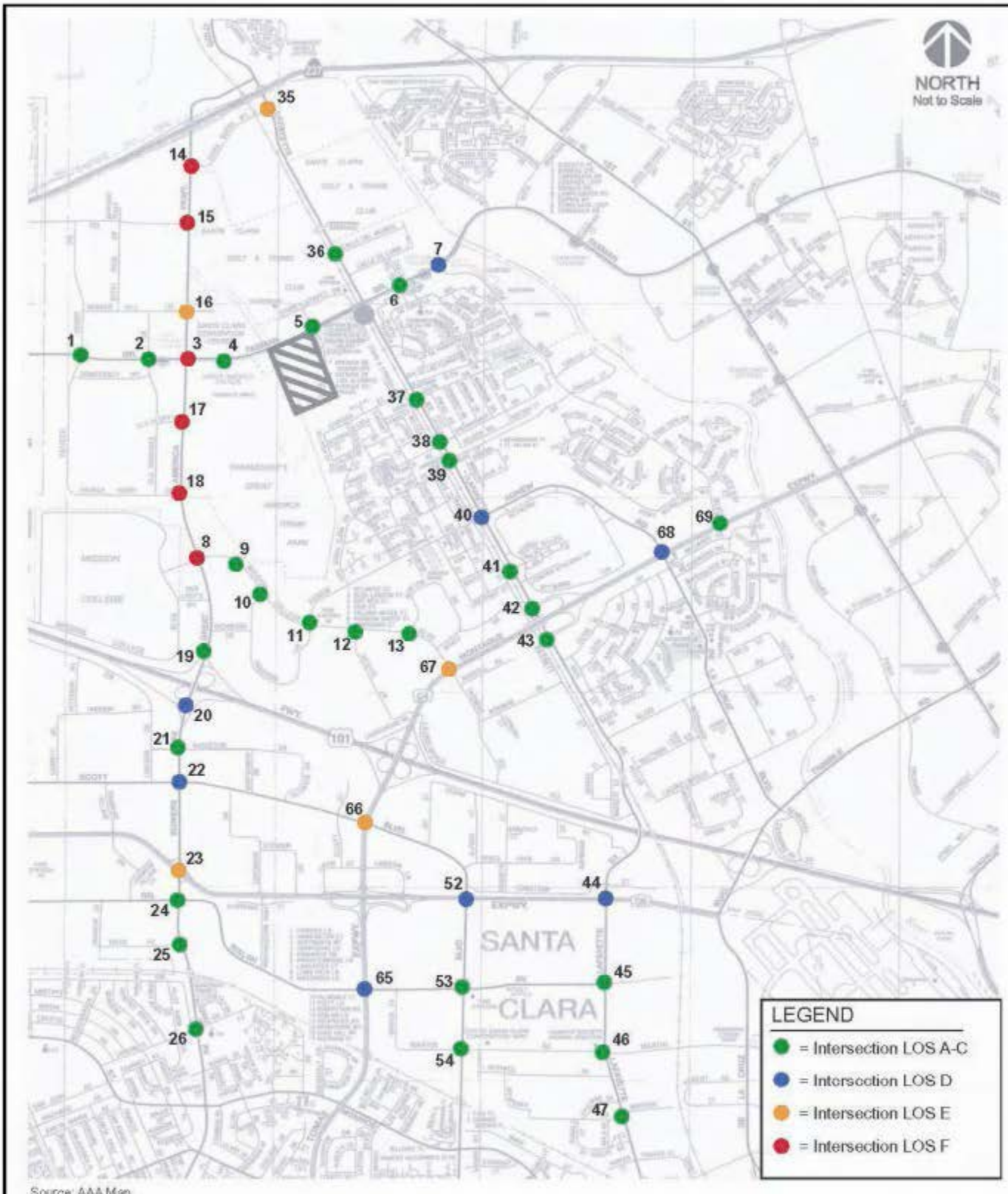
Impact TRAN-1: The project could impact 17 intersections (eight Santa Clara intersections, six San José intersections, one Sunnyvale intersection, and two Milpitas intersections) during at least one weekday study period on up to four NFL event days per year. **(Significant Impact)**

The traffic report identifies possible mitigation measures for each of the impacts, where possible. The mitigations are discussed in Section 4.8.5 of this EIR.

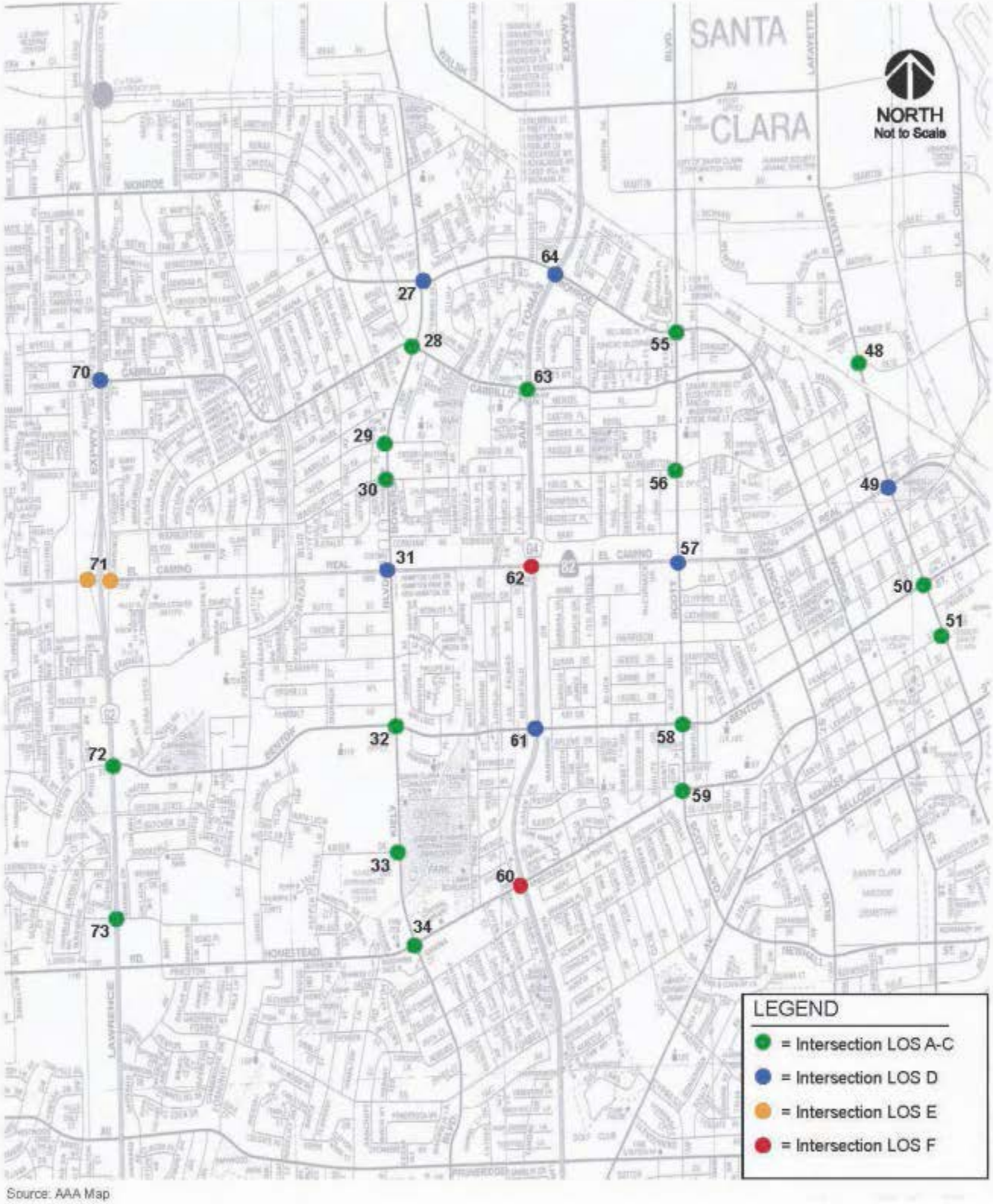


STADIUM CORE AREA WEEKDAY PROJECT
INTERSECTION LEVEL OF SERVICE CONDITIONS

FIGURE 62

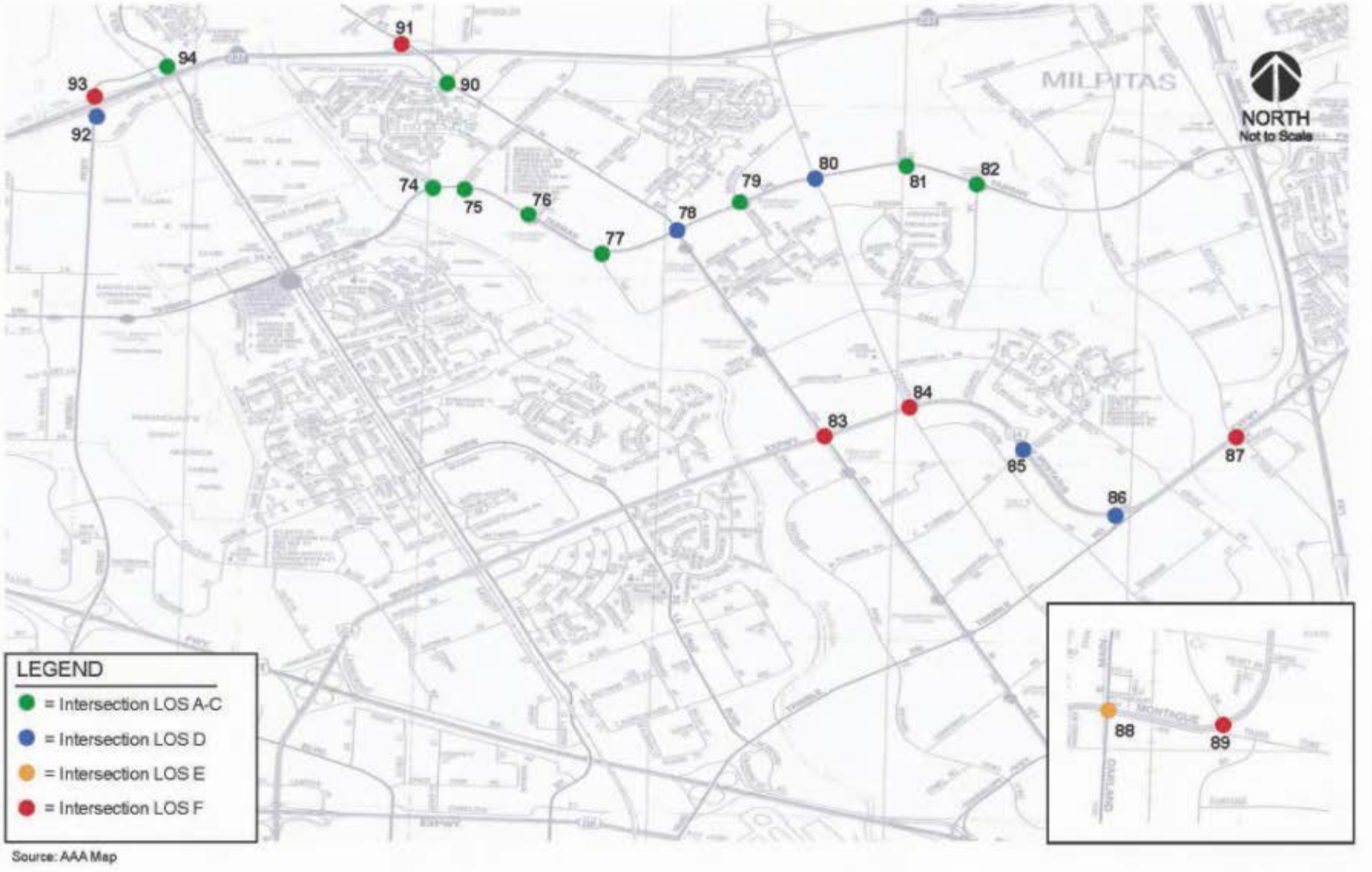


CITY OF SANTA CLARA WEEKDAY PROJECT INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 63**



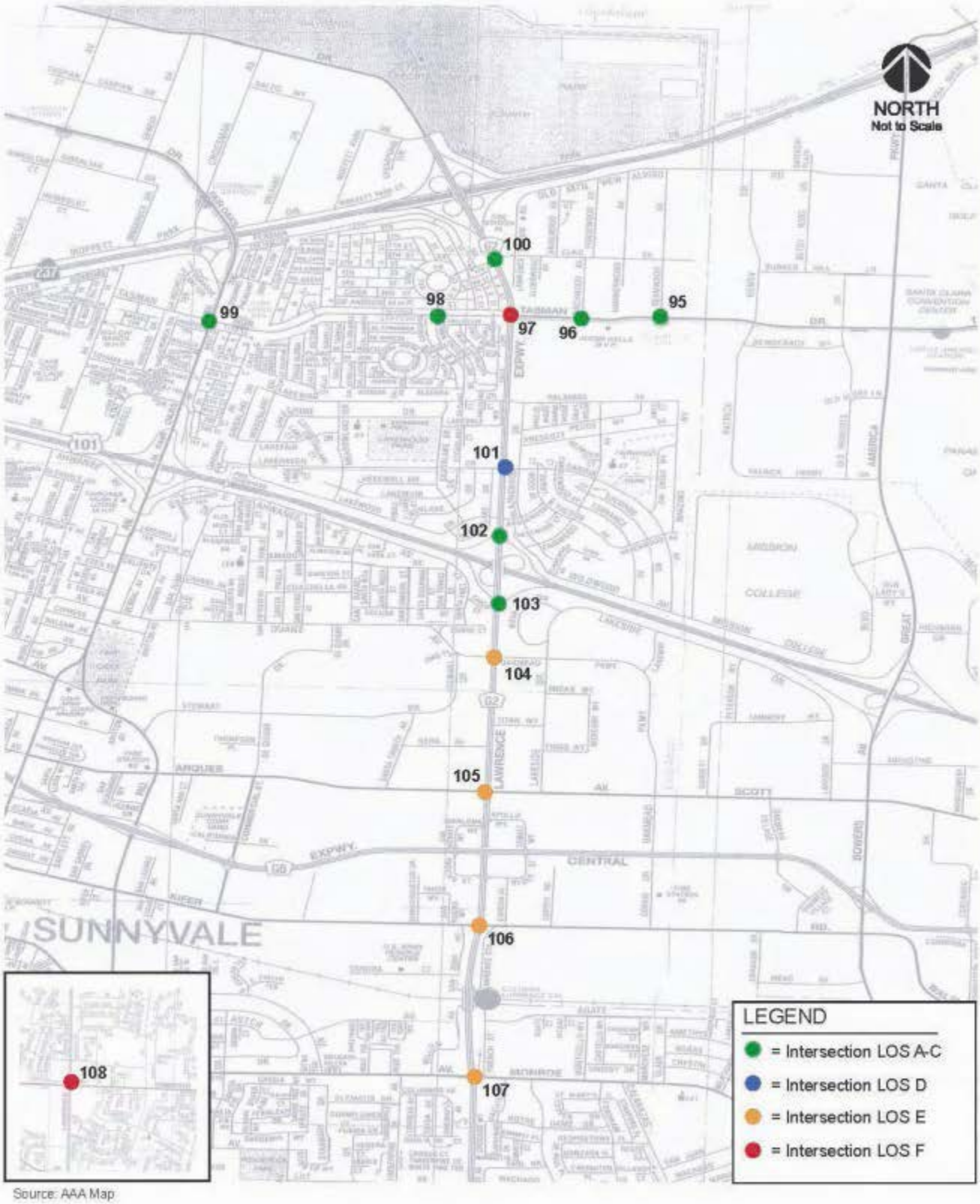
Source: AAA Map

CITY OF SANTA CLARA WEEKDAY PROJECT INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 64**



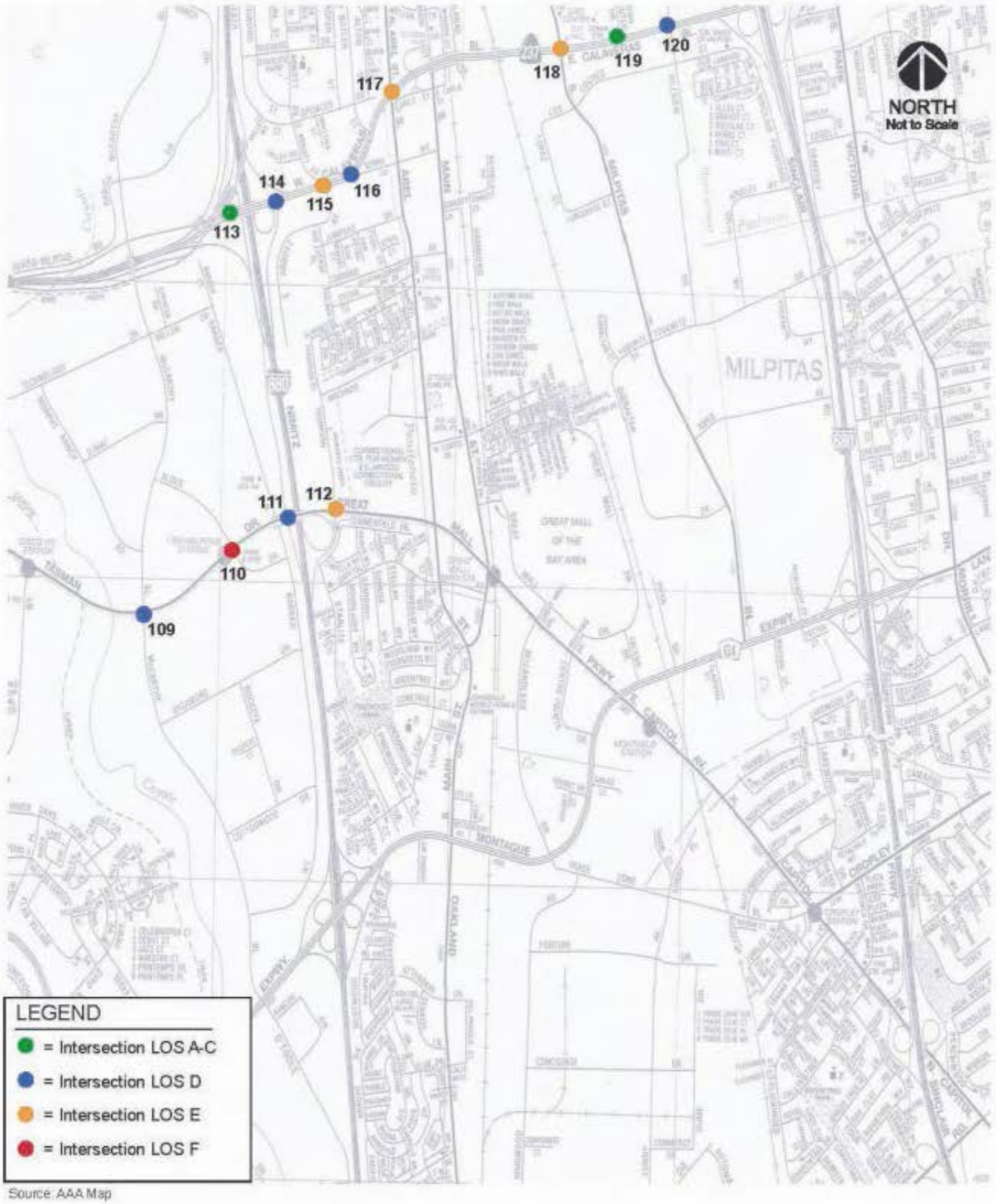
CITY OF SAN JOSE WEEKDAY PROJECT
INTERSECTION LEVEL OF SERVICE CONDITIONS

FIGURE 65



Source: AAA Map

CITY OF SUNNYVALE WEEKDAY PROJECT INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 66**



Source: AAA Map

CITY OF MILPITAS WEEKDAY PROJECT INTERSECTION LEVEL OF SERVICE CONDITIONS **FIGURE 67**

Intersection Impacts Sunday Study Periods

The Sunday intersection level of service analysis found that two of the 120 study intersections are projected to operate at unacceptable levels under project conditions during at least one of the Sunday study periods, as shown on Figure 68. A table summarizing the LOS results for all study intersections, and the calculation sheets, are located in Appendix D of the TIA which is in Appendix H of this EIR.

The project would impact both of the intersections during at least one study period according to the relevant impact criteria.

City of San José: The project would exceed the identified threshold at two San José intersections, both of which are CMP intersections, during at least one of the Sunday study periods, between eight and 20 times per year.

83 North First Street and Montague Expressway*
91 North First Street (N) and SR 237*

Impact TRAN-2: The project would impact two CMP intersections in San José during at least one weekend study period on up to 20 NFL event days per year[47]. **(Significant Impact)**

Freeway Segment Impacts Weekday Study Periods

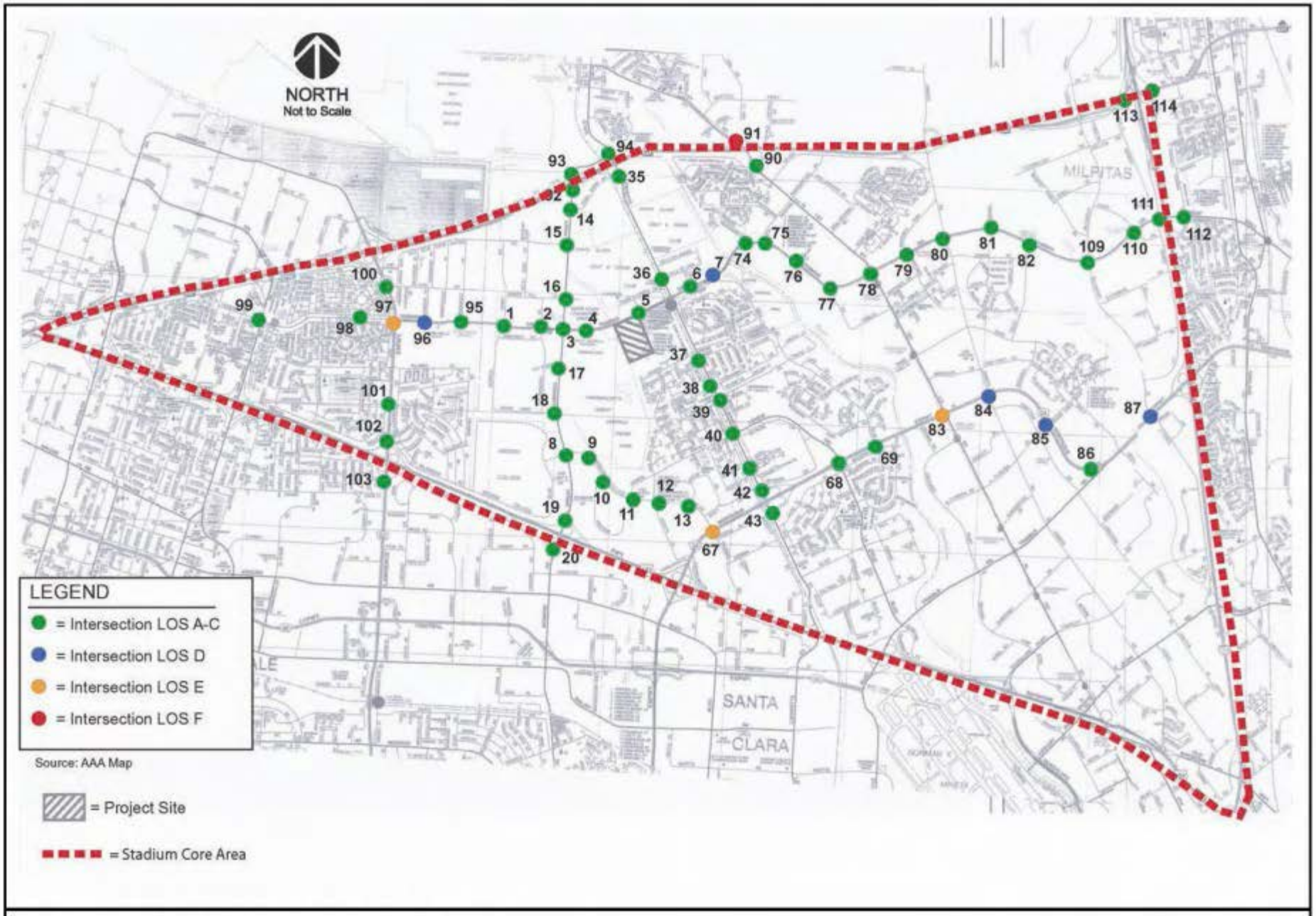
Project traffic volumes on the freeway segments were estimated by adding to existing freeway volumes the estimated project trips on freeway segments. The results show that the mixed-flow lanes on 19 of the 44 directional freeway segments analyzed would operate at an unacceptable LOS F under project conditions during at least one of the weekday study periods. The results also show that the HOV lanes on three of the 32 directional freeway segments (with HOV lanes) analyzed would operate at an unacceptable LOS F during at least one of the weekday study periods under project conditions. All other freeway segments analyzed would operate at LOS E or better during the weekday study periods.

Project traffic would constitute one percent or more of freeway segment capacity in the mixed-flow lanes on 14 of the 19 directional freeway segments that were identified as operating at LOS F, which is a significant impact if it occurs during weekday peak hours, based on adopted CMP methodology. Project traffic would also cause freeway segment operating levels to degrade from LOS E to LOS F on two additional directional freeway segments and one HOV lane.

The project would exceed the adopted quantitative threshold on the following 16 freeway segments:

US-101, DeLaCruz Boulevard to Montague Expressway (Northbound)
SR-237, North Fair Oaks Avenue to Lawrence Expressway (Eastbound)
SR-237, Lawrence Expressway to Great America Parkway (Eastbound)
SR-237, Great America Parkway to North First Street (Eastbound)
SR-237, North First Street to Zanker Road (Eastbound)
SR-237, McCarthy Boulevard to I-880 (Eastbound)

[47] If no weekday games were to be scheduled, 20 games (assuming two teams) would be held on weekends.



STADIUM CORE AREA SUNDAY PROJECT
INTERSECTION LEVEL OF SERVICE CONDITIONS

FIGURE 68

SR-237, McCarthy Boulevard to Zanker Road (Westbound)
SR-237, Zanker Road to North First Street (Westbound)
US-101, Fair Oaks Avenue to Lawrence Expressway (Southbound)
US-101, Lawrence Expressway to Great America Parkway (Southbound)
US-101, Great America Pkwy. to Montague Expwy. (Southbound)
US-101, Montague Expressway to De La Cruz Boulevard (Southbound)
US-101, De La Cruz Boulevard to SR-87 (Southbound)
US-101, SR-87 to North First Street (Southbound)
US-101, North First St. to Old Bayshore Hwy (Southbound Mixed-Flow and Northbound HOV)
US-101, Old Bayshore Highway to I-880 (Southbound)

Impact TRAN-3: For a maximum of four times per year (depending on whether one team or two plays at the stadium), the project would exceed the adopted threshold on all 16 of these directional freeway segments and one HOV lane under project conditions during at least one of the weekday study periods. **(Significant Impact)**

Freeway Segment Impacts Sunday Study Periods

Analysis of project traffic during both Sunday study periods found that all of the studied freeway segments are projected to continue to operate at LOS E or better conditions during both study periods.

Impact TRAN-4: Based on the adopted CMP criteria, the project will not have any significant adverse traffic congestion impacts on the freeways during the Sunday study periods. **(Less Than Significant Impact)**

Traffic Impacts from Non-Football Events

It is currently proposed that the stadium will also be used for non-football events throughout the year. Possible events include Moto-Cross, X-Games, concerts, soccer games, and various festivals. Larger non-football events that would require the use of off-site parking will be required to show proof of available parking which does not include the Great America main parking lot prior to approval of the summer schedule to avoid conflict with the peak season for Great America theme park. In addition, these events will be held on evenings and weekends to avoid conflict with the surrounding office/industrial land uses. Times of use for smaller events that would only utilize on-site stadium parking will not be restricted.

The traffic study does not include detailed analysis of non-football events because the attendance of the events would be significantly less than football games. Thus, the analysis of the football games provides a maximum impact evaluation of traffic impacts that could occur as a result of events held at the stadium. Table 18 lists possible non-football events and their projected attendance.

TABLE 18
Non-Football Events and Attendance

Event Type	Estimated Attendance for Entire Event	No. of Events per Year	No. of Days per Event	Estimated Parking Demand per Day
X-Games	50,000	1	4	4,500
Moto-Cross	42,500	1	1	13,005
International Soccer	40,000	2	1	12,240

TABLE 18 *Continued* Non-Football Events and Attendance				
Event Type	**Estimated Attendance for Entire Event**	**No. of Events per Year**	**No. of Days per Event**	**Estimated Parking Demand per Day**
Concerts	37,500	1	1	11,475
College Football	37,500	1	1	11,475
Festivals/Antiques Shows	25,000	8	1	9,000
College Bowl Game	25,000	1	1	7,650
Car Shows (parking lot event)	12,000	2	4	1,200
Small Events[48]	50 to 500+	250	250+	varies

Impact TRAN-5: The 17 large non-NFL events could significantly impact local intersections and freeway segments on up to four weekdays and 22 weekend days per year but to a lesser extent than NFL events. **(Significant Impact)**

4.8.4.5 Operational Traffic Conditions

Since there are no adopted thresholds of significance for operational impacts, operational impacts only become CEQA impacts when they result in a substantial hazard or inadequate emergency access. The following discussion is provided, however, for informational purposes and to give the public and decision makers a complete understanding of conditions related to stadium use.

Project Conditions Freeway Ramp Analysis

Traffic volumes for project conditions on each of the studied freeway ramps were developed by adding to existing condition volumes the project trips. The project trips were assigned to the freeway ramps in the same manner as with intersections.

Weekday Study Periods

The weekday freeway ramp analysis found that seven freeway ramps could degrade to LOS D or below with the addition of project traffic during at least one of the weekday study periods. The detailed weekday freeway ramp analysis is in Appendix H.

US 101 and Lawrence Expressway Interchange
SB US 101 off to Lawrence Expressway (standard and early PM peak hours)

US 101 and Great America Parkway Interchange
NB US 101 off to Great America Parkway (standard and early PM peak hours)
SB Great America Parkway to SB US 101 (standard PM peak hour)
SB Great America Parkway to NB US 101 (standard PM peak hour)
SB US 101 off to Great America Parkway (standard and early PM peak hours)

[48] Small events would be corporate meetings, weddings, and other private functions.

SR 237 and Great America Parkway Interchange
WB 237 off to Great America Parkway (standard and early PM peak hours)
Great America Parkway to EB SR 237 (standard PM peak hour)

All other freeway ramps analyzed would operate at LOS C or better conditions during the weekday study periods.

Sunday Study Periods

The Sunday freeway ramp analysis found that three freeway ramps will operate at LOS D or below with the addition of project traffic during at least one of the Sunday study periods. The detailed analysis of the ramps is found in Appendix H.

US 101 and Lawrence Expressway Interchange
SB US 101 off to Lawrence Expressway (early and late peak hours)

US 101 and Great America Parkway Interchange
NB US 101 off to Great America Parkway (early and late peak hours)

SR 237 and Lawrence Expressway Interchange
NB Lawrence Expressway to EB SR 237 (early peak hour)

All other freeway ramps analyzed would operate at LOS C or above during the Sunday study periods.

Arrival and Departure Roadway Capacities

There are seven major arterials that will provide ingress and egress to the stadium core area and identified parking areas. With the peak period arrival and departure vehicle trip projections of 7,369 and 12,082, respectively, there will be a large demand on the major arterials and on the freeway ramps that they serve. Table 19 shows arrival and departure stadium trips on each of the primary arterials and freeway ramps that will provide access to the stadium core area. The distribution of trips on each of the arterials and freeway ramps are based upon the routes that attendees will be encouraged to use. Critical to the efficient arrival and departure of attendees will be the dispersal of motorists to the identified access and departure routes. Signage will be used to direct motorists to appropriate exits from the freeways and to access identified parking locations. The identified routes and stadium trips are shown in Figure 69.

The projected traffic volumes indicate that the greatest demand on an arterial serving the project area will be placed on Great America Parkway. It is projected that Great America Parkway will serve approximately 1,900 vehicles per hour (vph) from the north and 1,800 vph from the south during the peak arrival hour and 2,100 vph from the north and 2,900 vph from the south during the peak departure hour. Although arterial lanes have the capacity to serve up to 1,800 vph, a lane capacity of only 1,000 vph was assumed to account for pedestrian conflicts and general driver confusion. Based upon existing capacity of the major arterials, it was calculated that it will take no longer than 45 minutes to serve arriving attendees. Since larger volumes of attendees are projected to depart during the first hour after the game it will take up to one hour and 20 minutes to serve the peak departure demand on the arterials.

Source: Google Earth

LEGEND

XX(XX) = Arrival(Departure) Project Trips

= Project Site

IDENTIFIED ROUTES AND STADIUM PROJECT TRIPS **FIGURE 69**

TABLE 19 Arrival and Departure Roadway Capacities						
Street	No. of Lanes	Capacity	Arrivals		Departures	
			Arrival Trips	Time to Dissipate (hr:min)	Departure Trips	Time to Dissipate (hr:min)
Great America Pkwy (North)	3	3000	1866	00:34.0	2109	00:42.0
Great America Pkwy (South)	3	3000	1808	00:36.0	2906	00:58.0
Tasman Drive (East)	2	2000	444	00:13.0	790	00:23.0
Tasman Drive (West)	2	2000	1279	00:38.0	2744	01:22.0
Lafayette Street (South)	2	2000	241	00:07.0	430	00:12.0
Lick Mill Boulevard	2	2000	231	00:06.0	412	00:12.0
Mission College Blvd.	2	2000	1500	00:44.0	2672	01:20.0
Totals			7,369		12,062	

Ramp volumes (see earlier discussion) indicate that the freeway ramps at the US 101/Great America Parkway and SR 237/Great America Parkway interchanges will serve the largest arrival and departure volume demands. Demand at these two interchange ramps during the peak arrival period will be approximately 1,000 vph and 1,700 vph during the peak departure period. Based upon existing ramp capacities, assuming lane capacities of 1,000 vph, it will take no longer than one hour to serve arrivals and one hour and 40 minutes to serve the peak departure demand.

Though arrival and departure demands are projected to exceed existing capacities of the most heavily utilized arterials and ramps, the congestion can be expected to dissipate rapidly after the peak demand periods, which will not last more than two hours. It is also likely that motorists will seek alternative routes when wait times at freeway off-ramps become too long. The TMP identifies measures to control the effects of diversion and maintain freeway mainline flow.

Pedestrians

With the large numbers of attendees expected for the football games and the use of essentially all parking within a 20-minute walk of the stadium, a large number of fans will be utilizing many routes through the area to get from parking to the stadium. For the most part, pedestrians will not have to cross vehicular traffic, but there are a few areas that could present a conflict between vehicles and pedestrians. The conflict points will be located at signalized intersections with crosswalks that serve as primary entry to identified parking areas. Pedestrians traveling to parking areas northwest of the stadium would cross Great America at either Tasman Drive or Bunker Hill, those traveling west and southwest of the stadium would cross Great America Parkway at Tasman Drive, Old Glory Lane, Patrick Henry Drive, or Mission College Boulevard. Each of the conflict points will be officer controlled to provide an effective flow of both vehicular and pedestrian traffic. Pedestrians traveling east of the stadium would travel along Tasman Drive and not encounter conflicts with vehicular traffic. Those traveling south of the stadium will likely utilize the San Tomas Aquino Creek trail or Great America Parkway and one of the pedestrian bridges across San Tomas Aquino Creek. Pedestrian routes and volumes are shown in Figure 70.

Source: Google Earth

LEGEND

XXX = Number of Pedestrians

= Identified Pedestrian Routes

= Project Site

PEDESTRIAN ROUTES AND VOLUMES **FIGURE 70**

Parking Control

Although parking a car on a public street is not of itself an environmental impact, a sudden large influx of vehicles into a residential neighborhood can cause impacts, including impeded access for residents and emergency vehicles, excessive noise, and hazards to pedestrians. A large enough influx could result in a substantial change to the residential character.

Uniformed officers will be responsible for the enforcement of residential parking restrictions in the stadium area. The residential areas located east of Lawrence Expressway between US 101 and Tasman Drive and west of Lafayette Street between Agnew Road and Tasman Drive could potentially be most affected by stadium parking. An officer will be positioned along with barricades at each of the access points to the neighborhoods. The neighborhoods will also be patrolled to ensure attendees do not park within the neighborhoods or violate parking restrictions. Access to the Adobe Wells mobile home park that is located on the south side of Tasman Drive is provided at Reamwood Avenue. It is likely that, during the peak hours of arrival and departure of attendees, Tasman Drive will experience congestion that could restrict access to the mobile home park. Thus, it will be necessary for officers to monitor traffic conditions and ensure that residents of the mobile home park have the ability to enter and exit the park entrance.

Given the proposed traffic control program, including residential parking control, it is not anticipated that significant impacts to the residential neighborhoods will occur as a result of spillover parking by game attendees.

Charter Bus Parking

Parking for charter buses will be permitted along Patrick Henry Drive/Old Ironsides Drive on both sides of Tasman Drive and west of Great America Parkway. There is adequate parking for up to 195 buses within the specified loop. All charter buses would remain parked for the duration of the football game. All buses would enter and exit the stadium area via Tasman Drive to the west. Traffic control for charter buses will be provided by the NFL team.

4.8.4.6 Summary of Significant Traffic and Transportation Impacts

As described above and based on adopted criteria, the project could have significant adverse impacts on 17 intersections in four cities during at least one weekday study period (on up to four NFL event days), and on two intersections during at least one Sunday study period (on up to 20 NFL event days per year). The project would also have significant impacts on 16 directional freeway segments and one HOV lane during at least one weekday study period (for a maximum of four times per year).

4.8.5 Mitigation and Avoidance Measures for Transportation Impacts

CEQA requires that an EIR identify feasible measures that minimize each significant adverse impact identified in the EIR, and that the discussion of mitigation measures shall distinguish between measures proposed by the project proponents and those not included in the project. [Guidelines §15126.4(a)(1)(A)] As identified earlier in this section, the project's impacts will not occur very often. The weekday impacts (which might occur for Monday or Thursday night games), would only occur (if at all) once or twice a year if one team occupies the stadium, up to a maximum of four times a year if two teams use the stadium. The Sunday impacts could occur up to ten times a year if one team occupies the stadium and up to 20 times a year if two teams occupy the stadium. This means that the project would only exceed the adopted LOS threshold of significance a maximum of four

times per year. For games on Sundays, the TMP will move traffic efficiently in and out of the area, will preclude access, parking and cut-through impacts to residential neighborhoods, and will allow emergency vehicle access if necessary.

The project does not, therefore, propose to implement any of the physical improvements described below. The project does propose to implement the traffic control plan described in this section. Although the traffic impacts would not occur often enough to exceed the thresholds established by the CMA, the City of Santa Clara is conservatively calling out all intersection LOS impacts as significant. Mitigation for these impacts will be fair share contributions to the physical improvements listed below which are programmed; the contribution will be proportionate to the total number of days the impacts will occur.

Mitigation Measures Identified for Weekday Study Period Impacts

City of Santa Clara Intersections Mitigation for Weekday Study Period Impacts

The level of service analysis found that 10 of the City of Santa Clara study intersections are projected to operate at LOS E or worse under project conditions during at least one of the weekday study periods. The project will significantly impact eight of those 10 intersections. Each of the impacted intersections and possible mitigation measures are described below.

(3) Great America Parkway and Tasman Drive*

Impact: The level of service would be LOS C during the early and standard weekday PM peak hours under background conditions and would degrade to LOS F during the early and standard weekday PM peak hours under project conditions. This is a significant impact by both City of Santa Clara and CMP standards.

Mitigation Measure: The improvement that could mitigate the project impact at this intersection would consist of the addition of an exclusive eastbound right-turn lane. The intersection improvement would improve intersection operating levels to LOS C and E during the early and standard weekday PM peak hours, respectively.

(8) Great America Parkway and Mission College Boulevard*

Impact: The intersection will operate at LOS D during the early weekday PM peak hour study period under background conditions and would degrade to LOS F under project conditions. The intersection would be at LOS F during the standard weekday PM peak hour under background conditions and the addition of project traffic would cause the critical-movement delay at the intersection to increase by four or more seconds and the demand- to-capacity ratio (V/C) to increase by 0.01 or more under project conditions. These are both significant impacts by both City of Santa Clara and CMP standards.

Mitigation Measure: The improvements to mitigate the project impact at this intersection would consist of the addition of a third northbound left-turn lane, third westbound left-turn lane, a fourth southbound through lane, and a separate southbound right-turn lane. The improvements will require acquisition of right-of-way that may not be feasible due to existing development. The intersection improvements would improve intersection operating levels to LOS E during both the early and standard weekday PM peak hours.

(14) Great America Parkway and Yerba Buena Way

Impact: The intersection will operate at LOS C during the standard weekday PM peak hour under background conditions and would degrade to LOS F under project conditions. This is a significant impact by City of Santa Clara standards.

Mitigation Measure: The improvement to mitigate the project impact at this intersection would consist of the addition of a second westbound left-turn lane. The intersection improvement would improve intersection operating levels to LOS D during the standard weekday PM peak hour.

(15) Great America Parkway and Alviso Road

Impact: The intersection will operate at LOS B during the early and standard weekday PM peak hours under background conditions and would degrade to LOS F during the early and standard weekday PM peak hours under project conditions. This is a significant impact by City of Santa Clara standards.

Mitigation Measure: The improvement to mitigate the project impact at this intersection would consist of the addition of second eastbound and northbound left-turn lanes and an adjustment to signal timing, using standard assumptions. The intersection improvement would improve intersection operating levels to LOS C during both the early and standard weekday PM peak hours. Since the intersection will serve as a primary entrance to identified stadium parking and will be officer controlled, the adjustment of signal timing is only necessary based upon standard intersection level of service operations. The adjustment of signal timing is not typically considered an acceptable mitigation for normal peak hour operations in the City of Santa Clara, but the unique character of the stadium traffic may require an adjustment to the signal timing.

(16) Great America Parkway and Bunker Hill Lane

Impact: The level of service will be LOS B during the standard weekday PM peak hour under background conditions and the intersection would degrade to LOS E under project conditions. This is a significant impact by City of Santa Clara standards.

Mitigation Measure: The improvement to mitigate the project impact at this intersection would consist of the addition of second westbound and northbound left-turn lanes. The improvement would require acquisition of right-of-way that may not be feasible due to existing development. The intersection widening would improve operating levels to LOS D during the standard weekday PM peak hour.

(17) Great America Parkway and Old Glory Lane

Impact: The intersection will operate at LOS B during the early and standard weekday PM peak hour study periods under background conditions and would degrade to LOS F and E during the early and standard weekday PM peak hours, respectively, under project conditions. This is a significant impact by City of Santa Clara standards.

Mitigation Measure: The improvement to mitigate the project impact at this intersection would be an adjustment of signal timing under standard assumptions. Changing the signal timing would improve intersection operating levels to LOS D and B during the early and standard weekday PM peak hours, respectively. Since the intersection will serve as a primary entrance to identified stadium

parking and will be officer controlled, the adjustment of signal timing would not be necessary under project conditions.

(18) Great America Parkway and Patrick Henry Drive

Impact: The intersection will operate at LOS C during the early weekday PM peak hour under background conditions and would degrade to LOS F under project conditions. The level of service would be LOS F during the standard weekday PM peak hour under background conditions and the addition of project traffic would cause the critical-movement delay at the intersection to increase by four or more seconds and the demand- to-capacity ratio (V/C) to increase by 0.01 or more under project conditions. This is a significant impact by City of Santa Clara standards.

Mitigation Measure: The improvement to mitigate the project impact at this intersection would consist of the addition of a second northbound left-turn lane, a fourth southbound through lane, and a second eastbound right-turn lane. The additional lanes would improve intersection operating levels to LOS E and D during the early and standard weekday PM peak hours, respectively. Although the added lanes will improve the level of service, the intersection will continue to operate at LOS E during the early weekday PM peak hour. There are no further feasible improvements that can be made at the intersection. This intersection will serve as a primary entrance to identified stadium parking and will be officer controlled.

(35) Lafayette Street and Yerba Buena Way

Impact: The level of service would be LOS D during the standard weekday PM peak hour under background conditions and the intersection would degrade to LOS E under project conditions. This is a significant impact by City of Santa Clara standards.

Mitigation Measure: The improvement to mitigate the project impact at this intersection would be the signalization of the intersection. The intersection improvement would improve intersection operating levels to LOS C during the standard weekday PM peak hour.

City of San José Intersections Mitigation for Weekday Study Period Impacts

The level of service analysis found that seven of the City of San José study intersections are projected to operate at LOS E or worse under project conditions during at least one of the weekday study periods. The project will impact six of those seven intersections. Each of the impacted intersections and possible mitigation measures are described below.

(83) North First Street and Montague Expressway*

Impact: The level of service at this intersection would be LOS F during the early and standard weekday PM peak hour under background conditions and the addition of project traffic would cause the critical-movement delay at the intersection to increase by four or more seconds and the demand-to-capacity ratio (V/C) to increase by 0.01 or more during the standard peak hour under project conditions during both study periods. This is a significant impact by both City of San José and CMP standards.

Mitigation Measure: The improvement remaining for this intersection is the widening of Montague Expressway to eight lanes as identified in the County's Expressway Study and in the North San Jose Development Policy. The widening to eight mixed-flow lanes (for part of the

expressway length that would involve converting HOV lanes to mixed-flow) would improve intersection operating levels, but the intersection will continue to operate at LOS F, with or without project traffic. There are no further feasible improvements that can be made at the intersection.

Developments in North San José are being assessed for the coast of implementing this improvement and others in the area. Recent development proposals outside North San José (e.g., in Milpitas and Santa Clara) have proposed to make fair share contributions to improvements at regional intersections where the development will have a significant impact.

(84) Zanker Road and Montague Expressway*

Impact: The level of service would be LOS E and F during the early and standard weekday PM peak hours respectively, under background conditions and the addition of project traffic would cause the demand-to-capacity ratio (V/C) to increase by 0.01 or more under project conditions during both study periods. This is a significant impact by both City of San Jose and CMP standards.

Mitigation Measure: The only improvement remaining for this intersection is the widening of Montague Expressway to eight lanes as identified in the County's Expressway Study and in the North San José Development Policy. The widening to eight mixed-flow lanes (for part of the expressway length that would involve concerting HOV lanes to mixed flow) would improve intersection operating levels, but the intersection will continue to operate at LOS F, with or without project traffic. There are no further feasible improvements that can be made at the intersection.

Developments in North San José are being assessed for the coast of implementing this improvement and others in the area. Recent development proposals outside North San José (e.g., in Milpitas and Santa Clara) have proposed to make fair share contributions to improvements at regional intersections where the development will have a significant impact.

(87) O'Toole Avenue and Montague Expressway*

Impact: The level of service would be LOS F during the standard weekday PM peak hours under background conditions, and the addition of project traffic would cause the demand- to-capacity ratio (V/C) to increase by 0.01 or more under project conditions. This is a significant impact by both City of San Jose and CMP standards.

