## Signalized Intersections with Significant Project Impacts

Development of Phases 1, 2, and 3 under existing conditions would have a significant impact on 20 signalized intersections. Impacts on signalized intersections are ***significant*** before mitigation.

MITIGATION MEASURES. With Mitigation Measures TRA-1.1 (above) and TRA-1a.1 (below), these impacts would be reduced but certain intersections would still have significant Project impacts. Therefore, the Project impact on signalized intersection LOS during Phases 1, 2, and 3 would be ***significant and unavoidable***.

### Intersection Improvements

*TRA-1a.1: Intersection Improvements for Existing with Project Phases 1, 2 and 3.* The intersection improvements and off-setting mitigation measures summarized in Table 3.3-26 shall be implemented, and Project Developer shall pay the fair-share contributions for the mitigation measures summarized in Table 3.3-26. (This table also includes impacts and mitigation measures for the full Project for comparison purposes.) These improvements will reduce vehicle delays and fully mitigate Project impacts at several intersections by allowing the intersections to operate at acceptable levels, with delays that would be lower than they would be under no-project conditions, or with less than a 4-second increase in critical delay at intersections that operate at unacceptable levels. Table 3.3-26 also contains physical improvements for select intersections that will reduce the delay, but not to a level that mitigates the impact.

Some of the intersection improvements would require ROW acquisition. A preliminary review of ROW constraints was done by viewing aerial photography as a part of the mitigation measure feasibility assessment. An intersection was identified as having ROW constraints if the mitigation measure would include widening the roadway or relocating aboveground utilities. (Use of the center median and "pork-chop" islands was not considered as roadway widening.) If the removal of bicycle facilities was required, the ROW required was defined as "possible." If the City makes a final determination that a portion or all of an improvement is not feasible because ROW cannot be acquired or for other reasons, the improvement, or infeasible portion, shall not be implemented and, if none of the improvement is feasible, and no off-setting mitigation measure is identified, that intersection shall be considered to have "no feasible mitigation."

LOS calculations were conducted for the intersections with mitigation measures. The results are presented in Table 3.3-26. The conclusions are:

- Two intersections located within the City of Santa Clara jurisdiction would have impacts reduced to a ***less-than-significant*** level with implementation of the mitigation measures in Table 3.3-26.
    - Intersection 57: Great America Parkway/SR 237 WB Ramps
    - Intersection 60: Great America Parkway/Old Mountain View-Alviso Road
- Two intersections located within City of Santa Clara jurisdiction can be partially mitigated with implementation of the mitigation measures in Table 3.3-26, but the impact would remain ***significant and unavoidable*****:**
    - Intersection 59: Great America Parkway/Yerba Buena (Great America) Way
    - Intersection 64: Great America Parkway/Old Glory Lane

**Table 3.3-26. Existing with Project Phases 1, 2, and 3 Intersection Mitigation Measures**

| | | | | | | Affected Scenario | | Delay and LOS with Mitigation Measure | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Existing with Project | | | Existing with Project Phases 1, 2, and 3 | | |
| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Existing with Project Phases 1, 2, and 3 | Peak Hour | Delay[g] | LOS | Sig?[h] | Delay[g] | LOS | Sig?[h] |
| 3 | Lawrence Expressway/ Tasman Drive | Santa Clara County (CMP) | No feasible mitigation (no right-of-way is available). | N/A | 0% | x | AM | --- | --- | SU | --- | --- | SU |
| | | | | | | | PM | **---** | **---** | SU | **---** | **---** | SU |
| 8 | Great America Parkway/ Tasman Drive* | Santa Clara (CMP) | Partial Mitigation: Add a southbound right-turn lane and add a third westbound left-turn lane. | Yes | 100% | | AM | 34 | C | LTS | | | |
| | | | | | | | PM | **100.3** | **F** | SU | | | |
| 9 | Convention Center/ Tasman Drive* | Santa Clara | No feasible mitigation (no right-of-way is available). | N/A | 0% | | AM | --- | --- | LTS | | | |
| | | | | | | | PM | **---** | **---** | SU | | | |
| 11 | Centennial Boulevard/ Tasman Drive* | Santa Clara | No feasible mitigation (no right-of-way is available). | N/A | 0% | x | AM | --- | --- | LTS | --- | --- | LTS |
| | | | | | | | PM | **---** | **---** | SU | **---** | **---** | SU |
| 14 | Lick Mill Boulevard/ Tasman Drive | Santa Clara | Partial Mitigation: Reconfigure northbound and southbound approaches to two left-turn lanes, one through lane, and one right-turn lane. Change phasing on northbound/southbound approaches from split to protected. Add a second westbound left-turn lane. | Yes | 100% | | AM | 42.2 | D | LTS | | | |
| | | | | | | | PM | **83.8** | **F** | SU | | | |

**Table 3.3-26. Existing with Project Phases 1, 2, and 3 Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Affected Scenario: Existing with Project Phases 1, 2, and 3 | Peak Hour | Delay and LOS with Mitigation Measure: Existing with Project Delay[g] | LOS | Sig?[h] | Existing with Project Phases 1, 2, and 3 Delay[g] | LOS | Sig?[h] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | Rio Robles/ Tasman Drive | San José[b] | Widen the southbound approach to include one left-turn lane and one shared through/right-turn lane. Change the northbound/southbound signal phasing from split to protected. | Yes | Pay North San José fee or fair-share contribution of mitigation measure | x | AM | 27.8 | C | SU | 25.2 | C | SU |
| | | | | | | | PM | 47 | D | SU | 41.5 | D | SU |
| 21 | Mission College Boulevard /Montague Expressway | Santa Clara County (CMP) | Partial Mitigation: Add a third southbound left-turn lane (VTP 2040 #X14).** | Possible | % of Total Traffic | x | AM | **99.1** | **F** | SU | **92.3** | **F** | SU |
| | | | | | | | PM | **99.3** | **F** | SU | **82.0** | **F** | SU |
| | | | An interchange is identified at this intersection as a Tier 2 priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). | Yes | % of Total Traffic | x | AM | **---** | **---** | SU | **---** | **---** | SU |
| | | | | | | | PM | **---** | **---** | SU | **---** | **---** | SU |
| 22 | Agnew Road-De La Cruz Boulevard/ Montague Expressway | Santa Clara County (CMP) | Partial Mitigation: Add a second northbound left-turn lane. | Possible | 100% | x | AM | 70.2 | E | SU | 51.3 | D | SU |
| | | | | | | | PM | **93.5** | **F** | SU | **82.6** | **F** | SU |
| 23 | Lick Mill Boulevard/ Montague Expressway | Santa Clara County | Add a third southbound left-turn lane. | No | 100% | | AM | 21.3 | C | SU | | | |
| | | | | | | | PM | 59.4 | E | SU | | | |

**Table 3.3-26. Existing with Project Phases 1, 2, and 3 Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Affected Scenario: Existing with Project Phases 1, 2, and 3 | Peak Hour | Delay and LOS with Mitigation Measure: Existing with Project Delay[g] | LOS | Sig?[h] | Existing with Project Phases 1, 2, and 3 Delay[g] | LOS | Sig?[h] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24 | North 1st Street/ Montague Expressway | Santa Clara County (CMP)[b] | No feasible mitigation (no right-of-way is available). | No | % of Total Traffic | | AM | --- | --- | SU | | | |
| | | | | | | | PM | --- | --- | SU | | | |
| | | | Off-setting Mitigation: Future interchange, which includes grade separation of the light rail, is planned.** | Yes | | | | | | | | | |
| 25 | Zanker Road/ Montague Expressway* | Santa Clara County (CMP)[b] | Widen Zanker Road to three lanes in each direction and add second northbound and southbound left-turn lanes with no separate right-turn lanes (North San José Deficiency Plan, January 2006). | Yes | % of Total Traffic | x | AM | 49.1 | D | SU | 46.8 | D | SU |
| | | | | | | | PM | 60.7 | E | SU | 56.7 | E | SU |
| 26 | Montague Expressway/ Plumeria Drive-River Oaks Parkway | Santa Clara County[b] | Install an eastbound right-turn overlap phase and limit northbound U-turns. | No | % of Total Traffic | x | AM | **87.5** | **F** | SU | **89.2** | **F** | SU |
| | | | | | | | PM | **83.5** | **F** | SU | **85.5** | **F** | SU |
| 27 | Trimble Road/ Montague Expressway | Santa Clara County (CMP)[b] | A "fly-over" is identified at this intersection as a Tier 1B priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). | Yes | % of Total Traffic | x | AM | --- | --- | SU | --- | --- | SU |
| | | | | | | | PM | **---** | **---** | SU | **---** | **---** | SU |

**Table 3.3-26. Existing with Project Phases 1, 2, and 3 Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Affected Scenario: Existing with Project Phases 1, 2, and 3 | Peak Hour | Delay and LOS with Mitigation Measure: Existing with Project Delay[g] | LOS | Sig?[h] | Existing with Project Phases 1, 2, and 3 Delay[g] | LOS | Sig?[h] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 34 | North 1st Street/ Brokaw Road | San José (CMP)[b] | Partial Mitigation: Add a third westbound left-turn lane.**<br><br>Off-setting Mitigation: Bicycle facilities along N. 1st Street between Brokaw Road and Gish Road; continue the sidewalk on the southeast corner of the intersection to the US 101 northbound loop on-ramp. | No | Pay North San José fee or fair-share contribution of partial or off-setting mitigation | x | AM | 50.2 | D | SU | 48.6 | D | SU |
| | | | | | | | PM | **66.3** | **E** | SU | **64.2** | **E** | SU |
| 48 | Lawrence Expressway/ US 101 SB Ramps | Santa Clara County | Convert eastbound left-turn lane to a shared left-turn/right-turn lane. | No | 100% | x | AM | 37.4 | D | SU | 24.6 | C | SU |
| | | | | | | | PM | 56.8 | E | SU | 50.4 | D | SU |
| 50 | Lawrence Expressway/ Arques Avenue | Santa Clara County (CMP) | An interchange is identified at this intersection as a Tier 1B priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009; City of Sunnyvale Citywide Deficiency Plan, September 2005). | Yes | % of Total Traffic | x | AM | --- | --- | SU | --- | --- | SU |
| | | | | | | | PM | **---** | **---** | SU | **---** | **---** | SU |

**Table 3.3-26. Existing with Project Phases 1, 2, and 3 Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Affected Scenario: Existing with Project Phases 1, 2, and 3 | Peak Hour | Delay and LOS with Mitigation Measure: Existing with Project Delay[g] | LOS | Sig?[h] | Existing with Project Phases 1, 2, and 3 Delay[g] | LOS | Sig?[h] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 52 | Lawrence Expressway/ Reed Avenue-Monroe Street* | Santa Clara County (CMP) | An interchange is identified at this intersection as a Tier 1B priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009; City of Sunnyvale Citywide Deficiency Plan, September 2005). | Yes | % of Total Traffic | x | AM | --- | --- | SU | --- | --- | SU |
| | | | | | | | PM | --- | --- | SU | --- | --- | SU |
| 54 | Lawrence Expressway/ Benton Street | Santa Clara County | Partial Mitigation: Add a second southbound left-turn lane and a second eastbound left-turn lane. | No | 100% | x | AM | **88.7** | **F** | SU | **86.0** | **F** | SU |
| | | | | | | | PM | 51.5 | D | SU | 48.5 | D | SU |
| 57 | Great America Parkway/SR 237 WB Ramps | Santa Clara (CMP) | Add third westbound left-turn lane and associated receiving lane under underpass. Add a second westbound right-turn lane. | Yes | 100% | x | AM | 57.5 | E | LTS | 37.9 | D | LTS |
| | | | | | | | PM | 39.4 | D | LTS | 21.4 | C | LTS |
| 58 | Great America Parkway/SR 237 EB Ramps[c] | Santa Clara (CMP) | Add third southbound through lane (from Int. 57) and a second eastbound right-turn lane. | Yes | 100% | x[c] | AM | 28.3 | C | LTS | 10.2 | B | LTS |
| | | | | | | | PM | 11.5 | B | LTS | 8.3 | A | LTS |

**Table 3.3-26. Existing with Project Phases 1, 2, and 3 Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Affected Scenario: Existing with Project Phases 1, 2, and 3 | Peak Hour | Delay and LOS with Mitigation Measure: Existing with Project Delay[g] | LOS | Sig?[h] | Existing with Project Phases 1, 2, and 3 Delay[g] | LOS | Sig?[h] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 59 | Great America Parkway/ Yerba Buena (Great America) Way | Santa Clara | Partial Mitigation: Add a second westbound right-turn lane with an overlap phase and a second southbound left-turn lane. | Yes | 100% | x | AM | **63.3** | **E** | SU | **66.5** | **E** | SU |
| | | | | | | | PM | 27.2 | C | LTS | 26.7 | C | LTS |
| 60 | Great America Parkway/Old Mountain View-Alviso Road | Santa Clara | Partial Mitigation: Add a second eastbound left-turn lane. | Possible | 100% | x | AM | **60.4** | **E** | SU | 55.0 | D | LTS |
| | | | | | | | PM | 25.2 | C | LTS | 25.8 | C | LTS |
| 64 | Great America Parkway/Old Glory Lane | Santa Clara | Partial Mitigation: Add a second northbound left-turn lane. Install an overlap phase for eastbound right turning vehicles (Yahoo! Santa Clara Campus TIA, August 2009). | No | 100% | x | AM | 26.4 | C | LTS | 21.1 | C | LTS |
| | | | | | | | PM | **>180** | **F** | SU | **56.1** | **E** | SU |
| 65 | Great America Parkway/ Patrick Henry Drive | Santa Clara | Partial Mitigation: Add a second northbound left-turn lane and an eastbound free-right-turn lane. The eastbound right-turn lane includes the addition of a fourth southbound lane on Great America Parkway between Patrick Henry Drive and Mission College Boulevard (Yahoo! Santa Clara Campus TIA, August 2009). | Yes | 100% | | AM | 16.1 | B | LTS | | | |
| | | | | | | | PM | **58.0** | **E** | SU | | | |

**Table 3.3-26. Existing with Project Phases 1, 2, and 3 Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Affected Scenario: Existing with Project Phases 1, 2, and 3 | Peak Hour | Delay and LOS with Mitigation Measure: Existing with Project Delay[g] | LOS | Sig?[h] | Existing with Project Phases 1, 2, and 3 Delay[g] | LOS | Sig?[h] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 69 | Bowers Avenue/ Augustine Drive* | Santa Clara | No feasible mitigation (no right-of-way is available). | N/A | 0% | | AM | 33.4 | C | LTS | | | |
| | | | | | | | PM | **72.6** | **E** | SU | | | |
| 71 | Bowers Avenue/ Central Expressway | Santa Clara County (CMP) | Partial Mitigation: Add third southbound left-turn lane and third eastbound left-turn lane.** | No | 100% | | AM | 51.7 | D | SU | | | |
| | | | | | | | PM | **102.1** | **F** | SU | | | |
| | | | An interchange is identified at this intersection as a Tier 2 priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). | Yes | % of Total Traffic | | AM | --- | --- | SU | | | |
| | | | | | | | PM | **---** | **---** | SU | | | |
| 75 | San Tomas Expressway/ Scott Boulevard | Santa Clara County (CMP) | Partial Mitigation: A second westbound right-turn lane is identified as a Tier 1C priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009; City of Santa Clara Traffic Mitigation Program, June 2011).** | No | % of Total Traffic | | AM | **127.5** | **F** | SU | | | |
| | | | | | | | PM | 77.3 | E | SU | | | |
| | | | An interchange is identified at this intersection as a Tier 2 priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). | No | % of Total Traffic | | AM | **---** | **---** | SU | | | |
| | | | | | | | PM | --- | --- | SU | | | |

**Table 3.3-26. Existing with Project Phases 1, 2, and 3 Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Affected Scenario: Existing with Project Phases 1, 2, and 3 | Peak Hour | Delay and LOS with Mitigation Measure: Existing with Project Delay[g] | LOS | Sig?[h] | Existing with Project Phases 1, 2, and 3 Delay[g] | LOS | Sig?[h] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 76 | San Tomas Expressway/ Walsh Avenue | Santa Clara County | Partial Mitigation: Add a second eastbound left-turn lane. | No | 100% | | AM | **83.1** | **F** | SU | | | |
| | | | | | | | PM | 53.0 | D | SU | | | |
| 77 | San Tomas Expressway/ Monroe Street | Santa Clara County (CMP) | Partial Mitigation: A second northbound left-turn lane is identified at this intersection as a Tier 3 priority (Comprehensive County Expressway Planning Study Policy Advisory Board 2015 Update, March 23, 2015). | Yes | % of Total Traffic | | AM | **124.3** | **F** | SU | | | |
| | | | | | | | PM | 59.3 | E | SU | | | |
| 78 | San Tomas Expressway/ El Camino Real* | Santa Clara County (CMP) | An interchange is identified at this intersection as a Tier 2 priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). | Yes | % of Total Traffic | | AM | **---** | **---** | SU | | | |
| | | | | | | | PM | --- | --- | SU | | | |
| 82 | San Tomas Expressway/ Pruneridge Avenue | Santa Clara County | Partial Mitigation: Add a second northbound left-turn lane. | No | 100% | | AM | **89.2** | **F** | SU | | | |
| | | | | | | | PM | 70.6 | E | SU | | | |

**Table 3.3-26. Existing with Project Phases 1, 2, and 3 Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Affected Scenario: Existing with Project Phases 1, 2, and 3 | Peak Hour | Delay and LOS with Mitigation Measure: Existing with Project: Delay[g] | LOS | Sig?[h] | Existing with Project Phases 1, 2, and 3: Delay[g] | LOS | Sig?[h] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 83 | San Tomas Expressway/ Saratoga Avenue | Santa Clara County (CMP) | Widen San Tomas to four lanes in each direction including exclusive right-turn lanes and maintain HOV lanes identified as a Tier 1A priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). | Yes | % of Total Traffic | | AM | 60.2 | E | SU | | | |
| | | | | | | | PM | 46.1 | D | SU | | | |
| 84 | Gold Street/ Gold Street Connector | San José[b] | Add second northbound left-turn lane and second eastbound right-turn lane (move pedestrian crossing to north leg of intersection). | Yes | 100% | | AM | 25.7 | C | SU | | | |
| | | | | | | | PM | 23.6 | C | SU | | | |
| 98 | Lafayette Street/Central Expressway | Santa Clara County (CMP) | Partial Mitigation: HOV lane conversion to mixed-flow lanes on Central Expressway identified as a Tier 1A priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009).** | No | % of Total Traffic | x | AM | 62.9 | E | SU | 53.6 | D | SU |
| | | | | | | | PM | **101.8** | **F** | SU | 72.3 | E | SU |
| | | | Grade separation between Central Expressway and Lafayette Street. | Yes | % of Total Traffic | x | AM | --- | --- | SU | --- | --- | SU |
| | | | | | | | PM | **---** | **---** | SU | **---** | **---** | SU |

**Table 3.3-26. Existing with Project Phases 1, 2, and 3 Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Affected Scenario: Existing with Project Phases 1, 2, and 3 | Peak Hour | Delay and LOS with Mitigation Measure: Existing with Project Delay[g] | LOS | Sig?[h] | Existing with Project Phases 1, 2, and 3 Delay[g] | LOS | Sig?[h] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 121 | De La Cruz Boulevard/ Central Expressway | Santa Clara County (CMP) | HOV lane conversion to mixed-flow lanes on Central Expressway identified as a Tier 1A priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). Add second southbound right-turn lane. | Yes | % of Total Traffic | x | AM | 59.0 | E | SU | 48.8 | D | SU |
| | | | | | | | PM | 67.3 | E | SU | 53.5 | D | SU |
| 123 | Great America Parkway/Gold Street Connector[c] | Santa Clara | Add a second northbound right-turn lane (from Int. 57 dual westbound right-turn lanes). | Yes | 100% | x[c] | AM | 9.9 | A | LTS | 12.0 | B | LTS |
| | | | | | | | PM | 10.0 | A | LTS | 13.4 | B | LTS |
| 124 | Scott Boulevard/ Central Expressway | Santa Clara County (CMP) | HOV lane conversion to mixed-flow lanes on Central Expressway identified as a Tier 1A priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). | No | % of Total Traffic | | AM | 43.2 | D | SU | | | |
| | | | | | | | PM | 64.8 | E | SU | | | |

**Table 3.3-26. Existing with Project Phases 1, 2, and 3 Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Affected Scenario: Existing with Project Phases 1, 2, and 3 | Peak Hour | Delay and LOS with Mitigation Measure: Existing with Project | | | Existing with Project Phases 1, 2, and 3 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Delay[g] | LOS | Sig?[h] | Delay[g] | LOS | Sig?[h] |

Notes:

a. CMP = Congestion Management Program intersection (VTA).

b. An LOS D threshold is used for study intersections within San José, including CMP designated intersections. Santa Clara County intersections in San José use an LOS E threshold.

c. This intersection is not an affected intersection but would need to be modified to accommodate the improvements at Intersection #57: Great America Parkway/SR 237 WB Ramps.

d. Off-setting Mitigation: In the North San José Deficiency Plan area, off-setting local street network, transit, bicycle, and pedestrian improvements were identified to accommodate future travel growth, but not directly mitigate the intersection with the identified impact. Partial Mitigation: The proposed mitigation measure mitigates the impact at one but not the other peak hour or reduces the delay but not enough to mitigate the impact.

e. ROW = right-of-way. "Yes" = additional right-of-way is required to construct the proposed mitigation measure. This includes relocating existing curbs and gutters. "Possible" = additional right-of-way may be needed to maintain bike lanes or transit facilities, such as bus duck-outs. "No" = the proposed mitigation measures will fit within the existing right-of-way and existing curb-to-curb widths. Curbs and gutters will not need to be relocated, but the median may need to be modified.

f. "100%" = The cost and construction of the proposed mitigation measure is the full responsibility of the Project Developer. These are discrete mitigation measures that either fully or partially mitigate significant Project impacts. "0%" = There is no feasible mitigation measure. "% of Total Traffic" = Project Developer shall pay a fair-share contribution to the proposed mitigation measure, which is typically a larger transportation improvement, such as an expressway interchange, that has been identified in an adopted plan. "Pay North San José fee or fair-share contribution of alternative or off-setting mitigation" = The Project Developer can pay the North San José fee or a fair-share contribution for the mitigation measure or off-setting mitigation measure based on the amount of Project's percent contribution of the added traffic at the intersection.

g. Signalized intersections: whole-intersection average control delay per vehicle (seconds). Unsignalized intersections: worst-approach average control delay per vehicle (seconds).

h. LTS = Less than significant with mitigation, SU = significant and unavoidable. Significance determination is based on draft mitigation and responsible jurisdiction of the intersection. See mitigation list summary, which describes the mitigation in more detail.

**Bold** text indicates intersection operates at a deficient LOS.

**Bold and highlighted** indicates a significant impact (with mitigation).

* Intersection improvement identified at this intersection under existing no-Project conditions and with-Project conditions. See Appendix 3.3-D.

**City-preferred mitigation option.

Source: Fehr & Peers, September 2015.

- One intersection within City of Santa Clara jurisdiction has no feasible mitigation measure; therefore, the impact would remain ***significant and unavoidable*****:**
    - Intersection 11: Centennial Boulevard/Tasman Drive
- Fifteen intersections are located outside of City of Santa Clara jurisdiction, and implementation of the mitigation measure cannot be guaranteed; therefore, the impact would remain ***significant and unavoidable*****:**
    - Five intersections would have operations returned to an acceptable LOS with the identified mitigation measure in Table 3.3-26.
        - Intersection 17: Rio Robles/Tasman Drive
        - Intersection 25: Zanker Road/Montague Expressway
        - Intersection 26: Montague Expressway/Plumeria Drive-River Oaks Parkway
        - Intersection 48: Lawrence Expressway/US 101 SB Ramps
        - Intersection 121: De la Cruz Boulevard/Central Expressway
    - Three intersections would have operations returned to an acceptable LOS in either the AM or PM Peak Hour or partially returned to an acceptable LOS in both peak hours with the identified mitigation measure in Table 3.3-26.
        - Intersection 22: Agnew Road-De La Cruz Boulevard/Montague Expressway
        - Intersection 34: North 1st Street/Brokaw Road
        - Intersection 54: Lawrence Expressway/Benton Street
    - Four intersections would require a fair-share payment of a planned interchange, but the interchange would not be constructed until full funding were received:
        - Intersection 27: Trimble Road/Montague Expressway
        - Intersection 28: McCarthy Boulevard/O'Toole Avenue
        - Intersection 50: Lawrence Expressway/Arques Avenue
        - Intersection 52: Lawrence Expressway/Reed Avenue-Monroe Street
    - One intersection would have two mitigation options: Option 1 would have operations returned to an acceptable LOS with the identified mitigation, and Option 2 would require a fair-share payment of a planned interchange:
        - Intersection 98: Lafayette Street/Central Expressway
    - One intersection would have two mitigation options: Option 1 would have operations returned to an acceptable LOS in either the AM or PM Peak Hour or partially returned to an acceptable LOS in both peak hours with the identified mitigation, and Option 2 would require a fair-share payment of a planned interchange:
        - Intersection 21: Mission College Boulevard/Montague Expressway
    - One intersection has no feasible mitigation measure:
        - Intersection 3: Lawrence Expressway/Tasman Drive

Intersections 58 and 123 are not affected intersections but would need to be modified to accommodate the mitigation measures at Intersection 57, Great America Parkway/SR 237 WB Ramps.

**Impact TRA-3a: Freeway Segments. Phases 1, 2, and 3 of the Project on Parcels 4 and 5 would add traffic to certain freeway segments, causing them to operate at unacceptable levels of service or worsen existing unacceptable levels of service. (SU)**

### Freeway Segments with Significant Project Impacts

Phases 1, 2, and 3 under existing conditions would have a significant impact on 168 freeway segments. Impacts on freeway segments are *significant* before mitigation.

MITIGATION MEASURES. With Mitigation Measures TRA-1.1 (above) and TRA-3.1 (above), the severity of the impacts would be reduced, but most segments would still have significant Project impacts. Thus, the Project impact on freeway segment LOS during Phases 1, 2, and 3 would be ***significant and unavoidable***.

## On-Site Intersection Analysis

An analysis was conducted to evaluate the operations of the on-site intersections and queuing into the parking facilities and local streets for the AM and PM Peak Hours. The analysis was conducted for intersections on Parcels 4 and 5 because of greater knowledge and the stability of the design of the site plan for these parcels. Design guidelines in the Master Community Plan would ensure appropriate site plan design and on-site intersection operations for the other parcels.

The on-site intersection analysis was conducted for both the Base Access Scheme and Variant Access Scheme (discussed in a separate section). The Base Access Scheme would have the following features regarding vehicular site access:

- Two signalized access points on Great America Parkway. One new intersection would be located north of San Tomas Aquino Creek, and the other one would be located south of the creek. The southern access would also serve the existing Santa Clara Convention Center, with a new bridge crossing the creek to provide access to City Place.
- An urban interchange to provide access to Lafayette Street and allow the railroad to pass below.
- Three access points (intersections) on Tasman Drive.

This Base Access Scheme is shown in Figure 3.3-15 (shown earlier). The internal roadway network and the locations of the on-site intersections are shown in Figure 3.3-15.

**Impact TRA-4: On-site Intersections on Parcels 4 and 5. The Project would provide an on-site street network on Parcels 4 and 5 with connections to the surrounding local streets and adequate lane configurations and traffic control devices. (LTS)**

The analysis used the Project-generated traffic volumes in Table 3.3-16. The on-site Project traffic assignment was based on the regional land use origins and destinations, ease and convenience of access on the surrounding local streets, and the parking locations and driveway configurations at the Project site. The traffic volumes, lane configurations, and traffic control devices for the on-site intersections are presented in the on-site analysis report in Appendix 3.3-I.

The on-site intersections on Parcels 4 and 5 are projected to operate at acceptable levels, as shown in Table 3.3-27.

**Table 3.3-27. On-Site Intersection LOS Results (Base Access Scheme)**

| | | | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|
| Int. # | Intersection Name | Control Type | LOS | Avg. Delay (sec)[a] | LOS | Avg. Delay (sec)[a] |
| 1004 | Stars and Stripes Drive/Centennial Boulevard | Signalized | A | 9.5 | B | 10.4 |
| 1005 | Stars and Stripes Drive/Avenue C | SSSC | A | 7.2 | A | 7.3 |
| 1036 | City Place Parkway/Avenue A | Signalized | C | 34.2 | C | 24.9 |
| 1037 | City Place Parkway/Avenue B | Signalized | B | 19.3 | C | 27.1 |
| 1038 | Avenue B/Avenue C | Signalized | B | 18.7 | C | 25.2 |
| 1040 | J Parking Access East 1/Avenue C | SSSC | B | 10.3 | B | 13.4 |
| 1041 | H Parking Access East 1/Avenue C | SSSC | B | 10.3 | B | 12.2 |
| 1042 | G Parking Access East 1/Avenue C | SSSC | A | 9.3 | A | 9.8 |
| 1043 | Stars and Stripes Drive/Avenue B | AWSC | A | 9.9 | C | 15.1 |
| 1044 | A2 Parking Access/G Parking Access/Avenue B | SSSC | C | 18.8 | D | 34.6 |
| 1045 | H Parking Access West 1/Avenue B | SSSC | B | 11.3 | B | 13.3 |
| 1046 | J Parking Access West 1/Avenue B | SSSC | B | 11.0 | D | 31.4 |
| 1047 | J Parking Access West 2/Avenue B | SSSC | B | 11.4 | C | 34.3 |
| 1048 | Second Street/Avenue B | AWSC | A | 9.7 | C | 16.9 |
| 1049 | First Street/Avenue B | SSSC | B | 11.2 | C | 16.7 |
| 1050 | Third Street/Avenue B | AWSC | B | 14.9 | D | 29.4 |
| 1051 | Stars and Stripes Drive/Avenue A | AWSC | B | 10.8 | C | 15.1 |
| 1052 | Third Street/Avenue A | SSSC | C | 16.4 | D | 29.2 |
| 1053 | First Street/Avenue A | AWSC | B | 10.7 | B | 13.8 |
| 1054 | Second Street/Avenue A | SSSC | B | 13.4 | B | 14.7 |
| 1055 | K Parking Access/Avenue A | SSSC | B | 14.9 | C | 22.7 |
| 1056 | Avenue A/Parcel N | AWSC | D | 27.5 | C | 21.0 |
| 1057 | A1 Parking Access/City Place Parkway | SSSC | B | 12.0 | B | 13.3 |
| 1058 | South of City Place Parkway/West of Avenue A | AWSC | B | 12.5 | C | 15.8 |
| 1059 | City Place Parkway/Parcel N | SSSC | B | 13.5 | B | 13.3 |
| 1060 | Creek and Parcel N Parking | AWSC | A | 8.8 | B | 10.7 |
| 1064 | Tasman Slip Ramp/Avenue C | SSSC | A | 9.2 | A | 9.9 |
| 1066 | Convention Center/Parcel M | AWSC | B | 13.1 | D | 26.7 |
| 1069 | Q Parking Access/Stars and Stripes | SSSC | A | 9.0 | A | 9.4 |
| 1071 | First Street/Parcel K | SSSC | A | 9.0 | A | 9.7 |
| 1073 | O Parking Access/Stars and Stripes | SSSC | B | 13.4 | C | 17.9 |
| 1074 | P Parking Access/Stars and Stripes | SSSC | B | 12.6 | C | 22.2 |
| 1082 | Parcel N Parking | SSSC | B | 13.9 | C | 20.3 |
| 1083 | 3rd Street and M Parking | SSSC | A | 8.4 | A | 8.7 |

[a] Average delay for SSSC is delay on the worst approach, all others are average intersection delay.

Source: Arup. 2015. *Related City Place Santa Clara: City Place Internal Intersection Traffic Impact Analysis*. September 21.

**Impact TRA-5: On-site Intersections on Parcels 1, 2 and 3. The on-site roadway system for Parcels 1, 2, and 3 has not yet been designed but could result in inadequate connections to the surrounding local streets and inadequate intersection lane configurations and traffic control devices, resulting in a roadway system that does not meet City of Santa Clara standards. (LTS/M)**

The land use programs and street networks for Phases 5, 6, 7, and 8 (Parcels 1, 2, and 3) are less refined. Further review will be required once their land use programs are defined and the on-site roadway systems are designed.

MITIGATION MEASURE. With TRA-5.1 (below), the impact would be reduced, because the roadway systems would be designed to adequately accommodate the amount of traffic generated by Parcels 1, 2, and 3. This would result in a ***less-than-significant impact with mitigation*** on the on-site intersection operations.

*TRA-5.1:* *Transportation Design Review*. The site plans for Parcels 1, 2, and 3 will undergo a design review by the City to ensure that City design standards are adhered to prior to construction. This review shall include an on-site intersection analysis prior to development plan approval. The on-site analysis shall include an intersection operations analysis to develop intersection traffic controls and lane geometries that meet City of Santa Clara traffic standards. These parcels shall also be reviewed for:

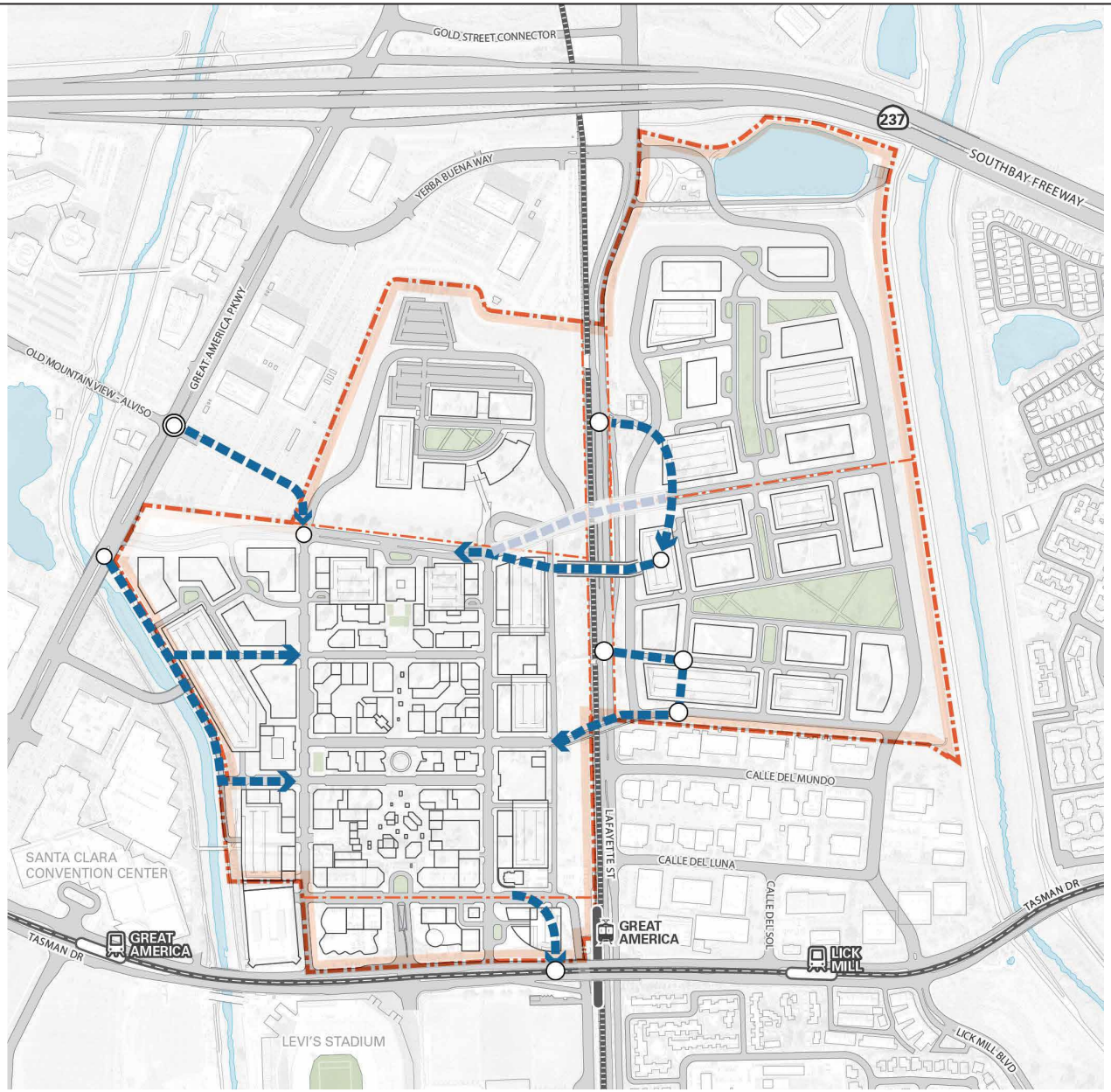
- Inbound queuing at parking facilities to ensure that queues do not block public streets and local streets
- Emergency vehicle access and circulation
- Vehicular circulation
- Parking layout and circulation within the site
- Bicycle access and circulation
- Pedestrian access and circulation
- Pedestrian access to and from transit stops
- Truck circulation and loading dock access for commercial parcels

## Variant Access Scheme Intersection Analysis

A Variant Access Scheme was also created for the Project. The Variant Access Scheme would have the following features:

- Two signalized access points on Great America Parkway, both located north of the San Tomas Road/Great America Parkway intersection. The second access point would be located just north of the creek.
- Instead of an urban interchange on Lafayette Street, two "jug handle" intersections would provide access over the railroad tracks to Lafayette Street.
- Besides the three proposed access points on Tasman Drive in the Base Access Scheme, one additional intersection would be added on Tasman Drive, east of Centennial Boulevard. With the proximity of the additional intersection and the intersection of Tasman Drive and Avenue B, Avenue B would be a side-street stop-controlled intersection.

This Variant Access Scheme is shown in Figure 3.3-23. The internal roadway network and the locations of the on-site intersections are also shown in Figure 3.3-23.




LEGEND

**Streets**
Access Variants

**Intersections**
Reconfigured Intersection
New Intersection

**Other Improvements**
Potential Bridge

**Rail Transit**
VTA Light Rail
Capitol Corridor/
Altamont Corridor Express

**Boundaries**
Site
Parcel

1″ = 800′

0′ 200′ 400′ 800′ 1600′

Source: City Place Santa Clara Master Community Plan (Access Variants), The Related Companies, September 2015

Source: Fehr & Peers, 2015.

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**Figure 3.3-23**
**City Place Santa Clara Master Community Plan – Street Network (Variant Access Scheme)**
City Place Santa Clara

**Impact TRA-6: Intersections with Variant Access Scheme. With the access variant, the Project would add traffic to certain nearby intersections, causing them to operate at unacceptable levels of service or worsen existing unacceptable levels of service. (SU)**

The changes in access locations would affect how Project traffic would approach and depart the site. This redistribution of Project traffic would affect the operation of 23 off-site intersections as well as the on-site intersections. LOS calculations were conducted for the 23 affected off-site intersections shown in Table 3.3-28 under existing with-Project conditions, existing conditions with Project Phases 1, 2, and 3, and background with-Project conditions to assess Project impacts on intersection operations with the Variant Access Scheme. Project impacts and mitigation measures for the other off-site intersections would be the same as under the Base Access Scheme.

**Table 3.3-28. Off-Site Study Intersections for Variant Access Scheme**

| ID | Intersection | Jurisdiction (CMP) | Intersection Control |
|---|---|---|---|
| 8 | Great America Parkway/Tasman Drive | Santa Clara (CMP) | Signal |
| 9 | Convention Center/Tasman Drive | Santa Clara | Signal |
| 10 | Future Driveway (west of Centennial Boulevard)/Tasman Drive | Santa Clara | Signal |
| 11 | Centennial Boulevard/Tasman Drive | Santa Clara | Signal |
| 12 | Future Driveway (east of Centennial Boulevard)/Tasman Drive | Santa Clara | Side-street stop-controlled |
| 1081 | Tasman Drive/New Viaduct | Santa Clara | Signal |
| 13 | Calle Del Sol/Tasman Drive | Santa Clara | Signal |
| 14 | Lick Mill Boulevard/Tasman Drive | Santa Clara | Signal |
| 57 | Great America Parkway/SR 237 WB Ramps (CMP) | Santa Clara (CMP) | Signal |
| 58 | Great America Parkway/SR 237 EB Ramps (CMP) | Santa Clara (CMP) | Signal |
| 59 | Great America Parkway/Yerba Buena (Great America) Way | Santa Clara | Signal |
| 60 | New Great America Parkway driveway intersection (opposite Old Mountain View-Alviso Road) | Santa Clara | Signal |
| 61 | Great America Parkway/Future Driveway (south of Old Mountain View-Alviso Road) | Santa Clara | Signal |
| 62 | Great America Parkway/Future Driveway (north of Bunker Hill Lane) | Santa Clara | Signal |
| 63 | Great America Parkway/Bunker Hill Lane | Santa Clara | Signal |
| 84 | Gold Street/Gold Street Connector | Santa Clara | Signal |
| 85 | Lafayette Street/Great America Way | Santa Clara | Signal |
| 86 | Lafayette Street/Future Driveway (south of Great America Way) | Santa Clara | Signal |
| 88 | Lafayette Street/Future Driveway (north of Calle Del Mundo) | Santa Clara | Signal |
| 89 | Lafayette Street/Calle Del Mundo | Santa Clara | Side-street stop-controlled |
| 90 | Lafayette Street/Calle De Luna | Santa Clara | Signal |
| 114 | Calle Del Sol/Calle De Luna | Santa Clara | Side-street stop-controlled |
| 123 | Great America Parkway and Gold Street Connector | Santa Clara | Signal |

Source: Fehr & Peers, September 2015.

## Off-Site Intersection Existing with-Project Analysis

LOS calculations were conducted to evaluate intersection operations under existing with-Project conditions with the Variant Access Scheme at the 23 affected intersections near the Project site. The intersection volumes are shown in Appendix 3.3-C. The results of the LOS analysis are summarized in Table 3.3-29 for signalized intersections and in Table 3.3-30 for unsignalized intersections. The corresponding LOS calculation sheets are included in Appendix 3.3-E. The LOS results for existing conditions are presented in Table 3.3-29 and Table 3.3-30, along with the projected increases in critical delay and critical V/C ratios, to identify significant Project impacts. The results of the intersection LOS analysis are graphically shown in Figure 3.3-24. The Project would have a significant impact on eight of the signalized intersections under existing with-Project conditions (see Table K-5 of Appendix 3.3-K for affected intersections and mitigation measures).

## Off-Site Intersection Existing with Project Phases 1, 2, and 3 Analysis

LOS calculations were also conducted to evaluate intersection operations under existing conditions with Phases 1, 2, and 3. The intersection volumes are shown in Appendix 3.3-C. The results of the LOS analysis are summarized in Table 3.3-31 for signalized intersections and Table 3.3-32 for unsignalized intersections. The corresponding LOS calculation sheets are included in Appendix 3.3-E. The LOS results for existing conditions are presented in Table 3.3-31 and Table 3.3-32, along with the projected increases in critical delay and critical V/C ratios, to identify significant Project impacts. The results of the intersection LOS analysis are graphically shown in Figure 3.3-25. Phase 1, 2, and 3 of the Project would have a significant impact on three of the signalized intersections but none of the unsignalized intersections under existing conditions (see Table K-6 of Appendix 3.3-K for affected intersections and mitigation measures).

## Off-Site Intersection Background with Project Levels of Service

LOS calculations were also conducted to evaluate intersection operations under background with-Project conditions. The intersection volumes are shown in Appendix 3.3-C. The results of the LOS analysis are summarized in Table 3.3-33 for signalized intersections and in Table 3.3-34 for unsignalized intersections. The corresponding LOS calculation sheets are included in Appendix 3.3-E. The LOS results for background conditions are in Table 3.3-33 and Table 3.3-34, along with the projected increases in critical delay and critical V/C ratios, to identify significant Project impacts. The results of the intersection LOS analysis are graphically shown in Figure 3.3-26. The Project would have a significant impact on 10 of the signalized intersections and two of the unsignalized intersections under background with-Project conditions (see Table K-7 of Appendix 3.3-K for affected intersections and mitigation measures).