Mitigation Measure: The only improvement remaining for this intersection is the widening of Montague Expressway to eight lanes as identified in the County's Expressway Study and in the North San José Development Policy. The widening to eight mixed-flow lanes (for part of the expressway length that would involve concerting HOV lanes to mixed flow) would improve intersection operating levels, but the intersection will continue to operate at LOS F, with or without project traffic. There are no further feasible improvements that can be made at the intersection.

Developments in North San José are being assessed for the coast of implementing this improvement and others in the area. Recent development proposals outside North San José (e.g., in Milpitas and Santa Clara) have proposed to make fair share contributions to improvements at regional intersections where the development will have a significant impact.

(89) Trade Zone Boulevard and Montague Expressway*

Impact: The level of service would be LOS E during the early weekday PM peak hours under background conditions and the addition of project traffic would cause the demand-to-capacity ratio (V/C) to increase by 0.01 or more under project conditions. This constitutes a significant impact by City of San José standards.

Mitigation Measure: The only improvement remaining for this intersection is the widening of Montague Expressway to eight lanes as identified in the County's Expressway Study and in the North San José Development Policy. The widening to eight mixed-flow lanes (for part of the expressway length that would involve concerting HOV lanes to mixed flow) would improve intersection operating levels, but the intersection will continue to operate at LOS F, with or without project traffic. There are no further feasible improvements that can be made at the intersection.

Developments in North San José are being assessed for the coast of implementing this improvement and others in the area. Recent development proposals outside North San José (e.g., in Milpitas and Santa Clara) have proposed to make fair share contributions to improvements at regional intersections where the development will have a significant impact.

(91) North First Street (N) and SR 237*

Impact: The level of service would be LOS F during the standard weekday PM peak hour under background conditions and the addition of project traffic would cause the critical-movement delay at the intersection to decrease and the demand-to-capacity ratio (V/C) to increase by 0.01 or more under project conditions. This constitutes a significant impact by both City of San José and CMP standards.

Mitigation Measure: The necessary improvement to mitigate the project impact at this intersection would consist of the addition of an exclusive southbound right-turn lane. The intersection improvement would improve intersection operating levels to LOS E during the standard weekday PM peak hour, which is better than background.

(93) Great America and SR 237 (North)*

Impact: The level of service would be LOS C during the standard weekday PM peak hour under background conditions and the intersection would degrade to LOS F under project conditions. This is a significant impact by both City of San José and CMP standards.

Mitigation Measure: The improvement to mitigate the project impact at this intersection would be the addition of a third westbound left-turn lane. The improvement will require acquisition of right-of-way, and may not be feasible. The improvement would result in better intersection operating levels, but the intersection will continue to operate at LOS E. There are no further feasible improvements that can be made at the intersection.

City of Sunnyvale Intersection Impacts Weekday Study Periods

The weekday level of service analysis found that one City of Sunnyvale/CMP study intersection is projected to operate at LOS E or worse under project conditions during both of the weekday study

periods. The project will significantly impact that CMP intersection. The availability of mitigation measures are described below.

(97) Lawrence Expressway and Tasman Drive*

Impact: The level of service would be LOS E during the standard weekday PM peak hour under background conditions and the intersection would degrade to LOS F under project conditions. This constitutes a significant impact by CMP standards.

Mitigation Measure: There are no feasible improvements that can be made at the intersection due to insufficient right-of-way. Traffic control at the intersection as identified in the TMP will maintain efficient operations.

City of Milpitas Intersection Impacts Weekday Study Periods

The weekday level of service analysis shows that two of the three City of Milpitas study intersections are projected to operate at LOS E under project conditions during one of the weekday study periods. The project will impact two of those intersections. Each of the impacted intersections are described below, as is appropriate mitigation.

(112) I-880 Northbound and Tasman Drive

Impact: The level of service would be LOS D during the standard weekday PM peak hour under background conditions and the intersection would degrade to LOS E under project conditions. This is a significant impact by City of Milpitas standards.

Mitigation Measure: The improvement to mitigate the project impact at this intersection would be the addition of a second westbound left-turn lane. The additional lane would improve intersection operating levels to LOS D during the standard weekday PM peak hour.

(115) Abbott Avenue and Calaveras Boulevard

Impact: The level of service would be LOS D during the standard weekday PM peak hour under background conditions and the intersection would degrade to LOS E under project conditions. This is a significant impact by City of Milpitas standards.

Mitigation Measure: The planned improvement that would mitigate the project impact at this intersection would be the addition of a fourth westbound through lane. The City of Milpitas has plans to widen Calaveras Boulevard to eight lanes between Abbott Avenue and Milpitas Boulevard. A traffic impact fee has been implemented to fund the planned widening. Developments that impact intersections along this segment of Calaveras Boulevard are required to pay a fee of $2,500 per PM peak hour trip. The planned intersection improvement would improve operating levels to LOS D during the standard weekday PM peak hour.

Mitigation Measures Identified for Sunday Study Period Impacts

Two of the intersections in San José will operate at LOS E during one or more Sunday study periods, with the addition of project traffic. LOS E is considered acceptable for CMP intersections by most jurisdictions, including the CMA. One intersection, North First Street (North)/SR 237, is already operating at LOS F on Sundays during the earlier study period. The changed conditions of all three

intersections are considered significant impacts by City of San José policy when applied to weekday peak hours.

The two Sunnyvale intersections will continue to operate within their capacities, even with the increased congestion. The degradation in LOS is considered a significant impact by City of Sunnyvale policy when applied to weekday peak hours.

The typical LOS analysis in Santa Clara County is done for peak hour traffic on weekdays. Because it is unusual to evaluate traffic impacts on a Sunday, relevant jurisdictions have not addressed weekend conditions in adopted policies, and the thresholds of significance only relate to peak hour weekday impacts. The analysis above identifies the increase in congestion that could occur on Sundays, but there are no policies in place that require mitigation of congestion impacts on Sunday. To add capacity improvements for off-peak impacts would create over-built intersections that would likely have unwanted secondary impacts.

The consulting traffic engineer also believes that the congestion at these intersections can be adequately managed by the traffic control plan measures (including officers at the intersections).

4.8.6 Conclusion

For possibly as many as eight times a year (four times for NFL events and four times for large non-NFL events that would occur on weeknights), the project could have a significant impact on up to 17 intersections during a weekday evening. Of those 17 intersections eight are in Santa Clara, six are in San José, one is in Sunnyvale, and two are in Milpitas. **(Significant Unavoidable Impact)**

On a maximum of 42 weekend days per year, the project could have a significant impact on up to two local intersections. Both intersections are in San José. This includes 20 NFL events and 17 non-NFL large events (some of which occur over multiple days). **(Significant Unavoidable Impact)**

For possibly as many as eight times a year, the project could have significant impacts on up to 17 freeway segments during a weekday evening. **(Significant Unavoidable Impact)**

4.9 AIR QUALITY

The information provided in this section is based on an air quality analysis prepared by *Illingworth & Rodkin* in January 2009. The complete report is provided in Appendix J.

4.9.1 Existing Setting

Air quality is determined by the concentration of various pollutants in the atmosphere. Units of concentration are expressed in parts per million (ppm) or micrograms per kilograms ($\mu g/m^3$).

The amount of a given pollutant in the atmosphere is determined by the amount of pollutants released within an area, transport of pollutants to and from surrounding areas, local and regional meteorological conditions, and the surrounding topography of the air basin. The major determinants of transport and dilution are wind, atmospheric stability, terrain and, for photochemical pollutants, sun light.

Santa Clara is located in the southern portion of the San Francisco Bay Area Air Basin. The proximity of this location to both the Pacific Ocean and San Francisco Bay has a moderating influence on the climate. Northwest winds and northerly winds are most common in the project area, reflecting the orientation of the Bay and the San Francisco Peninsula. Winds from these directions carry pollutants released by autos and factories from upwind areas of the Peninsula toward Santa Clara, particularly during the summer months. Winds are lightest on average in fall and winter. Every year in fall and winter there are periods of several days when winds are very light and local pollutants can build up.

Air quality standards for ozone are typically exceeded when relatively stagnant conditions occur for periods of several days during the warmer months of the year. Weak wind flow patterns combined with strong inversions substantially reduce normal atmospheric mixing. Key components of ground-level ozone formation are sunlight and heat. Significant ozone formation, therefore, only occurs during the months from late spring through early fall. Prevailing winds during the summer and fall can transport and trap ozone precursors from the more urbanized portions of the Bay Area. Meteorological factors make air pollution potential in the Santa Clara Valley quite high.

Pollutants can be diluted by mixing in the atmosphere both vertically and horizontally. Vertical mixing and dilution of pollutants are often suppressed by inversion conditions, when a warm layer of air traps cooler air close to the surface. During the summer, inversions are generally elevated above ground level, but are present over 90 percent of the time in both the morning and afternoon. In winter, surface-based inversions dominate in the morning hours, but frequently dissipate by afternoon.

Topography can restrict horizontal dilution and mixing of pollutants by creating a barrier to air movement. The South Bay has significant terrain features that affect air quality. The Santa Cruz Mountains and Hayward Hills on either side of the South Bay restrict horizontal dilution, and this alignment of the terrain also channels winds from the north to south, carrying pollution from the northern Peninsula toward San José.

The combined effects of moderate ventilation, frequent inversions that restrict vertical dilution and terrain that restricts horizontal dilution give Santa Clara a relatively high atmospheric potential for pollution compared to other parts of the San Francisco Bay Air Basin and provide a high potential for transport of pollutants to the east and south.

4.9.1.1 Overall Regulatory Setting

The significance of a pollutant concentration is determined by comparing the pollutant levels to an appropriate ambient air quality standard. The standards set the level of pollutant concentrations allowable while protecting general public health and welfare.

The Federal Clean Air Act (CAA) establishes pollutant thresholds for air quality in the United States. In addition to being subject to Federal requirements, California has its own more stringent regulations under the California Clean Air Act (CAA). At the Federal level, the U.S. Environmental Protection Agency (EPA) administers the CAA. The California CAA is administered by the California Air Resources Board (CARB) at the State level and by the Air Quality Management Districts at the regional and local levels. The Bay Area Air Quality Management District (BAAQMD) regulates air quality in the nine-county Bay Area.

The U.S. EPA is responsible for establishing the National Ambient Air Quality Standards (NAAQS) which are required under the CAA. The U.S. EPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. The agency also established various emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission standards established by CARB.

California Air Resources Board

As stated above, CARB (which is part of the California EPA) is responsible for meeting the state requirements of the Federal CAA, administering the California CAA, and establishing the California Ambient Air Quality Standards (CAAQS). The California CAA requires all air districts in the State to achieve and maintain CAAQS. CARB regulates mobile air pollution sources such as motor vehicles. The agency is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB has established passenger vehicle fuel specifications and oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional and county level. CARB also conducts or supports research into the effects of air pollution on the public and develops approaches to reduce air pollutant emissions.

Bay Area Air Quality Management District

The Bay Area Air Quality Management District (BAAQMD) is primarily responsible for assuring that the National and State ambient air quality standards are attained and maintained in the Bay Area. These ambient air quality standards are levels of contaminants which represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. Table 20 identifies the major criteria pollutants, characteristics, health effects, and typical sources.

TABLE 20 Major Criteria Pollutants			
Pollutant	**Characteristics**	**Health Effects**	**Major Sources**
Ozone	A highly reactive photochemical pollutant created by the action of sun light on ozone precursors. Often called photochemical smog.	- Eye Irritation - Respiratory function impairment	The major sources of ozone precursors are combustion sources such as factories and automobiles, and evaporation of solvents and fuels.
Carbon Monoxide	Carbon monoxide is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels.	- Impairment of oxygen transport in the bloodstream - Aggravation of cardiovascular disease - Fatigue, headache, confusion, dizziness - Can be fatal in the case of very high concentrations	Automobile exhaust, combustion of fuels, combustion of wood in wood stoves and fireplaces.
Nitrogen Dioxide	Reddish-brown gas that discolors the air, formed during combustion.	- Increased risk of acute and chronic respiratory disease	Automobile and diesel truck exhaust, industrial processes, and fossil-fueled power plants.
Sulfur Dioxide	Sulfur dioxide is a colorless gas with a pungent, irritating odor.	- Aggravation of chronic obstruction lung disease - Increased risk of acute and chronic respiratory disease	Diesel vehicle exhaust, oil-powered power plants, and industrial processes.
Particulate Matter	Solid and liquid particles of dust, soot, aerosols and other matter that are small enough to remain suspended in the air for a long period of time.	- Aggravation of chronic disease and heart/lung disease symptoms	Combustion, automobiles, field burning, factories and unpaved roads. Also a result of photochemical processes.

BAAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutant, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, and many other associated activities. BAAQMD has jurisdiction over much of the nine-county Bay Area counties including Santa Clara County.

National and State Ambient Air Quality Standards

The ambient air quality in a given area depends on the quantities of pollutants emitted within the area, transport of pollutants to and from the surrounding area, local and regional meteorological conditions, and the surrounding topography of the air basin. Air quality is described by the concentration of various pollutants in the atmosphere. The significance of the pollutant concentration is determined by comparing the concentration to an appropriate ambient air quality standard. The standards represent the allowable pollutant concentrations designed to ensure that the

public health and welfare are protected, while including a reasonable margin of safety to protect the more sensitive individuals in the population.

A required by the Federal CAA, the NAAQS have been established for six major air pollutants; carbon monoxide (CO), nitrogen oxides (NO_x), ozone (O_3), respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), sulfur oxides, and lead. Pursuant to the California CAA, the State of California has also established ambient air quality standards. The CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for pollutants such as sulfates, hydrogen sulfide, vinyl chloride and visibility reducing particles. Both State and Federal standards are summarized in Table 21. The "primary" standards have been established to protect the public health. The "secondary" standards are intended to protect the nation's welfare and account for adverse air pollutant effects on soil, water, visibility, materials, vegetation and other aspects of the general welfare. Because CAAQS are more stringent than NAAQS, CAAQS are used as the comparative standard in this analysis.

TABLE 21
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	
			Primary	Secondary
Ozone	8-hour	0.070 ppm	0.075 ppm	---
	1-hour	0.09 ppm	---	---
Carbon monoxide	8-hour	9.0 ppm	9 ppm	---
	1-hour	20 ppm	35 ppm	---
Nitrogen dioxide	Annual	0.03 ppm	0.053 ppm	Same as primary
	1-hour	0.18 ppm	0.030 ppm	---
Sulfur dioxide	Annual	---	0.03 ppm	---
	24-hour	0.04 ppm	0.14 ppm	---
	3-hour	---	---	0.5 ppm
	1-hour	0.25 ppm	---	---
PM_{10}	Annual	20 $\mu g/m^3$	---	---
	24-hour	50 $\mu g/m^3$	150 $\mu g/m^3$	Same as primary
$PM_{2.5}$	Annual	12 $\mu g/m^3$	15 $\mu g/m^3$	---
	24-hour	---	35 $\mu g/m^3$	---
Lead	Calendar Quarter	---	1.5 $\mu g/m^3$	Same as primary
	30-day average	1.5 $\mu g/m^3$	---	---

Regional Clean Air Plans

The BAAQMD and other agencies prepare clean air plans in response to the State and Federal CAA. The City of Santa Clara also has General Plan policies that encourage development that reduces air quality impacts. In addition, BAAQMD has developed CEQA Guidelines to assist local agencies in evaluating and mitigating air quality impacts. Regional clean air plans include the 2001 Ozone Attainment Plan, the 1991 Clean Air Plan (updated in 2006 as the Bay Area 2005 Ozone Strategy), and the PM_{10} & $PM_{2.5}$ Plans. A detailed description of each of these plans is provided in Section 3.0, *Consistency with Plan and Policies.*

4.9.1.2 Existing Air Quality Conditions

Air quality studies generally focus on five pollutants that are most commonly measured and regulated: carbon monoxide (CO), ground level ozone, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and suspended particulate matter (PM_{10} and $PM_{2.5}$). In Santa Clara County, ozone and particulate matter are the pollutants of greatest concern since measured air pollutant levels exceed these concentrations at times.

Carbon Monoxide

Carbon monoxide, a colorless and odorless gas, interferes with the transfer of oxygen to the brain. It can cause dizziness and fatigue, and can impair central nervous system functions. Highest carbon monoxide concentrations measured in the South Bay Area have been well below the national and state ambient standards. Since the primary source of carbon monoxide is automobiles, highest concentrations would be found near congested roadways that carry large volumes of traffic. Carbon monoxide emitted from a vehicle is highest near the origin of a trip and considerably lower once the automobile is warmed up (usually five to ten minutes into a trip). This is different, however, for vehicles of different ages, where older cars require a longer warm up period. A vehicle sitting idle for over an hour is normally considered to return to a cold start mode. Vehicles near the origin of a trip are considered to be in cold start mode. Vehicle operation on freeways is usually in a warmed up mode so the individual emission rates are much lower than those encountered on arterial roadways leading to the freeway.

Ozone

While ozone serves a beneficial purpose in the upper atmosphere (stratosphere) by reducing ultraviolet radiation, when it reaches elevated concentrations in the lower atmosphere it can be harmful to the human respiratory system and to sensitive species of plants. O_3 concentrations build to peak levels during periods of light winds, bright sunshine, and high temperatures. Short-term O_3 exposure can reduce lung function in children, make persons susceptible to respiratory infection, and produce symptoms that cause people to seek medical treatment for respiratory distress. Long-term exposure can impair lung defense mechanisms and lead to emphysema and chronic bronchitis. Sensitivity to O_3 varies among individuals, but about 20 percent of the population is sensitive to O_3, with exercising children being particularly vulnerable. O_3 is formed in the atmosphere by a complex series of photochemical reactions that involve "ozone precursors" that are two families of pollutants: oxides of nitrogen (NOx) and reactive organic gases (ROG). NO_x and ROG are emitted from a variety of stationary and mobile sources. While NO_2, an oxide of nitrogen, is another criteria pollutant itself, ROGs are not in that category, but are included in this discussion as O_3 precursors. The U.S. EPA recently established a new more stringent standard of 0.75 ppm for 8-hour exposures, based on a review of the latest new scientific evidence.

Nitrogen Dioxide

Nitrogen dioxide (NO_2), a reddish-brown gas, irritates the lungs. Exposure to NO_2 can cause breathing difficulties at high concentrations. Clinical studies suggest that NO_2 exposure to levels near the current standard may worsen the effect of allergens in allergic asthmatics, especially in children. Similar to ozone, NO_2 is not directly emitted, but is formed through a reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as nitrogen oxides (NO_x) and are major contributors to ozone formation. NO_x is emitted from combustion of fuels, with higher rates at higher combustion temperatures. NO_2 also contributes to the formation of

PM_{10} (see discussion of PM_{10} below). Monitored levels in the Bay Area are well below ambient air quality standards.

Sulfur Oxides

Sulfur oxides, primarily SO_2, are a product of high-sulfur fuel combustion. The main sources of SO_2 are coal and oil used in power stations, in industries, and for domestic heating. SO_2 is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children. SO_2 concentrations are at levels well below the State and national standards, but further reductions in emissions are needed to attain compliance with standards for PM_{10}, to which SO_2 is a contributor.

PM_{10} and $PM_{2.5}$

Respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$) consist of particulate matter that is ten microns or less in diameter and 2.5 microns or less in diameter, respectively. PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled and cause adverse health effects. PM_{10} and $PM_{2.5}$ are a health concern, particularly at levels above the federal and State ambient air quality standards. $PM_{2.5}$ (including diesel exhaust particles) is thought to have greater effects on health because minute particles are able to penetrate to the deepest parts of the lungs. Scientific studies have suggested links between fine particulate matter and numerous health problems including asthma, bronchitis, acute and chronic respiratory symptoms such as shortness of breath and painful breathing. Children are more susceptible to the health risks of $PM_{2.5}$ because their immune and respiratory systems are still developing. Very small particles of certain substances (e.g., sulfates and nitrates) can also directly cause lung damage or can contain absorbed gases (e.g., chlorides or ammonium) that may be injurious to health.

PM_{10} and $PM_{2.5}$ pose a greater health risk than larger particles because these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract, increasing the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Whereas larger particles tend to collect in the upper portion of the respiratory system, $PM_{2.5}$ are miniscule and can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle, as well as produce haze and reduce regional visibility. The U.S. EPA recently adopted a new more stringent standard of 35 $\mu g/m^3$ for 24-hour exposures based on a review of the latest scientific evidence. At the same time, U.S. EPA revoked the annual PM_{10} standard due to a lack of scientific evidence correlating long-term exposures of ambient PM_{10} with adverse health effects. Most stations in the Bay Area reported exceedances of the State standard on the same fall/winter days as reported in the South Bay. This indicates a regional air quality problem.

The primary sources of these pollutants are wood smoke and local traffic. Meteorological conditions that are common during this time of the year result in calm winds and strong surface-based inversions that trap pollutants near the surface. The buildup of these pollutants is greatest during the evenings and early morning periods. The high levels of PM_{l0} result in not only health effects, but also reduced visibility.

Toxic Air Contaminants (TAC)

Besides the "criteria" air pollutants, there is another group of substances found in ambient air referred to as Hazardous Air Pollutants (HAPs) under the Federal CAA and Toxic Air Contaminants (TACs)

under the California CAA. These contaminants tend to be localized and are found in relatively low concentrations. They can, however, result in adverse chronic health effects if exposure to low concentrations occurs for long periods. They are regulated at the local, State, and federal level.

HAPs are the air contaminants identified by the U.S. EPA as known or suspected to cause cancer, serious illness, birth defects, or death. Many of these contaminants originate from human activities, such as fuel combustion and solvent use. Mobile source air toxics (MSATs) are a subset of the 188 identified HAPS. While vehicle miles traveled in the United States is expected to increase by 64 percent over the period 2000 to 2020, emissions of MSATs are anticipated to decrease substantially as a result of efforts to control mobile source emissions (by 57 percent to 67 percent depending on the contaminant)[49].

California developed a program under the Tanner Toxics Act (AB 1807) to identify, characterize and control toxic air contaminants (TACs). Subsequently, AB 2728 incorporated all 188 HAPs into the AB 1807 process. TACs include all HAPs plus other contaminants identified by CARB. These are a broad class of compounds known to cause morbidity or mortality (cancer risk). TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter near a freeway). Chronic exposure to TACs can result in adverse health effects. Like criteria air pollutants, TACs are regulated at the regional, State, and federal level.

Particulate matter from diesel exhaust is the predominant TAC in urban air and was estimated to represent about two-thirds of the cancer risk from TACs (based on the statewide average in 2000). According to CARB, diesel exhaust is a complex mixture of gases, vapors and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by CARB, and are listed as carcinogens either under State Proposition 65 or under the Federal Hazardous Air Pollutants programs.

CARB reports that recent air pollution studies have shown that diesel exhaust and other contaminants emitted from vehicles are responsible for much of the overall cancer risk from TACs in California. Diesel particulate matter (DPM) emitted by diesel-fueled engines was found to comprise much of that risk. DPM can be distributed over large regions, thus leading to widespread public exposure. The particles emitted by diesel engines are coated with chemicals, many of which have been identified by the EPA as HAPs, and by CARB as TACs. Diesel engines emit particulate matter at a rate approximately 20 times greater than comparable gasoline engines. The vast majority of diesel exhaust particles (over 90 percent) consist of $PM_{2.5}$, which are particles that can be inhaled deep into the lung.

While the gaseous portion of diesel exhaust also contains TACs, CARB's 1998 action was specific to DPM, which accounts for much of the cancer-causing potential from diesel exhaust. California has adopted a comprehensive diesel risk reduction program to reduce DPM emissions 85 percent by 2020. The U.S. EPA and CARB adopted low sulfur diesel fuel standards in 2006 that reduce diesel particulate matter substantially.

Smoke from residential wood combustion can also be a source of TACs. Wood smoke is typically emitted during wintertime when dispersion conditions are poor. Localized high TAC concentrations

[49]Federal Highway Administration, 2006. Interim Guidance on Air Toxic Analysis in NEPA Documents.

can result when cold stagnant air traps smoke near the ground and, with no wind; the pollution can persist for many hours, especially in sheltered valleys during winter. Wood smoke also contains a significant amount of PM_{10} and $PM_{2.5}$. Wood smoke is an irritant and is implicated in worsening asthma and other chronic lung problems.

Air Monitoring Data

Air quality in the region is controlled by the rate of pollutant emissions and meteorological conditions. Meteorological conditions, such as wind speed, atmospheric stability, and mixing height may all affect the atmosphere's ability to mix and disperse pollutants. Long-term variations in air quality typically result from changes in air pollutant emissions, while frequent, short-term variations result from changes in atmospheric conditions. The San Francisco Bay Area is considered to be one of the cleanest metropolitan areas in the country with respect to air quality. BAAQMD monitors air quality conditions at over 30 locations throughout the Bay Area. There are several BAAMQD monitoring stations in San José, which are the nearest stations to this part of Santa Clara. Air pollutant concentrations measured at stations closest to the project area are shown in Table 22.

The pollutant of most concern in the Santa Clara area is ozone, since prevailing summertime wind conditions tend to cause a buildup of ozone in the Santa Clara Valley. Ozone levels measured in San Jose exceeded the state ozone standard from 0 to 5 times in 2003-2007. In the last five years, the 8-hour national ozone standard was exceeded only once in 2006 during an extended heat wave. The new state 8-hour ozone standard was exceeded once in 2005, five times in 2006 and was not exceeded in 2007. Measured exceedances of the state PM_{10} standard have occurred between two and three measurement days each year in San Jose (estimated at 12 to 18 days). PM_{10} and $PM_{2.5}$ are measured every sixth day. Exceedances of the Federal $PM_{2.5}$ standard of 65 $\mu g/m^3$ were not measured in San José; however, the new standard of 35 $\mu g/m^3$ was exceeded on six measurement days during 2006 (estimated 36 days per year). The entire Bay Area, including San Jose, did not experience any exceedances of other air pollutants. Table 23 reports the number of days that an ambient air quality standard was exceeded at any of the stations in San José near the project and in the entire Bay Area.

TABLE 22
Highest Measured Air Pollutant Concentrations

Pollutant	Average Time	Measured Air Pollutant Levels				
		2003	2004	2005	2006	2007
San Jose						
Ozone (O_3)	1-hour	0.12 ppm	0.09 ppm	0.11 ppm	0.12 ppm	0.080 ppm
	8-hour	0.08 ppm	0.07 ppm	0.08 ppm	0.09 ppm	0.07 ppm
Carbon Monoxide (CO)	8-hour	5.5 ppm	4.4 ppm	43 ppm	41 ppm	3.5 ppm
Nitrogen Dioxide (NO_2)	1-hour	40 ppm	3.0 ppm	3.1 ppm	29 ppm	2.7 ppm
	Annual	NA	0.07 ppm	0.07 ppm	0.07 ppm	0.07 ppm
Respirable PM_{10}	24-hour	NA	NA	0.019 ppm	0.018 ppm	0.017 ppm
	Annual	60 $\mu g/m^3$	58 $\mu g/m^3$	54 $\mu g/m^3$	73 $\mu g/m^3$	69 $\mu g/m^3$
Fine $PM_{2.5}$	24-Hour	23 $\mu g/m^3$	23 $\mu g/m^3$	22 $\mu g/m^3$	21 $\mu g/m^3$	22 $\mu g/m^3$
	Annual	56 $\mu g/m^3$	52 $\mu g/m^3$	55 $\mu g/m^3$	64 $\mu g/m^3$	58 $\mu g/m^3$

22 *Continued* Highest Measured Air Pollutant Concentrations						
Pollutant	**Average Time**	**Measured Air Pollutant Levels**				
		2003	**2004**	**2005**	**2006**	**2007**
Bay Area (Basin Summary)						
Ozone (O_3)	1-hour	0.12 ppm	0.11 ppm	0.12 ppm	0.12 ppm	0.12 ppm
	8-hour	0.10 ppm	0.08 ppm	0.09 ppm	0.11 ppm	0.09 ppm
Carbon Monoxide (CO)	8-hour	4.0 ppm	3.4 ppm	3.1 ppm	2.9 ppm	2.7 ppm
Nitrogen Dioxide (NO_2)	1-hour	0.09 ppm	0.07 ppm	0.07 ppm	0.11 ppm	0.07 ppm
	Annual	0.021ppm	0.019ppm	0.019ppm	0.018ppm	0.017ppm
Respirable PM_{10}	24-hour	60 $\mu g/m^3$	65 $\mu g/m^3$	81 $\mu g/m^3$	73 $\mu g/m^3$	78 $\mu g/m^3$
	Annual	25 $\mu g/m^3$	26 $\mu g/m^3$	24 $\mu g/m^3$	23 $\mu g/m^3$	26 $\mu g/m^3$
Fine $PM_{2.5}$	24-Hour	56 $\mu g/m^3$	52 $\mu g/m^3$	55 $\mu g/m^3$	75 $\mu g/m^3$	58 $\mu g/m^3$
	Annual	12 $\mu g/m^3$	12 $\mu g/m^3$	12 $\mu g/m^3$	11 $\mu g/m^3$	11 $\mu g/m^3$

Source: BAAQMD Air Quality Summaries for 2003, 2004, 2005, 2006, and 2007.

TABLE 23 Annual Number of Days Exceeding Ambient Air Quality Standards							
Pollutant	**Standard**	**Monitoring Station**	**Days Exceeding Standard**				
			2003	**2004**	**2005**	**2006**	**2007**
Ozone (O_3)	NAAQS 1-hour	San José	0	0	---	---	---
		Bay Area	1	0	---	---	---
	NAAQS 8-hour	San José	0	0	0	1	0
		Bay Area	7	0	1	12	1
	CAAQS 1-hour	San José	4	0	1	5	0
		Bay Area	19	7	9	18	4
	CAAQS 8-hour	San José	---	---	1	5	0
		Bay Area	---	---	9	18	4
Respirable PM_{10}	NAAQS 24-hour	San José	0	0	0	0	0
		Bay Area	0	0	0	0	0
	CAAQS 24-hour	San José	2	3	2	2	3
		Bay Area	6	7	6	15	4
Fine $PM_{2.5}$	NAAQS 24-hour	San José	---	---	---	6	9
		Bay Area	---	---	---	10	14
All other (CO, NO_2, Lead, SO_2)	All Other	San José	0	0	0	0	0
		Bay Area	0	0	0	0	0

Attainment Status

Areas that do not violate ambient air quality standards are considered to be in attainment. Violations of ambient air quality standards are based on air pollutant monitoring data and are judged for each air pollutant. The Bay Area as a whole does not meet State or Federal ambient air quality standards for ground level ozone and State standards for PM_{10} and $PM_{2.5}$.

Under the Federal CAA, the U.S. EPA has classified the region as marginally nonattainment for the 1997 8-hour ozone standard. The U.S. EPA required the region to attain the standard by 2007. As previously mentioned, the U.S. EPA has determined that the Bay Area has met this standard, but a

formal redesignation request and maintenance plan would have to be submitted before redesignation could occur. In May 2008, the U.S. EPA lowered the 8-hour ozone standard from 0.08 to 0.075 ppm. Final designations based upon the new 0.075 ppm standard will be made by March 2010. In December 2008, U.S. EPA designated the entire Bay Area region as nonattainment for the 2006 24-hour $PM_{2.5}$ standard as recent monitoring data indicate levels slightly above the standard in San Jose and Vallejo. The federal non-attainment designation was to take place 90 days after the final designation (i.e., April 2009); however, President Obama ordered a suspension of new pending regulations when he took office in January 2009. As a result, the effective date of the designation is unknown at this time. Most nonattainment areas would have until 2015 to attain the standards with some extensions to 2020 possible. The Bay Area has met the CO standards for over a decade and is classified as in attainment by the U.S. EPA. The U.S. EPA grades the region unclassified for all other air pollutants, which includes PM_{10}.

At the State level, the region is considered in serious non-attainment for ground level ozone and non-attainment for PM_{10}. The region is required to adopt plans on a triennial basis that show progress towards meeting the State ozone standard. The area is considered in attainment or unclassified for all other pollutants.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified children under 14, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases as people most likely to be affected by air pollution. These groups are classified as sensitive receptors. Locations that may contain a high concentration of sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks. The closest sensitive receptors to the proposed project site are the residences on Gianera Street, located about 700 feet south of the stadiums site. There may be some minor construction about 100 to 500 feet from these receptors to construct surface parking stalls.

4.9.2 Air Quality Impacts

4.9.2.1 Thresholds of Significance

For the purposes of this EIR, an air quality impact is considered significant if the project would:

- Conflict with or obstruct implementation of the applicable air quality plan,
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation,
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative threshold for ozone precursors),
- Expose sensitive receptors to substantial pollutant concentrations, or
- Create objectionable odors affecting a substantial number of people.

BAAQMD CEQA Guidelines[50] provide the following definitions of a significant air quality impact:

[50] Bay Area Air Quality Management District, *BAAQMD CEQA Guidelines*, 1996 (Revised Dec. 1999).

- A project contributing to carbon monoxide (CO) concentrations exceeding the State Ambient Air Quality Standard of 9 parts per million (ppm) averaged over 8 hours or 20 ppm for 1 hour would be considered to have a significant impact.
- A project that generates criteria air pollutant emissions in excess of the BAAQMD annual or daily thresholds would be considered to have a significant air quality impact. The current thresholds are 15 tons/year or 80 pounds/day for Reactive Organic Gases (ROG), Nitrogen Oxides (NO_x) or PM_{10}. Any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact.
- Any project with the potential to frequently expose members of the public to objectionable odors would be deemed to have a significant impact.
- Any project with the potential to expose sensitive receptors or the general public to substantial levels of toxic air contaminants would be deemed to have a significant impact.

Despite the establishment of both federal and state standards for $PM_{2.5}$, BAAQMD has not developed a threshold of significance for this pollutant. For this analysis, $PM_{2.5}$ impacts would be considered significant if project emissions of PM_{10} exceed 80 pounds per day.

The BAAQMD significance threshold for construction dust impacts is based on the degree to which the project includes appropriate construction control measures. The BAAQMD guidelines identify feasible control measures for construction emissions of PM_{10}. If the appropriate construction controls are to be implemented, then air pollutant emissions for construction activities would be considered less than significant.

4.9.2.2 Impacts From the General Plan Amendment

The proposed amendments to the text of the General Plan should not result in any new or more significant air quality impacts.

Impact AIR-1: The proposed text amendment would have a less than significant air quality impact. **(Less Than Significant Impact)**

4.9.2.3 Regional Air Quality Impacts

The proposed project would construct a new NFL stadium that would host San Francisco 49ers games. It is also possible that a second NFL team could host games at the stadium; for a total of 20 NFL games that could be hosted at this stadium each year, from August through December. There is a possibility that there could be up to six additional home games if both teams were to make the playoffs and play all games at the stadium. A Super Bowl game is possible, but this would be atypical. The 49ers team currently plays all NFL home games at Candlestick Park in San Francisco. The only new emissions of ozone precursor air pollutants and PM_{10} within the air basin would result from increases in travel distance to the proposed new stadium versus to Candlestick Park. Attendance for games at the proposed stadium is estimated at 68,500 people, as compared to 69,700 people at Candlestick Park.

Since the traditional sports rivalries in the Bay Area have been San Francisco versus East Bay/Oakland, a second team at this location is likely to attract more East Bay based supporters versus the San Francisco/Peninsula loyalties of the 49ers game attendees. If a second team were to also occupy the stadium, the likelihood would be that the main fan base would be more drawn from around the east bay. New emissions of ozone precursor air pollutants and PM_{10} would result mostly

from differences in travel distance to the proposed new stadium versus to an east bay location such as Oakland Coliseum. Attendance for games at the proposed stadium is estimated at 68,500 people, as compared to 63,026 people at Oakland Coliseum. Because the proposed stadium has more seating capacity than the existing Oakland Coliseum, it is possible that a second team could generate new trips on game days but it is reasonable to assume that any net new trips would be local (i.e., within close proximity to Santa Clara) and would not contribute substantially to regional emissions on game days. Given the transit access available, it is also reasonable to assume that local attendees would be more likely to utilize transit.

The proposed stadium would also host non-NFL events. These events have been identified generically and., for the purposes of this analysis, the events are assumed to include college football games, soccer matches, X-Games, Moto-Cross events, concerts, festivals, and car shows. It is estimated that up to 17 non-NFL events (over 26 days) would occur annually. Non-NFL events are estimated to have attendances of approximately 12,000 to 50,000 people with a number of very small events with attendances of less than 500 people. (see Table 2 in the Project Description)

Daily and annual emissions associated with the proposed project were predicted and compared to the BAAQMD CEQA thresholds. The proposed project would change travel patterns on NFL game days and possibly add traffic on other days due to events such as concerts. This would lead to changes in emissions of air pollutants. Emissions of air pollutants associated with the project were predicted using travel forecasts and the State's mobile emission factor model (i.e., EMFAC2007). The primary source of emission would be from traffic associated with the proposed project.

NFL Events

As stated above, daily emissions caused by the project would be attributable to the difference in travel distance between an NFL football game played at Candlestick Park or an east bay location and one played in Santa Clara at the project site. Although football stadiums would have emissions from natural gas usage for cooking and water/space heating, these emissions are assumed to be similar at each stadium; therefore, they would not change with the proposed project.

The proposed project's Transportation Management Plan trip generation estimates were used to model football game emissions from both Candlestick Park and the proposed stadium in Santa Clara. Traffic estimates prepared for the proposed project were used in this analysis for NFL events and non-NFL events. The traffic estimates include employee travel, attendees arriving by charter bus, and those arriving by transit.

The project site is well served by existing transit and includes pedestrian connections. Charter buses currently serve Candlestick Park and would be expected to serve the proposed stadium as well. Trip generation estimates for the project indicate eight percent of fans use transit and ten percent arrive by charter bus. Projections for the proposed stadium assume an increase in transit usage of approximately 19 percent and a decrease in charter bus usage by approximately seven percent.

Trips to NFL events are primarily made by automobiles, while buses make up only a small percentage of the trips. Emission rates (which are speed dependant) were developed for the three common vehicle classes using the EMFAC2007 model. Average travel distance and travel speed were developed assuming that trips are distributed similarly to the distribution of 49er season ticket holders. This distribution was broken down by county. The EMFAC2007 model provided emissions rates for reactive organic gases (ROG), nitrogen oxides (NOx), particulate matter (i.e., PM_{10}) and

carbon dioxide (CO_2). Emission estimates also include emissions associated with vehicle starts and ROG evaporative emissions.

Build out of the project was assumed to occur in 2012. The year of analysis is important to consider when modeling vehicle emissions. The vehicle emission rates for ROG and NOx are currently decreasing with each year and are predicted to decrease substantially between 2010 and 2020. For instance, NOx emission rates will decrease by 56 percent during that period because of improvements in vehicle emissions and retirement of older, more polluting, vehicles from the roadways.

PM_{10} emissions are comprised of running exhaust, tire and brake wear, and the entrainment of dust into the atmosphere from vehicles traveling on paved roadways. The contribution of tire and brake wear is small compared to the other particulate matter sources. Gasoline powered engines have small rates of particulate matter emissions compared with diesel-powered trucks. Since much of the project traffic is made up of light-duty gasoline powered vehicles, a large portion of the PM_{10} emissions is from entrainment of roadway dust from vehicle travel. Silt loading values were based on the values CARB uses for calculating paved roadway dust emissions for average vehicles traveling on collector roadways and freeways[51].

Daily emissions of ROG, NOx, and PM_{10} were calculated for a sold out event at both Candlestick Park and the proposed project in Santa Clara. The difference in emissions between the two stadiums was compared with BAAQMD thresholds. Only travel-related emissions were used for comparing the differences between the two stadiums. Area source emissions associated with each facility were expected to be similar. Emissions associated with NFL events are shown in Table 24. The calculations of daily emissions for NFL events are provided in Appendix J.

TABLE 24
NFL Game Day Traffic Emissions in Pounds Per Game Day

Scenario[52]	**Modeled Daily Emission in Pounds Per Day**			
	Attendance	**ROG**	**NOx**	**PM_{10}**
Candlestick Park	69,700	434	1,847	1,327
Proposed Stadium	68,500	459	2,000	1,388
Net Difference		**25**	**153**	**61**
BAAQMD Threshold		*80*	*80*	*80*

As shown in Table 24, the proposed project would increase emissions of ROG, NOx and PM_{10} compared to current game day conditions. The change in emissions would mostly result from changes in travel distance.

Impact AIR-2: The proposed project would cause an increase in NOx emissions that exceed the significance thresholds established by BAAQMD on NFL event days. **(Significant Impact)**

[51] A factor of 0.027 grams silt per square meter was used based on data developed in 2006 for calculating area source emissions in the San Joaquin Valley Air Basin.
(*http://www.arb.ca.gov/ei/areasrc/PMSJVPavedRoadMethod2003.pdf*)

[52] These emission estimates do not include area source emission, primarily natural gas combustion from stadium operations that are assumed to be equivalent at both locations and, therefore, offset.

Non-NFL Events

The proposed stadium would also provide a venue for non-NFL events. These events would occur at various times throughout the year with most large events likely to occur outside the summer months to avoid conflicts with the Great America theme park. Daily emissions from each of these possible events were modeled.

Emissions modeling for non-NFL events were done in a similar manner as that for the NFL events, except that each event was considered new (not replacing an event that would occur at Candlestick Park) and travel distances would be considerably less, about 15 miles. Area source emissions, in the form of natural gas combustion for heating and cooking were included in these emissions calculations.

The EMFAC2007 model was used to develop emission rates for travel emissions. Since travel speeds would vary, composite trip emissions rates were developed from the BURDEN output for a vehicle mix that only included light-duty autos and light-duty trucks. Trip generation was based on estimated attendance for each event, using a vehicle occupancy rate equivalent to that used for NFL events. The estimated number of trips generated for each of these events was based on a ratio of the estimated event attendance to the attendance for an NFL event (i.e., 68,500 attendees).

Natural gas emission rates were based on emission rates used in the URBEMIS2007 model. Natural gas consumption rates were also adjusted from those provided for NFL events based on the difference in attendance.

Daily emissions of ROG, NOx, and PM_{10} were calculated for the various types of events that may occur. Predicted emissions were compared with BAAQMD thresholds. These emissions are shown in Table 25. The calculations of these emissions are also provided in Appendix J.

TABLE 25
Non-NFL Event Emissions in Pounds Per Day

Event Type	Modeled Daily Emissions in Pounds Per Day		
	ROG	**NOx**	**PM_{10}**
X-games (4-day event)[53]	188	173	315
Moto-Cross	160	147	268
International Soccer	150	139	252
Concert	141	130	236
College Football	141	130	236
Festival/Say	94	87	158
College Bowl Game	94	87	158
Car Shows	45	42	76
BAAQMD Thresholds	*80*	*80*	*80*

Non-NFL events would have emissions that exceed BAAQMD thresholds. As shown in Table 25, the proposed project would increase emissions of ROG, NOx and PM_{10}. ROG and NOx emissions for events larger than approximately 20,000 attendees would exceed the significance thresholds

[53] All Non-NFL events are considered one day events with the exception of the X-Games which is typically a four day event.

established by BAAQMD. PM_{10} emissions would exceed the significance thresholds for all events larger than approximately 15,000 attendees.

Impact AIR-3: The proposed project would cause an increase in emissions that exceed the significance thresholds established by BAAQMD on large non-NFL event days. **(Significant Impact)**

Summary of Regional Air Pollutant Emissions

Table 26 summarizes new daily and annual emissions associated with the proposed stadium project. NFL events are not considered to be new events, but events that would occur in a different part of the air basin, resulting in changes in regional air pollutant emissions due to changes in traffic patterns. Non-NFL football game events were considered as new events in the air basin.

TABLE 26
Summary of Proposed Project Emissions – Daily and Annually

Event Type	Modeled Daily Emissions		
	ROG	**NOx**	**PM_{10}**
Daily Emissions			
NFL Events	25 lbs/day	153 lbs/day	61 lbs/day
Non-NFL Events	45-188 lbs/day	42-173 lbs/day	76-315 lbs/day
BAAQMD Thresholds	*80 lbs/day*	*80 lbs/day*	*80 lbs/day*
Annual Emissions			
NFL Events	0.2 tons/year	1.6 tons/year	0.6 tons/year
Non-NFL Events	1.4 tons/year	1.2 tons/year	2.3 tons/year
Area Sources (natural gas usage)	0.0 tons/year	1.0 tons/year	0.0 tons/year
Annual Total	1.6 tons/year	3.8 tons/year	2.9 tons/year
BAAQMD Thresholds	*15 tons/year*	*15 tons/year*	*15 tons/year*

Due to the preliminary design of the stadium, stationary equipment that could emit air pollutants has not yet been identified. Equipment such as natural gas boilers to produce steam for heating purposes and emergency generators powered by diesel engines are possible. These sources would require permits from BAAQMD. The emissions from boilers have been accounted for in the calculations that account for expected natural gas combustion. Standby emergency generators (rated 50 horsepower or greater) would require permits from BAAQMD and are subject to emission standards established by CARB. Generator emissions are associated with routine testing. These sources would normally result in minor emissions, compared to those from traffic generation. Sources of air pollutant emissions complying with all applicable BAAQMD regulations are not considered to have a significant air quality impact. Stationary sources that are exempt from BAAQMD permit requirements because they fall below emission thresholds for permitting would also have a less than significant air quality impact.

The proposed project would result in daily emissions of NO_x that would exceed BAAQMD thresholds for all 20 pre-season and regular season NFL events. These emissions were calculated based on the first assumed year of operation, 2012. NO_x emissions would decrease in the future as vehicle emission rates decrease. On years that playoff games or the Super Bowl are played, additional days that NO_x emissions exceed BAAQMD thresholds would occur. The emissions from late (i.e., November and December) or playoff games (January) would not, however, significantly affect regional air quality because NO_x contributes to ozone formation which is a concern during late

spring through early fall (May to October) when abundant sunshine and warmer temperatures occurs. The NFL events in summertime and early fall would have significant NO_x emissions that might contribute to a build up of unhealthy ozone concentrations in downwind portions of the Bay Area.

The BAAQMD daily threshold of 80 lbs/day is a daily average based on an annual threshold of 15 tons/year (80 lbs/day x 365 days = 15 tons/year). While NO_x emissions from the proposed project would not exceed the annual threshold, it will exceed the daily threshold up to 20 times per year during NFL events. Twelve of the 20 events will be between May and October when ozone formation is a concern. There is no directive from BAAQMD that allows a project with minimal daily exceedences to use the annual threshold to establish a significant impact. For this reason, it must be concluded that 12 exceedences a year during the peak ozone period is a significant impact.

Impact AIR-4: NFL events in summer and early fall would have significant NO_x emissions that could increase ozone concentrations in downwind portions of the Bay Area up to 12 times per year. **(Significant Impact)**

Non-NFL events with an attendance over 20,000 would result in significant emissions of ozone precursors, ROG and NO_x. These significant emissions are anticipated to occur on about 26 days of the year. Most of these days would likely occur outside of the ozone season because summertime events may conflict with parking availability associated with the Great America Theme Park. Since some events are likely in the ozone season, these emissions from non-NFL events would be significant, since they would contribute to a build up of unhealthy ozone concentrations in downwind portions of the Bay Area. Non-NFL events with attendance over 15,000 would result in significant emissions of $PM_{10.}$ These significant emissions would also occur on the 26 days of the year when these events are held. Unlike ROG and NOx, PM_{10} emissions could contribute to air quality problems during the fall and winter.