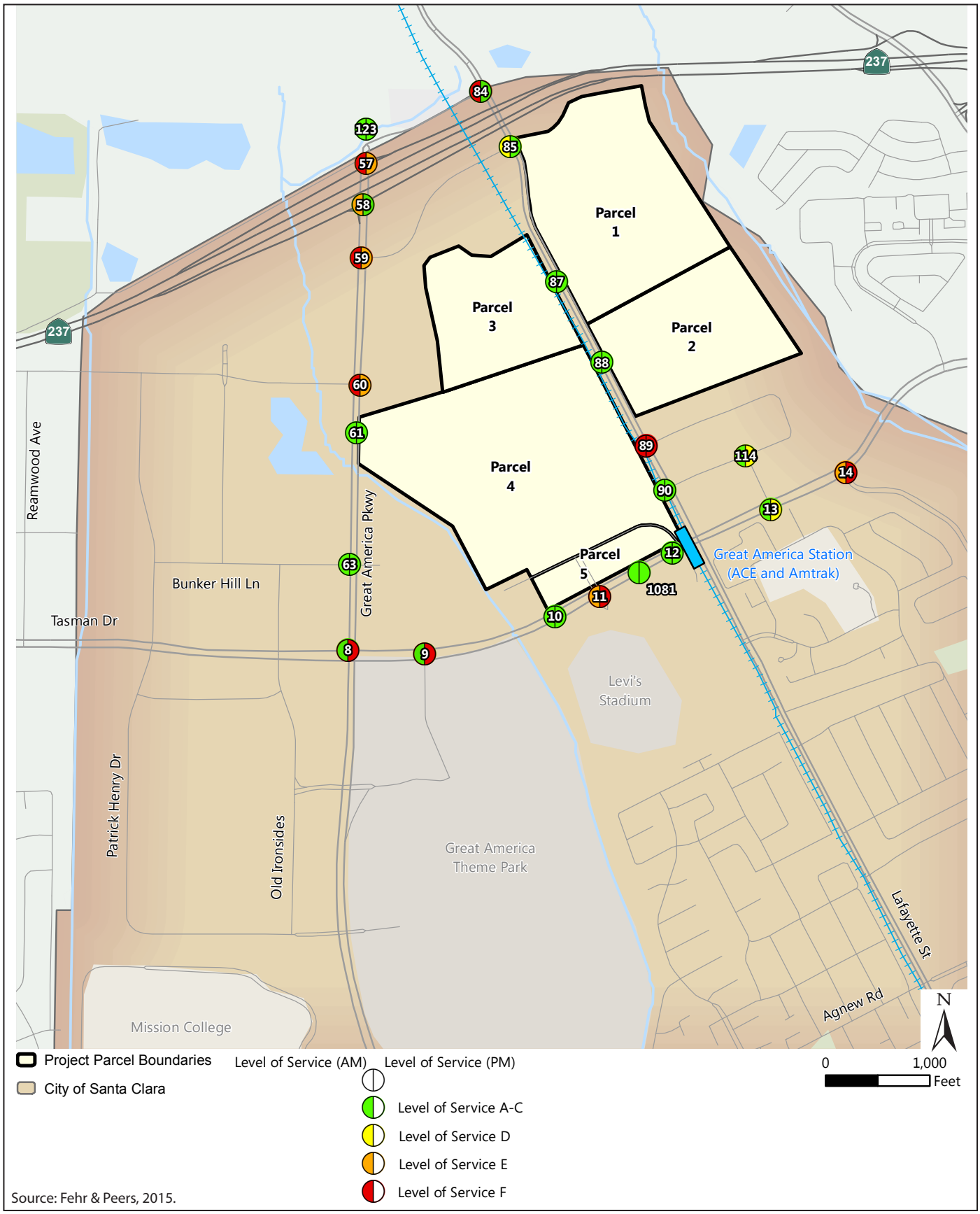


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**Figure 3.3-24**
**Existing with Project Conditions**
**Intersection Level of Service Results (Variant Access Scheme)**
City Place Santa Clara

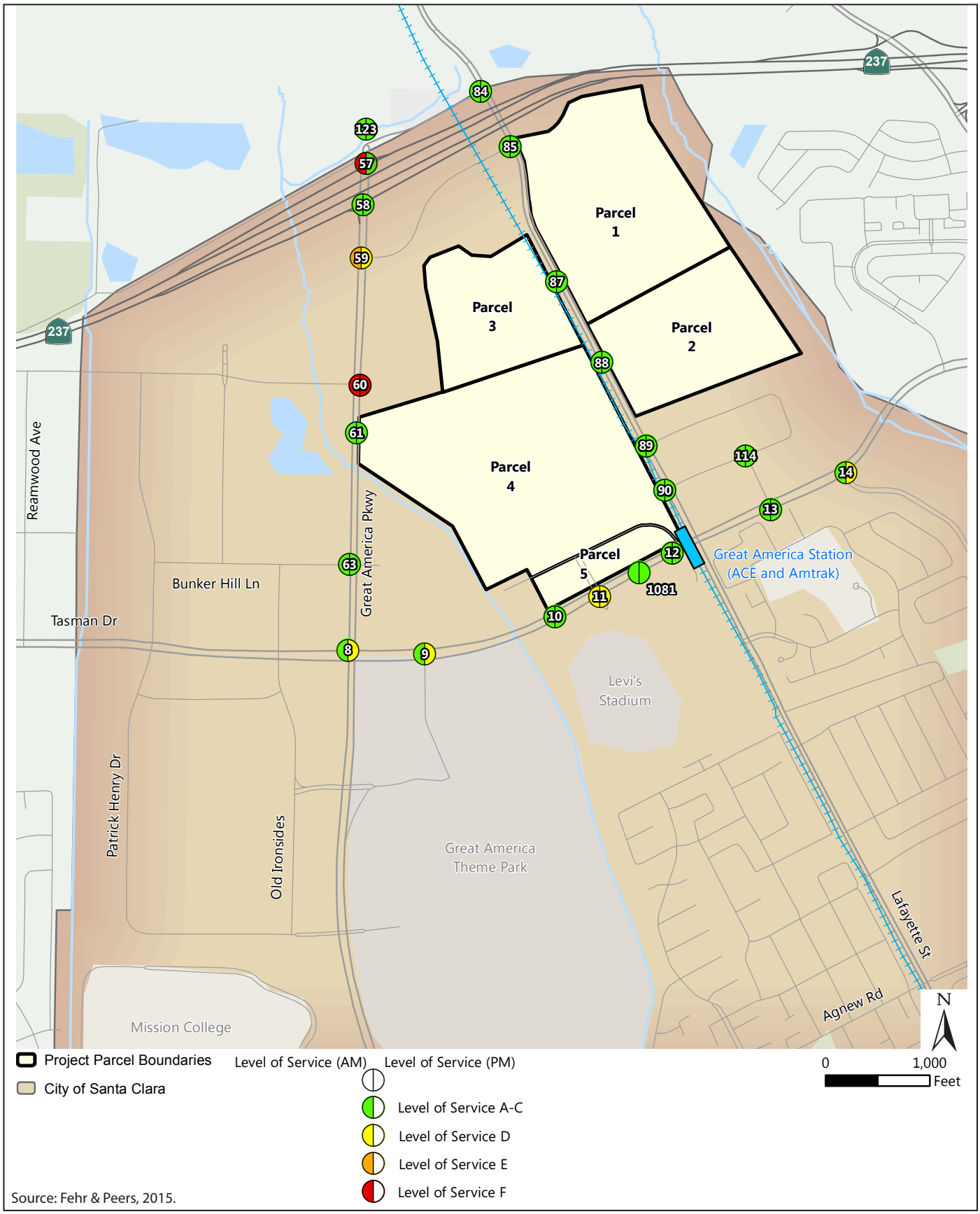


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**Figure 3.3-25**
**Existing with Project Phases 1, 2, & 3 Project Conditions**
**Intersection Level of Service Results (Variant Access Scheme)**
City Place Santa Clara

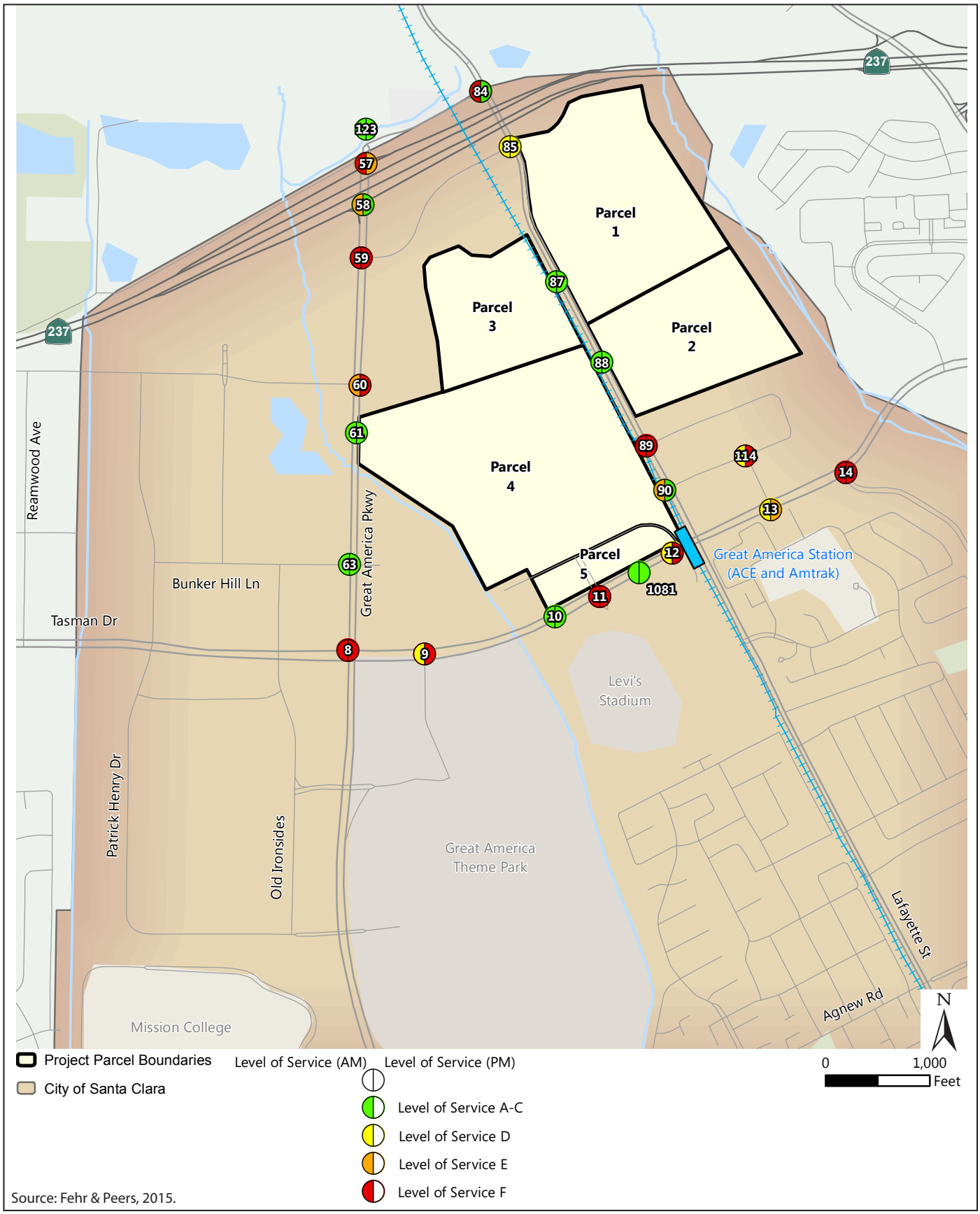


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**Figure 3.3-26**
**Background with Project Conditions**
**Intersection Level of Service Results (Variant Access Scheme)**
City Place Santa Clara

**Table 3.3-29. Existing with-Project Signalized Intersection LOS Results for Variant Access Scheme**

| | | | | Counted Volumes[c] | | Existing[d] | | Existing with Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] |
| 8 | Great America Parkway/Tasman Drive | Santa Clara (CMP) | AM | 25.6 | C | 26.0 | C | 34.1 | C | 0.334 | 11.8 |
| | | | PM | 29.2 | C | 31.5 | C | **171.2** | **F** | **0.688** | **226.6** |
| 9 | Convention Center/Tasman Drive | Santa Clara | AM | 16.2 | B | 16.2 | B | 18.2 | B | 0.169 | 3.0 |
| | | | PM | 18.5 | B | 20.2 | C | **157.3** | **F** | **0.225** | **140.3** |
| 10 | Future Driveway (west of Centennial Boulevard)/ Tasman Drive | Santa Clara | AM | Future Signalized Intersection | | | | 3.9 | A | N/A | N/A |
| | | | PM | | | | | 13.2 | B | N/A | N/A |
| 11 | Centennial Boulevard/Tasman Drive[i] | Santa Clara | AM | 19.8 | B | 19.8 | B | **56.5** | **E** | **0.431** | **53.7** |
| | | | PM | 19.6 | B | 19.8 | B | **171.3** | **F** | **0.775** | **215.7** |
| 13 | Calle Del Sol/Tasman Drive | Santa Clara | AM | 11.4 | B | 10.6 | B | 11.6 | B | 0.233 | 2.6 |
| | | | PM | 17.6 | B | 17.5 | B | 35.9 | D | 0.406 | 31.2 |
| 14 | Lick Mill Boulevard/Tasman Drive | Santa Clara | AM | 22.4 | C | 22.1 | C | **57.7** | **E** | **0.513** | **65.3** |
| | | | PM | 21.5 | C | 24.4 | C | **>180** | **F** | **0.821** | **235.7** |
| 57 | Great America Parkway/SR 237 WB Ramps | Santa Clara (CMP) | AM | 17.5 | B | 20.9 | C | **116.5** | **F** | **0.489** | **139.9** |
| | | | PM | 17.5 | B | 18.9 | B | 55.3 | E | 0.524 | 48.3 |
| 58 | Great America Parkway/SR 237 EB Ramps | Santa Clara (CMP) | AM | 12.3 | B | 10.9 | B | 72.0 | E | 0.573 | 90.0 |
| | | | PM | 10.4 | B | 8.6 | A | 11.6 | B | 0.175 | 3.6 |
| 59 | Great America Parkway/Yerba Buena (Great America) Way | Santa Clara | AM | 20.7 | C | 27.0 | C | **120.5** | **F** | **0.488** | **108.6** |
| | | | PM | 22.9 | C | 31.4 | C | **70.8** | **E** | **0.354** | **61.0** |
| 60 | Great America Parkway/Old Mountain View-Alviso Road | Santa Clara | AM | 18.9 | B | 19.2 | B | **68.0** | **E** | **0.598** | **97.0** |
| | | | PM | 26.6 | C | 26.6 | C | **56.2** | **E** | **0.347** | **43.4** |
| 61 | Great America Parkway/Future Driveway (south of Old Mountain View-Alviso Road) | Santa Clara | AM | Future Signalized Intersection | | | | 16.5 | B | N/A | N/A |
| | | | PM | | | | | 24.5 | C | N/A | N/A |
| 63 | Great America Parkway/Bunker Hill Lane | Santa Clara | AM | 13.0 | B | 12.9 | B | 12.4 | B | 0.189 | -2.7 |
| | | | PM | 15.5 | B | 15.6 | B | 16.5 | B | 0.264 | 2.9 |
| 84 | Gold Street/Gold Street Connector | San José[j] | AM | 22.6 | C | 22.7 | C | **113.8** | **F** | **0.775** | **102.8** |
| | | | PM | 21.5 | C | 21.7 | C | 29.8 | C | 0.451 | 13.6 |
| 85 | Lafayette Street/Great America Way | Santa Clara | AM | Unsignalized Intersection | | | | 51.7 | D | N/A | N/A |
| | | | PM | | | | | 34.7 | C | N/A | N/A |
| 87 | Lafayette Street/Future Urban Interchange | Santa Clara | AM | Future Signalized Intersection | | | | 19.6 | B | N/A | N/A |
| | | | PM | | | | | 13.6 | B | N/A | N/A |

**Table 3.3-29. Existing with-Project Signalized Intersection LOS Results for Variant Access Scheme**

| | | | | Counted Volumes[c] | | Existing[d] | | Existing with Project | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] |
| 88 | Lafayette Street/Future Driveway (north of Calle Del Mundo) | Santa Clara | AM | Future Signalized Intersection | | | | 9.9 | A | N/A | N/A |
| | | | PM | | | | | 13.1 | B | N/A | N/A |
| 90 | Lafayette Street/Calle De Luna | Santa Clara | AM | 14.8 | B | 15.5 | B | 34.9 | C | 0.565 | 25.8 |
| | | | PM | 18.8 | B | 19.2 | B | 22.6 | C | 0.392 | 4.7 |
| 123 | Great America Parkway/Gold Street Connector | Santa Clara | AM | 11.8 | B | 11.8 | B | 34.1 | C | 0.637 | 21.3 |
| | | | PM | 13.1 | B | 13.1 | B | 12.5 | B | 0.116 | -2.5 |
| 1081 | New Viaduct/Tasman Drive | Santa Clara | AM | Future Signalized Intersection | | | | 4.2 | A | N/A | N/A |
| | | | PM | | | | | 13.9 | B | N/A | N/A |

Notes:
a. CMP = Congestion Management Program intersection (VTA).
b. AM = morning peak hour, PM = evening peak hour.
c. "Counted Volumes" presents the delay and LOS for intersections, using existing intersection geometry and existing traffic counts.
d. "Existing" presents the delay and LOS for intersections, using existing geometry plus any approved and funded transportation projects and existing traffic counts plus project trips from projects currently that are under construction (see Appendix 3.3-B and Appendix 3.3-D).
e. Whole intersection weighted average control delay expressed in seconds per vehicle, calculated using methods described in the 2000 Highway Capacity Manual, with adjusted saturation flow rates to reflect Santa Clara County conditions for signalized intersections.
f. LOS = Level of service. LOS calculations conducted using the TRAFFIX analysis software packages, which applies the methods described in the 2000 Highway Capacity Manual.
g. Change in critical volume-to-capacity ratio between existing and existing with-Project conditions.
h. Change in average critical movement delay between existing and existing with-Project conditions.
i. Geometry has been modified to include the improvements for projects under construction as outlined in Appendix 3.3-D.
j. An LOS D threshold is used for study intersections within San José, including CMP designated intersections. Santa Clara County intersections in San José use an LOS E threshold.
k. Maximum left-/right-turn lane or through-lane queuing in excess of available/potential storage at driveway entrances (intersections #10, 11, 12, 61, 62, 85, 86, and 87) during the morning and evening peak hours will most likely result in a worse LOS than calculated. These queues would require multiple traffic signal cycles to clear and could extend upstream and affect nearby intersections.
**Bold text** indicates intersection operates at a deficient LOS.
**Bold and highlighted** indicates a significant impact.
Source: Fehr & Peers, September 2015.

**Table 3.3-30. Existing with-Project Unsignalized Intersection LOS Results for Variant Access Scheme**

| ID | Intersection | Jurisdiction/ CMP[a] | Unsig. Type[b] | Peak Hour[c] | Counted Volume[d] | | Existing[e] | | Existing with Project | | Signal Warrant Met? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Delay[f] | LOS[g] | Delay[f] | LOS[g] | Delay[f] | LOS[g] | |
| 12 | Future Driveway (east of Centennial Boulevard)/ Tasman Drive | Santa Clara | SSSC | AM | Future Unsignalized Intersection | | | | 14.8 | B | N/A |
| | | | | PM | | | | | 23.0 | C | N/A |
| 85 | Lafayette Street/Great America Way | Santa Clara | SSSC | AM | 9.6 | A | 9.7 | A | Signalized Intersection | | N/A |
| | | | | PM | 21.1 | C | 21.4 | C | | | N/A |
| 89 | Lafayette Street/Calle Del Mundo | Santa Clara | SSSC | AM | 14.1 | B | 14.2 | B | **96.6** | **F** | No |
| | | | | PM | 12.7 | B | 12.9 | B | **> 150** | **F** | No |
| 114 | Calle Del Sol/Calle De Luna | Santa Clara | SSSC | AM | 13.8 | B | 14.1 | B | 23.4 | C | N/A |
| | | | | PM | 21.3 | C | 19.8 | C | 31.5 | D | N/A |

Notes:

a. CMP = Congestion Management Program intersection (VTA).

b. SSSC = Side-Street Stop-Controlled intersection, AWSC = All-Way Stop-Controlled intersection.

c. AM = morning peak hour, PM = evening peak hour.

d. "Counted Volumes" presents the delay and LOS for intersections, using existing intersection geometry and existing traffic counts.

e. "Existing" presents the delay and LOS for intersections, using existing geometry plus any approved and funded transportation projects and existing traffic counts plus project trips from projects that are currently under construction (see Appendix 3.3-B and Appendix 3.3-D).

f. Whole intersection weighted average control delay expressed in seconds per vehicle, calculated using methods described in the 2000 Highway Capacity Manual, with adjusted saturation flow rates to reflect Santa Clara County conditions for signalized intersections.

g. LOS = Level of service. LOS calculations conducted using the TRAFFIX analysis software packages, which apply the methods described in the 2000 Highway Capacity Manual.

**Bold text** indicates intersection operates at a deficient LOS.

**Bold and highlighted** indicates a significant impact.

Source: Fehr & Peers, September 2015.

**Table 3.3-31. Existing with Project Phases 1, 2, and 3 Signalized Intersection LOS Results for Variant Access Scheme**

| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Counted Volumes[c] | | Existing[d] | | Existing with Project Phases 1, 2, and 3 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] |
| 8 | Great America Parkway/Tasman Drive | Santa Clara (CMP) | AM | 25.6 | C | 26.0 | C | 29.9 | C | 0.262 | 8.0 |
| | | | PM | 29.2 | C | 31.5 | C | 52.9 | D | 0.263 | 34.0 |
| 9 | Convention Center/Tasman Drive | Santa Clara | AM | 16.2 | B | 16.2 | B | 16.9 | B | 0.080 | 1.0 |
| | | | PM | 18.5 | B | 20.2 | C | 37.8 | D | 0.113 | 26.4 |
| 10 | Future Driveway (west of Centennial Boulevard)/Tasman Drive | Santa Clara | AM | Future Signalized Intersection | | | | 5.2 | A | N/A | N/A |
| | | | PM | | | | | 13.0 | B | N/A | N/A |
| 11 | Centennial Boulevard/Tasman Drive | Santa Clara | AM | 19.8 | B | 19.8 | B | 51.3 | D | 0.404 | 42.0 |
| | | | PM | 19.6 | B | 19.8 | B | 46.6 | D | 0.474 | 46.8 |
| 13 | Calle Del Sol/Tasman Drive | Santa Clara | AM | 11.4 | B | 10.6 | B | 10.9 | B | 0.194 | 1.0 |
| | | | PM | 17.6 | B | 17.5 | B | 23.6 | C | 0.332 | 12.9 |
| 14 | Lick Mill Boulevard/Tasman Drive | Santa Clara | AM | 22.4 | C | 22.1 | C | 27.7 | C | 0.185 | 11.8 |
| | | | PM | 21.5 | C | 24.4 | C | 49.9 | D | 0.262 | 34.1 |
| 57 | Great America Parkway/SR 237 WB Ramps | Santa Clara (CMP) | AM | 17.5 | B | 20.9 | C | **98.8** | **F** | **0.384** | **93.1** |
| | | | PM | 17.5 | B | 18.9 | B | 24.0 | C | 0.295 | 6.1 |
| 58 | Great America Parkway/SR 237 EB Ramps | Santa Clara (CMP) | AM | 12.3 | B | 10.9 | B | 11.9 | B | 0.238 | 2.8 |
| | | | PM | 10.4 | B | 8.6 | A | 8.4 | A | 0.037 | -0.6 |
| 59 | Great America Parkway/Yerba Buena (Great America) Way | Santa Clara | AM | 20.7 | C | 27.0 | C | **70.2** | **E** | **0.382** | **62.4** |
| | | | PM | 22.9 | C | 31.4 | C | 39.4 | D | 0.226 | 15.0 |
| 60 | Great America Parkway/Old Mountain View-Alviso Road | Santa Clara | AM | 18.9 | B | 19.2 | B | **138.7** | **F** | **0.866** | **216.4** |
| | | | PM | 26.6 | C | 26.6 | C | **100.9** | **F** | **0.543** | **111.3** |
| 61 | Great America Parkway/Future Driveway (south of Old Mountain View-Alviso Road) | Santa Clara | AM | Does not exist under Existing with Parcels 4 and 5 (Phases 1, 2, and 3) | | | | | | | |
| | | | PM | | | | | | | | |

**Table 3.3-31. Existing with Project Phases 1, 2, and 3 Signalized Intersection LOS Results for Variant Access Scheme**

| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Counted Volumes[c] | | Existing[d] | | Existing with Project Phases 1, 2, and 3 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] |
| 63 | Great America Parkway/Bunker Hill Lane | Santa Clara | AM | 13.0 | B | 12.9 | B | 12.3 | B | 0.135 | -3.0 |
| | | | PM | 15.5 | B | 15.6 | B | 15.5 | B | 0.194 | 1.0 |
| 84 | Gold Street/Gold Street Connector | San José[j] | AM | 22.6 | C | 22.7 | C | 23.3 | C | 0.005 | 0.4 |
| | | | PM | 21.5 | C | 21.7 | C | 21.7 | C | 0.020 | 0.1 |
| 86 | Lafayette Street/Future Driveway (south of Great America Way) | Santa Clara | AM | Does not exist under existing with Project Phases 1, 2, and 3 | | | | | | | |
| | | | PM | | | | | | | | |
| 87 | Lafayette Street/Future Urban Interchange | Santa Clara | AM | Future Signalized Intersection | | | | 7.8 | A | N/A | N/A |
| | | | PM | | | | | 12.9 | B | N/A | N/A |
| 90 | Lafayette Street/Calle De Luna | Santa Clara | AM | 14.8 | B | 15.5 | B | 15.8 | B | 0.127 | 0.6 |
| | | | PM | 18.8 | B | 19.2 | B | 19.8 | B | 0.125 | 1.0 |
| 123 | Great America Parkway/Gold Street Connector | Santa Clara | AM | 11.8 | B | 11.8 | B | 12.2 | B | 0.010 | 0.4 |
| | | | PM | 13.1 | B | 13.1 | B | 13.5 | B | 0.008 | 0.5 |
| 1081 | New Viaduct/Tasman Drive | Santa Clara | AM | Future Signalized Intersection | | | | 4.3 | A | N/A | N/A |
| | | | PM | | | | | 15.5 | B | N/A | N/A |

**Table 3.3-31. Existing with Project Phases 1, 2, and 3 Signalized Intersection LOS Results for Variant Access Scheme**

| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Counted Volumes[c] | | Existing[d] | | Existing with Project Phases 1, 2, and 3 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] |

Notes:

a. CMP = Congestion Management Program intersection (VTA).

b. AM = morning peak hour, PM = evening peak hour.

c. "Counted Volumes" presents the delay and LOS for intersections, using existing intersection geometry and existing traffic counts.

d. "Existing" presents the delay and LOS for intersections, using existing geometry plus any approved and funded transportation projects and existing traffic counts plus project trips from projects that are currently under construction (see Appendix 3.3-B and Appendix 3.3-D).

e. Whole intersection weighted average control delay expressed in seconds per vehicle, calculated using methods described in the 2000 Highway Capacity Manual, with adjusted saturation flow rates to reflect Santa Clara County conditions for signalized intersections.

f. LOS = Level of service. LOS calculations conducted using the TRAFFIX analysis software packages, which applies the methods described in the 2000 Highway Capacity Manual.

g. Change in critical volume-to-capacity ratio between existing and existing conditions with Project Phases 1, 2, and 3.

h. Change in average critical movement delay between existing and existing conditions with Project Phases 1, 2, and 3.

i. Geometry has been modified to include the improvements for projects under construction as outlined in Appendix 3.3-D.

j. An LOS D threshold is used for study intersections within San José, including CMP designated intersections. Santa Clara County intersections in San José use an LOS E threshold.

k. Maximum left-/right-turn lane or through-lane queuing in excess of available/potential storage at driveway entrances (Intersections 60, 61, 85, 86, and 87) during the morning and evening peak hours will most likely result in a worse LOS than calculated. These queues would require multiple traffic signal cycles to clear and could extend upstream and affect nearby intersections.

**Bold text** indicates intersection operates at a deficient LOS.

**Bold and highlighted** indicates a significant impact.

Source: Fehr & Peers, September 2015.

**Table 3.3-32. Existing with Project Phases 1, 2, and 3 Unsignalized Intersection LOS Results for Variant Access Scheme**

| ID | Intersection | Jurisdiction/ CMP[a] | Unsig. Type[b] | Peak Hour[c] | Counted Volume[d] | | Existing[e] | | Existing with Project | | Signal Warrant Met? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Delay[f] | LOS[g] | Delay[f] | LOS[g] | Delay[f] | LOS[g] | |
| 12 | Future Driveway (east of Centennial Boulevard)/ Tasman Drive | Santa Clara | SSSC | AM | Future Unsignalized Intersection | | | | 13.0 | B | N/A |
| | | | | PM | | | | | 13.8 | B | N/A |
| 85 | Lafayette Street/Great America Way | Santa Clara | SSSC | AM | 9.6 | A | 9.7 | A | 10.6 | B | N/A |
| | | | | PM | 21.1 | C | 21.4 | C | 16.9 | C | N/A |
| 89 | Lafayette Street/Calle Del Mundo | Santa Clara | SSSC | AM | 14.1 | B | 14.2 | B | 22.5 | C | N/A |
| | | | | PM | 12.7 | B | 12.9 | B | 19.6 | C | N/A |
| 114 | Calle Del Sol/Calle De Luna | Santa Clara | SSSC | AM | 13.8 | B | 14.1 | B | 15.6 | C | N/A |
| | | | | PM | 21.3 | C | 19.8 | C | 31.5 | D | N/A |

Notes:

a. CMP = Congestion Management Program intersection (VTA).

b. SSSC = Side-Street Stop-Controlled intersection, AWSC = All-Way Stop-Controlled intersection.

c. AM = morning peak hour, PM = evening peak hour.

d. "Counted Volumes" presents the delay and LOS for intersections, using existing intersection geometry and existing traffic counts.

e. "Existing" presents the delay and LOS for intersections, using existing geometry plus any approved and funded transportation projects and existing traffic counts plus project trips from projects that are currently under construction (see Appendix 3.3-B and Appendix 3.3-D).

f. Whole intersection weighted average control delay expressed in seconds per vehicle, calculated using methods described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County conditions for signalized intersections.

g. LOS = Level of service. LOS calculations conducted using the TRAFFIX analysis software packages, which apply the methods described in the 2000 *Highway Capacity Manual*.

**Bold text** indicates intersection operates at a deficient LOS.

**Bold and highlighted** indicates a significant impact.

Source: Fehr & Peers, September 2015.

**Table 3.3-33. Background with-Project Signalized Intersection LOS Results for Variant Access Scheme**

| | | | | Background[c] | | Background with Project | | | |
|---|---|---|---|---|---|---|---|---|---|
| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Delay[d] | LOS[e] | Delay[d] | LOS[e] | Δ in Crit. V/C[f] | Δ in Crit. Delay[g] |
| 8 | Great America Parkway/Tasman Drive [h] | Santa Clara (CMP) | AM | 34.7 | C | **89.9** | **F** | **0.342** | **96.3** |
| | | | PM | 51.8 | D | **>180** | **F** | **0.665** | **300.6** |
| 9 | Convention Center/Tasman Drive [h] | Santa Clara | AM | 17.3 | B | 46.0 | D | 0.234 | 47.5 |
| | | | PM | 21.9 | C | **120.7** | **F** | **0.298** | **137.1** |
| 10 | Future Driveway (west of Centennial Boulevard)/Tasman Drive [h] | Santa Clara | AM | Future Signalized Intersection | | 6.2 | A | N/A | N/A |
| | | | PM | | | 24.3 | C | N/A | N/A |
| 11 | Centennial Boulevard/Tasman Drive[h] | Santa Clara | AM | 20.4 | C | **110.4** | **F** | **0.415** | **131.4** |
| | | | PM | 24.1 | C | **172.2** | **F** | **0.541** | **177.6** |
| 13 | Calle Del Sol/Tasman Drive [h] | Santa Clara | AM | 13.2 | B | 43.1 | D | 0.325 | 48.0 |
| | | | PM | 19.0 | B | **65.0** | **E** | **0.435** | **82.0** |
| 14 | Lick Mill Boulevard/Tasman Drive | Santa Clara | AM | 23.1 | C | **92.8** | **F** | **0.517** | **122.5** |
| | | | PM | 32.3 | C | **148.3** | **F** | **0.594** | **163.3** |
| 57 | Great America Parkway/SR 237 WB Ramps | Santa Clara (CMP) | AM | 26.5 | C | **104.7** | **F** | **0.356** | **117.6** |
| | | | PM | 19.5 | B | 72.8 | E | 0.532 | 72.0 |
| 58 | Great America Parkway/SR 237 EB Ramps | Santa Clara (CMP) | AM | 11.9 | B | 68.8 | E | 0.485 | 86.7 |
| | | | PM | 10.9 | B | 23.4 | C | 0.268 | 21.9 |
| 59 | Great America Parkway/Yerba Buena (Great America) Way | Santa Clara | AM | 29.3 | C | **123.1** | **F** | **0.448** | **107.7** |
| | | | PM | 34.7 | C | **139.3** | **F** | **0.467** | **155.0** |
| 60 | Great America Parkway/Old Mountain View-Alviso Road | Santa Clara | AM | 20.6 | C | **55.8** | **E** | **0.470** | **69.7** |
| | | | PM | 37.2 | D | **100.6** | **F** | **0.414** | **99.2** |
| 61 | Great America Parkway/Future Driveway (south of Old Mountain View-Alviso Road) | Santa Clara | AM | Future Signalized Intersection | | 16.1 | B | N/A | N/A |
| | | | PM | | | 23.5 | C | N/A | N/A |
| 63 | Great America Parkway/Bunker Hill Lane | Santa Clara | AM | 13.2 | B | 12.5 | B | 0.104 | -1.0 |
| | | | PM | 15.7 | B | 16.6 | B | 0.233 | 2.7 |
| 84 | Gold Street/Gold Street Connector | San José[i] | AM | 23.3 | C | **115.8** | **F** | **0.747** | **113.2** |
| | | | PM | 21.7 | C | 34.4 | C | 0.515 | 20.2 |
| 85 | Lafayette Street/Great America Way | Santa Clara | AM | Unsignalized Intersection | | 54.8 | D | N/A | N/A |
| | | | PM | | | 35.7 | D | N/A | N/A |

**Table 3.3-33. Background with-Project Signalized Intersection LOS Results for Variant Access Scheme**

| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Background[c] Delay[d] | Background[c] LOS[e] | Background with Project Delay[d] | Background with Project LOS[e] | Δ in Crit. V/C[f] | Δ in Crit. Delay[g] |
|---|---|---|---|---|---|---|---|---|---|
| 87 | Lafayette Street/Future Urban Interchange | Santa Clara | AM | Future Signalized Intersection | | 19.8 | B | N/A | N/A |
| | | | PM | | | 18.7 | B | N/A | N/A |
| 88 | Lafayette Street/Future Driveway (north of Calle Del Mundo) | Santa Clara | AM | Future Signalized Intersection | | 10.9 | B | N/A | N/A |
| | | | PM | | | 17.4 | B | N/A | N/A |
| 90 | Lafayette Street/Calle De Luna | Santa Clara | AM | 16.4 | B | **69.2** | **E** | **0.578** | **65.1** |
| | | | PM | 19.6 | B | 24.5 | C | 0.453 | 8.7 |
| 123 | Great America Parkway/Gold Street Connector | Santa Clara | AM | 11.9 | B | 29.1 | C | 0.577 | 15.9 |
| | | | PM | 13.6 | B | 13.0 | B | 0.152 | -2.1 |
| 1081 | New Viaduct/Tasman Drive[h] | Santa Clara | AM | Future Signalized Intersection | | 6.6 | A | N/A | N/A |
| | | | PM | | | 13.9 | B | N/A | N/A |

Notes:

[a] CMP = Congestion Management Program intersection (VTA).

[b] AM = morning peak hour, PM = evening peak hour.

[c] "Background" presents the delay and LOS for intersections, using 2020 geometry and traffic volumes estimated using the VTA travel demand model.

[d] Whole intersection weighted average control delay expressed in seconds per vehicle, calculated using methods described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County conditions for signalized intersections.

[e] LOS = Level of service. LOS calculations conducted using the TRAFFIX analysis software packages, which applies the methods described in the 2000 *Highway Capacity Manual*.

[f] Change in critical volume-to-capacity ratio between background and background with-Project conditions.

[g] Change in average critical movement delay between background and background with-Project conditions.

[h] Geometry has been modified to include the improvements for projects under construction and planned projects under background conditions as outlined in Appendix 3.3-D.

[i] An LOS D threshold is used for study intersections within San José, including CMP designated intersections. Santa Clara County intersections in San José use an LOS E threshold.

[j] Maximum left-/right-turn lane or through-lane queuing in excess of available/potential storage at driveway entrances (intersections #10, 11, 12, 61, 62, 85, 86, and 87) during the morning and evening peak hours will most likely result in a worse LOS than calculated. These queues would require multiple traffic signal cycles to clear and could extend upstream and affect nearby intersections.

**Bold text** indicates intersection operates at a deficient LOS.

**Bold and highlighted** indicates a significant impact.

Source: Fehr & Peers, September 2015.

**Table 3.3-34. Background with-Project Unsignalized Intersection LOS Results for Variant Access Scheme**

| ID | Intersection | Jurisdiction/ CMP[a] | Unsig. Type[b] | Peak Hour[c] | Background[d] | | Background with Project | | Signal Warrant Met? |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Delay[e] | LOS[f] | Delay[e] | LOS[f] | |
| 12 | Future Driveway (east of Centennial Boulevard)/Tasman Drive[g] | Santa Clara | SSSC | AM | Future Unsignalized Intersection | | 32.9 | D | No |
| | | | | PM | | | **78.8** | **F** | **Yes** |
| 85 | Lafayette Street/Great America Way | Santa Clara | SSSC | AM | 11.1 | B | Signalized Intersection | | N/A |
| | | | | PM | 27.0 | D | | | N/A |
| 89 | Lafayette Street/Calle Del Mundo | Santa Clara | SSSC | AM | 20.5 | C | **>150** | **F** | No |
| | | | | PM | 13.9 | B | **>150** | **F** | No |
| 114 | Calle Del Sol/Calle De Luna | Santa Clara | SSSC | AM | 15.6 | C | 32.0 | D | No |
| | | | | PM | 23.2 | C | **74.4** | **F** | **Yes** |

Notes:

a. CMP = Congestion Management Program intersection (VTA).

b. SSSC = Side-Street Stop-Controlled intersection, AWSC = All-Way Stop-Controlled intersection.

c. AM = morning peak hour, PM = evening peak hour.

d. "Background" presents the delay and LOS for intersections using 2020 geometry and traffic volumes estimated using the VTA travel demand model.

e. Whole intersection weighted average control delay expressed in seconds per vehicle, calculated using methods described in the 2000 Highway Capacity Manual, with adjusted saturation flow rates to reflect Santa Clara County conditions for all-way stop-controlled intersection. For side-street stop-controlled intersections, values reported are the worst approach.

f. LOS = Level of service. LOS calculations conducted using the TRAFFIX analysis software packages, which apply the methods described in the 2000 Highway Capacity Manual.

g. Geometry has been modified to include improvements from projects that are under construction and planned projects under background conditions, as outlined in Appendix 3.3-D.

**Bold text** indicates intersection operates at a deficient LOS.

**Bold and highlighted** indicates a significant impact.

Source: Fehr & Peers, September 2015.

## Intersections with Significant Project Impacts – Variant Access Scheme

Project impacts on signalized intersections were identified as those that would have a significant impact under either existing with-Project or background with-Project conditions. The Project would have a significant impact on 11 signalized intersections (of the 23 signalized and unsignalized affected intersections near the site) based on combined conditions with the Variant Access Scheme. Impacts on signalized intersections would be ***significant*** before mitigation.

MITIGATION MEASURES. With Mitigation Measures TRA-1.1 (above), TRA-6.1 (below), and TRA-6.2 (below), impacts would be reduced, but certain intersections would still have significant Project impacts. Therefore, the Project impact on signalized intersection LOS under the Variant Access Scheme would be ***significant and unavoidable.***

## Intersection Improvements

*TRA-6.1: Intersection Improvements.* The intersection improvements summarized in Table 3.3-35 shall be implemented. These improvements will reduce vehicle delays and fully mitigate Project impacts at several intersections by allowing them to operate at acceptable levels, with delays that would be lower than they would be under no-project conditions, or with less than a 4-second increase in critical delay for intersections that operate at unacceptable levels.

Table 3.3-35 also contains physical improvements for select intersections that will reduce the delay, but not to a level that fully mitigates the impact.

Some of the intersection improvements would require ROW acquisition. A preliminary review of ROW constraints was done by viewing aerial photography as a part of the mitigation measure feasibility assessment. An intersection was identified as having ROW constraints if the mitigation measure would include widening the roadway or relocating aboveground utilities. (Use of the center median and "pork-chop" islands was not considered as roadway widening.) If the removal of bicycle facilities was required, the ROW required was defined as "possible." If the City makes a final determination that a portion or all of an improvement is not feasible because ROW cannot be acquired or for other reasons, the improvement, or infeasible portion, shall not be implemented and, if none of the improvement is feasible, that intersection shall be considered to have "no feasible mitigation."

LOS calculations were conducted for the intersections with mitigation measures. The results are presented in Table 3.3-35. The conclusions are:

- Four intersections located within City of Santa Clara jurisdiction would have impacts reduced to than **less-than-significant** level with implementation of the mitigation measures in Table 3.3-35.
    - Intersection 13: Calle Del Sol/Tasman Drive
    - Intersection 57: Great America Parkway/SR 237 WB Ramps
    - Intersection 90: Lafayette Street/Calle De Luna
    - Intersection 114: Calle Del Sol/Calle Del Luna

- Four intersections located within City of Santa Clara jurisdiction can be partially mitigated with implementation of the mitigation measures in Table 3.3-35, but the impact remains ***significant and unavoidable*****:**
    - Intersection 8: Great America Parkway/Tasman Drive
    - Intersection 14: Lick Mill Boulevard/Tasman Drive
    - Intersection 59: Great America Parkway/Yerba Buena (Great America) Way
    - Intersection 60: Great America Parkway/Old Mountain View-Alviso Road
- Two intersections located within City of Santa Clara jurisdiction have no feasible mitigation measure; therefore, the impact remains ***significant and unavoidable***:
    - Intersection 9: Convention Center/Tasman Drive
    - Intersection 11: Centennial Boulevard/Tasman Drive
- One intersection is located outside of City of Santa Clara jurisdiction, and implementation of the mitigation measure cannot be guaranteed; therefore, the impact remains ***significant and unavoidable***:
    - Intersection operations would return to an acceptable LOS with the identified mitigation measure in Table 3.3-35 at Intersection 84, Gold Street/Gold Street Connector

Intersections 58 and 123 are not affected intersections but would need to be modified to accommodate the mitigation measure at Intersection 57, Great America Parkway/SR 237 WB Ramps.

*TRA-6.2: Intersection Improvements for Phases 1, 2 and 3.* The intersection improvements summarized in Table 3.3-36 shall be implemented. These improvements will reduce vehicle delays and fully mitigate Project impacts at several intersections by allowing the intersections to operate at acceptable levels, with delays that would be lower than they would be under no-project conditions, or with less than a 4-second increase in critical delay for intersections that operate at unacceptable levels.

Table 3.3-36 also contains physical improvements for select intersections that will reduce the delay, but not to a level that mitigates the impact.

Some of the intersection improvements would require ROW acquisition. A preliminary review of ROW constraints was done by viewing aerial photography as a part of the mitigation measure feasibility assessment. An intersection was identified as having ROW constraints if the mitigation measure would include widening the roadway or relocating aboveground utilities. (Use of the center median and "pork-chop" islands was not considered as roadway widening.) If the removal of bicycle facilities was required, the ROW required was defined as "possible." If the City makes a final determination that a portion or all of an improvement is not feasible because ROW cannot be acquired or for other reasons, the improvement, or infeasible portion, shall not be implemented and, if none of the improvement is feasible, that intersection shall be considered to have "no feasible mitigation."

**Table 3.3-35. Project-Specific (Existing with-Project/Background with-Project) Intersection Mitigation Measures –Variant Access Scheme[a]**

| | | | | | | Affected Scenario | | | Delay and LOS with Mitigation Measure | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Existing with Project | | | Background with Project | | |
| ID | Intersection | Jurisdiction/ CMP[b] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Existing with Project | Background with Project | Peak Hour | Delay[g] | LOS | Sig?[h] | Delay[g] | LOS | Sig?[h] |
| 8 | Great America Parkway/ Tasman Drive* | Santa Clara (CMP) | Partial Mitigation: Add a southbound right-turn lane and add a third westbound left-turn lane. | Yes | 100% | x | x | AM | 34.0 | C | LTS | **88.8** | **F** | SU |
| | | | | | | | | PM | **100.3** | **F** | SU | **163.1** | **F** | SU |
| 9 | Convention Center/ Tasman Drive* | Santa Clara | No feasible mitigation (no right-of-way is available). | N/A | 0% | x | x | AM | --- | --- | LTS | --- | --- | LTS |
| | | | | | | | | PM | **---** | **---** | SU | **---** | **---** | SU |
| 11 | Centennial Boulevard/ Tasman Drive* | Santa Clara | No feasible mitigation (no right-of-way is available). | N/A | 0% | x | x | AM | **---** | **---** | SU | **---** | **---** | SU |
| | | | | | | | | PM | **---** | **---** | SU | **---** | **---** | SU |
| 13 | Calle Del Sol/ Tasman Drive* | Santa Clara | Add a westbound right-turn lane. Reconfigure southbound approaches to include two left-turn lanes and one right-turn lane with overlap phase. | Yes | 100% | | x | AM | | | | 26.9 | C | LTS |
| | | | | | | | | PM | | | | 18.7 | B | LTS |
| 14 | Lick Mill Boulevard/ Tasman Drive | Santa Clara | Partial Mitigation: Reconfigure northbound and southbound approach to two left-turn lanes, one through lane, and one right-turn lane. Change phasing on northbound/southbound approaches from split to protected. Add a second westbound left-turn lane. | Yes | 100% | x | x | AM | 42.8 | D | LTS | **72.8** | **E** | SU |
| | | | | | | | | PM | **117.1** | **F** | SU | **96.1** | **F** | SU |

**Table 3.3-35. Project-Specific (Existing with-Project/Background with-Project) Intersection Mitigation Measures –Variant Access Scheme[a]**

| | | | | | | Affected Scenario | | | Delay and LOS with Mitigation Measure | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Existing with Project | | | Background with Project | | |
| ID | Intersection | Jurisdiction/ CMP[b] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Existing with Project | Background with Project | Peak Hour | Delay[g] | LOS | Sig?[h] | Delay[g] | LOS | Sig?[h] |
| 57 | Great America Parkway/SR 237 WB Ramps | Santa Clara (CMP) | Add third westbound left-turn lane and associated receiving lane under underpass. Add a second westbound right-turn lane. | Yes | 100% | x | x | AM | 57.5 | E | LTS | 52.1 | D | LTS |
| | | | | | | | | PM | 39.4 | D | LTS | 49.9 | D | LTS |
| 58 | Great America Parkway/SR 237 EB Ramps[c] | Santa Clara (CMP) | Add third southbound through lane (from Int. 57) and a second eastbound right-turn lane. | Yes | 100% | x[c] | x[c] | AM | 28.3 | C | LTS | 30.6 | C | LTS |
| | | | | | | | | PM | 11.5 | B | LTS | 23.3 | C | LTS |
| 59 | Great America Parkway/ Yerba Buena (Great America) Way | Santa Clara | Partial Mitigation: Add a second westbound right-turn lane with an overlap phase and a second southbound left-turn lane. | Yes | 100% | x | x | AM | **63.3** | **E** | SU | **69.5** | **E** | SU |
| | | | | | | | | PM | 27.2 | C | LTS | 40.8 | D | LTS |
| 60 | Great America Parkway/Old Mountain View-Alviso Road | Santa Clara | Partial Mitigation: Add second eastbound left-turn lane. | Possible | 100% | x | x | AM | **67.2** | **E** | SU | 55.0 | D | LTS |
| | | | | | | | | PM | 44.1 | D | LTS | **66.3** | **E** | SU |

**Table 3.3-35. Project-Specific (Existing with-Project/Background with-Project) Intersection Mitigation Measures –Variant Access Scheme[a]**

| | | | | | | Affected Scenario | | | Delay and LOS with Mitigation Measure | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Existing with Project | | | Background with Project | | |
| ID | Intersection | Jurisdiction/ CMP[b] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Existing with Project | Background with Project | Peak Hour | Delay[g] | LOS | Sig?[h] | Delay[g] | LOS | Sig?[h] |
| 84 | Gold Street/Gold Street Connector | San José | Add second northbound left-turn and second eastbound right-turn lane (move pedestrian crossing to north leg of intersection). | Yes | 100% | x | x | AM | 25.7 | C | SU | 27.6 | C | SU |
| | | | | | | | | PM | 23.6 | C | SU | 24.5 | C | SU |
| 90 | Lafayette Street/Calle De Luna | Santa Clara | Reconstruct the westbound approach to include two left-turn lanes and one right-turn lane. | No | 100% | | x | AM | | | | 48.0 | D | LTS |
| | | | | | | | | PM | | | | 22.1 | C | LTS |
| 114 | Calle Del Sol/Calle Del Luna | Santa Clara | Signalize. | Possible | 100% | | x | AM | | | | 11.4 | B | LTS |
| | | | | | | | | PM | | | | 12.4 | B | LTS |
| 123 | Great America Parkway/ Gold Street Connector[c] | Santa Clara | Add a second northbound right-turn lane (from Int. 57 dual westbound right-turn lanes). | Yes | 100% | x[c] | x[c] | AM | 9.9 | A | LTS | 9.8 | A | LTS |
| | | | | | | | | PM | 10.0 | A | LTS | 9.6 | A | LTS |

**Table 3.3-35. Project-Specific (Existing with-Project/Background with-Project) Intersection Mitigation Measures –Variant Access Scheme[a]**

| | | | | | | Affected Scenario | | | Delay and LOS with Mitigation Measure | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Existing with Project | | | Background with Project | | |
| ID | Intersection | Jurisdiction/ CMP[b] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Existing with Project | Background with Project | Peak Hour | Delay[g] | LOS | Sig?[h] | Delay[g] | LOS | Sig?[h] |

Notes:

a. For the Variant Access Scheme analysis, only a subset of intersections were studied (Intersections 8, 9, 10, 11, 12, 13, 14, 57, 58, 59, 60, 61, 62, 63, 84, 85, 86, 87, 88, 89, 90, 114, 123).

b. CMP = Congestion Management Program intersection (VTA).

c. This intersection is not an affected intersection, but would need to be modified to accommodate the improvements at Intersection #57: Great America Parkway/SR 237 WB Ramps.

d. Off-setting Mitigation: In the North San José Deficiency Plan area, off-setting local street network, transit, bicycle, and pedestrian improvements were identified to accommodate future travel growth, but not directly mitigate the intersection with the identified impact. Partial Mitigation: The proposed mitigation measure mitigates the impact at one but not the other peak hour or reduces the delay but not enough to mitigate the impact.

e. ROW = right-of-way. "Yes" = additional right-of-way is required to construct the proposed mitigation measure. This includes relocating existing curbs and gutters. "Possible" = additional right-of-way may be needed to maintain bike lanes or transit facilities, such as bus duck-outs. "No" = the proposed mitigation measures will fit within the existing right-of-way and existing curb-to-curb widths. Curbs and gutters will not need to be relocated, but the median may need to be modified.

f. "100%" = The cost and construction of the proposed mitigation measure is the full responsibility of the Project Developer. These are discrete mitigation measures that either fully or partially mitigate significant Project impacts. "0%" = There is no feasible mitigation measure. "% of Total Traffic" = Project Developer shall pay a fair-share contribution to the proposed mitigation measure, which is typically a larger transportation improvement, such as an expressway interchange, that has been identified in an adopted plan. "Pay North San José fee or fair-share contribution of alternative or off-setting mitigation" = The Project Developer can pay the North San José fee or a fair-share contribution for the mitigation measure or off-setting mitigation measure based on the amount of Project's percent contribution of the added traffic at the intersection.

g. Signalized intersections: whole-intersection average control delay per vehicle (seconds). Unsignalized intersections: worst-approach average control delay per vehicle (seconds).

h. LTS = Less than significant with mitigation, SU = significant and unavoidable. Significance determination is based on draft mitigation and responsible jurisdiction of the intersection. See mitigation list summary, which describes the mitigation in more detail.

**Bold** text indicates intersection operates at a deficient LOS.

**Bold and highlighted** indicates a significant impact (with mitigation).

* Intersection improvement identified at this intersection under existing or background no-project conditions and with-Project conditions. See Appendix 3.3-D.

Source: Fehr & Peers, September 2015.

**Table 3.3-36. Phases 1, 2, and 3 Project-Specific Intersection Mitigation Measures –Variant Access Scheme[a]**

| ID | Intersection | Jurisdiction/ CMP[b] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Affected Scenario: Existing with Phases 1, 2, and 3 | Peak Hour | Delay and LOS with Mitigation Measure: Existing with Project Delay[g] | LOS | Sig?[h] | Existing with Phases 1, 2, and 3 Delay[g] | LOS | Sig?[h] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | Great America Parkway/ Tasman Drive* | Santa Clara (CMP) | Partial Mitigation: Add a southbound right-turn lane and add a third westbound left-turn lane. | Yes | 100% | | AM | 34.0 | C | LTS | | | |
| | | | | | | | PM | **100.3** | **F** | SU | | | |
| 9 | Convention Center/ Tasman Drive* | Santa Clara | No feasible mitigation (no right-of-way is available). | N/A | 0% | | AM | --- | --- | LTS | | | |
| | | | | | | | PM | **---** | **---** | SU | | | |
| 11 | Centennial Boulevard/ Tasman Drive* | Santa Clara | No feasible mitigation (no right-of-way is available). | N/A | 0% | | AM | **---** | **---** | SU | | | |
| | | | | | | | PM | **---** | **---** | SU | | | |
| 14 | Lick Mill Boulevard/ Tasman Drive | Santa Clara | Partial Mitigation: Reconfigure northbound and southbound approach to two left-turn lanes, one through lane, and one right-turn lane. Change phasing on the northbound/southbound approaches from split to protected. Add a second westbound left-turn lane. | Yes | 100% | | AM | 42.8 | D | LTS | | | |
| | | | | | | | PM | **117.1** | **F** | SU | | | |
| 57 | Great America Parkway/SR 237 WB Ramps | Santa Clara (CMP) | Add third westbound left-turn lane and associated receiving lane under underpass. Add a second westbound right-turn lane. | Yes | 100% | x | AM | 57.5 | E | LTS | 37.9 | D | LTS |
| | | | | | | | PM | 39.4 | D | LTS | 21.4 | C | LTS |
| 58 | Great America Parkway/SR 237 EB Ramps[c] | Santa Clara (CMP) | Add third southbound through lane (from Int. 57) and a second eastbound right-turn lane. | Yes | 100% | x[c] | AM | 28.3 | C | LTS | 10.2 | B | LTS |
| | | | | | | | PM | 11.5 | B | LTS | 8.3 | A | LTS |

**Table 3.3-36. Phases 1, 2, and 3 Project-Specific Intersection Mitigation Measures –Variant Access Scheme[a]**

| ID | Intersection | Jurisdiction/ CMP[b] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Affected Scenario: Existing with Phases 1, 2, and 3 | Peak Hour | Delay and LOS with Mitigation Measure: Existing with Project Delay[g] | LOS | Sig?[h] | Existing with Phases 1, 2, and 3 Delay[g] | LOS | Sig?[h] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 59 | Great America Parkway/ Yerba Buena (Great America) Way | Santa Clara | Partial Mitigation: Add a second westbound right-turn lane with an overlap phase and a second southbound left-turn lane. | Yes | 100% | x | AM | **63.3** | **E** | SU | **66.5** | **E** | SU |
| | | | | | | | PM | 27.2 | C | LTS | 26.7 | C | LTS |
| 60 | Great America Parkway/Old Mountain View-Alviso Road | Santa Clara | Partial Mitigation: Add second eastbound left-turn lane. | Possible | 100% | x | AM | **67.2** | **E** | SU | **138.0** | **F** | SU |
| | | | | | | | PM | 44.1 | D | LTS | **72.4** | **E** | SU |
| 84 | Gold Street/Gold Street Connector | San José | Add second northbound left-turn and second eastbound right-turn lane (move pedestrian crossing to north leg of intersection). | Yes | 100% | | AM | 25.7 | C | SU | | | |
| | | | | | | | PM | 23.6 | C | SU | | | |
| 123 | Great America Parkway/Gold Street Connector[c] | Santa Clara | Add a second northbound right-turn lane (from Int. 57 dual westbound right-turn lanes). | Yes | 100% | x[c] | AM | 9.9 | A | LTS | 12.2 | B | LTS |
| | | | | | | | PM | 10.0 | A | LTS | 13.6 | B | LTS |

**Table 3.3-36. Phases 1, 2, and 3 Project-Specific Intersection Mitigation Measures –Variant Access Scheme[a]**

| ID | Intersection | Jurisdiction/ CMP[b] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Affected Scenario: Existing with Phases 1, 2, and 3 | Peak Hour | Delay and LOS with Mitigation Measure: Existing with Project Delay[g] | LOS | Sig?[h] | Existing with Phases 1, 2, and 3 Delay[g] | LOS | Sig?[h] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Notes:

a. For the Variant Access Scheme analysis, only a subset of intersections were studied (Intersections 8, 9, 10, 11, 12, 13, 14, 57, 58, 59, 60, 61, 62, 63, 84, 85, 86, 87, 88, 89, 90, 114, 123). The impacts and mitigation measures for the other off-site intersections would be the same as Phases 1, 2, and 3 with the Base Access Scheme.

b. CMP = Congestion Management Program intersection (VTA).

c. This intersection is not an affected intersection, but would need to be modified to accommodate the improvements at Intersection #57: Great America Parkway/SR 237 WB Ramps.

d. Off-setting Mitigation: In the North San José Deficiency Plan area, off-setting local street network, transit, bicycle, and pedestrian improvements were identified to accommodate future travel growth, but not directly mitigate the intersection with the identified impact. Partial Mitigation: The proposed mitigation measure mitigates the impact at one but not the other peak hour or reduces the delay but not enough to mitigate the impact.

e. ROW = right-of-way. "Yes" = additional right-of-way is required to construct the proposed mitigation measure. This includes relocating existing curbs and gutters. "Possible" = additional right-of-way may be needed to maintain bike lanes or transit facilities, such as bus duck-outs. "No" = the proposed mitigation measures will fit within the existing right-of-way and existing curb-to-curb widths. Curbs and gutters will not need to be relocated, but the median may need to be modified.

f. "100%" = The cost and construction of the proposed mitigation measure is the full responsibility of the Project Developer. These are discrete mitigation measures that either fully or partially mitigate significant Project impacts. "0%" = There is no feasible mitigation measure. "% of Total Traffic" = Project Developer shall pay a fair-share contribution to the proposed mitigation measure, which is typically a larger transportation improvement, such as an expressway interchange, that has been identified in an adopted plan. "Pay North San José fee or fair-share contribution of alternative or off-setting mitigation" = The Project Developer can pay the North San José fee or a fair-share contribution for the mitigation measure or off-setting mitigation measure based on the amount of Project's percent contribution of the added traffic at the intersection.

g. Signalized intersections: whole-intersection average control delay per vehicle (seconds). Unsignalized intersections: worst-approach average control delay per vehicle (seconds).

h. LTS = Less than significant with mitigation, SU = significant and unavoidable. Significance determination is based on draft mitigation and responsible jurisdiction of the intersection. See mitigation list summary, which describes the mitigation in more detail.

**Bold** text indicates intersection operates at a deficient LOS.

**Bold and highlighted** indicates a significant impact (with mitigation).

* Intersection improvement identified at this intersection under existing no-project conditions and with-Project conditions. See Appendix 3.3-D.

Source: Fehr & Peers, September 2015.

LOS calculations were conducted for the intersections with mitigation measures. The results are presented in Table 3.3-36. The conclusions are:

- One intersection located within City of Santa Clara jurisdiction would have the impact reduced to than **less-than-significant** level with implementation of the mitigation measure in Table 3.3-36.
    - Intersection 57, Great America Parkway/SR 237 WB Ramps
- Two intersections located within the City of Santa Clara jurisdiction can be partially mitigated with implementation of the mitigation measures in Table 3.3-36 but the impact remains ***significant and unavoidable***:
    - Intersection 59, Great America Parkway/Yerba Buena (Great America) Way
    - Intersection 60, Great America Parkway/Old Mountain View-Alviso Road

Intersections 58 and 123 are not affected intersections but would need to be modified to accommodate the mitigation measures at Intersection 57, Great America Parkway/SR 237 WB Ramps.

## On-Site Intersection Analysis – Variant Access Scheme

The results of the LOS calculations for on-site intersections with the Variant Access Scheme are presented in Table 3.3-37. All of the on-site intersections would operate at acceptable levels.

**Table 3.3-37 On-Site Intersection LOS Results (Variant Access Scheme)**

| | | | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|
| Int. # | Intersection Name | Control Type | LOS | Avg. Delay (sec)[a] | LOS | Avg. Delay (sec)[a] |
| 1004 | Stars and Stripes Drive/Centennial Boulevard | Signalized | B | 13.1 | C | 21.1 |
| 1012 | Second Street/Avenue D | SSSC[b] | A | 8.5 | B | 7.9 |
| 1036 | City Place Parkway/Avenue A | Signalized | B | 17.2 | B | 19.2 |
| 1037 | City Place Parkway/Avenue B | Signalized | B | 17.0 | B | 18.5 |
| 1038 | City Place Parkway/Avenue C | Signalized | B | 19.6 | C | 21.1 |
| 1040 | J Parking Access East 1/Avenue C | SSSC | B | 10.6 | C | 16.3 |
| 1041 | H Parking Access East 1/Avenue C | SSSC | B | 10.3 | B | 12.2 |
| 1042 | G Parking Access East/Avenue C | SSSC | A | 9.3 | A | 9.8 |
| 1043 | Stars and Stripes Drive/Avenue B | AWSC[c] | B | 12.0 | D | 31.8 |
| 1044 | A2/G Parking Access/Avenue B | SSSC | C | 17.4 | D | 25.9 |
| 1045 | Parking H Access/Avenue B | SSSC | B | 10.9 | B | 12.0 |
| 1046 | J Parking Access West 1/Avenue B | SSSC | B | 10.5 | D | 25.6 |
| 1047 | J Parking Access West 2/Avenue B | SSSC | B | 11.0 | D | 34.6 |
| 1048 | Second Street/Avenue B | AWSC | B | 11.6 | D | 28.1 |
| 1049 | First Street/Avenue B | SSSC | B | 10.1 | B | 14.8 |
| 1050 | Third Street/Avenue B | SSSC | B | 14.1 | C | 23.9 |
| 1051 | Stars and Stripes Drive/Avenue A | AWSC | B | 10.8 | B | 14.5 |
| 1052 | Third Street/Avenue A | SSSC | B | 11.1 | B | 10.6 |
| 1053 | First Street/Avenue A | AWSC | B | 10.2 | B | 12.3 |
| 1054 | Second Street/Avenue A | SSSC | C | 16.1 | C | 19.5 |
| 1055 | K Parking Access/Avenue A | SSSC | B | 14.9 | C | 22.7 |
| 1056 | Avenue A/Parcel N | SSSC | C | 16.1 | D | 31.3 |

**Table 3.3-37 On-Site Intersection LOS Results (Variant Access Scheme)**

| | | | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|
| Int. # | Intersection Name | Control Type | LOS | Avg. Delay (sec)[a] | LOS | Avg. Delay (sec)[a] |
| 1057 | Parcel 3/A1 Parking Access/City Place Parkway | Signalized | B | 19.8 | C | 20.2 |
| 1060 | Parcel M/Parcel N Parking Access | AWSC | B | 10.9 | C | 20.9 |
| 1064 | Tasman Slip Ramp/Avenue C | SSSC | A | 9.2 | A | 9.9 |
| 1065[b] | Lafayette Street/Jug Handle 2 | Signalized | B | 16.1 | C | 31.0 |
| 1066 | Creek Road/Parcel N | Signalized | B | 14.5 | B | 18.6 |
| 1069 | Stars and Stripes and Q Parking | SSSC | A | 8.7 | A | 9.2 |
| 1071 | First Street/Parcel K | AWSC | A | 9.3 | A | 8.5 |
| 1073 | O Parking Access/Stars and Stripes | SSSC | B | 13.4 | C | 17.6 |
| 1074 | P Parking Access/Stars and Stripes | SSSC | B | 10.6 | C | 15.1 |
| 1076 | City Place Parkway/Parcel N | Signalized | B | 13.0 | C | 34.2 |
| 1078 | City Place Parkway/Avenue D | Signalized | C | 21.0 | C | 27.1 |
| 1081[b] | Tasman Drive/New Viaduct | Signalized | D | 46.2 | D | 43.6 |

[a.] Average delay for SSSC is delay on the worst approach, all others are average intersection delay.

[b.] SSSC – Side-Street Stop Control

[c.] AWSC – All-Way Stop Control

Source: Arup. 2015. Related *City Place Santa Clara: City Place Internal Intersection Traffic Impact Analysis*. September 21.

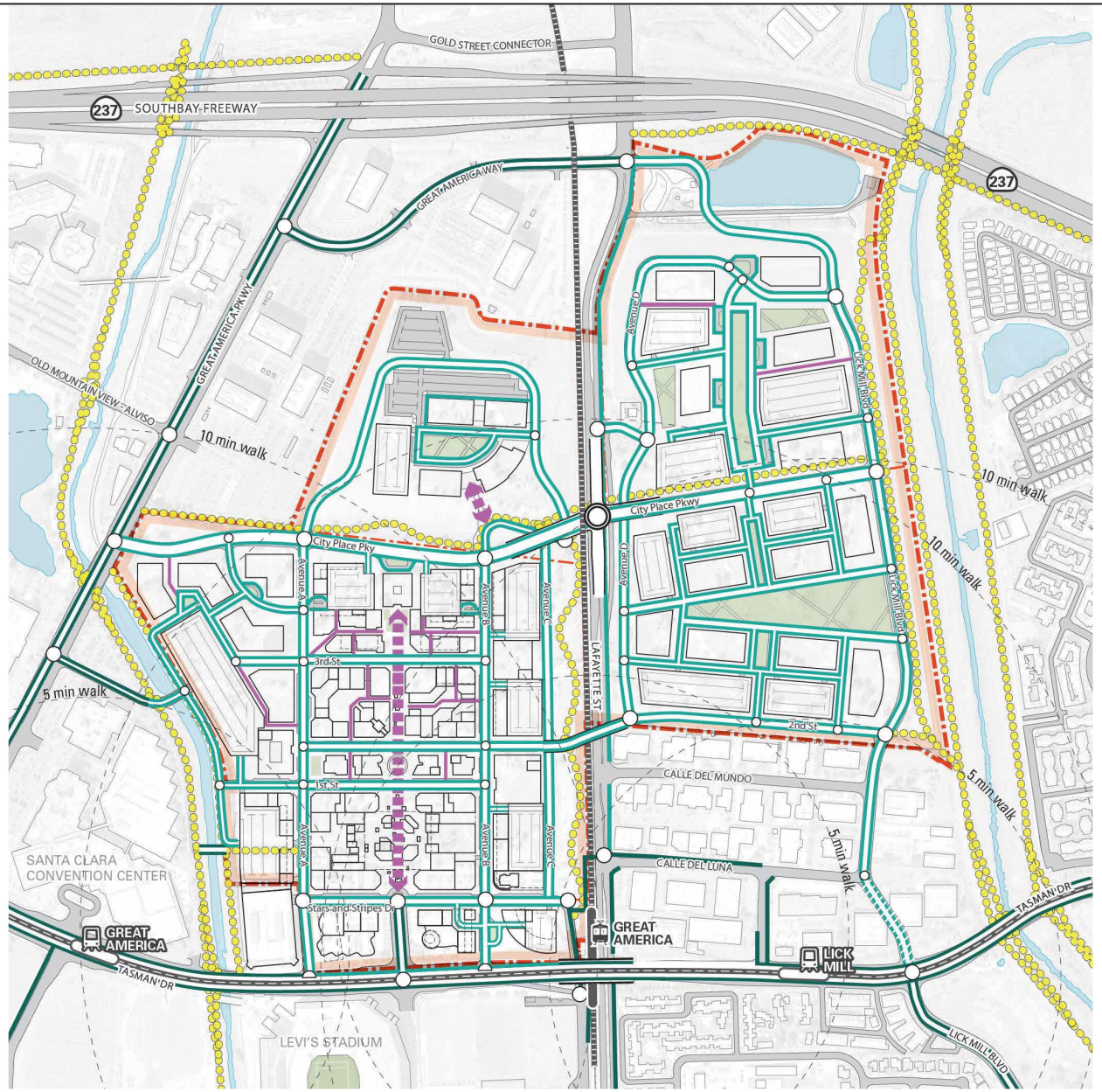
# Other Transportation Analysis

## Pedestrian Facilities

**Impact TRA-7: Pedestrian Facilities. The Project would generate substantial numbers of pedestrians traveling to transit stops along routes where sidewalk gaps exist, thus creating a hazardous condition for pedestrians. (SU)**

The Project will generate pedestrian travel that will occur among the buildings on each parcel, particularly the buildings on Parcels 4 and 5 that comprise City Center. Pedestrian travel will also be generated between the buildings and the transit stops and stations, primarily Great America ACE/Capitol Corridor (Amtrak) Station and the Great America and Lick Mill light-rail stations. The existing and planned pedestrian facilities near the site and those to be constructed as part of the Project, both on the site and adjacent to it, are illustrated in Figure 3.3-27.

The site plan for City Place contains a variety of facilities to support on-site pedestrian circulation, as shown in Figure 3.3-27 (i.e., sidewalks on both sides of all internal streets, pedestrian paseos on Parcels 1 and 4 to provide more pedestrian connections, and major pedestrian linkages on Parcels 3 and 4). The major pedestrian linkage on Parcel 4 continues north from Stars and Stripes Drive along the Centennial Boulevard alignment to form a major north-south pedestrian paseo through City Center. As discussed in the Master Community Plan, pedestrian crossing treatments would be provided where this linkage crosses the internal streets to provide safe pedestrian circulation.




## LEGEND

**Vehicular Circulation**
- Major Pedestrian Linkage
- Pedestrian Paseo
- Existing Sidewalk
- Proposed Sidewalk
- Bike Path
- Potential Connection
- Urban Interchange
- Full Intersection
- Right in Right out Intersection

**Transit**
- VTA Light Rail
- Capitol Corridor/ Altamont Commuter Express

**Boundaries**
- Site
- Parcel

0′ 200′ 400′ 800′ 1600′

Source: City Place Santa Clara Master Community Plan (Figure 3-16: Pedestrian Network), The Related Companies, September 2015

Source: Fehr & Peers, 2015.

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**Figure 3.3-27**
**City Place Santa Clara Master Community Plan – Pedestrian Network**
City Place Santa Clara

Sidewalks are missing on the north side of Tasman Drive between Centennial Boulevard and Calle Del Sol. Sidewalks will be added to a portion of this segment, between Centennial Boulevard and the Lafayette Street overcrossing that is along the Project site frontage.

Inadequate pedestrian access is provided between the Project site and the Lick Mill Light-Rail Station due to the missing sidewalk on the north side of Tasman Drive between the west side of the Lafayette Street overcrossing and Calle Del Sol. This is a ***significant*** impact.

MITIGATION MEASURES. Mitigation Measure TRA-7.1 is to add the missing sidewalk on the north side of Tasman Drive between the west side of the Lafayette Street overcrossing and Calle Del Sol. The sidewalk gap impact would remain ***significant and unavoidable*** until the gap is closed.

*TRA-7.1* *Sidewalk Gap Closure on Tasman Drive on the Lafayette Street overcrossing extending east to Calle Del Sol*. The Project Developer shall construct a sidewalk on the north side of Tasman Drive on the Lafayette Street overcrossing and extending east to Calle Del Sol. Constructing a sidewalk on the Lafayette Street overcrossing may require widening the bridge structure or cantilevering the sidewalk along the northern edge. However, these improvements may be physically infeasible. The Project Developer does not control all of the Tasman East property, and, therefore, cannot be responsible for installing a sidewalk between the overcrossing and Calle Del Sol.

## Bicycle Facilities

**Impact TRA-8: Bicycle Facilities. The Project would provide a complete on-site on-street bicycle network and connections to the Bay Trail, San Tomas Aquino Creek Trail, Guadalupe River Trail, and other existing and planned bicycle facilities. (LTS)**

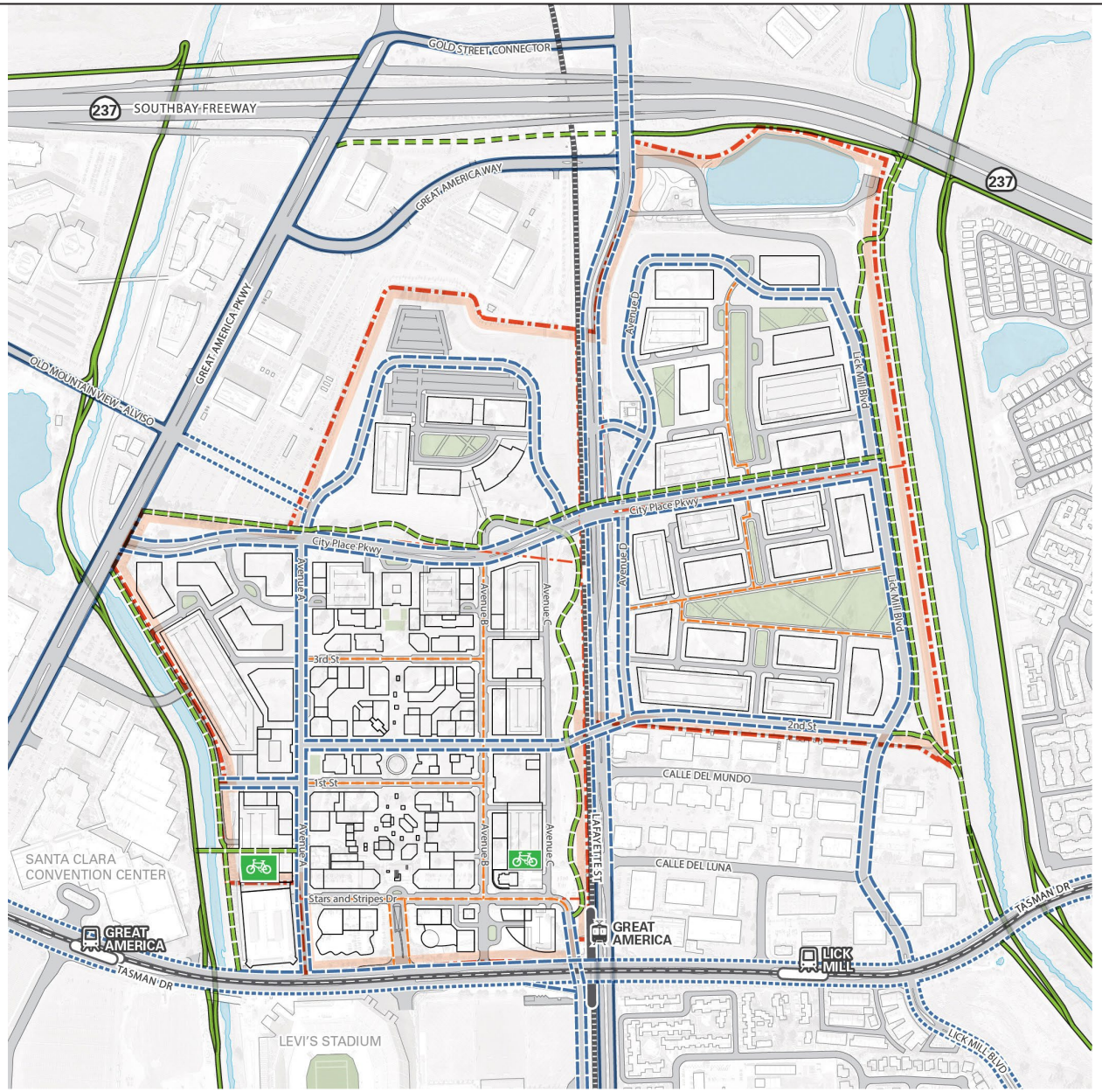
The City of Santa Clara has plans to support bicycle use in the Project area by constructing bike lanes on Lafayette Street, Tasman Drive, and Great America Parkway north of Great America Way. The Project will provide bicycle facilities with bike paths, bike lanes, and bike routes as shown in Figure 3.3-28. The Project will generate bicycle travel primarily by employees as a commute mode and as an access mode to transit. Therefore, on-site bicycle facilities would be needed to connect to the off-site bicycle facilities and to the transit stations.

The site plan shows bike lanes added to internal streets including City Place Parkway, 2nd Street, Avenue A, Avenue D, and Lick Mill Boulevard to provide a complete on-site, on-street bicycle network. Bicycle lanes would be added to Lafayette Street as part of the Project. The site is adjacent to the Guadalupe River, which has a paved bike path along the east bank and an unpaved path on the west bank adjacent to the site. The Project will include paving the path on the west bank on the section between Tasman Drive and SR 237. This path connects to the Bay Trail to the north of the site. It can also be used by bicycle commuters to the site traveling to and from locations to the south. The Project provides adequate bicycle access to the Bay Trail and points south along the Guadalupe River Trail.

## Transit Facilities

**Impact TRA-9: Transit Vehicle Capacity. The Project would generate public transit ridership that could use available transit capacity. (LTS)**

The bus and rail lines serving the site would have sufficient capacity to accommodate the added public transit ridership generated by the Project.




## LEGEND

**Existing Facilities**
- Existing Bike Path
- Existing Lane

**Proposed Facilities**
- Proposed Bike Path (Related)
- Proposed Bike Path (Others)
- Proposed Bike Lane (Off Site)
- Proposed Bike Lane (Others)
- Proposed Shared Bike Route
- Potential Bike Center Locations

**Transit**
- VTA Light Rail
- Capitol Corridor/ Altamont Commuter Express

**Boundaries**
- Site
- Parcel

1" = 800'

0' 200' 400' 800' 1600'

Source: City Place Santa Clara Master Community Plan (Figure 3-15: Bicycle Network), The Related Companies, September 2015

Source: Fehr & Peers, 2015.

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**Figure 3.3-28**
**City Place Santa Clara Master Community Plan - Bicycle Network**
City Place Santa Clara

## Public Transit Trip Estimates

The amount of public transit ridership generated by the Project was estimated by using the transit walk trips from the mixed-use trip generation estimates and assuming a 5 percent reduction in vehicle trips in the southern portion of the Project site within 0.5 mile (walking distance) of the Great America VTA light-rail station and the multimodal Great America station served by ACE commuter rail, Capitol Corridor commuter rail, and eight connecting ACE shuttle routes (further explanation is provided in the technical memorandum titled *City Place Santa Clara – Trip Generation Estimates* [Fehr & Peers, 2015] in Appendix 3.3-J). The Project would generate approximately 530 AM Peak Hour and 820 PM Peak Hour public transit riders, as shown in Table 3.3-38. With the TDM mitigation measure (TRA-1.1), the Project would generate additional transit riders, with approximately 590 during the AM Peak Hour and 870 during the PM Peak Hour.

**Table 3.3-38. Public Transit Ridership**

| | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|
| | In | Out | Total | In | Out | Total |
| Public Transit Ridership | 430 | 100 | 530 | 240 | 580 | 820 |
| Public Transit Ridership with TDM Mitigation[a] | 480 | 110 | 590 | 250 | 620 | 870 |

Notes:

a. The Project with the TDM mitigation measure would generate an additional 725 AM Peak-Hour and 685 PM Peak-Hour private shuttle and public transit riders. Public transit ridership's portion is estimated to be 8 percent (60 AM Peak-Hour and 50 PM Peak-Hour riders).

Source: Fehr & Peers, 2015.

## Transit Capacity Analysis

A public transit capacity analysis for commuter rail, light rail, and buses was conducted during the PM Peak Hour when the Project's estimated public transit ridership is highest. The PM Peak Hour public transit trips were assigned to the commuter rail lines and bus routes serving the Project site and added to each line's/route's existing peak-hour peak load to produce the peak-hour peak load with the Project. Next, this peak-hour peak load was divided by vehicle capacity to calculate the peak load factor with the Project. The peak load factor was compared to the peak vehicle load factor standards provided by VTA.[14] Standards of 1.0 were used for ACE and Capitol Corridor. The results are presented in Table 3.3-39 for the Project and Table 3.3-40 for the Project with the TDM mitigation.

A more detailed analysis was conducted for VTA light-rail Route 902 because it is the closest transit route to the Project site, operating along Tasman Drive. The transit analysis for Route 902 was conducted for both weekday AM and PM Peak Hours, by direction (northbound to Mountain View/southbound to Winchester Station) at both the Great America and Lick Mill Stations, the two closest stations to the Project Site. Under existing conditions, the peak load point for the entire Route 902 occurs at the Lick Mill Station in the AM Peak Hour in the northbound direction. In the PM, the route-wide peak load point occurs just south of the Project at Champion Station.

[14] OPS-PL-0059 Title VI System-Wide Service Standards Policies

**Table 3.3-39. Peak Hour Commuter Rail and Bus Route Capacity Analysis**

| Route | Existing Peak Load Factor | Project Boardings per Vehicle | Peak Load Factor with Project | Peak Load Factor Standard | Meets Standard? |
|---|---|---|---|---|---|
| **Commuter Rail** | | | | | |
| Capitol Corridor | 0.40 | 132 | 0.80 | 1.0 | Yes |
| ACE | 0.36 | 74 | 0.46 | 1.0 | Yes |
| **Express Bus** | | | | | |
| VTA 121 | 0.53 | 13 | 0.89 | 1.0 | Yes |
| VTA 140 | 0.62 | 12 | 0.94 | 1.0 | Yes |
| **Limited Bus** | | | | | |
| VTA 321 | 0.11 | 1 | 0.14 | 1.0 | Yes |
| VTA 330 | 0.39 | 19 | 0.91 | 1.0 | Yes |
| **Local Bus** | | | | | |
| VTA 55 | 0.57 | 9 | 0.82 | 1.2 | Yes |
| VTA 57 | 0.34 | 18 | 0.83 | 1.2 | Yes |
| VTA 60 | 0.33 | 6 | 0.49 | 1.2 | Yes |
| **ACE Shuttles** | | | | | |
| ACE Green (823) | 0.41 | 8 | 0.62 | 1.0 | Yes |

Source Fehr & Peers, 2015.

**Table 3.3-40. Peak Hour Commuter Rail and Bus Route Capacity Analysis with TDM Mitigation**

| Route | Existing Peak Load Factor | Project Boardings per Vehicle | Peak Load Factor with Project | Peak Load Factor Standard | Meets Standard? |
|---|---|---|---|---|---|
| **Commuter Rail** | | | | | |
| Capitol Corridor | 0.40 | 139 | 0.82 | 1.0 | Yes |
| ACE | 0.36 | 78 | 0.46 | 1.0 | Yes |
| **Express Bus** | | | | | |
| VTA 121 | 0.53 | 13 | 0.89 | 1.0 | Yes |
| VTA 140 | 0.62 | 13 | 0.97 | 1.0 | Yes |
| **Limited Bus** | | | | | |
| VTA 321 | 0.11 | 1 | 0.14 | 1.0 | Yes |
| VTA 330 | 0.39 | 20 | 0.94 | 1.0 | Yes |
| **Local Bus** | | | | | |
| VTA 55 | 0.57 | 9 | 0.82 | 1.2 | Yes |
| VTA 57 | 0.34 | 19 | 0.86 | 1.2 | Yes |
| VTA 60 | 0.33 | 6 | 0.49 | 1.2 | Yes |
| **ACE Shuttles** | | | | | |
| ACE Green (823) | 0.41 | 9 | 0.64 | 1.0 | Yes |

Source Fehr & Peers, 2015.

The existing peak load factors, the numbers of passengers generated by the Project (boardings) and the resulting peak load factors with the Project for both AM and PM Peak Hour, and both the northbound and southbound directions for light-rail Route 902 are shown in Table 3.3-41. This table includes the Peak Hour load factor as compared to the peak load factor standards provided by VTA. A similar table with the TDM mitigation is presented in Table 3.3-42.

**Table 3.3-41. Peak-Hour Light-Rail Route 902 Capacity Analysis**

| Station | Period (AM/PM) Direction (NB/SB)[a] | Existing Peak Load Factor | Project Boardings per Vehicle | Peak Load Factor with Project | Peak Load Factor Standard | Meets Standard? |
|---|---|---|---|---|---|---|
| **Great America Station** | | | | | | |
| | AM/NB | 0.48 | 29 | 0.86 | 1.2 | Yes |
| | AM/SB | 0.28 | 14 | 0.39 | 1.2 | Yes |
| | PM/NB | 0.40 | 25 | 0.72 | 1.2 | Yes |
| | PM/SB | 0.67 | 41 | 0.98 | 1.2 | Yes |
| **Lick Mill Station** | | | | | | |
| | AM/NB | 0.62 | 19 | 0.77 | 1.2 | Yes |
| | AM/SB | 0.28 | 9 | 0.50 | 1.2 | Yes |
| | PM/NB | 0.40 | 17 | 0.53 | 1.2 | Yes |
| | PM/SB | 0.63 | 27 | 1.15 | 1.2 | Yes |

Notes:
[a] NB = northbound direction of travel on Route 902; SB = southbound direction of travel on Route 902.
Source Fehr & Peers, 2015, existing peak load data for Route 902 for September 2014 provided by VTA, 2015.

**Table 3.3-42. Peak-Hour Light-Rail Route 902 Capacity Analysis with TDM Mitigation**

| Station | Period (AM/PM) Direction (NB/SB)[a] | Existing Peak Load Factor | Project Boardings per Vehicle | Peak Load Factor with Project | Peak Load Factor Standard | Meets Standard? |
|---|---|---|---|---|---|---|
| **Great America Station** | | | | | | |
| | AM/NB | 0.48 | 32 | 0.90 | 1.2 | Yes |
| | AM/SB | 0.28 | 15 | 0.40 | 1.2 | Yes |
| | PM/NB | 0.40 | 26 | 0.74 | 1.2 | Yes |
| | PM/SB | 0.67 | 44 | 1.01 | 1.2 | Yes |
| **Lick Mill Station** | | | | | | |
| | AM/NB | 0.62 | 22 | 0.78 | 1.2 | Yes |
| | AM/SB | 0.28 | 10 | 0.52 | 1.2 | Yes |
| | PM/NB | 0.40 | 18 | 0.54 | 1.2 | Yes |
| | PM/SB | 0.63 | 29 | 1.19 | 1.2 | Yes |

Notes:
[a] NB = northbound direction of travel on Route 902; SB = southbound direction of travel on Route 902.
Source Fehr & Peers, 2015, existing peak load data for Route 902 for September 2014 provided by VTA, 2015.

All bus and rail transit routes meet the standards established by their respective operating agencies. Thus, the Project would have ***less-than-significant*** impacts on the transit vehicle capacity of the routes that serve the Project area.

**Impact TRA-10: Great America Station Platform Passenger Capacity. The Project would generate additional ACE and Capitol Corridor rail riders, which could be accommodated within the passenger waiting area at Great America Station. (LTS)**

There is approximately 12,200 gsf of passenger waiting area on the platform at Great America Station. This equates to a capacity of 2,440 passengers assuming a crush capacity of 5 gsf per person. Under existing conditions, there are of 375 to 400 passengers (maximum) waiting for the ACE and Capitol Corridor trains during the evening peak hour. The platform waiting area is approximately sixteen percent full with the current passenger load. The Project would generate 132 additional Capitol Corridor passengers and 74 additional ACE passengers during the evening peak hour. This would increase the number of waiting passengers to approximately 606. The TDM mitigation measure would generate an additional 11 riders. The existing platform waiting area with a capacity of 2,440 waiting passengers can accommodate projected PM Peak Hour ridership of 617 passengers under existing with-Project conditions with TDM. This impact is considered ***less than significant***.

**Impact TRA-11: Transit Operations. The Project would generate considerable amounts of traffic congestion at intersections on bus and light-rail routes in the study area, thereby increasing the travel times of buses and light-rail vehicles. (SU)**

Intersections in the study area, especially those near the Project site, would operate at unacceptable levels with excessive delays to vehicles entering them due to the addition of Project traffic. These vehicles would include light-rail and public transit vehicles (buses and shuttles). Therefore, the Project would cause substantial delays to existing transit service, especially bus and shuttle operations providing access to ACE and Capitol Corridor passenger rail services at the Great America Station.

Light-rail vehicles travel on dedicated rights-of-way (tracks) within Tasman Drive and along North 1st Street. At signalized intersections, light-rail vehicles are given signal priority. The Project would not change this operating protocol; however, near the Project site, the addition of Project traffic could influence the effectiveness of the light-rail signal priority and have a significant impact on light-rail delay similar to bus delay described above.

The intersection mitigation measures would provide some reduction in the added bus and shuttle delays. Other potential mitigation measures include adding transit signal priority to all intersections on bus and shuttle routes operating at LOS E or F and adding bus only lanes. Right-of-way is not available for the extent of bus-only lanes needed to maintain bus/shuttle travel times. Signal priority would not be effective because of the amount of delay at the intersections. Since there are no feasible mitigation measures, the Project's impact on existing transit operations would be ***significant and unavoidable***.

## Emergency Access

**Impact TRA-12: Emergency Access. The Project may relocate an existing fire station to one of two location options on Great America Parkway. Either location would reduce emergency vehicle response times to locations north, west, and south of the site. Response times to locations to the east would increase 1.1 to 1.2 minutes, depending on the option. These increases are below the threshold. (LTS)**

A fire station is currently located at the intersection of Stars and Stripes Drive and the proposed Avenue B. The fire station may be relocated with development of Phase 2 on Parcel 4, with two possible relocation options: (1) east side of Great America Parkway just north of City Place Parkway (Base Access Scheme alignment) or (2) east side of Great America Parkway just north of the future driveway (north of Bunker Hill Lane). Relocation of the fire station along Great America Parkway would decrease response times to areas north, west and south of the Project site and increase response times for locations to the east. An evaluation of the changes in travel times from select locations (destinations) around the Project site was conducted to assess potential impacts of the fire station relocation on emergency response times. The methodology used to evaluate the response times is based upon average travel speeds and the ISO Response Time Calculation, using the formula:

$$T=0.65+1.7D$$

*T = Estimated Response Time in Minutes*
*D= Travel Distance*

Source: https://firechief.iso.com/FCWWeb/mitigation/ppc/3000/ppc3015.jsp

The results are presented in Tables 3.3-43 (Option 1) and Table 3.3-44 (Option 2). Intersections located along the primary routes from the fire stations to the local service area were selected as the destinations for this evaluation.

**Table 3.3-43 Change in Emergency Response Times – Option 1**

| | Route Length (miles) | | | Estimated Travel Time (minutes)[a] | | |
|---|---|---|---|---|---|---|
| Destination | Existing | Opt. 1 | Change | Existing | Opt. 1 | Change |
| SR 237 and Great America Way | 1.5 | 0.4 | -1.1 | 3.2 | 1.3 | -1.9 |
| Old Mountain View-Alviso Road and Great America Parkway | 1.1 | 0.1 | -1.0 | 2.5 | 0.8 | -1.7 |
| Great America Parkway and Tasman Drive | 0.6 | 0.4 | -0.2 | 1.7 | 1.3 | -0.4 |
| Tasman Drive and Lick Mill Boulevard | 0.7 | 1.4 | 0.7 | 1.8 | 3.0 | 1.2 |

a. https://firechief.iso.com/FCWWeb/mitigation/ppc/3000/ppc3015.jsp

Source: Arup. 2015. *Related City Place Santa Clara: City Place Internal Intersection Traffic Impact Analysis.* September 21.

**Table 3.3-44. Change in Emergency Response Times – Option 2**

| | Route Length (miles) | | | Estimated Travel Time (minutes)[a] | | |
|---|---|---|---|---|---|---|
| Destination | Existing | Opt. 2 | Change | Existing | Opt. 2 | Change |
| SR 237 and Great America Way | 1.5 | 0.6 | -0.9 | 3.2 | 1.7 | -1.5 |
| Old Mountain View-Alviso Road and Great America Parkway | 1.1 | 0.2 | -0.9 | 2.5 | 1.0 | -1.5 |
| Great America Parkway and Tasman Drive | 0.6 | 0.3 | -0.3 | 1.7 | 1.2 | -0.5 |
| Tasman Drive and Lick Mill Boulevard | 0.7 | 1.3 | 0.6 | 1.8 | 2.9 | 1.1 |

a. https://firechief.iso.com/FCWWeb/mitigation/ppc/3000/ppc3015.jsp

Source: Arup. 2015. *Related City Place Santa Clara: City Place Internal Intersection Traffic Impact Analysis.* September 21.

Both options would reduce emergency vehicle response times to destinations to the north, west, and south of the Project site. These reductions would be between 0.4 and 1.9 minutes. Both options would increase emergency vehicle response times to the destination to the east by 1.1 to 1.2 minutes. These emergency responses time increases are less than the 3-minute threshold. Therefore, the impact is ***less than significant***.

## Parking Analysis

**Impact TRA-13: Parking. The Project would provide a sufficient amount of vehicle and bicycle parking on-site. (LTS)**

Parking at City Place will include both on-street and off-street parking facilities. An assessment of the parking supply and demand was conducted to ensure that sufficient parking is provided. The parking assessment is contained in *Related City Place Santa Clara: City Place Internal Intersection Traffic Impact Analysis* (Arup, 2015) in Appendix I.

A set of parking supply rates was developed as part of the Master Community Plan. The rates are summarized in Table 3.3-45. The Master Community Plan parking supply rates are informed by the city code parking supply rates, with adjustments for the shared parking facilities and mixed-use nature of City Place. The City of Santa Clara code parking supply rates are included for information.

For Parcels 1, 2 and 3, parking would be provided in off-street parking facilities. For Parcels 4 and 5, on-street parking would be provided along Avenue A, Avenue B, Avenue C, 1st Street, 2nd Street, 3rd Street, and Stars and Stripes Drive. The on-street parking would be provided for short-term parking. Off-street parking facilities would be distributed across the parcels to ensure that the parking supply is provided close to the demand locations. Parking facilities would be distributed across the parcels based on the program and parking demands to ensure that convenient accessible parking is provided. Parking facilities would be designed to city standards and have sufficient access to limit the amount of on-street circulation required to access parking.

**Table 3.3-45. City Place Parking Supply Rates**

| Land Use | City of Santa Clara Code Parking Supply Rates | Master Community Plan Parking Supply Rates |
|---|---|---|
| Residential | 1.5 per unit | 1.5 per unit |
| Retail | 5.0 per 1,000 gsf | 4.5 per 1,000 gsf* |
| Office | 3.3 per 1,000 gsf | 3.0 per 1,000 gsf |
| Restaurants | 5.0 per 1,000 gsf | 1.5 per 1,000 gsf* |
| Entertainment | 5.0 per 1,000 gsf | 2.5 per 1,000 gsf* |
| Hotel | 1.0 per room | 1.0 per room |

* Additional parking spaces would be shared with adjacent land uses

Source: Related Master Community Plan Parking Supply Rates

Arup. 2015. *Related City Place Santa Clara: City Place Internal Intersection Traffic Impact Analysis.* September 21.

Table 3.3-46 provides a summary of the proposed parking supply for City Place by parcel. A total of 27,867 parking spaces would be provided at City Place.

**Table 3.3-46. Parking Supply for Parcels 1 through 5 (Scheme B)**

| Parcel | Land Use | Quantity (gsf/units/rooms) | Master Community Plan Parking Supply Rate | Parking Spaces |
|---|---|---|---|---|
| 1 | Office | 1,200,000 | 3.0 | 3,600 |
| 2 | Office | 1,960,000 | 3.0 | 5,880 |
| | Retail | 200,000 | 4.5 | 900 |
| 3 | Office | 720,000 | 3.0 | 2,160 |
| 4/5 | Residential | 200 units | 1.5 | 300 |
| | Retail | 1,137,000 | 4.5 | 5,117 |
| | Office | 2,804,400 | 3.0 | 8,413 |
| | Restaurants | 215,000 | 1.5 | 323 |
| | Entertainment | 190,000 | 2.5 | 475 |
| | Hotel | 700 rooms | 1.0 | 700 |
| | | | **Total** | **27,867** |

Source: Arup. 2015. *Related City Place Santa Clara: City Place Internal Intersection Traffic Impact Analysis*. September 21.

A shared parking analysis was conducted to estimate the overall peak parking demand for City Place, adjusting for both the temporal (time-of-day) and non-captive demands:

1. **Temporal** – Peak demand for parking would occur at different times of the day (i.e., peak demand for office would around 2:00 p.m., while peak demand for entertainment would be around 8:00 p.m.); and
2. **Non-Captive Ratio** – Accounts for the portion of parkers that visit the site for just one use. (An example of a captive patron is a retail shopper who also visits a restaurant and requires only one parking space.)

The analysis used parking demand rates from *ITE Parking Generation*, fourth edition. For temporal adjustments, Urban Land Institute (ULI) weekday adjustments were applied to the various land uses (*ULI Shared Parking*, second edition). The following was assumed for the non-captive adjustments:

- 75 percent of the restaurant trips originate from outside of the City Center (25 percent from internal trips—for example, office or retail users)
- 95 percent of the entertainment trips originate from outside of the City Center (5 percent from internal trips—for example, office or retail users)

Table 3.3-47 provides a summary of the parking demand analysis results, which indicate that the overall site peak parking demand would occur at 2:00 p.m. on a weekday.

**Table 3.3-47. City Place Peak Parking Demand**

| Parcel | Land Use | Total Parking Demand (no adjustment) | % of Total Demand at 2:00 p.m. | % of Non-Captive Demand | Adjusted Peak Parking Demand |
|---|---|---|---|---|---|
| 1 | Office | 2,964 | 100% | 100% | 2,964 |
| 2 | Office | 4,841 | 100% | 100% | 4,841 |
| | Retail | 792 | 95% | 100% | 752 |
| 3 | Office | 1,778 | 100% | 100% | 1,778 |
| 4/5 | Residential | 240 | 70% | 100% | 168 |
| | Retail | 4,503 | 95% | 100% | 4,277 |
| | Office | 6,927 | 100% | 100% | 6,927 |
| | Restaurants | 2,167 | 65% | 75% | 1,057 |
| | Entertainment | 1,332 | 55% | 95% | 696 |
| | Hotel | 518 | 60% | 100% | 311 |
| **Total** | | | | | **23,771** |

Source: Arup. 2015. *Related City Place Santa Clara: City Place Internal Intersection Traffic Impact Analysis*. September 21.

The overall peak parking demand from 23,771 vehicles can be accommodated with the proposed parking supply of 27, 867 spaces.[15]

## Bicycle Parking

The number of bicycle parking spaces for each use is based on *VTA Bicycle Technical Guidelines*, December2012, which are presented in Table 3.3-48.

[15] For the purposes of the parking demand analysis and to maximize the shared parking between different land uses, it is assumed that all of the parking spaces would be available for all land uses and that residential parking would not be gated or controlled. If residential parking is controlled, then adjustments to the parking supply may be required to ensure that sufficient parking supply is provided to meet the anticipated demands.

**Table 3.3-48. Bicycle Parking Supply**

| Parcel | Land Use | Area (gsf)/Employees | Rate | Class I Bike Lockers | Class II Bicycle Racks |
|---|---|---|---|---|---|
| 1 | Office | 1,200,000/4,440 | 1 per 6,000 gsf (75% Class I, 25% Class II) | 150 | 50 |
| 2 | Office | 1,960,000/7,260 | 1 per 6,000 gsf (75% Class I, 25% Class II) | 245 | 82 |
| | Retail | 200,000/440 | 1 Class I per 30 employees + 1 Class II per 6,000 gsf | 15 | 34 |
| 3 | Office | 720,000/2,670 | 1 per 6,000 gsf (75% Class I, 25% Class II) | 90 | 30 |
| 4 | Office | 2,546,400/9,420 | 1 per 6,000 gsf (75% Class I, 25% Class II) | 319 | 107 |
| | Hotel | 298,000/360 | 1 Class I per 30 rooms + 1 Class II per 30 employees | 10 | 12 |
| | Retail | 1,035,000/2,300 | 1 Class I per 30 employees + 1 Class II per 6,000 gsf | 77 | 173 |
| | Restaurants | 190,000/420 | 1 Class I per 30 employees + 1 Class II per 3,000 gsf | 14 | 64 |
| | Entertainment | 190,000/420 | 1 Class I per 30 employees + 1 Class II per 1,500 gsf | 14 | 127 |
| 5 | Office | 258,000/960 | 1 per 6,000 gsf (75% Class I, 25% Class II) | 33 | 11 |
| | Hotel | 280,000/340 | 1 Class I per 30 rooms + 1 Class II per 30 employees | 14 | 12 |
| | Retail | 62,000/140 | 1 Class I per 30 employees + 1 Class II per 6,000 gsf | 5 | 11 |
| | Restaurants | 25,000/60 | 1 Class I per 30 employees + 1 Class II per 3,000 gsf | 2 | 9 |
| | Residential | 200,000/10 | 1 Class I per 3 units + 1 Class II per 15 units | 67 | 14 |
| | **Total** | **9,164,400/29,240** | | **1,055** | **736** |

Source: Arup. 2015. *Related City Place Santa Clara: City Place Internal Intersection Traffic Impact Analysis*. September 21.

# Cumulative (2040) Conditions

This section presents the results of intersection and freeway segment LOS calculations under cumulative conditions with and without the Project. Cumulative (without-Project) conditions are defined as 2040 traffic volumes based on forecasts from the VTA traffic model, which contains Citywide development and roadway improvements expected to occur by 2040. Cumulative with-Project conditions are defined as cumulative without-Project conditions plus traffic generated by the build-out of the Project and transportation network infrastructure proposed by the Project. Significant cumulative intersection and freeway impacts are identified by comparing the LOS results for cumulative with-Project conditions to existing conditions and identifying locations that would change from an acceptable to an unacceptable

operating level or that would exceed the significance threshold for locations operating unacceptably under existing conditions. To determine whether the Project's contribution to these significant cumulative impacts is considerable, the LOS results for cumulative with-Project conditions are compared to the results for cumulative (no-project) conditions to ascertain whether the addition of Project traffic would exceed the significance thresholds and thus be cumulatively considerable.

## Roadway Improvements

Approved and funded transportation network improvements for cumulative conditions are presented in Appendix 3.3-D.

**Impact TRA-14: Signalized (Off-Site) Intersections in Cumulative with-Project Conditions. Increases in traffic associated with the Project under cumulative with-Project conditions would result in considerable contributions at signalized intersections operating at unacceptable levels of service during both peak hours. (SU)**

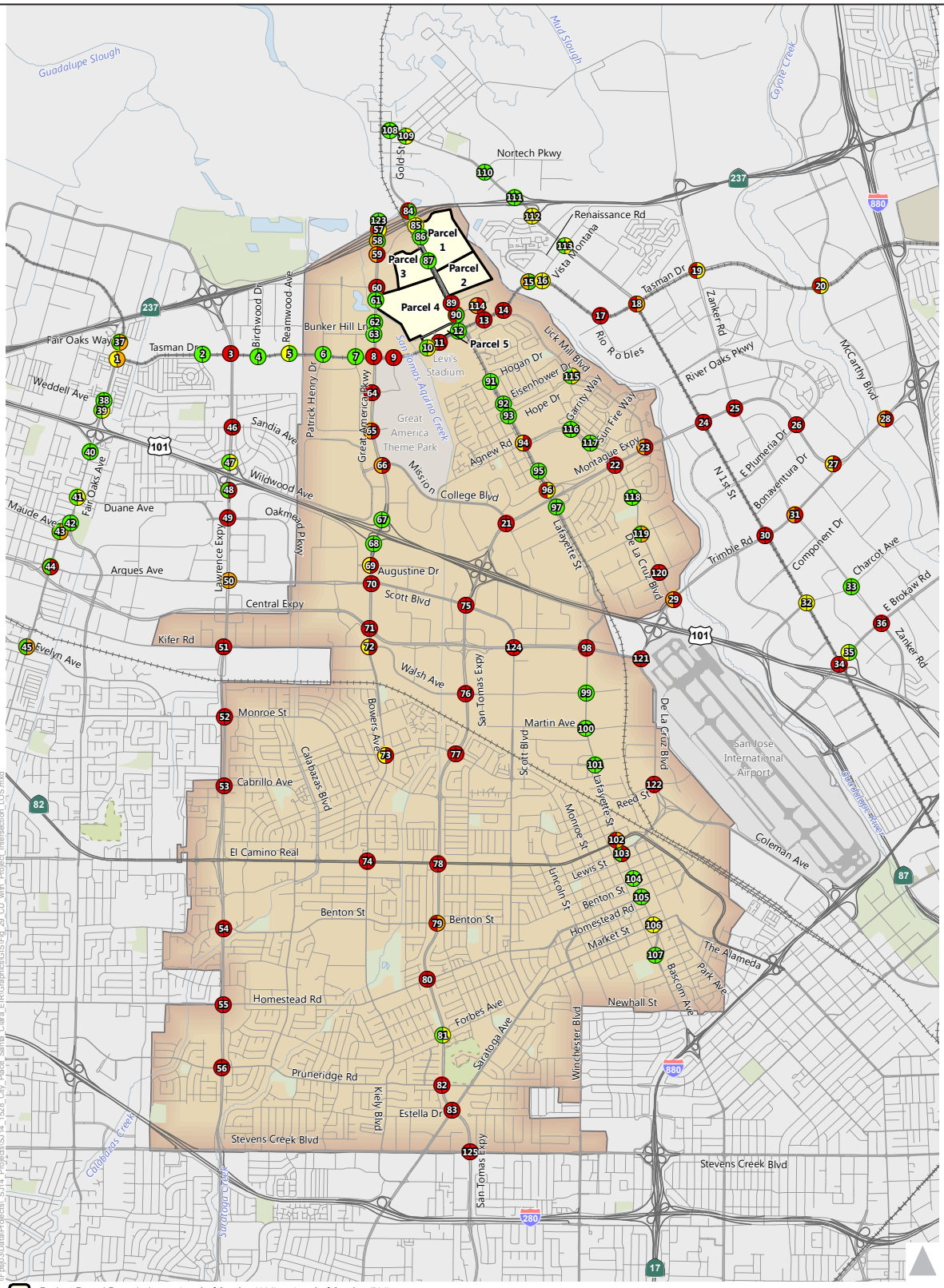
## Cumulative with-Project Signalized Intersection Analysis Results

LOS calculations were conducted to evaluate signalized intersection operations under cumulative conditions and cumulative with-Project conditions. The intersection volumes are shown in Appendix 3.3-C and results of the LOS analysis are summarized in Table 3.3-49. The corresponding LOS calculation sheets are included in Appendix 3.3-E. The results of the intersection LOS analysis for cumulative with-Project conditions are graphically shown in Figure 3.3-29.

Table 3.3-49 contains the intersection LOS results for existing conditions, cumulative conditions, and cumulative with-Project conditions, along with the projected increases in critical delay and critical V/C ratios between cumulative conditions and cumulative with-Project conditions. A comparison of intersection levels of service between existing conditions and cumulative with-Project conditions are used to identify cumulative impacts; a considerable contribution to the cumulative impact is based on the change in critical delay and critical V/C ratio between cumulative with-Project and cumulative conditions.

The results of the LOS calculations indicate that there will be cumulative impacts on 71 signalized study intersections and the Project's contribution would be considerable on all of them (see Table K-4 of Appendix 3.3-K for affected intersections and mitigation measures).

MITIGATION MEASURES. With Mitigation Measures TRA-1.1 (above) and TRA-14.1 (below), the impacts would be reduced, but many intersections would still have significant cumulative impacts. Therefore, the Project's cumulative impact on signalized intersection LOS would be ***significant and unavoidable***.