As stated above, the BAAQMD daily threshold of 80 lbs/day is a daily average based on an annual threshold of 15 tons/year (80 lbs/day x 365 days = 15 tons/year). While ROG, NO_x and PM_{10} emissions from the proposed project would not exceed the annual threshold, it will exceed the daily threshold up to 26 times per year during non-NFL events. There is no directive from BAAQMD that allows a project with minimal daily exceedences to use the annual threshold to establish a significant impact. For this reason, it must be concluded that 26 exceedences a year during the peak ozone period is a significant impact.

Impact AIR-5: Non-NFL events with an attendance over 20,000 would significantly contribute to emissions of ROG, NO_x, and non-NFL events with an attendance of 15,000 would significantly contribute to emissions of PM_{10} up to 26 times per year. **(Significant Impact)**

4.9.2.4 Local Impacts

Carbon monoxide emissions from traffic generated by the project would be the most significant pollutant concern at the local level. Congested intersections with large volumes of traffic have the greatest potential to cause high localized concentrations of carbon monoxide. Carbon monoxide levels have been below State and Federal standards in the Bay Area since the early 1990s. As a result, the region has been designated as in attainment. There is an ambient air quality monitoring station in central San José that measures carbon monoxide concentrations. The highest measured level over any 8-hour averaging period during the last three years was 3.1 ppm.

In ambient air, carbon monoxide is a wintertime air pollutant with elevated levels under stable atmospheric conditions. Stable conditions are characterized by very light winds and restricted vertical mixing due to the presence of strong surface or near-surface based temperature inversions[54]. Inversions are common in late winter when the sun has less of a heating effect to destabilize the lower atmosphere. Strong inversions develop in the evening, so the highest carbon monoxide levels occur at night or in the early morning. As a result, the greatest potential for the proposed project to affect carbon monoxide levels would occur during evening weekday traffic associated with an evening NFL event.

The contribution of project-generated traffic to carbon monoxide levels during an evening weekday NFL event was predicted following the screening guidance recommended by BAAQMD. Future carbon monoxide levels were predicted near these intersections for existing conditions and with the project in place using departure weekday evening traffic projections provided by *Hexagon Transportation Consultants*. The predicted levels were added to background levels to compute concentrations associated with the proposed project.

Carbon monoxide emission factors are developed and applied to traffic conditions. Emission factors were calculated using the EMFAC2007 model, developed by CARB, with default assumptions for the San Francisco Bay Area during winter that included a temperature of 40 deg. F. A slow speed of five miles per hour was used which results in higher emission rates. The departure traffic conditions were used, because they would have the greatest cold start emissions. These are the higher emission rate associated with operation of a cold engine, where fuel combustion is less complete and catalytic converters that reduce pollutants are less effective. Cold start emissions were included, which assumed 40 percent of the vehicles were in cold-start mode (i.e., within three miles of their trip origin), these cars had been turned off for over four hours, and the start emissions are evenly distributed over the first three miles of a trip. This screening analysis included the number of through lanes in the intersection configuration with a receptor located at the edge of the roadway.

Traffic and emission factors are input to the screening procedure developed by BAAQMD. This procedure takes into account the dispersion potential of different roadways and receptor distances. Receptors were considered to be at the roadway right-of-way.

Table 27 below summarized the results of this analysis. Screening calculations are provided in Appendix J.

TABLE 27
Predicted Roadside Carbon Monoxide Concentrations

Description	Existing 2008	Background 2012	Project 2012	Future 2020+
Great America Parkway/Mission College	5.7 ppm	5.4 ppm	5.5 ppm	6.0 ppm
Great America Parkway/Tasman Drive	5.0 ppm	4.8 ppm	6.3 ppm	4.9 ppm
Montague Expressway/Mission College	6.0 ppm	5.5 ppm	5.8 ppm	4.7 ppm
Great America Parkway/Route 237	5.1 ppm	5.0 ppm	6.2 ppm	4.8 ppm
Lawrence Expressway/Tasman Drive	5.5 ppm	5.2 ppm	5.7 ppm	4.5 ppm
Lawrence Expressway/U.S. 101 Ramps	8.5 ppm	7.3 ppm	7.5 ppm	5.3 ppm
BAAQMD Thresholds	*9.0 ppm (CAAQS)*			

[54] Temperature inversions are the presence of warm air trapped above colder air that crates a "lid" trapping air pollutants near the surface.

The highest 8-hour concentration with the project in place (in 2012) is estimated to be 7.5 ppm averaged over an 8-hour period. This would occur along Lawrence Expressway near U.S. 101 and includes the contribution of carbon monoxide from traffic on U.S.101. The intersection where the project would have the greatest impact would be Great America Parkway and Tasman Drive, raising 8-hour carbon monoxide concentrations by 1.5 ppm. This represents the roadside concentration with future evening PM peak hour conditions, as reported by *Hexagon Transportation Consultants*. The results of this screening analysis show that carbon monoxide generated by project traffic would not cause local CO levels to exceed the CAAAQS threshold of 9.0 ppm.

Impact AIR-6: The proposed project would have a less than significant impact on local air quality. **(Less Than Significant Impact)**

4.9.2.5 Construction-Related Impacts

Construction Dust

Dust would be generated during demolition, grading and construction activities. The amount of dust generated would be highly variable and is dependent on the size of the area disturbed, amount of activity, soil conditions, and meteorological conditions. Typical winds during late spring through summer are from the north. Nearby land uses include residences, recreation areas, commercial businesses and offices, hotels, and the Great America theme park. Residences are located approximately 700 feet south and approximately 1,200 feet east of the project site. These nearby land uses could have sensitive receptors that would be adversely affected by dust generated during construction activities. In addition, construction dust emissions can contribute to regional PM_{10} levels.

Although grading and construction activities would be temporary, they can cause both nuisance and health air quality impacts. PM_{10} is the pollutant of greatest concern associated with dust. If uncontrolled, PM_{10} levels downwind of actively disturbed areas could exceed State standards. In addition, dust fall on adjacent properties could be a nuisance.

Impact AIR-7: Construction activities would result in significant, temporary impacts to local air quality. **(Significant Impact)**

Construction Equipment Exhaust

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a major source of TACs. BAAQMD has not developed any procedures or guidelines for identifying these impacts from temporary construction activities where emissions are transient. They are typically evaluated for stationary sources (e.g., large compression ignition engines such as generators) in health risk assessments over the course of lifetime exposures (i.e., 24 hours per day over 70 years). Diesel exhaust poses both a health and nuisance impact to nearby receptors. These construction activities would not be in very close proximity to sensitive receptors and are expected to occur for a relatively short time (the estimated construction period is 28 months). Therefore, the impacts are less than significant because reasonable available control measures will be applied.

Impact AIR-8: The operation of construction equipment will have a less than significant impact on sensitive receptors. **(Less Than Significant Impact)**

4.9.2.6 Odor Impacts

During construction, the various diesel powered vehicles and equipment in use on-site would create localized odors. These odors would be temporary and not likely to be noticeable for extended periods of time much beyond the project's site boundaries.

Impact AIR-9: Diesel odor impacts would be less than significant. **(Less Than Significant Impact)**

The preparation of food at the proposed stadium could result in odors that may be detected off site. When cooking odors are strong, there are different reactions from people. Some people find them objectionable, while others find them pleasant. The closest sensitive receptors that may notice these odors are the residences located about 700 feet south of the stadium site. The source of odors generated by on-site food preparation would be 700 to 1,500 feet from these residences. The distance between the on-site sources of cooking odors and residences is generally adequate for diluting odors from the proposed stadium. In addition, kitchen exhausts will be equipped with exhaust filtration systems or engineered to reduce odors.

Impact AIR-10: Food preparation odors from stadium operations would have a less than significant impact on nearby sensitive receptors. **(Less Than Significant Impact)**

Another source of odors that would occur during NFL event is fan barbeques from tailgating prior to games. Tailgating would occur in the surface parking lots. Most of the parking areas are located far enough away from the nearby residences (located 700 feet south of the proposed stadium) that frequent odor complaints are not anticipated. Portions of these parking areas are, however, located just over 300 feet northwest of the residences. Depending on wind conditions and atmospheric stability, this could result in detectable odors at these residences. During occurrences of light northwest winds, barbeques within about 700 feet of the residences could result in odors that may cause complaints. Barbeque odors are likely to be one of the nuisances associated with having fans tailgating near residences.

Impact AIR-11: Numerous barbeque activities occurring within 750 feet of the residences could result in odor complaints which would be an indication of a significant impact. **(Significant Impact)**

4.9.3 Mitigation and Avoidance Measures for Air Quality Impacts

The following General Plan Policy would reduce most air quality impacts from development allowed by the proposed General Plan amendment to a less than significant level:

- *Air Quality Policy 19* states that the City will protect the air quality of the City of Santa Clara and its sphere of influence and promote land use and transportation policies which maintain air quality.

The following project specific mitigation measures will be implemented to reduce significant air quality impacts:

Regional Air Quality Impacts

- Develop a Transportation Demand Management program that would include financial incentives for employees to reduce automobile vehicle trips.

- Encourage use of public transit for events through advertising

- Provide shuttle service between LRT and Caltrain stations.

- Bicycle amenities should be provided for the project. This would include secure bicycle parking for employees and attendees and safe bike lane connections.

- Enforce State law idling restrictions of trucks or buses and include signage indicating the restriction and associated fines.

- Where appropriate, provide 110- and 220-volt electrical outlets at loading docks to or areas where media operations occur to eliminate any idling of trucks or generators to operate auxiliary equipment.

- Provide exterior electrical outlets to encourage use of electrical landscape equipment.

- Implement a landscape plan that provides shade trees along pedestrian pathways.

- Implement "Green Building" designs, such a Leadership in Energy and Environmental Design (LEED) into buildings to increase energy efficiency, which would reduce the future energy demand caused by the project, and therefore, reduce air pollutant emissions indirectly.

Construction Impacts

The following mitigation measures (recommended by BAAQMD) are proposed as part of the project to avoid or reduce significant construction related air quality impacts:

- The following dust control measures will be implemented during all construction phases:
  - Water all active construction areas at least twice daily and more often during windy periods.
  - Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.
  - Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.
  - Sweep daily (preferably with water sweepers) all paved access roads on-site, parking areas and staging areas at construction sites.
  - Sweep streets daily (preferably with water sweepers) if visible soil material is carried onto adjacent public streets.
  - Hydroseed or apply non-toxic soil stabilizers to inactive construction areas.
  - Enclose, cover, water twice daily or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.).
  - Limit traffic speeds on unpaved roads to 15 mph.
  - Replant vegetation in disturbed areas as quickly as possible.
  - Suspend construction activities on windy days that cause visible dust plumes that extend beyond the construction site.

- A Disturbance Coordinator will be designated by the applicant. The Coordinator shall be responsible for responding to any local complaints about construction activities. The Coordinator will determine the cause of the complaint and implement reasonable measures to correct the problem. A telephone number for the Coordinator will be clearly posted at the construction site and included in the notice sent to nearby properties regarding the construction schedule. This information will also be distributed to all residences and businesses within 750 feet of the project site.

- The project shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately. This measure means that equipment with continuous dark emissions is in violation of the requirement.

- Signs shall be posted that indicate diesel equipment standing idle for more than five minutes shall be turned off or operators would be subject to fines. This would include trucks waiting to deliver or receive soil, aggregate or other bulk materials. Rotating drum concrete trucks could keep their engines running continuously as long as they were onsite.

- Reduce vehicle emissions. Properly tune and maintain equipment for low emissions.

Odor Impacts

- Reserve surface parking within 750 feet of residences for vehicles only. Prohibit tailgating within these areas.

- Designate a "disturbance coordinator" to investigate and respond to odor or air quality complaints. Provide the name and contact information for the disturbance coordinator to residents within 750 feet of the stadium or surface parking lots.

4.9.4 Conclusion

Even with full implementation of the proposed mitigation, the identified regional air quality impacts on event days would remain significant and unavoidable. Direct and indirect emissions of ROG, NOx and PM_{10} associated with build out and operation of the stadium would have to be reduced by up to 120 percent or greater on days with the busiest non-NFL events to mitigate the significance of the impact. Ultimately, the effectiveness of the mitigation is difficult to determine because it is dependent on the origin of the trips for each event. Therefore, it is concluded that this air quality impact can be reduced, but not fully mitigated through implementation of the proposed mitigation. (**Significant Unavoidable Impact)**

The proposed project will have a less than significant impact on all local pollutants including carbon dioxide. **(Less Than Significant Impact)**

Implementation of the proposed mitigation measures would reduce temporary air quality impacts resulting from construction activities to a less than significant level. **(Less Than Significant with Mitigation)**

Implementation of the proposed mitigation would reduce odor impacts associated with tailgating during stadium events to a less than significant level. **(Less Than Significant with Mitigation)**

4.10 NOISE

The following analysis is based on a Noise Assessment prepared by *Illingworth & Rodkin* in January 2009. The complete report can be found in Appendix K of this document.

4.10.1 Existing Setting

The data used to determine possible impacts from the proposed project includes noise monitoring surveys of ambient noise levels in the project area and noise data collected before, during, and after an NFL game between the San Francisco 49ers and New York Jets at Candlestick Park during the 2008 season.

4.10.1.1 Fundamental Concepts of Environmental Acoustics

Noise is defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its *pitch* or its loudness. *Pitch* is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. *Loudness* is the intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. *A decibel (dB)* is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that a healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 1 of Appendix K.

There are several methods of characterizing sound. The most common in California is the *A-weighted sound level or dBA.* This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels (in dBA) are shown in Table 28 below.

TABLE 28
Typical Noise Levels in the Environment

Noise Level in dBA	Common Outdoor Noise Source	Common Indoor Noise Source
110 – 120	Jet fly-over at 300 meters (984 feet)	Rock concert
90 – 100	Pile driver at 20 meters (66 feet)	Night club with live music
80 – 90	Large truck pass by at 15 meters (49 ft)	Noisy restaurant
70 – 80	Gas lawn mower at 30 meters (98 feet)	Vacuum cleaner at 3 meters (9 feet) or a garbage disposal at 1 meter (~3 feet)
60 – 70	Commercial/Urban area in the daytime	Normal speech at 1 meter (~3 feet)
50 – 60	Suburban area in the daytime	Active office environment
40 – 50	Urban area in the nighttime	Quiet office environment
30 - 40	Suburban nighttime/quiet rural area	Library
10 - 30	Wilderness area/quiet remote area	Quiet bedroom at night
0	Threshold of human hearing	

Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called L_{eq}. The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance of the receptor from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

In determining the daily level of environmental noise, it is important to account for the differences in responses of people to daytime and nighttime noises. During the nighttime, exterior background noises are generally lower than the daytime levels. However, most household noise also decreases at night and exterior noise becomes very noticeable. Since the sensitivity to noise increases during the evening and at night, mainly because excessive noise interferes with the ability to sleep, 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level, CNEL,* is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 pm - 10:00 pm) and a 10 dB addition to nocturnal (10:00 pm - 7:00 am) noise levels. The *Day/Night Average Sound Level, Ldn,* is essentially the same as CNEL, with the exception that the separate evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

4.10.1.2 Effects of Noise

Hearing Loss

Hearing loss occurs mainly from chronic exposure to excessive noise, but may also be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noises. The Occupational Safety and Health Administration (OSHA) has a noise exposure standard based on the noise threshold where hearing loss may occur from long-term exposure. The maximum allowable level is 90 dBA averaged over eight hours.

Sleep and Speech Interference

The threshold for speech interference indoors is about 45 dBA if the noise is constant and above 55 dBA if the noise fluctuates. The outdoor thresholds are about 15 dBA higher than the indoor thresholds. Steady noise above 35 dBA and fluctuating noise levels above 45 dBA have been shown to affect sleep. For this reason, interior residential standards for housing are set by the State of California at 45 dBA L_{dn}. Typical structural attenuation of outdoor noise for residential structures is 12-17 dBA with windows open and 20 to 25 dBA (depending on the age of the structure) with windows closed. Sleep and speech interference is, therefore, possible when exterior noise levels are approximately 57-62 dBA L_{dn} with the windows open and 65-70 dBA L_{dn} with the windows closed.

Annoyance

Surveys used for measuring the annoyance of noise intrusions into homes or affecting outdoor activity areas found that annoyance is caused by interference with speech, interference with radio or television,

house vibrations, and interference with sleep and rest. At an L_{dn} of approximately 60 dBA, the surveys indicated that approximately two percent of the population is highly annoyed. When the L_{dn} increases to 70 dBA, the percentage of the population annoyed increases to approximately 12 percent. People appear to respond more adversely to aircraft noise then other noise sources.

4.10.1.3 Regulatory Background – Noise

The State of California and the City of Santa Clara have established guidelines, regulations, and policies designed to limit noise exposure at noise sensitive land uses. Appendix E of the State CEQA Guidelines, the State of California Building Code, and the City of Santa Clara's Noise Element of the General Plan identify applicable criteria, which are discussed below.

State CEQA Guidelines. The California Environmental Quality Act (CEQA) contains guidelines to evaluate the significance of effects resulting from a proposed project. These guidelines have been used in this EIR as thresholds for identifying significant noise impacts and are listed under *Thresholds of Significance.*

CEQA does not define what noise level increase would be considered substantial. Typically, project-generated noise level increases of 3 dBA L_{dn} or greater would be considered significant where exterior noise levels would exceed the normally acceptable noise level standard (60 dBA L_{dn} for residential land uses). Where noise levels would remain below the normally acceptable noise level standard with the project, noise level increases of 5 dBA L_{dn} or greater would be considered significant.

Santa Clara County Airport Land Use Commission Land Use Plan. The Santa Clara County Airport Land Use Commission has adopted a Land Use Compatibility Chart for projects within the vicinity of Mineta San José International Airport. The chart indicated that commercial/recreational land uses are compatible with airport operations where the ambient noise level is 65 dBA or less.

City of Santa Clara Municipal Code. The City's Municipal Code established noise level standards for fixed noise sources. Noise levels generated by a fixed source of noise, defined as "a stationary device which creates sound or vibration while operating in a fixed or stationary position, including, but not limited to, residential, agricultural, industrial, and commercial machinery and equipment, pumps, fans, compressors, air conditioners, and refrigeration equipment…" would be limited to 55 dBA during daytime hours (7:00 a.m. to 10:00 p.m. and 50 dBA at night (10:00 p.m. to 7:00 a.m.) at nearby single-family or multi-family residential land uses. These limits are reduced by 5 dBA if the alleged offensive sound or noise contains music or speech conveying informational content.

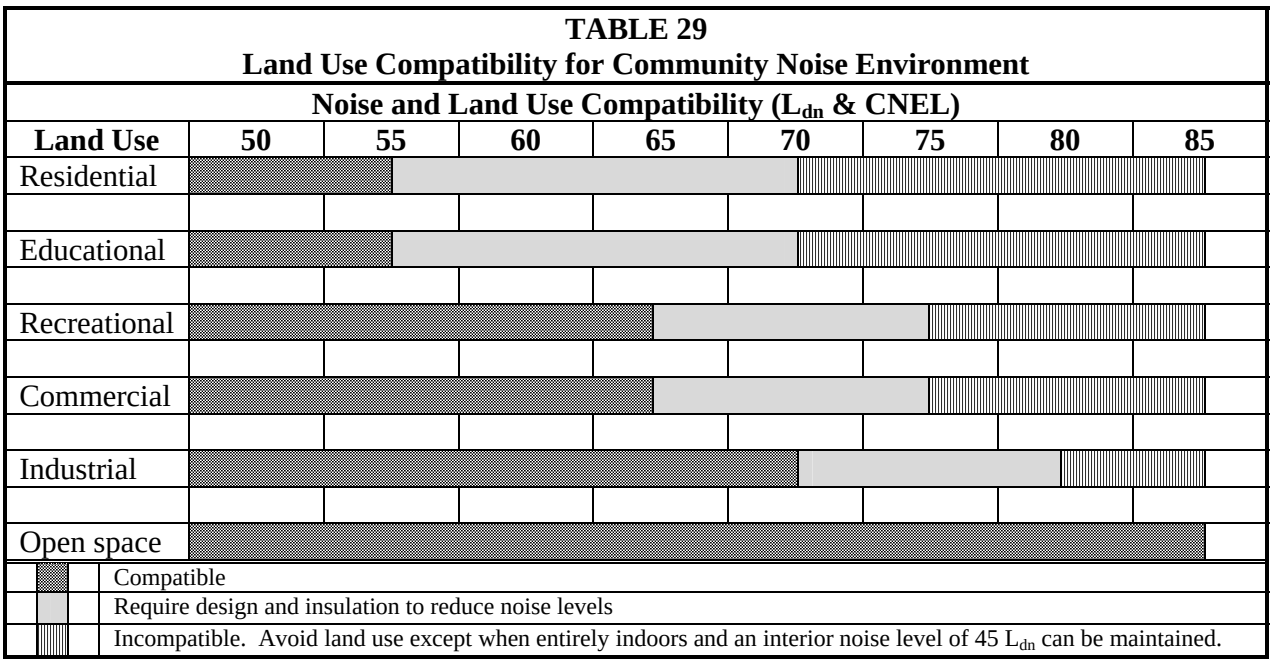
The City's Municipal Code does not regulate mobile sources of noise[55]. Construction activities occurring during daytime hours are specifically exempted from these limits. Section 9.10.230 limits construction within 300 feet of any residentially zoned properties between the hours of 7:00 a.m. and 6:00 p.m. on weekdays other than holidays and 9:00 a.m. to 6:00 p.m. on any Saturday which is not a holiday. No construction activities are allowed on holidays or Sundays.

City of Santa Clara General Plan. Based on the City of Santa Clara General Plan noise element, Table 29 shows the noise levels considered compatible with specific land uses. For recreational uses, outdoor noise levels of up to 65 dBA are considered acceptable and up to 75 dBA are conditionally

[55] A mobile source of noise is defined as any noise, sound, or vibration source other than a fixed noise, sound, or vibration source, including but not limited to vehicles, hand-held power equipment, and portable music amplifiers.

acceptable[56]. Residential land uses are considered compatible with Ldn noise levels of up to 55 dBA and acceptable with design and insulation techniques in areas with Ldn noise levels up to 70 dBA.

TABLE 29
Land Use Compatibility for Community Noise Environment



City of Santa Clara General Plan – Figure 5-G

4.10.1.4 Existing Noise Environment

Project Site Under Existing Conditions

The project site is located on either side of Tasman Drive between Great America Parkway and Lafayette Street. The site is bounded by the Santa Clara Golf and Tennis Club to the north, the Amtrak/ACE rail line and a residential neighborhood to the east, a residential neighborhood to the south, and Great America Theme Park and commercial/office development to the west. The site is also approximately 2.4 miles southeast of Mineta San José International Airport. The existing noise environment is created primarily by vehicular traffic, operation of the theme park, trains, and aircraft flyovers. Based on noise contours from the Mineta San José International Airport Noise Exposure Map, the project site is located within the Airport Land Use Commissions (ALUC) identified 65 decibel boundary.[57]

In order to quantify the ambient noise levels in the project area, several noise measurements were completed. The noise monitoring survey in the project area focused on the noise levels in the residential neighborhoods and included four long-term measurements (approximately 96 hours in duration) and five short-term measurements (approximately 10 minutes in duration). The short-term and long-term noise monitoring locations for the project area are shown on Figure 71.

The short-term noise measurements were made at five locations representative of noise-sensitive land uses in the project area. The data was collected in the afternoon to establish typical ambient daytime noise levels. Noise levels at these locations varied depending on the proximity of the measurement

[56] Conditionally acceptable allows new construction or development to be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features are included in the design.
[57] http://www.sjc.org/community/noise.html

NOISE MEASUREMENT LOCATIONS

FIGURE 71

site to the nearby major noise sources, and the number, type, and relative location of aircraft passing overhead. A summary of the short-term noise measurements are shown in Table 30.

TABLE 30
Summary of Short-Term Noise Measurement Data in Project Area

Measurement Locations	Average Noise Level (dBA, L_{eq})	Day-Night Average Noise Level (dBA, L_{dn})
ST-1: Adobe Wells Mobile Home Park, near unit No. 67.	52	Weekend – 50 to 51 Weekday – 55
ST-2: Gianera Street at Lakeshore Drive	56	Weekend – 62 Weekday - 65
ST-3: Lick Mill Park, 100 feet from the center of Lafayette Street.	60	Weekend – 63 to 64 Weekday – 62
ST-4: Multi-family residences north of Calle de Escuela.	67	Weekend – 60 to 61 Weekday – 63
ST-5: Multi-family residences northwest of Tasman Drive at Renaissance Drive.	57	Weekend – 53 to 54 Weekday – 58

Long-term noise monitoring location LT-1 was located west of the project site near the intersection of Tasman Drive and Patrick Henry Drive. This location was chosen to document existing traffic noise generated by vehicles on Tasman Drive and the light rail train, and establish the daily trend in noise levels in the vicinity of the residences west of the project site.[58] The noise measurements were made approximately 140 feet south of the Tasman Drive/light rail line centerline at an elevation of 12 feet above the ground surface. The results of the LT-1 noise measurement are summarized in Table 31 below.

TABLE 31
Long-term Noise Monitoring Location LT-1 Results

Time of week	Daytime Average	Day-Night Average
Weekday	62 to 67 dBA L_{eq}	67 dBA L_{dn}
Weekend	57 to 62 dBA L_{eq}	62 to 63 dBA L_{dn}

The second long-term noise monitoring location (LT-2) was approximately 2,000 feet southeast of the project site in Fuller Street Park. This location was chosen to document ambient noise in the single-family residential neighborhood south of the project site. Noise in this area is mainly due to aircraft flyovers. The results of the LT-2 noise measurement are summarized in Table 32 below.

TABLE 32
Long-term Noise Monitoring Location LT-2 Results

Time of week	Daytime Average	Day-Night Average
Weekday	60 to 65 dBA L_{eq}	65 dBA L_{dn}
Weekend	60 to 65 dBA L_{eq}	62 dBA L_{dn}

The aircraft flyovers generate instantaneous noise levels of 75-85 dBA L_{max} every few minutes between the hours of 6:00am and 11:00pm, which increases the average daytime noise levels.

[58] These residences are located approximately 4,500 feet (0.85 miles) away from the stadium site in the City of Sunnyvale.

The third long-term noise monitoring location (LT-3) was approximately 1,700 feet east of the stadium site in Lick Mill Park. The monitoring location was approximately 180 feet east of the centerline of Lafayette Street. Noise in this area is mainly the result of vehicles, aircraft, and intermittent railroad trains. The LT-3 noise measurements are summarized in Table 33 below.

TABLE 33
Long-term Noise Monitoring Location LT-3 Results

Time of week	Daytime Average	Day-Night Average
Weekday	60 to 66 dBA L_{eq}	65 to 67 dBA L_{dn}
Weekend	55 to 63 dBA L_{eq}	65 to 67 dBA L_{dn}

The nighttime average was typically higher than the daytime average due to maximum instantaneous noise levels of 92 dBA measured during the 6:00 am hour on each day.

The final long-term noise monitoring location (LT-4) was in Fairway Glen Park; approximately 2,100 feet east of the proposed stadium site. This location was chosen to document ambient noise in nearby residential areas not located adjacent to major roadways. Noise in this area is mainly the result of aircraft flyovers. The LT-4 noise measurements are summarized in Table 34 below.

TABLE 34
Long-term Noise Monitoring Location LT-4 Results

Time of week	Daytime Average	Day-Night Average
Weekday	57 to 67 dBA L_{eq}	63 dBA L_{dn}
Weekend	49 to 62 dBA L_{eq}	60 to 61 dBA L_{dn}

The flyovers from departing aircraft generate instantaneous noise levels of 70-80 dBA L_{max} every few minutes between the hours of 6:00am and 11:00pm, which increases the average daytime noise levels.

Candlestick Park During an NFL Event

The 49ers team currently plays home games at Candlestick Park. Candlestick Park is located at Candlestick Point, which is at the southern end of the City of San Francisco on the western shore of the San Francisco Bay just east of Highway 101. In order to quantify game day noise, noise measurements were taken at Candlestick Park on Sunday December 7, 2008 before, during, and after a regular season football games. Game day attendance at the park was 67,782 and the 49ers team won the game with a score of 24-14. Because attendance was close to the capacity of the proposed stadium and the game was won by the home team, it is likely that the noise measurements taken are representative of an exuberant NFL event that would occur at the proposed stadium.
The noise monitoring survey at Candlestick Park included two long-term measurements and three short-term measurements. The long-term measurements were taken in one- and five-minute intervals. The duration of the short-term measurements ranged from 20 to 60 minutes. The short-term and long-term noise monitoring locations for Candlestick Park are shown on Figure 72.

Long-term noise monitoring location LT-5 was located above the press box at the top of the stadium. This location was chosen to identify maximum noise levels from specific events such as fireworks or touchdowns. The results from the noise monitoring at LT-5 is summarized in Table 35 below.

NOISE MEASUREMENT LOCATIONS

FIGURE 72

TABLE 35 Long-term Noise Monitoring Location LT-5 Results	
Game Day Noise Events	**Measured Noise Level**
Pre-game	65 dBA Leq
Average Game Noise	78 to 92 dBA Leq
First Down or Defensive Stop by Home Team	95 to 97 dBA Leq
Touchdown by Home Team	99 to 103 dBA Leq

Long-term noise monitoring location LT-6 was located at Candlestick Point Park approximately 1,350 feet southeast of the stadium edge and approximately 1,800 feet from the center of the playing field. Ambient noise levels at this location ranged from 57 to 61 dBA L_{eq} prior to the start of the game. These average noise levels were primarily the result of tailgating activities at the Candlestick Point Park parking lot and the main stadium parking lots west of Hunters Point Expressway. Tailgating noise sources included radios, televisions, portable power generators, conversations, laughter, and shouting. These noises decreased around 1:00 pm, just prior to kick-off. By the end of the first quarter, average noise levels fell to approximately 55 dBA L_{eq}. During the third quarter, average noise levels began to rise. Near the end of the game, average noise levels again reached pre-game levels of approximately 60 dBA L_{eq} and then increased to about 63 dBA L_{eq} as spectators exited the stadium. The ambient noise level increased substantially between about 4:15pm and 4:25 pm when celebrating fans launched fireworks in the main parking lot. The sounds of the loudest events inside the stadium (i.e., first down/defensive stop by home team and touchdown by home team) were measured, on average, five dBA or more below the maximum noise levels generated by tailgating activities.

In addition to the long-term measurements, short-term noise measurements were made at three locations outside Candlestick Park at varying distances from the stadium (1,350 to 1,800 feet) to help quantify the noise levels of an NFL event beyond the boundaries of the stadium. A summary of the short-term noise measurements are shown in Table 36.

TABLE 36 Summary of Short-Term Noise Measurement Data (dBA) at Candlestick Park					
Measurement Location	**Distance from Stadium Edge**	**Public Address System**	**National Anthem**	**Cheering**	**Pre-Game Fireworks**
ST-6	1,350 feet	50-56	---	52-65	---
ST-7	1,450 feet	50-55	62	55	61
ST-8	1,800 feet	47	---	48-60	---

4.10.2 Noise Impacts

4.10.2.1 Thresholds of Significance

For the purposes of this EIR, a noise or vibration impact is considered significant if the project would:

- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies; or

- Expose persons to, or generate excessive groundborne vibration or groundborne noise levels; or
- Create a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project[59]; or
- Create a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project[60]; or
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels; or
- For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

Based on the City of Santa Clara's Municipal Code, a project would have a significant impact on residential land uses is it would expose residence to noise levels in excess of 55 dBA Leq during the day and 50 dBA Leq at night. If the alleged offensive sound or noise contains music or speech conveying informational content, the limits shall be reduced by five dBA. Where ambient noise levels exceed the established standards, the standards are adjusted upwards to equal the ambient noise level.

4.10.2.2 Impacts From the General Plan Amendment

Since the proposed text amendment will allow a stadium as a land use, some of the noise impacts of this particular use are an impact of the proposed amendment. Those impacts associated with other types of entertainment and construction are not a function of the new use, but could occur without the amendment. The length of the construction project is partly a function of building size (which is a result of the amendment) so the degree of significance of construction noise may be derived from the increased height and building coverage.

Impact NOI-1: The increase in allowable building size could lengthen construction periods, exposing sensitive receptors to additional construction noise. **(Significant Impact)**

4.10.2.3 Noise Impacts to the Project Site

Stadium Site – Sub-Area C

The major source of noise affecting the proposed stadium would be aircraft operations associated with Mineta San José International Airport. The Community Noise Exposure Level (CNEL) noise contour established for the airport shows the project site is within the 65 dBA noise contour. Commercial and recreational land uses are considered compatible with airport noise in a noise environment of 65 CNEL or less.

Maximum noise levels generated by aircraft departing Mineta San José International Airport range from approximately 75 to 87 dBA L_{max} on the stadium site when planes are overhead. Maximum instantaneous noise events associated with airport operations would not constrain the functionality of the proposed stadium during large events such as NFL games or concerts because the maximum instantaneous noise level would be at or below the average operational noise levels expected to occur due to crowd noise or amplified music. Noise from local traffic along Tasman Drive and VTA light-

[59] A substantial permanent increase in noise is defined as 3 dBA L_{dn} or greater above ambient conditions.
[60] A substantial temporary or periodic increase in noise is defined as 5 dBA or greater above ambient conditions.

rail trains would not contribute to ambient noise levels within the stadium. Smaller events within the open area of the stadium, particularly events more sensitive to environmental noise intrusion like graduation ceremonies, speeches, etc., may not be compatible with the maximum instantaneous noise events associated with the airport. The use of the stadium for smaller outdoor events would be at the discretion of the City of Santa Clara and the event organizers with full knowledge of the noise issues. Furthermore, some small scale events could be accommodated within the enclosed areas of the stadium.

Based on noise monitoring in the project area, the average ambient noise levels in the project area are approximately 64 dBA, which is consistent with the City's "normally acceptable" noise level standard for recreational land uses of 65 dBA. The stadium site would, however, be exposed to instantaneous noise events in excess of 65 decibels due to airport operations. Because noise generated by large events at the stadium would exceed the maximum instantaneous noise event levels in the environment and smaller events could be held within the enclosed areas of the stadium, stadium occupants would not be significantly impacted by noise from Mineta San José International Airport.

Impact NOI-2: Future users of the proposed stadium will not be impacted by the existing noise environment in the project area. **(Less Than Significant Impact)**

Sub-Areas A, B, and D

The proposed land uses on Sub-Areas A, B, and D are not sensitive land uses and will not be adversely affected by any of the existing noise sources in the project area or by the construction and operation of a stadium on Sub-Area C.

Impact NOI-3: The proposed land uses on Sub-Areas A, B, and D would not be adversely impacted by the existing noise environment in the project area. **(Less Than Significant Impact)**

4.10.2.4 Project-Generated Noise Impacts

As discussed in Section 4.10.1.4, noise measurements were taken at Candlestick Park during a standard NFL event in order to identify the likely noise impacts from the proposed project. The noise study found that prior to, during, and after NFL events, noise is generated by the game time as tailgating activities and post game celebrations.

Tailgating Activities

The proposed stadium will include tailgating activities in off-site surface parking lots, if approved by the property owner. Tailgating can begin up to five hours prior to kickoff and ends just before the start of the game. Based on operational statistics of Candlestick Park, approximately five percent of attendees arrive up to five hours prior to the start of the game. Approximately 35 percent of attendees arrive two hours prior to the start of the game. Most of attendees arrive less than one hour prior to kick-off.

Noise associated with tailgating activities is primarily caused by radios/stereo systems, televisions, portable power generators, and talking/shouting. The maximum noise levels generated by tailgating activities at Candlestick Park typically ranged from 65 to 75 dBA L_{max}. Hourly average noise levels

ranged from 57 to 63 dBA L_{eq}. All measurements were taken approximately 300 feet from the acoustical center of the tailgating activities.

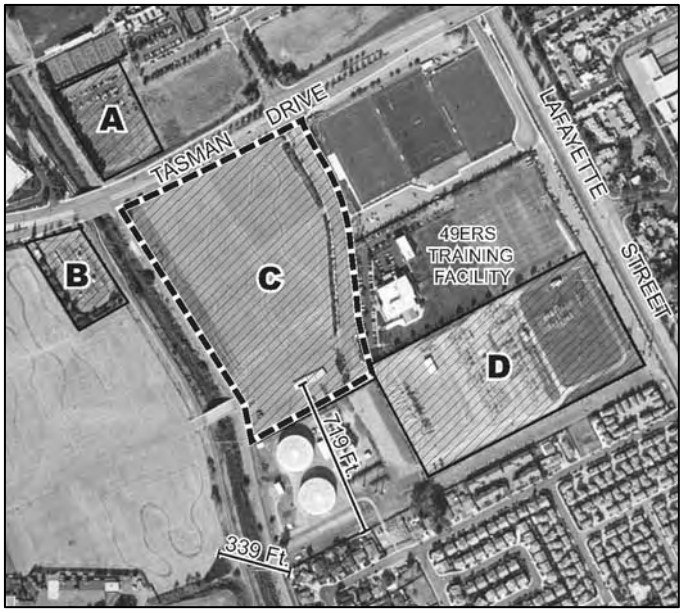


Figure 73 - Distance between project noise sources and sensitive receptors

In order to determine the noise affect of tailgating during future NFL events at the proposed stadium site, the ranges of noise levels measured at Candlestick Park were combined with the ambient noise levels measured at Fuller Street Park (site LT-2). Ambient noise levels at Fuller Street Park are representative of noise levels in the residential neighborhood south of the stadium site, which are the nearest sensitive receptors to the project site. The parking area for stadium attendees closest to this residential neighborhood is the main parking lot for the Great America Theme Park. As shown on Figure 73, the edge of the Great America parking lot is approximately 340 feet away from the nearest residence. Therefore, the distance between the residential neighborhood and the tailgating activities is comparable to the distance between the noise monitoring equipment and the tailgating activities at Candlestick Park.

It was determined that the maximum noise levels generated by tailgating activities (65 to 75 dBA L_{max}) would fall within the range of current ambient noise levels during aircraft flyovers (75 to 85 dBA L_{max}). Similarly, hourly average noise levels would fall within the range of ambient hourly average noise levels. Tailgating activities would, however, introduce new sources of noise that are more continuous in nature and that would substantially increase ambient noise levels when aircraft, railroad, and/or vehicle noise is not present. Tailgating activities would exceed typical background noise levels (42 to 47 dBA without aircraft, train, or traffic noise) by 15 to 21 dBA.

If two teams were to use this stadium, there would be a maximum of 20 game days between August and December, four pre-season and 16 regular season games. If, an NFL team occupying the proposed stadium were to qualify for the play-offs and earn home field advantage, it is reasonable to assume that up to two additional games would be held in January. Noise from tailgating activities would exceed typical background levels within approximately 1,900 feet of the southernmost parking area. The actual area of impact would be approximately 1,100 feet from the southernmost parking area, affecting about 50 single-family houses and the Villa Place Apartments (see Figure 74). The remaining residences within the neighborhood would be partially shielded by existing structures which would provide approximately five to 10 dBA of attenuation. The tailgating would have a significant impact on the neighborhood area immediately south of the stadium site on game days.

Impact NOI-4: Tailgating activities would have a significant noise impact on nearby residents on game days. **(Significant Impact)**

AERIAL PHOTOGRAPH SHOWING TAILGATING NOISE IMPACT ZONE

FIGURE 74

Stadium Activities

Noise generated during an NFL game is mostly the combined effect of the public address (PA) system, music, and crowd noise. The maximum noise levels generated by game activities at Candlestick Park typically ranged from 95 to 103 dBA L_{max}. Hourly average noise levels ranged from 78 to 92 dBA L_{eq}. These measurements were taken approximately 175 feet from the playing field at the top of the stadium. Noise measurements taken outside the stadium at a distance of 1,350 feet showed maximum noise levels ranging from 60 to 70 dBA L_{max}. Hourly average noise levels ranged from 52 to 58 dBA L_{eq}.

As with the tailgating activities, the ranges of noise levels measured at Candlestick Park during the game were combined with the ambient noise levels measured for the surrounding residential neighborhoods. It was determined that the maximum noise levels generated by game activities would range from 55 to 68 dBA at the nearest residences located approximately 719 feet south of the stadium site (see Figure 75). These levels are consistent with the existing ambient maximum noise levels (60 to 65 dBA) and would be below the maximum noise levels resulting from aircraft flyovers. At the nearest residential receivers east of the stadium site, maximum noise levels from the stadium were calculated to be about 4 dBA lower (51 to 64 dBA L_{max})than the levels found in the southern neighborhood and would be below the maximum noise levels generated by aircraft, trains, and local traffic on Lafayette Street.

Hourly average noise levels generated during game time would range from 61 to 66 dBA L_{eq} within the residential neighborhood south of the stadium site and 57 to 62 dBA L_{eq} within the residential neighborhood east of the stadium site. Hourly average noise levels on game days would exceed typical Sunday afternoon average noise levels by about 4 dBA $L_{eq.}$ Game time noise levels would exceed typical background noise levels (i.e., the neighborhood noise level when aircraft, railroad, and/or vehicle noise is not present) by 19 to 24 dBA.

If two teams play at this stadium, there would be a maximum of 20 game days between August and December, four pre-season and 16 regular season games. If, an NFL team occupying the proposed stadium were to qualify for the play-offs and earn home field advantage, it is reasonable to assume that up to two additional games would be held in January. The noise impact zone from stadium activities is a radius of approximately 2,000 feet around the stadium (see Figure 75). The noise from NFL games would have a significant impact on the surrounding residential neighborhoods on game days.

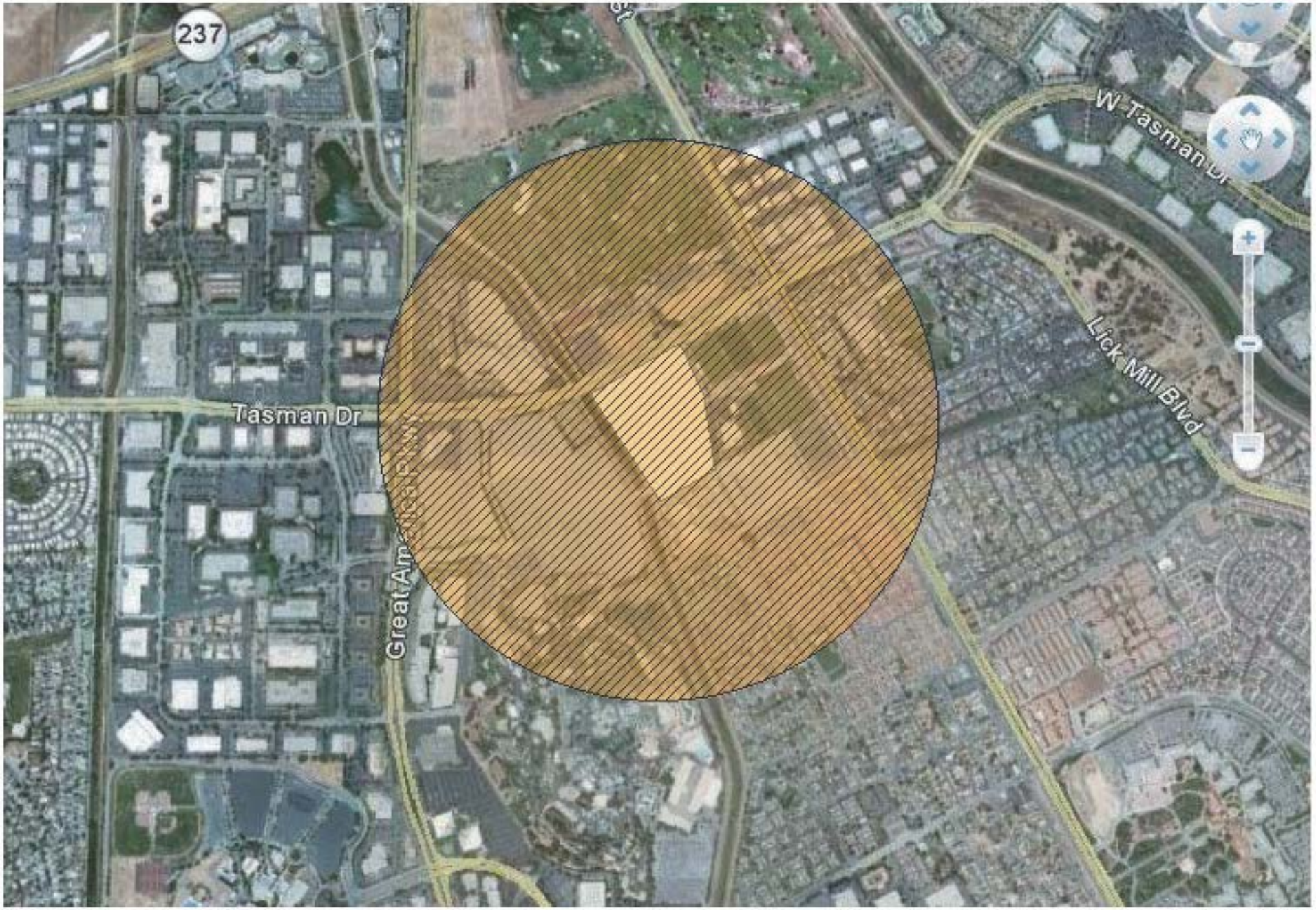
Impact NOI-5: Noise from NFL games would have a significant noise impact on nearby sensitive receptors on game days. **(Significant Impact)**

Non-NFL Events

Large Non-NFL Sporting Events

Non-NFL sporting events (such as X-games, motocross, and international soccer) would be expected to generate noise levels similar to an NFL event. Maximum noise levels would range from approximately 55 to 68 dBA at the nearest residences south of the stadium site and would be below the maximum levels generated by aircraft flyovers.

Hourly average noise levels would range from 61 to 66 dBA L_{eq} which would exceed ambient average noise levels by approximately 4 dBA L_{eq} and would exceed typical background noise levels by 19 to 24



AERIAL PHOTOGRAPH SHOWING STADIUM NOISE IMPACT ZONE **FIGURE 75**

dBA. Hourly average noise levels during these events would be noticeably higher than ambient average noise levels resulting from aircraft operations and would be substantially higher than background noise levels in the absence of any aircraft. Because these events would occur during evening or weekend daytime hours, the increase in ambient average noise levels over an extended period of time would be more obvious to nearby residents.

Based on the assumed schedule for the proposed stadium, large non-NFL sporting events would occur six days per year. The noise from these events would have a significant noise impact on the surrounding residential neighborhoods on the six days a year they are expected to occur.

Impact NOI-6: Noise from large non-NFL sporting events would have a significant noise impact on nearby residents on game days. **(Significant Impact)**

Concert Events

A concert at the proposed stadium would also be expected to generate noise levels audible in the surrounding residential neighborhoods. Concert noise levels would vary depending on the type of music performed. On average, concerts typically generate an average noise level of approximately 95 dBA L_{eq} measured 100 feet from the stage and speakers. Concert generated noise levels are likely to be similar or slightly less than the maximum crowd noise (i.e., cheering) at an NFL event. Concert noise levels would be approximately 66 dBA L_{eq} or less at the nearest residences south of the stadium site. Hourly average noise levels would exceed the ambient hourly average noise levels by 4 dBA L_{eq} and would exceed background noise levels by 19 to 24 dBA. Because concerts would occur during evening hours, the increase in ambient average noise levels over an approximately two to three hour period would be more obvious to nearby residents. Based on the assumed schedule for the proposed stadium, there would be one concert event per year.