Source: Fehr & Peers, 2015.

Graphics ... 00333.14 (9-25-2015).tm

**Figure 3.3-29**
**Cumulative with Project Intersection Level of Service Results**
City Place Santa Clara

**Table 3.3-49. Cumulative with-Project Signalized Intersection LOS Results**

| | | | | Existing[c] | | Cumulative[d] | | Cumulative with Project | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] | Project Contribution |
| 1 | Fair Oaks Avenue/ Tasman Drive | Sunnyvale | AM | 28.0 | C | 39.1 | D | 38.8 | D | 0.006 | 1.1 | 1.7% |
| | | | PM | 35.0 | C | 46.6 | D | **56.1** | **E** | **0.108** | **17.8** | 8.1% |
| 2 | Vienna Drive/Tasman Drive | Sunnyvale | AM | 14.1 | B | 14.5 | B | 14.6 | B | 0.022 | 0.2 | 5.2% |
| | | | PM | 12.9 | B | 13.5 | B | 15.1 | B | 0.071 | 2.2 | 13.0% |
| 3 | Lawrence Expressway/ Tasman Drive | Santa Clara County (CMP) | AM | 41.0 | D | **176.2** | **F** | **>180** | **F** | **0.091** | **12.3** | 11.1% |
| | | | PM | 57.7 | E | **122.3** | **F** | **>180** | **F** | **0.213** | **128.1** | 16.1% |
| 4 | Birchwood Drive/ Tasman Drive | Sunnyvale | AM | 13.5 | B | 13.1 | B | 14.0 | B | 0.009 | 0.3 | 15.7% |
| | | | PM | 10.5 | B | 16.4 | B | 23.3 | C | 0.075 | 11.4 | 29.6% |
| 5 | Reamwood Avenue/ Tasman Drive | Sunnyvale | AM | 7.5 | A | 39.7 | D | 38.6 | D | 0.007 | 4.1 | 16.4% |
| | | | PM | 9.2 | A | 12.6 | B | 19.5 | B | 0.066 | 12.2 | 35.5% |
| 6 | Patrick Henry Drive/ Tasman Drive | Santa Clara | AM | 12.1 | B | 23.3 | C | 24.0 | C | 0.007 | 1.5 | 16.4% |
| | | | PM | 13.2 | B | 21.2 | C | 24.8 | C | 0.049 | 3.1 | 33.6% |
| 7 | Old Ironside Drive/ Tasman Drive | Santa Clara | AM | 13.2 | B | 14.9 | B | 21.0 | C | 0.184 | 19.0 | 17.0% |
| | | | PM | 12.7 | B | 18.8 | B | 25.5 | C | 0.122 | 10.4 | 35.5% |
| 8 | Great America Parkway/ Tasman Drive[i] | Santa Clara (CMP) | AM | 26.0 | C | **128.4** | **F** | **162.5** | **F** | **0.255** | **64.9** | 19.7% |
| | | | PM | 31.5 | C | **125.7** | **F** | **>180** | **F** | **0.580** | **276.3** | 35.9% |
| 9 | Convention Center/ Tasman Drive[i] | Santa Clara | AM | 16.2 | B | **125.3** | **F** | **131.0.** | **F** | **0.059** | **39.1** | 23.4% |
| | | | PM | 20.2 | C | 36.9 | D | **163.4** | **F** | **0.245** | **155.4** | 44.4% |
| 10 | Future Driveway (west of Centennial Boulevard)/ Tasman Drive | Santa Clara | AM | Future Signalized Intersection | | | | 5.7 | A | N/A | N/A | 27.5% |
| | | | PM | | | | | 38.2 | D | N/A | N/A | 48.7% |
| 11 | Centennial Boulevard/ Tasman Drive[i] | Santa Clara | AM | 19.8 | B | **111.1** | **F** | **167.9** | **F** | **0.302** | **93.0** | 29.8% |
| | | | PM | 19.8 | B | 46.1 | D | **>180** | **F** | **0.531** | **182.4** | 50.5% |

**Table 3.3-49. Cumulative with-Project Signalized Intersection LOS Results**

| | | | | Existing[c] | | Cumulative[d] | | Cumulative with Project | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] | Project Contribution |
| 12 | Future Driveway (east of Centennial Boulevard)/ Tasman Drive | Santa Clara | AM | Future Signalized Intersection | | | | 31.4 | C | N/A | N/A | 33.5% |
| | | | PM | | | | | 23.7 | C | N/A | N/A | 51.5% |
| 13 | Calle Del Sol/Tasman Drive[i] | Santa Clara | AM | 10.6 | B | 44.0 | D | **127.1** | **F** | **0.301** | **125.8** | 32.7% |
| | | | PM | 17.5 | B | 20.9 | C | **100.4** | **F** | **0.418** | **128.7** | 45.4% |
| 14 | Lick Mill Boulevard/Tasman Drive | Santa Clara | AM | 22.1 | C | **61.1** | **E** | **>180** | **F** | **0.537** | **207.8** | 33.0% |
| | | | PM | 24.4 | C | **89.7** | **F** | **>180** | **F** | **0.658** | **200.8** | 36.6% |
| 15 | Renaissance Drive/Tasman Drive | San José[j] | AM | 22.7 | C | 22.9 | C | **63.5** | **E** | **0.231** | **59.1** | 23.4% |
| | | | PM | 11.4 | B | 21.9 | C | 29.6 | C | 0.046 | 13.4 | 25.3% |
| 16 | Vista Montana/Tasman Drive | San José[j] | AM | 26.1 | C | 24.5 | C | 45.3 | D | 0.210 | 29.0 | 22.3% |
| | | | PM | 23.8 | C | 44.8 | D | 52.4 | D | 0.037 | 12.1 | 19.6% |
| 17 | Rio Robles/Tasman Drive | San José[j] | AM | 24.2 | C | 48.3 | D | **127.2** | **F** | **0.216** | **105.6** | 19.8% |
| | | | PM | 46.4 | D | **105.6** | **F** | **125.8** | **F** | **0.074** | **29.0** | 21.0% |
| 18 | North 1st Street/Tasman Drive | San José[j] | AM | 38.0 | D | **114.4** | **F** | **>180** | **F** | **0.216** | **92.3** | 10.0% |
| | | | PM | 42.0 | D | **60.3** | **E** | **75.4** | **E** | **0.091** | **18.0** | 11.2% |
| 19 | Zanker Road/Tasman Drive | San José[j] | AM | 37.8 | D | **66.7** | **E** | **92.3** | **F** | **0.110** | **37.6** | 6.6% |
| | | | PM | 41.4 | D | 48.4 | D | 50.8 | D | 0.038 | 4.2 | 5.1% |
| 20 | McCarthy Boulevard/Tasman Drive | Milpitas | AM | 34.2 | C | **102.5** | **F** | **146.6** | **F** | **0.124** | **56.3** | 9.1% |
| | | | PM | 31.8 | C | 49.6 | D | 51.8 | D | 0.022 | 5.6 | 4.6% |
| 21 | Mission College Boulevard/Montague Expressway | Santa Clara County (CMP) | AM | 79.5 | E | **>180** | **F** | **>180** | **F** | **0.035** | **4.1** | 2.2% |
| | | | PM | 76.1 | E | **166.3** | **F** | **175.0** | **F** | **0.033** | **16.4** | 2.2% |
| 22 | Agnew Road-De La Cruz Boulevard/Montague Expressway | Santa Clara County (CMP) | AM | 51.9 | D | **>180** | **F** | **>180** | **F** | **0.430** | **261.1** | 7.2% |
| | | | PM | 79.0 | E | **>180** | **F** | **>180** | **F** | **0.236** | **47.4** | 7.3% |

**Table 3.3-49. Cumulative with-Project Signalized Intersection LOS Results**

| | | | | Existing[c] | | Cumulative[d] | | Cumulative with Project | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] | Project Contribution |
| 23 | Lick Mill Boulevard/Montague Expressway | Santa Clara County | AM | 21.4 | C | 55.3 | E | 65.8 | E | 0.200 | 47.1 | 6.7% |
| | | | PM | 22.0 | C | 38.4 | D | **103.5** | **F** | **0.232** | **97.0** | 9.9% |
| 24 | North 1st Street/Montague Expressway | Santa Clara County (CMP)[j] | AM | 67.2 | E | **162.0** | **F** | **176.0** | **F** | **0.082** | **19.1** | 5.1% |
| | | | PM | **88.9** | **F** | **165.9** | **F** | **>180** | **F** | **0.108** | **22.3** | 6.5% |
| 25 | Zanker Road/Montague Expressway[i] | Santa Clara County (CMP)[j] | AM | 58.4 | E | **148.6** | **F** | **169.1** | **F** | **0.045** | **36.8** | 4.1% |
| | | | PM | **81.8** | **F** | **118.0** | **F** | **126.3** | **F** | **0.025** | **9.0** | 6.4% |
| 26 | Montague Expressway/Plumeria Drive-River Oaks Parkway | Santa Clara County[j] | AM | **89.7** | **F** | **105.5** | **F** | **110.6** | **F** | **0.061** | **4.6** | 3.8% |
| | | | PM | **170.5** | **F** | **167.5** | **F** | **164.0** | **F** | **0.026** | **-8.9** | 7.1% |
| 27 | Trimble Road/Montague Expressway | Santa Clara County (CMP)[j] | AM | 47.7 | D | 50.0 | D | 51.6 | D | 0.049 | 0.9 | 3.4% |
| | | | PM | 72.7 | E | **113.2** | **F** | **143.5** | **F** | **0.122** | **46.7** | 5.7% |
| 28 | McCarthy Boulevard-O'Toole Avenue/Montague Expressway | Santa Clara County (CMP)[j] | AM | 48.2 | D | 60.0 | E | 68.8 | E | 0.034 | 15.0 | 3.1% |
| | | | PM | 63.8 | E | **116.2** | **F** | **122.1** | **F** | **0.024** | **10.8** | 5.0% |
| 29 | De La Cruz Boulevard/Trimble Road | San José (CMP)[j] | AM | 28.9 | C | 34.2 | C | **76.9** | **E** | **0.312** | **83.3** | 12.4% |
| | | | PM | 31.1 | C | **151.1** | **F** | **>180** | **F** | **0.247** | **117.9** | 9.5% |
| 30 | North 1st Street/Trimble Road | San José (CMP)[j] | AM | 45.0 | D | **86.1** | **F** | **111.4** | **F** | **0.106** | **44.0** | 2.4% |
| | | | PM | 43.8 | D | **74.1** | **E** | **87.6** | **F** | **0.093** | **34.5** | 3.7% |
| 31 | Zanker Road/Trimble Road[i] | San José (CMP)[j] | AM | 38.2 | D | **59.3** | **E** | **78.0** | **E** | **0.116** | **36.0** | 1.4% |
| | | | PM | 38.5 | D | **79.4** | **E** | **82.7** | **F** | **0.034** | **13.9** | 3.1% |
| 32 | North 1st Street/Charcot Avenue | San José[j] | AM | 26.2 | C | 40.5 | D | 47.7 | D | 0.042 | 11.7 | 2.6% |
| | | | PM | 23.6 | C | 31.8 | C | 35.5 | D | 0.063 | 6.1 | 2.9% |

**Table 3.3-49. Cumulative with-Project Signalized Intersection LOS Results**

| | | | | Existing[c] | | Cumulative[d] | | Cumulative with Project | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] | Project Contribution |
| 33 | Zanker Road/Charcot Avenue[i] | San José[j] | AM | 22.0 | C | 25.0 | C | 25.8 | C | 0.037 | 0.3 | 2.0% |
| | | | PM | 23.9 | C | 30.5 | C | 33.1 | C | 0.039 | 4.3 | 3.8% |
| 34 | North 1st Street/Brokaw Road | San José (CMP)[j] | AM | 47.4 | D | **143.6** | **F** | **141.1** | **F** | **0.000** | **0.0** | 1.1% |
| | | | PM | **58.9** | **E** | **144.4** | **F** | **164.9** | **F** | **0.056** | **25.7** | 1.9% |
| 35 | US 101 NB Off-Ramp/Brokaw Road | San José (CMP)[j] | AM | 44.2 | D | 37.8 | D | 37.8 | D | 0.000 | 0.0 | 0.4% |
| | | | PM | 22.9 | C | 22.0 | C | 21.8 | C | 0.006 | 0.1 | 0.2% |
| 36 | Zanker Road/Brokaw Road[i] | San José (CMP)[j] | AM | 36.7 | D | **68.4** | **E** | **83.6** | **F** | **0.083** | **32.0** | 1.3% |
| | | | PM | 43.1 | D | **95.0** | **F** | **109.6** | **F** | **0.058** | **24.3** | 3.0% |
| 37 | Fair Oaks Avenue/Fair Oaks Way | Sunnyvale | AM | 14.9 | B | 17.9 | B | 18.0 | B | 0.000 | 0.0 | 0.8% |
| | | | PM | 20.4 | C | 44.4 | D | **71.5** | **E** | **0.085** | **34.8** | 5.4% |
| 38 | Fair Oaks Avenue/Weddell Drive | Sunnyvale | AM | 18.4 | B | 22.2 | C | 22.0 | C | 0.005 | -0.4 | 0.8% |
| | | | PM | 17.2 | B | 24.7 | C | 33.2 | C | 0.061 | 11.7 | 5.8% |
| 39 | Fair Oaks Avenue/US 101 NB Ramps | Sunnyvale | AM | 16.1 | B | 27.2 | C | 26.4 | C | 0.000 | 0.0 | 0.7% |
| | | | PM | 22.1 | C | 38.5 | D | 51.8 | D | 0.068 | 24.6 | 5.4% |
| 40 | Fair Oaks Avenue/E. Ahawanee Avenue | Sunnyvale | AM | 17.2 | B | 17.4 | B | 17.3 | B | 0.046 | 0.1 | 0.9% |
| | | | PM | 11.6 | B | 12.0 | B | 11.9 | B | 0.047 | 0.1 | 2.5% |
| 41 | Fair Oaks Avenue/Duane Avenue | Sunnyvale | AM | 27.3 | C | 28.2 | C | 29.5 | C | 0.033 | -0.1 | 0.9% |
| | | | PM | 30.1 | C | 36.8 | D | 39.0 | D | 0.045 | 3.2 | 2.1% |
| 42 | Fair Oaks Avenue/Wolfe Road | Sunnyvale | AM | 11.6 | B | 12.0 | B | 12.0 | B | 0.020 | 0.4 | 0.4% |
| | | | PM | 12.1 | B | 13.8 | B | 14.7 | B | 0.053 | 1.1 | 2.2% |
| 43 | Fair Oaks Avenue/Maude Avenue | Sunnyvale | AM | 28.8 | C | 33.7 | C | 34.5 | C | 0.019 | 1.2 | 0.0% |
| | | | PM | 27.3 | C | **61.5** | **E** | **73.6** | **E** | **0.049** | **18.1** | 2.6% |
| 44 | Fair Oaks Avenue/E. Arques Avenue | Sunnyvale | AM | 27.8 | C | 34.4 | C | 34.8 | C | 0.019 | 1.1 | 0.0% |
| | | | PM | 29.7 | C | **65.9** | **E** | **95.3** | **F** | **0.111** | **43.8** | 2.8% |
| 45 | Fair Oaks Avenue/Evelyn Avenue | Sunnyvale | AM | 27.8 | C | 28.7 | C | 29.3 | C | 0.021 | 0.7 | 0.0% |
| | | | PM | 26.0 | C | **56.4** | **E** | **62.4** | **E** | **0.021** | **8.8** | 2.4% |

**Table 3.3-49. Cumulative with-Project Signalized Intersection LOS Results**

| | | | | Existing[c] | | Cumulative[d] | | Cumulative with Project | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] | Project Contribution |
| 46 | Lawrence Expressway/Sandia Avenue | Santa Clara County | AM | 50.9 | D | 71.7 | E | **95.4** | **F** | **0.169** | **3.2** | 11.0% |
| | | | PM | 58.4 | E | 74.6 | E | **81.3** | **F** | **0.133** | **11.9** | 9.4% |
| 47 | Lawrence Expressway/US 101 NB Ramps | Santa Clara County | AM | 23.1 | C | 24.2 | C | 25.5 | C | 0.111 | 1.8 | 8.3% |
| | | | PM | 22.6 | C | 28.8 | C | 48.8 | D | 0.177 | 35.5 | 8.7% |
| 48 | Lawrence Expressway/US 101 SB Ramps | Santa Clara County | AM | 33.8 | C | 31.5 | C | 30.5 | C | 0.090 | -2.5 | 7.7% |
| | | | PM | **90.8** | **F** | 77.5 | E | **85.8** | **F** | **0.071** | **19.4** | 7.4% |
| 49 | Lawrence Expressway/Oakmead Parkway | Santa Clara County | AM | 46.9 | D | **81.2** | **F** | **128.2** | **F** | **0.119** | **70.4** | 7.9% |
| | | | PM | 52.1 | D | **90.2** | **F** | **141.7** | **F** | **0.132** | **87.0** | 7.1% |
| 50 | Lawrence Expressway/Arques Avenue[i] | Santa Clara County (CMP) | AM | 41.2 | D | 58.9 | E | 59.8 | E | 0.041 | 1.3 | 0.3% |
| | | | PM | 66.9 | E | 56.4 | E | 62.7 | E | 0.040 | 12.1 | 3.7% |
| 51 | Lawrence Expressway/Kifer Road | Santa Clara County | AM | 27.7 | C | 61.4 | E | **92.0** | **F** | **0.106** | **47.9** | 5.2% |
| | | | PM | 50.5 | D | **91.5** | **F** | **106.8** | **F** | **0.062** | **24.9** | 6.5% |
| 52 | Lawrence Expressway/Reed Avenue-Monroe Street[i] | Santa Clara County (CMP) | AM | **98.2** | **F** | **155.0** | **F** | **>180** | **F** | **0.096** | **42.9** | 4.8% |
| | | | PM | 76.2 | E | **174.2** | **F** | **>180** | **F** | **0.047** | **22.9** | 5.6% |
| 53 | Lawrence Expressway/Cabrillo Avenue | Santa Clara County | AM | 44.0 | D | **90.7** | **F** | **115.3** | **F** | **0.060** | **38.3** | 4.5% |
| | | | PM | 47.1 | D | **107.7** | **F** | **125.9** | **F** | **0.062** | **27.6** | 5.8% |
| 54 | Lawrence Expressway/Benton Street | Santa Clara County | AM | **80.6** | **F** | **125.5** | **F** | **141.9** | **F** | **0.047** | **23.9** | 3.0% |
| | | | PM | 47.3 | D | **121.8** | **F** | **140.2** | **F** | **0.046** | **35.1** | 4.4% |
| 55 | Lawrence Expressway/Homestead Road | Santa Clara County (CMP) | AM | 73.5 | E | **135.3** | **F** | **144.0** | **F** | **0.047** | **15.4** | 2.3% |
| | | | PM | 56.7 | E | **168.8** | **F** | **>180** | **F** | **0.076** | **33.6** | 2.9% |

**Table 3.3-49. Cumulative with-Project Signalized Intersection LOS Results**

| | | | | Existing[c] | | Cumulative[d] | | Cumulative with Project | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] | Project Contribution |
| 56 | Lawrence Expressway/Pruneridge Avenue | Santa Clara County | AM | 62.5 | E | **100.8** | **F** | **110.2** | **F** | **0.024** | **8.9** | 2.4% |
| | | | PM | 48.5 | D | **147.9** | **F** | 159.5 | F | 0.004 | -1.2 | 2.7% |
| 57 | Great America Parkway/SR 237 WB Ramps | Santa Clara (CMP) | AM | 20.9 | C | 27.9 | C | **90.4** | **F** | **0.299** | **96.1** | 47.7% |
| | | | PM | 18.9 | B | 20.0 | B | 42.7 | D | 0.361 | 30.9 | 48.4% |
| 58 | Great America Parkway/SR 237 EB Ramps | Santa Clara (CMP) | AM | 10.9 | B | 13.3 | B | 61.7 | E | 0.420 | 70.8 | 56.3% |
| | | | PM | 8.6 | A | 13.5 | B | 27.4 | C | 0.220 | 25.1 | 46.0% |
| 59 | Great America Parkway/Yerba Buena (Great America) Way | Santa Clara | AM | 27.0 | C | 29.9 | C | **76.9** | **E** | **0.293** | **60.0** | 49.8% |
| | | | PM | 31.4 | C | **59.0** | **E** | **165.9** | **F** | **0.392** | **161.9** | 37.8% |
| 60 | Great America Parkway/Old Mountain View-Alviso Road | Santa Clara | AM | 19.2 | B | 21.9 | C | **91.0** | **F** | **0.335** | **114.3** | 42.8% |
| | | | PM | 26.6 | C | 48.9 | D | **113.1** | **F** | **0.182** | **100.1** | 36.2% |
| 61 | Great America Parkway/Future Driveway (south of Old Mountain View-Alviso Road) | Santa Clara | AM | Future Signalized Intersection | | | | 22.1 | C | N/A | N/A | 52.7% |
| | | | PM | | | | | 22.8 | C | N/A | N/A | 47.6% |
| 62 | Great America Parkway/Future Driveway (north of Bunker Hill Lane) | Santa Clara | AM | Future Signalized Intersection | | | | 21.0 | C | N/A | N/A | 39.1% |
| | | | PM | | | | | 25.3 | C | N/A | N/A | 43.9% |
| 63 | Great America Parkway/Bunker Hill Lane | Santa Clara | AM | 12.9 | B | 14.5 | B | 13.7 | B | 0.040 | -3.9 | 22.0% |
| | | | PM | 15.6 | B | 16.8 | B | 18.9 | B | 0.192 | 4.6 | 31.4% |
| 64 | Great America Parkway/Old Glory Lane | Santa Clara | AM | 20.1 | C | **112.5** | **F** | **168.3** | **F** | **0.170** | **106.0** | 16.0% |
| | | | PM | 24.4 | C | **104.4** | **F** | **>180** | **F** | **0.337** | **281.1** | 29.3% |

**Table 3.3-49. Cumulative with-Project Signalized Intersection LOS Results**

| | | | | Existing[c] | | Cumulative[d] | | Cumulative with Project | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] | Project Contribution |
| 65 | Great America Parkway/Patrick Henry Drive | Santa Clara | AM | 19.7 | B | 52.7 | D | **65.1** | **E** | **0.061** | **32.6** | 13.3% |
| | | | PM | 25.2 | C | **88.6** | **F** | **>180** | **F** | **0.320** | **150.8** | 25.7% |
| 66 | Great America Parkway/Mission College Boulevard[i] | Santa Clara (CMP) | AM | 37.7 | D | 56.0 | E | 74.5 | E | 0.123 | 34.1 | 10.3% |
| | | | PM | 44.4 | D | 60.1 | E | **121.5** | **F** | **0.257** | **95.6** | 17.9% |
| 67 | Great America Parkway-Bowers Avenue/US 101 NB Ramps | Santa Clara (CMP) | AM | 18.7 | B | 18.4 | B | 18.8 | B | 0.071 | 1.1 | 8.7% |
| | | | PM | 12.6 | B | 14.2 | B | 15.4 | B | 0.052 | 2.1 | 18.1% |
| 68 | Bowers Avenue/US 101 SB Ramps | Santa Clara (CMP) | AM | 23.7 | C | 26.2 | C | 27.0 | C | 0.050 | 1.6 | 6.5% |
| | | | PM | 8.3 | A | 12.6 | B | 12.7 | B | 0.028 | 0.3 | 11.3% |
| 69 | Bowers Avenue/Augustine Drive[i] | Santa Clara | AM | 31.5 | C | 36.6 | D | 43.0 | D | 0.099 | 10.8 | 4.0% |
| | | | PM | 44.6 | D | **88.7** | **F** | **123.1** | **F** | **0.118** | **50.4** | 10.8% |
| 70 | Bowers Avenue/Scott Boulevard[i] | Santa Clara (CMP) | AM | 31.6 | C | 54.2 | D | **80.4** | **F** | **0.122** | **44.1** | 3.5% |
| | | | PM | 35.1 | D | 56.0 | E | **93.7** | **F** | **0.199** | **69.9** | 9.1% |
| 71 | Bowers Avenue/Central Expressway | Santa Clara County (CMP) | AM | 49.9 | D | **>180** | **F** | **>180** | **F** | **0.073** | **32.7** | 1.1% |
| | | | PM | 64.6 | E | **>180** | **F** | **>180** | **F** | **0.026** | **14.6** | 3.4% |
| 72 | Bowers Avenue/Kifer Road-Walsh Avenue | Santa Clara | AM | 20.5 | C | 35.7 | D | 43.6 | D | 0.064 | 13.0 | 2.3% |
| | | | PM | 25.4 | C | **68.7** | **E** | **84.0** | **F** | **0.058** | **25.1** | 4.9% |
| 73 | Bowers Avenue/Monroe Street | Santa Clara | AM | 33.2 | C | 36.6 | D | 37.1 | D | 0.019 | 0.4 | 1.8% |
| | | | PM | 38.8 | D | **116.1** | **F** | **172.9** | **F** | **0.161** | **68.2** | 3.2% |
| 74 | Bowers Avenue/El Camino Real[i] | Santa Clara (CMP) | AM | 30.4 | C | 75.9 | E | **81.1** | **F** | **0.021** | **9.0** | 0.8% |
| | | | PM | 35.5 | D | 76.2 | E | **82.6** | **F** | **0.030** | **12.4** | 1.5% |
| 75 | San Tomas Expressway/Scott Boulevard | Santa Clara County (CMP) | AM | 58.4 | E | **>180** | **F** | **>180** | **F** | **0.185** | **175.3** | 2.6% |
| | | | PM | 66.2 | E | **88.3** | **F** | **111.8** | **F** | **0.113** | **32.4** | 2.3% |

**Table 3.3-49. Cumulative with-Project Signalized Intersection LOS Results**

| | | | | Existing[c] | | Cumulative[d] | | Cumulative with Project | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] | Project Contribution |
| 76 | San Tomas Expressway/Walsh Avenue | Santa Clara County | AM | 60.2 | E | **163.9** | **F** | **>180** | **F** | **0.046** | **25.4** | 3.0% |
| | | | PM | 48.0 | D | **107.7** | **F** | **137.1** | **F** | **0.038** | **19.6** | 3.8% |
| 77 | San Tomas Expressway/Monroe Street | Santa Clara County (CMP) | AM | **103.7** | **F** | **>180** | **F** | **>180** | **F** | **0.058** | **24.0** | 2.6% |
| | | | PM | 55.2 | E | **90.6** | **F** | **98.3** | **F** | **0.018** | **7.8** | 3.6% |
| 78 | San Tomas Expressway/El Camino Real[i] | Santa Clara County (CMP) | AM | 71.9 | E | **>180** | **F** | **>180** | **F** | **0.051** | **24.1** | 2.1% |
| | | | PM | 57.3 | E | **118.5** | **F** | **126.9** | **F** | **0.029** | **15.0** | 3.0% |
| 79 | San Tomas Expressway/Benton Street[i] | Santa Clara County | AM | 41.9 | D | **138.1** | **F** | **156.9** | **F** | **0.049** | **28.4** | 2.6% |
| | | | PM | 37.8 | D | 57.9 | E | 58.3 | E | 0.007 | 1.1 | 3.7% |
| 80 | San Tomas Expressway/Homestead Road[i] | Santa Clara County (CMP) | AM | 53.0 | D | **144.4** | **F** | **167.3** | **F** | **0.083** | **37.3** | 2.4% |
| | | | PM | 57.9 | E | **109.4** | **F** | **120.4** | **F** | **0.045** | **17.1** | 3.1% |
| 81 | San Tomas Expressway/Forbes Avenue[i] | Santa Clara County | AM | 26.4 | C | 23.8 | C | 29.2 | C | 0.017 | 0.2 | 3.1% |
| | | | PM | 24.3 | C | 23.4 | C | 35.2 | D | 0.078 | 28.0 | 3.6% |
| 82 | San Tomas Expressway/Pruneridge Avenue[i] | Santa Clara County | AM | 69.1 | E | **>180** | **F** | **>180** | **F** | **0.049** | **24.1** | 2.5% |
| | | | PM | 50.8 | D | **82.0** | **F** | **87.5** | **F** | **0.021** | **8.7** | 3.3% |
| 83 | San Tomas Expressway/Saratoga Avenue[i] | Santa Clara County (CMP) | AM | 73.7 | E | **116.8** | **F** | **132.1** | **F** | **0.052** | **24.6** | 2.4% |
| | | | PM | 55.4 | E | **120.8** | **F** | 130.7 | F | -0.008 | -11.0 | 3.0% |
| 84 | Gold Street/Gold Street Connector | San José | AM | 22.7 | C | 24.3 | C | **96.7** | **F** | **0.638** | **84.6** | 49.8% |
| | | | PM | 21.7 | C | 21.8 | C | 32.5 | C | 0.409 | 16.5 | 43.0% |
| 85 | Lafayette Street/Great America Way | Santa Clara | AM | Unsignalized Intersection | | | | 46.8 | D | N/A | N/A | 63.0% |
| | | | PM | | | | | 39.0 | D | N/A | N/A | 51.7% |

**Table 3.3-49. Cumulative with-Project Signalized Intersection LOS Results**

| | | | | Existing[c] | | Cumulative[d] | | Cumulative with Project | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] | Project Contribution |
| 86 | Lafayette Street/Future Driveway (south of Great America Way) | Santa Clara | AM | Future Signalized Intersection | | | | 15.9 | B | N/A | N/A | 43.3% |
| | | | PM | | | | | 18.2 | B | N/A | N/A | 51.2% |
| 87 | Lafayette Street/Future Urban Interchange | Santa Clara | AM | Future Signalized Intersection | | | | 32.4 | C | N/A | N/A | 69.7% |
| | | | PM | | | | | 29.9 | C | N/A | N/A | 78.3% |
| 90 | Lafayette Street/Calle De Luna | Santa Clara | AM | 15.5 | B | 17.9 | B | **105.5** | **F** | **0.617** | **106.7** | 56.9% |
| | | | PM | 19.2 | B | 18.5 | B | 26.4 | C | 0.379 | 12.4 | 60.0% |
| 91 | Lafayette Street/Hogan Drive | Santa Clara | AM | 9.8 | A | 9.5 | A | 13.0 | B | 0.455 | 7.2 | 51.0% |
| | | | PM | 10.5 | B | 9.8 | A | 12.7 | B | 0.335 | 6.8 | 51.0% |
| 92 | Lafayette Street/Eisenhower Drive | Santa Clara | AM | 10.4 | B | 9.8 | A | 34.9 | C | 0.469 | 33.4 | 47.4% |
| | | | PM | 8.1 | A | 7.5 | A | 9.5 | A | 0.250 | 3.2 | 52.5% |
| 93 | Lafayette Street/Hope Drive | Santa Clara | AM | 20.5 | C | 19.3 | B | 29.6 | C | 0.467 | 17.6 | 43.3% |
| | | | PM | 13.7 | B | 17.7 | B | 29.1 | C | 0.363 | 19.1 | 42.3% |
| 94 | Lafayette Street/Agnew Road | Santa Clara | AM | 38.7 | D | 36.6 | D | 51.0 | D | 0.452 | 24.0 | 38.9% |
| | | | PM | 41.0 | D | 43.9 | D | **87.0** | **F** | **0.384** | **71.0** | 35.8% |
| 95 | Lafayette Street/Palm Drive | Santa Clara | AM | 7.2 | A | 7.0 | A | 12.6 | B | 0.435 | 9.2 | 45.4% |
| | | | PM | 14.3 | B | 13.0 | B | 12.0 | B | 0.237 | -0.4 | 42.6% |
| 96 | Lafayette Street/Montague Expressway WB Ramps | Santa Clara | AM | 34.1 | C | 41.4 | D | **111.5** | **F** | **0.510** | **86.2** | 40.3% |
| | | | PM | 26.1 | C | 38.2 | D | 37.7 | D | 0.121 | 4.6 | 37.9% |
| 97 | Lafayette Street/Montague Expressway EB Ramps | Santa Clara | AM | 14.0 | B | 13.0 | B | 13.2 | B | 0.177 | 0.6 | 25.7% |
| | | | PM | 13.0 | B | 11.6 | B | 12.3 | B | 0.130 | 1.6 | 34.7% |
| 98 | Lafayette Street/Central Expressway[9] | Santa Clara County (CMP) | AM | 60.5 | E | **>180** | **F** | **>180** | **F** | **0.058** | **16.5** | 5.8% |
| | | | PM | 63.5 | E | **115.5** | **F** | **127.0** | **F** | **0.028** | **16.6** | 7.6% |

**Table 3.3-49. Cumulative with-Project Signalized Intersection LOS Results**

| | | | | Existing[c] | | Cumulative[d] | | Cumulative with Project | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] | Project Contribution |
| 99 | Lafayette Street/Walsh Avenue | Santa Clara | AM | 12.7 | B | 14.1 | B | 16.1 | B | 0.084 | 3.1 | 11.1% |
| | | | PM | 19.2 | B | 20.5 | C | 21.9 | C | 0.048 | 2.2 | 12.6% |
| 100 | Lafayette Street/Martin Avenue | Santa Clara | AM | 20.0 | B | 23.3 | C | 24.9 | C | 0.076 | 2.5 | 9.2% |
| | | | PM | 19.6 | B | 25.2 | C | 26.4 | C | 0.048 | 1.9 | 9.6% |
| 101 | Lafayette Street/Mathew Street-Memorex Drive | Santa Clara | AM | 9.7 | A | 13.1 | B | 18.1 | B | 0.078 | 6.7 | 11.4% |
| | | | PM | 10.1 | B | 11.8 | B | 12.4 | B | 0.024 | 0.9 | 12.8% |
| 102 | Lafayette Street/El Camino Real[9] | Santa Clara (CMP) | AM | 41.7 | D | **87.4** | **F** | **118.9** | **F** | **0.122** | **50.0** | 6.0% |
| | | | PM | 39.6 | D | 64.3 | E | 78.8 | E | 0.059 | 19.1 | 6.3% |
| 103 | Lafayette Street/Lewis Street | Santa Clara | AM | 9.5 | A | 8.1 | A | 8.0 | A | 0.071 | 0.0 | 13.0% |
| | | | PM | 37.2 | D | **122.0** | **F** | **141.2** | **F** | **0.071** | **31.0** | 8.9% |
| 104 | Lafayette Street/Benton Street | Santa Clara | AM | 18.4 | B | 17.5 | B | 17.5 | B | 0.055 | 0.1 | 11.2% |
| | | | PM | 17.1 | B | 17.7 | B | 18.3 | B | 0.029 | 0.7 | 8.9% |
| 105 | Lafayette Street/Homestead Road | Santa Clara | AM | 10.2 | B | 10.3 | B | 10.3 | B | 0.054 | 0.1 | 11.9% |
| | | | PM | 10.9 | B | 10.1 | B | 10.3 | B | 0.025 | 0.0 | 9.7% |
| 106 | Lafayette Street/Market Street | Santa Clara | AM | 34.3 | C | 37.0 | D | 39.8 | D | 0.060 | 3.1 | 12.5% |
| | | | PM | 28.3 | C | 37.1 | D | 41.6 | D | 0.042 | 3.9 | 9.9% |
| 107 | Lafayette Street/Poplar Street | Santa Clara | AM | 13.8 | B | 13.3 | B | 13.4 | B | 0.039 | 0.5 | 14.5% |
| | | | PM | 10.1 | B | 10.2 | B | 10.3 | B | 0.032 | 0.3 | 12.1% |
| 110 | North 1st Street/Nortech Parkway | San José | AM | 13.9 | B | 11.6 | B | 11.2 | B | 0.021 | -0.4 | 5.0% |
| | | | PM | 20.1 | C | 18.1 | B | 16.8 | B | 0.055 | -1.4 | 24.8% |
| 111 | North 1st Street/SR 237 WB Ramps | San José (CMP)[j] | AM | 15.6 | B | 16.6 | B | 18.4 | B | 0.084 | 1.3 | 6.5% |
| | | | PM | 20.2 | C | 24.6 | C | 27.0 | C | 0.055 | 3.3 | 12.3% |
| 112 | North 1st Street/SR 237 EB Ramps[i] | San José (CMP)[j] | AM | 24.8 | C | 50.9 | D | 54.2 | D | 0.010 | 3.9 | 0.5% |
| | | | PM | 21.3 | C | 30.8 | C | 39.5 | D | 0.083 | 11.5 | 8.7% |
| 113 | North 1st Street/Vista Montana | San José[j] | AM | 30.8 | C | 27.4 | C | 27.4 | C | 0.004 | 0.0 | 0.3% |
| | | | PM | 36.1 | D | 37.9 | D | 38.1 | D | 0.006 | 0.4 | 1.6% |

**Table 3.3-49. Cumulative with-Project Signalized Intersection LOS Results**

| | | | | Existing[c] | | Cumulative[d] | | Cumulative with Project | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] | Project Contribution |
| 115 | Lick Mill Boulevard/Hope Drive | Santa Clara | AM | 26.6 | C | 25.9 | C | 23.6 | C | 0.08 | -12 | 27.0% |
| | | | PM | 23.6 | C | 27.3 | C | 36.0 | D | 0.268 | 13.5 | 25.7% |
| 117 | Agnew Road/Sun Fire Way | Santa Clara | AM | 10.4 | B | 10.6 | B | 10.6 | B | 0.000 | 0.0 | 0.0% |
| | | | PM | 17.4 | B | 16.6 | B | 15.1 | B | 0.086 | -1.6 | 12.3% |
| 118 | De La Cruz Boulevard/Greenwood Drive | Santa Clara | AM | 9.3 | A | 7.6 | A | 7.4 | A | 0.217 | -0.6 | 38.4% |
| | | | PM | 8.2 | A | 7.3 | A | 6.9 | A | 0.064 | 0.1 | 28.9% |
| 119 | De La Cruz Boulevard/Aldo Avenue | Santa Clara | AM | 16.5 | B | 16.2 | B | 16.7 | B | 0.222 | -1.7 | 30.3% |
| | | | PM | 16.0 | B | 49.8 | D | **66.0** | **E** | **0.078** | **27.5** | 21.3% |
| 120 | De La Cruz Boulevard/Laurelwood Road | Santa Clara | AM | 15.9 | B | **55.1** | **E** | **>180** | **F** | **0.261** | **193.6** | 26.6% |
| | | | PM | 16.7 | B | **122.4** | **F** | **>180** | **F** | **0.173** | **92.3** | 19.9% |
| 121 | De La Cruz Boulevard/Central Expressway[i] | Santa Clara County (CMP) | AM | **115.7** | **F** | **>180** | **F** | **>180** | **F** | **0.159** | **67.3** | 2.4% |
| | | | PM | 43.7 | D | **>180** | **F** | **>180** | **F** | **0.060** | **231.0** | 3.6% |
| 122 | De La Cruz Boulevard/Reed Avenue | Santa Clara | AM | 12.2 | B | **>180** | **F** | **>180** | **F** | **0.048** | **32.0** | 1.9% |
| | | | PM | 14.3 | B | **90.2** | **F** | **91.5** | **F** | **0.021** | **8.9** | 3.8% |
| 123 | Great America Parkway/Gold Street Connector | Santa Clara | AM | 11.8 | B | 11.5 | B | 22.7 | C | 0.519 | 8.8 | 49.8% |
| | | | PM | 13.1 | B | 13.8 | B | 12.8 | B | 0.083 | -2.5 | 36.9% |
| 124 | Scott Boulevard/Central Expressway[i] | Santa Clara County (CMP) | AM | 45.9 | D | **149.0** | **F** | **156.1** | **F** | **0.078** | **2.4** | 0.1% |
| | | | PM | 71.7 | E | **>180** | **F** | **>180** | **F** | **0.082** | **57.3** | 1.5% |
| 125 | San Tomas Expressway/Stevens Creek Boulevard[i] | Santa Clara County (CMP) | AM | 63.5 | E | **>180** | **F** | **>180** | **F** | **0.033** | **14.2** | 1.6% |
| | | | PM | 59.9 | E | **142.6** | **F** | **147.8** | **F** | **-0.104** | **11.2** | 2.0% |

**Table 3.3-49. Cumulative with-Project Signalized Intersection LOS Results**

| | | | | Existing[c] | | Cumulative[d] | | Cumulative with Project | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] | Project Contribution |

Notes:

a. CMP = Congestion Management Program intersection (VTA).

b. AM = morning peak hour, PM = evening peak hour

c. "Existing" presents the delay and LOS for intersections, using existing geometry plus any approved and funded transportation projects and existing traffic counts plus project trips from projects that are currently under construction (see Appendix 3.3-B and Appendix 3.3-D).

d. "Cumulative" presents the delay and LOS for intersections, using 2040 geometry and traffic volumes estimated using the VTA travel demand model.

e. Whole intersection weighted average control delay expressed in seconds per vehicle, calculated using methods described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County conditions for signalized intersections.

f. LOS = Level of service. LOS calculations conducted using the TRAFFIX analysis software packages, which applies the methods described in the 2000 *Highway Capacity Manual*.

g. Change in critical volume-to-capacity ratio between cumulative without-Project and cumulative with-Project conditions.

h. Change in average critical movement delay between cumulative without-Project and cumulative with-Project conditions.

i. Geometry has been modified to include the improvements for projects under construction and planned under Cumulative conditions as outlined in Appendix 3.3-D.

j. An LOS D threshold is used for study intersections within San José, including CMP designated intersections. Santa Clara County intersections in San José use an LOS E threshold.

k. Maximum left-/right-turn lane or through-lane queuing in excess of available/potential storage at driveway entrances (intersections #10, 11, 12, 61, 62, 85, 86, and 87) during the morning and evening peak hours will most likely result in a worse LOS than calculated. These queues would require multiple traffic signal cycles to clear and could extend upstream and affect nearby intersections.

**Bold** text indicates unacceptable operations according to the jurisdiction's LOS standard.

**Bold and highlighted** indicates a significant impact.

Source: Fehr & Peers, September 2015.

## Intersection Improvements

*TRA-14.1: Signalized Intersection Improvements.* The intersection improvements and off-setting mitigation measures summarized in Table 3.3-20 shall be implemented and Project Developer shall pay the fair-share contributions for the mitigation measures summarized in Table 3.3-20, The Project Developer shall also pay the fair-share contribution for the additional intersections or off-setting mitigation measure identified in Table 3.3-50. The improvements will reduce vehicle delays and fully mitigate cumulative impacts at several intersections by allowing the intersections to operate at acceptable levels, with delays that would be less than they would be under no-project conditions, or with less than a 4-second increase in critical delay for intersections that operate at unacceptable levels.

Table 3.3-50 also contains physical improvements for select intersections that will reduce the delay, but not to less than no-project conditions such that the Project's effects would remain cumulatively considerable.

Some of the intersection improvements would require ROW acquisition. A preliminary review of ROW constraints was done by viewing aerial photography as a part of the mitigation measure feasibility assessment. An intersection was identified as having ROW constraints if the mitigation measure would include widening the roadway or relocating aboveground utilities. (Use of the center median and "pork-chop" islands was not considered as roadway widening.) If the removal of bicycle facilities was required, the ROW required was defined as "possible." If the City makes a final determination that a portion or all of an improvement or mitigation is not feasible because ROW cannot be acquired or for other reasons, the improvement, or infeasible portion, shall not be implemented and, if none of the improvement is feasible, that intersection shall be considered to have "no feasible mitigation."

LOS calculations were conducted for the intersections with mitigation measures. The results are presented in Table 3.3-50. The conclusions are:

- Nine intersections located within City of Santa Clara jurisdiction would have impacts reduced to a ***less-than-significant*** level with implementation of the mitigation measures in Table 3.3-50.
    - Intersection 13: Calle Del Sol/Tasman Drive
    - Intersection 57: Great America Parkway/SR 237 WB Ramps
    - Intersection 70: Bowers Avenue/Scott Boulevard
    - Intersection 73: Bowers Avenue/Monroe Street
    - Intersection 74: Bowers Avenue/El Camino Real
    - Intersection 94: Lafayette Street/Agnew Road
    - Intersection 96: Lafayette Street/Montague Expressway WB Ramps
    - Intersection 119: De La Cruz Boulevard/Aldo Avenue
    - Intersection 120: De La Cruz Boulevard/Laurelwood Road

- Ten intersections located within City of Santa Clara jurisdiction could be partially mitigated with implementation of the mitigation measures in Table 3.3-50, but the impact would remain ***significant and unavoidable*:**
    - Intersection 8: Great America Parkway/Tasman Drive
    - Intersection 14: Lick Mill Boulevard/Tasman Drive
    - Intersection 59: Great America Parkway/Yerba Buena (Great America) Way
    - Intersection 60: Great America Parkway/Old Mountain View-Alviso Road
    - Intersection 64: Great America Parkway/Old Glory Lane
    - Intersection 65: Great America Parkway/Patrick Henry Drive
    - Intersection 66: Great America Parkway/Mission College Boulevard
    - Intersection 72: Bowers Avenue/Kifer Road-Walsh Avenue
    - Intersection 90: Lafayette Street/Calle De Luna
    - Intersection 102: Lafayette Street/El Camino Real
- Five intersections located within City of Santa Clara jurisdiction have no feasible mitigation measure; therefore, the impact would remain ***significant and unavoidable*:**
    - Intersection 9: Convention Center/Tasman Drive
    - Intersection 11: Centennial Boulevard/Tasman Drive
    - Intersection 69: Bowers Avenue/Augustine Drive
    - Intersection 103: Lafayette Street/Lewis Street
    - Intersection 122: De La Cruz Boulevard/Reed Avenue
- Forty-seven intersections are located outside of City of Santa Clara jurisdiction, and implementation of the mitigation measure cannot be guaranteed; therefore, the impact would remain ***significant and unavoidable*:**
    - Twelve intersections would have operations returned to an acceptable LOS with the identified mitigation in Table 3.3-50.
        - Intersection 1: Fair Oaks Avenue/Tasman Drive
        - Intersection 17: Rio Robles/Tasman Drive
        - Intersection 34: North 1st Street/Brokaw Road
        - Intersection 36: Zanker Road/Brokaw Road
        - Intersection 37: Fair Oaks Avenue/Fair Oaks Way
        - Intersection 43: Fair Oaks Avenue/Maude Avenue
        - Intersection 45: Fair Oaks Avenue/Evelyn Avenue
        - Intersection 48: Lawrence Expressway/US 101 SB Ramps
        - Intersection 55: Lawrence Expressway/Homestead Road
        - Intersection 80: San Tomas Expressway/Homestead Road
        - Intersection 83: San Tomas Expressway/Saratoga Avenue
        - Intersection 84: Gold Street/Gold Street Connector

**Table 3.3-50. Cumulative with-Project Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Cumulative Impact Only | Peak Hour | Delay and LOS with Mitigation Measure | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Delay[g] | LOS | Sig?[h] |
| 1 | Fair Oaks Avenue/ Tasman Drive | Sunnyvale | Reconfigure the eastbound approach to include one left-turn lane, one through lane, and one shared through/right-turn lane. | Possible | % of Total Traffic | x | AM | 38.8 | D | SU |
| | | | | | | | PM | 52.0 | D | SU |
| 3 | Lawrence Expressway/ Tasman Drive | Santa Clara County (CMP) | No feasible mitigation (no right-of-way is available). | N/A | 0% | | AM | --- | --- | SU |
| | | | | | | | PM | --- | --- | SU |
| 8 | Great America Parkway/ Tasman Drive* | Santa Clara (CMP) | Partial Mitigation: Add a southbound right-turn lane and add a third westbound left-turn lane. | Yes | 100% | | AM | **149.8** | **F** | SU |
| | | | | | | | PM | **>180** | **F** | SU |
| 9 | Convention Center/Tasman Drive* | Santa Clara | No feasible mitigation (no right-of-way is available). | N/A | 0% | | AM | --- | --- | SU |
| | | | | | | | PM | --- | --- | SU |
| 11 | Centennial Boulevard/ Tasman Drive* | Santa Clara | No feasible mitigation (no right-of-way is available). | N/A | 0% | | AM | --- | --- | SU |
| | | | | | | | PM | --- | --- | SU |
| 13 | Calle Del Sol/Tasman Drive* | Santa Clara | Add a westbound right-turn lane. Reconfigure southbound approach to include two left-turn lanes and one right-turn lane with overlap phase. | Yes | 100% | | AM | 43.1 | D | LTS |
| | | | | | | | PM | 23.3 | C | LTS |
| 14 | Lick Mill Boulevard/ Tasman Drive | Santa Clara | Partial Mitigation: Reconfigure northbound and southbound approaches to two left-turn lanes, one through lane, and one right-turn lane. Change phasing on northbound/southbound approaches from split to protected. Add a second westbound left-turn lane. | Yes | 100% | | AM | **154.9** | **F** | SU |
| | | | | | | | PM | **115.7** | **F** | SU |
| 15 | Renaissance Drive/Tasman Drive | San José[b] | No feasible mitigation (no right-of-way is available).<br><br>Off-setting Mitigation: Light-rail operations capital improvements.** | No | Pay North San José fee or fair-share contribution of off-setting mitigation | x | AM | --- | --- | SU |
| | | | | | | | PM | --- | --- | SU |

**Table 3.3-50. Cumulative with-Project Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Cumulative Impact Only | Peak Hour | Delay and LOS with Mitigation Measure | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Delay[g] | LOS | Sig?[h] |
| 17 | Rio Robles/Tasman Drive | San José[b] | Widen the southbound approach to include one left-turn lane and one shared through/right-turn lane. Change phasing on the northbound/southbound approaches from split to protected. | Yes | Pay North San José fee or fair-share contribution of off-setting mitigation | | AM | 44.3 | D | SU |
| | | | | | | | PM | **60.0** | **E** | SU |
| 18 | North 1st Street/Tasman Drive | San José[b] | No feasible mitigation (no right-of-way is available).<br><br>Off-setting Mitigation: A new bus/shuttle stop (including right-of-way) is a proposed improvement at this location.** | Yes | Pay North San José fee or fair-share contribution of off-setting mitigation | | AM | **---** | **---** | SU |
| | | | | | | | PM | **---** | **---** | SU |
| 19 | Zanker Road/Tasman Drive | San José[b] | No feasible mitigation (no right-of-way is available).<br><br>Off-Setting Mitigation: Light-rail operations capital improvements. | No | Pay North San José fee or fair-share contribution of off-setting mitigation | x | AM | **---** | **---** | SU |
| | | | | | | | PM | --- | --- | SU |
| 20 | McCarthy Boulevard/Tasman Drive | Milpitas | No feasible mitigation (no right-of-way is available). | N/A | 0% | x | AM | **---** | **---** | SU |
| | | | | | | | PM | --- | --- | SU |
| 21 | Mission College Boulevard/ Montague Expressway | Santa Clara County (CMP) | Partial Mitigation: Add a third southbound left-turn lane (VTP 2040 #X14). | Possible | % of Total Traffic | | AM | **>180** | **F** | SU |
| | | | | | | | PM | **141.6** | **F** | SU |
| | | | An interchange is identified at this intersection as a Tier 2 priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009).** | Yes | % of Total Traffic | | AM | **---** | **---** | SU |
| | | | | | | | PM | **---** | **---** | SU |
| 22 | Agnew Road-De La Cruz Boulevard/ Montague Expressway | Santa Clara County (CMP) | Partial Mitigation: Add a second northbound left-turn lane. | Possible | 100% | | AM | **>180** | **F** | SU |
| | | | | | | | PM | **>180** | **F** | SU |

**Table 3.3-50. Cumulative with-Project Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Cumulative Impact Only | Peak Hour | Delay and LOS with Mitigation Measure: Delay[g] | LOS | Sig?[h] |
|---|---|---|---|---|---|---|---|---|---|---|
| 23 | Lick Mill Boulevard/Montague Expressway | Santa Clara County | Partial Mitigation: Add a third southbound left-turn lane. | No | 100% | | AM | 65.8 | E | SU |
| | | | | | | | PM | **86.1** | **F** | SU |
| 24 | North 1st Street/ Montague Expressway | Santa Clara County (CMP)[b] | No feasible mitigation measure (no right-of-way is available).<br><br>Off-setting Mitigation: Future interchange, which includes grade separation of the light rail, is planned.** | Yes | Pay North San José fee or fair-share contribution of off-setting mitigation | | AM | --- | --- | SU |
| | | | | | | | PM | --- | --- | SU |
| 25 | Zanker Road/ Montague Expressway* | Santa Clara County (CMP)[b] | No feasible mitigation (no right-of-way is available).<br><br>Off-setting Mitigation: HOV-type signal improvements that could support future Bus Rapid Transit facilities.** | No | Pay North San José fee or fair-share contribution of off-setting mitigation | | AM | --- | --- | SU |
| | | | | | | | PM | --- | --- | SU |
| 26 | Montague Expressway/ Plumeria Drive-River Oaks Parkway | Santa Clara County[b] | Partial Mitigation: Install an eastbound right-turn overlap phase and limit northbound U-turns. | No | Pay North San José fee or fair-share contribution of alternative or off-setting mitigation | | AM | **110.1** | **F** | SU |
| | | | | | | | PM | **100.1** | **F** | SU |
| 27 | Trimble Road/Montague Expressway | Santa Clara County (CMP)[b] | A "fly-over" is identified at this intersection as a Tier 1B priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). | Yes | % of Total Traffic | | AM | --- | --- | SU |
| | | | | | | | PM | --- | --- | SU |
| 28 | McCarthy Boulevard-O'Toole Avenue/ Montague Expressway | Santa Clara County (CMP)[b] | An interchange is identified at this intersection as a Tier 1B priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). | Yes | % of Total Traffic | | AM | --- | --- | SU |
| | | | | | | | PM | --- | --- | SU |

**Table 3.3-50. Cumulative with-Project Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Cumulative Impact Only | Peak Hour | Delay and LOS with Mitigation Measure | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Delay[g] | LOS | Sig?[h] |
| 29 | De La Cruz Boulevard/ Trimble Road | San José (CMP)[b] | Partial Mitigation: Add a third southbound left-turn lane. | Yes | Pay North San José fee or fair-share contribution of partial mitigation | | AM | **76.0** | **E** | SU |
| | | | | | | | PM | **>180** | **F** | SU |
| 30 | North 1st Street/Trimble Road | San José (CMP)[b] | Partial Mitigation: Add a second eastbound left-turn lane and add an exclusive westbound right-turn lane (North San José Deficiency Plan, January 2006). | Yes | Pay North San José fee or fair-share contribution of partial mitigation | | AM | **87.8** | **F** | SU |
| | | | | | | | PM | **73.8** | **E** | SU |
| 31 | Zanker Road/Trimble Road* | San José (CMP)[b] | No feasible intersection mitigation measure was identified (no right-of-way is available).<br><br>Off-setting Mitigation: Pedestrian facilities along both sides of Zanker Road between Trimble Road and Charcot Avenue.** | No | Pay North San José fee or fair-share contribution of off-setting mitigation | x | AM | **---** | **---** | SU |
| | | | | | | | PM | **---** | **---** | SU |
| 34 | North 1st Street/Brokaw Road | San José (CMP)[b] | Add a third westbound left-turn lane.<br><br>Off-setting Mitigation: Bicycle facilities along North 1st Street between Brokaw Road and Gish Road; continue the sidewalk on the southeast corner of the intersection to the US 101 northbound loop on-ramp.** | No | Pay North San José fee or fair-share contribution of off-setting mitigation | | AM | **140.4** | **F** | SU |
| | | | | | | | PM | **136.7** | **F** | SU |
| 36 | Zanker Road/Brokaw Road* | San José (CMP)[b] | Add a second eastbound left-turn lane, a second northbound left-turn lane, and a second southbound left-turn lane (North San José Deficiency Plan, January 2006). | Possible | Pay North San José fee or fair-share contribution of partial mitigation | x | AM | **60.9** | **E** | SU |
| | | | | | | | PM | **56.9** | **E** | SU |

**Table 3.3-50. Cumulative with-Project Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Cumulative Impact Only | Peak Hour | Delay and LOS with Mitigation Measure Delay[g] | LOS | Sig?[h] |
|---|---|---|---|---|---|---|---|---|---|---|
| 37 | Fair Oaks Avenue/Fair Oaks Way | Sunnyvale | Add a second eastbound right-turn lane. | Possible | % of Total Traffic | x | AM | 17.9 | B | SU |
| | | | | | | | PM | 29.2 | C | SU |
| 43 | Fair Oaks Avenue/Maude Avenue | Sunnyvale | Add an eastbound right-turn lane. | Yes | % of Total Traffic | x | AM | 34.5 | C | SU |
| | | | | | | | PM | 49.9 | D | SU |
| 44 | Fair Oaks Avenue/ E Arques Avenue | Sunnyvale | Partial Mitigation: Add a southbound right-turn lane (identified in the Sunnyvale Deficiency Plan). | No | % of Total Traffic | x | AM | 33.8 | C | SU |
| | | | | | | | PM | **74.6** | **E** | SU |
| 45 | Fair Oaks Avenue/Evelyn Avenue | Sunnyvale | Add a southbound right-turn lane. | Yes | % of Total Traffic | x | AM | 29.3 | C | SU |
| | | | | | | | PM | 39.2 | D | SU |
| 46 | Lawrence Expressway/ Sandia Avenue | Santa Clara County | Partial Mitigation: Signalize Lawrence Expressway/Bridgewood Way-Lakewood Way. | Possible | % of Total Traffic | x | AM | **94.9** | **F** | SU |
| | | | | | | | PM | **79.0** | **E** | SU |
| 48 | Lawrence Expressway/US 101 SB Ramps | Santa Clara County | Convert eastbound left-turn lane to a shared left-turn/right-turn lane. | No | 100% | | AM | 21.0 | C | SU |
| | | | | | | | PM | 53.7 | D | SU |
| 49 | Lawrence Expressway/ Oakmead Parkway | Santa Clara County | Grade separation of Lawrence Expressway and Oakmead Parkway. | Yes | % of Total Traffic | x | AM | --- | --- | SU |
| | | | | | | | PM | --- | --- | SU |
| 51 | Lawrence Expressway/ Kifer Road | Santa Clara County | An interchange is identified at this intersection as a Tier 1B priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009; City of Sunnyvale Citywide Deficiency Plan, September 2005). | Yes | % of Total Traffic | x | AM | --- | --- | SU |
| | | | | | | | PM | --- | --- | SU |
| 52 | Lawrence Expressway/ Reed Avenue-Monroe Street* | Santa Clara County (CMP) | An interchange is identified at this intersection as a Tier 1B priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009; City of Sunnyvale Citywide Deficiency Plan, September 2005). | Yes | % of Total Traffic | | AM | --- | --- | SU |
| | | | | | | | PM | --- | --- | SU |

**Table 3.3-50. Cumulative with-Project Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Cumulative Impact Only | Peak Hour | Delay and LOS with Mitigation Measure Delay[g] | LOS | Sig?[h] |
|---|---|---|---|---|---|---|---|---|---|---|
| 53 | Lawrence Expressway/ Cabrillo Avenue | Santa Clara County | An interchange is identified at this intersection as a Tier 3 priority (Comprehensive County Expressway Planning Study Policy Advisory Board 2015 Update, March 23, 2015). | Yes | % of Total Traffic | | AM | --- | --- | SU |
| | | | | | | | PM | --- | --- | SU |
| 54 | Lawrence Expressway/ Benton Street | Santa Clara County | Partial Mitigation: Add a second southbound left-turn lane and a second eastbound left-turn lane. | Possible | 100% | | AM | **137.3** | **F** | SU |
| | | | | | | | PM | **132.6** | **F** | SU |
| 55 | Lawrence Expressway/ Homestead Road | Santa Clara County (CMP) | Add a third eastbound through lane and a third westbound through lane (Yahoo! Santa Clara Campus TIA, August 2009; City of Sunnyvale Citywide Deficiency Plan, September 2005; and City of Santa Clara Traffic Mitigation Program, June 2011). | Possible | 100% | | AM | **111.9** | **F** | SU |
| | | | | | | | PM | **154.5** | **F** | SU |
| 56 | Lawrence Expressway/ Pruneridge Avenue | Santa Clara County | An interchange is identified at this intersection as a Tier 3 priority (Comprehensive County Expressway Planning Study Policy Advisory Board 2015 Update, March 23, 2015). | Yes | % of Total Traffic | | AM | --- | --- | SU |
| | | | | | | | PM | --- | --- | SU |
| 57 | Great America Parkway/SR 237 WB Ramps | Santa Clara (CMP) | Add third westbound left-turn lane and associated receiving lane under underpass. Add a second westbound right-turn lane. | Yes | 100% | | AM | 45.8 | D | LTS |
| | | | | | | | PM | 32.8 | C | LTS |
| 58 | Great America Parkway/SR 237 EB Ramps[c] | Santa Clara (CMP) | Add third southbound through lane (from Int. 57) and a second eastbound right-turn lane. | Yes | 100% | | AM | 27.7 | C | LTS |
| | | | | | | | PM | 27.3 | C | LTS |
| 59 | Great America Parkway/Yerba Buena (Great America) Way | Santa Clara | Partial Mitigation: Add a second westbound right-turn lane with an overlap phase and a second southbound left-turn lane. | Yes | 100% | | AM | 50.7 | D | LTS |
| | | | | | | | PM | **67.7** | **E** | SU |
| 60 | Great America Parkway/Old Mountain View-Alviso Road | Santa Clara | Partial Mitigation: Add a second eastbound left-turn lane. | Yes | 100% | | AM | **90.9** | **F** | SU |
| | | | | | | | PM | **55.1** | **E** | SU |

**Table 3.3-50. Cumulative with-Project Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Cumulative Impact Only | Peak Hour | Delay and LOS with Mitigation Measure | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Delay[g] | LOS | Sig?[h] |
| 64 | Great America Parkway/Old Glory Lane | Santa Clara | Partial Mitigation: Add a second northbound left-turn lane. Install an overlap phase for eastbound right-turning vehicles (Yahoo! Santa Clara Campus TIA, August 2009). | No | 100% | | AM | **86.5** | **F** | LTS |
| | | | | | | | PM | **>180** | **F** | SU |
| 65 | Great America Parkway/ Patrick Henry Drive | Santa Clara | Partial Mitigation: Add a second northbound left-turn lane and an eastbound free-right-turn lane. The eastbound right-turn lane includes the addition of a fourth southbound lane on Great America Parkway between Patrick Henry Drive and Mission College Boulevard (Yahoo! Santa Clara Campus TIA, August 2009). | Yes | 100% | | AM | 23.9 | C | LTS |
| | | | | | | | PM | **119.3** | **F** | SU |
| 66 | Great America Parkway/ Mission College Boulevard* | Santa Clara (CMP) | Partial Mitigation: Add a southbound and a westbound right-turn pocket (Yahoo! Santa Clara Campus TIA, August 2009). | Possible | 100% | | AM | 74.8 | E | LTS |
| | | | | | | | PM | **111.2** | **F** | SU |
| 69 | Bowers Avenue/ Augustine Drive* | Santa Clara | No feasible mitigation (no right-of-way is available). | N/A | 0% | | AM | --- | --- | LTS |
| | | | | | | | PM | **---** | **---** | SU |
| 70 | Bowers Avenue/Scott Boulevard* | Santa Clara (CMP) | Add a second southbound left-turn lane. | No | % of Total Traffic | x | AM | 48.8 | D | LTS |
| | | | | | | | PM | 67.5 | E | LTS |
| 71 | Bowers Avenue/Central Expressway | Santa Clara County (CMP) | Partial Mitigation: Add third southbound left-turn lane and third eastbound left-turn lane. | No | 100% | | AM | **>180** | **F** | SU |
| | | | | | | | PM | **>180** | **F** | SU |
| | | | An interchange is identified at this intersection as a Tier 2 priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009).** | Yes | % of Total Traffic | | AM | **---** | **---** | SU |
| | | | | | | | PM | **---** | **---** | SU |
| 72 | Bowers Avenue/Kifer Road-Walsh Avenue | Santa Clara | Partial Mitigation: Add a second eastbound left-turn lane. | No | % of Total Traffic | x | AM | 38.1 | D | LTS |
| | | | | | | | PM | **71.7** | **E** | SU |
| 73 | Bowers Avenue/ Monroe Street | Santa Clara | Add a northbound and a southbound left-turn lane. Change the northbound and southbound from split to protected left-turn phasing | No | 100% | | AM | 31.5 | C | LTS |
| | | | | | | | PM | **56.5** | **E** | LTS |

**Table 3.3-50. Cumulative with-Project Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Cumulative Impact Only | Peak Hour | Delay and LOS with Mitigation Measure | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Delay[g] | LOS | Sig?[h] |
| 74 | Bowers Avenue/El Camino Real* | Santa Clara (CMP) | Add a second eastbound left-turn lane. | Possible | % of Total Traffic | x | AM | 66.9 | E | LTS |
| | | | | | | | PM | 69.4 | E | LTS |
| 75 | San Tomas Expressway/ Scott Boulevard | Santa Clara County (CMP) | Partial Mitigation: A second westbound right-turn lane is identified as a Tier 1C priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009; City of Santa Clara Traffic Mitigation Program, June 2011). | No | % of Total Traffic | | AM | **>180** | **F** | SU |
| | | | | | | | PM | **151.9** | **F** | SU |
| | | | An interchange is identified at the intersection as a Tier 2 priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). ** | No | % of Total Traffic | | AM | **---** | **---** | SU |
| | | | | | | | PM | **---** | **---** | SU |
| 76 | San Tomas Expressway/ Walsh Avenue | Santa Clara County | Partial Mitigation: Add a second eastbound left-turn lane. | No | 100% | | AM | **175.4** | **F** | SU |
| | | | | | | | PM | **111.7** | **F** | SU |
| 77 | San Tomas Expressway/ Monroe Street | Santa Clara County (CMP) | Partial Mitigation: A second northbound left-turn lane is identified at this intersection as a Tier 3 priority (Comprehensive County Expressway Planning Study Policy Advisory Board 2015 Update, March 23, 2015). | Yes | % of Total Traffic | | AM | **>180** | **F** | SU |
| | | | | | | | PM | **98.2** | **F** | SU |
| 78 | San Tomas Expressway/ El Camino Real* | Santa Clara County (CMP) | An interchange is identified at the intersection as a Tier 2 priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). | Yes | % of Total Traffic | | AM | **---** | **---** | SU |
| | | | | | | | PM | **---** | **---** | SU |
| 79 | San Tomas Expressway/ Benton Street* | Santa Clara County | Partial Mitigation: Add a second eastbound left-turn lane. | Possible | 100% | | AM | **140.1** | **F** | SU |
| | | | | | | | PM | 53.4 | D | SU |
| 80 | San Tomas Expressway/ Homestead Road* | Santa Clara County (CMP) | Add a second eastbound left-turn lane. | Possible | % of Total Traffic | x | AM | **131.9** | **F** | SU |
| | | | | | | | PM | **108.2** | **F** | SU |
| 82 | San Tomas Expressway/ Pruneridge Avenue* | Santa Clara County | Partial Mitigation: Add a second northbound left-turn lane. | No | 100% | | AM | **156.2** | **F** | SU |
| | | | | | | | PM | **83.0** | **F** | SU |

**Table 3.3-50. Cumulative with-Project Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Cumulative Impact Only | Peak Hour | Delay and LOS with Mitigation Measure Delay[g] | LOS | Sig?[h] |
|---|---|---|---|---|---|---|---|---|---|---|
| 83 | San Tomas Expressway/ Saratoga Avenue* | Santa Clara County (CMP) | Add a third eastbound left-turn lane. | Yes | % of Total Traffic | | AM | **116.2** | **F** | SU |
| | | | | | | | PM | **120.7** | **F** | SU |
| 84 | Gold Street/Gold Street Connector | San José[b] | Add second northbound left-turn lane and a second eastbound right-turn lane (move pedestrian crossing to north leg of intersection). | Yes | 100% | | AM | 28.1 | C | SU |
| | | | | | | | PM | 25.2 | C | SU |
| 90 | Lafayette Street/Calle De Luna | Santa Clara | Partial Mitigation: Reconstruct the westbound approach to include two left-turn lanes and one right-turn lane. | No | 100% | | AM | **77.7** | **E** | SU |
| | | | | | | | PM | 23.4 | C | LTS |
| 94 | Lafayette Street/Agnew Road | Santa Clara | Add a second eastbound left-turn lane and a second southbound left-turn lane. | No | 100% | | AM | 43.0 | D | LTS |
| | | | | | | | PM | 52.5 | D | LTS |
| 96 | Lafayette Street/ Montague Expressway WB Ramps | Santa Clara | Add second westbound right-turn lane with an overlap phase and a second southbound left-turn lane. | No | 100% | | AM | 47.4 | D | LTS |
| | | | | | | | PM | 34.6 | C | LTS |
| 98 | Lafayette Street/Central Expressway | Santa Clara County (CMP) | Grade separation of Central Expressway and Lafayette Street. | Yes | % of Total Traffic | | AM | **---** | **---** | SU |
| | | | | | | | PM | **---** | **---** | SU |
| 102 | Lafayette Street/El Camino Real* | Santa Clara (CMP) | Partial Mitigation: Add a second eastbound left-turn lane. | No | % of Total Traffic | x | AM | **92.3** | **F** | SU |
| | | | | | | | PM | 65.7 | E | LTS |
| 103 | Lafayette Street/Lewis Street | Santa Clara | No feasible mitigation (no right-of-way is available). | N/A | 0% | | AM | --- | --- | LTS |
| | | | | | | | PM | **---** | **---** | SU |
| 114 | Calle Del Sol/Calle Del Luna | Santa Clara | Signalize. | Possible | 100% | | AM | 13.6 | B | LTS |
| | | | | | | | PM | 12.3 | B | LTS |
| 119 | De La Cruz Boulevard/ Aldo Avenue | Santa Clara | Add an eastbound overlap phase. | No | % of Total Traffic | x | AM | 16.1 | B | LTS |
| | | | | | | | PM | 31.9 | C | LTS |

**Table 3.3-50. Cumulative with-Project Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Cumulative Impact Only | Peak Hour | Delay and LOS with Mitigation Measure: Delay[g] | LOS | Sig?[h] |
|---|---|---|---|---|---|---|---|---|---|---|
| 120 | De La Cruz Boulevard/ Laurelwood Road | Santa Clara | Reconfigure the northbound and southbound approaches to include one left-turn lane, one through, and one shared through/right-turn lane and change the phasing in the northbound and southbound directions from split to protected. Signal modifications to increase cycle length. | No | 100% | | AM | 15.0 | B | LTS |
| | | | | | | | PM | 24.9 | C | LTS |
| 121 | De La Cruz Boulevard/ Central Expressway* | Santa Clara County (CMP) | Partial Mitigation: Install second southbound right-turn lane and a third northbound left-turn lane. | Yes | % of Total Traffic | | AM | **>180** | **F** | SU |
| | | | | | | | PM | **>180** | **F** | SU |
| 122 | De La Cruz Boulevard/ Reed Avenue | Santa Clara | No feasible mitigation (no right-of-way is available). | N/A | 0% | x | AM | **---** | **---** | SU |
| | | | | | | | PM | **---** | **---** | SU |
| 123 | Great America Parkway/Gold Street Connector[c] | Santa Clara | Add a second northbound right-turn lane (from Int. 57 dual westbound right-turn lanes). | Yes | 100% | | AM | 9.3 | A | LTS |
| | | | | | | | PM | 9.8 | A | LTS |
| 124 | Scott Boulevard/ Central Expressway | Santa Clara County (CMP) | Partial Mitigation: Add third southbound left-turn lane. | Yes | % of Total Traffic | | AM | **146.9** | **F** | SU |
| | | | | | | | PM | **>180** | **F** | SU |
| 125 | San Tomas Expressway/ Stevens Creek Boulevard* | Santa Clara County (CMP) | Add a westbound right-turn lane and add a third southbound left-turn lane.** | Yes | % of Total Traffic | | AM | **144.4** | **F** | SU |
| | | | | | | | PM | **141.9** | **F** | SU |
| | | | An interchange is identified at this intersection as a Tier 2 priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). | Yes | % of Total Traffic | | AM | **---** | **---** | SU |
| | | | | | | | PM | **---** | **---** | SU |

**Table 3.3-50. Cumulative with-Project Intersection Mitigation Measures**

| ID | Intersection | Jurisdiction/ CMP[a] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Cumulative Impact Only | Peak Hour | Delay and LOS with Mitigation Measure | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Delay[g] | LOS | Sig?[h] |

Notes:

a. CMP = Congestion Management Program intersection (VTA).

b. An LOS D threshold is used for study intersections within San José, including CMP designated intersections. Santa Clara County intersections in San José use an LOS E threshold.

c. This intersection is not an affected intersection, but would need to be modified to accommodate the improvements at Intersection #57: Great America Parkway/SR 237 WB Ramps.

d. Off-setting Mitigation: In the North San José Deficiency Plan area, off-setting local street network, transit, bicycle, and pedestrian improvements were identified to accommodate future travel growth, but not directly mitigate the intersection with the identified impact. Partial Mitigation: The proposed mitigation measure mitigates the impact at one but not the other peak hour or reduces the delay but not enough to mitigate the impact.

e. ROW = right-of-way. "Yes" = additional right-of-way is required to construct the proposed mitigation measure. This includes relocating existing curbs and gutters. "Possible" = additional right-of-way may be needed to maintain bike lanes or transit facilities, such as bus duck-outs. "No" = the proposed mitigation measures will fit within the existing right-of-way and existing curb-to-curb widths. Curbs and gutters will not need to be relocated, but the median may need to be modified.

f. "100%" = The cost and construction of the proposed mitigation measure is the full responsibility of the Project Developer. These are discrete mitigation measures that either fully or partially mitigate significant Project impacts. "0%" = There is no feasible mitigation measure. "% of Total Traffic" = Project Developer shall pay a fair-share contribution to the proposed mitigation measure, which is typically a larger transportation improvement, such as an expressway interchange, that has been identified in an adopted plan. "Pay North San José fee or fair-share contribution of alternative or off-setting mitigation" = The Project Developer can pay the North San José fee or a fair-share contribution for the mitigation measure or off-setting mitigation measure based on the amount of Project's percent contribution of the added traffic at the intersection.

g. Signalized intersections: whole-intersection average control delay per vehicle (seconds). Unsignalized intersections: worst-approach average control delay per vehicle (seconds).

h. LTS = Less than significant with mitigation, SU = significant and unavoidable. Significance determination is based on draft mitigation and responsible jurisdiction of the intersection. See mitigation list summary, which describes the mitigation in more detail.

**Bold** text indicates intersection operates at a deficient LOS.

**Bold and highlighted** indicates a significant impact (with mitigation).

* Intersection improvement identified at this intersection under cumulative no-project conditions and with-Project conditions. See Appendix 3.3-D.

**City-preferred mitigation option. Valid when there are two mitigation options presented.

Source: Fehr & Peers, September 2015.

- Fourteen intersections would have operations returned to an acceptable LOS in either the AM or PM Peak Hour or partially returned to an acceptable LOS in both peak hours with the identified mitigation in Table 3.3-50.
  - Intersection 22: Agnew Road-De La Cruz Boulevard/Montague Expressway
  - Intersection 23: Lick Mill Boulevard/Montague Expressway
  - Intersection 26: Montague Expressway/Plumeria Drive-River Oaks Parkway
  - Intersection 29: De La Cruz Boulevard/Trimble Road
  - Intersection 30: North 1st Street/Trimble Road
  - Intersection 44: Fair Oaks Avenue/E Arques Avenue
  - Intersection 46: Lawrence Expressway/Sandia Avenue
  - Intersection 54: Lawrence Expressway/Benton Street
  - Intersection 76: San Tomas Expressway/Walsh Avenue
  - Intersection 77: San Tomas Expressway/Monroe Street
  - Intersection 79: San Tomas Expressway/Benton Street
  - Intersection 82: San Tomas Expressway/Pruneridge Avenue
  - Intersection 121: De La Cruz Boulevard/Central Expressway
  - Intersection 124: Scott Boulevard/Central Expressway
- Six intersections would have off-setting mitigation measures (off-setting local street network, transit, bicycle, or pedestrian improvements) in the North San José Deficiency Plan area to accommodate future travel growth, but these off-setting measures would not directly affect and improve intersection LOS:
  - Intersection 15: Renaissance Drive/Tasman Drive
  - Intersection 18: North 1st Street/Tasman Drive
  - Intersection 19: Zanker Road/Tasman Drive
  - Intersection 24: North 1st Street/Montague Expressway
  - Intersection 25: Zanker Road/Montague Expressway
  - Intersection 31: Zanker Road/Trimble Road
- Nine intersections would require a fair-share payment of a planned interchange, but the interchange would not be constructed until full funding is received:
  - Intersection 27: Trimble Road/Montague Expressway
  - Intersection 28: McCarthy Boulevard-O'Toole Avenue/Montague Expressway
  - Intersection 49: Lawrence Expressway/Oakmead Parkway
  - Intersection 51: Lawrence Expressway/Kifer Road
  - Intersection 52: Lawrence Expressway/Reed Avenue-Monroe Street
  - Intersection 53: Lawrence Expressway/Cabrillo Avenue

- Intersection 56: Lawrence Expressway/Pruneridge Avenue
- Intersection 78: San Tomas Expressway/El Camino Real
- Intersection 98: Lafayette Street/Central Expressway

- One intersection would have two mitigation options: Option 1 would have operations returned to an acceptable LOS with the identified mitigation measure, and Option 2 would require a fair-share payment of a planned interchange:
  - Intersection 125: San Tomas Expressway/Stevens Creek Boulevard
- Three intersections would have two mitigation options: Option 1 would have operations returned to an acceptable LOS in either the AM or PM Peak Hour or partially returned to an acceptable LOS in both peak hours with the identified mitigation measure, and Option 2 would require a fair-share payment of a planned interchange:
  - Intersection 21: Mission College Boulevard/Montague Expressway
  - Intersection 71: Bowers Avenue/Central Expressway
  - Intersection 75: San Tomas Expressway/Scott Boulevard
- Two intersections have no feasible mitigation measures:
  - Intersection 3: Lawrence Expressway/Tasman Drive
  - Intersection 20: McCarthy Boulevard/Tasman Drive

Intersections 58 and 123 are not affected intersections but would need to be modified to accommodate the mitigation measures at Intersection 57, Great America Parkway/SR 237 WB Ramps.

**Impact TRA-15: Unsignalized (Off-Site) Intersections in Cumulative with-Project Conditions. The Project would add a considerable amount of traffic to unsignalized intersections that operate at LOS F and that meet the peak hour traffic signal warrant under cumulative with-Project conditions. (LTS/M)**

## Cumulative with-Project Unsignalized Intersection Analysis

The results of the LOS calculations for the unsignalized intersections under cumulative and cumulative with-Project conditions are presented in Table 3.3-51. The peak-hour signal warrant was evaluated for the unsignalized intersections that operate at LOS F and the results are presented in Appendix 3.3-G. The Project would have a significant impact on one unsignalized intersection (#114 Calle Del Sol/Calle De Luna) under cumulative with-Project conditions. The Project's contribution would be considerable (see Table 3.3-50 and Table K-4 of Appendix 3.3-K for affected intersections and mitigation measure).

MITIGATION MEASURES. With Mitigation Measures TRA-1.1 and TRA-2.2 (above), this impact would be reduced to a ***less-than-significant level with mitigation***.

**Table 3.3-51. Cumulative with-Project Unsignalized Intersection LOS Results**

| ID | Intersection | Jurisdiction/ CMP[a] | Unsig. Type[b] | Peak Hour[c] | Existing[d] | | Cumulative[e] | | Cumulative with Project | | Signal Warrant Met? | Project Contrib. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Delay[f] | LOS[g] | Delay[f] | LOS[g] | Delay[f] | LOS[g] | | |
| 85 | Lafayette Street/Great America Way | Santa Clara | SSSC | AM | 9.6 | A | 11.3 | B | Signalized Intersection | | N/A | N/A |
| | | | | PM | 21.1 | C | >150 | F | | | N/A | N/A |
| 89 | Lafayette Street/Calle Del Mundo | Santa Clara | SSSC | AM | 14.1 | B | 23.5 | C | **>150** | **F** | No | 14.1 |
| | | | | PM | 12.7 | B | 17.1 | C | **>150** | **F** | No | 12.7 |
| 108 | Gold Street/Taylor Street | San José | AWSC | AM | 8.4 | A | 10.3 | B | 12.6 | B | N/A | 8.4 |
| | | | | PM | 8.8 | A | 11.9 | B | 18.7 | C | N/A | 8.8 |
| 109 | Liberty Street/Taylor Street | San José | AWSC | AM | 8.3 | A | 9.7 | A | 11.2 | B | N/A | 8.3 |
| | | | | PM | 9.7 | A | 14.6 | B | 31.0 | D | N/A | 9.7 |
| 114 | Calle Del Sol/Calle De Luna | Santa Clara | SSSC | AM | 13.8 | B | 18.4 | C | 49.2 | E | Yes | 13.8 |
| | | | | PM | 21.3 | C | 27.9 | D | **118.6** | **F** | **Yes** | 21.3 |
| 116 | Agnew Road/Garrity Way | Santa Clara | SSSC | AM | 12.9 | B | 13.5 | B | 13.5 | B | N/A | 12.9 |
| | | | | PM | 14.0 | B | 16.5 | C | 21.4 | C | N/A | 14.0 |

Notes:

a. CMP = Congestion Management Program intersection (VTA).

b. SSSC = Side-Street Stop-Controlled intersection, AWSC = All-Way Stop-Controlled intersection

c. AM = morning peak hour, PM = evening peak hour.

d. "Existing" presents the delay and LOS for intersections, using existing geometry plus any approved and funded transportation projects and existing traffic counts plus project trips from projects that are currently under construction.

e. "Cumulative" presents the delay and LOS for intersections, using 2040 geometry and traffic volumes estimated using the VTA travel demand model.

f. Whole intersection weighted average control delay expressed in seconds per vehicle, calculated using methods described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County conditions for all-way stop-controlled intersection. For side-street stop-controlled intersections, values reported are the worst approach.

g. LOS = Level of service. LOS calculations conducted using the TRAFFIX analysis software packages, which apply the methods described in the 2000 *Highway Capacity Manual*.

**Bold text** indicates unacceptable operations according to the jurisdiction's LOS.

**Bold and highlighted** indicates a significant impact.

Source: Fehr & Peers, September 2015.

## Off-Site Intersection Cumulative with Project – Variant Access Scheme

**Impact TRA-16: Cumulative with-Project Variant Access Scheme Intersections. Increases in traffic associated with the Project under cumulative with-Project conditions would result in considerable contributions at intersections operating at unacceptable levels of service during both peak hours with the Project Variant Access Scheme. (SU)**

The changes in access locations with the Variant Access Scheme would cause a redistribution of Project traffic near the site. LOS calculations were conducted for the 23 affected off-site intersections shown in Table 3.3-28 (shown earlier) under cumulative with-Project conditions to assess cumulative Project impacts on intersection operations with the Variant Access Scheme. Cumulative impacts and mitigation measures for the other off-site intersections would be the same as with the Base Access Scheme. The intersection volumes are shown in Appendix 3.3-C and results of the LOS analysis are summarized in Table 3.3-52. The corresponding LOS calculation sheets are included in Appendix 3.3-E. The LOS results for cumulative conditions are presented in Table 3.3-52 for signalized intersections and Table 3.3-53 for unsignalized intersections, along with the projected increases in critical delay and critical V/C ratios, to identify significant cumulative impacts. The results are graphically shown in Figure 3.3-30. The Project has a considerable contribution to 10 signalized intersections and two unsignalized intersection with cumulative impacts (see Table K-8 of Appendix 3.3-K for affected intersections and mitigation measures).

MITIGATION MEASURES. With Mitigation Measures TRA-1.1 (above) and TRA-16.1 (below), these impacts would be reduced, but Project impacts at certain intersections would still be cumulatively considerable. Therefore, the Project's cumulative impact on signalized intersection LOS would be ***significant and unavoidable***.

### Intersection Improvements

*TRA-16.1: Intersection Improvements.* The intersection improvements summarized in Table 3.3-54 shall be implemented. Some of the intersection improvements would require ROW acquisition. A preliminary review of ROW constraints was done by viewing aerial photography as a part of the mitigation measure feasibility assessment. An intersection was identified as having ROW constraints if the mitigation measure would include widening the roadway or relocating aboveground utilities. (Use of the center median and "pork-chop" islands was not considered as roadway widening.) If the removal of bicycle facilities was required, the ROW required was defined as "possible." If the City makes a final determination that a portion or all of an improvement or mitigation is not feasible because ROW cannot be acquired or for other reasons, the improvement, or infeasible portion, shall not be implemented and, if none of the improvement is feasible, that intersection shall be considered to have "no feasible mitigation."

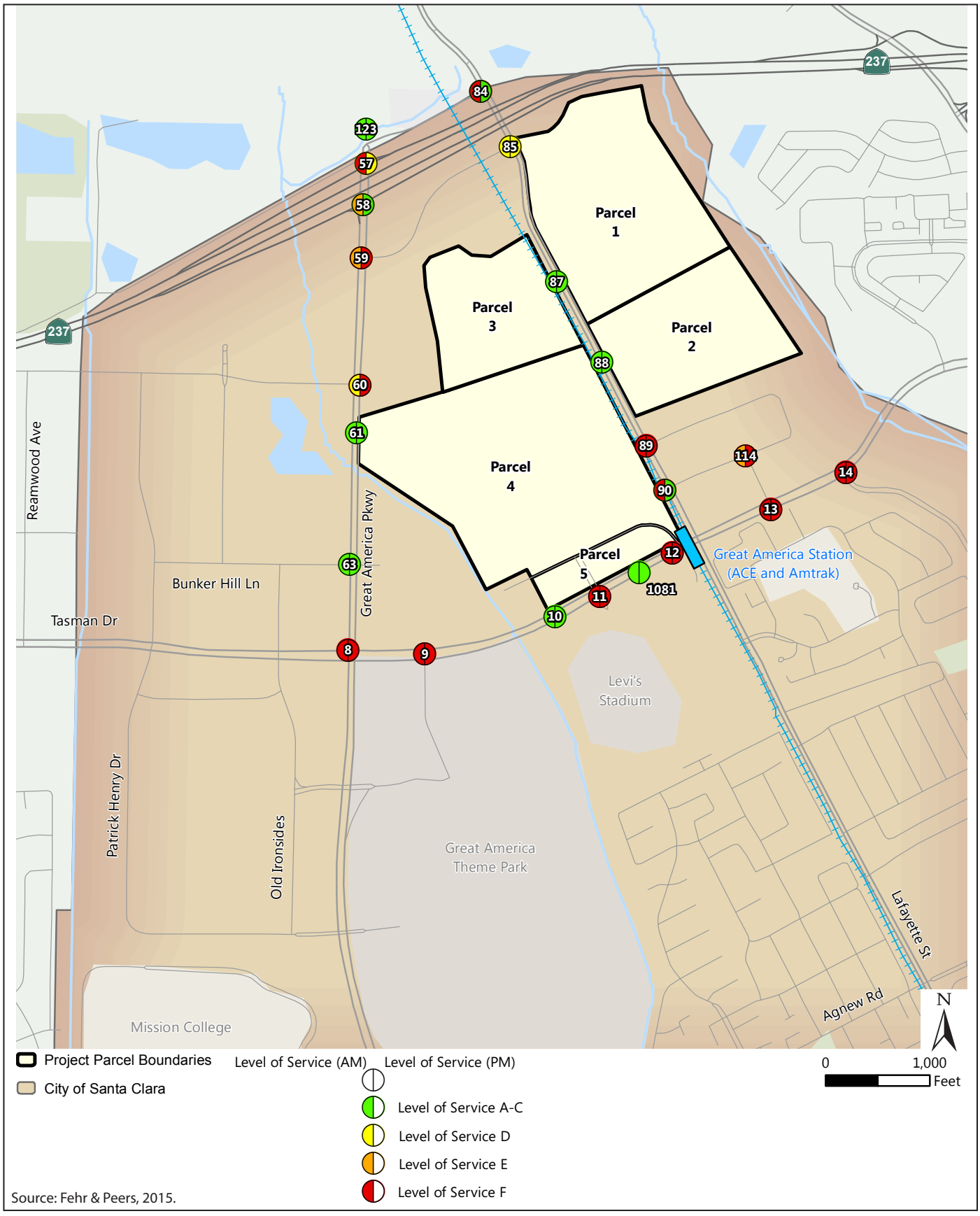



**Figure 3.3-30**
**Cumulative with Project Conditions**
**Intersection Level of Service Results (Variant Access Scheme)**
City Place Santa Clara

**Table 3.3-52. Cumulative with-Project Signalized LOS Results for Variant Access Scheme**

| | | | | Existing[c] | | Cumulative[d] | | Cumulative with Project | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] | Project Contrib. |
| 8 | Great America Parkway/Tasman Drive[i] | Santa Clara (CMP) | AM | 26.0 | C | **128.4** | **F** | **162.5** | **F** | **0.255** | **64.9** | 19.7% |
| | | | PM | 31.5 | C | **125.7** | **F** | **>180** | **F** | **0.580** | **276.3** | 35.9% |
| 9 | Convention Center/Tasman Drive[i] | Santa Clara | AM | 16.2 | B | **125.3** | **F** | **131.0** | **F** | **0.059** | **39.1** | 23.4% |
| | | | PM | 20.2 | C | 36.9 | D | **163.4** | **F** | **0.245** | **155.4** | 44.4% |
| 10 | Future Driveway (west of Centennial Boulevard)/ Tasman Drive | Santa Clara | AM | Future Signalized Intersection | | | | 13.8 | B | N/A | N/A | 27.4% |
| | | | PM | | | | | 34.3 | C | N/A | N/A | 48.8% |
| 11 | Centennial Boulevard/Tasman Drive[i] | Santa Clara | AM | 19.8 | B | **111.1** | **F** | **170.3** | **F** | **0.240** | **99.4** | 27.8% |
| | | | PM | 19.8 | B | 46.1 | D | **>180** | **F** | **0.512** | **173.2** | 46.4% |
| 13 | Calle Del Sol/Tasman Drive[i] | Santa Clara | AM | 10.6 | B | 44.0 | D | **123.1** | **F** | **0.289** | **119.4** | 32.2% |
| | | | PM | 17.5 | B | 20.9 | C | **96.5** | **F** | **0.402** | **121.6** | 45.0% |
| 14 | Lick Mill Boulevard/Tasman Drive | Santa Clara | AM | 22.1 | C | **61.1** | **E** | **>180** | **F** | **0.537** | **207.8** | 33.0% |
| | | | PM | 24.4 | C | **89.7** | **F** | **>180** | **F** | **0.658** | **200.8** | 36.6% |
| 57 | Great America Parkway/SR 237 WB Ramps | Santa Clara (CMP) | AM | 20.9 | C | 27.9 | C | **90.4** | **F** | **0.299** | **96.1** | 47.7% |
| | | | PM | 18.9 | B | 20.0 | B | 42.7 | D | 0.361 | 30.9 | 48.4% |
| 58 | Great America Parkway/SR 237 EB Ramps | Santa Clara (CMP) | AM | 10.9 | B | 13.3 | B | 61.7 | E | 0.420 | 70.8 | 56.3% |
| | | | PM | 8.6 | A | 13.5 | B | 27.4 | C | 0.220 | 25.1 | 46.0% |
| 59 | Great America Parkway/Yerba Buena (Great America) Way | Santa Clara | AM | 27.0 | C | 29.9 | C | **76.9** | **E** | **0.293** | **60.0** | 49.8% |
| | | | PM | 31.4 | C | **59.0** | **E** | **165.9** | **F** | **0.392** | **161.9** | 37.8% |
| 60 | Great America Parkway/Old Mountain View-Alviso Road | Santa Clara | AM | 19.2 | B | 21.9 | C | 45.8 | D | 0.355 | 47.1 | 46.5% |
| | | | PM | 26.6 | C | 48.9 | D | **91.1** | **F** | **0.320** | **62.3** | 42.5% |

**Table 3.3-52. Cumulative with-Project Signalized LOS Results for Variant Access Scheme**

| | | | | Existing[c] | | Cumulative[d] | | Cumulative with Project | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] | Project Contrib. |
| 61 | Great America Parkway/Future Driveway (south of Old Mountain View-Alviso Road) | Santa Clara | AM | Future Signalized Intersection | | | | 14.9 | B | N/A | N/A | 39.1% |
| | | | PM | | | | | 23.6 | C | N/A | N/A | 44.0% |
| 63 | Great America Parkway/Bunker Hill Lane | Santa Clara | AM | 12.9 | B | 14.5 | B | 13.7 | B | 0.040 | -3.9 | 22.0% |
| | | | PM | 15.6 | B | 16.8 | B | 18.9 | B | 0.192 | 4.6 | 31.4% |
| 84 | Gold Street/Gold Street Connector | San José | AM | 22.7 | C | 24.3 | C | **96.7** | **F** | **0.638** | **84.6** | 49.8% |
| | | | PM | 21.7 | C | 21.8 | C | 32.9 | C | 0.415 | 17.0 | 43.2% |
| 85 | Lafayette Street/Great America Way | Santa Clara | AM | Unsignalized Intersection | | | | 46.8 | D | N/A | N/A | 63.0% |
| | | | PM | | | | | 39.0 | D | N/A | N/A | 51.7% |
| 87 | Lafayette Street/Future Urban Interchange | Santa Clara | AM | Future Signalized Intersection | | | | 19.8 | B | N/A | N/A | 57.5% |
| | | | PM | | | | | 17.9 | B | N/A | N/A | 57.6% |
| 88 | Lafayette Street/Future Driveway (north of Calle Del Mundo) | Santa Clara | AM | Future Signalized Intersection | | | | 10.5 | B | N/A | N/A | 62.6% |
| | | | PM | | | | | 22.4 | C | N/A | N/A | 63.9% |
| 90 | Lafayette Street/Calle De Luna | Santa Clara | AM | 15.5 | B | 17.9 | B | **105.5** | **F** | **0.614** | **106.7** | 56.9% |
| | | | PM | 19.2 | B | 18.5 | B | 26.4 | C | 0.379 | 12.4 | 60.0% |
| 123 | Great America Parkway/ Gold Street Connector | Santa Clara | AM | 11.8 | B | 11.5 | B | 22.7 | C | 0.519 | 8.8 | 49.8% |
| | | | PM | 13.1 | B | 13.8 | B | 12.9 | B | 0.089 | -2.3 | 37.3% |
| 1081 | New Viaduct/Tasman Drive | Santa Clara | AM | Future Signalized Intersection | | | | 16.9 | B | N/A | N/A | 31.4% |
| | | | PM | | | | | 14.7 | B | N/A | N/A | 48.8% |

**Table 3.3-52. Cumulative with-Project Signalized LOS Results for Variant Access Scheme**

| | | | | Existing[c] | | Cumulative[d] | | Cumulative with Project | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Intersection | Jurisdiction/ CMP[a] | Peak Hour[b] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Delay[e] | LOS[f] | Δ in Crit. V/C[g] | Δ in Crit. Delay[h] | Project Contrib. |

Notes:

a. CMP = Congestion Management Program intersection (VTA).

b. AM = morning peak hour, PM = evening peak hour

c. "Existing" presents the delay and LOS for intersections, using existing geometry plus any approved and funded transportation projects and existing traffic counts plus project trips from projects that are currently under construction (see Appendix 3.3-B and Appendix 3.3-D).

d. "Cumulative" presents the delay and LOS for intersections, using 2040 geometry and traffic volumes estimated using the VTA travel demand model.

e. Whole intersection weighted average control delay expressed in seconds per vehicle, calculated using methods described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County conditions for signalized intersections.

f. LOS = Level of service. LOS calculations conducted using the TRAFFIX analysis software packages, which applies the methods described in the 2000 *Highway Capacity Manual*.

g. Change in critical volume-to-capacity ratio between cumulative without-Project and cumulative with-Project conditions.

h. Change in average critical movement delay between cumulative without-Project and cumulative with-Project conditions.

i. Geometry has been modified to include the improvements for projects under construction and planned under cumulative conditions as outlined in Appendix 3.3-D.

j. An LOS D threshold is used for study intersections within San José, including CMP designated intersections. Santa Clara County intersections in San José use an LOS E threshold.[k.] Maximum left-/right-turn lane or through-lane queuing in excess of available/potential storage at driveway entrances (intersections #10, 11, 12, 61, 62, 85, 86, and 87) during the morning and evening peak hours will most likely result in a worse LOS than calculated. These queues would require multiple traffic signal cycles to clear and could extend upstream and affect nearby intersections.

**Bold text** indicates intersection operates at a deficient LOS.

**Bold and highlighted** indicates a significant impact.

Source: Fehr & Peers, September 2015.

**Table 3.3-53. Cumulative with-Project Unsignalized LOS Results for Variant Access Scheme**

| ID | Intersection | Jurisdiction/ CMP[a] | Unsig. Type[b] | Peak Hour[c] | Existing[d] | | Cumulative[e] | | Cumulative with Project | | Signal Warrant Met? | Project Contribution |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Delay[f] | LOS[g] | Delay[f] | LOS[g] | Delay[f] | LOS[g] | | |
| 12 | Future Driveway (east of Centennial Boulevard)/Tasman Drive | Santa Clara | SSSC | AM | Future Unsignalized Intersection | | | | **55.8** | **F** | No | 24.4% |
| | | | | PM | | | | | **113.2** | **F** | **Yes** | 41.1% |
| 85 | Lafayette Street/Great America Way | Santa Clara | SSSC | AM | 9.7 | A | 11.3 | B | Signalized Intersection | | N/A | N/A |
| | | | | PM | 21.4 | C | **>150** | **F** | | | N/A | N/A |
| 89 | Lafayette Street/Calle Del Mundo | Santa Clara | SSSC | AM | 14.2 | B | 23.5 | C | **>150** | **F** | No | 58.4% |
| | | | | PM | 12.9 | B | 17.1 | C | **>150** | **F** | No | 63.9% |
| 114 | Calle Del Sol/Calle De Luna | Santa Clara | SSSC | AM | 13.9 | B | 18.4 | C | 49.2 | E | No | 34.9% |
| | | | | PM | 19.8 | C | 27.9 | D | **118.6** | **F** | **Yes** | 41.5% |

Notes:

a. CMP = Congestion Management Program intersection (VTA).

b. SSSC = Side-Street Stop-Controlled intersection, AWSC = All-Way Stop-Controlled intersection

c. AM = morning peak hour, PM = evening peak hour.

d. "Existing" presents the delay and LOS for intersections, using existing geometry plus any approved and funded transportation projects and existing traffic counts plus project trips from projects that are currently under construction.

e. "Cumulative" presents the delay and LOS for intersections, using 2040 geometry and traffic volumes estimated using the VTA travel demand model.

f. Whole intersection weighted average control delay expressed in seconds per vehicle, calculated using methods described in the 2000 *Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County conditions for all-way stop-controlled intersection. For side-street stop-controlled intersections, values reported are the worst approach.

g. LOS = Level of service. LOS calculations conducted using the TRAFFIX analysis software packages, which apply the methods described in the 2000 *Highway Capacity Manual*.

**Bold text** indicates intersection operates at a deficient LOS.

**Bold and highlighted** indicates a significant impact.

Source: Fehr & Peers, September 2015.