Impact NOI-7: Concert noise would have a significant impact on the nearest residential neighborhoods on the one day a year that a concert occurs. **(Significant Impact)**

Stadium Operational Noise

The proposed stadium would include fixed noise sources such as cooling towers, heating, ventilation, and cooling equipment. The City of Santa Clara Municipal Code regulates noise generated by fixed sources. Noise levels generated by these types of equipment are required to be at or below 55 dBA during daytime hours (defined as 7:00am to 10:00pm) and 50 dBA during nighttime hours (10:00pm to 7:00am) at the property line.

Noise generated by mechanical equipment varies depending on the location, type, size, and capacity of the equipment as well as the design of the equipment enclosure. Details on the equipment specifications are typically not available until the design phase of any project. It is known, however, that noise generated by large capacity heating, ventilation, and cooling equipment can reach 70 dBA at a distance of 15 feet. The nearest residences are located approximately 700 feet south of the stadium site. At this distance, noise generated by mechanical equipment would be approximately 37 dBA or less assuming no sound attenuation from barriers or acoustical enclosures.

Noise generated by the operation of mechanical equipment on the stadium site will not exceed the City's Municipal Code noise standards and will not temporarily or permanently increase ambient noise levels in the residential areas.

Impact NOI-8: The operation of mechanical equipment on the stadium site will have a less than significant impact on sensitive noise receptors. **(Less Than Significant Impact)**

Project-Generated Traffic Noise

Traffic associated with stadium events would substantially increase traffic volumes on local roadways (particularly Tasman Drive and Great America Parkway) serving the project site. There would be brief periods of time before and after stadium events where traffic would flow at the posted speed limit, thus increasing existing noise levels at these times. Most of the time, however, the unusually large volumes of traffic entering the project area would result in substantial congestion (see Section 4.8, *Transportation)* and significantly decreased average travel speeds. The deceased traffic speeds would lower the traffic noise levels.

For any given stadium event, traffic noise would only increase for very short periods of time when traffic is free flowing and able to travel at the posted speed limits. The noise increases resulting from stadium traffic would be extremely limited in duration and would not permanently increase ambient noise levels in the project area. Furthermore, the roadways that will carry most of the traffic, Tasman Drive and Great America Parkway, are not adjacent to either of the nearby residential neighborhoods[61].

Impact NOI-9: Traffic noise would have a less than significant impact on sensitive noise receptors. **(Less Than Significant Impact)**

Substation Relocation

The existing Tasman Substation, located at the northeast corner of the Great American Theme Park main parking lot (Sub-Area B), is proposed to be relocated to the west end of the Silicon Valley Power Northern Receiving Station (Sub-Area D) immediately south of the stadium site.

Transformers in electrical substations produce a low frequency electrical hum and cooling fans produce broad band sounds. When substations are located near residences, occupants can be disturbed by low frequency noise from the transformers.

As stated above, the City of Santa Clara Municipal Code limits noise from fixed sources at 55 dBA during daytime hours and 50 dBA during evening hours. Transformers operate 24 hours a day and noise levels vary depending on electric loads and cooling requirements. Substations generate noise levels of approximately 50 dBA at a distance of 80 feet. The nearest residences are approximately 90 feet from the southernmost boundary of the receiving station and the substation will be set back from the property line. Because the residences are more than 80 feet away from the substation relocation site, the noise from the transformers will be less than 50 dBA which is below the City's Municipal Code standards. Ambient noise levels in the residential neighborhood to the south will not noticeably increase over existing levels.

Impact NOI-10: Relocation of the existing substation will not noticeably increase noise levels in the surrounding residential neighborhoods and will not impact sensitive receptors. **(Less Than Significant Impact)**

[61] While Tasman Drive does pass by the residential neighborhood east of the stadium site, the Transportation Management Plan assumes that Tasman Drive will be closed to through traffic traveling west on Tasman. Therefore, traffic volumes on Tasman Drive near the residential neighborhood should not significantly increase during stadium events.

4.10.2.5 Construction Impacts

Construction Noise

Construction of the proposed project would temporarily increase noise levels in the project area. Construction activities generate considerable amounts of noise, especially when heavy equipment is used. Construction equipment for a large project would typically include, but is not limited to, earth-moving equipment and trucks, pile driving rigs, mobile cranes, compressors, pumps, generators, paving equipment, and pneumatic, hydraulic, and electric tools. Table 37 below shows the typical range of hourly average noise levels generated by difference phases of construction measured at a distance of 50 feet.

TABLE 37
Typical Range of Construction Noise Levels at 50 Feet from Construction Site (dBA L_{eq})

Construction Activity	Average Noise Levels
Ground Clearing	83 to 84 dBA
Excavation	88 to 89 dBA
Foundations	77 to 88 dBA
Building Construction	79 to 87 dBA
Finishing Work	84 to 89 dBA

Source: United States Environmental Protection Agency

Hourly average noise levels generated by demolition and construction are about 77 dBA to 89 dBA L_{eq} measured at a distance of 50 feet from the center of a construction site. During pile driving, hourly average noise levels could reach 94 dBA at L_{eq} at a distance of 50 feet. Maximum noise levels generated during demolition or foundation construction would range, on average, from 85 to 105 dBA L_{max} assuming the use of jackhammers, hoe rams, and impact pile drivers. Construction generated noise levels drop off at a rate of approximately 6 dBA per doubling of distance between the source and the receptor. Acoustical shielding provided by noise barriers or structures can provide an additional 5 to 10 dBA of noise reduction.

As proposed, construction activities would occur Monday through Saturday over a 28-month period. Major noise generating construction activities on-site would include excavation, relocation of the electrical substation to the Northern Receiving Station, construction of the stadium foundation utilizing pre-cast concrete piles (pile driving would last approximately three to four months), structural frame construction, and construction of the exterior walls. Interior improvements would occur after construction of the exterior walls and would include installation of seating, scoreboards, and the playing field as well as installation of mechanical, electrical, plumbing, and audio/visual equipment. Interior improvements would not generate significant noise levels within the residential neighborhoods.

Construction noise impacts are the combined result of noise from construction equipment, the timing and duration of the noise, and the distance between the noise source and the noise sensitive receptors. The threshold for construction noise impacts varies by the affected land use. For residential land uses, noise levels that exceed 60 dBA L_{eq} and exceed the ambient noise levels by 5 dBA L_{eq} or more for a period of more than one construction season would be considered significant. For industrial office and commercial land uses, noise levels that exceed 70 dBA L_{eq} and exceed the ambient noise levels by 5 dBA L_{eq} or more for a period of more than one construction season would be considered significant. Table 38 below shows the range of hourly average noise levels that would occur at nearby sensitive uses during construction of the proposed project.

TABLE 38 Range of Construction Noise Levels at Nearby Land Uses (dBA L_{eq})				
Land Use	**Distance from Project Site**	**Direction from Project Site**	**Typical Construction Noise Level Range**	**Pile Driving Construction Noise Levels**
Industrial Office	300 ft from parking structure site	Northwest	61-73	78
Industrial Office	600 feet from stadium site	Northwest	55-67	72
Recreation - Golf/Tennis	65 ft from parking structure site	North	75-87	92
Recreation - Golf/Tennis	600 feet from stadium site	North	55-67	72
Residential Lafayette St	1,100 ft from stadium site	East	50-62	67
Residential Gianera St	100 ft from stadium site surface parking	South	71-83	88
Residential Gianera St	700 feet from stadium site	South	54-66	71
Theme Park	1,100 ft from stadium site	Southwest	50-62	67

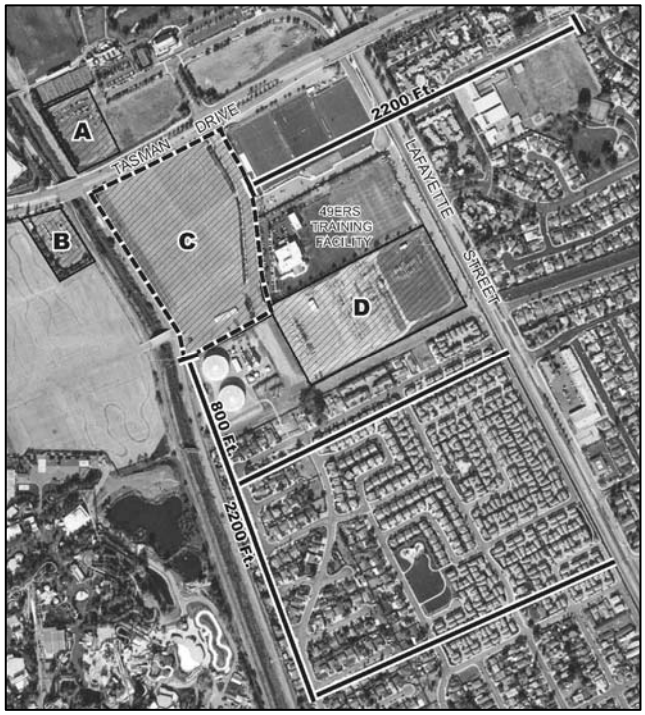


Figure 76 - Pile Driving Noise Distances

As shown in Table 38, noise from the loudest phases of construction would range from 50 to 87 dBA L_{eq} at adjacent land uses. Construction noise levels would exceed 70 dBA L_{eq} within approximately 450 feet of the project site, which would impact nearby industrial office, recreational, and commercial land uses. Hourly average noise levels would exceed 60 dBA L_{eq} within 1,400 feet of the project site, which would impact nearby residences. Pile driving noise levels would range from 67-92 dBA L_{eq}. Hourly average noise levels would exceed 70 dBA L_{eq} within approximately 800 feet of the project site and would exceed 60 dBA L_{eq} within approximately 2,200 feet of the project site during pile driving.

Construction noise levels would, at times, be intrusive to offices facing the construction site and in exterior use areas (yards) at nearby residences, the Golf and Tennis Club, and Great America Theme Park. Noise generated by construction activities would substantially increase background noise levels over a period of 28 months, resulting in a significant temporary impact.

Impact NOI-11: Construction activities will temporarily impact nearby sensitive receptors. **(Significant Temporary Impact)**

Construction Vibration

Demolition and construction activities proposed as part of the project would generate perceptible vibration levels when heavy equipment or impact tools are used in the immediate vicinity of nearby land uses. Heavy equipment such as bulldozers or excavators would generate perceptible groundborne vibration within approximately 25 feet of the operation area. Impact tools such as pile drivers would generate perceptible groundborne vibration within approximately 100 feet of the operation area.

Residences are located more than 700 feet from the areas of the project site where major construction activities such as pile driving would occur. Groundborne vibration generated by construction of the proposed project would not be perceptible at nearby houses and would not result in cosmetic or structural damage to nearby buildings.

Impact NOI-12: Groundborne vibration resulting from construction activities will have a less than significant impact on nearby sensitive receptors. **(Less Than Significant Impact)**

4.10.3 Mitigation and Avoidance Measures for Noise Impacts

4.10.3.1 General Plan Policies

Conformance with the following General Plan Policy would reduce noise impacts from the proposed project:

- *Noise Policy No. 24* states that the City should reduce noise from fixed sources, construction, and special events.

4.10.3.2 Other Program Mitigation

Conformance with the City's Noise Ordinance (Municipal Code 9.10.040) would reduce noise impacts of the proposed project:

- It shall be unlawful for any person to operate or cause to allow to be operated, any fixed source of disturbing, excessive or offensive sound or noise on property owned, leased, occupied or otherwise controlled by such person, such that the sound or noise originating from that source causes the sound or noise level on any other property to exceed the maximum noise or sound levels which are set forth in Schedule A of the Municipal Code. Except as otherwise provided in this chapter, the noise or sound standards for the various zone districts as presented in this Schedule A shall apply to all such properties within a specified zone, as designated on the most recent update of the official zoning map of the City. For planned development, agricultural or mixed zoning site, the most restrictive noise standard for the comparable zone district, as determined by the Director of Planning and Inspection, shall apply. (Ord. 1588 § 1, 6-14-88. Formerly § 18-26.4).

4.10.3.3 Project Specific Mitigation

The following project specific mitigation measures are proposed by the project and will be implemented to lessen or avoid identified significant noise impacts:

Stadium Event Mitigation

- Tailgating activities shall not occur prior to 9:00 am on game days in the Great America Theme Park, Golf and Tennis Club, and stadium parking areas. These parking areas will be barricaded until 9:00 am to preclude event attendees from arriving prior to 9:00 am.

- Tailgating in surface parking areas within 750 feet of residences will be prohibited. Posted signs and security patrols of these parking areas prior to, during, and after game times will enforce this restriction.

- The use of loudspeakers, stereo systems, or fireworks within the Great America Theme Park, Golf and Tennis Club, and stadium parking areas would be prohibited. Posted signs and security patrols of these parking areas prior to, during, and after game times will enforce this restriction.

- Post-event clean up activities in parking lots located within 750 feet of residences shall be completed prior to 10:00 pm the day of the game or no earlier than 9:00 am the following morning.

- A Disturbance Coordinator will be designated by the Stadium Authority to investigate and respond to noise complaints. The name and contact information of the Disturbance Coordinator will be made readily available to all residents and businesses within the project area.

Even with the proposed mitigation, noise levels generated by all NFL game related activities would not be reduced to background noise levels at nearby residences. As a result, NFL events would have a significant unavoidable noise impact.

Construction Mitigation

- The applicant will be required to develop a Construction Mitigation Plan that will schedule construction activities so as to minimize noise disturbances to sensitive land uses. The Construction Mitigation Plan will include but is not limited to the following:

    - The holes for the piles will be pre-drilled.

    - Pile driving shall be prohibited on weekends and holidays to minimize disturbances at the theme park, Golf and Tennis Club, and residences.

    - Construction within 300 feet of any residentially zoned property shall only occur within designated time limits. Construction within 300 feet of any residence will only occur between the hours of 7:00 am to 6:00 pm on weekdays (other than holidays) and between 9:00 am and 6:00 pm on any Saturday that is not a holiday. No construction will be permitted on Sundays or holidays.

    - The contractors shall utilize “quiet” models of air compressors and other stationary noise sources where technology exists.

- Contractors shall equip all internal combustion engine-driven equipment with mufflers that are in good condition and appropriate for the equipment.

- Temporary noise barriers shall be used during grading and foundation work.

- Staging areas and construction material storage areas will be located as far away as possible from nearby residences.

- Unnecessary idling of internal combustion engines shall be prohibited.

- All nearby noise sensitive land uses within the area of impact shall be notified in writing of the construction schedule.

- A Disturbance Coordinator will be designated by the applicant. The Coordinator shall be responsible for responding to any local complaints about construction noise. The Coordinator will determine the cause of the noise complaint and implement reasonable measures to correct the problem. A telephone number for the Coordinator will be clearly posted at the construction site and included in the notice sent to nearby properties regarding the construction schedule.

The proposed mitigation will reduce construction noise levels but will not reduce construction noise to existing background noise levels. Construction of the proposed project will expose sensitive noise receptors to increased background noise levels for more than two years.

4.10.4 Conclusion

4.10.4.1 General Plan Text Amendment

The proposed General Plan text amendment would not result in a significant noise impact. **(Less Than Significant Impact)**

4.10.4.2 Impacts to the Stadium

Operation of the stadium would not be impacted by the existing noise environment. **(Less Than Significant Impact)**

4.10.4.3 Stadium Events

Given the ambient day-night average noise levels resulting from aircraft and other transportation noise sources in the project area, the use of the stadium for NFL events would not substantially increase day-night average noise levels at nearby noise sensitive land uses. The project would, however, introduce new sources of noise that are more continuous in nature that would substantially increase ambient noise levels when aircraft, railroad, and/or vehicle noise is not present. The use of the stadium for NFL events would substantially increase noise levels on as many as 20 game days per year for up to 10 hours, resulting in a significant noise impact.

Large non-NFL events would also introduce new sources of noise that are more continuous in nature that would substantially increase ambient noise levels when other noise sources are not present. The

use of the stadium for large non-NFL events would substantially increase noise levels on as many as 26 days per year, resulting in a significant noise impact.

There are no feasible mitigation measures that would reduce noise levels generated by all NFL game related activities and large non-NFL events to background noise levels at nearby residences (see discussion in Section 7.5.3, *Enclosed Stadium Alternative*). As a result, stadium events would have a significant unavoidable noise impact. **(Significant Unavoidable Impact)**

4.10.4.4 Stadium Operations

Noise generated by fixed noise sources within the stadium grounds would not exceed Municipal Code noise standards or ambient noise levels in the project area or result in a substantial permanent noise increase at nearby noise sensitive land uses. **(Less Than Significant Impact)**

4.10.4.5 Traffic Generated Noise

Project generated traffic would not permanently or substantially increase the ambient noise levels at noise sensitive land uses along roadways serving the project site. **(Less Than Significant Impact)**

4.10.4.6 Relocation of the Electrical Substation

Noise generated by the electrical equipment that will be relocated from Sub-Area B to Sub-Area D (Northern Receiving Station) will not exceed Municipal Code noise standards or permanently increase background noise levels. **(Less Than Significant Impact)**

4.10.4.7 Project Construction

Noise generated by construction activities would substantially increase ambient noise levels at the nearby industrial, commercial, and residential land uses for a period of approximately 28 months. Implementation of the proposed mitigation will reduce impacts from construction noise levels. Nevertheless, the mitigation will not reduce construction noise to the same level as existing background noise. As a result, construction of the proposed project will expose sensitive noise receptors to increased background noise levels for more than two years. **(Significant Unavoidable Temporary Impact)**

Vibration levels generated during demolition and construction activities would not be perceptible at neighboring land uses and would not cause cosmetic or structural damage to any nearby buildings. **(Less Than Significant Impact)**

4.11 UTILITIES

The following analysis is based in part on a Water Supply Assessment and a Sanitary Sewer Capacity Assessment prepared by the City of Santa Clara. These reports can be found in Appendices L and M, respectively, of this EIR.

4.11.1 Existing Setting

4.11.1.1 Water Service

Background

Water service to the site is provided by the City of Santa Clara Water Utility. The Water System consists of more than 330 miles of water mains, 27 wells and seven storage tanks with more than 27 million gallons of water capacity. Drinking water is provided by an extensive underground aquifer (access by the City's wells) and by two wholesale water importers: the Santa Clara Valley Water District (SCVWD) (imported from the Sacramento-San Joaquin Delta) and the San Francisco Hetch-Hetchy System (imported from the Sierra Nevada Mountains). About 35 percent of the City's water comes from these imported treated water supplies. The remaining 65 percent is pumped from the City's system of 27 deep wells. The three sources are used interchangeably or are blended together. A water recharge program administered by SCVWD from local reservoirs and imported water enhances the dependability of the underground aquifer.

Project Conditions

Santa Clara's potable water system is separated into four interconnected zones. The project site is located in Water Zone 1 that is served by water purchased from the San Francisco Public Utility Commission (SFPUC) Hetch-Hetchy system and by groundwater.

For Sub-Area C, there is currently a two-inch water line located in Centennial Boulevard and another two-inch line in Tasman Drive. The current water usage on the stadium site is just to irrigate the perimeter landscaping. For the purposes of the Water Supply Assessment, it was assumed that the project site does not use any water. As a result, the WSA is slightly conservative in estimating the net increase in water demand with the proposed project.

Sub-Areas A, B, and D do not have irrigated landscaping. No source of water is currently required on Sub-Area A. There is likely some water usage on Sub-Areas B and D for operation of the substation and receiving station. Relocation of the substation to Sub-Area D will not change the confirmed use of water for these facilities.

Recycled Water

A 12-inch recycled water line currently crosses the southern portion of the stadium site. The project proposes to use recycled water for turf and landscape irrigation, toilet/urinal flushing, and cooling towers.

4.11.1.2 Sanitary Sewer/Wastewater Treatment

Background

Wastewater from the City of Santa Clara is treated at the San Jose/Santa Clara Water Pollution Control Plant (WPCP), located near Alviso. The WPCP is a regional wastewater treatment facility serving eight tributary sewage collection agencies and is administered and operated by the City of San José's Department of Environmental Services. The WPCP provides primary, secondary, and tertiary treatment of wastewater and has the capacity to treat 163 million gallons of wastewater a day (mgd).[62]

The WPCP is currently operating under a 120 million gallon per day dry weather effluent flow constraint. This requirement is based upon the State Water Resources Control Board and the Regional Water Quality Control Board concerns over the effects of additional freshwater discharges from the WPCP on the saltwater marsh habitat, and pollutant loading to the Bay from the WPCP. Approximately ten percent of the plant's effluent is recycled for non-potable uses and the remainder flows into San Francisco Bay.

Based on 1989 flow measurements and more current 2007 hydraulic modeling data,[63] the large interceptor mains and pump stations that convey Santa Clara's wastewater to the treatment plant have adequate capacity for existing wastewater flow. Based on hydraulic modeling of the system, however, several sewer mains and collector lines are at or near capacity. Implementation of projects currently under review and consistent with the existing General Plan would exceed the capacity of the existing system. These capacity deficiencies are based on the estimated increases in sanitary sewer flows resulting from the cumulative development and redevelopment projects (which will increase densities in mixed-use and transit-oriented areas) that are consistent with and included as part of the projected growth under the current General Plan. Most of the capacity issues are projected to occur on the western side of the City along the trunk line in Great America Parkway and Bowers Avenue and extending upstream into the smaller trunk lines in Chromite Drive, Machado Avenue, Calabazas Boulevard, and El Camino Real. The deficiencies are also attributable to the City's commitment to provide a defined volume of conveyance capacity for the City of Cupertino, based upon a contractual agreement entered into when the City of Santa Clara purchased an existing sewer trunk line from the Cupertino Sanitation District several years ago. Capacity deficiencies have also been predicted in the southeast portion of the City in Scott Boulevard and Park Avenue.

New development projects that result in a net increase in wastewater flow to the capacity-deficient areas of the sanitary sewer system will be required to contribute to improvements to the system. The hydraulic modeling study completed by the City in 2007 includes recommended solutions for the identified capacity issues. These solutions have been used to estimate capital improvement costs, which can be factored into the City's Capital Improvement Program and associated fee structure.

The evaluation of impacts upon the smaller collector mains will continue to depend on the location and type of development. Sewer mains near or adjacent to other large undeveloped or redevelopable parcels may have adequate capacity to accommodate most types of development on those sites; however, the type of development can radically impact reserve capacity within the conveyance system. It is a City requirement that new industrial, commercial, and major residential development be reviewed to determine projected wastewater load and available sewer capacity before zoning

[62] City of San Jose Website.
[63] *Sanitary Sewer Capacity Assessment Final Report*, RMC Water and Environment, May 2007.

approval or permits are approved. To the extent that additional sewer collection system improvements may be identified, such improvements will become the responsibility, in whole or in part, of the project applicants.

Project Conditions

For Sub-Area C, there is currently a 12-inch sanitary sewer line located in Centennial Boulevard. There is currently no wastewater generated by the stadium site.

Sub-Areas A, B, and D do not currently generate any wastewater.

4.11.1.3 Storm Drainage System

Background

The City of Santa Clara owns and maintains the municipal storm drainage system which serves the project site. The lines that serve the project site drain into San Tomas Aquino Creek and the Guadalupe River. San Tomas Aquino Creek and the Guadalupe River both flow into Guadalupe Slough which flows north, carrying the runoff from the storm drains into San Francisco Bay. Due to the levees on either side of the creek channel, there is no uncontrolled overland release of stormwater directly into any water body from the project site.

Project Conditions

The parking garage site drains into a 36-inch line that is located in the golf course area. The substation site drains into a 42-inch line that is located in Tasman Drive. The stadium site drains into a 30-inch line in Centennial Boulevard. The receiving station site drains into ~~a~~ two 30-inch lines in Centennial Boulevard and Stars and Stripes Drive.

4.11.1.4 Solid Waste

Background

Solid waste collection in the City of Santa Clara is provided by Mission Trail Waste System through a contract with the City. Mission Trail Waste Systems also has a contract to implement the Clean Green portion of the City's recycling plan by collecting yard waste. The City has an arrangement with the owners of the Newby Island Landfill, located in San Jose, to provide disposal capacity for the City of Santa Clara through 2024. Recycling services are provided through Stevens Creek Disposal and Recycling.

The City of Santa Clara is working to meet a waste diversion goal of 50 percent. According to the California Integrated Waste Management Board's web site, the City currently has a diversion rate of between 45 and 50 percent.

Project Conditions

Under existing conditions, the parking lots on Sub-Areas A and C do not generate any waste other than litter. The substation and receiving station likely generate small amounts solid waste, but the relocation of the substation to Sub-Area D will not change the overall waste generation for these facilities.

4.11.2 Utilities Impacts

4.11.2.1 Thresholds of Significance

For the purposes of this EIR, a utility and service impact is considered significant if the project would:

- Require or result in the construction of new stormwater or wastewater facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Need new or expanded entitlements for water supplies;
- Be served by a landfill with insufficient permitted capacity; or
- Would not comply with federal, state, and local statutes and regulations related to solid waste.

4.11.2.2 Water Impacts

The projected waster demand for the project is 157.4 acre feet per year. This estimate takes into account all water uses on the project site including landscaping, the playing field, bathrooms, office and retail space, and cooling towers. Based on historical water usage at Candlestick Park, water demand for all game days in a single year (assuming 22 games – 20 regular season and two post season) is estimated to be 22.2 acre feet per year. For all large non-NFL events (assuming 17 events over 26 days), the total water demand for a single year is 14.5 acre feet per year. For all the remaining calendar days (317 days total) when no large event is taking place, water demand is estimated at 120.7 acre feet per year. The non-event use includes irrigation, cooling towers, and operation of office and retail space within the stadium.

The parking garage proposed on Sub-Area A will require water for the sprinkler system. This would be a net increase in water usage since the existing parking lot does not generate any water demand. This demand, however, was accounted for in the Water Supply Assessment. Water usage on Sub-Areas B and D for operation of the substation and receiving station will not change with relocation of the substation to Sub-Area D. With relocation of the substation, Sub-Area B will become a surface parking lot. No water supply will be required for this land use and, since the landscaping is being removed, there may be an incremental reduction in water use.

As stated above, there is recycled (i.e., non-potable) water available for use at the project site. The project proposes to use recycled water to the extent feasible. Recycled water could be used for turf and landscape irrigation, cooling towers, and toilets. It is estimated that approximately 84 percent (131.8 acre feet per year) of the total yearly water demand for the project site could be met by recycled water. Therefore, the total potable water demand for the proposed project would be approximately 25.6 acre feet per year.

The current overall water demand in Santa Clara is lower than was projected by the 2005 Urban Water Management Plan (UWMP). During a multiple dry year event, the City projects no reduction in supplies from groundwater and SCVWD treated surface water based on an analysis provided by the SCVWD. SFPUC has indicated that during multiple critical dry years, the City would experience

a maximum reduction in Hetch-Hetchy water of 45 percent. The SFPUC, however, only provides 15 percent of the City's total water use which minimizes the effect of a reduction from this water source. In addition, the UWMP assumed a worst-case scenario for the SFPUC water supply over the next 20 years based on the 1987-1992 drought.

Implementation of the proposed project would result in a net increase in potable water usage on-site of 25.6 acre feet per year. The City of Santa Clara has determined that the level of development proposed on the project site and the projected increase in water demand is consistent with the growth projections and future water demand assumed in the preparation and analysis of the City's 2005 UWMP. The City's 2005 UWMP concluded that sufficient water supplies are available to meet the projected demands. As such, the City will be able to supply sufficient water to the project site.

There is a possibility that an NFL Super Bowl event could be played at the stadium once every five to 10 years. The increase in water usage for this additional event over a five to 10 year period would not have an impact on the City's potable or recycled water supply.

Impact UTL-1: The proposed project would have a less than significant impact on the City's long term water supply. **(Less Than Significant Impact)**

4.11.2.3 Sanitary Sewer/Wastewater Impacts

The sanitary sewer hydraulic model was used to evaluate the impact of the proposed project on the existing sanitary sewer system. The modeled pipelines were evaluated based on seating capacity assumptions for a Super Bowl event and under peak wet weather conditions for a 10-year design storm with the storm occurring in the AM and the game occurring in the PM. This represents the maximum impact scenario.

The hydraulic modeling analysis concluded that under the maximum impact scenario, the proposed project would not exceed the capacity of the existing sanitary sewer system and would not result in surcharging or overflowing of the lines.

Impact UTL-2: The proposed project would have a less than significant impact on the City's sanitary sewer system. **(Less Than Significant Impact)**

4.11.2.4 Storm Drainage Impacts

The City's existing municipal storm drainage system will serve the new development. With implementation of the proposed project, the amount of impervious surfaces on the site will increase by approximately 1.6 percent resulting in incrementally more stormwater entering the storm drainage system. The increase in impermeable surface area is approximately 31,209 square feet (less than three-fourths of an acre).

The existing storm drainage system has sufficient capacity to accommodate the existing runoff from the project site. The project proposes to include a retention system on-site capable of holding up to one acre-foot of runoff. This retention system will ensure that the runoff is metered out at a rate that will not impact the capacity of the existing system.

Impact UTL-3: The existing storm drainage system will continue to be sufficient to support the proposed development. **(Less Than Significant Impact)**

4.11.2.5 Solid Waste Impacts

Implementation of the proposed project will result in a substantial increase in solid waste and recyclable materials generated on the project site compared to existing conditions. During NFL events, solid waste would include trash from concessions, bathrooms, and tailgating activities. Non-NFL events would have the same type of waste with the exception of the waste generated by tailgating.

Based on records from the City of San Francisco, Candlestick Park generated 350 tons of solid waste in 2007 and 364.3 tons in 2008. Based on these numbers, it is estimated that the proposed stadium would generate approximately 1.9 pounds of garbage per person for NFL events[64]. For non-NFL events, the generation rate would be the same or less than for an NFL event depending on whether or not there is a provision for picnicking or other activity similar to tailgating.

Assuming 37 large events per year and 327 non-event days with office and retail operations, the project would generate approximately 3.6 million pounds per year of solid waste. The diversion rate for recyclable material at Candlestick Park is approximately 30 percent

The Newby Island Landfill, located in San Jose, has an agreement with the City to provide disposal capacity through 2024. There is no limit on the amount of waste materials the City can dispose of at this facility. The project will comply with the requirements of the Santa Clara Business/ Commercial Recycling Program to help the City meet its waste diversion goal of 50 percent. Even with 45 percent of all solid waste from the stadium being recycled (which is comparable to the City's current diversion rate), the project would generate approximately 1.6 million pounds of garbage per year that would need to go to a landfill. While the increase in solid waste production would place an additional burden on existing landfill facilities, new landfill facilities will not need to be constructed to service the proposed project.

Impact UTL-4: The proposed project would have a less than significant impact on solid waste disposal facilities in Santa Clara County. **(Less Than Significant Impact)**

4.11.3 Mitigation and Avoidance Measures for Utilities Impacts

No mitigation is required or proposed.

4.11.4 Conclusion

Implementation of the proposed project will not exceed the capacity of the existing storm drainage system or sanitary sewer system, will not exceed the available water supply, or exceed the capacity of local landfills. Therefore, no new facilities or infrastructure will be required to support the proposed project. **(Less Than Significant Impact)**

[64] This number is based on 364 tons of garbage per year with 10 events per year. That would be 36.4 tons per game with a total seating capacity of 69,700, which equates to 1.9 pounds of garbage per person.

4.12 ENERGY

This section was prepared pursuant to CEQA Guidelines Section 15126.4 (a)(1)(c) and Appendix F which requires that EIRs should include a discussion of the potential energy impacts of proposed projects with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

4.12.1 Introduction

Energy consumption is analyzed in an EIR because of the environmental impacts associated with its production and usage. Such impacts include the depletion of nonrenewable resources (e.g., oil, natural gas, coal, etc.) and emission of pollutants during both the production and consumption phases.

Energy usage is typically quantified using the British Thermal Unit (BTU).[65] As points of reference, the approximate amount of energy contained in a gallon of gasoline, a cubic foot of natural gas, and a kilowatt hour (kWhr) of electricity are 123,000 BTUs, 1,000 BTUs, and 3,400 BTUs, respectively.

Energy conservation is embodied in many federal, state and local statutes and policies. At the federal level, energy standards apply to numerous products (e.g., the EnergyStar™ program) and transportation (e.g., fuel efficiency standards). At the state level, Title 24 of the California Administrative Code sets energy standards for buildings, rebates/tax credits are provided for installation of renewable energy systems, and the Flex Your Power program promotes conservation in multiple areas. The City of Santa Clara currently has a policy (Public Facilities & Services Element Policy No. 7) in place that promotes energy conservation through the continued development of an innovative energy program to develop cost effective new power sources and encourage conservation.

4.12.2 Existing Setting

Total energy usage in California was 8,519 trillion BTU's in the year 2000, which equates to an average of 252 million BTU's per capita. Of California's total energy usage in 2000, the breakdown by sector was 18 percent residential, 19 percent commercial, 22 percent industrial, and 41 percent transportation. This energy was supplied in the form of petroleum (46 percent), natural gas (29.5 percent), renewable sources (9.0 percent), coal (8.0 percent), nuclear electric power (5.0 percent), and hydroelectric power (2.5 percent)[66].

Given the nature of the proposed project, the remainder of this discussion will focus on the three most relevant sources of energy: electricity for stadium operations, natural gas for stadium operations, and gasoline for vehicle trips to stadium events.

4.12.2.1 Electricity and Natural Gas

Electricity is provided in Santa Clara by the City's own public utility and natural gas is provided by Pacific Gas & Electric. The state of California currently requires that energy saving measures be applied to new construction through the California Building Standards Code.

[65] The British Thermal Unit (Btu) is the amount of energy that is required to raise the temperature of one pound of water by one degree Fahrenheit.

[66] California Energy Commission. 2007 Integrated Energy Policy Report.

Electricity

Electricity use in California grew from 250,241 gigawatt hours (GWh) in 2001 to 270,927 GWh in 2004[67]. Statewide annual peak demand is expected to grow, on average, 1.35 percent annually, to reach approximately 325,000 GWh in 2017[68].

California relies heavily on imported electricity from both the Southwest and the Pacific Northwest. By 2016, California utilities will need to procure approximately 24,000 megawatts (MW) of peak resources to replace expiring contracts, retiring power plants, and meet peak demand growth. This amount would maintain a 15 to 17 percent reserve margin[69].

Electricity usage in California for differing land uses varies substantially by the type of uses in a building, the type of construction materials used in a building, and the efficiency of all electricity-consuming devices within a building. The average annual usage of electricity is roughly 18 kWhr/square foot for office buildings.

Electricity supply in California involves a complex grid of power plants and transmission lines located in the Western United States, Canada, and Mexico. The issue is complicated by market forces that have become prominent since 1998, which is when a new regulatory environment commonly referred to as "deregulation" took effect in California. Supply is further complicated by the fact that the peak demand for electricity is significantly higher than the off-peak demand. For example, in August 2004, peak electric demand - due in large part to hot weather - reached a record high of 44,497 megawatts, which is almost double the lowest demand period.[70] The California ISO continued to deal with record electricity usage in the summer of 2006. Three new peak electricity usage records were set the week of July 17 to July 25, 2006, including a peak demand of 50,538 MW.[71]

In 2000-2001, electric demand exceeded supply on various occasions, which required utilities to institute systematic rotating outages to maintain the stability of the grid and to prevent widespread blackouts. Since that time, additional generating capacity has come on-line and upgrades to various transmission lines continue to occur.

According to the California Energy Commission's 2007 *Integrated Energy Policy Report*, population growth in California is expected to occur at a higher rate in the hotter, drier inland areas as more people move there, which will increase peak demand but also change the pattern of energy use. For example, inland areas during the summer months will require more air conditioning than costal areas which will increase peak demand more than overall demand. As a result, energy efficiency and demand response will become even more important[72].

The proposed project would replace two existing parking lots with a 68,500 seat open-air stadium and a parking structure. Demolition of the existing surface parking lots and construction of the proposed project would be completed in several phases. The electrical distribution system will be disrupted once demolition and construction activities commence. Relocation of the electric facilities

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[67] One gigawatt = one thousand megawatts = one million kilowatts = one billion watts
[68] California Energy Commission. 2007 Integrated Energy Policy Report.
[69] California Energy Commission. 2005 Integrated Energy Policy Report.
[70] Source: California Independent System Operator, 8/11/04.
[71] California Independent System Operator. 26 July 2006. http://www.caiso.com/183e/183ebd4414ad0.pdf
[72] Californian Energy Commission. 2007 Integrated Energy Policy Report.

in conflict with the demolition activities on-site and installation of new underground electric substructures, cables, switches, and associated electrical facilities away from the construction activities would provide the means necessary to maintain the distribution system and continue to supply electricity to the project site during all phases of construction. Upon completion of the project, electricity would likely be used for lighting and general power needs.

Natural Gas

In 2006, natural gas was used to produce electricity (44 percent), in industrial uses (23 percent), in commercial uses (10 percent), and in residential uses (22 percent), and for transportation (less than one percent). California imports 85 percent of its natural gas supplies from other states and Canada. California's natural gas supplies are increasingly threatened by declining production in the United Stated and growing demand in neighboring states.[73]

Natural gas usage in California for differing land uses varies substantially by the type of uses in a building, type of construction materials used in a building, and the efficiency of all gas-consuming devices within a building.

As California strives to reduce greenhouse gas emissions, natural gas sources and use will depend on new technologies (e.g., hybrid vehicles, solar heating) and methods of supply (e.g., liquefied natural gas shipped by tanker, biogas). These developments will depend on and influence natural gas supplies and contribute to the uncertainty in past and future projections.[74]

Upon completion, natural gas would likely be used for the hot water system, cooking, and space heating.

4.12.2.2 Gasoline for Motor Vehicles

Annually California consumes an estimated 16 billion gallons of gasoline and 4.0 billion gallons of diesel. This represents a 50 percent increase over the amount that was used 20 years ago. The primary factors contributing to this increase are 1) population growth and more on-road vehicles, 2) low per-mile cost of gasoline for the past two decades, 3) lack of alternatives to conventional gasoline and diesel fuels, 4) consumer preferences for larger, less fuel efficient motor vehicles, and 5) land-use planning that places jobs and housing farther apart without transportation integration.[75] Although gasoline consumption is expected to increase in California by one to two percent each year, Californians used approximately 63 million gallons less gasoline in 2007 than they did in 2006.[76]

The average fuel economy for the fleet of light-duty vehicles (autos, pickups, vans, and SUVs) steadily increased from about 12.6 miles-per-gallon (mpg) in the mid-1970s to approximately 20.7 mpg in 1985 as a result of federal standards which have not substantially changed in 22 years. In December 2007, the Energy Independence and Security Act of 2007 was signed which mandates a national fuel economy standard of 35 miles per gallon by 2020.

Although no new refineries have been constructed in California since 1969, supply has kept pace with demand through a combination of refinery upgrades/modernizations and out-of-state imports.

[73] California Energy Commission. 2007 Integrated Energy Policy Report.
[74] California Energy Commission. 2007 Integrated Energy Policy Report.
[75] California Energy Commission. 2005 Integrated Energy Policy Report.
[76] California Energy Commission. 2007 Integrated Energy Policy Report.

Imports of foreign crude oil will increase as in-state and Alaskan supplies diminish. Since California refineries are already operating close to their full capacity, daily imports of refined gasoline and diesel are expected to double over the next 20 years. Unless out-of-state facilities expand, the gasoline and diesel markets will become increasingly volatile, with the likelihood of shortages and more prolonged periods of high prices.

4.12.3 Energy Impacts

4.12.3.1 Thresholds of Significance

For this project, an energy impact is considered significant if the project would result in:

- the wasteful use of fuel or energy; or
- a substantial increase in demand upon energy resources in relation to projected supplies; or
- longer overall distances between jobs and housing.

The annual electrical demand for the stadium is approximately 19,710,000 kilowatt hours. The annual natural gas demand is approximately 9,593,951 cubic feet of natural gas per year[77]. Because the existing land uses do not use any natural gas and only use electricity for lighting, the project would result a substantial increase in demand upon energy resources in relation to projected supplies.

The existing Candlestick Park will be demolished after a new stadium is constructed. Candlestick Park is proposed to be replaced with new housing and commercial developments. While the proposed project would replace the existing Candlestick Park and its current energy demand, the stadium is proposed on a site that does not presently have any structures or features that have a high energy demand. Because the proposed stadium would replace an existing parking lot and Candlestick Park would be replaced with new development there would be a net increase in development in the Bay Area. Therefore, the proposed project will result in a net increase in regional electricity and natural gas usage.

Impact ENR-1: The proposed project would have a significant impact on projected electricity and natural gas supplies. **(Significant Impact)**

The proposed project would result in an increase in vehicle miles traveled because the existing fan base, which is mostly north of Santa Clara, would need to travel farther to the new stadium then they currently travel to Candlestick Park.

Impact ENR-2: The proposed project would increase vehicle miles traveled for game attendees resulting in increased gasoline usage. **(Significant Impact)**

4.12.4 Mitigation and Avoidance Measures for Energy Impacts

The following General Plan Policy would reduce energy impacts from development allowed by the proposed General Plan amendment to a less than significant level:

[77] Based upon calculations provide by *Flack & Kurtz*, the electrical engineers for the proposed project.

- *Public Facilities & Services Policy 7* states that the City will continue an innovative energy program to develop cost effective new power sources and encourage conservation.

The measures to reduce energy consumption listed below would mitigate the energy impacts of the proposed project to a less than significant level. Unless determined by the City Council to be infeasible, these measures will be required as conditions of approval. In the event the mitigation is determined to be infeasible, adoption of a statement of overriding considerations will be required as part of the approved action.

- The project shall be certified in accordance with the Leadership in Energy and Environmental Design (LEED) requirements, a nationally acceptable benchmark for the design, construction, and operation of high performance green buildings. The level of LEED certification will be at the discretion of the project applicant.

- The project shall exceed Title 24 energy requirements by 10 percent to the satisfaction of the Director of Silicon Valley Power.

- The project shall include a minimum of 27,000 square feet of green roofs.

- The project shall utilize local and regional building materials in order to reduce energy consumption associated with transporting materials over long distances.

- The project shall utilize building products that contain post-consumer recycled materials.

- Although there is not a formal EnergyStar program for non-residential buildings, the stadium shall be constructed to meet the same standards as those that apply to the residential program to the extent feasible.

- The stadium shall include a photovoltaic (i.e., solar electric) system. The project proposes a minimum of 20,000 square feet of photovoltaic cells. (Note: The rule of thumb is that each square foot of photovoltaic cells produces 10 watts of power in bright sunlight.)[78]

- Geothermal heat pumps should be installed to provide heating, cooling, and hot water. Geothermal heat pumps are generally more efficient and less expensive to operate and maintain than conventional systems.

4.12.5 Conclusion

The proposed project would be infill development and would comply with existing state and federal regulations regarding the energy efficiency of buildings, appliances, lighting, etc. Therefore, the proposed project will not result in the wasteful use of energy. Mitigation measures including water conservation, use of recycled water, use of transit, and use of renewable energy would reduce the demand for new energy resources in relation to projected supplies to a less than significant level. **(Less Than Significant With Mitigation)**

[78] The cost for photovoltaic systems has been decreasing in recent years, and the State of California provides rebates and tax credits to builders for such systems. In addition, some builders (e.g., Clarum Homes) are incorporating such systems into the design of their new homes.

Unlike utility services, public facility services are provided to the community as a whole, usually from a central location or from a defined set of nodes. The resource base for delivery of the services, including the physical service delivery mechanisms, is financed on a community-wide basis, usually from a unified or integrated financial system. The service delivery agency can be a city, county, service or other special district. Typically, new development will create an incremental increase in the demand for these services; the amount of demand will vary widely, depending on both the nature of the development (residential vs. commercial, for instance) and the type of services, as well as on the specific characteristics of the development (such as senior housing vs. family housing).

The impact of a particular project on public facilities services is generally a fiscal impact. By increasing the demand for a type of service, a project could cause an eventual increase in the cost of providing the service (more personnel hours to patrol an area, additional fire equipment needed to service a tall building, etc.). That is a fiscal impact, however, not an environmental one.

CEQA does not require an analysis of fiscal impacts. CEQA analysis is required if the increased demand is of sufficient size to trigger the need for a new facility (such as a school or fire station), since the new facility would have a physical impact on the environment.

For the purposes of the EIR, a public facilities and services impact is considered significant if the project would result in substantial adverse physical impacts associated with the provision or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection, police protection, schools, parks, or other public facilities.

5.1 Police Services

Police protection services are provided in this area by the City of Santa Clara Police Department (SCPD). The SCPD has approximately 148 sworn officers, 48 civilian employees, and 32 reserve personnel. Police headquarters is located at 601 El Camino Real, approximately 3.7 miles southeast of the project site. The Northside Police Substation is located in the Rivermark Village at 3992 Rivermark Parkway, approximately 1.6 miles southeast of the project site.

The proposed stadium facility would increase the total population of Santa Clara during event hours, but would not permanently increase the population because no housing is proposed as part of the project. The project would be constructed in conformance with current codes and the project design will be reviewed by the City of Santa Clara Police Department to ensure that it incorporates appropriate safety features to minimize criminal activity.

On days when a large event occurs, either NFL event or large non-NFL events, it is anticipated that City Police Department staffing will meet or exceed normal levels throughout the City in anticipation of the activity level. Security forces dedicated to the stadium event and the area around the stadium will be a combination of regular police personnel and security staff hired specifically for the event. Event security staff is planned to include off-duty police officers hired for the event, subject to preparation and implementation of a joint powers agreement between the City of Santa Clara and other local jurisdictions that will spell out the authority of the Police Chief of the City of Santa Clara to direct such personnel. Regular police services for the residents and businesses of Santa Clara will not be reduced or interrupted by large events at the proposed stadium.

Impact PUB-1: New police facilities would not be required to provide adequate police services to serve the proposed project. **(Less Than Significant Impact)**

5.2 Fire Services

Fire protection services for the project area are provided by the City of Santa Clara Fire Department (SCFD). The SCFD has 10 fire stations within the City and is comprised of approximately 177 fire service personnel and more than 60 volunteers. The SCFD receives an average of 8,000 emergency calls per year, including hazardous materials, emergency medical, specialized rescue, and fires. The goal of the SCFD is to maintain a force sufficiently staffed and deployed to sustain a three-minute response time to initial calls 90-95 percent of the time.[79]

The station nearest to the project site is Station 10, located at 5111 Stars and Stripes Drive, which is approximately 0.16 miles northeast of the project site. Two other stations, Station 6 and Station 8 are also within response time range of the project site. Station 6 is located at 888 Agnew Road and is approximately 1.37 miles southwest of the project site. Station 8 is located at 2400 Agnew Road and is approximately 0.91miles south of the stadium site.