**Table 3.3-54. Cumulative with-Project Intersection Mitigation Measures – Variant Access Scheme[a]**

| ID | Intersection | Jurisdiction/ CMP[b] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Cumulative Impact Only | Peak Hour | Delay and LOS with Mitigation Measure | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Delay[g] | LOS | Sig?[h] |
| 8 | Great America Parkway/ Tasman Drive* | Santa Clara (CMP) | Partial Mitigation: Add a southbound right-turn lane and add a third westbound left-turn lane. | Yes | 100% | | AM | **151.7** | **F** | SU |
| | | | | | | | PM | **>180** | **F** | SU |
| 9 | Convention Center/ Tasman Drive* | Santa Clara | No feasible mitigation (no right-of-way is available). | N/A | 0% | | AM | --- | --- | SU |
| | | | | | | | PM | --- | --- | SU |
| 11 | Centennial Boulevard/ Tasman Drive* | Santa Clara | No feasible mitigation (no right-of-way is available). | N/A | 0% | | AM | --- | --- | SU |
| | | | | | | | PM | --- | --- | SU |
| 13 | Calle Del Sol/Tasman Drive* | Santa Clara | Add a westbound right-turn lane. Reconfigure southbound approach to include two left-turn lane and one right-turn lane with overlap phase. | Yes | 100% | | AM | **105.5** | **F** | SU |
| | | | | | | | PM | 23.2 | C | LTS |
| 14 | Lick Mill Boulevard/Tasman Drive | Santa Clara | Partial Mitigation: Reconfigure northbound and southbound approaches to two left-turn lanes, one through lane, and one right-turn lane. Change phasing on northbound/southbound approaches from split to protected. Add a second westbound left-turn lane. | Yes | 100% | | AM | **155.0** | **F** | SU |
| | | | | | | | PM | **166.6** | **F** | SU |
| 57 | Great America Parkway/SR 237 WB Ramps | Santa Clara (CMP) | Add third westbound left-turn lane and associated receiving lane under underpass. Add a second westbound right-turn lane. | Yes | 100% | | AM | 41.4 | D | LTS |
| | | | | | | | PM | 30.3 | C | LTS |
| 58 | Great America Parkway/SR 237 EB Ramps[c] | Santa Clara (CMP) | Add third southbound through lane (from Int. 57) and a second eastbound right-turn lane. | Yes | 100% | [c] | AM | 27.7 | C | LTS |
| | | | | | | | PM | 27.3 | C | LTS |

**Table 3.3-54. Cumulative with-Project Intersection Mitigation Measures – Variant Access Scheme[a]**

| ID | Intersection | Jurisdiction/ CMP[b] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Cumulative Impact Only | Peak Hour | Delay and LOS with Mitigation Measure | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Delay[g] | LOS | Sig?[h] |
| 59 | Great America Parkway/Yerba Buena (Great America) Way | Santa Clara | Partial Mitigation: Add a second westbound right-turn lane with an overlap phase and a second southbound left-turn lane. | Yes | 100% | | AM | **66.2** | **E** | SU |
| | | | | | | | PM | 53.0 | D | LTS |
| 60 | Great America Parkway/ Old Mountain View-Alviso Road | Santa Clara | Partial Mitigation: Add second eastbound left-turn lane. | Possible | 100% | | AM | 45.4 | D | LTS |
| | | | | | | | PM | **59.4** | **E** | SU |
| 84 | Gold Street/Gold Street Connector | San José | Add second northbound left-turn and a second eastbound right-turn lane (move pedestrian crossing to north leg of intersection). | Yes | 100% | | AM | 28.1 | C | SU |
| | | | | | | | PM | 25.2 | C | SU |
| 90 | Lafayette Street/Calle De Luna | Santa Clara | Add a northbound right-turn lane and reconstruct the westbound approach to include two left-turn lanes and one right-turn lane. | No | 100% | | AM | 33.7 | C | LTS |
| | | | | | | | PM | 22.9 | C | LTS |
| 114 | Calle Del Sol/Calle Del Luna | Santa Clara | Signalize. | Possible | 100% | | AM | 11.8 | B | LTS |
| | | | | | | | PM | 12.8 | B | LTS |
| 123 | Great America Parkway/Gold Street Connector[c] | Santa Clara | Add a second northbound right-turn lane (from Int. 57 dual westbound right-turn lanes). | Yes | 100% | [c] | AM | 9.3 | A | LTS |
| | | | | | | | PM | 9.8 | A | LTS |

**Table 3.3-54. Cumulative with-Project Intersection Mitigation Measures – Variant Access Scheme[a]**

| ID | Intersection | Jurisdiction/ CMP[b] | Mitigation Measure[d] | ROW Needed?[e] | Project Responsibility[f] | Cumulative Impact Only | Peak Hour | Delay and LOS with Mitigation Measure | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Delay[g] | LOS | Sig?[h] |

Notes:

a. For the Variant Access Scheme analysis, only a subset of intersections were studied (Intersections 8, 9, 10, 11, 12, 13, 14, 57, 58, 59, 60, 61, 62, 63, 84, 85, 86, 87, 88, 89, 90, 114, 123). Cumulative impacts and mitigation measures at the other off-site intersection would be the same as with Base Access Scheme.

b. CMP = Congestion Management Program intersection (VTA).

c. This intersection is not an affected intersection but would need to be modified to accommodate the improvements at Intersection #57: Great America Parkway/SR 237 WB Ramps.

d. Off-setting Mitigation: In the North San José Deficiency Plan area, off-setting local street network, transit, bicycle, and pedestrian improvements were identified to accommodate future travel growth, but not directly mitigate the intersection with the identified impact. Partial Mitigation: The proposed mitigation measure mitigates the impact at one but not the other peak hour or reduces the delay but not enough to mitigate the impact.

e. ROW = right-of-way. "Yes" = additional right-of-way is required to construct the proposed mitigation measure. This includes relocating existing curbs and gutters. "Possible" = additional right-of-way may be needed to maintain bike lanes or transit facilities, such as bus duck-outs. "No" = the proposed mitigation measures will fit within the existing right-of-way and existing curb-to-curb widths. Curbs and gutters will not need to be relocated, but the median may need to be modified.

f. "100%" = The cost and construction of the proposed mitigation measure is the full responsibility of the Project Developer. These are discrete mitigation measures that either fully or partially mitigate significant Project impacts. "0%" = There is no feasible mitigation measure. "% of Total Traffic" = Project Developer shall pay a fair-share contribution to the proposed mitigation measure, which is typically a larger transportation improvement, such as an expressway interchange, that has been identified in an adopted plan. "Pay North San José fee or fair-share contribution of alternative or off-setting mitigation" = The Project Developer can pay the North San José fee or a fair-share contribution for the mitigation measure or off-setting mitigation measure based on the amount of Project's percent contribution of the added traffic at the intersection.

g. Signalized intersections: whole-intersection average control delay per vehicle (seconds). Unsignalized intersections: worst-approach average control delay per vehicle (seconds).

h. LTS = Less than significant with mitigation, SU = significant and unavoidable. Significance determination is based on draft mitigation and responsible jurisdiction of the intersection. See mitigation list summary, which describes the mitigation in more detail.

**Bold** text indicates intersection operates at a deficient LOS.

**Bold and highlighted** indicates a significant impact (with mitigation).

* Intersection improvement identified at this intersection under cumulative no-project conditions and with-Project conditions. See Appendix 3.3-D.

Source: Fehr & Peers, September 2015.

LOS calculations were conducted for the intersections with mitigation measures. The results are presented in Table 3.3-54. The conclusions are:

- Three intersections located within City of Santa Clara jurisdiction would have impacts reduced to a ***less-than-significant*** *level* with implementation of the mitigation measures in Table 3.3-54.
    - Intersection 13: Calle Del Sol/Tasman Drive
    - Intersection 57: Great America Parkway/SR 237 WB Ramps
    - Intersection 90: Lafayette Street/Calle De Luna
- Four intersections located within City of Santa Clara jurisdiction could be partially mitigated with implementation of the mitigation measures in Table 3.3-54, but the impact would remain ***significant and unavoidable*****:**
    - Intersection 8: Great America Parkway/Tasman Drive
    - Intersection 14: Lick Mill Boulevard/Tasman Drive
    - Intersection 59: Great America Parkway/Yerba Buena (Great America) Way

Intersection 60: Great America Parkway/Old Mountain View-Alviso Road

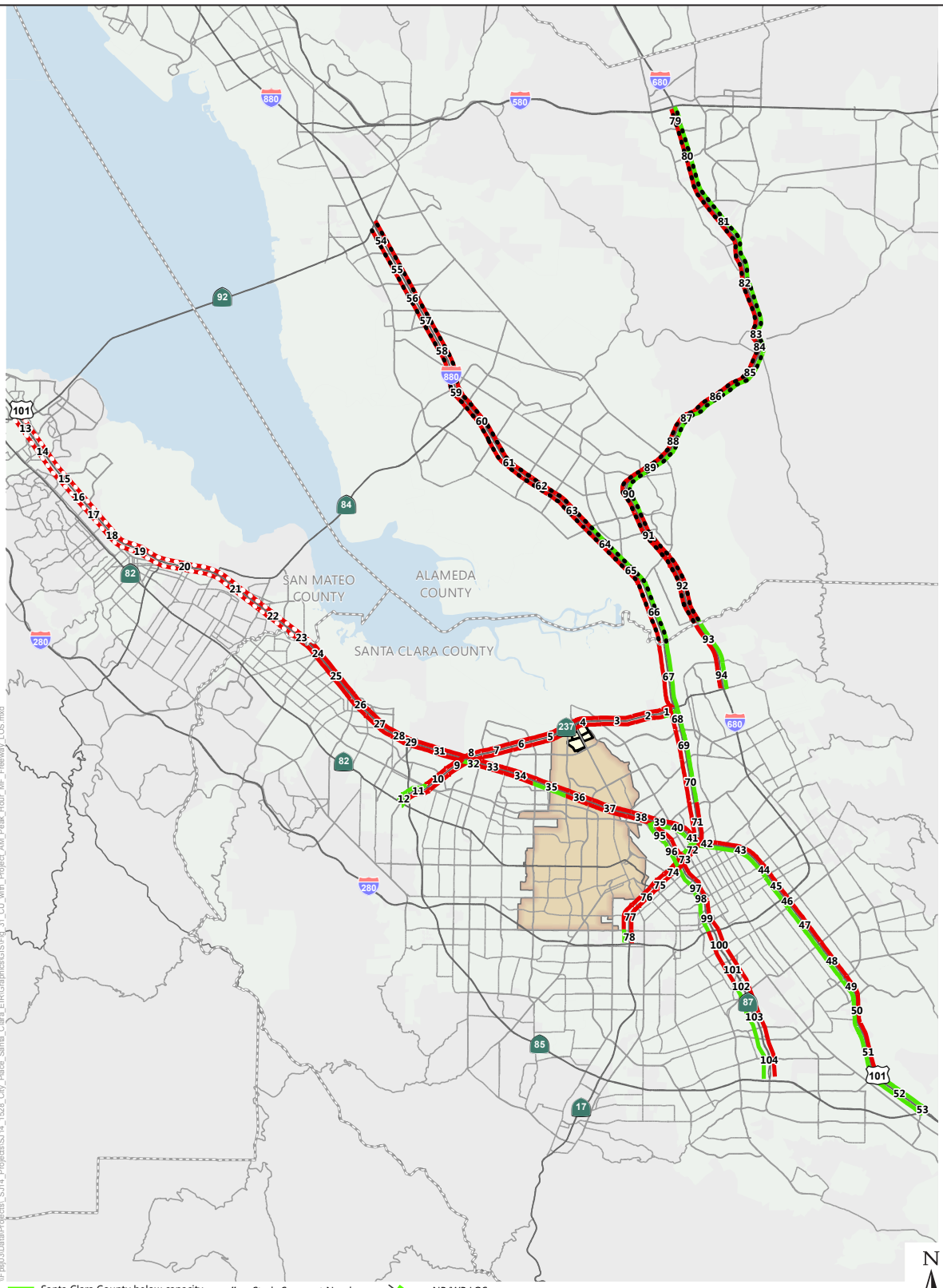
- Two intersections located within City of Santa Clara jurisdiction have no feasible mitigation measure; therefore, the impact would remain ***significant and unavoidable*****:**
    - Intersection 9: Convention Center/Tasman Drive
    - Intersection 11: Centennial Boulevard/Tasman Drive
- One affected intersection is located outside of City of Santa Clara jurisdiction, and implementation of the mitigation measure cannot be guaranteed; therefore, the impact would remain ***significant and unavoidable***. Operations returned to an acceptable LOS with the identified improvement found in Table 3.3-54.
    - Intersection 84: Gold Street/Gold Street Connector

Intersections 58 and 123 are not affected intersections but would need to be modified to accommodate the mitigation measures at Intersection 57, Great America Parkway/SR 237 WB Ramps.

**Impact TRA-17: Impacts on Freeway Segments under Cumulative with-Project Conditions. Increases in traffic associated with the Project under the cumulative with-Project conditions would result in considerable contributions to numerous freeway segments with cumulative impacts. (SU)**

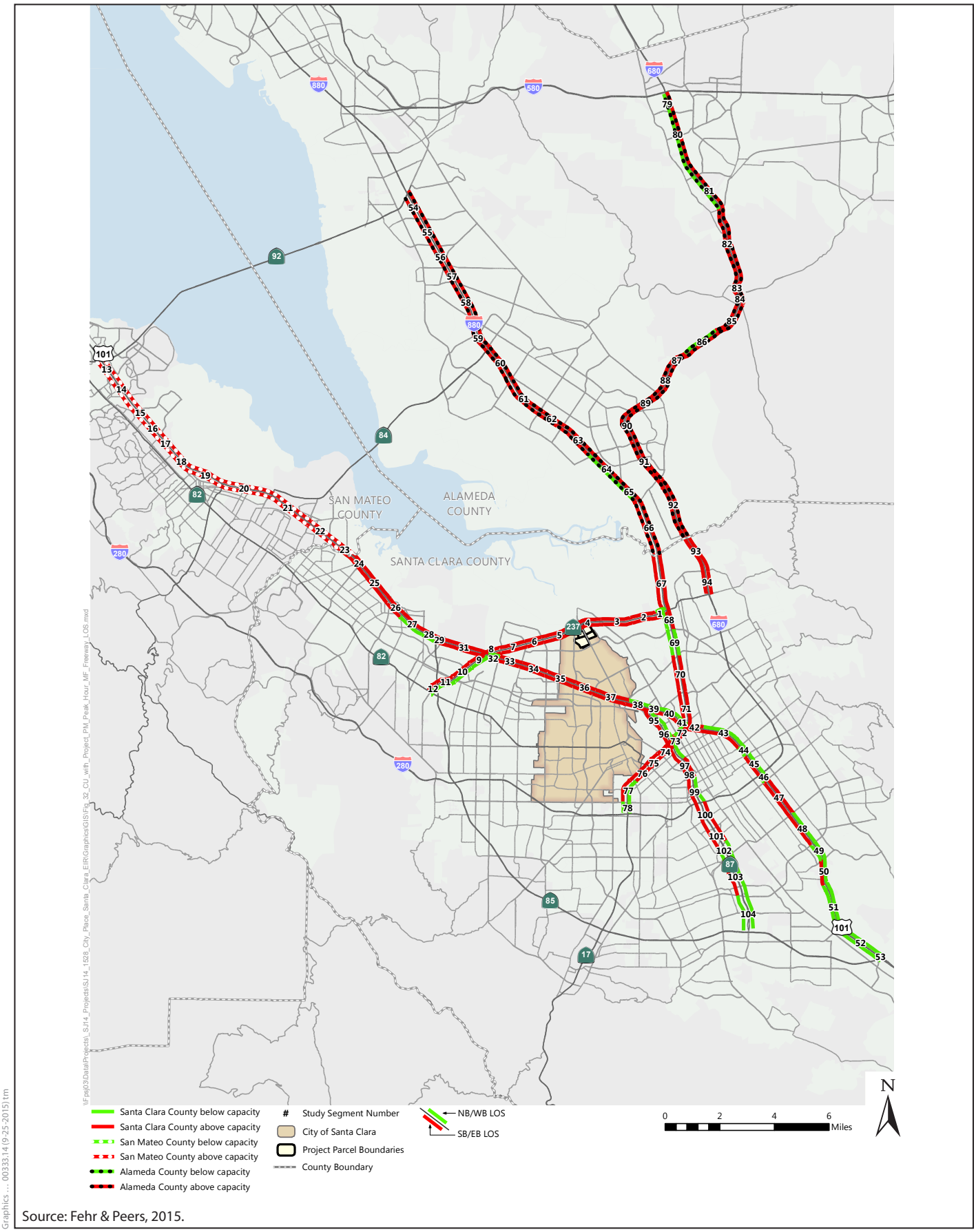
The results of the freeway segment analysis for cumulative and cumulative with-Project conditions are presented in Table H-5. This table also includes the results for existing conditions and identifies the freeway segments with significant cumulative impacts and those where the Project's contribution would be cumulatively considerable. Figures 3.3-31, 3.3-32, 3.3-33, and 3.3-34 show the mixed-flow and HOV lanes that exceed the LOS standards during the AM and PM Peak Hours under cumulative with-Project conditions. The results of the LOS calculations indicate there will be cumulative impacts on 236 freeway segments and the Project's contribution would be considerable on all of them.

MITIGATION MEASURES. With Mitigation Measures TRA-1.1 and TRA-4.1 (above), these cumulative impacts would be reduced, but certain segments would still have significant cumulative impacts. Thus the Project's contribution to cumulative freeway impacts would remain ***significant and unavoidable.***



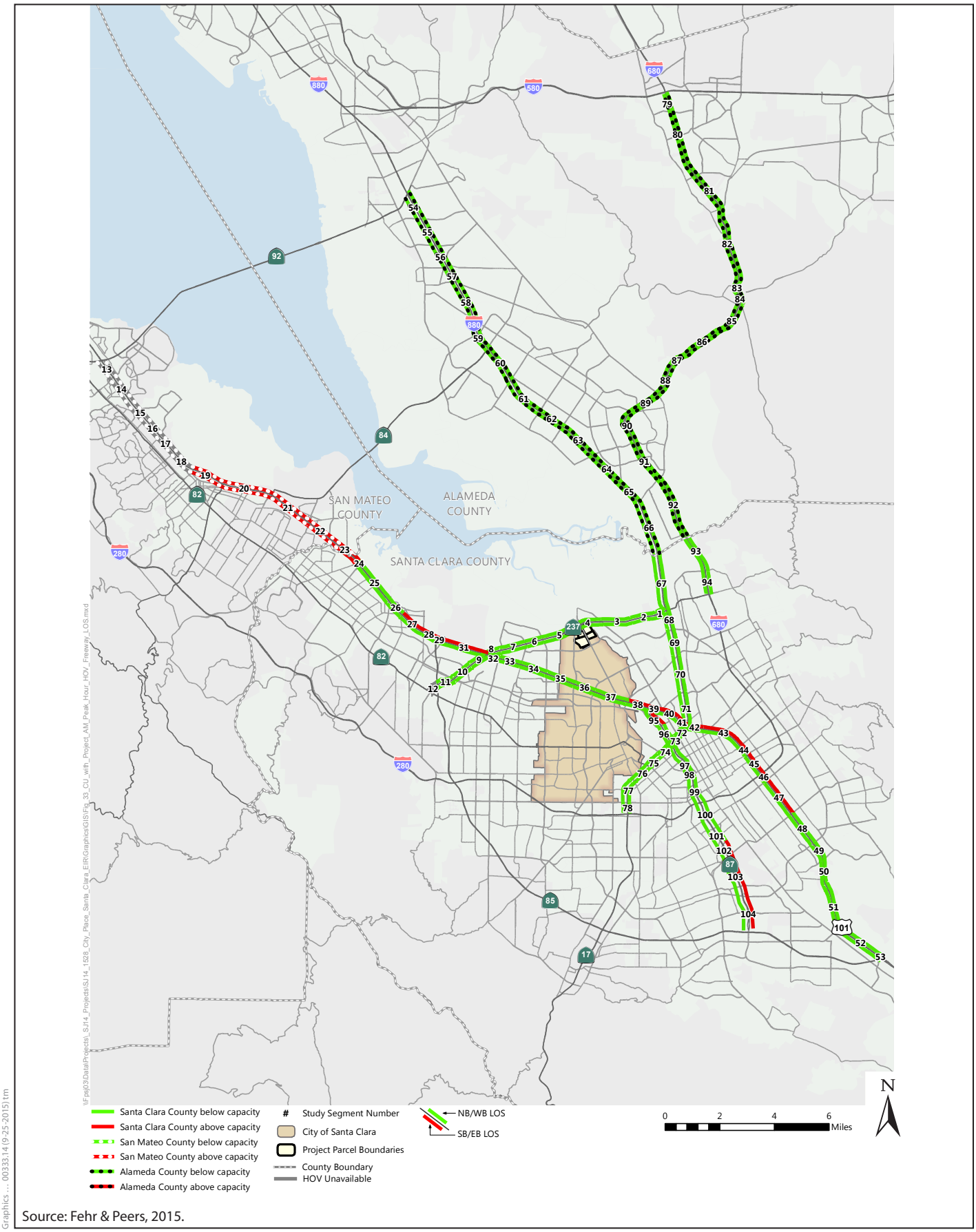

Source: Fehr & Peers, 2015.

**Figure 3.3-31**
**Cumulative with Project AM Peak Hour Directional Mixed-Flow Freeway Segment Results**
City Place Santa Clara



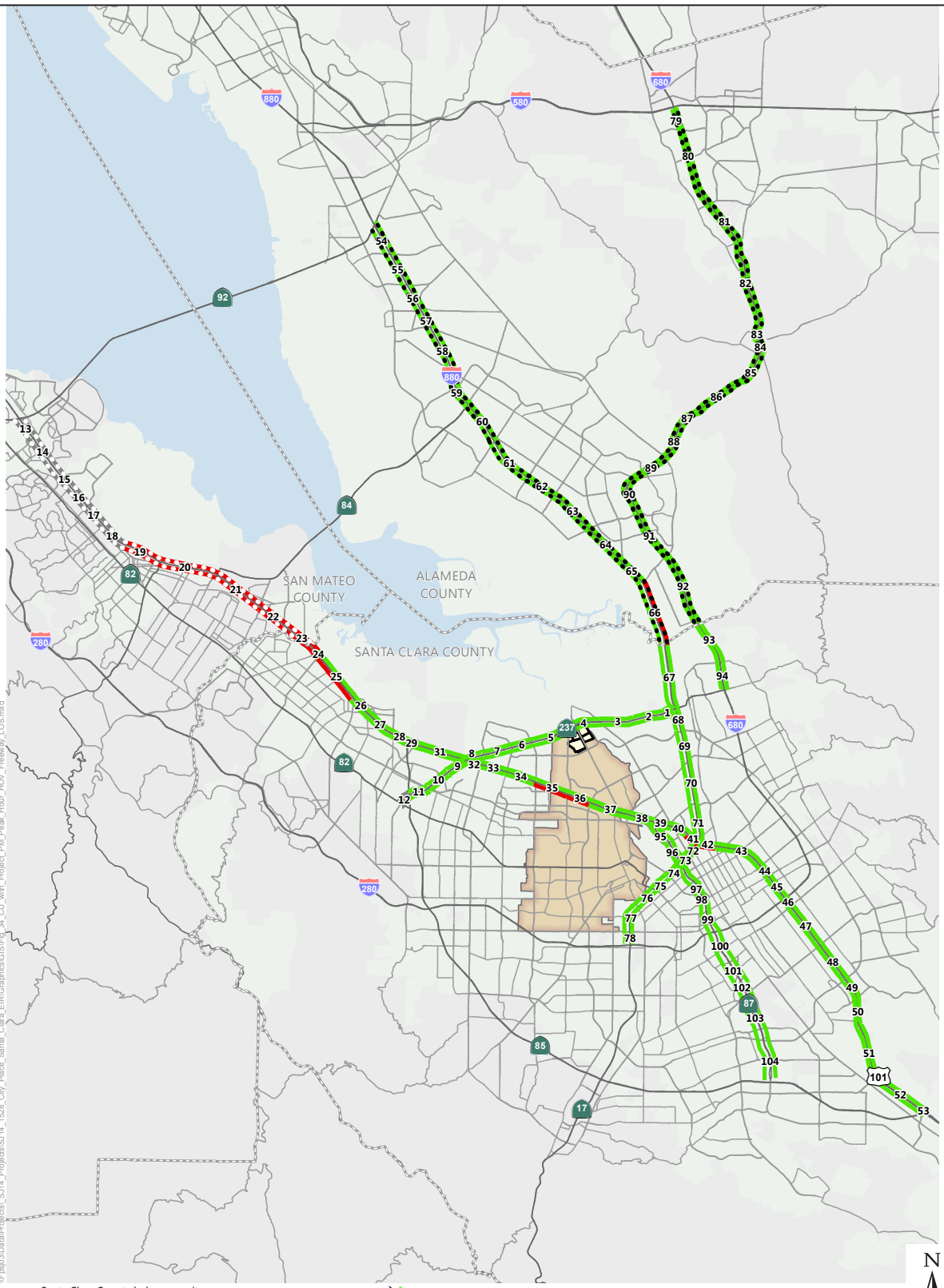

Source: Fehr & Peers, 2015.

**Figure 3.3-32**
**Cumulative with Project PM Peak Hour Directional Mixed-Flow Freeway Segment Results**
City Place Santa Clara




Source: Fehr & Peers, 2015.

**Figure 3.3-33**
**Cumulative with Project AM Peak Hour Directional HOV Freeway Segment Results**
City Place Santa Clara




Source: Fehr & Peers, 2015.

**Figure 3.3-34**
**Cumulative with Project PM Peak Hour Directional HOV Freeway Segment Results**
City Place Santa Clara

# Construction Impacts

**Impact TRA-18: Construction Traffic. Construction traffic would result in short-term increases in traffic volumes that would cause significant impacts on intersection and freeway segment levels of service and temporary road closures requiring detours for vehicles accessing the Great America ACE/Capitol Corridor Station. (SU)**

Construction activities include those associated with site preparation and building construction. Major components of site preparation would involve removing the existing parking lots and buildings, excavating and grading of the site, constructing temporary roads (with associated road closures), and constructing necessary infrastructure. A variety of equipment would be required for the site preparation stage, including bulldozers, grading machines, scrapers, and dump trucks, which would be responsible for the removal and deposition of cut and fill material on the site.

Building construction involves the assembly of the buildings and parking structures. Major elements of building construction would include installation of foundation systems, erection of the building frame, plumbing, electrical and mechanical rough-in, exterior enclosure including glazing and roofing, and interior finishes.

Construction activities are expected to commence in 2016 and be completed by the end of 2031. Construction will occur in phases as shown in Table 3.3-55 and could peak between November 2018 and March 2019 if construction activities during Phases 1, 2, and 3 occur concurrently. Parcel 5 will be the first phase of construction, followed by Parcel 4 Phase 1 and 2. Documentation of the construction activities is contained in Appendix 3.3-L.[16] Staging of construction equipment would be provided on-site. Project materials would be delivered as needed.

**Table 3.3-55. City Place Construction Activities, Start and End Dates, and Daily Trucks and Workers[a]**

| | | | No. of Trucks | | No. of Workers | |
|---|---|---|---|---|---|---|
| Construction Activity | Start Date | End Date | Peak | Average | Peak | Average |
| ***PARCEL 5 Phase 1*** | | | | | | |
| Clearing, Grubbing, and Grading | Oct. 2016 | Dec. 2016 | 5 | 3 | 30 | 15 |
| Demolition | Oct. 2016 | Dec. 2016 | 16 | 2 | 0 | 0 |
| Auger Cast Caissons and Site Utilities | Nov. 2016 | Jan. 2017 | 22 | 22 | 120 | 80 |
| Curb, Gutter, Interiors Roads | June 2017 | Sept. 2017 | 20 | 6 | 150 | 100 |
| Building Construction | Feb. 2017 | March 2019 | 30 | 20 | 1,000 | 500 |
| ***PARCEL 4 Phase 1 and 2*** | | | | | | |
| Clearing, Grubbing, and Grading | Feb. 2017 | Aug. 2017 | 7 | 5 | 60 | 30 |
| Demolition | Jan. 2017 | Feb. 2017 | 34 | 34 | 30 | 30 |
| Auger Cast Caissons and Site Utilities | July 2017 | March 2018 | 84 | 66 | 300 | 150 |
| Curb, Gutter, Interiors Roads | Dec. 2018 | July 2019 | 32 | 24 | 360 | 200 |
| Building Construction | March 2018 | Aug. 2020 | 45 | 29 | 2,700 | 1,200 |

[16] The construction schedule is flexible;the actual timing and pace of the construction activities is not certain. The analysis is based on data provided by Related Companies, which is the best available information. The analysis evaluates the projected peak construction period as a conservative assumption.

**Table 3.3-55. City Place Construction Activities, Start and End Dates, and Daily Trucks and Workers[a]**

| | | | No. of Trucks | | No. of Workers | |
|---|---|---|---|---|---|---|
| Construction Activity | Start Date | End Date | Peak | Average | Peak | Average |
| ***PARCEL 4 Phase 3*** | | | | | | |
| Auger Cast Caissons and Site Utilities | July 2019 | Oct. 2019 | 56 | 44 | 250 | 150 |
| Curb, Gutter, Interiors Roads | Dec. 2018 | April 2019 | 17 | 5 | 300 | 200 |
| Building Construction | Feb. 2019 | March 2021 | 27 | 10 | 900 | 550 |
| ***PARCEL 4 Phase 4*** | | | | | | |
| Clearing, Grubbing, and Grading | Oct. 2020 | March 2021 | 32 | 23 | 50 | 30 |
| Auger Cast Caissons and Site Utilities | March 2021 | June 2021 | 28 | 32 | 250 | 150 |
| Curb, Gutter, Interiors Roads | Nov. 2021 | April 2022 | 20 | 6 | 300 | 200 |
| Building Construction | July 2021 | March 2023 | 35 | 23 | 1,100 | 550 |
| ***PARCEL 3 Phase 5*** | | | | | | |
| Export to Parcel 4[b] | May 2017 | June 2017 | | | | |
| Clearing, Grubbing, and Grading | Oct. 2022 | March 2023 | 5 | 3 | 60 | 30 |
| Auger Cast Caissons and Site Utilities | Jan. 2023 | April 2023 | 19 | 15 | 250 | 150 |
| Curb, Gutter, Interiors Roads | July 2023 | Dec. 2023 | 13 | 4 | 300 | 200 |
| Building Construction | April 2023 | March 2025 | 23 | 15 | 900 | 550 |
| ***PARCEL 1 Phase 6*** | | | | | | |
| Clearing, Grubbing, and Grading | Oct. 2024 | Dec. 2024 | 2 | 1 | 60 | 30 |
| Auger Cast Caissons and Site Utilities | Nov. 2024 | Feb. 2025 | 28 | 22 | 250 | 150 |
| Curb, Gutter, Interiors Roads | Nov. 2024 | March 2025 | 20 | 6 | 320 | 200 |
| Building Construction | Feb. 2025 | March 2027 | 32 | 21 | 1,200 | 700 |
| ***PARCEL 2 Phase 7*** | | | | | | |
| Clearing, Grubbing, and Grading | Oct. 2026 | Nov. 2026 | 2 | 1 | 60 | 30 |
| Demolition | | | | | | |
| Auger Cast Caissons and Site Utilities | Nov. 2026 | Feb. 2027 | 28 | 22 | 120 | 60 |
| Curb, Gutter, Interiors Roads | May 2027 | Sept. 2027 | 20 | 6 | 200 | 80 |
| Building Construction | Feb. 2027 | March 2029 | 29 | 19 | 1,100 | 500 |
| ***PARCEL 2 Phase 8*** | | | | | | |
| Clearing, Grubbing, and Grading | Oct. 2028 | Jan. 2029 | 2 | 1 | 60 | 30 |
| Demolition | | | | | | |
| Auger Cast Caissons and Site Utilities | Nov. 2028 | Feb. 2029 | 28 | 22 | 120 | 60 |
| Curb, Gutter, Interiors Roads | Oct. 2028 | March 2029 | 20 | 6 | 200 | 80 |
| Building Construction | Feb. 2029 | March 2031 | 29 | 19 | 1,100 | 500 |

**Table 3.3-55. City Place Construction Activities, Start and End Dates, and Daily Trucks and Workers[a]**

| | | | No. of Trucks | | No. of Workers | |
|---|---|---|---|---|---|---|
| Construction Activity | Start Date | End Date | Peak | Average | Peak | Average |

Source: Related Companies, September 2015.

Notes:

a. The construction schedule is flexible; the actual timing and pace of the construction activities is not certain. The analysis is based on data provided by Related Companies, which is the best available information. The analysis evaluates the projected peak construction period as a conservative assumption.

b. No trucks are identified for this Phase because it happens concurrently with Parcel 4 Phase 2, where the needed trucks are identified.

## Construction Traffic Estimates

The duration and intensity of construction activities will vary considerably over the construction period. The projected peak construction activity period was evaluated to assess potential construction-related transportation impacts.

The construction activities are projected to peak between November 2018 and March 2019. During this time, on an average day, there would be approximately 100 trucks and 2,700 workers traveling to and from the site. These numbers could increase to 150 trucks and 5,300 workers if all of the peak activities were to occur simultaneously.

Assuming that the truck trips would be spread out throughout the day, approximately 10 percent would occur during the AM and PM Peak Hours. Construction workers typically arrive before the AM Peak Hour and leave before the PM Peak Hour, and many of the workers carpool. It is assumed that 30 percent would arrive during the AM Peak Hour and 30 percent would leave during the PM Peak Hour, with an average vehicle occupancy of 1.5 workers per vehicle. Since trucks are larger than passenger vehicles and operate differently (take longer to accelerate and decelerate), an industry-standard passenger car equivalency factor (PCE) of 3 is applied to convert truck trips to passenger vehicle trips. The daily and peak hour construction traffic estimates for the peak construction period are summarized in Table 3.3-56.

**Table 3.3-56. City Place Construction Traffic Estimates – Peak Construction Period**

| | Daily | | Peak Hour | |
|---|---|---|---|---|
| *Item* | Peak | Average | Peak | Average |
| Trucks | 150 | 100 | 15 | 10 |
| Workers | 5,300 | 2,700 | 1,590 | 810 |
| *Passenger Car Equivalents (PCEs)* | | | | |
| Trucks | 450 | 300 | 45 | 30 |
| Worker Vehicles | 3,550 | 1,800 | 1,060 | 540 |
| Total Traffic | 4,000 | 2,100 | 1,105 | 570 |

Notes:

a. Trucks are converted to Passenger Car Equivalents (PCEs) with a PCE factor of 3.0 to account for their longer length and slower operating characteristics.

The peak construction activities would generate 2,100 to 4,000 vehicle trips per day with 570 to 1,105 during the peak hours. This amount of traffic would be much lower than the number of vehicle trips generated by the Project at build-out. Therefore, the impacts of the construction traffic would be contained within the Project impacts disclosed in this document. However, construction activities generate a substantial amount of traffic, and the identified Project mitigation measures would most likely not yet be in place. Several freeway segments and intersections near the site currently operate at unacceptable levels of service and additional locations are projected to operate unacceptably due to planned growth in the area. The traffic volumes generated by the construction activities would add traffic greater than one percent of the capacities for freeways segments operating at LOS F and increase delays at intersections operating at LOS F by more than four seconds, causing significant impacts.

## Construction Worker Parking

Construction workers will be required to park on-site. The Project Developer has ascertained that a sufficient amount of parking area would be provided to ensure that construction workers would not encroach onto nearby properties.

## Effect on Bicycle, Pedestrian, and Transit Circulation

Emergency vehicle, bicycle, pedestrian, and transit facilities must be maintained along the Project frontages. The construction activities cannot impede light-rail or bus operations on Tasman Drive without prior approval and adequate countermeasures approved by the VTA. Portions of Stars and Stripes Drive would be closed during initial phases. A temporary road would be constructed, connecting the north-south portion of this road to Great America Parkway. The shuttles to Great America ACE/Capitol Corridor Station would be re-routed. The road closures would affect access to Santa Clara Fire Station 10 (Fire Station 10). Other temporary/partial road closures due to construction activities and construction vehicles on the roadways would affect emergency vehicle access and response times. A Construction Management Plan would be developed that would include provisions to maintain these facilities and services.

MITIGATION MEASURE. Construction Management Plan. A Construction Management Plan would minimize disruptions to transportation facilities and services, including emergency vehicle response times, caused by Project construction activities. However, the amount of traffic associated with the construction of the Project would cause significant impacts on freeway segment and intersections with no identified mitigation measures. In addition, temporary road closures would require shuttles to be re-routed. Therefore, the transportation impact of construction activities would remain ***significant and unavoidable***.

*TRA-18.1: Construction Management.* Prior to the issuance of each building permit, the Project Developer and construction contractor shall meet with the Public Works Department to determine traffic management strategies to reduce, to the maximum extent feasible, traffic congestion during construction of the Project and develop acceptable detour routes for emergency vehicles and for shuttles to the Great America ACE/Capitol Corridor station. The Project Developer shall prepare a Construction Management Plan for review and approval by the Public Works Department. The plan, which shall be implemented during construction, shall include at least the following items and requirements:

- A set of comprehensive traffic control measures, including detour signs if required, lane closure procedures, sidewalk closure procedures, signs, cones for drivers, and designated construction access routes.

- Notification procedures for adjacent property owners, the public, transit operators, and public safety personnel regarding when detours and lane closures will occur.
- Location of construction staging areas for materials, equipment, and vehicles (must be located on the Project site).
- Identification of haul routes for movement of construction vehicles that would minimize impacts on vehicular, pedestrian, and transit vehicle traffic, circulation and safety; and provision for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected. Construction vehicles shall be required to use designated truck/haul routes.
- Provisions for removal of trash generated by Project construction activity.
- A process for responding to and tracking complaints pertaining to construction activity.
- Construction vehicles and construction workers shall not be allowed to park in adjacent residential neighborhoods. Construction vehicles will be required to park either in the construction zone or in the temporary parking lots.

# Game-Day Analysis

**Impact TRA-19: Intersections with Special Event Traffic. Project traffic would exacerbate unacceptable levels of service at intersections near the site and Levi's Stadium during special events. (SU)**

City Place Santa Clara is located near Levi's Stadium, a 68,500-seat special events center and home to the San Francisco 49ers football team, located on the south side of Tasman Drive just to the south of the Project site. Traffic patterns in the area change substantially before and after an event due to the number of people traveling to and from the stadium, the closure of Tasman Drive between Great America Parkway and Centennial Boulevard, and the closure of the San Tomas Aquino Creek Trail from Agnew Road to Tasman Drive.

A variety of events are held at Levi's Stadium each year: 10 pre-season and regular-season 49ers football games (typically on Sundays at 1:00 p.m., with one or two Monday/Thursday/Saturday night games), college football games (variety of days and times), concerts (mostly weekend evenings at 8:00 p.m.), and other events (WrestleMania, Monster Jam, etc., on weekend evenings). In total, approximately 20 to 25 events occur each year. The events that happen most frequently and that have the highest attendance are the Sunday football games (approximately eight per year). Therefore, traffic conditions on the roadways near the Project site on a Sunday with a 49ers game and with completion of the Project are addressed in this section.[17]

## Overview of Current Traffic Management and Operations Plan

Levi's Stadium is located between US 101 and SR 237, adjacent to VTA's light-rail line, and near the ACE and Capitol Corridor (Amtrak) Great America train station. People attending events at Levi's Stadium arrive by a variety of travel modes including train, bus, bicycle, private coach, and private vehicle. The transit services operated by VTA are illustrated in the image on the next page.

[17] Impacts and mitigation associated with the 49ers stadium can be found in the *49ers Santa Clara Stadium Project EIR* (2009).

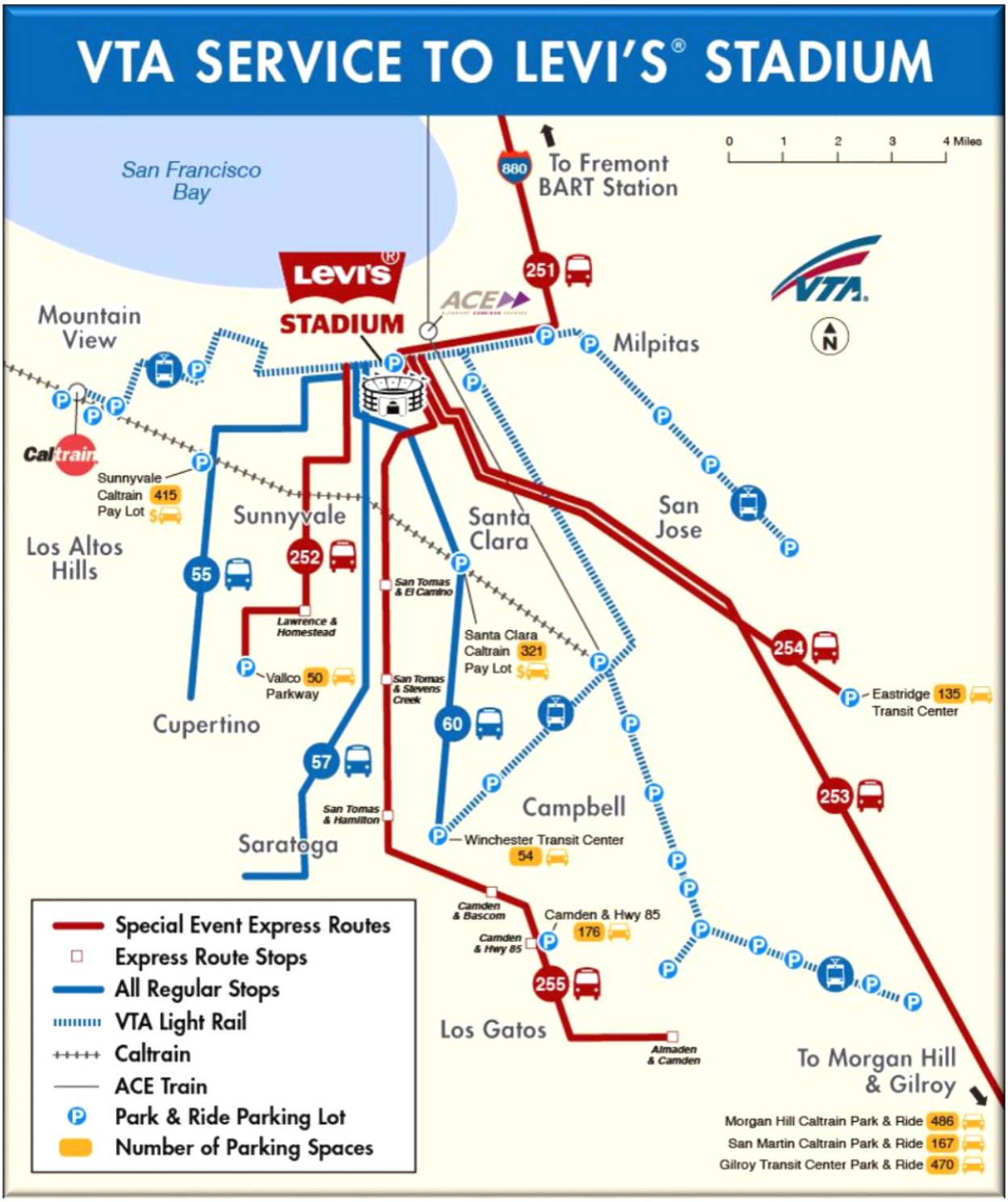
The City of Santa Clara has developed a Traffic Management and Operations Plan (TMOP) to facilitate the movement of people using all modes and to minimize the duration of traffic congestion before and after events. Before and after each event, City of Santa Clara staff members from multiple departments meet with other local, regional, State and federal agencies to prepare for and review the access and egress plans for transportation. The key features of the plan are:

## Pre-game

- Closure of Tasman Drive between the Convention Center and Centennial Boulevard.
- Closure of Old Glory Lane between Great America Parkway and Old Ironsides Drive.
- Closure of the San Tomas Aquino Creek Trail from Agnew Road to Tasman Drive.
- One Great America Parkway lane in each direction (south of Old Mountain View-Alviso Road) designated as an entrance lane for the Santa Clara Golf & Tennis Club parking lot (Red Lot 6).
- One Lafayette Street northbound lane (at Bicycle-Motocross (BMX)/Golf Course Driveway) designated as an entrance lane for one of the parking lots (Red Lot 8).
- Restricted turning movements in/out of minor streets (i.e.; Bunker Hill Lane, Patrick Henry Drive, Lick Mill Boulevard, and Great America Way).
- Pre-assigned parking lots and travel routes.

## Post-game

- Closure of Tasman Drive between the Convention Center and Centennial Boulevard.
- Closure of eastbound Tasman Drive between Reamwood Avenue and Old Ironsides Drive.
- Closure of westbound Tasman Drive between Calle Del Sol and Centennial Boulevard.
- Closure of southbound Great America Parkway between Old Mountain View-Alviso Road and Tasman Drive.
- Closure of northbound Great America Parkway between Tasman Drive and Mission College Boulevard.
- Closure of Old Glory Lane between Great America Parkway and Old Ironsides Drive.
- Closure of the San Tomas Aquino Creek Trail from Agnew Road to Tasman Drive.
- One northbound Great America Parkway lane (south of Old Mountain View-Alviso Road) designated as an exit lane for the Santa Clara Golf & Tennis Club parking lot (Red Lot 6).
- One westbound Tasman through lane (at Lawrence Expressway) designated as an exclusive westbound right-turn lane.
- One Lafayette Street northbound lane (at BMX/Golf Course Driveway) designated as an exclusive exit lane for one of the parking lots (Red Lot 8).
- Restricted turning movements in/out of minor streets (i.e., Bunker Hill Lane, Patrick Henry Drive, Lick Mill Boulevard, and Great America Way).
- Pre-assigned parking lots and exit routes.


VTA SERVICE TO LEVI'S® STADIUM
San Francisco Bay
To Fremont BART Station
0 1 2 3 4 Miles
Levi's® STADIUM
ACE
VTA
N
Mountain View
Milpitas
Caltrain
Sunnyvale Caltrain 415 Pay Lot
Sunnyvale
Santa Clara
San Jose
Los Altos Hills
Lawrence & Homestead
San Tomas & El Camino
Santa Clara Caltrain 321 Pay Lot
Vallco 50 Parkway
San Tomas & Stevens Creek
Eastridge 135 Transit Center
Cupertino
Campbell
San Tomas & Hamilton
Winchester Transit Center 54
Saratoga
Camden & Bascom
Camden & Hwy 85 176
Camden & Hwy 85
Los Gatos
Almaden & Camden
To Morgan Hill & Gilroy
Morgan Hill Caltrain Park & Ride 486
San Martin Caltrain Park & Ride 167
Gilroy Transit Center Park & Ride 470
Special Event Express Routes
Express Route Stops
All Regular Stops
VTA Light Rail
Caltrain
ACE Train
Park & Ride Parking Lot
Number of Parking Spaces

Most people use private vehicles to travel to and from the stadium. Therefore, one of the main focuses of the TMOP is directing vehicles to and from the parking lots shown in Figure 3.3-35, some of which are located on the site of City Place Santa Clara (Red Lots 6, 7, and 8). Fans get parking passes pre-assigned to particular lots with their ticket purchases, and drivers are given instructions regarding travel routes (the color coding is based on the access routing). The stadium's website[18] has an information video that describes the travel routes for each lot. The routings minimize traffic conflicts and therefore minimize congestion.

Two sets of traffic control plans have been developed, one for pre-event and another for post-event conditions. Temporary signage, temporary lane closures, and traffic control personnel are used to direct traffic on the roadways and to and from the lots. The City will continue to refine the TMOP based on field observations on event days.

## Existing Transportation Conditions on a Game Day

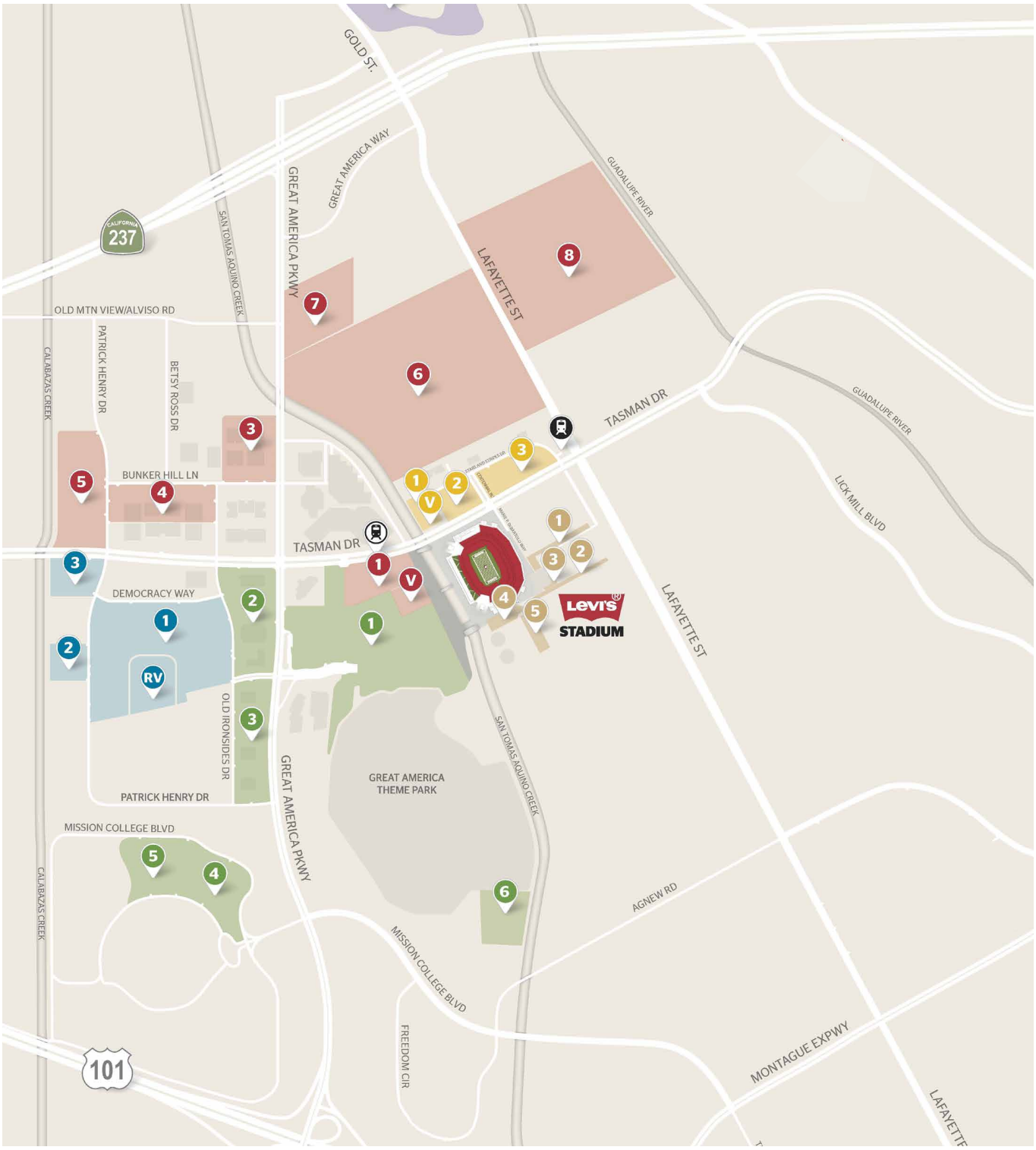
Observations of traffic conditions near the stadium were made on Sunday, December 28, 2014, before and after the San Francisco 49ers vs. Arizona Cardinals football game. The attendance on that day was 64,110; therefore, it represents conditions with a near sell-out event.

### Before Game

Traffic starts arriving approximately three hours before game start time and is relatively constant until the start time, with a small number of late arrivals. Because of the pre-assigned parking lots/travel routes and the traffic loads being spread out over several hours, little congestion occurs on the freeways. Congestion and vehicle queuing occurs on Great America Parkway and Tasman Drive near the entrances to the parking lots. During the most congested periods, the following occurs:

- Vehicle queues on northbound Great America Parkway extend from Old Glory Lane to Mission College Boulevard due to vehicles trying to enter Green Lot 1 at Old Glory Lane. Intersection operations at Great America Parkway/Mission College Boulevard are degraded as a result.
- Vehicle queues on southbound Great America Parkway extend from approximately 350 feet south of Old Mountain View-Alviso Road to the westbound SR 237 off-ramp.
- Eastbound Tasman Drive is narrowed to one lane at Great America Parkway, with only event parking lot access beyond that point. The queue on eastbound Tasman Drive extends to Lawrence Expressway. Intersection operations at Tasman Drive/Lawrence Expressway are congested as a result.
- Westbound Tasman Drive is also restricted to parking access beyond Calle Del Sol. The queue on westbound Tasman Drive extends to North First Street in San José.
- The queue of vehicles in the southbound left-turn pockets on Great America Parkway at Tasman Drive spills out of the pocket occasionally, but only blocks the southbound through movement to a limited extent.
- CHP officers direct traffic, minimizing on-street queuing at the Red Lot 6 entrance south of Old Mountain View-Alviso Road. While there are two southbound left-turn lanes, the median lane is used more heavily.

[18] The 49ers traffic-flow instructions can be accessed from the following web link: http://www.levisstadium.com/plan-your-visit/parking/.




http://www.levisstadium.com/plan-your-visit/parking | Dec 28, 2014

N

Source: Fehr & Peers, 2015.

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**Figure 3.3-35**
**Levi's Stadium Parking Areas**
City Place Santa Clara

- With the closure of Tasman Drive, disembarking light-rail passengers are able to walk directly to the stadium entrances with minimal conflicts with vehicles
- Overflow light-rail passengers (passengers not able to get on light-rail vehicles because they are over-crowded) from the Mountain View station arrive by buses and are offloaded on northbound Great America Parkway north of Tasman Drive.

Heavy pedestrian volumes occur on Tasman Drive because people walk from the parking lots on the north side to the stadium. While there is a heavy pedestrian demand on Tasman Drive at Great America Parkway, the restricted vehicular access on Tasman Drive east of Great America Parkway somewhat minimizes the effect of pedestrian traffic on intersection operations.

The Capitol Corridor Amtrak train service operates its usual schedule at the Great America Station on game days but adds one or two cars to each train to accommodate the increased passenger load. After each train arrives, a large group of pedestrians walk together on the south side of Tasman Drive with minimal effect on traffic operations.

## After Game

Unlike before a game when traffic flows are dispersed, traffic leaving the area after a game occurs in a concentrated fashion. The freeway on ramps to US 101 and SR 237 have insufficient capacity to accommodate the heavy traffic loads. As a result, vehicles back up on the on-ramps and onto Great America Parkway in the northbound direction near SR 237 and in the southbound direction near US 101. During the most congested periods, the following occurs:

- The queue of vehicles on northbound Great America Parkway extends from the westbound SR 237 on-ramp to Tasman Drive. Traffic from Red Lot 6, Green Lot 1 and adjacent lots all use Great America Parkway. Southbound local/non-event traffic on Great America Parkway between SR 237 and Tasman Drive is rerouted.
- Traffic on northbound Lafayette Street queues from the westbound SR 237 on-ramp at Great America Parkway, onto the Gold Street Connector and extend to Calle De Luna.
- Vehicle queues on southbound Great America Parkway extend from US 101 to Old Glory Lane. The northbound direction of this segment is restricted to minimize conflicts between local traffic and stadium traffic.
- Traffic on westbound Tasman Drive queues from Lawrence Expressway to Levi's Stadium due to the large number of vehicles trying to access SR 237 via Lawrence Expressway. Eastbound Tasman Drive is blocked off at Patrick Henry Drive.
- Traffic on eastbound Tasman Drive queues from N. First Street to Levi's Stadium.

All traffic congestion dissipates after approximately 1.5 to 2 hours. Most people using transit wait one hour or less. The light-rail platform at North First Street and Tasman Drive is congested as light-rail passengers transfer to the Winchester and Alum Rock-Santa Teresa lines to reach their final destinations.

Intersections that operate at LOS E and F before and after events based on field observations are summarized in Table 3.3-57. Congested intersections (LOS E or F) are characterized by poor progression, long cycle lengths, high vehicle demand with many vehicles experience very long cycle lengths.

**Table 3.3-57. Summary of Congested Intersections (Intersections Operations at LOS E or F Before and After Games)**

| ID | Intersection | Before Game | After Game |
|---|---|---|---|
| 3 | Lawrence Expressway/Tasman Drive | X | X |
| 4 | Birchwood Drive/Tasman Drive | X | X |
| 5 | Reamwood Avenue/Tasman Drive | X | X |
| 6 | Patrick Henry Drive/Tasman Drive | | X |
| 7 | Old Ironsides Drive/Tasman Drive | | X |
| 8 | Great America Parkway/Tasman Drive | | X |
| 9 | Convention Center/Tasman Drive | | X |
| 14 | Lick Mill Boulevard/Tasman Drive | X | X |
| 15 | Renaissance Drive/Tasman Drive | X | X |
| 16 | Vista Montana/Tasman Drive | X | X |
| 17 | Rio Robles/Tasman Drive | X | X |
| 57 | Great America Parkway/SR 237 WB Ramps | X | X |
| 58 | Great America Parkway/SR 237 EB Ramps | X | X |
| 59 | Great America Parkway/Yerba Buena (Great America) Way | X | X |
| 60 | Great America Parkway/Old Mountain View-Alviso Road | X | X |
| 63 | Great America Parkway/Bunker Hill Lane | | X |
| 64 | Great America Parkway/Old Glory Lane | | X |
| 65 | Great America Parkway/Patrick Henry Drive | X | X |
| 66 | Great America Parkway/Mission College Boulevard | X | X |
| 84 | Gold Street/Gold Street Connector | | X |
| 85 | Lafayette Street/Great America Way | | X |
| 89 | Lafayette Street/Calle Del Mundo | | X |
| 90 | Lafayette Street/Calle De Luna | | X |

Source: Fehr & Peers, 2015.

## Game-Day Conditions with the Project

### Project Traffic

The amount of traffic generated by the Project during a Sunday midday peak hour was estimated using trip generation rates and equations from the ITE *Trip Generation Manual*, ninth edition (2012), with appropriate adjustments to account for walking trips (especially between the stadium and hotels, restaurants, and drinking establishments), trips made on transit, a suppression of retail trips by would-be customers who avoid the area when a game is scheduled, and a suppression of trips generated by office employees who would elect to not go into the office on a game day. (It should be noted that the base Sunday office trip generation rates are low as employees generally do not work on Sundays.) The trip generation estimates are summarized in Table 3.3-58. (Detailed trip generation estimates are presented in Appendix 3.3-M.)

**Table 3.3-58. Game-Day (Sunday) Project Vehicle Trip Estimate Summary**

| | | Midday Peak Hour | | |
|---|---|---|---|---|
| Parcel | Daily | In | Out | Total |
| Parcel 1 | 490 | 40 | 30 | 70 |
| Parcel 2 | 4,450 | 210 | 210 | 420 |
| Parcel 3 | 290 | 20 | 20 | 40 |
| Parcel 4 (Phases 2 and 3) | 21,360 | 2,030 | 990 | 3,020 |
| Parcel 4 (Phase 4) | 440 | 40 | 20 | 60 |
| Parcel 5 | 5,680 | 430 | 370 | 800 |
| **Total** | **32,710** | **2,770** | **1,640** | **4,410** |

Source: Fehr & Peers, 2015.

As shown in Table 3.3-58, the Project would add approximately 32,700 vehicle trips to the surrounding roadways on a Sunday with a 49ers football game, with 4,400 occurring during the highest midday one-hour period. Parcel 4 (Phases 2 and 3) and Parcel 5 would generate the majority of the traffic.

## Sunday (Non-Game Day) Project Traffic

The amount of traffic generated by the Project during a Sunday without a football game or other special event at Levi's Stadium was estimated for comparison purposes using trip generation rates and equations from the ITE *Trip Generation Manual*, ninth edition (2012). Without a game or event, there would be no cause for retail and restaurant customers to avoid the area, and there would be no suppression of trips generated by office employees. The typical Sunday trip generation estimates are shown in Table 3.3-59. They include adjustments to account for trips made on transit. (Detailed trip generation estimates are presented in in Appendix 3.3-M.)

**Table 3.3-59. Typical Sunday (Non-Game Day) Project Vehicle Trip Estimate Summary**

| | | Midday Peak Hour | | |
|---|---|---|---|---|
| Parcel | Daily | In | Out | Total |
| Parcel 1 | 980 | 80 | 50 | 130 |
| Parcel 2 | 8,890 | 430 | 410 | 840 |
| Parcel 3 | 590 | 50 | 30 | 80 |
| Parcel 4 (Phase 2 and 3) | 55,440 | 4,100 | 3,570 | 7,670 |
| Parcel 4 (Phase 4) | 870 | 70 | 50 | 120 |
| Parcel 5 | 14,740 | 1,090 | 950 | 2,040 |
| **Total** | **81,510** | **5,820** | **5,060** | **10,880** |

Source: Fehr & Peers, 2015.

As shown in Table 3.3-59, the Project would add approximately 81,510 vehicle trips to the surrounding roadways on a typical Sunday, with 10,880 vehicle trips occurring during the highest one-hour period. Parcels 4 (Phases 2 and 3) and Parcel 5 would generate the majority of the traffic.

## Traffic Operations

Due to the roadway closures and detours, traffic approaching and departing City Place will primarily use Tasman Drive from the east and Lafayette Street. Intersections on these roadways near the site currently operate at LOS E and F, unacceptable levels, before and after games as shown in Table 3.3-57. Approximately 3,500 vehicles will be added to Lafayette Street between SR 237 and Tasman Drive, 1,000 to Tasman Drive east of Lafayette Street, and 1,500 vehicles to Great America Parkway between SR 237 and Tasman Drive during the one-hour period after a game. These vehicles will exacerbate the operations of the intersections along these roadway segments, including those operating at LOS E and F. The amount of added traffic will increase the vehicle delay by more than four seconds per vehicle, the threshold for a significant impact.

MITIGATION MEASURE. Modified TMOP and Traffic and Parking Management Plan. Modify the TMOP to include plans to direct stadium traffic to the new parking locations on the site and prepare a Traffic and Parking Management Plan to accommodate traffic going to and from the site on a game day. Intersections near the site would still operate at unacceptable levels. Therefore, the Project's impact on game-day conditions would remain ***significant and unavoidable.***

*TRA-19.1: Modified Traffic Management and Operations Plan (TMOP) and Project Traffic and Parking Management Plan:* Modify the City's TMOP to include plans to direct stadium traffic to the new parking locations on the site. (Some of the office parking areas will be used during special events.) A separate traffic and parking management plan shall be developed for the Project by the Project Developer and approved by the Director of Planning and Inspection and/or the Director of Public works. This plan would address:

- Parking areas to be used by office employees (versus stadium parking);
- Project customer/employee parking (versus stadium parking);
- Access and egress routes for vehicles to the site, taking into consideration the lane and roadway segment closures used to direct stadium traffic;
- A communications plan to inform customers and employees of game-day operations; and
- Operational improvements such as signal timing and coordination to maximize efficiency of the streets during peak periods.

Performance goals that reflect a successful traffic and parking management plan would be contained in the plan and may include items such as:

- Maintaining vehicular access to the Project with acceptable increases in travel times compared to non-game day conditions;
- Limited vehicle queuing within the Project site such that no internal circulation roadways are blocked; and
- Limited vehicle queuing extending from parking facilities within the Project onto external public roadways.

Even with mitigation, the local streets near the Project site would operate at an unacceptable LOS due to vehicle demand exceeding capacity. Widening roadways or intersections to increase capacity was considered as mitigation but rejected due to utility and secondary impacts. Street widening would provide capacity that would be needed only on game days and not at other

times. The City of Santa Clara General Plan has policies to discourage the widening of existing roadways without first considering operational improvements such as the items included in the existing TMOP and items that will be included in the TDM Plan.

# Secondary Impact Analysis for Transportation Mitigation Measures

## Overview

In order to mitigate the Project's traffic impacts, feasible off-site intersection improvements have been identified as Project mitigation. These mitigation measures, which are anticipated to be implemented, could increase the vehicle carrying capacity of intersections and reduce vehicle delay at the affected intersections. Table 3.3-60 identifies the off-site intersection improvements by specific location, type of improvement required, whether an additional ROW would be required, and the Project Developer's responsibility to implement the mitigation measure. Additionally, Table 3.3-60 provides context to the existing setting of the improvement locations. Intersection improvements, which vary in size and type, include adding right-turn or left-turn lanes, reconfiguring intersection approaches, adding lanes, and making interchange improvements.

Because the intersection improvements would be implemented as a result of the Project, a secondary environmental impact analysis was prepared that included the proposed improvements, with the following exceptions:

- Intersection improvements that are also part of the Yahoo! Santa Clara Campus Transportation Impact Analysis (TIA) are excluded because they were already reviewed as part of the Final EIR for the Yahoo! Santa Clara Campus Project that was certified in May 2010.
- Intersection improvements that identify signal operational changes (such as reconfiguring signal timing) are also not included in this secondary impact analysis, unless they require additional ROW. Installation of signal changes themselves would have no physical environmental impacts.
- Intersection improvements that require the Project Developer to pay a fee or fair-share contribution as part of the North San José Deficiency Plan or other transportation improvement plans are not included because the Project Developer is not responsible for implementing the identified improvements. Intersection improvements identified as part of the North San José Deficiency Plan would be implemented by the City of San José. Other intersection improvements would be the responsibility of the specific city in which they are located. The local Lead Agency will be responsible for complying with CEQA requirements prior to construction of these improvements. Although the specific environmental impacts at the intersections for which the Project Developer would make fair-share contributions will be analyzed as part of separate CEQA compliance, the environmental impacts would be similar to those described in the sections below for the different types of improvements.

The intersection improvements for which a secondary impact analysis is provided in this document can be categorized as follows:

**A. Intersection Improvements within Existing Road ROWs.** Because the improvements would occur within existing road ROWs that are highly disturbed, impacts would be limited in extent. Improvements within an existing ROW would occur at the following intersections:

23. Lick Mill Boulevard/Montague Expressway
82. San Tomas Expressway/Pruneridge Avenue
90. Lafayette Street/Calle De Luna
120. De La Cruz Boulevard/Laurelwood Road

**B. Intersection Improvements Requiring ROW Acquisition.** These improvements include potential construction in landscaped areas, along sidewalks, and on shoulders and/or structural work on retaining walls or bridges. In addition, certain improvements may also require construction in areas with sensitive biological resources.

8. Great America Parkway/Tasman Drive
13. Calle Del Sol/Tasman Drive
14. Lick Mill Boulevard/Tasman Drive
22. Agnew Road-De La Cruz Boulevard/Montague Expressway
54. Lawrence Expressway/Benton Street
59. Great America Parkway/Yerba Buena (Great America) Way
60. Great America Parkway/Old Mountain View-Alviso Road
71. Bowers Avenue/Central Expressway
76. San Tomas Expressway/Walsh Avenue
79. San Tomas Expressway/Benton Street
84. Gold Street/Gold Street Connector
96. Lafayette Street/Montague Expressway Westbound Ramps
114. Calle Del Sol/Calle Del Luna
123. Great America Parkway/Gold Street Connector

**C. Freeway Ramps.** These intersection improvements would include major improvement projects that would involve construction of freeway ramps at the Great America Parkway/State Route (SR) 237 interchange.

57. Great America Parkway/SR 237 westbound ramps
58. Great America Parkway/SR 237 eastbound ramps

**D. Interchanges.** Intersection improvements that propose full interchanges and/or grade separations would be major improvement projects with the potential for significant impacts in multiple subject areas, including aesthetics, geology, hazardous materials, cultural resources, and land use issues. All of these improvements are mitigation for which the Project Developer would be required to pay only a fair share. Therefore, the owner jurisdiction would be the Lead Agency for these improvements and would be required to comply separately with CEQA. The analysis in this section discloses the potential effects of the proposed improvements; however, these

improvements will undergo separate CEQA review. The final impacts and mitigation measures will be disclosed by the appropriate Lead Agency.

27. Trimble Road/Montague Expressway
28. McCarthy Boulevard-O'Toole Avenue/Montague Expressway
50. Lawrence Expressway/Arques Avenue
51. Lawrence Expressway/Kifer Road
52. Lawrence Expressway/Reed Avenue-Monroe Street
75. San Tomas Expressway/Scott Boulevard
78. San Tomas Expressway/El Camino Real
98. Lafayette Street/Central Expressway

**Table 3.3-60. Project Intersection Mitigation Measures**

| Int. # | Intersection Name | Jurisdiction | Mitigation Measure | ROW Needed? | Category | Project Responsibility | Setting |
|---|---|---|---|---|---|---|---|
| 1 | Fair Oaks Avenue/ Tasman Drive | Sunnyvale | Reconfigure the eastbound approach to include one left-turn lane, one through lane, and one shared through/right-turn lane. | Possible | B | % of total traffic | Urbanized/ Open Space/Trees |
| 8 | Great America Parkway/ Tasman Drive | Santa Clara (Congestion Management Program [CMP]) | Partial Mitigation: Add a southbound right-turn lane and a third westbound left-turn lane. | Yes | B | 100% | Urbanized/ Trees/ Landscaping |
| 13 | Calle Del Sol/Tasman Drive | Santa Clara | Add a westbound right-turn lane. Reconfigure southbound approach to include two left-turn lanes and one right-turn lane with overlap phase. | Yes | B | 100% | Urbanized/ Landscaping |
| 14 | Lick Mill Boulevard/ Tasman Drive | Santa Clara | Partial Mitigation: Reconfigure northbound and southbound approaches to two left-turn lanes, one through lane, and one right-turn lane. Change split phasing to protected phasing northbound/southbound. Add a second westbound left-turn lane. | Yes | B | 100% | Urbanized/ Trees/ Landscaping/ Ulistic Natural Area |
| 22 | Agnew Road-De La Cruz Boulevard/ Montague Expressway | Santa Clara County (CMP) | Partial Mitigation: Add a second northbound left-turn lane. | Possible | B | 100% | Urbanized |
| 23 | Lick Mill Boulevard/ Montague Expressway | Santa Clara County | Partial Mitigation: Add a third southbound left-turn lane. | No | A | 100% | Urbanized |
| 27 | Trimble Road/ Montague Expressway | Santa Clara County (CMP) | A "fly-over" is identified at this intersection as a Tier 1B priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). | Yes | D | % of Total Traffic | Commercial/ Landscaping/ Vacant Lot/Trees |

**Table 3.3-60. Project Intersection Mitigation Measures**

| Int. # | Intersection Name | Jurisdiction | Mitigation Measure | ROW Needed? | Category | Project Responsibility | Setting |
|---|---|---|---|---|---|---|---|
| 28 | McCarthy Boulevard- O'Toole Avenue/ Montague Expressway | Santa Clara County (CMP) | An interchange is identified at this intersection as a Tier 1B priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). | Yes | D | % of Total Traffic | Commercial/ Trees/ Landscaping |
| 37 | Fair Oaks Avenue/ Fair Oaks Way | Sunnyvale | Add a second eastbound right-turn lane. | Possible | B | % of Total Traffic | Urbanized/ Trees/ Landscaping |
| 43 | Fair Oaks Avenue/ Maude Avenue | Sunnyvale | Add an eastbound right-turn lane. | Yes | B | % of Total Traffic | Urbanized/ Trees/ Landscaping |
| 44 | Fair Oaks Avenue/ E Arques Avenue | Sunnyvale | Partial Mitigation: Add a southbound right-turn lane (identified in the Sunnyvale Deficiency Plan). | No | A | % of Total Traffic | Urbanized |
| 45 | Fair Oaks Avenue/ Evelyn Avenue | Sunnyvale | Add a southbound right-turn lane. | Yes | B | % of Total Traffic | Urbanized/ Trees/ Landscaping |
| 50 | Lawrence Expressway/ Arques Avenue | Santa Clara County (CMP) | An interchange is identified at this intersection as a Tier 1B priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009; City of Sunnyvale Citywide Deficiency Plan, September 2005). | Yes | D | % of Total Traffic | Commercial/ Trees/ Landscaping |
| 51 | Lawrence Expressway/Kifer Road | Santa Clara County | An interchange is identified at this intersection as a Tier 1B priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009; City of Sunnyvale Citywide Deficiency Plan, September 2005). | Yes | D | % of Total Traffic | Commercial/ Trees/ Landscaping |

**Table 3.3-60. Project Intersection Mitigation Measures**

| Int. # | Intersection Name | Jurisdiction | Mitigation Measure | ROW Needed? | Category | Project Responsibility | Setting |
|---|---|---|---|---|---|---|---|
| 52 | Lawrence Expressway/Reed Avenue-Monroe Street | Santa Clara County (CMP) | An interchange is identified at this intersection as a Tier 1B priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009; City of Sunnyvale Citywide Deficiency Plan, September 2005). | Yes | D | % of Total Traffic | Commercial/ Residential/ Trees/ Landscaping |
| 54 | Lawrence Expressway/ Benton Street | Santa Clara County | Partial Mitigation: Add a second southbound left-turn lane and a second eastbound left-turn lane. | Possible | B | 100% | Urbanized/ Trees/ Landscaping |
| 57 | Great America Parkway/ SR 237 Westbound Ramps | Santa Clara (CMP) | Add a third westbound left-turn lane and associated receiving lane under underpass. Add a second westbound right-turn lane. | Yes | C | 100% | Urbanized/ Trees |
| 58 | Great America Parkway/ SR 237 Eastbound Ramps | Santa Clara (CMP) | Add a third southbound through lane (from Intersection 57) and a second eastbound right-turn lane. | Yes | C | 100% | Urbanized/ Trees |
| 59 | Great America Parkway/ Yerba Buena (Great America) Way | Santa Clara | Partial Mitigation: Add a second westbound right-turn lane with an overlap phase and a second southbound left-turn lane. | Yes | B | 100% | Urbanized/ Trees |
| 60 | Great America Parkway/ Old Mountain View-Alviso Road | Santa Clara | Partial Mitigation: Add a second eastbound left-turn lane. | Possible | B | 100% | Urbanized/ Trees/ Landscaping |
| 70 | Bowers Avenue/ Scott Boulevard | Santa Clara (CMP) | Add a second southbound left-turn lane. | No | A | % of Total Traffic | Urbanized |

**Table 3.3-60. Project Intersection Mitigation Measures**

| Int. # | Intersection Name | Jurisdiction | Mitigation Measure | ROW Needed? | Category | Project Responsibility | Setting |
|---|---|---|---|---|---|---|---|
| 71 | Bowers Avenue/ Central Expressway | Santa Clara County (CMP) | Partial Mitigation: Add a third southbound left-turn lane and a third eastbound left-turn lane. An interchange is identified at this intersection as a Tier 2 priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). | Yes | B | 100% | Urbanized |
| 72 | Bowers Avenue/Kifer Road-Walsh Avenue | Santa Clara | Partial Mitigation: Add a second eastbound left-turn lane. | No | A | % of Total Traffic | Urbanized |
| 73 | Bowers Avenue/Monroe Street | Santa Clara | Add a northbound and a southbound left-turn lane. Change the northbound and southbound from split to protected left-turn phasing. | No | A | % of Total Traffic | Urbanized |
| 74 | Bowers Avenue/ El Camino Real | Santa Clara (CMP) | Add a second eastbound left-turn lane. | Yes | B | % of Total Traffic | Urbanized/ Trees/ Landscaping |
| 75 | San Tomas Expressway/Scott Boulevard | Santa Clara County (CMP) | Partial Mitigation: A second westbound right-turn lane is identified as a Tier 1C priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009; City of Santa Clara Traffic Mitigation Program, June 2011). An interchange is identified at the intersection as a Tier 2 priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). | No | D | % of Total Traffic | Commercial/ Trees/ Landscaping |
| 76 | San Tomas Expressway/ Walsh Avenue | Santa Clara County | Partial Mitigation: Add a second eastbound left-turn lane. | Possible | B | 100% | Urbanized |

**Table 3.3-60. Project Intersection Mitigation Measures**

| Int. # | Intersection Name | Jurisdiction | Mitigation Measure | ROW Needed? | Category | Project Responsibility | Setting |
|---|---|---|---|---|---|---|---|
| 77 | San Tomas Expressway/ Monroe Street | Santa Clara County (CMP) | A second northbound left-turn lane is identified at this intersection as a Tier 3 priority (Comprehensive County Expressway Planning Study Policy Advisory Board 2015 Update, March 23, 2015). | Yes | B | % of Total Traffic | Commercial/ Residential/ Vacant Lot/Trees/ Landscaping |
| 78 | San Tomas Expressway/El Camino Real | Santa Clara County (CMP) | An interchange is identified at this intersection as a Tier 2 priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). | Yes | D | % of Total Traffic | Major Intersection (eight lanes, each leg)/ Commercial/ Residential |
| 79 | San Tomas Expressway/ Benton Street | Santa Clara County | Partial Mitigation: Add a second eastbound left-turn lane. | Possible | B | 100% | Urbanized/ Trees/ Landscaping |
| 80 | San Tomas Expressway/ Homestead Road | Santa Clara County (CMP) | Add a second eastbound left-turn lane. | Possible | B | % of Total Traffic | Urbanized/ Trees/ Landscaping |
| 82 | San Tomas Expressway/ Pruneridge Avenue | Santa Clara County | Partial Mitigation: Add a second northbound left-turn lane. | No | A | 100% | Urbanized |
| 83 | San Tomas Expressway/ Saratoga Avenue | Santa Clara County (CMP) | Widen San Tomas Expressway to four lanes in each direction, including exclusive right-turn lanes, and maintain high-occupancy vehicle (HOV) lanes; identified as a Tier 1A priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). | Yes | B | % of Total Traffic | Residential/ Commercial/ Park (on southwest corner) |

**Table 3.3-60. Project Intersection Mitigation Measures**

| Int. # | Intersection Name | Jurisdiction | Mitigation Measure | ROW Needed? | Category | Project Responsibility | Setting |
|---|---|---|---|---|---|---|---|
| 84 | Gold Street/Gold Street Connector | San José | Add a second northbound left-turn lane and a second eastbound right-turn lane (move pedestrian crossing to north leg of intersection). | Yes | B | 100% | Remnant Habitat/ Wetlands/ Vacant Lot (near SR 237) |
| 90 | Lafayette Street/Calle De Luna | Santa Clara | Partial Mitigation: Reconstruct the westbound approach to include two left-turn lanes and one right-turn lane. | No | A | 100% | Urbanized |
| 94 | Lafayette Street/Agnew Road | Santa Clara | Add a second eastbound left-turn lane and a second southbound left-turn lane. | Possible | B | % of Total Traffic | Urbanized/ Landscaping |
| 96 | Lafayette Street/ Montague Expressway Westbound Ramps | Santa Clara | Add second westbound right-turn lane with an overlap phase and a second southbound left-turn lane. | Possible | B | 100% | Urbanized |
| 98 | Lafayette Street/Central Expressway | Santa Clara County (CMP) | HOV lane conversion to mixed-flow lanes on Central Expressway identified as a Tier 1A priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). Grade separation between Central Expressway and Lafayette Street. | Yes | D | % of Total Traffic | Industrial/ Urbanized/ Trees/ Landscaping |
| 102 | Lafayette Street/ El Camino Real | Santa Clara (CMP) | Partial Mitigation: Add a second eastbound left-turn lane. | No | A | % of Total Traffic | Urbanized |
| 114 | Calle Del Sol/Calle Del Luna | Santa Clara | Signalize | Possible | B | 100% | Urbanized |
| 119 | De La Cruz Boulevard/ Aldo Avenue | Santa Clara | Add an eastbound overlap phase. | No | A | % of Total Traffic | Urbanized/ Commercial/ Trees/ Landscaping |

**Table 3.3-60. Project Intersection Mitigation Measures**

| Int. # | Intersection Name | Jurisdiction | Mitigation Measure | ROW Needed? | Category | Project Responsibility | Setting |
|---|---|---|---|---|---|---|---|
| 120 | De La Cruz Boulevard/ Laurelwood Road | Santa Clara | Reconfigure the northbound and southbound approaches to include one left-turn lane, one through lane, and one shared through/right-turn lane and change the phasing from split to protected in the northbound and southbound directions. Signal modifications to increase cycle length. | No | A | 100% | Urbanized |
| 121 | De La Cruz Boulevard/ Central Expressway | Santa Clara County (CMP) | Partial Mitigation: Install second southbound right-turn lane and a third northbound left-turn lane. | Yes | B | % of Total Traffic | Urbanized/ Trees/ Landscaping/ Vacant Lot |
| 123 | Great America Parkway/ Gold Street Connector | Santa Clara | Add a second northbound right-turn lane (from Intersection 57 dual westbound right-turn lanes). | Yes | B | 100% | Landscaping/ Grassland |
| 124 | Scott Boulevard/Central Expressway | Santa Clara County (CMP) | Partial Mitigation: Add a third southbound left-turn lane. | Yes | B | % of Total Traffic | Urbanized/ Trees/ Landscaping |
| 125 | San Tomas Expressway/ Stevens Creek Boulevard | Santa Clara County (CMP) | Widen San Tomas Expressway to four lanes in each direction, including exclusive right-turn lanes, and maintain HOV lanes; identified as a Tier 1A priority (Comprehensive County Expressway Planning Study 2008 Update, March 2009). Add a westbound right-turn lane and add a third southbound left-turn lane. | Yes | B | % of Total Traffic | Urbanized/ Trees/ Landscaping |

Sources: Fehr & Peers, 2015; ICF, 2015.

## Impact Analysis

As shown in Table 3.3-60, all of the intersection improvements would be located in existing urbanized settings, although limited areas of undeveloped land are included within a few improvement sites. Some improvements would require additional ROW immediately adjacent to the existing ROW for adding lanes, reconfiguring intersection approaches, or making interchange improvements. With some exceptions, the additional ROWs would not include an area with habitat for sensitive species (although urban street trees, shrubs, or associated landscaping could be removed), and only a few would be expected to require the demolition of existing structures. Any disruption of traffic flow during construction of the improvements would be temporary in nature and would occur only for the duration of the construction period. Post-construction, all temporarily disturbed areas would be restored, including landscaping, fencing, and tree replacement, as appropriate. Therefore, the focus of this secondary impact analysis for the intersection improvements is on the footprint-based impacts associated with potential ground disturbances and not population-driven impacts because these intersection improvements would not directly result in the generation of new residents or employees in an area.

In this analysis of the secondary impacts, specific mitigation measures have been identified for the intersection improvements. The intersection improvement impacts and associated mitigation measures that have been recommended to reduce, eliminate, or avoid significant impacts are provided in Table ES-1 of the Executive Summary. A summary of the level of significance for each of the intersection's impacts is included in Table 3.3-61 at the end of this section.

## Land Use

**Improvements in Existing Road ROWs.** None of the intersection improvements to be implemented by the Project Developer would be located within the boundaries of a habitat conservation plan (HCP) or natural community conservation plan (NCCP). All of these intersection improvements would occur within the existing ROW and would not physically divide an established community because the improvements would be additions to the existing roadways and would not introduce new features to the intersections that would change access for adjacent communities. Furthermore, because the improvements would be within the existing ROW and would not require major changes to existing land use, the improvements are not anticipated to conflict with any applicable land use plans, policies, or regulations. In general, these intersection improvements would support local and regional goals and policies. Therefore, the intersection improvements would result in a ***less-than-significant*** impact related to land use.

**At-Grade Improvements Requiring Additional ROWs.** None of the intersection improvements to be implemented by the Project Developer would be located within the boundaries of an HCP or NCCP. All of these intersection improvements would occur within or immediately adjacent to the existing ROW and would not physically divide an established community because the improvements would be additions to the existing roadways and would not introduce new features to the intersections that would change access for adjacent communities. Furthermore, because the improvements would be within or immediately adjacent to the existing ROW and would not require major changes to existing land use, the improvements are not anticipated to conflict with any applicable land use plans, policies, or regulations. In general, these intersection improvements would support local and regional goals and policies. Therefore, these intersection improvements would result in a ***less-than-significant*** impact related to land use.

**Freeway Ramps.** Neither of the improvements to be implemented by the Project Developer would occur within the boundaries of an HCP or NCCP. Both of these intersection improvements would occur within

or immediately adjacent to the existing ROW and would not physically divide an established community because the improvements would be additions to the existing roadways and would not be likely to introduce new features to the intersections that would change access for adjacent communities. Furthermore, because the improvements would be within or immediately adjacent to the existing ROW and would not require major changes to the existing land use, the improvements are not anticipated to conflict with any applicable land use plans, policies, or regulations. In general, these intersection improvements would support local and regional goals and policies. These intersection improvements would result in a ***less-than-significant*** impact related to land use.

**Interchanges.** Intersections 27 and 28 are located within the boundaries of the Santa Clara Valley HCP. Although ROW acquisition is anticipated for each of these intersections, the improvements are not anticipated to conflict with the applicable HCP. All intersection improvements would occur within or immediately adjacent to the existing ROW and would not physically divide an established community because these improvements would be additions to the existing roadways and would not be likely to introduce new features to the intersections that would change adjacent communities. However, several of the improvements (e.g., at Intersections 27, 28, 52, and 98) could require substantial ROW acquisition, including residential property for Intersection 52. This could result in a ***potentially significant and unavoidable*** impact related to land use because some of the improvements could require major changes to an existing land use, resulting in a potential conflict with applicable land use plans, policies, or regulations.

As noted above, all interchange improvements would undergo separate CEQA review by their respective Lead Agency. The final impacts and mitigation measures would be disclosed by the Lead Agency at that time.

## Aesthetics

**Improvements in Existing Road ROWs**. There are no designated scenic vistas or State Scenic Highways in the vicinity of the proposed intersection improvements. Construction-related impacts on aesthetic and visual resources would be temporary and limited to the duration of the construction period. All intersection improvements would occur within the existing ROW and would not be likely to introduce new features that would be inconsistent with the existing visual character of the intersections and surrounding areas. Features that are part of the proposed intersection improvements, such as additional paved lanes, would be visually consistent with existing roadway elements and would not substantially degrade the visual quality of the site and its surroundings. Trees could be removed for improvements at certain intersections (e.g., Intersection 82). Tree removal is considered a ***potentially significant*** aesthetic impact***.***

Because these intersection improvements would include the construction of new turn lanes or intersection reconfiguration, there would be no new sources of light or glare. Therefore, aesthetic impacts related to light and glare would be ***less than significant***.

MITIGATION MEASURE. Implementation of Mitigation Measure IM-BIO-1 (see discussion under the discussion of biological resource impacts below) would require tree replacement in accordance with the tree preservation policies or ordinances policies of the jurisdiction in which the improvements are constructed. This would reduce the potential aesthetic impacts of tree removal to ***less than significant with mitigation***.

**At-Grade Improvements Requiring Additional ROWs.** There are no designated scenic vistas or State Scenic Highways in the vicinity of the proposed intersection improvements. Construction-related

impacts on aesthetic and visual resources would be temporary and limited to the duration of the construction period. All intersection improvements would occur within or immediately adjacent to the existing ROW and would not be likely to introduce new features that would be inconsistent with the existing visual character of the intersections and surrounding areas. Features that are part of the proposed intersection improvements, such as additional paved lanes, would be visually consistent with existing roadway elements and would not substantially degrade the visual quality of the site and its surroundings.

Trees would be removed for improvements at several of the intersections (e.g., Intersections 8, 13, 54, 71 and 79). This is considered ***a potentially significant*** aesthetic impact.

Because these intersection improvements would include the construction of new turn lanes or intersection reconfiguration, there would be no new sources of light or glare. Therefore, aesthetic impacts related to light and glare would be ***less than significant***.

MITIGATION MEASURE. Implementation of Mitigation Measure IM-BIO-1 (see discussion under the discussion of biological resource impacts below) would require tree replacement in accordance with the tree preservation policies or ordinances of the jurisdiction in which the improvements are constructed. This would reduce potential aesthetic impacts of tree removal to ***less than significant with mitigation***.

**Freeway Ramps.** There are no designated scenic vistas or State Scenic Highways in the vicinity of the proposed intersection improvements. Construction-related impacts on aesthetic and visual resources would be temporary and limited to the duration of the construction period. All intersection improvements would occur within or immediately adjacent to the existing ROW and would not be likely to introduce new features that would be inconsistent with the existing visual character of the intersections and surrounding areas. The ramp improvements would occur at an existing ramp location, would be visually consistent with existing roadway elements, and would not substantially degrade the visual quality of the site and its surroundings. Therefore, impacts on aesthetics would be ***less than significant***.

Trees would be removed for improvements at several of the intersections. This is considered a ***potentially significant*** aesthetic impact.

Certain features of the freeway ramps, such as traffic signal poles, new street lighting, or guardrails, could create new sources of light and glare. However, these features would be designed in accordance with the applicable Congestion Management Program (CMP) guidelines to minimize light pollution and glare. Therefore, impacts would most likely be ***less than significant***.

MITIGATION MEASURE. Implementation of Mitigation Measure IM-BIO-1 (see discussion under the discussion of biological resource impacts below) would require tree replacement in accordance with the tree preservation policies or ordinances of the jurisdiction in which the improvements are constructed. This would reduce potential aesthetic impacts of tree removal to ***less than significant with mitigation***.

**Interchanges.** There are no designated scenic vistas or State Scenic Highways in the vicinity of the proposed intersection improvements. Construction-related impacts on aesthetic and visual resources would be temporary and limited to the duration of the construction period.

Interchange/grade separation improvements at Intersections 27, 28, 50, 51, 78, and 98 would be in commercial or industrial areas. These intersection improvements would occur within or immediately adjacent to the existing ROW and would not be likely to introduce new features that would be

inconsistent with the existing visual character of the intersection sites and surrounding areas. Therefore, the improvements would have ***less-than-significant*** impacts on visual character.

A new interchange at Intersection 52 would occur in an area with both commercial and residential uses. Depending on the design of this interchange, it may result in substantial visual changes with respect to views from the residential areas, given the visual intensity of large grade-separated roadways. The impact on visual character due to the proposed interchange at Intersection 52 may be ***significant and unavoidable***. Although certain aesthetic treatments may be possible, such as new landscaping, walls, or new tree planting, often the aesthetic changes with grade-separated interchanges would be significant.

Trees would be removed for improvements at several of the intersections. This is considered a ***potentially significant*** aesthetic impact. However, mitigation similar to Mitigation Measure BIO-1 could mitigate this impact by providing for tree replacement.

Certain features of the grade separated interchanges, such as traffic signal poles, new street lighting, or guardrails, could create new sources of light and glare. However, these features would be designed in accordance with the applicable CMP guidelines to minimize light pollution and glare. Therefore, impacts related to light and glare would most likely be ***less than significant***.

As noted above, interchange improvements will undergo separate CEQA review. The final impacts and mitigation measures will be disclosed by the Lead Agency.

## Transportation

**Improvements in Existing Road ROWs**. These intersection improvements would include adding turn lanes or reconfiguring intersection approaches. These intersection improvements have been identified as measures that would improve the vehicle carrying capacity of intersections and/or reduce vehicle delay at the affected intersections and, therefore, would not conflict with an applicable plan, ordinance, or policy for establishing measures of effectiveness for the performance of the circulation system or an applicable CMP. These intersection improvements would be additions to existing roadway facilities and would not result in a change in air traffic patterns. However, the detailed designs for these intersection improvements have not been developed and are therefore conceptual. Although the intersection improvements would change the design of local streets and intersections, they would not create hazards such as sharp curves or include otherwise dangerous features. Secondary impacts on bicyclists and pedestrians could occur during operation because the intersection improvements may increase the distance to cross the intersection and increase exposure to vehicle traffic. However, this is expected to be an incremental increase compared to existing conditions and measures would be taken to ensure that bicycle and pedestrians have enough time to cross safely.

Construction of the intersection improvements could require temporary lane or street closures, resulting in impacts on traffic. However, these impacts would be temporary, and in the long term, the improvements would be anticipated to improve traffic in the area. Temporary impacts on public transit, bicycle or pedestrian facilities, and emergency access could also occur if construction of the intersection improvements were to significantly change access for these users. This is considered a ***potentially significant*** impact.

MITIGATION MEASURE. Implementation of Mitigation Measure IM-TRA-1 would require the preparation and implementation of a Construction Traffic Control Plan. Therefore, this measure would reduce potential traffic impacts during intersection improvement construction to ***less than significant with mitigation***.

*IM-TRA-1: Prepare and Implement a Construction Traffic Control Plan.* Prior to issuance of grading permits, the construction contractor will develop the traffic control plan in accordance with the appropriate jurisdiction's policies and submit for approval. The plan will be implemented throughout the course of construction and may include, but will not be limited to, the following elements.

- Limit truck access to the intersection during peak commute times (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 pm.).
- Require that written notification be provided to contractors regarding appropriate routes to and from the intersection, and the weight and speed limits on local roads used to access the intersection.
- Provide access for emergency vehicles at all times.
- Provide adequate parking for construction employees, site visitors, and inspectors as feasible.
- Maintain bicycle and pedestrian access and circulation during Project construction where safe to do so. If construction encroaches on a bike lane, warning signs will be posted that indicate bicycles and vehicles are sharing the roadway. If construction encroaches on a sidewalk, a safe detour will be provided for pedestrians at the nearest crosswalk.
- Require traffic controls in the vicinity of the intersection, including flagpersons with bright orange or red vests and using a "Stop/Slow" paddle to control oncoming traffic.
- Post standard construction warning signs in advance of the construction area and at any intersection that provides access to the construction area.
- Repair or restore the road right-of-way to its original condition or better upon completion of the work.

**At-Grade Improvements Requiring Additional ROW**. These intersection improvements would include adding turn lanes or reconfiguring intersection approaches. These intersection improvements have been identified as measures that would improve the vehicle carrying capacity of intersections and reduce vehicle delay at the affected intersections and, therefore, would not conflict with an applicable plan, ordinance, or policy for establishing measures of effectiveness for the performance of the circulation system or an applicable CMP. These intersection improvements would be additions to existing roadway facilities and would not result in a change in air traffic patterns. However, the detailed designs for these intersection improvements have not been developed and are therefore conceptual. Although the intersection improvements would change the design of local streets and intersections, they would not create hazards such as sharp curves or include otherwise dangerous features. Secondary impacts on bicyclists and pedestrians could occur during operation because the intersection improvements may increase the distance to cross the intersection and increase exposure to vehicle traffic. However, this is expected to be an incremental increase compared to existing conditions and measures would be taken to ensure that bicycle and pedestrians have enough time to cross safely.

Construction of the intersection improvements could require lane or street closures, resulting in impacts on traffic. However, these impacts would be temporary, and in the long term, the improvements would be anticipated to improve traffic in the area. Temporary impacts on public transit, bicycle or pedestrian facilities, and emergency access could also occur if construction of the intersection improvements were to significantly change access for these users. This is considered a ***potentially significant impact***.

MITIGATION MEASURE. Implementation of Mitigation Measure IM-TRA-1 would require the preparation and implementation of a Construction Traffic Control Plan. Therefore, this measure would reduce potential traffic impacts during intersection improvement construction to ***less than significant with mitigation***.

**Freeway Ramps.** These intersection improvements would involve various improvements at the Great America Parkway/SR 237 interchange. These improvements have been identified as measures that would improve the vehicle carrying capacity of intersections and reduce vehicle delay at the affected intersections and, therefore, would not conflict with an applicable plan, ordinance, or policy for establishing measures of effectiveness for the performance of the circulation system or an applicable CMP. These intersection improvements would be additions to existing roadway facilities and would not result in a change in air traffic patterns. Although the intersection improvements would change the design of the interchange, the improvements would not create hazards such as sharp curves or include otherwise dangerous features. Freeway ramp improvements would not significantly affect bicycle and pedestrian facilities during operation.

Construction of the ramp improvements could require lane or street closures, resulting in impacts on traffic. However, these impacts would be temporary, and in the long term, the improvements would be anticipated to improve traffic in the area. Temporary impacts on public transit, bicycle or pedestrian facilities, and emergency access could also occur if construction of the intersection improvements were to significantly change access for these users. Because of the intensity of the construction activities required for these improvements and the volume of traffic at this intersection, impacts on traffic during construction would be ***potentially significant***.

MITIGATION MEASURE. Implementation of Mitigation Measure IM-TRA-1 would require the preparation and implementation of a Construction Traffic Control Plan. However, because of the intensity of construction activities and the volume of traffic at the improvement location, impacts on traffic during construction could be ***potentially significant and unavoidable***.

**Interchanges.** These intersection improvements would include adding grade-separated interchanges at several intersections. These improvements have been identified as measures that would improve the vehicle carrying capacity of intersections and reduce vehicle delay at the affected intersections and, therefore, would not conflict with an applicable plan, ordinance, or policy for establishing measures of effectiveness for the performance of the circulation system or an applicable CMP. These intersection improvements would be additions to existing roadway facilities and would not result in a change in air traffic patterns. However, the detailed designs for these intersection improvements have not been developed and are therefore conceptual. Although the interchange improvements would change existing design, the improvements would not create hazards such as sharp curves or include otherwise dangerous features. Interchange improvements would not significantly affect bicycle and pedestrian facilities during operation.

Construction of the grade-separated interchanges could require lane or street closures, resulting in impacts on traffic. However, these impacts would be temporary, and in the long term, the improvements

would be anticipated to improve traffic in the area. Temporary impacts on public transit, bicycle or pedestrian facilities, and emergency access could also occur if construction of the intersection improvements were to significantly change access for these users. Because of the intensity of construction activities required for the grade-separated interchanges and the large volume of existing traffic, impacts on traffic during construction would be ***potentially significant***.

Implementation of mitigation similar to Mitigation Measure IM-TRA-1 would require preparation and implementation of a Construction Traffic Control Plan. However, because of the intensity of construction activities required for the grade-separated interchanges and existing traffic volumes, impacts on traffic during construction would be potentially ***significant and unavoidable***.

As described above, interchange improvements will undergo separate CEQA review. The final impacts and mitigation measures will be disclosed by the Lead Agency.

## Air Quality

**Improvements in Existing Road ROWs.** All of these intersection improvements would be additions to existing roadway facilities; they would not result in the creation of new structures or sources that would emit long-term operational air pollutant emissions or conflict with applicable air quality plans. Air pollutant emissions would be limited to the duration of the construction period and would be temporary in nature. Construction-related air pollutant emissions associated with the intersection improvements would depend on the type of construction equipment used and the duration of construction activities. Given the limited scope of the intersection improvements (e.g., limited grading or excavation), it is anticipated that the construction of roadway improvements would not generate significant air pollutant emissions. The use of diesel-powered vehicles and equipment during construction could create localized odors, but these odors would be temporary and would dissipate in the outdoor construction environment. Therefore, potential air quality impacts would be ***less than significant***.

**At-Grade Improvements Requiring Additional ROW.** All of these intersection improvements would be additions to existing roadway facilities. They would not result in the creation of structures or sources that would emit long-term operational air pollutant emissions or conflict with applicable air quality plans. Air pollutant emissions would be limited to the duration of the construction period and would be temporary in nature. Construction-related air pollutant emissions associated with the intersection improvements would depend on the type of construction equipment used and the duration of construction activities. Construction of roadway improvements could generate significant air pollutant emissions. The use of diesel-powered vehicles and equipment during construction could create localized odors, but these odors would be temporary and would dissipate in the outdoor construction environment. Only two of these intersection improvements would require construction adjacent to residential development (Intersections 77 and 83), which might affect sensitive residential receptors. Project construction air quality impacts would be considered ***potentially significant.***

MITIGATION MEASURES. Implementation of Mitigation Measure IM-AQ-1 would require Bay Area Air Quality Management District (BAAQMD) best management practices (BMPs) for fugitive dust. Mitigation Measure IM-AQ-2 would require BAAQMD BMPs for diesel exhaust emissions, which would reduce criteria pollutant air emissions to a less-than-significant level. Given the limited scope of the improvements at the two locations with adjacent residential receptors, implementation of Mitigation Measures IM-AQ-1 and IM-AQ-2 should reduce potential exposure to toxic air contaminants (TACs) during construction to a less-than-significant level. Therefore, these measures would reduce potential

air quality impacts during intersection improvement construction to a ***less-than-significant level with mitigation***.

*IM-AQ-1: Implement Measures to Reduce Construction-Related Dust Emissions.* The Project Developer shall require all construction contractors to implement the specific construction mitigation measures below to reduce fugitive dust. Emissions reduction measures shall include, at a minimum, the measures below. Alternative measures may be identified by the Project Developer or its contractor, as appropriate, provided that they are as effective as the measures below. Alternative measures shall be submitted to the City for approval.

- All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe. If water infiltration into landfill refuse layers is a concern, non-toxic soil stabilizers may be used instead.
- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph for a period of 2 hours or more.
- Windbreaks (e.g., fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Windbreaks shall have at maximum 50 percent air porosity.
- Exposed ground areas that are to be reworked more than 1 month after initial grading should be sown with fast-germinating native grass seed and watered appropriately until vegetation is established. If grass seeding is not feasible, then non-toxic soil stabilizers may be used.
- All construction trucks and equipment, including tires, involved in ground disturbance or transit through loose soil areas shall be washed off prior to leaving the site.
- Site accesses to a distance of 25 feet from the paved road shall be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel. Alternatively, a rumble plate may be used in place of chips, mulch, or gravel.
- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.

*IM-AQ-2: Implement Measures to Reduce Construction-Related Exhaust Emissions.* The Project Developer shall require all construction contractors to implement the specific construction mitigation measures below to reduce equipment exhaust emissions. Emission reduction measures shall include, at a minimum, the measures below. Alternative measures may be identified by the Project Developer or its contractor, as appropriate, provided that they are as effective as the measures below. Alternative measures shall be submitted to the City for approval.

- Idling time of diesel powered construction equipment shall be limited to 2 minutes.
- Ensure that all off-road diesel-powered equipment used during construction between 2017 and 2022 is equipped with U.S. Environmental Protection Agency (EPA) Tier 3 or cleaner engines, except for specialized construction equipment for which an EPA Tier 3 engine is not available. Consistent with advancements of the statewide fleet average, the Project Developer shall ensure that all off-road diesel-powered equipment used during construction between 2023 and 2030 is equipped with EPA Tier 4 engines. This

requirement will ensure construction equipment remains cleaner than the fleet-wide average.

- Ensure that all on-road heavy-duty diesel trucks with a gross vehicle weight rating (GVWR) of 19,500 pounds or greater used at the Project site comply with EPA 2007 on-road emissions standards for particulate matter of 10 micrometers or less (PM10) and nitrogen oxides ($NO_X$) (0.01 grams per brake horsepower-hour [g/bhp-hr] and 0.20 g/bhp-hr, respectively).
- Notwithstanding the above requirements, all construction equipment, diesel trucks, and generators shall meet the California Air Resources Board's most recent certification standard for off-road heavy-duty diesel engines and shall employ Best Available Control Technology for reductions in $NO_X$ and particulate matter (PM) emissions if more stringent than the requirements above.

**Freeway Ramps.** All of these intersection improvements would be additions to existing roadway facilities. They would not result in the creation of structures or sources that would emit long-term operational air pollutant emissions or conflict with applicable air quality plans. Air pollutant emissions would be limited to the duration of the construction period and would be temporary in nature. Construction-related air pollutant emissions associated with the intersection improvements would depend on the type of construction equipment used and the duration of construction activities. Given the intensity of construction required for these improvements, it is possible that significant air pollutant emissions could be generated during construction. The use of diesel-powered vehicles and equipment during construction could create localized odors, but these odors would be temporary and would dissipate in the outdoor construction environment. Furthermore, there are no sensitive receptors (e.g., residences) within 1,000 feet of these proposed intersection improvements. Therefore, the potential for construction to expose sensitive receptors to substantial pollutant concentrations would be less than significant. Project air quality impacts during construction would be ***potentially significant***.