The existing condition on the stadium site does not create a demand for fire protection services because the site is currently a surface parking lot. Similarly, the parking garage site is also a parking lot and also does not create a demand for fire protection services. The existing substation site and the substation receiver site currently create a demand for fire protection services due to the nature of the land use. While the substation equipment will be relocated to the receiving station site as part of the project, there will not be an increase in electrical output from these facilities nor would the equipment be operated differently then it is currently. Therefore, the demand for fire protection services at the receiving station should be consistent with the current demand.

The proposed project would result in a net increase in the total square footage of recreational building space and a new parking structure, resulting in an increase in demand for fire protection services. The proposed project will, however, be built to current Fire Code standards, including sprinklers and smoke detectors, and will include features that would reduce potential fire hazards. Access to both the stadium site and the parking garage site for emergency vehicles will be provided from project driveways, built to Fire Department specifications.

Impact PUB-2: The proposed project would incrementally increase demand for fire response and related emergency services but will not require the development of new fire service facilities and, therefore, will not result in a significant physical impact on the environment. **(Less Than Significant Impact)**

5.3 Schools

The proposed project is the development of an open-air stadium and parking garage and does not propose any new residential uses. No new students would be directly generated by the implementation of the proposed project.

Impact PUB-3: The proposed project will not have any impact on schools in the City of Santa Clara. **(Less Than Significant Impact)**

[79] Clark Custodio, Deputy Chief, City of Santa Clara Fire Department.

5.4 Parks

The proposed project is the development of an open-air stadium and parking structure and does not include any residential uses or other uses that would permanently increase the population of the City.

Impact PUB-4: The project would not result in a substantial increase in usage of existing local recreational facilities and will not have a significant impact on existing facilities in the City. **(Less Than Significant Impact)**

5.5 Libraries

The proposed project is the development of an open-air stadium and parking garage and does not include any residential uses or other uses that would permanently increase the population of the City.

Impact PUB-5: The proposed project will not have any impact on library facilities in the City of Santa Clara. **(Less Than Significant Impact)**

5.6 Conclusion

Implementation of the proposed project would result in an increase in recreational space within the City which would incrementally increase the demand for police and fire protection services in the project area. This increased demand, however, will be offset through existing laws and ordinances and will not result in the need to construct new police or fire facilities. Due to the nature of the proposed development, the project will not impact existing school, recreational, or library facilities. **(Less Than Significant Impact)**

SECTION 6.0 CUMULATIVE IMPACTS

Cumulative impacts, as defined by CEQA, refer to two or more individual effects, which when combined, are considerable or which compound or increase other environmental impacts. Cumulative impacts may result from individually minor, but collectively significant projects taking place over a period of time. The CEQA Guidelines state (§15130) that an EIR should discuss cumulative impacts "when the project's incremental effect is cumulatively considerable." The discussion does not need to be in as great detail as is necessary for project impacts, but is to be "guided by the standards of practicality and reasonableness." The purpose of the cumulative analysis is to allow decision makers to better understand the potential impacts which might result from approval of past, present and reasonably foreseeable future projects, in conjunction with the proposed project.

The CEQA Guidelines advise that a discussion of cumulative impacts should reflect both their severity and the likelihood of their occurrence. The effects of existing development are reflected in the existing conditions described in the specific sections of this EIR. Traffic from recently approved but not yet constructed and/or occupied projects is reflected in the background conditions scenario described in Section 4.8, *Transportation and Traffic.*

In order to meet the intent of the cumulative analysis requirement, the following discussion reflects the information known to the City of Santa Clara as of the date of circulation of this EIR. The relevant projects are listed in Table 39 below.

TABLE 39
Recently Approved and Reasonably Foreseeable Projects

Name	Type	Size	Status
2585 El Camino Real	Mixed-Use	Development of 60 dwelling units and 3,300 sf retail on an existing parking lot	Pending
North San José Phase II	Mixed	Development of 1,500,000 sf R&D/office and 5,353 residential units	Pending
Menlo Equities	Office	Demolition of existing 100,575 sf of existing office and development 200,000 sf R&D campus	Pending
Fairfield Development	Residential	Demolition of existing 131,500 sf medical office and development of 45 single-family houses, 225 townhouses, and 536 apartments	Pending
Mission College Master Plan	Educational	Demolition of existing 235,000 sf educational facility and development of two new buildings totaling 427,000 sf	Pending

TABLE 39 *Continued* Recently Approved and Reasonably Foreseeable Projects			
Name	**Type**	**Size**	**Status**
Santa Clara Square	Mixed-Use	Existing shopping center redeveloped to 490 dwelling units and 171,000 sf retail and 12,300 sf of office	In Process
EOP Augustine at Bowers	Office/Retail	Demolition of existing 444,752 sf of industrial and 5,290 sf of restaurant space redeveloped to 1,969,500 sf feet office and 35,000 sf retail	In Process
Regency Plaza	Office/Retail	Demolition of existing 253,396 sf office/industrial redeveloped to 300,000 sf of office use and 6,000 sf retail	In Process
Lowe Enterprises	Office	Existing light industrial redeveloped to 215,000 sf of office	In Process
Sobrato – Great America	Office	Demolition of 301,163 square feet of existing office and development of 600,000 square feet of new office	In Process
Pelio Investments	Office	Development of a 350,000 sf data center	In Process
Swim Center at Central Park	Recreational	Demolition of the existing swim facility and development of 2 Olympic-sized pools and special event venue	In Process
Yahoo Campus	Office	Demolition of 675,150 square feet of office/industrial and development of 3,060,000 sf of new office	In Process

6.1 Cumulative Impacts

For each subject area, the discussions below address the following aspects of cumulative impacts:

- Would the effects of the proposed project, when combined with the effects of all past, present, and pending development result in a cumulatively significant impact on the resources in question?
- If a cumulative impact is likely to be significant, would the contribution of the proposed project to that impact be cumulatively considerable?

Based on the analysis is this EIR and the locations of the other cumulative projects, the proposed project would not contribute to a cumulative cultural resources, biological resources, geology and soils, hydrology and water quality, hazards and hazardous materials, visual, noise, utilities and service systems (i.e., stormdrains, sanitary sewer, and solid waste), public services, or energy impact. This is because the project would not contribute substantially to a significant cumulative impact in any of those resource areas. Therefore, the proposed project would not make a cumulatively considerable contribution to a cumulative impact.

Development of the project site with other pending and approved development may have cumulatively significant impacts in the following areas:

- Transportation
- Air Quality
- Water Supply
- Global Climate Change
- Trees

6.1.1 Cumulative Transportation Impacts

Cumulative transportation impacts were analyzed by adding traffic from the proposed project in combination with traffic from approved and pending development in the Cities of Santa Clara, San José, Sunnyvale, and Milpitas to the background traffic volumes for each of the study periods. The intersection lane configurations under cumulative conditions were assumed to be the same as described under background conditions.[80]

Information on approved development and, in some cases, pending development is available for weekdays but there are no databases or records maintained for Sunday pending or approved trips. Therefore, pending trips for Sunday study periods were derived by factoring similar to that which was done to develop approved trip volumes. A list of pending projects and total approved trips at each of the study intersection is included in Appendix B of the TIA.

Methodology

Based on the cumulative impact criteria, there would be a cumulatively significant impact if:

- the level of service at any study intersection degrades from LOS D or better under background conditions to LOS E or worse under cumulative conditions; or

- the level of service at any study intersection is LOS E or F under background conditions and the additional cumulative trips cause the average critical delay to increase by four or more seconds and the volume-to-capacity ratio to increase by 0.01.

6.1.1.2 Cumulative Intersection Impacts During Weekday Study Periods

The results of the analysis show that 40 of the 120 study intersections could be significantly impacted under the cumulative condition. A list of the impacted intersections follows. The results of the LOS

[80] Phase II of the North San José Development Policy includes improvements to some San José intersections. None of the identified Phase II improvements would, however, be implemented on the study intersections. Therefore, the lane configurations under cumulative conditions would be the same as under background conditions.

analysis under cumulative conditions are shown in Figures 77 to 82 and summarized in Table 24 of Appendix H.

City of Santa Clara: On a maximum of four weekdays per year, significant cumulative level of service impacts would occur at 19 intersections in Santa Clara, nine of which are CMP intersections.

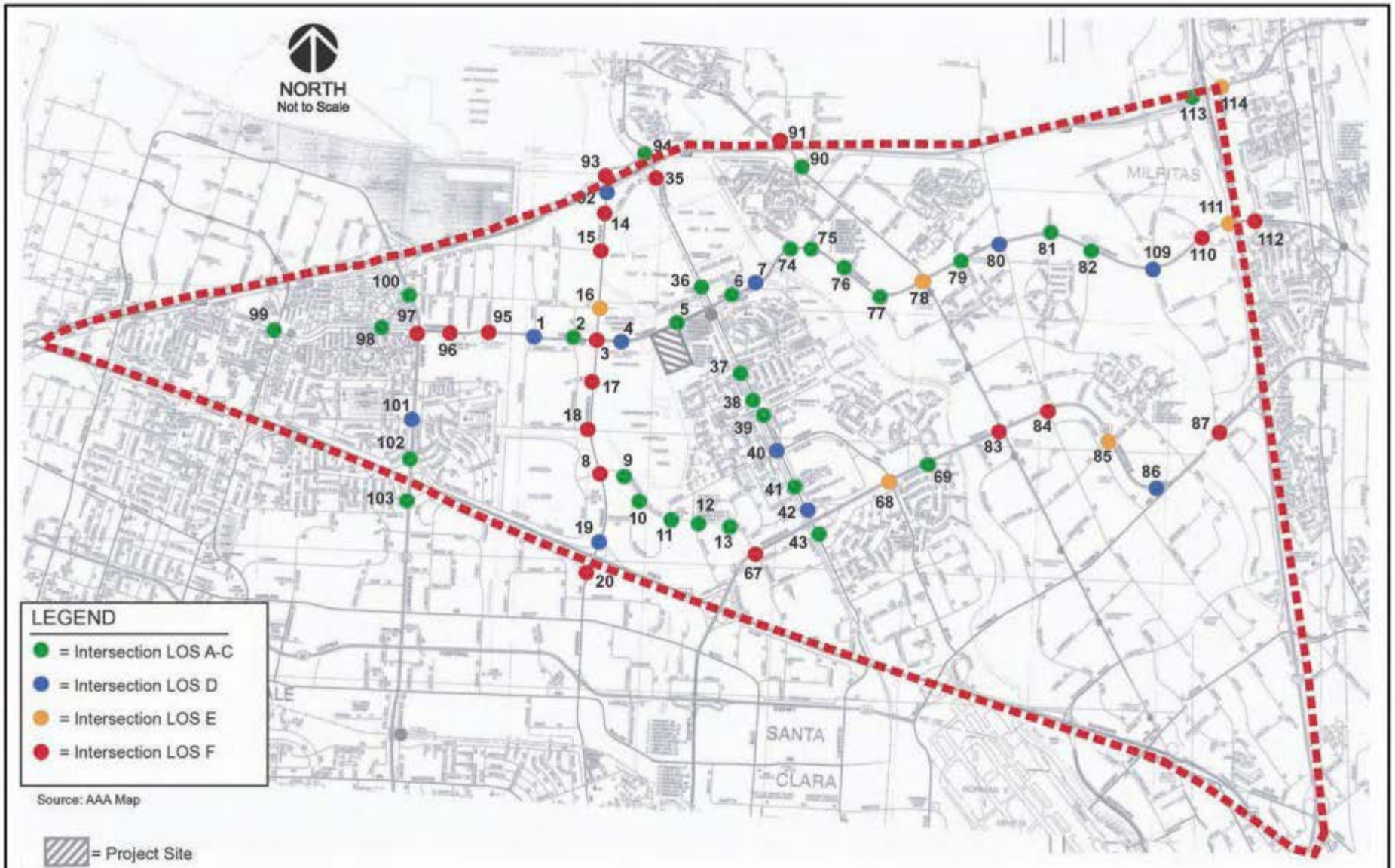
3 Great America Parkway and Tasman Drive *
8 Great America Parkway and Mission College Boulevard *
14 Great America Parkway and Yerba Buena Way
15 Great America Parkway and Alviso Road
16 Great America Parkway and Bunker Hill Lane
17 Great America Parkway and Old Glory Lane
18 Great America Parkway and Patrick Henry Drive
20 Bowers Avenue and US 101 SB *
21 Bowers Avenue and Augustine Drive
23 Bowers Avenue and Central Expressway *
27 Bowers Avenue and Monroe Street
35 Lafayette Street and Yerba Buena Way
60 San Tomas Expressway and Homestead Road *
61 San Tomas Expressway and Benton Street
62 San Tomas Expressway and El Camino Real *
65 San Tomas Expressway and Walsh Avenue
66 San Tomas Expressway and Scott Boulevard *
67 Mission College Boulevard and Montague Expressway *
71 Lawrence Expressway Ramps and El Camino Real *

City of San José: On a maximum of four weekdays per year, significant cumulative level of service impacts would occur at seven intersections in San José, five of which are CMP intersections.

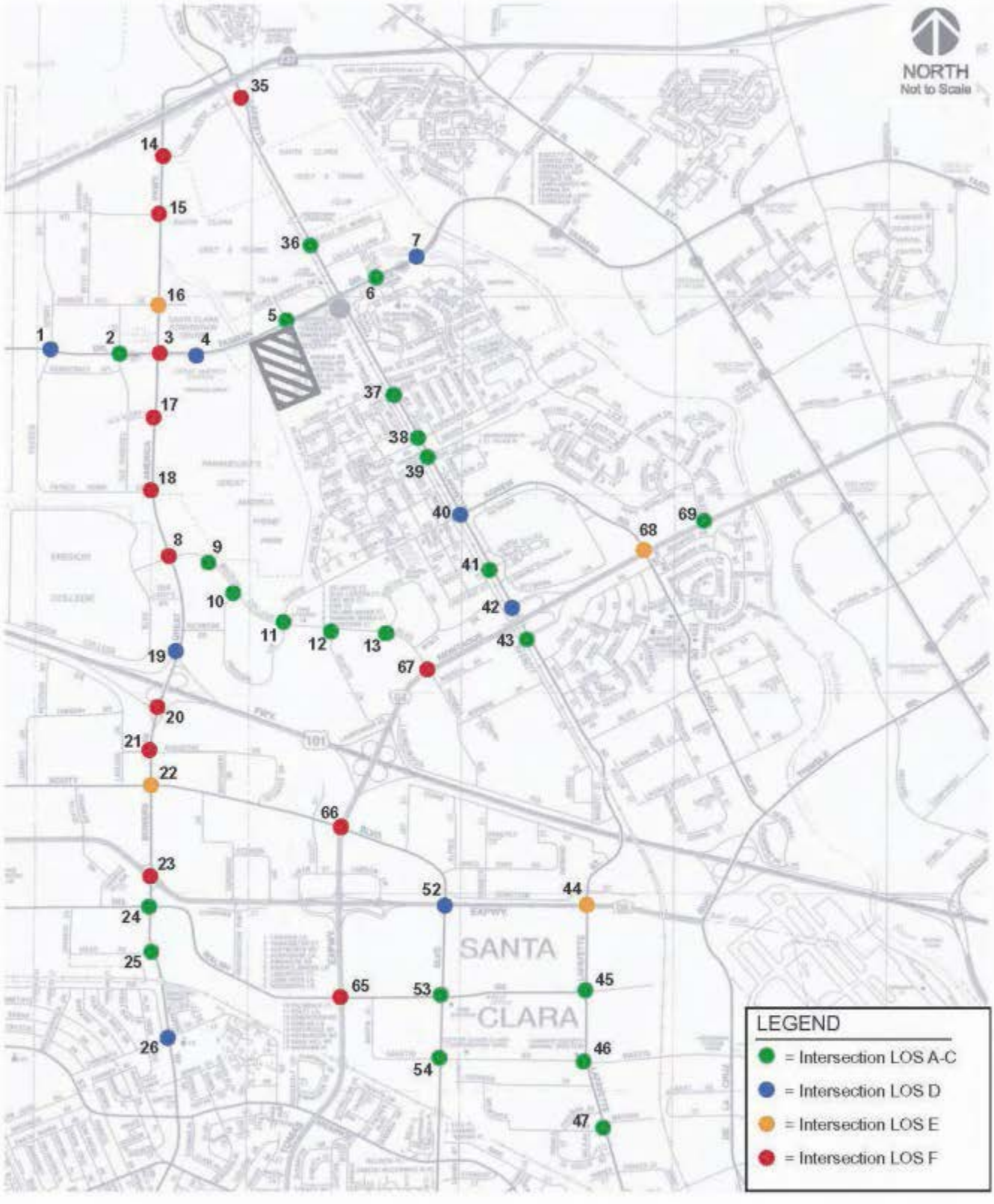
78 North First Street and Tasman Drive
83 North First Street and Montague Expressway *
84 Zanker Road and Montague Expressway *
85 Montague Expressway and River Oaks Parkway
87 O'Toole Avenue and Montague Expressway *
89 Trade Zone Boulevard and Montague Expressway *
93 Great America (north) and SR 237 *

City of Sunnyvale: On a maximum of four weekdays per year, significant cumulative level of service impacts would occur at eight intersections in Sunnyvale, four of which are CMP intersections.

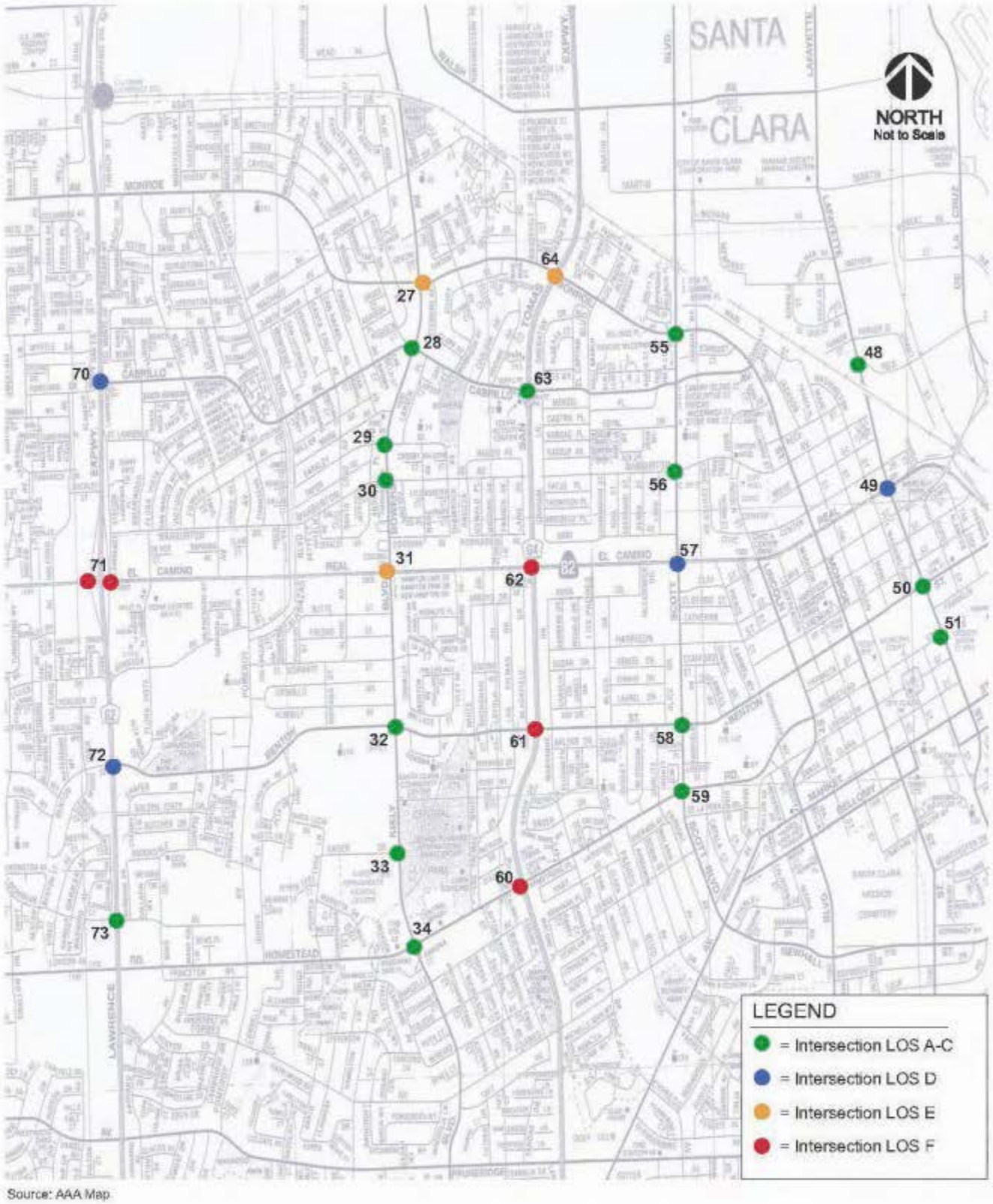
95 Reamwood Avenue and Tasman Drive
96 Birchwood Avenue and Tasman Drive
97 Lawrence Expressway and Tasman Drive *
104 Lawrence Expressway and Oakmead Parkway
105 Lawrence Expressway and Arques Avenue *
106 Lawrence Expressway and Kifer Road
107 Lawrence Expressway and Reed Avenue/Monroe Street *
108 Lawrence Expressway and Homestead Road *



STADIUM CORE AREA WEEKDAY CUMULATIVE INTERSECTION LEVEL OF SERVICE FIGURE 77

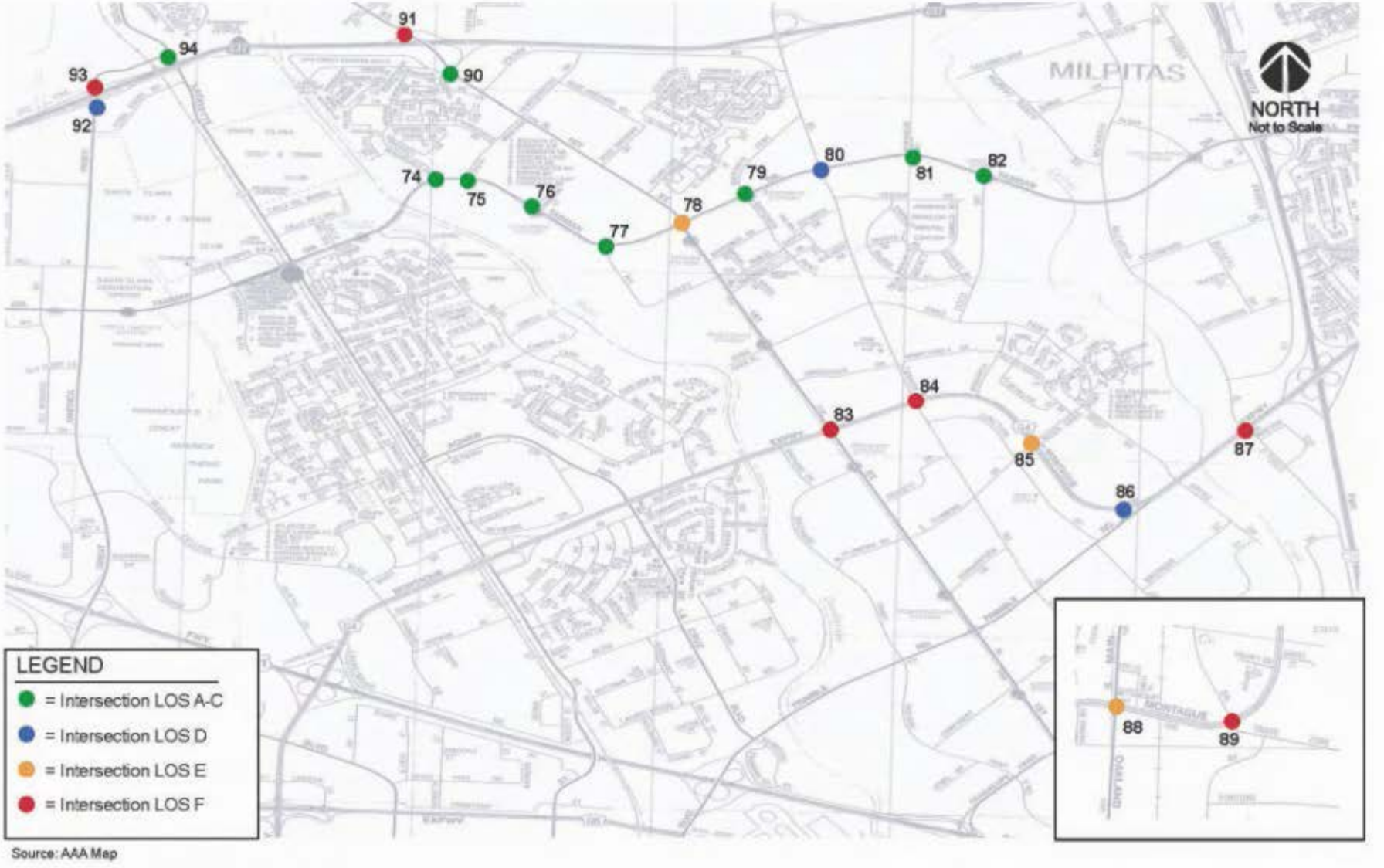


CITY OF SANTA CLARA WEEKDAY CUMULATIVE INTERSECTION LEVEL OF SERVICE **FIGURE 78**

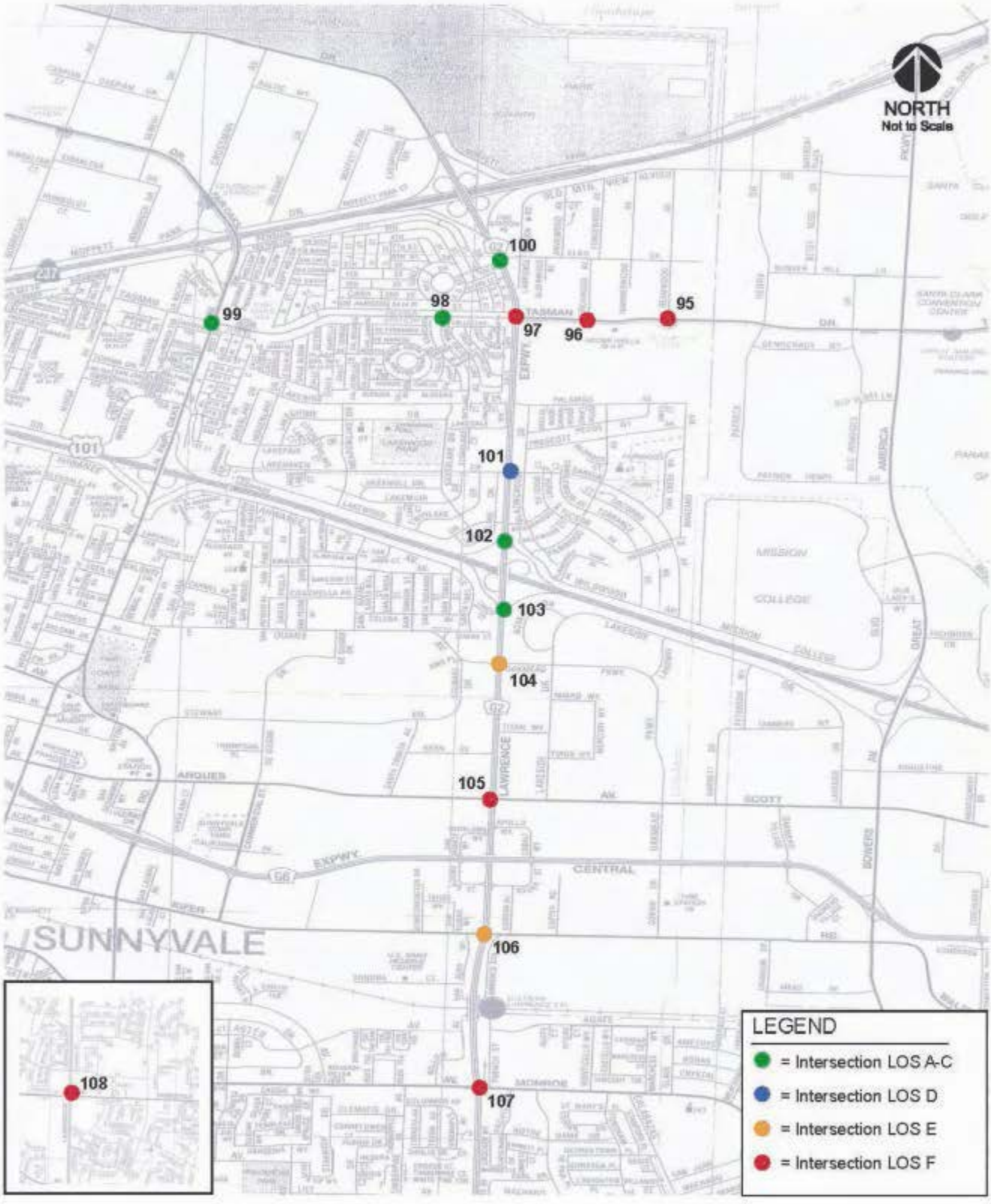


Source: AAA Map

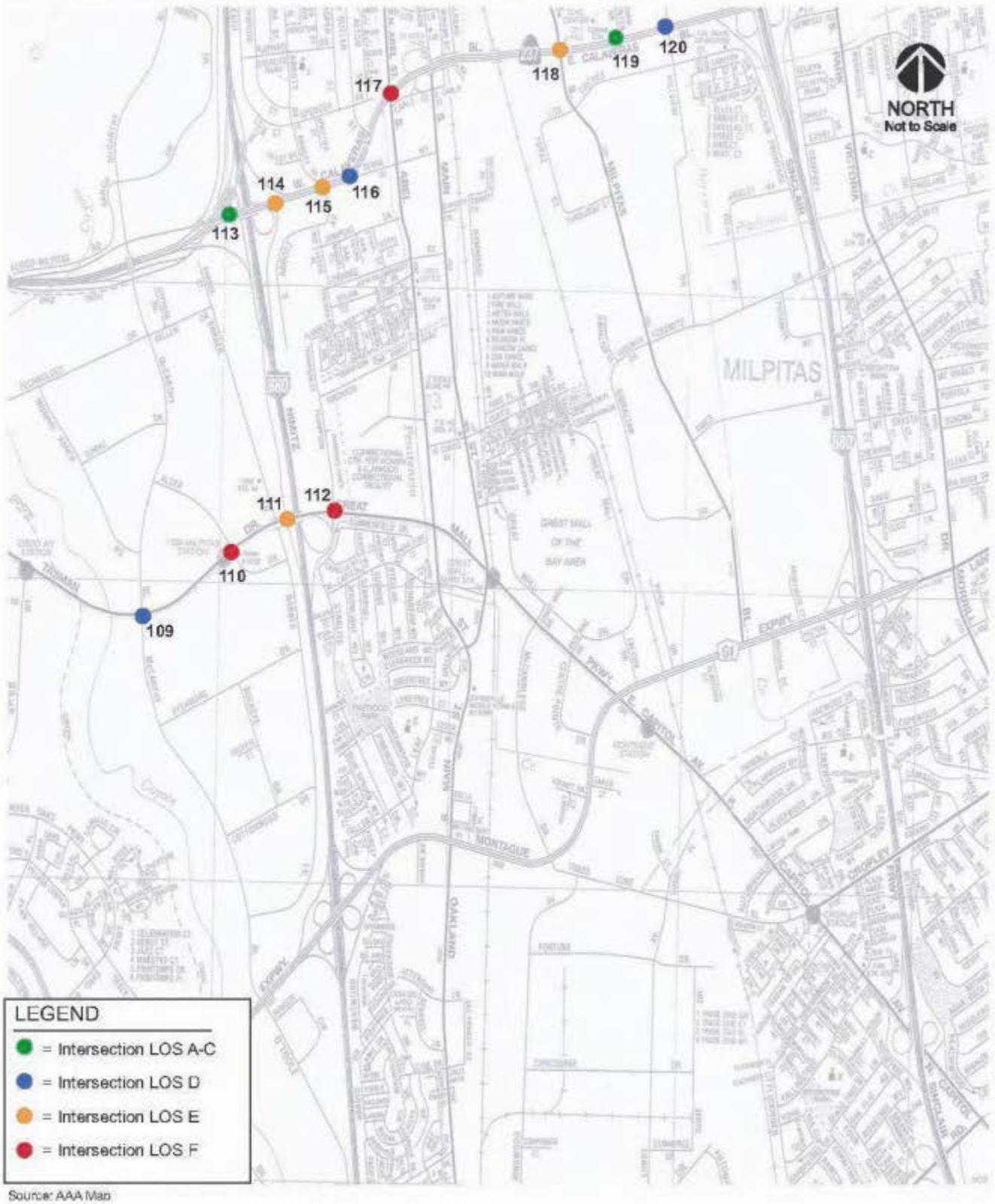
CITY OF SANTA CLARA WEEKDAY CUMULATIVE INTERSECTION LEVEL OF SERVICE **FIGURE 79**



CITY OF SAN JOSE WEEKDAY CUMULATIVE INTERSECTION LEVEL OF SERVICE FIGURE 80



CITY OF SUNNYVALE WEEKDAY CUMULATIVE INTERSECTION LEVEL OF SERVICE **FIGURE 81**



Source: AAA Map

CITY OF MILPITAS WEEKDAY CUMULATIVE INTERSECTION LEVEL OF SERVICE **FIGURE 82**

City of Milpitas: On a maximum of four weekdays per year, significant cumulative level of service impacts would occur at six intersections in Milpitas, one of which is a CMP intersection.

110 Alder Drive and Tasman Drive
111 I-880 and Tasman Drive (west)
112 I-880 and Tasman Drive (east)
114 I-880 and Calaveras Boulevard (west)
115 Abbott Avenue and Calaveras Boulevard
117 Abel Street and Calaveras Boulevard *

Under cumulative conditions, 40 intersections (19 Santa Clara intersections, seven San José intersections, eight Sunnyvale intersections, and six Milpitas intersections) could be impacted during at least one weekday study period on a maximum of four NFL events days per year. The project's impact would be cumulatively considerable at 27 of the 40 impacted intersections.

6.1.1.3 Cumulative Intersection Impacts During Sunday Study Periods

The analysis shows that four of the 120 study intersections could be significantly impacted under the cumulative condition on Sundays. A list of the impacted intersections follows. The results of the LOS analysis under cumulative conditions are shown in Figures 83 to 88 and summarized in Table 25 of Appendix H.

City of Santa Clara: On Sundays, significant cumulative level of service impacts would occur on a maximum of 20 Sundays per year at three intersections in Santa Clara, one of which is a CMP intersection.

10 Freedom Circle (west) and Mission College Boulevard
17 Great America Parkway and Old Glory Lane
67 Mission College Boulevard and Montague Expressway *

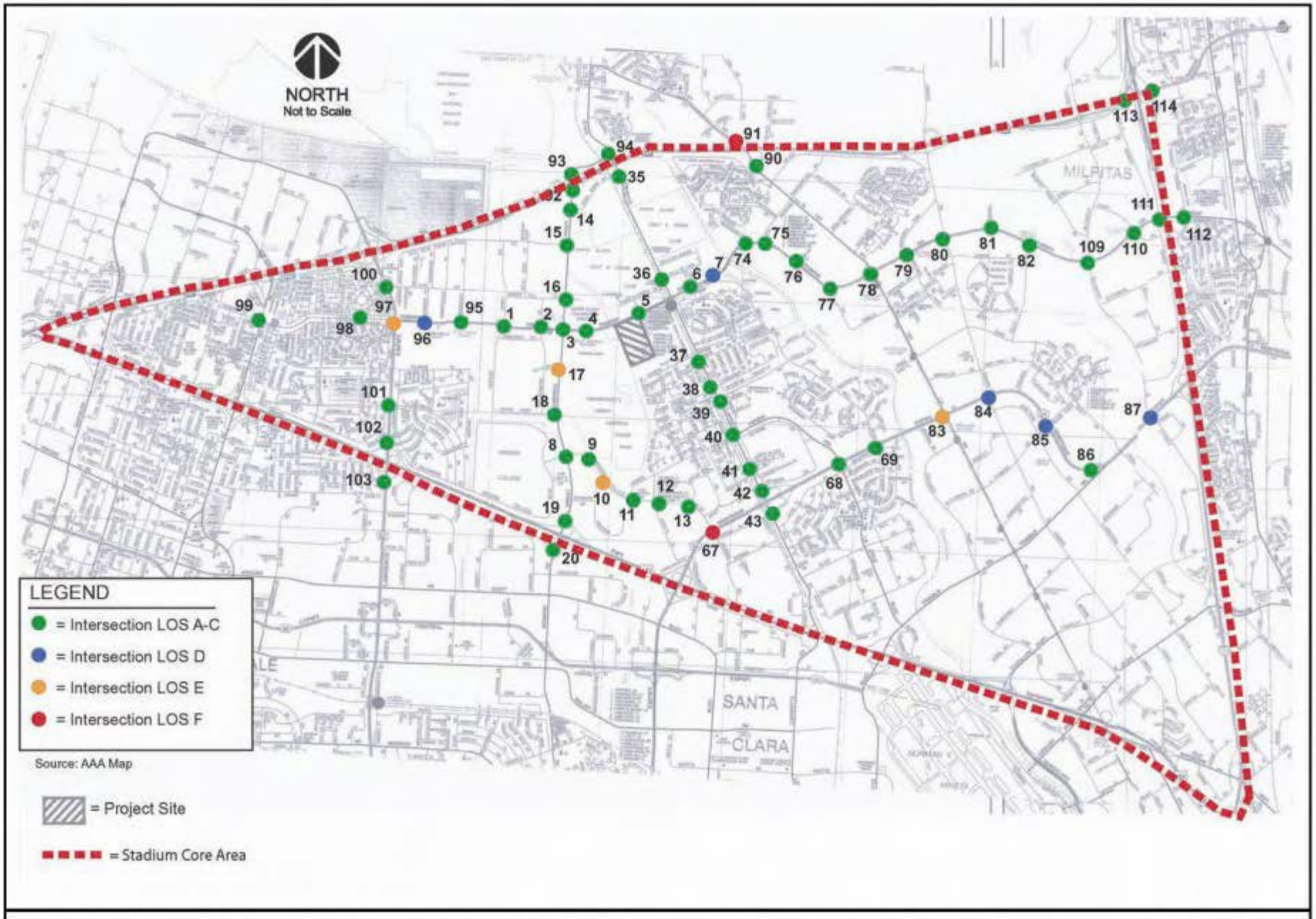
City of San José: On Sundays, significant cumulative level of service impacts would occur on a maximum of 20 Sundays per year at one CMP intersection in San José.

91 North First Street (north) and SR 237 *

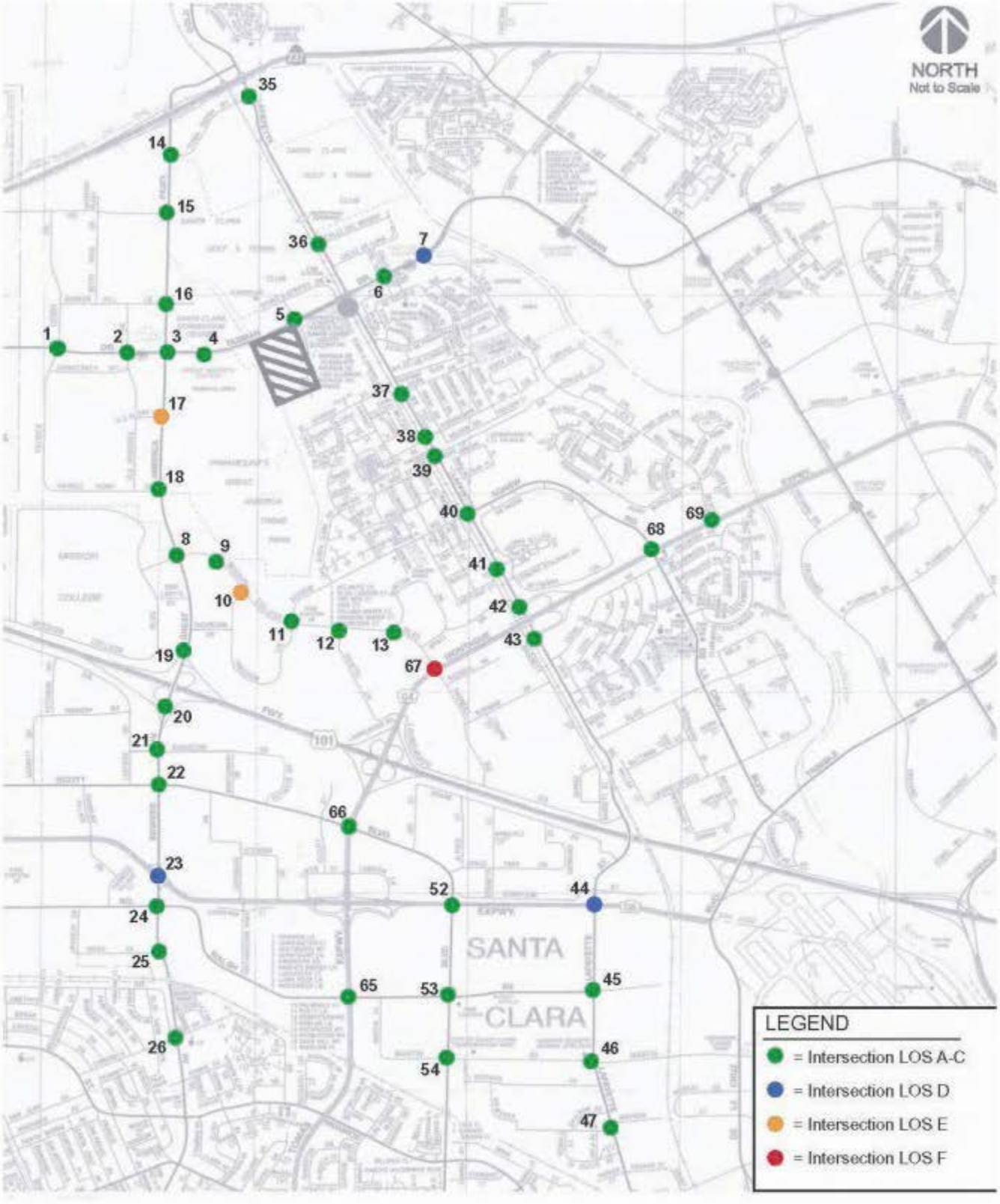
Under cumulative conditions, four intersections (three Santa Clara intersections and one San José intersection) could be impacted during at least one weekend study period on a maximum of 20 NFL event days per year. The project's impact would be cumulatively considerable at all four intersections.

6.1.1.4 Mitigation and Avoidance Measures for Cumulative Transportation Impacts

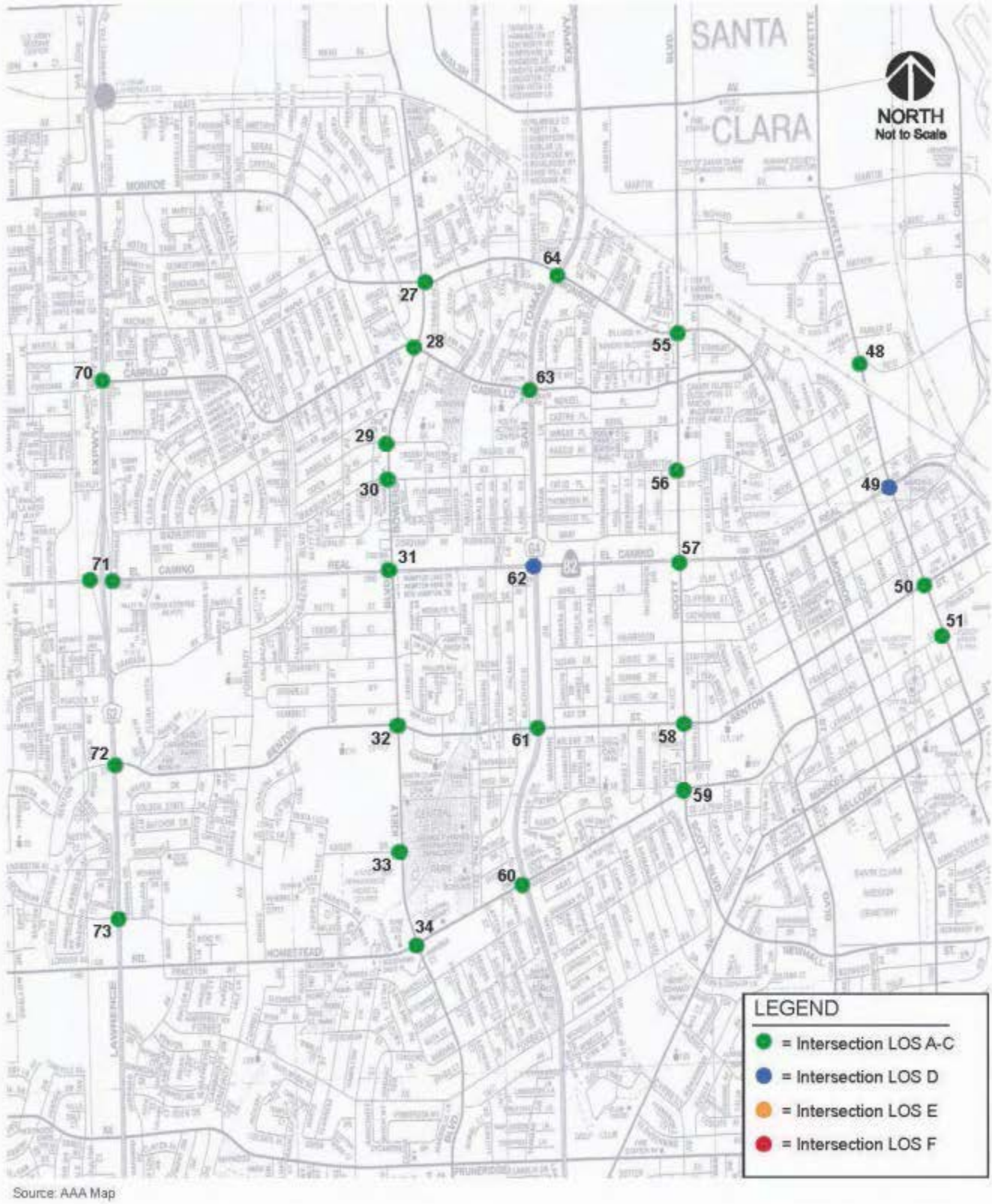
Mitigation measures were identified for all impacted intersections and are described below. The infrequency of the impacts, however, places these impacts in a different category than the typical development-related traffic impacts that would be expected to occur five days a week, every week. The City of Santa Clara believes that installing permanent additional capacity enhancement to serve traffic on 20 days a year is not required under existing City or CMP policies.



STADIUM CORE AREA SUNDAY CUMULATIVE INTERSECTION LEVEL OF SERVICE FIGURE 83

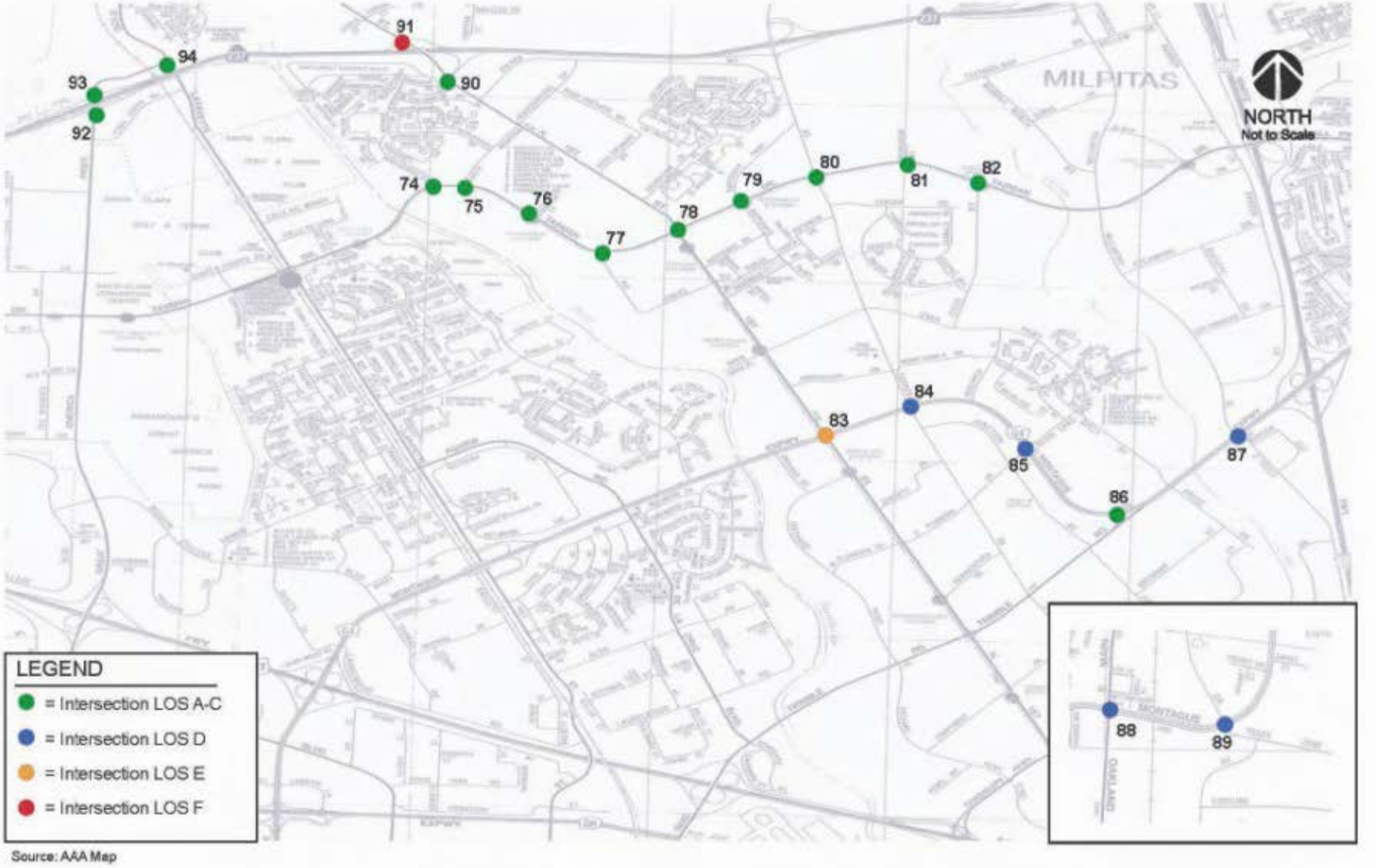


CITY OF SANTA CLARA SUNDAY
CUMULATIVE INTERSECTION LEVEL OF SERVICE **FIGURE 84**

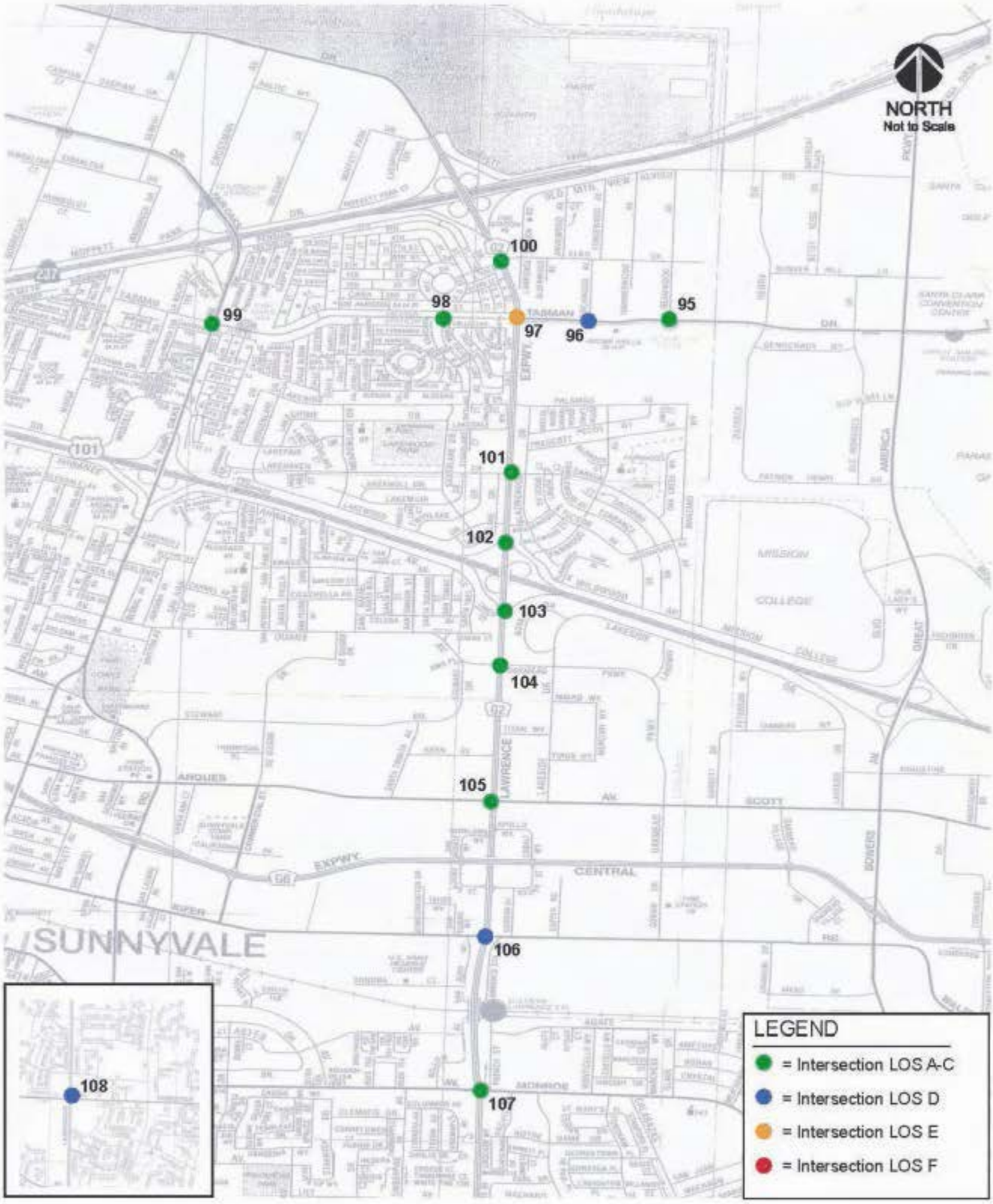


Source: AAA Map

CITY OF SANTA CLARA SUNDAY
CUMULATIVE INTERSECTION LEVEL OF SERVICE **FIGURE 85**

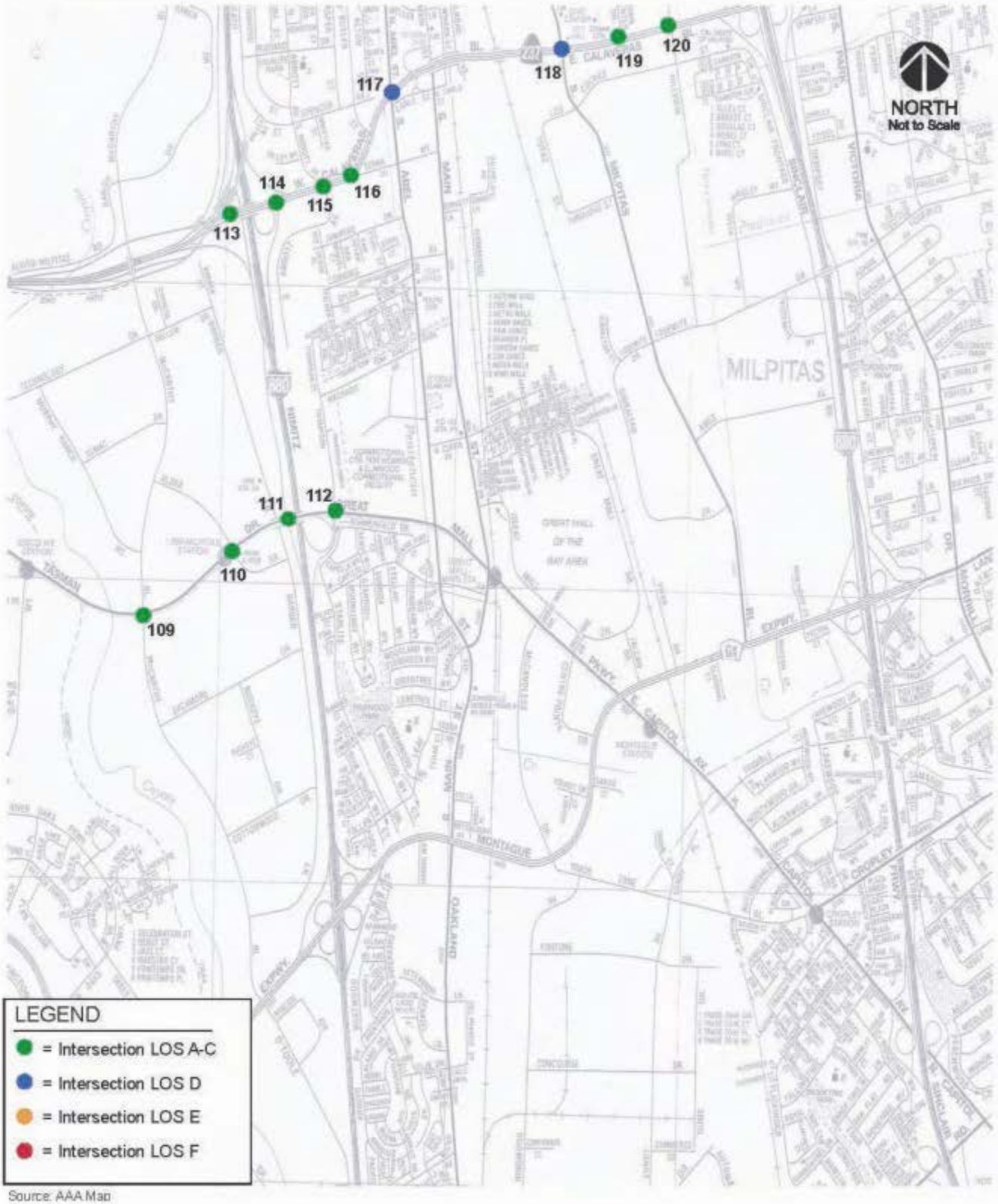


CITY OF SAN JOSE SUNDAY CUMULATIVE INTERSECTION LEVEL OF SERVICE FIGURE 86



CITY OF SUNNYVALE SUNDAY
CUMULATIVE INTERSECTION LEVEL OF SERVICE

FIGURE 87



Source: AAA Map

CITY OF MILPITAS SUNDAY
CUMULATIVE INTERSECTION LEVEL OF SERVICE **FIGURE 88**

There is no process or policy in place to share the costs and implement the mitigation for the cumulative impacts identified in this EIR. In addition, it is somewhat speculative to assume that all the identified projects would be approved and developed within a defined timeframe.

The project is not proposing to fund, contribute to funding, or implement any of the identified mitigation. It is the professional opinion of the City's traffic engineer and the traffic consultants that the implementation of the TMP and traffic control plan will provide mitigation for the temporary game-related congestion caused by traffic on NFL game days and other large non-NFL event days.

Mitigation Measures Identified but not Proposed for Cumulative Weekday Study Period Impacts

City of Santa Clara Intersection Mitigation for
Cumulative Weekday Study Period Impacts

The level of service analysis found that 19 of the City of Santa Clara study intersections would be impacted under cumulative conditions during at least one of the weekday study periods. Each of the impacted intersections and possible permanent physical mitigation measures are described below.

(3) Great America Parkway and Tasman Drive *

Impact: The level of service would be LOS C during both the early and standard weekday PM peak hours under background conditions and the intersection would degrade to LOS F under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 74 percent of the traffic volume in the early weekday PM peak hour and 64 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be partially mitigated by the addition of exclusive westbound, eastbound, and southbound right-turn lanes. With these improvements, the intersection would continue to operate at LOS F under both the early and standard weekday study periods. There are no further feasible improvements that can be made at the intersection due to insufficient right-of-way.

(8) Great America Parkway and Mission College Boulevard *

Impact: The level of service would be LOS D during the early weekday PM peak hour under background conditions and the intersection would degrade to LOS F under cumulative conditions. The level of service would be LOS F during the standard weekday PM peak hour under background conditions and the critical-movement delay at the intersection will increase by four or more seconds and the demand- to-capacity ratio (V/C) will increase by 0.01 or more under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 67 percent of the cumulative traffic volume in the early weekday PM peak hour and 59 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be partially mitigated by the construction of a grade-separated intersection. With this improvement, the intersection would continue to operate at LOS F during the early and standard weekday PM peak hours. The City has determined that the identified improvement is infeasible due to existing development directly adjacent to the roadway and insufficient right-of-way.

(14) Great America Parkway and Yerba Buena Way

Impact: The level of service would be LOS C during the standard weekday PM peak hour under background conditions, and the intersection would degrade to LOS F under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 75 percent of the cumulative traffic volume in the early weekday PM peak hour and 72 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by the adjustment of cycle time. The intersection improvement would improve intersection operating levels to LOS D during the standard weekday PM peak hour.

(15) Great America Parkway and Alviso Road

Impact: The level of service would be LOS B during the early and standard weekday PM peak hours under background conditions, and the intersection would degrade to LOS F under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 78 percent of the cumulative traffic volume in the early weekday PM peak hour and 74 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by the addition of second eastbound and northbound left-turn lanes and an adjustment of signal timing. The intersection improvements would improve intersection operating levels to LOS C during both the early and standard weekday PM peak hours.

(16) Great America Parkway and Bunker Hill Lane

Impact: The level of service would be LOS B during the standard weekday PM peak hour under background conditions and the intersection would degrade to LOS E under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 80 percent of the cumulative traffic volume in the early weekday PM peak hour and 74 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by the addition of second westbound and northbound left-turn lanes and an adjustment of cycle time. The intersection improvements would improve intersection operating levels to LOS C during the standard weekday PM peak hour.

(17) Great America Parkway and Old Glory Lane

Impact: The level of service would be LOS B during the early and standard weekday PM peak hours under background conditions and the intersection would degrade to LOS F under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 72 percent of the cumulative traffic volume in the early weekday PM peak hour and 66 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by the addition of a second eastbound right-turn lane, a fourth southbound through lane, and an adjustment of cycle time. The intersection improvements would improve intersection operating levels to LOS C and B during the early and standard weekday PM peak hours, respectively.

(18) Great America Parkway and Patrick Henry Drive

Impact: The level of service would be LOS C during the early weekday PM peak hour under background conditions and the intersection would degrade to LOS F under cumulative conditions. The level of service would be LOS F during the standard weekday PM peak hour under background conditions and the critical-movement delay at the intersection will increase by four or more seconds and the demand- to-capacity ratio (V/C) will increase by 0.01 or more under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 68 percent of the cumulative traffic volume in the early weekday PM peak hour and 66 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be partially mitigated by the addition of a second northbound left-turn lane, a fourth southbound through lane, and a second eastbound right-turn lane. The intersection would continue to operate at unacceptable LOS F during the early and standard weekday PM peak hours. There are no further feasible improvements that can be made at the intersection.

(20) Bowers Avenue and US 101 SB *

Impact: The level of service would be LOS A during the standard weekday PM peak hour under background conditions, and the intersection would degrade to LOS F under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 49 percent of the cumulative traffic volume in the early weekday PM peak hour and 37 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by the addition of a third eastbound left-turn lane. The intersection improvement would improve intersection operating levels to LOS D during the standard weekday PM peak hour.

(21) Bowers Avenue and Augustine Drive

Impact: This intersection would operate at LOS C during the early and standard weekday PM peak hours under background conditions, and the intersection would degrade to LOS E and F under cumulative conditions, respectively. This constitutes a significant cumulative impact. The project will account for 27 percent of the cumulative traffic volume in the early weekday PM peak hour and 12 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact at this intersection could be mitigated by adding a second southbound left-turn lane, a second westbound right-turn lane, a third eastbound left-turn lane, a free westbound right-turn lane, and the widening of Bowers Avenue to eight lanes. The identified improvement would improve intersection operating levels to LOS C during both the early and standard weekday PM peak hours.

(23) Bowers Avenue and Central Expressway *

Impact: The level of service would be LOS D and E during the early and standard weekday PM peak hours, respectively, under background conditions and the intersection would degrade to LOS F under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 33 percent of the cumulative traffic volume in the early weekday PM peak hour and 12 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be partially mitigated by converting the existing HOV lanes on eastbound and westbound Central Expressway to mixed-flow lanes. The Comprehensive County Expressway Planning Study identifies as a Tier 1A project the conversion of HOV lanes to mixed-flow lanes at this intersection. With this modification, the intersection would continue to operate at LOS F during the standard PM peak hour. The Comprehensive County Expressway Planning Study identifies the construction of a full interchange at this intersection as a Tier 2 priority. This improvement would fully mitigate the cumulative impact at this intersection.

(27) Bowers Avenue and Monroe Street

Impact: The level of service would be LOS C during the standard weekday PM peak hour under background conditions, and the intersection would degrade to LOS E under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 56 percent of the cumulative traffic volume in the early weekday PM peak hour and 18 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by the addition of separate northbound and southbound left-turn lanes with protected phasing. The intersection improvements would improve intersection operating levels to LOS C during the standard weekday PM peak hours.

(35) Lafayette Street and Yerba Buena Way

Impact: The level of service would be LOS D during the standard weekday PM peak hour under background conditions, and the intersection would degrade to LOS E under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 52 percent of the cumulative traffic volume in the early weekday PM peak hour and 35 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by the signalization of the intersection. The intersection improvement would improve intersection operating levels to LOS C during the standard weekday PM peak hour.

(60) San Tomas Expressway and Homestead Road *

Impact: The level of service would be LOS E during the early weekday PM peak hour under background conditions and the intersection would degrade to LOS F under cumulative conditions. The level of service would be LOS F during the standard weekday PM peak hour under background conditions and the critical movement delay at the intersection will increase by four or more seconds and the demand-to-capacity ratio (V/C) will increase by 0.01 or more under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 13 percent of the cumulative traffic volume in the early weekday PM peak hour and four percent in the standard weekday PM peak hour which is not cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by widening San Tomas Expressway to eight lanes. The intersection improvement would improve intersection operating levels to LOS D and E during the early and standard weekday PM peak hours, respectively.

(61) San Tomas Expressway and Benton Street

Impact: The level of service would be LOS D during the standard weekday PM peak hour under background conditions and the intersection would degrade to LOS F under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 13 percent of the cumulative traffic volume in the early weekday PM peak hour and four percent in the standard weekday PM peak hour which is not cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by widening San Tomas Expressway to eight lanes. The identified improvement would improve intersection operating levels to LOS C during the standard weekday PM peak hour.

(62) San Tomas Expressway and El Camino Real

Impact: The level of service would be LOS F during the standard weekday PM peak hour under background conditions and the critical-movement delay at the intersection will increase by four or more seconds and the demand-to-capacity ratio (V/C) will increase by 0.01 or more under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 16 percent of the cumulative traffic volume in the early weekday PM peak hour and four percent in the standard weekday PM peak hour which is not cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be partially mitigated by the addition of a second northbound, a second southbound, and a second eastbound left-turn lane. The intersection would continue to operate at LOS F during the standard weekday PM peak hour. There are no further feasible improvements that can be made at the intersection.

(65) San Tomas Expressway and Walsh Avenue

Impact: The level of service would be LOS C during the early weekday PM peak hour under background conditions and the intersection would degrade to LOS E under cumulative conditions. The level of service would be LOS D during the standard weekday PM peak hour under background conditions and the intersection would degrade to LOS F under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 15 percent of the cumulative traffic volume in the early weekday PM peak hour and four percent in the standard weekday PM peak hour which is not cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by widening San Tomas Expressway to eight lanes and the addition of an exclusive right-turn lane. The intersection improvements would improve intersection operating levels to LOS D during the early and standard weekday PM peak hour.

(66) San Tomas Expressway and Scott Boulevard

Impact: The level of service would be LOS E during the standard weekday PM peak hour under background conditions and the intersection would degrade to LOS F under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 18 percent of the cumulative traffic volume in the early weekday PM peak hour and five percent in the standard weekday PM peak hour which is not cumulatively considerable.

Mitigation Measure: There are no feasible improvements that can be made at this intersection due to right-of-way restrictions.

(67) Mission College Boulevard and Montague Expressway *

Impact: The level of service would be LOS D during the early weekday PM peak hour under background conditions and the intersection would degrade to LOS F under cumulative conditions. The level of service would be LOS D during the standard weekday PM peak hour under background conditions and the intersection would degrade to LOS F under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 35 percent of the cumulative traffic volume in the early weekday PM peak hour and 18 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by third eastbound and southbound left-turn lanes. The intersection improvements would improve intersection operating levels to LOS D and E during the early and standard weekday PM peak hours, respectively.

(71) Lawrence Expressway Ramps and El Camino Real *

Impact: The level of service would be LOS E during the standard weekday PM peak hour under background conditions and the intersection would degrade to LOS F under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 27 percent of the cumulative traffic volume in the early weekday PM peak hour and 19 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by the addition of an exclusive eastbound right-turn lane. The identified improvement would improve intersection operating levels to LOS E during the standard weekday PM peak hour.

City of San José Intersections Mitigation for
Cumulative Weekday Study Period Impacts

The level of service analysis found that seven of the City of San José study intersections would be impacted under cumulative conditions during at least one of the weekday study periods. Each of the impacted intersections and possible mitigation measures are described below.

(78) North First Street and Tasman Drive

Impact: The level of service would be LOS D during the early and standard weekday PM peak hours under background conditions, and the intersection would degrade to LOS E under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 52 percent of the cumulative traffic volume in the early weekday PM peak hour and 15 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: There are no feasible improvements that can be made at the intersection due to right-of-way restrictions.

(83) North First Street and Montague Expressway *

Impact: The level of service would be LOS F during the early and standard weekday PM peak hours under background conditions and the critical-movement delay at the intersection will increase by four or more seconds and the demand- to-capacity ratio (V/C) will increase by 0.01 or more under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 26 percent of the cumulative traffic volume in the early weekday PM peak hour and eight percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: There are no further feasible improvements at the intersection beyond the widening of Montague Expressway to eight lanes as identified as part of the North San Jose Development Policy (NSJDP). As described for project impacts, the NSJDP identified the impacts to the intersection associated with its development as significant and unavoidable due to the lack of feasible mitigation measures. A traffic impact fee has been implemented as part of the NSJDP, but is only applicable to development within the NSJDP area. Development outside the area that impacts intersections within the NSJDP area can make a fair-share contribution towards identified improvements.

(84) Zanker Road and Montague Expressway *

Impact: The level of service would be LOS E during the early weekday PM peak hour under background conditions and the intersection would degrade to LOS F under cumulative conditions. The level of service would be LOS F during the standard weekday PM peak hour under background conditions and the critical-movement delay at the intersection will increase by four or more seconds and the demand- to-capacity ratio (V/C) will increase by 0.01 or more under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 22 percent of the cumulative traffic volume in the early weekday PM peak hour and eight percent in the standard weekday PM peak hour which is not cumulatively considerable.

Mitigation Measure: There are no further feasible improvements at the intersection beyond the widening of Montague Expressway to eight lanes as identified as part of the North San Jose Development Policy (NSJDP). As described for project impacts, the NSJDP identified the impacts to the intersection associated with its development as significant and unavoidable due to the lack of feasible mitigation measures. A traffic impact fee has been implemented as part of the NSJDP, but is only applicable to development within the NSJDP area. Development outside the area that impacts intersections within the NSJDP area can make a fair-share contribution towards identified improvements.

(85) River Oaks Parkway and Montague Expressway *

Impact: The level of service would be LOS D during the early weekday PM peak hour under background conditions and the intersection would degrade to LOS E under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 27 percent of the cumulative traffic volume in the early weekday PM peak hour and 11 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: There are no further feasible improvements at the intersection beyond the widening of Montague Expressway to eight lanes as identified as part of the North San José Development Policy (NSJDP). As described under project impacts, the NSJDP identified the impacts to the intersection associated with its development as significant and unavoidable due to the

lack of feasible mitigation measures. A traffic impact fee has been implemented as part of the NSJDP, but is only applicable to development within the NSJDP area. Development outside the area that impacts intersections within the NSJDP area can make a fair-share contribution towards identified improvements.

(87) O'Toole Avenue and Montague Expressway *

Impact: The level of service would be LOS E during the early weekday PM peak hour under background conditions and the intersection would degrade to LOS F under cumulative conditions. The level of service would be LOS F during the standard weekday PM peak hour under background conditions and the critical-movement delay at the intersection will increase by four or more seconds and the demand-to-capacity ration (V/C) will increase by 0.01 or more under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 16 percent of the cumulative traffic volume in the early weekday PM peak hour and six percent in the standard weekday PM peak hour which is not cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by the construction of a "square loop" intersection as identified as part of the North San Jose Development Policy (NSJDP). The recommended mitigation measure would improve intersection operations to LOS D. A traffic impact fee has been implemented as part of the NSJDP, but is only applicable to development within the NSJDP area. Development outside the area that impacts intersections within the NSJDP area can make a fair-share contribution towards identified improvements.

(89) Trade Zone Boulevard and Montague Expressway *

Impact: The level of service would be LOS E during the standard weekday PM peak hour under background conditions and the critical-movement delay at the intersection will increase by four or more seconds and the demand- to-capacity ratio (V/C) will increase by 0.01 or more under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 23 percent of the cumulative traffic volume in the early weekday PM peak hour and nine percent in the standard weekday PM peak hour which is not cumulatively considerable.

Mitigation Measure: There are no further feasible improvements at the intersection beyond the widening of Montague Expressway to eight lanes as identified as part of the North San Jose Development Policy (NSJDP). As described for project impacts, the NSJDP identified the impacts to the intersection associated with its development as significant and unavoidable due to the lack of feasible mitigation measures. A traffic impact fee has been implemented as part of the NSJDP, but is only applicable to development within the NSJDP area. Development outside the area that impacts intersections within the NSJDP area can make a fair-share contribution towards identified improvements.

(93) Great America and SR 237 (North) *

Impact: The level of service would be LOS C during the standard weekday PM peak hour under background conditions, and the intersection would degrade to LOS F under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 84 percent of the cumulative traffic volume in the early weekday PM peak hour and 86 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by the addition of a third westbound left-turn lane. The intersection improvement would improve intersection operating levels, but the intersection will continue to operate at LOS F. There are no further feasible improvements that can be made at the intersection.

City of Sunnyvale Intersections Mitigation for
Cumulative Weekday Study Period Impacts

The level of service analysis found that eight of the City of Sunnyvale study intersections would be impacted under cumulative conditions during at least one of the weekday study periods. Each of the impacted intersections and possible mitigation measures are described below.

(95) Reamwood Avenue and Tasman Drive

Impact: The level of service would be LOS A during the early weekday PM peak hour under background conditions, and the intersection would degrade to LOS F under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 57 percent of the cumulative traffic volume in the early weekday PM peak hour and 39 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: There are no feasible improvements that can be made at the intersection due to right-of-way restrictions.

(96) Birchwood Avenue and Tasman Drive

Impact: The level of service would be LOS B during both the early and standard weekday PM peak hours under background and the intersection would degrade to LOS F and E during the early and standard weekday peak hours, respectively, under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 57 percent of the cumulative traffic volume in the early weekday PM peak hour and 40 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: There are no feasible improvements that can be made at the intersection due to right-of-way restrictions.

(97) Lawrence Expressway and Tasman Drive *

Impact: The level of service would be LOS E during the early and standard weekday PM peak hour under background conditions and the intersection would degrade to LOS F under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 55 percent of the cumulative traffic volume in the early weekday PM peak hour and 38 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: There are no feasible improvements that can be made at the intersection due to right-of-way restrictions.

(104) Lawrence Expressway and Oakmead Parkway

Impact: The level of service would be LOS E during the standard weekday PM peak hour under background conditions and the critical-movement delay at the intersection will increase by four or more

seconds and the demand-to-capacity ratio (V/C) will increase by 0.01 or more under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 19 percent of the cumulative traffic volume in the early weekday PM peak hour and zero percent in the standard weekday PM peak hour which is not cumulatively considerable.

Mitigation Measure: There are no feasible improvements that can be made at the intersection due to right-of-way restrictions.

(105) Lawrence Expressway and Arques Avenue *

Impact: The level of service would be LOS E during the standard weekday PM peak hour under background conditions and the intersection would degrade to LOS F under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 22 percent of the cumulative traffic volume in the early weekday PM peak hour and 13 percent in the standard weekday PM peak hour which is not cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by the construction of a grade-separated intersection. The Comprehensive County Expressway Planning Study identifies the grade-separated intersection as a Tier 1-B project.

(106) Lawrence Expressway and Kifer Road

Impact: The level of service would be LOS E during the standard weekday PM peak hour under background conditions and the critical-movement delay at the intersection will increase by four or more seconds and the demand-to-capacity ration (V/C) will increase by 0.01 or more under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 24 percent of the cumulative traffic volume in the early weekday PM peak hour and 17 percent in the standard weekday PM peak hour which is not cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by the construction of a grade-separated intersection. The Comprehensive County Expressway Planning Study identifies the grade-separated intersection as a Tier 1-B project.

(107) Lawrence Expressway and Reed Avenue/Monroe Street *

Impact: The levels of service would be LOS E during the standard weekday PM peak hour under background conditions and the intersection would degrade to LOS F under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 23 percent of the cumulative traffic volume in the early weekday PM peak hour and 15 percent in the standard weekday PM peak hour which is not cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by the construction of a grade-separated intersection. The Comprehensive County Expressway Planning Study identifies the grade-separated intersection as a Tier 1-B project.

(108) Lawrence Expressway and Homestead Road *

Impact: The level of service would be LOS F during the standard weekday PM peak hour under background conditions and the critical-movement delay at the intersection will increase by four or more seconds and the demand-to-capacity ration (V/C) will increase by 0.01 or more under cumulative

conditions. This constitutes a significant cumulative impact. The project will account for 15 percent of the cumulative traffic volume in the early weekday PM peak hour and 10 percent in the standard weekday PM peak hour which is not cumulatively considerable.

Mitigation Measure: There are no feasible improvements that can be made at the intersection due to right-of-way restrictions.

City of Milpitas Intersections Mitigation for
Cumulative Weekday Study Period Impacts

The level of service analysis found that six of the City of Milpitas study intersections would be impacted under cumulative conditions during at least one of the weekday study periods. Each of the impacted intersections and possible mitigation measures are described below.

(110) Alder Drive and Tasman Drive

Impact: The level of service would be LOS D during the early weekday PM peak hour under background conditions, and the intersection would degrade to LOS F under cumulative conditions. The level of service would be LOS F during the standard weekday PM peak hour under background conditions and the critical-movement delay at the intersection will increase by four or more seconds and the demand- to-capacity ratio (V/C) will increase by 0.01 or more under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 30 percent of the cumulative traffic volume in the early weekday PM peak hour and seven percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be partially mitigated by the addition of a northbound right-turn lane, a third southbound left-turn lane, and a second westbound left-turn lane. The intersection improvement would improve intersection operating levels, but the intersection will continue to operate at LOS E and F during the early and standard weekday PM peak hour, respectively. There are no further feasible improvements that can be made at the intersection.

(111) I-880 Southbound and Tasman Drive

Impact: The level of service would be LOS D during the standard weekday PM peak hour under background conditions and the intersection would degrade to LOS E under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 32 percent of the cumulative traffic volume in the early weekday PM peak hour and seven percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by the addition of a second eastbound right-turn lane. The identified improvement would improve intersection operating levels to LOS D during the standard weekday PM peak hour.

(112) I-880 Northbound and Tasman Drive

Impact: The level of service would be LOS D during the standard weekday PM peak hour under background conditions, and the intersection would degrade to LOS F under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 45 percent of the cumulative

traffic volume in the early weekday PM peak hour and 20 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by a second westbound left-turn lane and northbound right-turn lane. The intersection improvement would improve intersection operating levels to LOS D during the standard weekday PM peak hour.

(114) I-880 Northbound and Calaveras Boulevard

Impact: The level of service would be LOS D during the standard weekday PM peak hour under background conditions and the intersection would degrade to LOS E under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 48 percent of the cumulative traffic volume in the early weekday PM peak hour and 36 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by the addition of a second northbound right-turn lane. The identified improvement would improve intersection operating levels to LOS C during the standard weekday PM peak hour.

(115) Abbott Avenue and Calaveras Boulevard

Impact: The level of service would be LOS D during the standard weekday PM peak hour under background conditions, and the intersection would degrade to LOS E under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 53 percent of the cumulative traffic volume in the early weekday PM peak hour and 41 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: The significant cumulative impact to this intersection could be mitigated by the addition of a fourth westbound through lane. The City of Milpitas has plans to widen Calaveras Boulevard to eight lanes between Abbott Avenue and Milpitas Boulevard. A traffic impact fee has been implemented to fund the planned widening. Thus, developments in Milpitas that impact intersections along the segment of Calaveras Boulevard are required by the City to pay a fee of $2,500 per PM peak hour trip. The intersection improvement would improve intersection operating levels to LOS D during the standard weekday PM peak hour.

(117) Abel Street and Calaveras Boulevard

Impact: The level of service would be LOS E during the standard weekday PM peak hour under background conditions and the intersection would degrade to LOS F under cumulative conditions. This constitutes a significant cumulative impact. The project will account for 46 percent of the cumulative traffic volume in the early weekday PM peak hour and 38 percent in the standard weekday PM peak hour which is considered cumulatively considerable.

Mitigation Measure: There are no feasible improvements that can be made at the intersection due to right-of-way restrictions.

Mitigation Measures Identified but not Proposed for Cumulative Sunday Study Period Impacts

Two of the local intersections in Santa Clara will operate at LOS E during one or more Sunday study periods under cumulative conditions. One CMP intersection in Santa Clara, Montague/Mission College Boulevard (67) will operate at LOS F during one or more Sunday study periods, with the addition of project traffic. One CMP intersection in San José, North First Street (North)/SR 237, is

already operating at LOS F on Sundays during the earlier study period. LOS E is considered acceptable for CMP intersections by most jurisdictions, including the CMA. The projects impact on these four intersections would be cumulatively considerable.

One Sunnyvale intersection will operate at LOS E during one or more of the Sunday study periods with the addition of project traffic. This intersection will, however, continue to operate within its capacity even with the increased congestion and is not considered a cumulatively significant impact.

The mitigation measures for the identified Sunday study period cumulative impacts would be the same as those identified for the weekday study period cumulative impacts for the same intersections and which are identified in Section 6.1.1.4 of this EIR.

The consulting traffic engineer also believes that the congestion at these intersections can be adequately managed by the traffic control plan measures (including officers at the intersections).

6.1.1.5 Conclusion

Under the cumulative condition, 40 intersections would be impacted in the PM Peak Hour, up to eight times per year. The proposed project's contribution would be cumulatively considerable on 27 of the 40 intersections during the weekday evening Peak Hour. Of those 27 intersections, 14 are in Santa Clara, four are in San José, three are in Sunnyvale, and six are in Milpitas. **(Significant Unavoidable Impact)**

Also under the cumulative condition, on a maximum of 42 weekend days, four intersections would be impacted. The proposed project's contribution would be cumulatively considerable on all four intersections. Of those four intersections, three are in Santa Clara and one is in San José. **(Significant Unavoidable Impact)**

6.1.2 Cumulative Air Quality Impacts

The BAAQMD CEQA Guidelines state that if a project is proposed in a city or county with a general plan that is consistent with the Clean Air Plan *and* the project is consistent with that general plan (i.e., does not require a general plan amendment), then the project will not have a significant cumulative impact unless the project has a project specific impact.

The proposed change in land use would allow a 68,500 seat open-air stadium to be constructed on the project site. The project, along with the other pending projects, would increase vehicle miles traveled throughout the Bay Area. The increase in traffic trips resulting from the proposed project would significantly increase emissions of regional pollutants (i.e., particulate matter). This significant impact, combined with other large-scale pending developments, would be inconsistent with the CAP.

The CAP identifies Transportation Control Measures (TCMs) that are intended to reduce vehicle miles traveled and associated air pollution impacts. The project will be required to implement the identified TDM measures as a condition of approval. While the project will implement TCMs consistent with the 2005 Ozone Strategy, the project cannot implement all the measures necessary to off-set the effects of the increased vehicle miles on large event days.

Even with the implementation of the identified TCMs the project, in combination with other pending development, will result in a significant unavoidable cumulative air quality impact.

6.1.2.1 Conclusion

Even though the proposed project will implement the identified TCMs, the project would have a significant unavoidable regional air quality impact. As a result, the project would make a cumulatively considerable contribution to a significant and unavoidable cumulative regional air quality impact. **(Significant Unavoidable Cumulative Impact)**

6.1.3 Cumulative Water Supply Impacts

Since most of the project site is currently developed with surface parking lots, implementation of the proposed project will result in a substantial net increase in water usage on the project site. Due to the nature of the proposed project, the project site will have substantially more landscaped and lawn areas than under existing conditions. This will result in more green space areas on the project site, compared to existing conditions, which would require irrigation (all of the irrigation would be done with recycled water). Several new office/industrial projects are pending in Santa Clara that would increase the building square footage while decreasing the building coverage area. This substantial increase in green space throughout the industrial area of the City will increase the demand for water for irrigation purposes. The existing recycled water distribution system is available to the proposed project as well as some of the pending projects north of Highway 101. New development projects that are near the recycled water distribution system are required to use recycled water for landscaping, bathrooms, and other uses suitable for non-potable water. The pending projects that have access to the recycled water supply are proposing to use recycled water for irrigation and bathrooms. The project proposes to use recycled water for all irrigation and all other non-potable water usage.

For projects without access to recycled water, the increased demand for irrigation water will have to be met using the potable water supply. This increase in irrigation water demand was, however, accounted for in the Water Supply Assessment and was determined to have a less than significant impact on the City's long term potable water supply.

While local jurisdictions have independent water retailers, the retailers all draw upon water resources administered by the Santa Clara Valley Water District (SCVWD). Each local jurisdiction has an Urban Water Management Plan based, in part, on water supply estimates from SCVWD. Projects that have been accounted for in an adopted Urban Water Management Plan would not exceed the capacity of the SCVWD to supply water and will not affect any other jurisdictions water supply. Therefore, the proposed project will not impact the ability of San José, Sunnyvale, or Milpitas to supply water to pending projects.

6.1.3.1 Conclusion

The development proposed by the project is consistent with the 2005 Urban Water Management Plan and proposes to use recycled water for all non-potable water uses on-site. The increase in green space in areas without access to recycled water places an additional burden on the existing potable water supply when combined with other developments that increase the overall green space on-site. Nevertheless, the Water Supply Assessment determined that there is sufficient water supply (using both potable and recycled water) to support all the currently proposed "green campus" developments and the proposed project long term. **(Less Than Significant Cumulative Impact)**

6.1.4 Cumulative Global Climate Change Impacts

The following analysis is based, in part, on a Greenhouse Gas Assessment prepared by *Illingworth and Rodkin* in April 2009. The report can be found in Appendix N of this report.

This section provides a general discussion of global climate change and focuses on emissions from human activities that alter the chemical composition of the atmosphere. The discussion on global climate change and greenhouse gas emission is based upon the California Global Warming Solutions Act of 2006 (Assembly Bill (AB) 32), the 2006 Climate Action Team (CAT) Report to Governor Schwarzenegger and the Legislature, and research, information and analysis completed by the International Panel on Climate Change (IPCC), the United States Environmental Protection Agency, California Air Resources Board, and the CAT.

Global climate change refers to changes in weather including temperatures, precipitation, and wind patterns. Global temperatures are modulated by naturally occurring and anthropogenic-generated (generated by mankind) atmospheric gases such as carbon dioxide, methane, and nitrous oxide.[81] These gases allow sunlight into the Earth's atmosphere but prevent heat from radiating back out into outer space and escaping from the earth's atmosphere, thus altering the Earth's energy balance. This phenomenon is known as the greenhouse effect.

Naturally occurring greenhouse gases include water vapor[82], carbon dioxide, methane, nitrous oxide, and ozone. Several classes of halogenated substances that contain fluorine, chlorine, or bromine are also greenhouse gases, but are for the most part solely a product of industrial activities. The major greenhouse gases, other than water vapor, are briefly described below.[83]

Carbon Dioxide (CO_2) enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, respiration, and as a result of other chemical

[81] IPCC, 2007: Summary for Policymakers. In: Climate Change 2007: The Physical Science Bases. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor, and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Available at: http://ipcc.ch/

[82] Concentrations of water are highly variable in the atmosphere over time, with water occurring as vapor, cloud droplets and ice crystals. Changes in its concentration are also considered to be a result of climate feedbacks rather than a direct result of industrialization or other human activities. For this reason, water vapor is not discussed further as a greenhouse gas.

[83] U.S. EPA, 2009 U.S. Greenhouse Gas Inventory Report, http://www.epa.gov/climatechange/emissions/usinventoryreport.html (accessed April 20, 2009) and National Oceanic and Atmospheric Administration, Greenhouse Gases Frequently Asked Questions, http://lwf.ncdc.noaa.giv/oa/climate/gases.html (accessed April 22, 2009).

reactions (e.g., manufacturing of cement). Carbon dioxide is also removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.

Methane (CH_4) is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills and elsewhere.

Nitrous Oxide (N_2O) is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.

Fluorinated Gases are synthetic, strong greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes referred to as High Global Warming Potential gases. High Global Warming Potential gases are emitted from a variety of industrial processes including aluminum production, semiconductor manufacturing, electric power transmission, and magnesium production and processing, and the production of HCFC-22, a hydrochlorofluorocarbon used as a refrigerant and in air conditioners.

6.1.4.1 Human Influence on Climate

The world's leading climate scientists have reached consensus that global climate change is underway, is "very likely" caused by humans, and hotter temperatures and rises in sea level "would continue for centuries," no matter how much humans control future emissions. A report of the Intergovernmental Panel on Climate Change (IPCC), an international group of scientists and representatives concluded "the widespread warming of the atmosphere and ocean, together with ice-mass loss, support the conclusion that it is extremely unlikely that global climate change of the past 50 years can be explained without external forces, and very likely that it is not due to known natural causes alone."[84]

Human activities have exerted a growing influence on some of the key factors that govern climate by changing the composition of the atmosphere and by modifying vegetation. The concentration of carbon dioxide in the atmosphere has increased from the burning of coal, oil, and natural gas for energy production and transportation and the removal of forests and woodlands around the world to provide space for agriculture and other human activities. Emissions of other greenhouse gases, such as methane and nitrous oxide, have also increased due to human activities. Carbon dioxide accounts for approximately 85 percent of total emissions, and methane and nitrous oxide account for almost 14 percent. Each of these gases, however, contributes to global warming at a different relative rate. Methane has a global warming potential 23 times that of carbon dioxide, while nitrous oxide is 296 times that of the same amount of carbon monoxide. To account for these differences, estimates of greenhouse gas emissions are often described in terms of carbon dioxide equivalents.

In 2007, the IPCC predicted a temperature increase of between two and 11.5 degrees Fahrenheit (F) (1.1 and 6.4 degrees Celsius) by the end of the 21st century under six different scenarios of emissions and carbon dioxide equivalent concentrations.[85] Sea levels were predicted to rise by 0.18 to 0.59

[84] *Climate Change 2007 – The Physical Science Basis Contribution of Working Group I to the Fourth Assessment Report of the IPCC.* February 2, 2007. [http://ipcc-wg1.ucar.edu/wg1/wg1-report.html]
[85] IPCC, 2007: Summary for Policymatkers. In: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. [http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf]

meters (seven to 23 inches) during this time, with an additional 3.9 to 7.8 inches possible depending upon the rate of polar ice sheets melting from increased warming. The IPCC report states that the increase in hurricane and tropical cyclone strength since 1970 can likely be attributed to human-generated greenhouse gases.

On a per person basis, greenhouse gas emissions are lower in California then most other states; however, California is a populous state and the second largest emitter of greenhouse gases in the United States and one of the largest emitters in the world.[86] Transportation is the largest source of greenhouse gas emissions in California, followed by industrial sources and electric power generation.[87]

According to the Draft 2009 Climate Action Team Report[88] the following climate change effects and conditions can be expected in California over the course of the next century:

- **Warming Trends.** Increasing temperatures with summer warming increasing from about 0.9 to 3.6 degrees Fahrenheit (F) in the first 30 years of the 21st century and from about 2.7 to 10.5 degrees F in the last 30 years of the 21st century.
- **Precipitation.** Changes in precipitation patterns and earlier melting of the Sierra snow pack that will have an effect on river flows, runoff, and water supplies in California.
- **Sea-Level Rise**. By 2050, sea-level rise could range from 11 to 18 inches higher and by 2100 sea-level rise could be 23 to 55 inches higher than in the year 2000. As sea level rises, major transportation infrastructure could be inundated and there also will be an increased rate of coastal flooding when high tides coincide with winter storms. Other impacts of sea-level rise include loss of coastal habitats (such as beaches and wetlands), direct impacts to coastal communities, and biodiversity reduction due to species loss.
- **Agriculture**. Increased challenges for the state's agricultural sector from temperature and precipitation effects on crop yields, crop losses from extreme weather events, and changes to pest and weed ranges.
- **Forestry**. Increased vulnerability of forests due to pest infestation, increased temperatures, wildfire frequency, and precipitation changes.
- **Water Resources**. Reduced reliability of State Water Project (SWP) and Central Valley Project (CVP) water supply systems due to the interaction of projected growth, a warmer-drier climate resulting in reduced streamflows and reservoir storage, and salinity increases in the Delta.
- **Coastal Areas**. Coastal erosion of beaches (especially during severe winter storms), and impacts to property, infrastructure, and housing due to flooding in coastal areas and the San Francisco bay area (including due to levee breaching).
- **Energy**. Increased electricity demand, particularly in the Central Valley, during hot summer months and possible reductions in energy generation from hydropower systems due to changes in runoff patterns.

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[86] California Legislative Analyst's Office. 2006. *Analysis of the 2006-07 Budget Bill (Governor's Climate Change Initiative).* [http://www.lao.ca.gov/analysis_2006/resources/res_04_an106.html]
[87] California Air Resources Board. 2008. Climate Change Scoping Plan. http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm
[88] California Environmental Protection Agency. 2009. *Draft Climate Action Team Report to Governor Schwarzenegger and the Legislature.* April 1, 2009. http://www.climatechange.ca.gov/publications/cat/ (accessed April 22, 2009)

- **Air Quality**. Increased concentrations of ozone and particulate matter associated with higher temperatures and increased natural biogenic emissions, which could impact air quality (particularly in the South Coast and San Joaquin air basins).
- **Public Health**. Effects on public health due to an increased frequency, duration and severity of heat events, increased air pollution, wildfire outbreaks, and physical events such as flooding. Air pollution and increased wildfires have the potential to increase respiratory problems.

The report concludes that extreme events from heat waves, floods, droughts, wildfires, and bad air quality are likely to become more frequent in the future in California.

6.1.4.2 Regulatory Context for Global Climate Change

Global climate change resulting from greenhouse gas emissions is an emerging environmental concern being raised and discussed at the international, national, and statewide level. At each level, agencies are considering strategies to control emissions of gases that contribute to global warming.[89] Regulatory efforts in California that apply to the project are summarized below.

6.1.4.3 State of California Executive Order S-3-05

In June 2005, the Governor of California signed Executive Order S-3-05 which identified Cal/EPA as the lead coordinating State agency for establishing climate change emission reduction targets in California. A "Climate Action Team", a multi-agency group was set up to implement Executive Order S-3-05. Under this order, the state plans to reduce greenhouse gas emissions to 80 percent below 1990 levels by 2050. Greenhouse gas emission reduction strategies and measures to reduce global warming were identified by the California Climate Action Team in 2006 and in the Climate Change Scoping Plan adopted in December 2008.[90]

6.1.4.4 Assembly Bill 32 – The California Global Warming Solutions Act of 2006

Subsequently, in the fall of 2006, California Assembly Bill 32 (AB 32), the global warming bill, was signed into law. AB 32 required the state Air Resources Board (ARB) to adopt regulations by set dates to require reporting and verification of statewide greenhouse gas emissions and to monitor and enforce compliance with the program. The bill requires achievement by 2020 of a statewide greenhouse gas emissions limit equivalent to 1990 emissions, and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions.

Strategies identified by ARB to reduce greenhouse gas emissions include, but are not limited to, new vehicle emission standards, enforcement of diesel truck anti-idling requirements, capture of more

[89] On April 2, 2007, the United States Supreme Court issued a 5-4 decision in *Massachusetts v. EPA*, which holds that the U.S. Environmental Protection Agency has authority under the Clean Air Act to regulate greenhouse gas emissions from new vehicles. The U.S. EPA has previously argued it lacked legal authority under the Clean Air Act to regulate greenhouse gases. The majority opinion of the Supreme Court decision noted that greenhouse gases meet the Clean Air Act's definition of an "air pollutant," and the EPA has the statutory authority to regulate the emission of such gases from new motor vehicles.

[90] California Environmental Protection Agency. 2006. *Climate Action Team Executive Summary Climate Action Team Report to Governor Schwarzenegger and the California Legislature.* [http://www.climatechange.ca.gov/climate_action_team/reports/2006-04-03_FINAL_CAT_REPORT_EXECSUMMARY.pdf] and California Air Resources Board. 2008. Climate Change Scoping Plan.

methane from landfills, hydrofluorocarbon (HFC) reduction strategies for the use and disposal of refrigerants, manure management in agricultural operations, and increased use of alternative fuels.

As part of implementation of AB 32, a statewide 1990 Greenhouse Gas Emissions inventory and 2020 Emissions Limit were adopted by the ARB in 2007. ARB's mandatory reporting regulation was approved by the Board in December 2007, and became effective on December 2, 2008. Starting in 2009, facilities in several key industrial sectors, such as electricity generation, petroleum refineries and cement manufacturing, are required to report greenhouse gas emissions. The ARB also approved another key requirement of AB 32, the *Climate Change Scoping Plan,* on December 11, 2008.[91] The *Scoping Plan,* developed by ARB with input from the Climate Action Team, proposes a comprehensive set of actions designed to reduce overall carbon emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, and enhance public health while creating new jobs and enhancing the growth in California's economy. The ARB is currently working on additional regulations to implement the *Scoping Plan.* Regulations to obtain the maximum technologically feasible and cost-effective reductions in greenhouse gases are to be adopted by January 1, 2011.

6.1.4.5 Senate Bill 97 – Modification to the Public Resources Code

On August 24, 2007, Governor Schwarzenegger signed Senate Bill (SB 97) which requires the Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions, including, but not limited to effects associated with transportation or energy consumption. The Resources Agency is required to certify and adopt these guidelines by January 1, 2010.

Currently there is no established guidance, from the state or in published CEQA case law, for the determination of what constitutes a significant global climate change impact or what measures are necessary to off-set new greenhouse gas emissions.

At the direction of the Governor's Office of Planning and Research, ARB developed preliminary recommendations for statewide interim thresholds of significance for greenhouse gas emissions. ARB focused on common project types that, collectively, are responsible for substantial greenhouse gas emissions – specifically industrial, residential, and commercial projects. These recommended approaches have not been adopted by ARB and additional workshops are not currently scheduled.

Draft CEQA Guideline Amendments for Greenhouse Gas Emissions

OPR has drafted amendments to the CEQA Guidelines for greenhouse gas emissions as required by Senate Bill 97 (SB 97). OPR held two workshops in January 2009 to present the amendments and obtain input from the public. Under the *Preliminary Draft CEQA Guideline* amendments, changes to the CEQA Guidelines would address determination of a project's incremental contribution to a cumulative effect, determining the significance of impacts from Greenhouse Gas Emissions, consistency with plans, mitigation measures related to greenhouse gas emissions, and tiering from an environmental impact report (EIR). In the proposed CEQA Guideline changes, Lead Agencies would retain discretion to establish thresholds of significance based on individual circumstances.[92]

[91] California Air Resources Board. 2008. Climate Change Scoping Plan. http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm

[92] OPR website, CEQA Guidelines and Greenhouse Gases, http://opr.ca.gov/ (accessed April 22, 2009)

6.1.4.6 Senate Bill 375 – Redesigning Communities to Reduce Greenhouse Gases

SB 375 encourages housing and transportation planning on a regional scale, in a manner designed to reduce vehicle use and associated greenhouse gas emissions. It requires the California Air Resources Board (ARB) to set regional targets for the purpose of reducing greenhouse gas emissions from passenger vehicles for 2020 and 2035. Once plans and strategies are in place to meet the SB 375 targets, certain projects in these regions can be relieved of specific review requirements of the California Environmental Quality Act. The targets apply to the regions in the State covered by the 18 metropolitan planning organizations (MPOs), including the Metropolitan Transportation Commission (MTC) in the San Francisco Bay Area. The MTC has developed the currently proposed *Transportation 2035 Plan* (January 2009) with the AB 32 GHG reduction targets in mind; however MTC's RTP update for 2013 would be the first MTC plan subject to SB 375.[93]

SB 375 requires MPOs to prepare a Sustainable Communities Strategy (SCS) within the Regional Transportation Plan that sets forth a vision for growth for the region while taking into account transportation, housing, environmental, and economic needs. The SCS will be the blueprint by which the region will meet its GHG emissions reductions target if there is a feasible way to do so. The MPOs also will be required to prepare an alternative planning strategy with alternative development patterns, infrastructure, or additional transportation measures or policies to meet identified targets.

Per SB 375, the ARB appointed a Regional Targets Advisory Committee (RTAC) on January 23, 2009, to provide recommendations on factors to be considered and methodologies to be used in ARB's target setting process. The RTAC may consider any relevant issues, including, but not limited to, data needs, modeling techniques, growth forecasts, the impacts of regional jobs-housing balance on interregional travel and greenhouse gas emissions, economic and demographic trends, the magnitude of greenhouse gas reduction benefits from a variety of land use and transportation strategies, and appropriate methods to describe regional targets and to monitor performance in attaining those targets. The RTAC is required to provide its recommendations in a report to ARB by September 30, 2009. ARB must propose draft targets by June 10, 2010, and adopt final targets by September 30, 2010.[94]

6.1.4.7 Existing Baseline Conditions

Under existing conditions, greenhouse gas emissions from human activities at the project site are limited to mobile sources from equipment used to maintain the landscaping, idling automobiles parked on-site, emissions associated with travel to and from the site, and equipment used at the electrical substation..

Greenhouse emissions from NFL events at Candlestick Park under existing conditions include those from transportation (team, employee, delivery, and visitor vehicle trips in airplanes, buses, trucks, and passenger cars), facility maintenance/area emissions (landscaping equipment operation), energy use (lighting, concessions, heating and cooling in interior spaces, water pumping), and from the

[93] MTC. 2009. *Draft EIR for the Transportation 2035 Plan(Transportation in Motion 2035). January 2009.* http://www.mtc.ca.gov/planning/2035_plan/EIR.htm, accessed February 18, 2009.
[94] http://www.arb.ca.gov/cc/sb375/rtac/rtac.htm, accessed February 18, 2009
http://www.leginfo.ca.gov/pub/07-08/bill/sen/sb_0351-0400/sb_375_bill_20080930_chaptered.pdf , accessed February 18, 2009

decomposition of organic waste materials generated at events (wastewater treatment and solid waste disposal and/or composting).

6.1.4.8 Thresholds of Significance

Under SB 97 (August 2007), the State Office of Planning and Research is to certify and adopt guidelines for evaluation of the effects of greenhouse gas emissions and mitigation of those effects by January 1, 2010. Neither CEQA nor the CEQA Guidelines currently provide any methodology for analysis of greenhouse gases. Absent established standards for gauging the significance of greenhouse gas emissions, a primarily qualitative approach will be used to evaluate possible impacts for this project.

For the purposes of this EIR, a global climate change impact is considered significant if the project would:

- result in substantial new greenhouse gas emissions; or
- be adversely impacted by sea level rise of two to three feet

At this time, for a project to be a substantial source of new greenhouse gas emissions, it would have to meet the following criteria:

- result in a net increase in greenhouse gas emissions, in terms of carbon dioxide equivalents, that could substantially impede local, regional, or statewide efforts to reduce overall greenhouse gas emissions to 1990 levels.

6.1.4.9 Global Climate Change Impacts

Given the global scale of global climate change and the large quantity of greenhouse gas emissions, the challenge under CEQA is for a Lead Agency to present information on the possible impacts of a project on global warming in a way that is meaningful to the decision making process. Under CEQA, there are two essential questions: would a project increase or substantially contribute to an environmental impact *or* would the project be subject to impacts from the environment associated with global climate change.

Accordingly, projects can both contribute to global climate change and be exposed to impacts from global climate change, and mitigation measures can be identified to minimize project impacts to and from global climate change.

6.1.4.10 Greenhouse Gas Emission Impacts from the Project

Construction Impacts (Short-Term Emissions)

Project construction would involve emissions associated with equipment and vehicles used to construct the project as well as emissions associated with manufacturing materials used to construct the project. The URBEMIS2007 model can be used to estimate the emissions associated with construction equipment and vehicle activity. There are, however, no reliable methods to estimate construction-related emissions associated with the manufacturing of project materials.

The URBEMIS2007 model was used to estimate construction-related emissions. A stadium project does not fit any of the land use imputs to URBEMIS2007. A large warehouse type structure was

assumed with a floor area based on the useable areas of project (based on the structural drawings of the proposed stadium). An approximately 700 foot by 1,000 foot structure with four to nine levels was calculated to result in about 1.8 million square feet of floor area. This calculation did not include the field in the center of the structure. Construction phases included fine site grading (the site is relatively flat), trenching, paving, building construction, and application of architectural coatings. This activity was assumed to extend over three calendar years, with most of the activity occurring in the 2nd year of construction. Under these assumptions, construction of the proposed project would produce approximately 2,066 tons of CO_2 emissions in the first year, 5,434 tons in the second year, and 20 tons in the final year of construction for a total of 7,520 tons of CO_2.

Operational Impacts

The proposed project would increase emissions, relative to existing conditions, by the construction of a 68,500 seat open-air stadium and creating jobs on-site thereby incrementally increasing the daily traffic trips to and from the site[95]. Greenhouse gas emissions from the proposed project would include vehicle exhaust, construction emissions from construction vehicles and machinery, emissions from the generation of electricity to operate the stadium, and decomposition of organic materials in solid waste.

For the purposes of this EIR, the significance of emissions of greenhouse gases will be evaluated based on both a qualitative and quantitative discussion of estimated net new greenhouse gas emissions, measures included in the project to reduce greenhouse gas emissions, and the consistency of the proposed project with strategies for reducing future greenhouse gas emissions identified in the Climate Change Scoping Plan approved by ARB in 2008. For transportation, an estimate of net new emissions from the proposed project was made using the EMFAC2007 model. An estimate of possible greenhouse gas emissions from electricity use was also made based upon certified PG&E emission rates. Lastly, an estimate of emissions from natural gas usage was made based upon the California Climate Action Registry General Reporting Protocol. The following discussion is a good faith effort at estimating possible greenhouse gas emissions from transportation and electricity/natural gas use. Emissions from other sources, such as solid waste generation, are discussed on a qualitative basis due to limited modeling tools or basic information needed to make a meaningful analysis.

Area Sources

Area source emissions, in the form of natural gas combustion for heating and cooking were calculated. A portion of these emissions were considered to be offset by the existing Candlestick Park stadium, which would no longer host NFL events if the new stadium is constructed. The site at Candlestick Point will, however, be occupied by a new development, which will have substantial emissions of its own. The California Climate Action Registry General Reporting Protocol reports that the emission rate for natural gas is 53.06 kilograms per million British Thermal Units (Mbtu), which is equivalent to 119,906 pounds of carbon dioxide per million cubic feet. It is estimated that the proposed stadium would use approximately 9,600,000 cubic feet of natural gas annually for heating water, cooking, and space heating. Based on the aforementioned emission rate, carbon

[95] The stadium site is currently an overflow parking lot for the Great America theme park and is rarely in use and does not typically generate any traffic trips. Upon completion of the proposed stadium, a few full time jobs would be created on-site such as box office and retail staff and maintenance staff. The majority of the jobs, however, would be part time during stadium events. So only a small fraction of the total jobs created would generate daily traffic trips to the site.

dioxide emissions from annual natural gas usage on-site would be approximately 575.2 tons, of which approximately 41 percent of those emissions are being generated during NFL events.

Mobile Emissions

Mobile sources of greenhouse gas emissions would be primarily vehicle trips to the events. Light-duty automobiles (i.e., passenger cars, pickup trucks, and SUVs) would comprise approximately 98 percent of the trips. Charter buses would make up the remaining two percent. Diesel buses, however, have emission rates that are 10 to 100 times greater than passenger vehicles.

The Transportation Management Plan trip generation estimates were used to model NFL event emissions from both Candlestick Park and the proposed stadium in Santa Clara. Vehicle emission rates for both NFL and large non-NFL events were developed using California's EMFAC2007 model. Emission rates are speed dependant and estimates include running exhaust emissions and emissions associated with vehicle starts.[96]

NFL Events

NFL events played in Santa Clara would not be considered new emissions, because these events already occur at Candlestick Park in San Francisco. Travel patterns would change, however, with implementation of the proposed project. To estimate changes in air pollutants and GHG emissions, the changes in travel patterns were determined. Emissions were calculated assuming that the distribution of attendees would be similar to that of the existing 49ers season ticket holders. Carbon dioxide emissions from vehicle trips to Candlestick Park on game days are approximately 7,878 tons per year.

The project site is well served by transit and includes pedestrian connections. Charter buses currently serve Candlestick Park and would continue to serve the proposed stadium in Santa Clara. Trip generation estimates indicate that approximately eight percent of Candlestick Park attendees use transit and 10 percent arrive by charter bus. Projects for the proposed stadium assume an increase in transit usage up to 19 percent and a slight decrease in charger bus usage down to seven percent. Carbon dioxide emissions from vehicle trips to the proposed project site on game days are estimated to be approximately 8,299 tons per year, a net increase of approximately 421 tons per year compared to NFL games at Candlestick Park.

Large Non-NFL Events

It is assumed that the proposed stadium would also host up to 17 large non-NFL events (over 26 days) per year. These events would occur at various times throughout the year with most events likely to occur outside the summer months to avoid conflicts with operation of the Great America Theme Park. Daily emissions from these events were modeled.

Emissions modeling was done in a similar manner as the NFL events except that each large non-NFL event was considered new (not replacing an event that would occur at Candlestick Park) and travel distances would be considerably less, approximately 15 miles. Carbon dioxide emissions from vehicle trips to the proposed project site on large non-NFL event days are approximately 3,508 tons per year.

[96] Vehicle starts result in excess emissions due to incomplete fuel combustion.

Indirect Source Emissions

Indirect emissions are considered those that are associated with the generation of electricity provided to the project. It is estimated that the stadium would use approximately 19,710,000 kilowatt hours of electricity per year. The electricity provider would be Silicon Valley Power. Silicon Valley Power does not publish a certified carbon dioxide emission rate. PG&E, which likely offers a similar mix of energy sources, has a certified 2006 emission rate of 456 pounds of carbon dioxide per each 1,000 kilowatt hours of electricity produced. Based on the PG&E certified emission rates, carbon dioxide emissions from electricity usage at the stadium site on game days is estimated to be approximately 4,494 tons per year.

Calculating the area source emissions (natural gas use), mobile source emissions, and indirect source emissions (electricity use), the net new total carbon dioxide emissions per year from the proposed stadium for these emission sources is 9,087 tons. This estimate is somewhat conservative in that existing electricity use at Candlestick Park has not been accounted for. Table 40 breaks down the emissions by source type.

TABLE 40
Net Annual Carbon Dioxide Emissions from the Proposed Stadium

Source Type	Scenarios	Annual Emissions (tons per year)
Area Source	NFL Games at Candlestick Park	-235.8
	NFL Games at Proposed Stadium	235.8
	Large Non-NFL Events at Proposed Stadium	339.4
Mobile Source	NFL Games at Candlestick Park	-7,878
	NFL Games at Proposed Stadium	8,299
	Large Non-NFL Events at Proposed Stadium	3,508
Indirect Source	Annual usage at the proposed stadium	4,494
Construction	Total amortized over a 30-year period	251
	Total	**9,759**

Over time, it is assumed that these numbers will decrease as AB 32 will require GHG emission reductions in all sectors, cars will continue to be developed with increased fuel efficiency, and the carbon content in fuels will decrease.

Activities at events, such as football games, can generate a significant amount of waste in a short period of time. A study of 25 different venues and events in California (results released in 2006) indicated that on average 2.44 pounds of solid waste is generated per visitor per day.[97] Information on existing NFL events at Candlestick Park indicates that a somewhat smaller amount of solid waste is generated per visitor, 1.9 pounds per day of which 30 percent is diverted for recycling.

Based upon limited records for Candlestick Park, 350 tons of solid waste was generated in 2007 of which approximately 245 tons was sent to a landfill. The composition of these materials is not

[97] California Integrated Waste Management Board. 2006. *Targeted Statewide Waste Characterization Study: Waste Disposal and Diversion Findings for Selected Industry Groups.* http://www.ciwmb.ca.giv/WasteChar/WasteStudies.htm#2006Industry (accessed April 20, 2009)

known to the project applicant; however, if one-half of these materials were food scraps it could generate approximately 23.3 tons of CO_2 if sent to a landfill.[98]

Under the proposed project, it is assumed that a similar amount of waste on a daily basis could be generated by both NFL events and other large non-NFL events. Since there would be more events per year at the proposed stadium than are currently held at the existing Candlestick Park, the proposed project could result in an increase in emissions of carbon dioxide from solid waste generated by large events.

Loss of Trees

Carbon sequestration is the removal and storage of carbon from the atmosphere in carbon sinks (such as oceans, forests, or soils) through physical and biological processes. During photosynthesis, trees absorb carbon dioxide and convert it into oxygen. The amount of carbon that can be removed from the atmosphere in any given area is directly dependant on the number of trees in the area.

The project site currently has 266 trees slated for removal, of which 70 are 12 inches or greater in diameter. On average, it is estimated that a 12-inch or larger tree can sequester approximately 48 pounds of carbon a year.[99] Smaller trees are estimated to sequester approximately 19 pounds of carbon a year.[100] Based on these numbers, the trees currently on the project site absorb approximately 7,084 pounds of carbon dioxide a year. Other pending and recently approved projects in north Santa Clara will result in the loss of 984 12-inch or larger trees and 1,175 small trees. Based on these numbers, all these trees combined (including the trees on the project site) absorb approximately 76,641 pounds of carbon dioxide a year.

Strategies to Reduce Greenhouse Gas Emissions

The project has identified preliminary design features and measures that would reduce GHG emissions from energy usage. The design features and measures include:

- Development and implementation of a TDM program consistent with BAAQMD guidelines.
- Installation of green roofs.
- Installation of approximately 20,000 square feet of photovoltaic panels.
- Installation of programmable lighting.
- Installation of programmable HVAC systems that meet the latest ASHRAE standards.
- Compliance with the City's construction and demolition ordinance that requires diversion of 50 percent of waste generated from development of the site. The project proposes to divert and/or salvage up to 75 percent of non-hazardous construction waste.
- Installation of duel plumbing in incorporate recycled water for use in landscaping, toilets, and other non-potable applications.

[98] Estimated using emissions factors for food scraps and a landfill gas recovery in the U.S. EPA WARM model. The U.S. EPA created the WAste Reduction Model (WARM) to help solid waste planners and organizations track and voluntarily report greenhouse gas emissions reductions from several different waste management practices. http:// www.epa.gov/climatechange/wycd/waste/calculators/Warm_home.html (accessed April 22, 2009)
[99] Mike McAliney. Arguments for Land Conservation: Documentation and Information Sources for Land Resources Protection Trust for Public Lands, Sacramento, CA. December 1993.
[100] www.coloradotrees.org/benefits.htm#10

The proposed project, when combined with other cumulative development, would result in a significant cumulative global climate change impact. The project would result in a net increase in carbon dioxide emissions annually. It is partially consistent with strategies to reduce VMT per capita over time in that it proposes development within an existing urban area, near public services and transit. It is not near a supply of housing that would serve the new employees. The project will make a cumulatively considerable contribution to a significant and unavoidable global climate change impact.

6.1.4.11 Impacts to the Proposed Project from Global Climate Change

As stated above, climate change effects expected in California over the next century could include reduced water supply, increased electricity demand (particularly in the summer months), and impacts from sea level rise.

Impacts to the project from global climate change could include reduced water availability due to droughts. Non-potable water usage on-site (i.e., landscaping, turf, and bathrooms) would utilize recycled water, thereby reducing the need for potable water on-site. At this time, neither the State Department of Water Resources nor the Santa Clara Valley Water District has established the effects of global climate change on water supplies in California or locally.[101] The City of Santa Clara, as a water supplier, continues to work to ensure sustainable and reliable water supplies through a range of activities including water conservation.

Energy use on the project site could rise during hot summer months because energy demand for building cooling could increase. In the event regional demand exceeded supply, this could result in temporary interruptions in power supply. For the proposed land use, this would be primarily an economic rather than an environmental impact and is not discussed further. Utilities required by the proposed project would not be directly impacted by the effects of global climate change.

The project site is located approximately 1.9 miles from San Francisco Bay (as the crow flies) and is at an elevation of 15 feet above sea level. The Pacific Institute released a new study on sea level rise in March 2009, *The Impacts of Sea-Level Rise on the California Coast*, which updates the Institute's comprehensive regional assessment of sea-level rise completed in 1990. Based on climate scenarios prepared for the California Energy Commission's Public Interest Energy Research (PIER) Climate Change Research Program, the study found that mean sea level along the California coast will rise from 1.0 to 1.4 meters (3.3 to 4.6 feet) by the year 2100 above the previously predicted rise in sea level of up to three meters (approximately 10 feet).

Based on the new data, the project site is within the possible inundation area for sea level rise flooding if levees in the southern San Francisco Bay are overtopped when high tides coincide with winter storms. The project, therefore, would be adversely impacted by sea level rise.

While the loss of trees from multiple development projects in the project area will reduce the potential for carbon sequestration in the short term, some new trees will be planted to offset the overall loss. Over time, the new trees will mature but they will not have the same carbon sequestration capacity as the existing trees because these development sites will not support enough trees to account for the total loss. Even if all 2,425 trees lost by pending and recently approved development are replaced in the project area, it would be many years before their carbon absorption

[101] Santa Clarita Oaks Conservancy, et al v City of Santa Clarita, et al., Los Angeles Superior Court Case No. BS084677, August 15, 2007.

would be equivalent to the existing condition. The loss of carbon sequestration capabilities combined with the increase in regional criteria pollutants would be significant.

6.1.4.12 Mitigation and Avoidance Measures

The following project specific mitigation measures will be implemented to lessen identified significant cumulative global climate change impacts:

- The proposed project will be built to minimum LEED certification requirements.

- The project will implement the identified TDM measures as a condition of approval.

Additional Measures for Consideration

The following measures will also be included in the project as Conditions of Approval:

- The proposed project will be required to prepare a Waste Reduction & Recycling Plan that would increase diversion of solid waste from special events to 75 percent, including composting or other diversion of compostable organics.
- Offices and critical support features will be built above project flood levels or provide flood proofing.
- Water conservation measures will be implemented for potable water use.

6.1.4.13 Conclusion

The proposed project, when combined with other cumulative development, would result in a significant cumulative global climate change impact. Reducing greenhouse gas emission levels from 2020 to 1990 levels as required under AB 32 could require a 28 to 33 percent reduction of "business-as-usual" greenhouse gas emissions depending on the methodology used to determine the future emission inventories.[102] Although the exact percent reduction that would be incorporated in the future design of the proposed buildings is not known, the reductions in energy use called for in the LEED certification requirements cannot be considered to fully mitigate the projected increases in greenhouse gas emissions from the project. The project, even with implementation of identified energy reduction policies, would result in a cumulatively considerable contribution to cumulatively significant global climate change impacts. **(Significant Unavoidable Cumulative Impact)**

[102] California Air Pollution Control Officers Association, 2008. *CEQA & Climate Change, Evaluating and Addressing Greenhouse Gas Emissions for Projects Subject to the California Environmental Quality Act.* January 2008.

SECTION 7.0 PROJECT ALTERNATIVES

Section 15126.6 of the CEQA Guidelines requires that an EIR describe a reasonable range of alternatives to the proposed project that could feasibly attain most of the project objectives while avoiding or considerably reducing any of the significant impacts of the proposed project. This is defined in the same section of the CEQA Guidelines as not meaning every conceivable alternative to the project, but only a reasonable range of potentially feasible alternatives. In addition to the project alternatives, the No Project Alternative must also be analyzed in the document.

Because an EIR must identify ways to mitigate or avoid significant impacts, the discussion of alternatives is supposed to focus on alternatives "to the project or its location" that will substantially lessen or avoid the significant effects of the project, even if the alternatives might impede the attainment of the project objectives or be more expensive. [Section 15126.6(b)]

The three critical factors to consider in selecting and evaluating alternatives are, (1) the significant impacts from the proposed project which should be reduced or avoided by an alternative, (2) the project's objectives, and (3) the feasibility of the alternatives available. Each of these factors is discussed below.

7.1 Significant Impacts of the Proposed Project

As discussed throughout the document and summarized on page 340 of this document, the significant unavoidable impacts of the proposed project include:

- A substantial increase in ambient noise levels during large stadium events, which are likely to occur 46 times a year.
- Temporary noise impacts from project construction, which will last approximately 28 months.
- Regional air pollutants in excess of established thresholds.
- For possibly as many as eight times a year (four NFL events and four large non-NFL events), the project could have a significant impact on up to 17 intersections during weekday evenings. Of those 17 intersections eight are in Santa Clara, six are in San José, one is in Sunnyvale, and two are in Milpitas.
- On a maximum of 42 weekend days, the project could have a significant impact on up to two local intersections. Both intersections are in San José. This includes 20 NFL events and 17 non-NFL large events.
- For possibly as many as eight times a year, the project could have significant impacts on up to 17 freeway segments during weekday evening.

The first question to be addressed in evaluating any alternative is, therefore, whether it could reduce or avoid any or all of these significant impacts that would result from the project as proposed.

7.2 Project Objectives

The stated objectives of the project proponent are to:

- Develop a state-of-the-art stadium with approximately 68,500 seats, including premium seats, that will create a stimulating environment for the 49ers home games;
- Design the stadium so that it is expandable to approximately 75,000 seats for the purpose of periodically hosting the NFL Super Bowl;
- Secure the public and private investment necessary to make the stadium financially feasible;
- Locate the stadium on a site that can be readily assembled and that enables the development of the stadium within budget and on schedule[103];
- Locate, develop, and design that stadium so that it is usable for other major entertainment and civic events when it is not in use for 49ers home games, potentially including future use by a second NFL team;
- Locate the stadium on a site where it will be compatible with and enhance the surrounding area;
- Enhance the game day experience for fans by accommodating activities such as tailgating;
- Locate the stadium on a site that is readily accessible by public transportation, preferably two or more modes of regional public transit;
- Locate the stadium on a site that is served by existing streets and highway infrastructure adequate to reasonably accommodate local and regional game-day automobile circulation;
- Ensure that adequate parking for patrons (estimated to require approximately 19,000 spaces) and employees is available for use on game days and during other major events; and
- Locate the stadium on a site where a substantial percentage of the parking needed on game days and during other major events could be provided in existing parking facilities which are not in use during evenings and weekends and are located within a 20-minute walking distance of the stadium.

The stated objectives of the City of Santa Clara, who is the owner of the underlying property, are to:

- Promote the Bayshore North Entertainment District with projects and activities that create vitality and economic benefits for the City beyond normal business enterprises;
- Promote activities that support the Convention Center and the hotels and restaurants in the City and encourage new restaurant and retail services that support the daily business activity in the area;
- Develop entertainment and sports facilities on public lands that provide a return to the City's General Fund and/or provide civic, cultural, and sporting amenities that serve a wide range of public interests in the City and the region;
- Encourage uses that are compatible with both the corporate/business character of the Bayshore North area and the entertainment and cultural uses in the area;
- Support uses that are compatible with or complementary to normal business activities, parking, and traffic in the area;
- Promote activities that take advantage of mass transit infrastructure by creating uses that can be served by transit both during the regular business week and on weekends;
- Encourage shared parking throughout the Convention Center area to minimize excess costs associated with development of parking and promote creative parking arrangements that are compatible with activities on nearby properties; and
- Foster job growth in an area served by mass transit.

[103] The 49ers team has set a construction schedule of 28 months.

7.3 Feasibility of Alternatives

CEQA, the CEQA Guidelines, and case law on the subject have found that feasibility can include a wide range of factors and influences. The Guidelines advise that such factors can include (but are not necessarily limited to) the suitability of an alternate site, economic viability, availability of infrastructure, consistency with a general plan or with other plans or regulatory limitations, jurisdictional boundaries, and whether the project proponent can "reasonably acquire, control, or otherwise have access to the alternative site". [Section 15126.6(f)(1)]

7.4 Site Selection Process

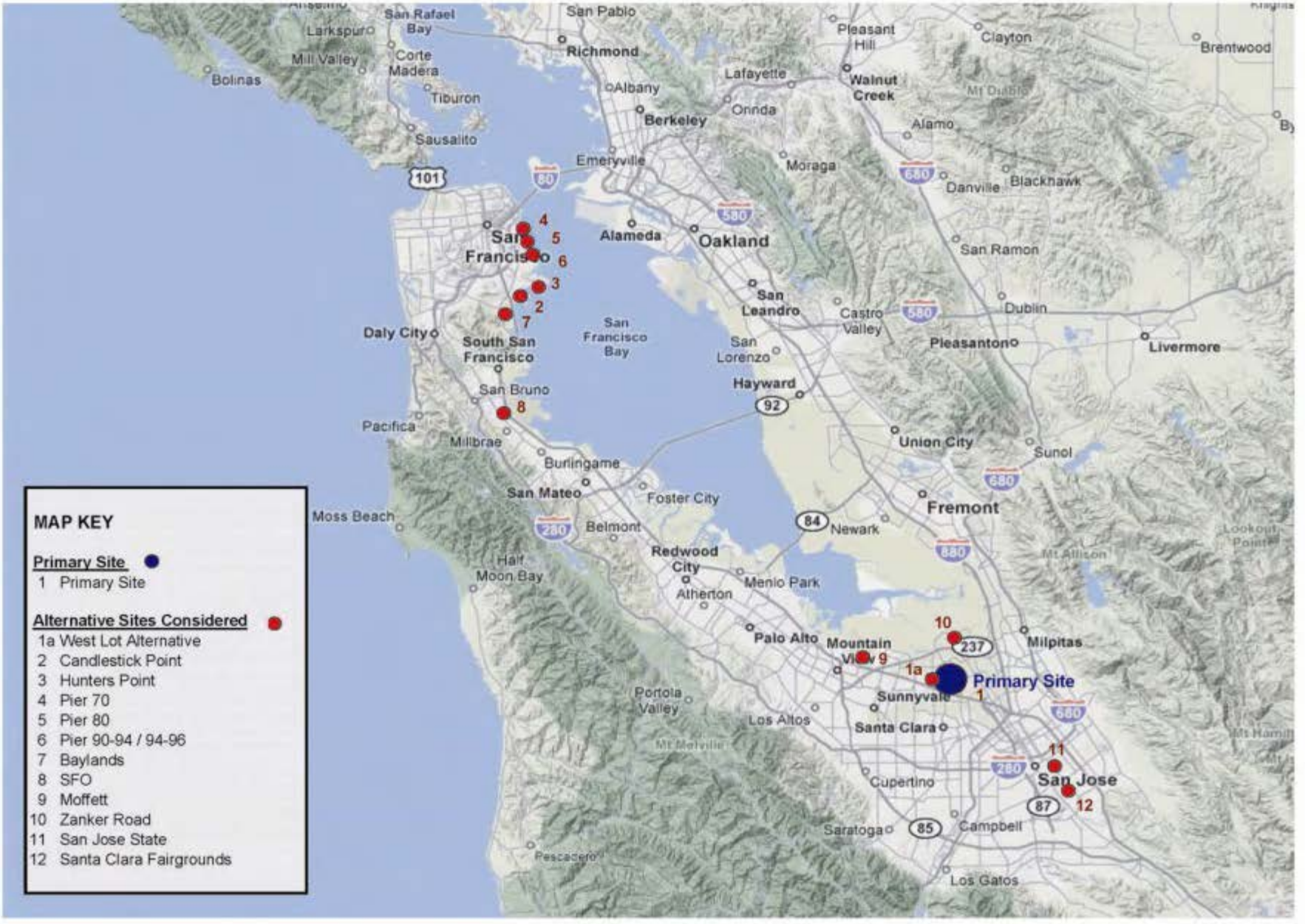
A number of site-related factors were used to determine the most suitable location for the proposed project. These factors included site size, accessibility to freeways and alternative modes of transportation, availability of parking, availability of public services and utilities, development time frame, existing hazardous conditions, economic feasibility (including availability of public funding), compatibility with surrounding land uses, and availability of the site. Eleven possible locations were determined to be potentially feasible and capable of satisfying many project objectives, but after close consideration were ultimately rejected by the project applicant as infeasible based on site constraints, inability to meet many of the project objectives, and/or inability to substantially lessen or avoid most of the significant impacts (those identified at the proposed project site or new ones at the alternative site). A brief discussion of each of the 11 sites that were considered and then rejected by the project applicant as a possible project site is provided below. The locations of the 11 sites are shown on Figure 89.

7.4.1 Candlestick Point

The 86-acre Candlestick Point site contains the existing 49ers stadium and surface parking. The site is surrounded by San Francisco Bay, several recreational areas, residences, and offices. The site is owned by the City and County of San Francisco.

Because there is already a stadium on the Candlestick Point site of comparable size to the proposed project, placing the new stadium on the same site would not result in a significant change from the existing conditions on and near Candlestick Point on event days. Traffic patterns would not change and, as a result, no additional air pollutants related to traffic trips would be generated. The proposed stadium is not bigger than the existing stadium so the number of attendees would be the same or less. Depending on the stadium design and orientation, crowd noise and tailgating noise impacts could be comparable to the existing conditions at Candlestick Park. The replacement of the existing stadium with a new stadium would, however, create significant temporary noise, air quality, and traffic impacts associated with demolition and construction activities. These impacts would be comparable to the construction impacts identified for the proposed project site.

In June 2008, a plan for redevelopment of Candlestick Point was placed on the ballot by petition, voted on and approved by the residents of San Francisco as part of the proposed Bayview Waterfront development (Proposition G – Bayview Jobs, Parks and Housing Initiative). The result of the vote was that the residents of San Francisco approved a plan that includes only housing, retail, and open space on Candlestick Point.



ALTERNATIVE SITES

FIGURE 89

7.4.1.1 Conclusion

The lack of multiple modes of public transit to serve Candlestick Park makes the site inconsistent with project proponent's objectives to locate the stadium on a site that is readily accessible by public transportation, preferably two or more modes of regional public transit.

The Candlestick Point alternative would only result in new significant temporary noise, air quality, and traffic impacts associated with demolition and construction activities comparable to the construction impacts identified for the proposed project site. All other new impacts would be avoided because the operation of the stadium would be comparable to the existing conditions. Nevertheless, the voter referendum would preclude a new stadium being built on the Candlestick Point site unless rescinded or modified by the voters. Therefore, this alternative location is infeasible.

7.4.2 Hunters Point

The 172-acre Hunters Point site, located approximately 0.85 miles northeast (as the crow flies) of the existing Candlestick Park, is currently a mix of undeveloped land and an inactive naval shipyard. The site is surrounded by San Francisco Bay, two large parks, and military housing. Portions of this site are currently owned by the City and County of San Francisco and the remainder of the site is owned by the U.S. Navy.

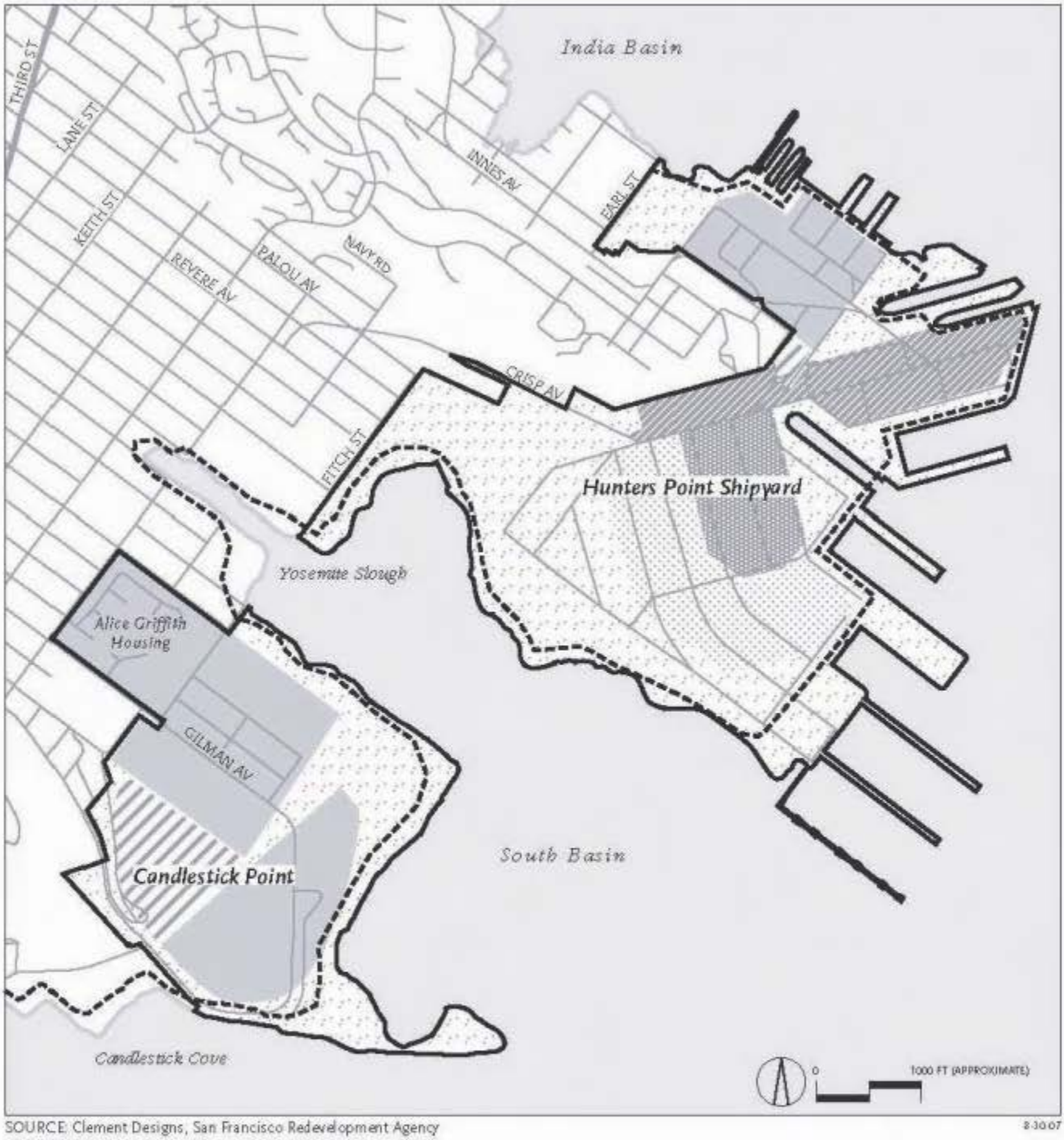
The Hunters Point site is part of the larger 780-acre Bayview Waterfront Project site which includes the Hunters Point Shipyard, Candlestick Point, and the India Basin Shoreline area. The Bayview Waterfront Project proposes up to 9,000 dwelling units, 645,000 square feet of retail, 2.15 million square feet of office/R&D/Industrial, and a 69,000 seat football stadium. [104] Environmental review has not yet been completed for this project.

The stadium and associated surface parking would occupy approximately 97 acres of the Hunters Point site. The proposed location of the stadium is shown in Figure 90. The nearest existing housing units are approximately 1,180 feet from the likely stadium location.

A preliminary evaluation of this site by the 49ers team found that the cost of relocating and extending utilities for a new stadium at this location would be more costly than utility relocation and upgrades at the proposed project site. The utility improvements needed for the Hunters Point site to be suitable would include, but not be limited to, new water, sewer, drainage, and other services throughout the site. Specific improvements would include:

- Low Pressure Water System – extension of a system to provide potable water and fire protection water from the University Mound Reservoir.
- Reclaimed Water – network of reclaimed water mains to provide reclaimed water in the future (when it becomes available) for dual plumbing in buildings and for irrigation of landscaped areas.
- High Pressure Water system – to serve fire flows.
- Separated Sanitary Sewer – to collect wastewater flows to be conveyed to the southeast Water Pollution Control Plant.
- Storm Drainage – storm sewer system separate from the combined sewer system, designed to handle up to a five-year storm and ultimately discharge to San Francisco Bay.

[104] http://www.sfgov.org/site/uploadedfiles/sfra/Projects/BayviewNOP.pdf



SOURCE: Clement Designs, San Francisco Redevelopment Agency

8.30.07

Candlestick Point–Hunters Point Shipyard Development Plan Areas

Bay Trail

Residential | Office R&D Industrial | Retail/Mixed Use | Stadium | Green/Dual Use Pkg | Park/Open Space

Source: San Francisco Planning Department, Bayview Waterfront Project Notice of Preparation, August 31, 2007.

CANDLESTICK POINT – HUNTERS POINT SHIPYARD DEVELOPMENT PLAN **FIGURE 90**

- Overland Flow – for an event above a five-year storm and up to a 100-year storm, excess stormwater will be routed to San Francisco Bay by overland flow along the network of street gutters and roadway.
- Joint Trenches – to serve electrical, communications and gas utilities.

In addition, it is known that the site is heavily contaminated. There would be significant hazardous materials impacts at this site (due to the previous land use as a shipyard) and the clean up to avoid or minimize the impacts would be expensive and time consuming.

The site is subject to the public trust[105] and could require Bay Conservation and Development Commission permits which could lengthen the overall implementation process. Therefore, the Hunters Point site might not meet the applicant's objective of locating the stadium on a site that enables the development of the stadium within budget and on schedule. Because the extent and significance of the hazardous materials contamination is not known, the cost and feasibility of the mitigation is also not known. The higher costs associated with the utilities improvements and hazardous materials clean-up and the likely extension of the project schedule due to permitting issues would, the project proponent believes, make this site location infeasible.

The only public transit options currently available to this site would be bus service, compared to the bus, light rail, and commuter rail available to the project site. The current lack of multiple transit options for attendees does not meet the objectives of the proposed project to provide at least two transit modes and would likely result in greater traffic impacts during peak hour periods than the proposed project because more attendees would need to arrive by automobile. The Bayview Waterfront project does, however, propose transportation improvements including street improvements, transit-related improvements, and pedestrian and bicycle circulation improvements. Proposed transit improvements include a new ferry terminal at Hunters Point and a transit center adjacent to the ferry terminal. A traffic control center is also proposed near the stadium site to assist in managing game day traffic. The secondary impacts related to the proposed transit and roadway improvements are not known nor is the schedule for the substantial transit improvements, including a ferry terminal. Once complete, the site would have access to at least two transit options (bus and ferry).

Air quality impacts from automobiles would be less than the proposed project (and comparable to existing Candlestick Park conditions) because travel time/distance for all attendees would be comparable to existing conditions. Noise impacts could be equivalent to the proposed project due to the site's proximity to the nearby military housing (assuming the military housing continues to be occupied after construction of a stadium). Noise impacts to the proposed housing are unknown at this time. The Bayview Waterfront project proposes a mixed-use development between the stadium site and the housing. The land uses proposed within the mixed use development are not known. If any type of residential land use is proposed in this area, the noise impact could be greater than the proposed project because the residential land uses would be immediately adjacent to the stadium site. If the mixed use building(s) were comprised solely of retail and commercial/office space then the proposed mixed use building(s) could attenuate the noise from the stadium depending on the height of the new building relative to the existing housing.

[105] The public trust doctrine is the principle that certain resources are preserved for public use, and that the government is required to maintain it for the public's reasonable use.

7.4.2.1 Conclusion

The costs and time required for hazardous materials clean up, infrastructure and roadway /transit improvements, and permitting make the Hunters Point site inconsistent with the following objectives:

- Locate the stadium on a site that can be readily assembled and that enables the development of the stadium within budget and on schedule;
- Locate the stadium on a site that is served by existing streets and highway infrastructure adequate to reasonably accommodate local and regional game-day automobile circulation;

While air quality impacts from cars would be less than those from the proposed project, air quality impacts from demolition, grading, and hazardous materials clean up are unknown and could be significant. It is not currently known if the noise impacts would be greater than or comparable to the proposed project. In addition, the secondary impacts of the proposed roadway and transit improvements are unknown. Due to the unknown environmental effects of the proposed development, a determination of whether or not this site is environmentally superior to the project site cannot be definitively made.

7.4.3 Pier 70

The 74-acre Pier 70 site, located approximately 2.8 miles (as the crow flies) north of Candlestick Park, is currently developed with warehouses, offices, industrial buildings, and surface parking lots. The proposed stadium would replace several warehouses, a garage, two powerhouses, an industrial building, and an office building. The site is surrounded by San Francisco Bay and industrial buildings, and is currently owned by the Port of San Francisco.

A preliminary evaluation of this site by the 49ers team found that the site is not of adequate size to provide all the required parking on-site without constructing one or more parking structures.[106] In addition, there is not sufficient surface parking in the surrounding area that could be made available for use during stadium events. This alternative would not, therefore, have adequate existing parking to provide a substantial percentage of parking required for patrons and employees within a 20-minute walking distance of the stadium. The project would likely require construction of one or more parking structures, which would the 49ers team believes, be more expensive than the proposed project.

The capacity of the local street network is insufficient to accommodate the approximately 19,000 cars that would come to the stadium on event days. The proposed Santa Clara site has 14 lanes to carry inbound and outbound traffic and the existing Candlestick Park has 10 lanes. The roadways that connect to the Pier 70 site have only six lanes which are inadequate to move 19,000 cars to and from the stadium in a timely manner. This site would not, therefore, meet the applicant's objective of locating the stadium on a site that is served by existing streets and highway infrastructure adequate to reasonably accommodate local and regional game-day automobile circulation.

The Pier 70 site is approximately 940 feet east of the 20th Street Muni train station, 0.44 miles from the 22nd Street Caltrain station, one mile from the 16th Street BART station, and is served by

[106] The existing Candlestick Park is 86 acres with all parking on-site and the proposed stadium site is 22 acres with three percent (593) of the minimum 19,000 parking spaces provided in the immediate vicinity of the stadium. An additional 11.6 acres of the proposed project site is being developed for shared parking equal to 15 percent (2,878) of the minimum parking requirement.

Municipal Transportation Agency (Muni) buses. Therefore, this site is consistent with the project proponent's objective to locate the stadium on a site that is readily accessible by public transportation, preferably two or more modes of regional public transit. It is also possible that a greater percentage of attendees would use transit than for either the existing or proposed sites.
.
The Pier 70 site currently has several buildings which may be eligible for the California Register of Historic Resources. Many of the potentially historic structures are located where the stadium would be sited. It should be noted that no formal analysis of these buildings has been done. If any of the structures were determined to be historically significant, then the City of San Francisco could require preservation of the structures on-site which could preclude a large structure such as the proposed stadium from being built on-site. If, however, the City did not require preservation on-site, the potentially historic structures would not prevent implementation of the project at this location but their loss would be a new significant impact. Additional site constraints could occur because the existing dry-docks on-site are still operational and there is no indication that they would cease operation with the development of the site.

Hazardous materials contamination could be substantial at this site due to historic uses of the site, including shipbuilding. These impacts would not be unavoidable but the cost of clean-up and site preparation could be much higher than for the proposed project site. In addition, the site is subject to the public trust and could require Bay Conservation and Development Commission permits which could lengthen the overall implementation process. The Pier 70 site might not meet the applicant's objective of locating the stadium on a site that can be readily assembled, which would be necessary for development of the stadium within budget and on schedule. The potentially higher costs associated with the hazardous materials clean-up and the possible extension of the project schedule due to permitting issues would, the project proponent believes, make this site infeasible. Because the extent and significance of the hazardous materials contamination is not known, the cost and feasibility of mitigation is also not known. The loss of historic resources could be a new significant impact if the existing buildings are removed.

The site is a pier that is built partially over water. The underlying soil is likely to be unstable. Construction of a stadium and a large parking structure at this location may require a substantially more expensive design to offset weak soils in the seismically active Bay Area.

Air quality impacts would be less than the proposed project (and probably comparable to existing Candlestick Park conditions) because travel time/distance for all attendees would be comparable to the existing condition travel distances. Noise impacts would be avoided because there are no sensitive receptors in the immediate project area. Inadequate street capacity for car access could result in new traffic impacts with backups on the surrounding local streets and extending onto Highways 101 and 280.

7.4.3.1 Conclusion

The hazardous materials, site access, and permitting issues make the Pier 70 site inconsistent with the following objectives:

- Locate the stadium on a site that can be readily assembled and that enables the development of the stadium within budget and on schedule;
- Locate the stadium on a site that is served by existing streets and highway infrastructure adequate to reasonably accommodate local and regional game-day automobile circulation;

- Locate the stadium on a site where a substantial percentage of the parking needed on game days and during other major events could be provided in existing parking facilities which are not in use during evenings and weekends and are located within a 20-minute walking distance of the stadium.

This site has size constraints and, as a result, there would be insufficient area for all parking to be located on-site in surface lots. Because of the minimal surface parking provided by the surrounding industrial land uses, there would not be sufficient parking in the surrounding area to make up the difference. Some of the parking would have to be in one or more parking structures which the project proponent believes would be more expensive than the proposed project. Development of the site is further constrained by the presence of multiple potentially historic structures and the presence of weak soils/bay mud. There are no historic structures on the proposed project site. Therefore, the demolition, alteration, or relocation of historic structures to accommodate the stadium would be a new significant impact.

While air quality impacts from cars would be less than those from the proposed project, air quality impacts from demolition, grading, and hazardous materials clean up are unknown and could be significant. Lack of adequate roadway capacity, unstable soils, and possible loss of historic structures could also result in new or more significant impacts than those from the proposed project. Noise impacts would, however, be less than those from the proposed project because the site is not located near sensitive receptors. This site would not be environmentally superior to the project site.

It is not known if the Port of San Francisco would be willing to sell or lease the property to the team for a stadium.

7.4.4 Pier 80

The 74-acre Pier 80 site, located approximately 2.3 miles (as the crow flies) north of Candlestick Park, is currently used to load and unload cargo ships. The proposed stadium would replace several warehouses and a cargo storage area. The site is surrounded by San Francisco Bay and industrial buildings, and is currently owned by the Port of San Francisco.

A preliminary evaluation of this site by the 49ers team found that similar to Pier 70, the site is not of adequate size to provide all the required parking on-site in surface lots. In addition, there is not sufficient surface parking in the surrounding area that could be made available for use during stadium events. This alternative would not, therefore, have adequate existing parking to provide a substantial percentage of the required parking for patrons and employees within a 20-minute walking distance of the stadium. The project would likely require construction of one or more parking structures, again similar to the situation for Pier 70.

The capacity of the local street network is insufficient to accommodate the approximately 19,000 cars that would come to the stadium on event days. The proposed Santa Clara site has 14 lanes to carry inbound and outbound traffic and the existing Candlestick Park has 10 lanes. The roadways that connect to the Pier 80 site have only seven lanes which are inadequate to carry 19,000 cars to and from the stadium in a timely manner. This site would not, therefore, meet the applicant's objective of locating the stadium on a site that is served by existing streets and highway infrastructure adequate to reasonably accommodate local and regional game-day automobile circulation.

The Pier 80 site is approximately 900 feet east of the Marine Street Muni train station and approximately 0.67 miles from the 22nd Street Caltrain Station. The site is also approximately 1.1 miles from the 24th Street BART station, but there is no easy walking path between that station and the Pier 80 site. There are no Muni bus lines that serve Pier 80. Nevertheless, this site is consistent with the project proponent's objective to locate the stadium on a site that is readily accessible by public transportation, preferably two or more modes of regional public transit. It is likely that bus lines and stops would be realigned to accommodate an NFL stadium at this location.

The Pier 80 site currently has several occupied buildings that would need to be demolished prior to construction of a stadium, potentially increasing the construction timeline and project costs. In addition, the site is subject to the public trust and could require Bay Conservation and Development Commission permits which could lengthen the overall implementation process. The Pier 80 site might not meet the applicant's objective of locating the stadium on a site that enables the development of the stadium within budget and on schedule. The potentially higher costs associated with the demolition of the existing buildings and the possible extension of the project schedule due to demolition and permitting issues would, the project proponent believes, make this site location infeasible.

Air quality impacts would be less than the proposed project (and comparable to existing Candlestick Park conditions) because travel time/distance for all attendees would be comparable to the existing condition travel distances. Noise impacts would be avoided because there are no sensitive receptors in the immediate project area. Inadequate street capacity for access by car could result in new traffic impacts with backups on the surrounding local streets and extending onto Highways 101 and 280.

Similar to the Pier 70 site, this location may have unstable soils that could require substantially more investigation and a more expensive design than the proposed project site.

7.4.4.1 Conclusion

The site size, access, and permitting issues make the Pier 80 site inconsistent with the following objectives:

- Locate the stadium on a site that can be readily assembled and that enables the development of the stadium within budget and on schedule;
- Locate the stadium on a site that is served by existing streets and highway infrastructure adequate to reasonably accommodate local and regional game-day automobile circulation;
- Locate the stadium on a site where a substantial percentage of the parking needed on game days and during other major events could be provided in existing parking facilities which are not in use during evenings and weekends and are located within a 20-minute walking distance of the stadium.

This site has size constraints and, as a result, there would be insufficient area for all parking to be located on-site in surface lots. Because of the minimal surface parking provided by the surrounding industrial land uses, there would not be sufficient parking in the surrounding area to make up the difference. Some parking would have to be provided in parking structures which the project proponent believes would be more expensive than the proposed project.

While air quality impacts would be less than the proposed project and noise impacts would be avoided, this site does not appear environmentally superior to the project site and, if underlying soils are unstable, it could be inferior.

It is not known if the site would be sold or leased to the team for a stadium by the Port of San Francisco.

7.4.5 Piers 90-94 Backlands/Piers 94-96

The Piers 90-94 Backlands/Piers 94-96 site, located approximately 1.9 miles (as the crow flies) northeast of Candlestick Park, is currently used to load and unload cargo ships. For this alternative, the stadium would be located on a currently vacant area within the Pier 90-94 development site, which is described below. The site is surrounded by San Francisco Bay and industrial buildings, and the property is currently owned by the Port of San Francisco.

The Piers 90-94 Backlands development site is approximately 44 acres located south and upland of Islais Creek, within the Port's 278 acre Piers 80-96 Maritime complex. It is surrounded by the Port's remaining modern cargo terminals at Piers 80, 92, and 94-96, which currently handle primarily bulk, break bulk and other non-container cargoes, and the Port's freight rail facilities.

In March 2003, the Port initiated a public planning process to produce a development strategy for the Piers 90-94 Backlands. In March 2004, after several public meetings and workshops, the Port presented draft development concepts for the Piers 90-94 Backlands. The development concept is for 740,000 square feet of warehouse/light industrial space[107] which, if developed, would limit the availability of land for development of a stadium

A preliminary evaluation of this site by the 49ers team found that the site is not of adequate size to provide all the required parking on-site in surface lots. In addition, there is not sufficient surface parking in the surrounding area that could be made available for use during stadium events. This alternative would not, therefore, have adequate parking for patrons and employees within a 20-minute walking distance of the stadium. The project would likely require construction of one or more large parking structures. The lack of surface parking on-site and limited surface parking in the surrounding area could limit tailgating activities. This alternative would not, therefore, meet the applicant's objective of enhancing the game day experience for fans by accommodating activities such as tailgating unless a specific area on-site was set aside, separate from the parking areas, for tailgating activities.

The capacity of the local street network is insufficient to accommodate the approximately 19,000 cars that would come to the stadium on event days. The proposed Santa Clara site has 14 lanes to carry inbound and outbound traffic and the existing Candlestick Park has 10 lanes. The roadways that connect to the Piers 90-94 Backlands/ Piers 94-96 site have only six lanes which are inadequate to carry 19,000 cars to and from the stadium in a timely manner. This alternative would not, therefore, meet the applicant's objective of locating the stadium on a site that is served by existing streets and highway infrastructure adequate to reasonably accommodate local and regional game-day automobile circulation.

The project site is approximately 1,260 feet east of the Evans Muni train station and is served by Muni buses. The site is also approximately a half-mile from the 22nd Street Caltrain station, but there is no easy walking path between the station and the Piers 90-94 site. Nevertheless, this site is consistent with the project proponent's objective to locate the stadium on a site that is readily accessible by public transportation, preferably two or more modes of regional public transit.

[107] http://www.sfport.com/site/uploadedfiles/port/meetings/supporting/2006/Item8aPier90-94BacklandsPlanningAnalysis.pdf

Based on a staff memorandum (February 2006) to the Port Commission, most of the backlands area is underlain by a former landfill which, in turn, is underlain by soft bay mud and sediment deposits. These geotechnical issues would make construction of a large stadium and massive parking structures at this location more costly, but the main issue is public safety. Previous large scale seismic events in the San Francisco Bay Area have caused extensive damage to areas of San Francisco built on bay mud and/or fill sites. The geotechnical issues at the Piers 90-94 Backlands/ Piers 94-96 site may be too significant to ensure a safe structure in the event of a large earthquake or would require substantial and expensive design measures to avoid significant risk.

Hazardous materials contamination could be substantial at this site due to historic uses of the site. These impacts would not be unavoidable but the cost of clean-up and site preparation could be much higher than the proposed project site. In addition, the site is subject to the public trust and could require Bay Conservation and Development Commission permits which could lengthen the overall implementation process. The Piers 90-94 Backlands/ Piers 94-96 site might not meet the applicant's objective of locating the stadium on a site that can be readily assembled and facilitates development of the stadium within budget and on schedule. The potentially higher costs associated with the hazardous materials clean-up and the possible extension of the project schedule due to permitting issues would, the project proponent believes, make this site infeasible. Because the extent and significance of the hazardous materials contamination is not known, the cost and feasibility of mitigation is also not known.

Air quality impacts would be less than the proposed project (and comparable to existing Candlestick Park conditions) because travel time/distance for all attendees would be comparable to the existing condition travel distances. Noise impacts would be avoided because there are no sensitive receptors within 2,000 feet of the project area. Inadequate street capacity for access by car could result in new traffic impacts with backups on the surrounding local streets and extending onto Highways 101 and 280.

7.4.5.1 Conclusion

The site access, parking, and permitting issues make this site inconsistent with the following objectives:

- Locate the stadium on a site that can be readily assembled and that enables the development of the stadium within budget and on schedule;
- Locate the stadium on a site that is served by existing streets and highway infrastructure adequate to reasonably accommodate local and regional game-day automobile circulation;
- Enhance the game day experience for fans by accommodating activities such as tailgating;
- Locate the stadium on a site where a substantial percentage of the parking needed on game days and during other major events could be provided in existing parking facilities which are not in use during the evenings and weekends and are located within a 20-minute walking distance of the stadium.

Planned redevelopment of the site could be incompatible with the land area requirements for a stadium. Furthermore, the geological constraints of the site (landfill on top of bay mud) are much greater than the other pier sites or the proposed project site and could pose a significant public safety threat or would require substantially more expensive design solutions. While air quality impacts would be less than the proposed project and noise impacts would be avoided, this site is not environmentally superior to the project site.

7.4.6 Baylands

The Baylands site is a 540-acre area located approximately 0.7 miles southwest of Candlestick Park, of which a portion could be used for the proposed stadium. The portion of the site analyzed is located within the City of Brisbane and is privately owned by the Universal Paragon Corporation.

The Baylands site is part of a proposed Specific Plan currently being analyzed by the City of Brisbane. The owner of the site indicated that they were planning for office and retail uses at the site and that a stadium may not be compatible with the proposed Specific Plan.

A preliminary evaluation of this site by the 49ers team found that a stadium at this location might require construction of a new freeway interchange at U.S. 101/Harney Way[108] and other local roadway improvements which would increase the cost and time necessary to complete the stadium. The Baylands site might not meet the applicant's objective of locating the stadium on a site that enables the development of the stadium within budget and on schedule. The new freeway interchange and local roadway improvements would, the project proponent believes, make this location infeasible. There could also be secondary impacts related to construction of a new freeway interchange that cannot be fully quantified without specific environmental review.

The project site is near the Sunnydale Muni train station, Bayshore Caltrain Station, and is served by Muni buses. Therefore, this site is consistent with the project proponent's objective to locate the stadium on a site that is readily accessible by public transportation, preferably two or more modes of regional public transit.

Air quality impacts would be less than the proposed project (and comparable to or slightly greater than existing Candlestick Park conditions) because travel time/distance for all attendees would be comparable to the existing condition travel distances. Noise impacts would be avoided because there are currently no sensitive receptors in the immediate project area. The development under a new specific plan may change the mix of uses in the future, but future development could be designed to be compatible with a stadium.

7.4.6.1 Conclusion

Inadequate site access and the possible need for a freeway interchange would substantially increase costs and might result in a significantly longer implementation period than would the currently proposed project. This would be inconsistent with the project proponent's objective of locating the stadium on a site that can be readily assembled and that enables the development of the stadium within budget and on schedule. In addition, the construction of roadway improvements could result in unknown secondary impacts.

The property owners have indicated that they do not want a stadium constructed on this site. The applicant's inability to procure title to the site would make the site infeasible. If the property owner were to agree to sell a portion of the property for the construction of an NFL stadium, the need to construct a freeway interchange and other roadway improvements could produce additional noise and air pollution and could have growth inducing impacts that cannot be known at this time. This alternative site would not be environmentally superior to the proposed project.

[108] The property owner determined that a new freeway interchange would be needed to support the development proposed in the specific plan.

7.4.7 San Francisco Airport

The 65-acre San Francisco Airport (SFO) site, located approximately 6.0 miles (as the crow flies) south of Candlestick Park on the opposite side of Highway 101 from SFO, is currently vacant land. The site is surrounded by SFO, a residential neighborhood, and Highway 101. The site is currently owned by the San Francisco Airport Authority.

The relatively narrow configuration of the site would make site design difficult and could be incompatible with a large stadium.

A preliminary evaluation of this site by the 49ers team found that the size and narrow shape of the site would not allow construction of a stadium and all the required parking on-site in surface lots. In addition, there is not sufficient surface parking in the surrounding area that could be made available for use during stadium events. This alternative would not, therefore, have adequate existing parking for patrons and employees within a 20-minute walking distance of the stadium. The project would likely require construction of one or more large parking structures, similar to the situation for other alternative sites. It is unknown, however, if sufficient structured parking could fit on the site.

Air quality impacts would be incrementally less than the proposed project because this project is closer to the existing stadium location than is the proposed site. Noise impacts could be greater than the proposed project because there are residences within close proximity (approximately 400 feet) to the site; however, the presence of the airport and US 101 so close would result in a much louder ambient noise level, and the effect of the stadium could be minimal.

The site is known San Francisco garter snake habitat. The San Francisco garter snake is an endangered species. In addition, the close proximity of the site to SFO could be problematic for airport operations and likely incompatible with Federal Aviation Administration (FAA) restrictions. Specifically, development on the site may be subject to height limits under Federal Aviation Regulations, Part 77. If the FAA regulations are applicable to this site, coordination with the FAA and completion of a "Determination of No Hazard" would be required. The combination of circumstances means this would not be environmentally superior to the Santa Clara site if it were available.

7.4.7.1 Conclusion

The size of the site and the surrounding residential neighborhood would result in insufficient parking for a stadium on this site. This would be inconsistent with the applicant's objectives to 1) ensure that adequate parking for patrons (estimated to require approximately 19,000 spaces) and employees is available for use on game days and during other major events; and 2) locate the stadium on a site where a substantial percentage of the parking needed on game days and during other major events could be provided in existing parking facilities which are not in use during evenings and weekends and are located within a 20-minute walking distance of the stadium.

In addition, this site may result in greater noise impacts than the proposed project site, may contain endangered species, and could be incompatible with SFO operations. There are no endangered species on the proposed project site. Therefore, the loss of individual garter snakes and their habitat to accommodate the stadium would be a new significant impact. This site would not be environmentally superior to the proposed project site.

7.4.8 Moffett Airfield

The Moffett Airfield site is 750 acres located approximately 28 miles southeast of Candlestick Park and 3.9 miles east of the proposed project site. The property is a former Naval Air Station and is owned by the federal government (under stewardship of NASA Ames). NASA Ames and the California Air National Guard currently occupy a portion of the site. No specific site on Moffett Airfield was identified for the proposed stadium.

NASA Ames intends to redevelop part of the site into a research and development center for the nation's space program. According to representatives of the team, the federal government has not indicated that any other portion of the site is available for private development. If, however, a portion of the site were to be made available, the development of the NASA R&D center would not preclude other development on-site because of the size of the site.

Air quality impacts would be similar to the proposed project. Noise impacts would be avoided because there are currently no sensitive receptors in the immediate project area.

7.4.8.1 Conclusion

The applicant's inability to procure title to the site would make the site infeasible.

7.4.9 Zanker Road

The Zanker Road site is approximately 450 acres and is located approximately 30 miles southeast of Candlestick Park and 2.3 miles southwest of the proposed project site, in the City of San José. Approximately 90 of the 450 acres are used for the operation of the San José/Santa Clara Water Pollution Control Plant (WPCP) and the remaining 360 acres is used for buffer lands. The site is jointly owned by the City of San José and the City of Santa Clara with San José being the majority share holder. The City of Santa Clara is an 18 percent joint owner of the treatment plant lands and both San José and Santa Clara and the other tributary agencies for the plant would have to concur on any uses proposed on the buffer lands.

The buffer lands serve to protect nearby land uses from odors and safety hazards (i.e., chlorine and sulfur dioxide) associated with operations of the plant, and for the disposal of recycled water to assist in limiting dry weather flows to the Bay and minimizing the WPCPs impact on salt marsh habitat. The applicant has not had any discussions with the City of San José to determine the availability of the land for use as a stadium.

A preliminary evaluation of this site by the 49ers team found that the site has a high water table (determined by standing water on-site) and part of the property could potentially be classified as jurisdictional wetlands by the U.S. Army Corps of Engineers due to prior stream patterns on the site. In addition, there are high voltage electric transmission lines on and adjacent to the property that would limit the stadium use. Previous proposals to place private land uses on the buffer lanes have been found inconsistent with the basic purpose of protecting the plant from complaints about odors and concerns about hazardous materials impacts. The City of San José has adopted a policy statement that approximately 200 acres of the buffer lands must be reserved for planned future plant expansions. The remaining 160 acres would be more than enough for a stadium and surface parking.

The stadium might be considered an incompatible land use next to the WPCP. The buffer lands serve a specific function as a buffer zone between the WPCP and other land uses in the area. While

no formal analysis has been completed, it is possible that construction of any large structure on this site could interfere with WPCP operations. The interference with plant operations could have secondary unknown impacts and could preclude the expansion of the plant in the future. There are also residences (mobile home parks) within approximately 600 feet of the buffer lands south of SR 237 and a single-family residential neighborhood approximately 200 feet from the westernmost boundary[109] of the buffer lands.

The buffer lands have Burrowing Owl habitat and owls are known to occupy the site. Burrowing Owls are classified as a Species of Special Concern.

Air quality impacts would be comparable to the proposed project. Noise impacts would be equal to or slightly less than the proposed project depending on the siting of the stadium and its proximity to the residential neighborhoods west and south of the WPCP. The area has proximate access from SR 237. The light rail line runs along Tasman Drive and North First Street. There are three light rail train stations within a one mile walk from the bufferlands. The nearest bus stop is approximately 0.75 miles west of the site on SR 237. Therefore, this site is moderately consistent with the project proponent's objective to locate the stadium on a site that is readily accessible by public transportation, preferably two or more modes of regional public transit.

7.4.9.1 Conclusion

This site would have air quality and noise impacts comparable to the proposed project site.

The site could have jurisdictional wetlands. There are no jurisdictional wetlands on the proposed project site so the loss of wetland habitat to accommodate the stadium would be a new significant impact. There are also no endangered or other special status species on the proposed project site. The loss of individual Burrowing Owls and their habitat to accommodate the stadium would be a new significant impact. The available area is, however, larger than the area needed to construct a stadium with surface parking. Therefore, it might be possible to avoid construction in designated wetlands and Burrowing Owl habitat.

The City of San José has not indicated that any portion of the WPCP buffer lands is available for private development. Previous proposals to place private land uses on the buffer lanes have been found inconsistent with the basic purpose of protecting the plant from complaints about odors and concerns about hazardous materials impacts. The applicant's inability to procure title to the site would make the site infeasible.

This alternative is not environmentally superior to the proposed project.

7.4.10 San José State

The 55-acre San José State site is located approximately 40.0 miles (as the crow flies) southeast of Candlestick Park and 8.9 miles southeast of the proposed project site in San José. It is currently occupied by Spartan Stadium and a vacant field used for parking. Surrounding land uses include an up-gradient paved-over Superfund site used to store cars, a residential neighborhood (located approximately 550 feet north for the site), a recycling facility, San José Sharks Ice Center (indoor ice

[109] While the western edge of the buffer lands is approximately 200 feet from the nearby residential neighborhood, the nearest developable area is approximately 1,600 from the neighborhood due to a large creek/drainage channel that connects to the Baylands just north of this location.

rinks), sports fields, and the San José Municipal stadium. The property is currently owned by San José State University. The applicant has not had any discussions with San José State University to determine the availability of the land for purchase.

A preliminary evaluation of this location by the 49ers team found that the site is not of adequate size to provide all the required parking on-site in surface lots.[110] There is a large parking lot immediately west of Spartan Stadium and another large parking lot between the Ice Center and the Municipal Stadium. These lots, combined with the parking at the nearby industrial businesses would not be sufficient to accommodate 19,000 cars. Further east is San José's regional park, which generates high parking demand on weekends during spring, summer, and fall. There is not sufficient existing parking in the surrounding area that could be made available for use during stadium events and there could be parking conflicts if events were to occur at the nearby sports venues on game days. This alternative would not, therefore, have adequate existing parking for patrons and employees within a 20-minute walking distance of the stadium. The project would likely require construction of one or more large parking structures, and there is no obviously suitable and/or available location(s) for parking structures.

The project site is approximately one mile east of the Tasman rail station (served by light rail and the ACE train) and is served by VTA buses. Therefore, this site is consistent with the project proponent's objective to locate the stadium on a site that is accessible by public transportation, preferably two or more modes of regional public transit.

The capacity of the local street network is insufficient to accommodate the approximately 19,000 cars that would come to the stadium on event days. The proposed Santa Clara site has 14 lanes to carry inbound and outbound traffic and the existing Candlestick Park has 10 lanes. The roadways that connect to the San José State site have only eight lanes which are inadequate to carry 19,000 cars to and from the stadium in a timely manner. This alternative would not, therefore, meet the applicant's objective of locating the stadium on a site that is served by existing streets and highway infrastructure adequate to reasonably accommodate local and regional game-day automobile circulation.

Air quality and noise impacts would be comparable to or slightly greater than the proposed project site. The alternative site is located about 550 feet from a single-family neighborhood and roadway access from nearby freeways is on residentially developed streets.

The existing stadium on this site is currently used by San José State's football and soccer teams. If an NFL stadium were to be constructed on this site, the university sports teams would need to be relocated for the duration of construction. In addition, the university teams would be required to share the new stadium with one or two NFL teams. There is also a regional park and a baseball stadium within blocks of the stadium site at which activities might conflict with use of the stadium.

7.4.10.1 Conclusion

This property has size constraints, which means insufficient area for surface parking. In addition, there is not enough parking in nearby existing lots which makes this site inconsistent with the project proponent's objectives to 1) ensure that adequate parking for patrons and employees is available for

[110] The existing Candlestick Park is 86 acres with all parking on-site and the proposed stadium site is 22 acres with three percent (593) of the minimum 19,000 parking spaces provided on-site. An additional 11.6 acres of the project site is being developed for shared parking equal to 15 percent (2,878) of the minimum parking requirement.

use on game days and during other major events, and 2) locate the stadium on a site where a substantial percentage of the parking needed on game days and during other major events could be provided in existing parking facilities which are not in use during evenings and weekends and are located within a 20-minute walking distance of the stadium. In addition, the lack of available surface parking would require a change in the project design to utilize structured parking instead, if a site suitable for parking structure(s) could be identified.

The site does not have adequate site access and is, therefore, inconsistent with the project proponent's objective to locate the stadium on a site that is served by existing streets and highway infrastructure adequate to reasonably accommodate local and regional game-day automobile circulation.

This site would have air quality and noise impacts comparable to the proposed project site, plus noise and air quality impacts from vehicles traveling on residential streets could be substantially greater than those of the proposed project.

San José State University has not indicated that site is available for sale. The applicant's inability to procure title to the site would make the site infeasible. This alternative is not environmentally superior to the proposed project.

7.4.11 Santa Clara Fairgrounds

The 136-acre Santa Clara Fairgrounds (fairgrounds) site, located approximately 42.0 miles (as the crow flies) southeast of Candlestick Park and 9.2 miles southeast of the proposed project site in an unincorporated area of Santa Clara County. It currently contains a mix of vacant land, pavement, and several large pavilions. The property is surrounded by residential neighborhoods, industrial development, a regional shopping center, and Oak Hill Cemetery. The land is currently owned by the County of Santa Clara.

As of June 2009, the County is no longer in negotiations with any private developer to sell and redevelop the property. A County supervisor has recently stated that the County would be open to negotiations with the 49ers team should the proposed project not be approved. While the redevelopment of the fairgrounds has been the subject of public controversy for several years, the County's willingness to allow a stadium to be constructed on the site would make this a viable alternative to the project site. The proposed stadium and associated surface parking would occupy most of this site. If a stadium were approved on this site additional development would be severely restricted and new residential land uses would be unlikely. It could, however, be constructed with some structured parking and some use could be made of parking on low intensity industrial properties in the area.

Rail stations are located approximately 1.25 (commuter rail) and 1.75 (light rail) miles from the fairgrounds site, which is significantly further away than the rail service available at the project site. There is, however, VTA bus service to the site. Nevertheless, the applicant believes that this site is inconsistent with the objective to locate the stadium on a site that is readily accessible by public transportation, preferably two or more modes of regional public transit.

The capacity of the local street network is sufficient to accommodate the approximately 19,000 cars that would come to the stadium on event days. The proposed Santa Clara site has 14 lanes to carry inbound and outbound traffic and the existing Candlestick Park has 10 lanes. The roadways that connect to the Fairgrounds site have 16 lanes which are adequate to carry 19,000 cars to and from the

stadium in a timely manner. This alternative is, therefore, consistent with the applicant's objective of locating the stadium on a site that is served by existing streets and highway infrastructure adequate to reasonably accommodate local and regional game-day automobile circulation.

Air quality impacts would be greater than the proposed project site given that there are fewer public transportation options. Noise impacts would be equal to or slightly less than the proposed project depending on the sighting of the stadium and its proximity to the residential neighborhoods adjacent to the fairgrounds site to the east and south. Placing a stadium near the western boundary of the site would result in the eastern residences being more than 1,000 feet away from the stadium. Placing a stadium near the northern boundary of the site would result in the southern residences being more than 2,000 feet away from the stadium.

7.4.11.1 Conclusion

The site has sufficient roadway capacity and there is currently bus service to the site; however, train services are 1.25 miles or more away from the site. The lack of multiple public transit modes within a reasonable walking distance of this site makes the site inconsistent with project proponent's objective to locate the stadium on a site that is readily accessible by public transportation, preferably two or more modes of regional public transit.

This site is adjacent to a residential neighborhood, although it would be possible to place the stadium on the site and have greater separation between the residences and the stadium than at the project site. This would reduce noise impacts compared to the proposed project. This site would have air quality impacts comparable to or slightly greater than the proposed project site.

The fairgrounds property is near the middle of the City of San José. The 16 lanes of roadway that access various freeways pass through a number of residential neighborhoods and a variety of land uses. Unlike north Santa Clara, where two major arterials could be used to move a large quantity of traffic out of the area in an efficient manner, vacating the fairgrounds site after a game would be less efficient and likely to have more impacts.

A County supervisor has recently stated that the County would be open to constructing a stadium on this site. If, however, the County were to find a new private developer for the site, the applicant's inability to procure title to the site, should the County sell to a private developer, would make the site infeasible.

7.5 Alternatives to the Proposed Project

A reasonable range of alternatives to the proposed development on the designated project site should also be analyzed. The following alternatives discussion includes two design alternatives, one location alternative, and the no project alternative consistent with Section 15126.6 of the CEQA Guidelines.

7.5.1 No Project Alternative

The CEQA Guidelines [§15126.6(e)(2)] require that an EIR specifically discuss a "no project" alternative, which should address both "the existing conditions at the time the Notice of Preparation is published, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services."

The No Project alternative could have two possible scenarios since the site is virtually all developed. The first is to retain the existing land uses on the four Sub-Areas with no modifications to any part of the site. The second would be to redevelop any or all of the Sub-Areas with land uses consistent with their current General Plan designation(s). Under either scenario, the substation would remain in its current location so there would be no modification to Sub-Areas B or D and no new impacts on either site.

Since Sub-Areas A and C of the project site are currently developed with surface parking lots, the first alternative to the City approving the currently proposed project would be to maintain the sites as is. If the project site were to remain as is, there would be no new impacts.

A parking garage was originally proposed as part of the Bayshore North Redevelopment Plan to serve the convention center and a future hotel and could still be considered as a project on Sub-Area A with or without implementation of the proposed stadium project. The size of the structure would not change and the impacts to Sub-Area A would be the same as those identified under the proposed project.

Under the existing *Tourist Commercial* land use designation and *Public/Quasi-Public* zoning designation, other recreational facilities such as hotels, theaters, museums, or specialty retail shops could be constructed on the stadium site and/or the parking garage site.

If a hotel or recreational land use were to be built on Sub-Areas A or C, there would be an increase in traffic in the project area (over existing conditions), which would incrementally increase noise and air pollution in the area. The trips generated by a new hotel use on either site would have a greater impact on peak hour traffic than the proposed project because peak hour trips would occur more frequently (i.e., more then four times per year) compared to the proposed project. The traffic impacts of a new recreational use would vary, depending on the use (sports fields, health spa, gym, etc.) The total volume of traffic during the peak hour could be equal to or greater than that from the stadium over the course of a year, especially for a large hotel, and would likely result in a level of service impact to some local intersections or freeway segments. A significant increase in traffic would have a significant impact on local and regional air quality. All other impacts such as hazardous materials, biological resources, cultural resources, utilities, public services, aesthetics, and land use compatibility would likely be the same or less than the proposed project.

7.5.1.1 Conclusion

The "No Project" alternative with construction of a large hotel and/or recreational facility could also result in significant traffic impacts and, as a result, it could also have significant regional air quality impacts. While there would be an incremental increase in ambient noise due to the increase in traffic it would likely not be a perceptible increase within the residential neighborhoods with either land use. This alternative would avoid the significant noise impacts identified in this EIR which are the result of crowd noise and amplified music.

Neither scenario under the No Project alternative would meet any of the objectives of the project proponent (the 49ers team). Should conditions remain physically unchanged on all of the properties, other than construction of the previously approved parking structure, the impacts of that scenario would be substantially less than those of the proposed project. Construction of a hotel and/or another recreational facility would result in some of the impacts of the proposed project, but not the noise and

possibly less of a visual impact (which would be less than significant). That alternative would be environmentally superior to the proposed project.

7.5.2 Reduced Stadium Size Alternative

NFL teams operate in stadiums of varying sizes, the smallest being Lucas Oil Stadium with 63,000 seats and the largest being FedEx Field with 80,000 seats. More than half of the 31 existing NFL stadiums have between 63,000 and 69,000 seats.[111] The number of seats per stadium is critical to the economic viability of the franchise. To reduce the identified traffic and associated air quality impacts of the proposed project, the stadium seating capacity would need to be reduced. The most severe traffic impacts occur on freeway segments. The segments on SR 237 have the worst operating conditions under project conditions. In order to reduce the impact to freeway segments on SR 237, the total seating capacity of the stadium would need to be reduced by 98 percent. to approximately 1,300 seats. The intersection most severely impacted by the project is Mission College Boulevard/Great America Parkway. To reduce the impact to this intersection to a less than significant level, the total seating capacity of the stadium would need to be reduced by 90 percent to approximately 6,850 (which is smaller than San José State's stadium).[112] Therefore, a reduction in size of the proposed stadium that would be substantial enough to reduce or avoid the significant traffic and air quality impacts (and would likely reduce all other impacts to less than significant) would not be feasible because it would not have enough seating to support an NFL franchise operation. In addition, it would not meet the applicant's objectives of 1) developing a state-of-the-art stadium with approximately 68,500 seats and 2) designing the stadium so that it is expandable to 75,000 seats for hosting NFL Super Bowls.

7.5.2.1 Conclusion

The Reduced Stadium Size alternative would reduce the impacts from traffic and air quality to a less than significant level. It would not, however, be large enough to be support standard NFL operations. The size would make the project infeasible because it would be inconsistent with its fundamental purpose. Furthermore, it would not meet the applicant's objectives of 1) developing a state-of-the-art stadium with approximately 68,500 seats and 2) designing the stadium so that it is expandable to 75,000 seats for hosting NFL Super Bowls. While the reduction in traffic and air quality impacts makes this alternative environmentally superior to the proposed project, it is not a feasible alternative.

7.5.3 Enclosed Stadium Design Alternative

The Enclosed Stadium alternative would have most of the same impacts as the proposed project except that the stadium would be fully enclosed with a roof. Impacts identified for the proposed project would remain the same under this alternative with the exception of lighting, noise, and energy.

The project as proposed was found to have a less than significant visual impact due to increased lighting on the site even though the ambient light levels in the project area would increase. With an enclosed stadium, all high voltage field lighting would be in the interior of the stadium and would not be visible from the surrounding project area. The project would still require exterior lighting for signs, pathways, and parking areas but this lighting would not be enough to substantially increase

[111] http://www.nfl.com/
[112] Hexagon Transportation Consultants. Email correspondence. April 24, 2009.

light levels in the project area. With the enclosed stadium alternative, the project would still incrementally increase ambient light levels in the project area, but to a substantially lesser degree than the proposed project.

The project as proposed would have two significant, unavoidable noise impacts, crowd noise and tailgating noise. Modifying the design of the stadium would not reduce noise from tailgating activities which take place outside the stadium. The addition of a roof on the stadium would, however, reduce crowd noise to levels comparable to the average ambient noise levels in the surrounding neighborhoods. Therefore, the addition of a roof would eliminate the significant unavoidable impact of crowd noise.

Enclosed stadiums are climate controlled and require a greater amount of heating and cooling than an open air stadium. The project, however, proposes solar power and other design features to reduce overall energy consumption. An enclosed stadium design would offer more opportunities for solar panels, heat-reflective roofs, and other design features to reduce energy consumption. The extent to which enclosing the stadium would increase energy use for heating and cooling and the project's contribution to global climate change could be substantial.

7.5.3.1 Conclusion

The Enclosed Stadium alternative would meet all of the project proponent's objectives. In addition, this alternative would reduce the impacts from crowd noise in the stadium to a less than significant level and would eliminate the visible light increases from stadium lighting, further reducing a less than significant impact. Energy use would increase to some extent with the enclosed stadium because it would require more of the stadium area to be climate controlled. An enclosed stadium would, however, allow for a variety of design features that would at least partially offset increased energy consumption. This alternative is environmentally superior to the proposed project.

7.5.4 Great America Main Lot Design Alternative

The Great America Main Lot Alternative would locate the proposed stadium and parking garage west of project site on what is now the main parking lot of the theme park. The existing 51-acre parking lot is surrounded by the theme park and a residential neighborhood to the south, office buildings and Great America Parkway to the west, Tasman Drive and the convention center to the north, and San Tomas Aquino, the overflow parking lot, and the Northern Receiving Station to the east.

The size (including height and massing), seating capacity, and uses of the stadium would be the same as that of the proposed project. The substation would be relocated to the receiving station site and the stadium would utilize existing parking within the project area through shared use agreements with the property owners. The main differences between the Main Lot alternative and the proposed project is that a larger parking garage would be built adjacent to the stadium site, Centennial Boulevard would not be vacated or altered, and the existing 49ers training facility would not be modified (see Figure 91).

The proposed parking garage would provide approximately 1,708 parking stalls and the surface parking around the stadium would provide an additional 2,434 parking spaces. The overflow lot east of San Tomas Aquino Creek (Sub-Area C) would remain as is with 1,823 parking stalls. Currently, the main lot has 6,234 parking stalls. The available parking in the main lot under this alternative would be reduced to 4,142, which is 2,092 spaces less than the theme park currently has available and the City is obligated to provide. There is additional surface parking that could be made available

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FIGURE 91

to theme park guests on the north side of Tasman Drive adjacent to the golf and tennis club. It is estimated that approximately 1,063 spaces would be available in this area (273 on the existing Sub-Area A lot and 790 on the vacant lots). Even with the additional parking north of Tasman Drive, the theme park would be 1,029 parking spaces short of what they currently have available pursuant to the Redevelopment Agency's lease with the theme park operator. If there was not space for theme park patrons to park in the designated parking areas, patrons would likely park on the surrounding roadways and in nearby business parking lots. All residential streets are far enough away to be inconvenient for overflow parking and there is no direct pedestrian access. As long as the local roadways have no parking restrictions (only Great America Parkway and Tasman Drive have restricted parking), this would not likely cause any safety issues or restrict the access of emergency vehicles. The reduction in available parking for the theme park would require an amendment to the lease on the location of parking for the theme park.

Under this alternative, the stadium would move approximately 225 feet west of the proposed site (as measured from the western edge of the proposed stadium site), thereby moving the stadium approximately 2,100 feet farther away from the residences to the east and visually closer to the theme park. This could make the stadium appear less prominent from the residential neighborhood east of Lafayette Street, but it would still be clearly visible. At this location, the stadium would be approximately 800 feet from the southern neighborhood which is 100 feet farther than at the proposed stadium location.

The traffic impacts of the Main Lot alternative would be the same as the impacts identified for the proposed project because the same number of cars would be entering and leaving the project area by the same routes and at the same times as was assumed for the proposed project. The regional air quality impacts would also be the same as those of the proposed project because the air quality impacts are the direct result of the additional vehicle miles required to attend events at a south bay location compared to Candlestick Point. Air quality impacts from construction activities would be the same as the proposed project.

The noise impacts from the Main Lot alternative would be incrementally less than the proposed project because there would be a greater distance between the stadium and the residential neighborhoods to the east and south. The impact to the eastern neighborhood would be avoided because the radius of significant noise impact is approximately 2,000 feet from the stadium boundary and the eastern neighborhood would be approximately 2,100 feet from the stadium under this alternative. Most of the southern neighborhood would, however, still be within the 2,000 foot radius of significant noise impact. Mitigation is proposed by the project to reduce tailgating noise to a less than significant level and the same mitigation would be required under this alternative. Construction noise impacts would be substantially less for the eastern neighborhood than under the proposed project but would not be perceptibly lower for most of the southern neighborhood.

The development of a 68,500 seat stadium at this location would not exceed the capacity of the existing sanitary sewer lines that serve the area west of San Tomas Aquino Creek.

All other impacts such as hazardous materials, biological resources, cultural resources, public services, and land use compatibility would be the same or less than those from the proposed project.

7.5.4.1 Conclusion

The Great America Main Lot alternative would avoid noise impacts to the residential neighborhood to the east and reduce noise impacts to some residences to the south. The southern neighborhood

would still experience significant impacts from crowd noise. The stadium would still be clearly visible but would appear farther away from the residential land uses and less prominent. All other impacts would be comparable to the proposed project. The avoidance in noise impacts to one residential area and the reduction of noise impacts in another residential area makes this alternative environmentally superior to the proposed project.

SECTION 8.0 SIGNIFICANT UNAVOIDABLE IMPACTS

A significant unavoidable impact is an impact that cannot be mitigated to a less than significant level if the project is implemented, because no feasible mitigation has been identified. The following significant unavoidable impacts have been identified:

- The proposed project would result in a substantial increase in ambient noise levels during large stadium events, which are likely to occur up to 46 times per year.

- Implementation of the proposed project would result in temporary noise impacts from project construction, which will last approximately 28 months.

- Implementation of the proposed project would generate regional air pollutants in excess of established thresholds.

- For possibly as many as eight times a year (four NFL events and four large non-NFL events), the project could have a significant impact on up to 17 intersections during weekday evening. Of those 17 intersections eight are in Santa Clara, six are in San José, one is in Sunnyvale, and two are in Milpitas.

- On a maximum of 42 weekend days, the project could have a significant impact on up to two local intersections. Both intersections are in San José. This includes 20 NFL events and 17 non-NFL large events.

- For possibly as many as eight times a year, the project could have significant impacts on up to 17 freeway segments during weekday evening.

All other significant impacts of the proposed project would be reduced to a less than significant level with the implementation of General Plan policies and mitigation measures identified in this EIR

SECTION 9.0 IRREVERSIBLE ENVIRONMENTAL CHANGES AND IRRETRIEVABLE COMMITMENT OF RESOURCES

CEQA and the CEQA Guidelines require that an EIR address "significant irreversible environmental changes which would be involved in the proposed project, should it be implemented." [§158126(c)]

If the proposed project is implemented, development of this site would involve the use of non-renewable resources both during the construction phase and from future operations/use of the site. Construction would include the use of building materials such as petroleum-based products and metals that cannot reasonably be re-created. Construction also involves significant consumption of energy, usually petroleum-based fuels that deplete supplies of non-renewable resources. Once the new development is complete, the stadium will use non-renewable fuels to heat and light the buildings. The proposed project will also consume water at a higher rate than the current land use.

The City of Santa Clara encourages the use of building materials that include recycled materials, and makes information available on those building materials to developers. The stadium will be built to current codes, which require insulation and design to minimize wasteful energy consumption. While the proposed stadium will be made as energy efficient as possible and is an infill location currently served by public transportation, the development of any structure that would consume energy for heat and light and water for irrigation and plumbing would represent an increased use in resources because the stadium site is currently a parking lot.

SECTION 10.0 GROWTH INDUCING IMPACTS OF THE PROJECT

For the purposes of this project, a growth inducing impact is considered significant if the project would:

- cumulatively exceed official regional or local population projections;
- directly induce substantial growth or concentration of population. The determination of significance shall consider the following factors: the degree to which the project would cause growth (i.e., new housing or employment generators) or accelerate development in an undeveloped area that exceeds planned levels in local land use plans;
- indirectly induce substantial growth or concentration of population (i.e., introduction of an unplanned infrastructure project or expansion of a critical public facility (road or sewer line) necessitated by new development, either of which could result in the potential for new development not accounted for in local general plans).

The project is proposed on a currently developed site within the City of Santa Clara. The site is surrounded by existing infrastructure and both existing and planned development. Development of the project will not require upgrades to most of the existing infrastructure. The sanitary sewer lines that serve the project site will not need to be upgraded as part of a larger citywide improvement plan to support existing and planned future development. Therefore, it will not include any significant expansion that would facilitate growth in other areas of the City.

Redevelopment of the project site would place a 68,500-seat stadium and parking structure in the middle of a predominately industrial/commercial area. The proposed project would be compatible with the surrounding industrial and commercial land uses and would not pressure adjacent industrial properties to redevelop with new or different land uses. The project is not wholly compatible with the nearby residential neighborhoods due to noise issues during large scale stadium events (see Section 4.10, *Noise).* These neighborhoods are, however, already impacted by Great America Theme Park, Mineta San José International Airport, and a rail line. Creating additional noise up to 46 days a year during large scale stadium events would be a significance annoyance to the nearby residents, but will not pressure those residential properties to redevelop with a non-residential land use.

The project would incrementally impact the jobs/housing imbalance by adding more jobs to a job-rich City. Workers would likely need to commute from other areas of the County but it is unlikely that new housing would be needed to support the job growth.

The project would not have a significant growth inducing impact.

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