MITIGATION MEASURE. Implementation of Mitigation Measure IM-AQ-1 would require BAAQMD BMPs for fugitive dust. Mitigation Measure IM-AQ-2 would require BAAQMD BMPs for diesel exhaust emissions. These measures would reduce potential air quality impacts during intersection improvement construction to ***less than significant with mitigation***.

**Interchanges.** All of the interchange improvements would be additions to existing roadway facilities. They would not result in the creation of structures or sources that would emit long-term operational air pollutant emissions or conflict with applicable air quality plans. Air pollutant emissions would be limited to the duration of the construction period and would be temporary in nature. Construction-related air pollutant emissions associated with the intersection improvements would depend on the type of construction equipment used and the duration of construction activities. Given the intensity of the construction required for these types of improvements, it is anticipated that construction would generate significant air pollutant emissions. The use of diesel-powered vehicles and equipment during construction could create localized odors, but these odors would be temporary and would dissipate in the outdoor construction environment. Furthermore, there is the potential for construction to expose sensitive receptors to substantial pollutant concentrations during construction, depending on the presence of sensitive receptors in proximity to intersection improvement locations. Some intersections identified in Table 3.3-60 (e.g., Intersection 52) are adjacent to residential development. Because of the intensity of the construction required for these improvements and the proximity to sensitive receptors at some locations, impacts related to air quality would be ***potentially significant***.

Implementation of mitigation similar to Mitigation Measure IM-AQ-1 would require BAAQMD BMPs for fugitive dust. Implementation of mitigation similar to Mitigation Measure IM-AQ-2 would require BAAQMD BMPs for diesel exhaust emissions. If these measures are insufficient to lower emissions below the BAAQMD thresholds, then construction-period criteria air pollutant offsets would be an additional mitigation option, if necessary.

Where potential TAC emissions during construction would affect sensitive receptors, the Lead Agency for interchange improvements will most likely need to prepare a Health Risk Assessment (HRA) for construction. If the HRA demonstrates that the health risk from construction of the intersection improvements at all potentially exposed sensitive receptor locations will be less than the BAAQMD thresholds, then no additional action will be necessary. If the HRA demonstrates that the health risk from construction of the intersection improvements at sensitive receptor locations will be over the BAAQMD threshold, then equipment emissions controls and other measures to reduce TAC impacts to less than the BAAQMD thresholds will be necessary.

The measures described above could reduce potential air quality impacts during intersection improvement construction; however, because of the intensity of the construction required for these improvements and the proximity to sensitive receptors, impacts related to air quality for these improvements are considered ***potentially significant and unavoidable***.

As noted above, these interchange improvements will undergo separate CEQA review. The final impacts and mitigation measures will be disclosed by the Lead Agency.

## Greenhouse Gas Emissions

**Improvements in Existing Road ROWs.** These intersection improvements would not result in the creation of structures or sources that would emit long-term, operational greenhouse gases (GHGs). These improvements would enable traffic to move through the intersections more efficiently, effectively providing a benefit to GHG emissions by reducing idling. GHG emissions would be limited to the duration of the construction period and would be temporary in nature. Construction-related GHG emissions associated with the intersection improvements would depend on the type of construction equipment used and the duration of construction activities. Given the limited scope of the intersection improvements, it is anticipated that the construction of roadway improvements would not generate significant GHGs and would not conflict with applicable plans or policies adopted for the purpose of reducing GHG emissions. The intersection improvements would result in ***less-than-significant*** impacts related to GHG emissions.

**At-Grade Improvements Requiring Additional ROW.** These intersection improvements would not result in the creation of structures or sources that would emit long-term operational GHGs. These improvements would enable traffic to move through the intersections more efficiently, effectively providing a benefit to GHG emissions by reducing idling. GHG emissions would be limited to the duration of the construction period and would be temporary in nature. Construction-related GHG emissions associated with the intersection improvements would depend on the type of construction equipment used and the duration of construction activities. Given the limited scope of the intersection improvements, it is anticipated that the construction of roadway improvements would not generate significant GHGs and would not conflict with applicable plans or policies adopted for the purpose of reducing GHG emissions. The intersection improvements would result in ***less-than-significant*** impacts related to GHG emissions.

**Freeway Ramps.** These intersection improvements would not result in the creation of structures or sources that would emit long-term operational GHGs. These improvements would enable traffic to move through the intersections more efficiently, effectively providing a benefit to GHG emissions by reducing

idling. GHG emissions would be limited to the duration of the construction period and would be temporary in nature. Construction-related GHG emissions associated with the intersection improvements would depend on the type of construction equipment used and the duration of construction activities. Given the scope of the intersection improvements, it is possible that the construction of roadway improvements could generate significant GHGs, which could be a ***potentially significant*** impact, but would not conflict with applicable plans or policies adopted for the purpose of reducing GHG emissions.

MITIGATION MEASURE. Implementation of Mitigation Measure IM-AQ-2 would require BAAQMD BMPs for diesel exhaust emissions because it would require more efficient construction equipment and trucks, which would reduce GHG emissions. Mitigation Measure IM-GHG-1 would require the use of alternative fuels for 30 percent of the construction equipment that uses diesel fuel, consistent with BAAQMD's recommended BMPs for construction GHGs. Therefore, these measures would most likely reduce construction-related GHG emissions to ***less than significant with mitigation*.**

*IM-GHG-1: Utilize Alternative Fuels during Construction.* Require construction contractors to use alternative fuels in at least 30 percent of the construction equipment that uses diesel fuel. Alternative fuels may include electricity, compressed natural gas (CNG), biodiesel (B-20), or renewable diesel, such as diesel high-performance renewable (HPR).

**Interchanges.** These intersection improvements would not result in the creation of structures or sources that would emit long-term operational GHGs and would not conflict with applicable plans or policies adopted for the purpose of reducing GHG emissions. These improvements would enable traffic to move through the intersections more efficiently, effectively providing a benefit to GHG emissions by reducing idling. GHG emissions would be limited to the duration of the construction period and would be temporary in nature. Construction-related GHG emissions associated with the intersection improvements would depend on the type of construction equipment used and the duration of construction activities. Given the scope of these improvements, it is anticipated that construction GHGs could result in ***potentially significant*** impacts.

Implementation of mitigation similar to Mitigation Measures IM-AQ-2 and IM-GHG-1 would most likely reduce construction-related GHG emissions impacts to ***less than significant with mitigation*.**

As noted above, these interchange improvements will undergo separate CEQA review. The final impacts and mitigation measures will be disclosed by the Lead Agency.

## Noise

**Improvements in Existing Road ROWs.** All intersection improvements would be additions to existing roadway facilities, and it is anticipated that these additional features would not substantially increase traffic noise generated on these roadways. The intersection improvements would not expose people to excessive noise levels due to the proximity to a public or private airport. There would be no changes in operational intersection noise and no perceptible changes in noise levels at nearby sensitive receptors. Construction-related noise impacts would be temporary and limited to the duration of the construction period. Noise from construction of the intersection improvements may surpass the normally acceptable noise levels. Construction-related noise impacts associated with the intersection improvements would depend on the type of construction equipment used and the duration of construction activities. All construction activities would be required to comply with local noise ordinances for construction hours and equipment. Therefore, potential noise impacts would be ***less than significant***.

**At-Grade Improvements Requiring Additional ROW.** All intersection improvements would be additions to existing roadway facilities. It is anticipated that these additional features would not substantially increase traffic noise generated on these roadways. The intersection improvements would not expose people to excessive noise levels due to proximity to a public or private airport. The ROW expansion could shift operational intersection noise closer to sensitive receptors (i.e., residents, office workers, recreationists, etc.) in adjacent buildings; however, this would not result in a noticeable difference compared to existing conditions, because vehicular noise already exists in the areas. Construction-related noise impacts would be temporary and limited to the duration of the construction period. Noise from construction of the intersection improvements may surpass the normally acceptable noise levels. Construction-related noise impacts associated with the intersection improvements would depend on the type of construction equipment used and the duration of construction activities. All construction activities would be required to comply with local noise ordinances for construction hours and equipment. Therefore, potential noise impacts would be ***less than significant***.

**Freeway Ramps.** Ramp improvements would be additions to existing roadway facilities. It is anticipated that these additional features would not substantially increase traffic noise generated on these roadways. The intersection improvements would not expose people to excessive noise levels due to proximity to a public or private airport. There are no residential receptors adjacent to the ramp improvement locations, and the nearby commercial areas are already affected by SR 237 traffic noise. Construction-related noise impacts would be temporary and limited to the duration of the construction period. Noise from construction of the intersection improvements may surpass the normally acceptable noise levels. Construction-related noise impacts associated with the intersection improvements would depend on the type of construction equipment used and the duration of construction activities. All construction activities would be required to comply with local noise ordinances for construction hours and equipment. Therefore, potential impacts would be ***less than significant***.

**Interchanges.** The interchange improvements would be additions to existing roadway facilities. It is anticipated that these additional features would not substantially increase traffic noise generated on these roadways. The change in grades would, however, change the traffic noise location. If a design is adopted in which one roadway is depressed under the other, then traffic noise levels at adjacent locations may actually be less than under current conditions. However, if a design is adopted that raises one roadway over the other, then the traffic noise from the elevated roadway could affect adjacent receptors differently compared with current conditions. This is considered a ***potentially significant*** impact; soundwall mitigation may or may not able to address potential noise impacts. However, only one of the interchange locations (Intersection 52) has adjacent residential receptors. Therefore, significant impacts would most likely be limited to that location only. The intersection improvements would not expose people to excessive noise levels due to proximity to a public or private airport.

Construction-related noise impacts would be temporary and limited to the duration of the construction period. Noise from construction of the intersection improvements may surpass the normally acceptable noise levels. Construction-related noise impacts associated with the interchange improvements would depend on the type of construction equipment used and the duration of construction activities. Because of the scale of these improvements and the large roadway volumes, it is possible that night construction and pile driving may be necessary. Noise associated with night work or pile driving may not always be mitigable to a less-than-significant level, even with mitigation, such as noise barriers, building insulation, use of vibratory pile driving, or other measures. However, only one of the interchange locations (Intersection 52) has adjacent residential receptors. Therefore, significant impacts would most likely be limited to that location only. Potential impacts could be ***significant and avoidable***, even with mitigation, at this one location, depending on the effectiveness of sound control measures.

As noted above, interchange improvements will undergo separate CEQA review. The final impacts and mitigation measures will be disclosed by the Lead Agency.

## Cultural Resources

**Improvements in Existing Road ROWs.** None of these intersection improvements would involve the demolition of any existing structures, and all work would be within the current ROWs. Therefore, no architectural historic resources would be affected. Ground-disturbing activities for the intersection improvements would be minimal and limited to areas within the ROW. All the intersection improvement sites have most likely already been disturbed during construction of the existing roadway facilities. Furthermore, these intersection improvements would involve minimal activity such as restriping. Therefore, it is unlikely that these intersection improvements would damage or destroy unknown or unrecorded archaeological resources or human remains. Impacts from these improvements related to cultural resources would be ***less than significant***.

**At-Grade Improvements Requiring Additional ROW.** The additional ROW required for some of the intersection improvements would not involve demolition of any existing structures (with the possible exception of existing retaining walls) and would add roadway features only in areas that are adjacent to exiting roadways. Therefore, no architectural historic resources would be significantly affected. Ground-disturbing activities for the intersection improvements would be minimal and limited to areas within or immediately adjacent to the ROW. At this time, the presence of recorded or known archaeological resources or human remains in the vicinity of the intersection improvement locations has not been evaluated. Although all the intersection improvement sites have most likely already been disturbed during construction of the existing roadway facilities, ground-disturbing activities outside of the ROW may uncover, damage, or destroy unknown or unrecorded archaeological resources, paleontological resources, or human remains, which would be considered a ***potentially significant*** impact.

MITIGATION MEASURES. Implementation of Mitigation Measure IM-CR-1 would require the Lead Agency to conduct cultural resource investigations and prepare and implement a cultural resource treatment plan, if necessary. Mitigation Measure IM-CR-2 would require the contractor to stop work if cultural resources are encountered during ground-disturbing activities. Implementation of Mitigation Measure IM-CR-3 would require the contractor to stop work if human remains are encountered during ground-disturbing activities. Therefore, these measures would reduce potential cultural resources impacts during intersection improvement construction to ***less than significant with mitigation***.

*IM-CR-1: Conduct Cultural Resource Investigations and Protect and Recover Significant Resources.* The Lead Agency shall conduct a cultural resource investigation that includes a background records search (including a search of records from Sonoma State and historical societies, contact with Native American representatives identified by the Native American Heritage Commission (NAHC), and site pedestrian surveys) for the areas of ground disturbance from each roadway improvement. If significant known or suspected sites are discovered within the Project footprint and would be disturbed by the Project, then a cultural resource treatment plan shall be prepared, defining Project monitoring and resource recovery and curation requirements concerning any encountered cultural resources.

*IM-CR-2: Stop Work if Cultural Resources Are Encountered during Ground-Disturbing Activities.* In the event that cultural resources are encountered during ground-disturbing activities, all work within proximity of the find shall temporarily halt so that the archaeological monitor can examine the find and document its provenience and nature (e.g., with drawings, photographs,

written descriptions). The archaeological monitor shall then direct that the work proceed if the find is deemed to be insignificant, continue elsewhere, or cease until adequate mitigation measures are adopted. If the find is determined to be potentially significant, the archaeologist, in consultation with the appropriate jurisdiction, shall develop a treatment plan, which could include site avoidance, capping, or data recovery. If data recovery is determined to be appropriate, excavation shall target recovery of an appropriate amount of information from archaeological deposits to determine the potential of the resource to address specific research questions. If it occurs, data recovery shall emphasize the understanding of the archaeological deposit's structure, including features and stratification, horizontal and vertical extent, and content, including the nature and quantity of artifacts.

*IM-CR-3: Stop Work if Human Remains Are Encountered during Ground-Disturbing Activities.* If human remains are discovered (in either an archaeological or construction context), all work within proximity of the remains shall stop so that the archaeological monitor can examine the remains. The County Coroner shall be notified to make a determination as to whether the remains are of Native American origin. If the remains are determined to be Native American, the coroner shall notify the NAHC immediately. The NAHC shall notify those persons it believes are most likely descended from the deceased Native American. Once the 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 State CEQA Guidelines.

**Freeway Ramps.** The additional ROW required for the freeway ramp improvements would not involve demolition of any existing structures, with the possible exception of existing retaining walls. Therefore, no architectural historic resources would be affected. Ground-disturbing activities for the intersection improvements would be limited to areas within or immediately adjacent to the ROW. At this time, the presence of recorded or known archaeological resources or human remains in the vicinity of the intersection improvement locations has not been evaluated. Although all of the intersection improvement sites have most likely already been disturbed the construction of the existing roadway facilities, ground-disturbing activities may uncover, damage, or destroy unknown or unrecorded archaeological resources, paleontological resources, or human remains, which is considered a ***potentially significant*** impact.

MITIGATION MEASURES. Implementation of Mitigation Measure IM-CR-1 would require the Lead Agency to conduct cultural resource investigations and prepare and implement a cultural resource treatment plan, if necessary. Mitigation Measure IM-CR-2 would require the contractor to stop work if cultural resources are encountered during ground-disturbing activities. Implementation of Mitigation Measure IM-CR-3 would require the contractor to stop work if human remains are encountered during ground-disturbing activities. Therefore, these measures would reduce potential cultural resource impacts during intersection improvement construction to ***less than significant with mitigation***.

**Interchanges.** The additional ROW required for some of the interchange improvements could involve demolition of existing structures. At most of the interchange locations, the adjacent structures appear to be of more recent construction and are not likely to be historic buildings; however, a comprehensive inventory and evaluation of potentially affected buildings has not yet been conducted. There is some potential for architectural historic resources to be affected. If an intersection improvement would require demolition of an existing structure, then an assessment of the historic significance of the structure will be required as part of the separate CEQA review. If the structure is determined to be a historic resource under the California Register of Historical Resources or National Register of Historic Places, then avoidance and minimization measures would be required, as feasible. Where not feasible, the resource would be recorded; materials would be recovered, as appropriate; and signage or a

monument commemorating the structure would be considered for installation and determined by the Lead Agency. If impacts cannot be avoided or minimized (e.g., when a historic building must be removed), then impacts on historic structures could be ***significant and unavoidable*** impact.

Ground-disturbing activities for the intersection improvements would be limited to areas within or immediately adjacent to the ROW. At this time, the presence of recorded or known archaeological resources or human remains in the vicinity of the intersection improvement locations has not been evaluated. Although all of the interchange improvement sites have most likely already been disturbed during construction of the existing roadway facilities, ground-disturbing activities may uncover, damage, or destroy unknown or unrecorded archaeological resources or human remains. However, with implementation of mitigation similar to Mitigation Measures IM-CR-1 through IM-CR-3, these impacts would be ***less than significant with mitigation***.

As described above, these interchange improvements will undergo separate CEQA review. The final impacts and mitigation measures will be disclosed by the Lead Agency.

## Biological Resources

**Improvements in Existing Road ROWs.** All intersection improvements would occur within the existing ROW in established urbanized settings. The existing urbanized setting of the intersection improvement locations makes it unlikely that the improvements would substantially affect any special-status species, special-status plants, associated habitat or other sensitive natural communities, including wetlands, or wildlife corridors because of the lack of suitable factors for these resources to exist. Furthermore, none of these intersection improvements are located within an HCP or NCCP area.

Improvements to Intersection 82 could require tree removal, which could affect native bird species that could be nesting in the trees if construction occurs during the nesting/breeding season. Any tree removal occurring as part of construction of the intersection improvements could result in the loss of an active nest. The removal of trees could also conflict with local tree preservation policies or ordinances. Tree removal impacts would thus be **potentially *significant.***

MITIGATION MEASURE. Implementation of Mitigation Measure IM-BIO-1 would require tree replacement in accordance with the tree preservation policies or ordinances of the jurisdiction in which the improvements are constructed. Implementation of Mitigation Measure IM-BIO-2 would require preconstruction nesting surveys prior to any tree removal. Therefore, these measures would reduce potential biological resource impacts during intersection improvement construction to ***less than significant with mitigation***.

*IM-BIO-1: Replace Removed Trees.* The Project Developer shall replace all trees removed as part of the intersection improvements in accordance with the tree preservation policies or ordinances of the jurisdiction in which the improvements are constructed.

*IM-BIO-2: Preconstruction Surveys.* For all intersections that have trees within the intersection footprint or that will remove trees, the Project Developer and its contractors shall avoid conducting vegetation removal during the migratory bird nesting season (February 1–August 31), if feasible. If construction activities must commence during the migratory bird nesting season, the Project Developer shall retain a qualified wildlife biologist to conduct a survey for nests of

migratory birds. Surveys for nesting migratory birds shall occur within 3 days prior to the commencement of ground disturbance and vegetation removal.

If an active nest is discovered, a no-disturbance buffer zone around the nest tree or shrub (or, for ground-nesting species, the nest itself) shall be established. The no-disturbance zone shall be marked with flagging or fencing that is easily identified by the construction crew and shall not affect the nesting bird or attract predators to the nest location. In general, the minimum buffer zone widths shall be as follows: 50 feet (radius) for non-raptor ground-nesting species, 50 feet (radius) for non-raptor shrub- and tree-nesting species, and 300 feet (radius) for raptor species. Buffer widths may be modified based on discussion with the California Department of Fish and Wildlife (CDFW). Buffers shall remain in place as long as the nest is active or young remain in the area and are dependent on the nest. If a burrowing owl nest is identified during preconstruction surveys, no-activity buffers will adhere to the recommendations in the 2012 California Department of Fish and Game Staff Report on Burrowing Owl Mitigation.[19]

**At-Grade Improvements Requiring Additional ROW.** All intersection improvements would occur within or immediately adjacent to existing ROW in established urbanized settings. The additional required ROW for some of the intersection improvements would not include any native areas, although urban street trees, shrubs, or associated landscaping may be removed. The existing urbanized setting of the intersection improvement locations makes it unlikely that the improvements would substantially affect any special-status species, special-status plants, associated habitat or other sensitive natural communities, or wildlife corridors because of the lack of suitable factors for these resources to exist. However, there would be improvements to some intersections (Intersections 84, 96, and 123) that have or are adjacent to sensitive habitats such as wetlands or grasslands.

None of these intersection improvements are located within an HCP or NCCP area. Furthermore, most of these intersection improvements would require tree removal, which could affect native bird species that could be nesting in the trees if construction occurs during the nesting/breeding season. Any tree removal occurring as part of construction of the intersection improvements could result in the loss of an active nest. The removal of trees could also conflict with local tree preservation policies or ordinances. The loss of trees and potential active nests would be a ***potentially significant*** impact.

MITIGATION MEASURE. Implementation of Mitigation Measure IM-BIO-1 would require tree replacement in accordance with the tree preservation policies or ordinances of the jurisdiction in which the improvements are constructed. Implementation of Mitigation Measure IM-BIO-2 would require preconstruction nesting surveys prior to any tree removal. Implementation of Mitigation Measure IM-BIO-3 would require site-specific surveys for special-status species, sensitive habitats, wetlands/waters, and nesting birds and implementation of avoidance, minimization, and compensation measures where sensitive biological resources are encountered. Therefore, these measures would reduce potential biological resource impacts during intersection improvement construction to ***less than significant with mitigation***.

*IM-BIO-3: Site-Specific Surveys and Species/Habitat Avoidance, Minimization, and Compensation Measures.* For intersections with the potential to have sensitive habitats, the Project Developer, in consultation with a qualified biologist, shall conduct site-specific surveys for special-status species, sensitive habitats, wetlands and waters of the United States, and nesting birds. If found,

[19] California Department of Fish and Game. 2012. *Staff Report on Burrowing Owl Mitigation*. State of California Natural Resources Agency. March 7. Available: http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html#Mammals.

the Project Developer and its contractor shall implement avoidance and minimization measures, where feasible. Where avoidance is not possible, the Project Developer shall compensate for lost habitat at a minimum 1:1 basis. Compensation for lost habitat will be determined in consultation with CDFW/U.S. Fish and Wildlife Service (USFWS), as appropriate. The Project Developer shall obtain all required permits from the U.S. Army Corps of Engineers (USACE), the Regional Water Quality Control Board, and CDFW, and USFWS, as appropriate. The Project Developer shall provide buffer fencing and species relocation, as necessary, if permitted by CDFW/USFWS. Additionally, if special-status species or habitats are identified during the site-specific surveys, a Worker Environmental Awareness Training Program for construction personnel will be conducted by a qualified biologist retained by the Project Developer. The program will provide workers with information on their responsibilities with regard to the special-status species. The training will provide a physical description of the special-status species that have potential to occur and be affected by construction activities to each construction crew prior to the initiation of the crew's construction activities. The worker awareness training will also detail each species' habitat and legal protections, a photo of relevant species, and contact information for the primary biologist.

**Freeway Ramps.** The additional required ROW for the freeway ramp intersection improvements include remnant grassland areas, which, though disturbed, may provide habitat for special-status species such as the burrowing owl. There are also adjacent wetland areas north of SR 237. Tree removal may also be necessary, which could affect native bird species that could be nesting in the trees if construction occurs during the nesting/breeding season. Any tree removal occurring as part of construction of the intersection improvements could result in the loss of an active nest. The removal of trees could also conflict with local tree preservation policies or ordinances. Neither of the freeway ramp improvements is located within an HCP or NCCP area. Impacts on biological resources are considered ***potentially significant.***

MITIGATION MEASURE. Implementation of Mitigation Measure IM-BIO-1 would require tree replacement in accordance with the tree preservation polices or ordinances of the jurisdiction in which the improvements are constructed. Implementation of Mitigation Measure IM-BIO-2 would require preconstruction nesting surveys prior to any tree removal. Implementation of Mitigation Measure IM-BIO-3 would require site-specific surveys for special-status species, sensitive habitats, wetlands/waters, and nesting birds and implementation of avoidance, minimization, and compensation measures as appropriate. Therefore, these measures would reduce potential biological resource impacts during intersection improvement construction to ***less than significant with mitigation***.

**Interchanges.** The interchange improvements would occur within or immediately adjacent to an existing ROW in established urbanized settings. The additional required ROW for some of the intersection improvements would not include any native habitat areas, although urban street trees, shrubs, or associated landscaping may be removed. The existing urbanized setting of the intersection improvement locations makes it unlikely that the improvements would substantially affect any special-status species, special-status plants, associated habitat or other sensitive natural communities, or wildlife corridors because of the lack of suitable factors for these resources to exist. It is possible that there may be waters or wetlands (in the form of urban ditches) at some of the interchange locations.

Intersections 27 and 28 are located within the boundaries of the Santa Clara County HCP area. Although ROW acquisition is anticipated for each of these intersections, the improvements are not anticipated to conflict with the applicable HCP because the areas of effect are highly disturbed already.

Most of the interchange improvements could require tree removal, which could affect native bird species that could be nesting in the trees if construction occurs during the nesting/breeding season. Any tree removal occurring as part of construction of the intersection improvements could result in the loss of an active nest. The removal of trees could also conflict with local tree preservation policies or ordinances.

Although the interchange improvements could occur within a highly disturbed urban context, some impact on biological resources is possible and thus is considered ***potentially significant.***

Implementation of mitigation similar to Mitigation Measure IM-BIO-1 would require tree replacement in accordance with the tree preservation policies or ordinances of the jurisdiction in which the improvements are constructed. Implementation of mitigation similar to Mitigation Measure IM-BIO-2 would require preconstruction nesting surveys prior to any tree removal. Implementation of Mitigation Measure IM-BIO-3 would require site-specific surveys for wetlands/waters and implementation of avoidance, minimization, and compensation measures as appropriate. Therefore, similar measures would most likely reduce potential biological resource impacts during intersection improvement construction to ***less than significant with mitigation***.

As noted above, these interchange improvements will undergo separate CEQA review. The final impacts and mitigation measures will be disclosed by the Lead Agency.

## Geology and Soils

**Improvements in Existing Road ROWs.** Because these intersection improvements would be additions to existing roadways and not new roadway facilities and would be at grade, they would not expose structures or populations to new risks involving fault ruptures, seismic ground shaking, seismically related ground failures, or unstable geological units or soils. These intersection improvements would also not include the use of septic tanks or alternative wastewater disposal systems. Construction of the intersection improvements may require limited soil disturbance, but this is not expected to result in significant erosion if soil is exposed to wind or rainfall. Therefore, potential geologic, seismic, and soil impacts would be ***less than significant***.

**At-Grade Improvements Requiring Additional ROW.** Because these intersection improvements would be at-grade additions to the existing roadways and not new roadway facilities, these actions would not expose structures or populations to new risks involving fault ruptures, seismic ground shaking, seismically related ground failures, or unstable geological units or soils. These intersection improvements would also not include the use of septic tanks or alternative wastewater disposal systems. Construction of the intersection improvements would include minor ground-disturbing activities that may subject disturbed soils to erosion if exposed to wind or rainfall. Post-construction, all disturbed areas outside the existing ROW would be restored to pre-disturbance conditions. The Project would be required to implement strategies to reduce potential impacts, such as preparing and complying with a Stormwater Pollution Prevention Plan (SWPPP) as required by the State Water Resources Control Board's Construction General Permit, which would keep erosion impacts to a less-than-significant level.

Some of the intersection improvements (Intersections 14, 45, and 84) could require construction or modification of retaining walls, which could disturb fill slopes/soils and may make them unstable. This impact is considered ***potentially significant***.

MITIGATION MEASURE. Implementation of Mitigation Measure IM-GEO-1 would require preparation of a geotechnical investigation that would evaluate potential risks related to geology and soils from

construction of the retaining walls and disturbance of fills. Therefore, it would reduce potential geology and soil impacts during intersection improvement construction to ***less than significant with mitigation***.

*IM-GEO-1: Prepare a Geotechnical Investigation.* Prior to construction of any intersection improvement that requires retaining walls (or disturbance of existing retaining wall), disturbance or placement of fill, substantial excavation below grade, establishment of new slopes, and/or placement of new structures above or below grade, the Project Developer shall prepare a geotechnical investigation to evaluate the potential for geologic, seismic, and soil risks. The geotechnical investigation shall include recommendations to abate any potential risks. If risks are identified, the Project Developer shall implement the recommendations included in the geotechnical investigation.

**Freeway Ramps.** These intersection improvements would not include the use of septic tanks or alternative wastewater disposal systems. Construction of these intersection improvements would include ground-disturbing activities that may subject disturbed soils to erosion if exposed to wind or rainfall. The Project would be required to implement strategies to reduce potential impacts, such as preparing and complying with a SWPPP, as required by the State Water Resources Control Board's Construction General Permit.

These intersection improvements could require the construction of retaining walls and substantial grading, which could disturb fill slopes/soils and may make them unstable. This impact is considered ***potentially significant***.

MITIGATION MEASURE. Implementation of Mitigation Measure IM-GEO-1 would require preparation of a geotechnical investigation. Therefore, it would reduce potential geologic and soil impacts during intersection improvement construction to ***less than significant with mitigation***.

**Interchanges.** These intersection improvements would not include the use of septic tanks or alternative wastewater disposal systems. Construction of these intersection improvements would include ground-disturbing activities that may subject disturbed soils to erosion if exposed to wind or rainfall. The Project would be required to implement strategies to reduce potential impacts, such as preparing and complying with a SWPPP, as required by the State Water Resources Control Board's Construction General Permit.

These intersection improvements would require substantial grading, the creation of new slopes, excavation below grade, and construction of potential above-grade and below-grade structures. Implementation of mitigation similar to Mitigation Measure IM-GEO-1 would require the preparation of a geotechnical investigation that would evaluate potential risks related to geology, seismicity, and soils. Therefore, it would most likely reduce potential geologic and soil impacts during intersection improvement construction to ***less than significant with mitigation***.

As noted above, the interchange improvements will undergo separate CEQA review. The final impacts and mitigation measures will be disclosed by the Lead Agency.

## Hydrology and Water Quality

**Improvements in Existing Road ROWs.** Construction of the intersection improvements could result in impacts on water quality through ground-disturbing activities that may have the potential to affect water quality though soil erosion and stormwater discharge of pollutants and sedimentation. The Project would be required to implement strategies to reduce potential impacts, such as preparing and complying with a

SWPPP, as required by the State Water Resources Control Board's Construction General Permit, ensuring that water quality impacts would be ***less than significant***.

Because these intersection improvements would be additions to the existing roadways, and not new roadway facilities, these actions would not expose structures or populations to new risks of flood hazards from 100-year flood areas, levee or dam failures, or inundations by seiche, tsunami, or mudflow. Because these intersection improvements would be within the ROW, most of the improvement locations would be on predominantly impervious surfaces that are currently covered by a paved roadway or sidewalk. Some of these improvements may include new pavement in currently unpaved portions of existing road ROWs.

These intersection improvements would not substantially alter the existing drainage patterns of the affected area, deplete groundwater supplies, or interfere with groundwater recharge. It is anticipated that the existing stormwater drainage facilities that serve the roadways will continue to be used and accommodate the intersection improvement features. The intersection improvements are not anticipated to significantly alter the existing drainage patterns on-site and would create only a minimal amount of new impervious surfaces. The intersection improvements would most likely not create a substantial amount of stormwater runoff that would exceed the existing capacity of the stormwater drainage system.

**At Grade Improvements Requiring Additional ROW.** Construction of the intersection improvements could result in impacts on water quality through ground-disturbing activities that may have the potential to affect water quality through soil erosion and stormwater discharge of pollutants and sedimentation. The Project would be required to implement strategies to reduce potential impacts, such as preparing and complying with a SWPPP, as required by the State Water Resources Control Board's Construction General Permit, ensuring that impacts would be at a ***less-than-significant*** level.

Because the intersection improvements would be additions to the existing roadways and not new roadway facilities, these actions would not expose structures or populations to new risks of flood hazards from 100-year flood areas, levee or dam failures, or inundations by seiche, tsunami, or mudflow.

Because these intersection improvements would be within or immediately adjacent to the ROW, it is likely that some of improvement locations would be on predominantly impervious surfaces that are currently covered by a paved roadway or sidewalk. Limited amounts of additional impervious surfaces in or adjacent to the improvement area could be required. It is anticipated that the existing stormwater drainage facilities that serve the roadways would continue to be used. Because these intersection improvements would not alter existing drainage patterns and would only create limited new impervious surfaces, the intersection improvements would not create a substantial amount of stormwater runoff that could exceed the existing capacity of the stormwater drainage system or have substantial water quality impacts. This is considered a ***less-than-significant*** impact.

Improvements at Intersection 84 in San José could also result in significant impacts on nearby wetlands northeast of the intersection which is considered a ***potentially significant*** impact.

MITIGATION MEASURE. Mitigation Measure IM-BIO-3 would ensure that wetlands are avoided or the wetland habitat is compensated for at a 1:1 ratio. Implementation of this mitigation would reduce water resource impacts due to wetland disturbance to ***less than significant with mitigation***.

**Freeway Ramps.** Construction of the intersection improvements could result in impacts on water quality through ground-disturbing activities that may have the potential to affect water quality through soil erosion and stormwater discharge of pollutants and sedimentation. The improvements would be required to implement strategies to reduce potential impacts, such as preparing and complying with a SWPPP, as

required by the State Water Resources Control Board's Construction General Permit, ensuring that impacts would be ***less than significant.***.

Because the intersection improvements would be additions to the existing roadways and not new roadway facilities, these actions would not expose structures or populations to new risks of flood hazards from 100-year flood areas, levee or dam failures, or inundations by seiche, tsunami, or mudflow.

Because these intersection improvements would be within or immediately adjacent to the ROW, it is likely that most improvement locations would be on predominantly impervious surfaces that are currently covered by a paved roadway or sidewalk. Additional impervious surfaces in or adjacent to the improvement area could be required. It is anticipated that the existing stormwater drainage facilities that serve the roadways would continue to be used. Because these intersection improvements could alter the existing drainage patterns on-site and create new impervious surfaces, the intersection improvements could create a substantial amount of stormwater runoff that would exceed the existing capacity of the stormwater drainage system and have water quality impacts. This is considered a ***potentially significant*** impact.

MITIGATION MEASURE. Mitigation Measure IM-WQ-1 would require the preparation of a hydrology and water quality technical report that would evaluate drainage and stormwater conditions at the intersections and provide recommendations for drainage and stormwater controls to ensure that the intersection improvements would not substantially alter the existing drainage patterns of the affected area, deplete groundwater supplies, interfere with groundwater recharge, or degrade water quality. Therefore, it would reduce potential hydrology and water quality impacts during intersection improvement construction and operation to ***less than significant with mitigation***.

*IM-WQ-1: Prepare a Hydrology and Water Quality Technical Report*. Prior to construction of any intersection improvement, the Project Developer shall prepare a hydrology and water quality technical report to evaluate the existing drainage and stormwater conditions at the subject intersections. The technical report shall include recommendations for drainage and stormwater controls to minimize impacts related to changes in drainage patterns that would result from the intersection improvements. The Project Developer shall be required to implement the report's recommendations.

**Interchanges.** Construction of the intersection improvements could result in impacts on water quality through ground-disturbing activities that have the potential to affect water quality through soil erosion and stormwater discharge of pollutants and sedimentation. Groundwater could be encountered during excavation below grade as well. Interchange improvements would be required to implement strategies to reduce potential impacts, such as preparing and complying with a SWPPP, as required by the State Water Resources Control Board's Construction General Permit, ensuring that construction impacts would most likely be ***less than significant with mitigation***.

Because the interchange improvements would be additions to the existing roadways and not new roadway facilities, these actions would not expose structures or populations to new risks of flood hazards from 100-year flood areas, levee or dam failures, or inundations by seiche, tsunami, or mudflow.

Portions of the interchange locations would be on predominantly impervious surfaces that are currently covered by a paved roadway or sidewalk. These improvements could substantially change the amount of impervious surfaces in or adjacent to the improvement area. Given the grade changes, these

improvements could also alter the existing drainage patterns of the affected area, deplete groundwater supplies, or interfere with groundwater recharge.

It is anticipated that the existing stormwater drainage facilities that serve the roadways would continue to be used. Because these intersection improvements could alter the existing drainage patterns on-site and create new impervious surfaces, the intersection improvements could create a substantial amount of stormwater runoff that could exceed the existing capacity of the stormwater drainage system. Thus, interchange improvements are considered to have ***potentially significant*** impacts related to runoff, water quality, and groundwater interference.

Implementation of mitigation similar to Mitigation Measure IM-WQ-1 would require preparation of drainage and stormwater evaluations. Therefore, it would most likely reduce potential hydrology and water quality impacts during intersection improvement construction and operation to ***less than significant with mitigation***.

As noted above, these interchange improvements will undergo separate CEQA review. The final impacts and mitigation measures will be disclosed by the Lead Agency.

## Hazards and Hazardous Materials

**Improvements in Existing Road ROWs.** These intersection improvements would not expose people to hazards caused by proximity to a public or private airport. These intersection improvements would not expose people to wildland fire hazards, because the improvement locations are urbanized. The intersection improvements would not result in the creation of structures or sources that would result in the long-term operational use or emissions of hazardous materials. Construction of the intersection improvements could result in lane or street closures and could temporarily interfere with an adopted emergency response plan or emergency evacuation plan, which would be a ***potentially significant*** impact.

Construction of the intersection improvements would also likely involve the use of potentially hazardous materials such as fuel, diesel/gasoline, motor oils, and hydraulic oils. These substances are generally used in construction and are not unique materials that would require additional handling protocols beyond manufacturers' specifications. Construction of these intersection improvements would include restriping existing intersections within the ROW but would not include ground-disturbing activities that could expose the public or workers to hazardous materials associated with contaminated soils or groundwater. Therefore, potential impacts related to hazardous materials would be ***less than significant***.

MITIGATION MEASURE. With implementation of Mitigation Measure IM-TRA-1 (discussed in the analysis of traffic in this section), which requires preparation of a construction traffic control plan, potential impacts on emergency access would be ***less than significant with mitigation***.

**At-Grade Improvements Requiring Additional ROW.** These intersection improvements would not expose people to hazards caused by proximity to a public or private airport. Furthermore, these intersection improvements would not expose people to wildland fire hazards, because the improvement locations are urbanized. These intersection improvements would not result in the creation of structures or sources that would result in the long-term operational use or emissions of hazardous materials. Construction of the intersection improvements could result in lane or street closures and interfere with an adopted emergency response plan or emergency evacuation plan.

Construction of these intersection improvements would also most likely involve the use of potentially hazardous materials such as fuel, diesel/gasoline, motor oils, and hydraulic oils. These substances are generally used in construction and are not unique materials that would require additional handling

protocols beyond manufacturers' specifications. Whether the intersection improvement sites are included on a list of hazardous materials sites is unknown at this time. Hazardous materials could be disturbed, creating a hazard to the public, the environment, or schools within 0.25 mile of the sites, which is considered a ***potentially significant*** impact.

MITIGATION MEASURES. With implementation of Mitigation Measure IM-TRA-1, which requires preparation of a construction traffic control plan, potential impacts on emergency access would be ***less than significant with mitigation***. Implementation of Mitigation Measure IM-HAZ-1 would require the preparation of a Phase I Environmental Site Assessment of all disturbed and acquired property. Where the potential to encounter hazardous materials or waste is identified, a soil/groundwater handling plan that identifies proper disposal methods will be prepared and implemented. Therefore, it would reduce potential hazards or hazardous waste impacts during intersection improvement construction to ***less than significant with mitigation***.

*IM-HAZ-1: Prepare a Phase I Environmental Site Assessment.* Prior to construction of any intersection improvement involving ground disturbance of acquired property, the Project Developer shall conduct a Phase I Environmental Site Assessment. Where the potential to encounter hazardous materials or waste is identified, the Project Developer shall prepare and implement a soil/groundwater handing plan that identifies measures to properly dispose of contaminated materials. Measures could include worker education and training, as appropriate, and site-specific controls to avoid risks to workers and adjacent residents or others.

**Freeway Ramps.** These intersection improvements would not expose people to hazards caused by proximity to a public or private airport. Furthermore, these intersection improvements would not expose people to wildland fire hazards, because the improvement locations are urbanized. These intersection improvements would not result in the creation of structures or sources that would result in the long-term operational use or emissions of hazardous materials. Construction of the intersection improvements could result in lane or street closures and interfere with an adopted emergency response plan or emergency evacuation plan, which is considered a ***potentially significant*** impact.

Construction of these intersection improvements would also most likely involve the use of potentially hazardous materials such as fuel, diesel/gasoline, motor oils, and hydraulic oils. These substances are generally used in construction and are not unique materials that would require additional handling protocols beyond manufacturers' specifications. Whether the intersection improvement sites are included on a list of hazardous materials sites is unknown at this time. Hazardous materials could potentially be disturbed, creating a hazard to the public, the environment, or schools within 0.25 mile of the sites, which is considered a ***potentially significant*** impact.

MITIGATION MEASURE. With implementation of Mitigation Measure IM-TRA-1, which requires preparation of a construction traffic control plan, potential impacts on emergency access would be ***less than significant with mitigation***. Implementation of Mitigation Measure IM-HAZ-1 would require preparation of a Phase I Environmental Site Assessment and would require a soil/groundwater handling plan, when necessary. Therefore, it would reduce potential hazards or hazardous waste impacts during intersection improvement construction to ***less than significant with mitigation***.

**Interchanges.** With the exception of Intersection 98, these interchange improvements would not expose people to hazards caused by proximity to a public or private airport. Intersection 98 is approximately 2,300 feet from the nearest runway at Norman Y. Mineta San José International Airport. However, it is considered unlikely that a grade separation, although elevated, would be likely to introduce elevation hazards for the airport; this impact will be evaluated further in the separate CEQA review.

These improvements would not expose people to wildland fire hazards, because the improvement locations are urbanized. These intersection improvements would not result in the creation of structures or sources that would result in the long-term operational use or emissions of hazardous materials. Construction of the intersection improvements could result in lane or street closures and interfere with an adopted emergency response plan or emergency evacuation plan, which is considered a ***potentially significant*** impact. With implementation of mitigation similar to Mitigation Measure IM-TRA-1, which requires preparation of a construction traffic control plan, potential impacts on emergency access would most likely be ***less than significant with mitigation***.

Construction of these intersection improvements would also most likely involve the use of potentially hazardous materials such as fuel, diesel/gasoline, motor oils, and hydraulic oils. These substances are generally used in construction and are not unique materials that would require additional handling protocols beyond manufacturers' specifications. Whether the intersection improvement sites are included on a list of hazardous materials sites is unknown at this time. Hazardous materials could be disturbed, creating a hazard to the public, the environment, or schools within 0.25 mile of the sites. Implementation of mitigation similar to Mitigation Measure IM-HAZ-1 would require the preparation of a Phase I Environmental Site Assessment of all disturbed and acquired property. Where the potential to encounter hazardous materials or waste is identified, a soil/groundwater plan that identifies proper disposal methods will be prepared and implemented. Implementation of this mitigation would most likely reduce impacts to ***less than significant with mitigation***.

As noted above, these interchange improvements will undergo separate CEQA review. The final impacts and mitigation measures will be disclosed by the Lead Agency.

## Population and Housing

**Improvements in Existing Road ROWs.** None of these potential intersection improvements would induce substantial population growth in the area either directly (by generating a population) or indirectly (through the extension of new roads into undeveloped areas), because these improvements would occur where roadways already exist. These intersection improvements would not result in the demolition of existing structures that would displace housing or people. Therefore, the intersection improvements would result in ***no impact*** related to population and housing.

**At-Grade Improvements Requiring Additional ROW.** None of these potential intersection improvements would induce substantial population growth in the area either directly (by generating a population) or indirectly (through the extension of new roads into undeveloped areas), because these improvements would occur where roadways already exist. The additional ROW required for these intersection improvements would not result in the demolition of existing structures that would displace housing or people. Therefore, these intersection improvements would result in ***no impact*** related to population and housing.

**Freeway Ramps.** None of these potential intersection improvements would induce substantial population growth in the area either directly (by generating a population) or indirectly (through the extension of new roads into undeveloped areas), because these improvements would occur where roadways already exist. The additional ROW required for some of these freeway improvements would not result in the demolition of existing structures that would displace housing or people. Therefore, these intersection improvements would result in ***no impact*** related to population and housing.

**Interchanges.** None of these potential intersection improvements would induce substantial population growth in the area either directly (by generating a population) or indirectly (through the extension of new

roads into undeveloped areas), because these improvements would occur where roadways already exist. The additional ROW required for one of the interchange improvements (e.g., Intersection 52) could result in the demolition of existing structures, which could displace housing or people. Because the detailed designs for these intersection improvements have not been developed and are, therefore, conceptual, the exact displacement is unknown at this time. Therefore, at Intersection 52, impacts related to displacement would be ***potentially significant and unavoidable***.

As described above, these interchange improvements will undergo separate CEQA review. The final impacts and mitigation measures will be disclosed by the Lead Agency.

## Public Services

**Improvements in Existing Road ROWs.** These proposed intersection improvements would not develop any permanent structures that would generate a new population that would increase the demand for fire protection, police protection, schools, parks, or recreational facilities. Temporary impacts on fire protection and police protection could occur if construction of the intersection improvements results in changed roadway access, causing significantly delayed response times. Any such temporarily delayed response times would not trigger the need for new or expanded public facilities, resulting in a ***less-than-significant*** impact.

**At-Grade Improvements Requiring Additional ROW.** These proposed intersection improvements would not develop any permanent structures that would generate a new population that would increase the demand for fire protection, police protection, schools, parks, or recreational facilities. Temporary impacts on fire protection and police protection could occur if construction of the intersection improvements results in changed roadway access, causing significantly delayed response times. Any such temporarily delayed response times would not trigger the need for new or expanded public facilities, resulting in a ***less-than-significant*** impact.

**Freeway Ramps.** These proposed intersection improvements would not develop any permanent structures that would generate a new population that would increase the demand for fire protection, police protection, schools, parks, or recreational facilities. Temporary impacts on fire protection and police protection could occur if construction of the intersection improvements results in changed roadway access, causing significantly delayed response times. Any such temporarily delayed response times would not trigger the need for new or expanded public facilities, resulting in a ***less-than-significant*** impact.

**Interchanges.** The proposed interchange improvements would not develop any permanent structures that would generate a new population that would increase the demand for fire protection, police protection, schools, parks, or recreational facilities. Temporary impacts on fire protection and police protection could occur if construction of the intersection improvements results in changed roadway access, causing significantly delayed response times. Any such temporarily delayed response times would not trigger the need for new or expanded public facilities, resulting in a ***less-than-significant*** impact.

As noted above, these interchange improvements will undergo separate CEQA review. The final impacts and mitigation measures will be disclosed by the Lead Agency.

## Utilities and Service Systems

**Improvements in Existing Road ROWs.** The proposed intersection improvements within the existing ROW would not develop any permanent structures that would generate a new population that would

require domestic water, wastewater disposal and treatment, or solid waste collection services and result in the expansion of facilities for such services. Debris generated during the construction of intersection improvements would be limited to the excess soil from ground-disturbing activities and existing roadway features that would be removed. Soil debris and demolition waste would be taken to an approved waste disposal location, would comply with applicable construction and demolition waste diversion requirements, and would not exceed the sufficient permitted capacity of a landfill.

Regarding storm drain system impacts, see the separate discussion above under Hydrology and Water Quality.

Construction activities related to these intersection improvements could result in the relocation or temporary disruption of existing underground or overhead utilities. However, existing state law requires that all underground and overhead utilities be relocated prior to construction and that construction contractors coordinate with the appropriate utility owners regarding utility shutoff during construction and relocation, as necessary. These existing requirements would reduce potential utility impacts during construction to a ***less-than-significant*** level.

**At-Grade Improvements Requiring Additional ROW.** These proposed intersection improvements would be within or adjacent to the existing ROW. They would not result in development of any permanent structures that would generate a new population that would require domestic water, wastewater disposal and treatment, or solid waste collection services and result in the expansion of facilities for such services. Debris generated during the construction of intersection improvements would be limited to the excess soil from ground-disturbing activities and existing roadway features that would be removed. Soil debris and demolition waste would be taken to an approved waste disposal location, would comply with applicable construction and demolition waste diversion requirements, and would not exceed the permitted capacity of a landfill.

Regarding storm drain system impacts, see the separate discussion above under Hydrology and Water Quality.

However, existing state law requires that all underground and overhead utilities be relocated prior to construction and that construction contractors coordinate with the appropriate utility owners regarding utility shutoff during construction and relocation, as necessary. These existing requirements would reduce potential utility impacts during construction to a ***less-than-significant*** level.

**Freeway Ramps.** These proposed ramp improvements would be within or adjacent to the existing ROW. They would not result in development of any permanent structures that would generate a new population that would require domestic water, wastewater disposal and treatment, or solid waste collection services and result in the expansion of facilities for such services. Debris generated during the construction of these intersection improvements would be limited to the excess soil from ground-disturbing activities and existing roadway features that would be removed. Soil debris and demolition waste would be taken to an approved waste disposal location, would comply with applicable construction and demolition waste diversion requirements, and would not exceed the permitted capacity of a landfill.

Regarding storm drain system impacts, see the separate discussion above under Hydrology and Water Quality.

However, existing state law requires that all underground and overhead utilities be relocated prior to construction and that construction contractors coordinate with the appropriate utility owners regarding utility shutoff during construction and relocation, as necessary. These existing requirements would reduce potential utility impacts during construction to a ***less-than-significant*** level.

**Interchanges.** These proposed interchange improvements would be within or adjacent to the existing ROW. They would not result in development of any permanent structures that would generate a new population that would require domestic water, wastewater disposal and treatment, or solid waste collection services and result in the expansion of facilities for such services. Debris generated during the construction of these intersection improvements would be limited to the excess soil from ground-disturbing activities and existing roadway features that would be removed. Soil debris and demolition waste would be taken to an approved waste disposal location, would comply with applicable construction and demolition waste diversion requirements, and would not exceed the permitted capacity of a landfill.

Regarding storm drain system impacts, see the separate discussion above under Hydrology and Water Quality.

However, existing state law requires that all underground and overhead utilities be relocated prior to construction and that construction contractors coordinate with the appropriate utility owners regarding utility shutoff during construction and relocation, as necessary. These existing requirements would reduce potential utility impacts during construction to a ***less-than-significant*** level.

As noted above, these interchange improvements will undergo separate CEQA review. The final impacts and mitigation measures will be disclosed by the Lead Agency.

**Table 3.3-61. Summary of Secondary Impacts from Intersection Improvements**

| Int. # | Type | Intersection Name | LU | AES | TRA | AQ | GHG | NOI | CR | BIO | GEO | HWQ | HAZ | POP/H | PS | UT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | B | Great America Parkway/ Tasman Drive | LTS | LTSM | LTSM | LTSM | LTS | LTS | LTSM | LTSM | LTS | LTS | LTSM | NI | LTS | LTS |
| 13 | B | Calle Del Sol/Tasman Drive | LTS | LTSM | LTSM | LTSM | LTS | LTS | LTSM | LTSM | LTS | LTS | LTSM | NI | LTS | LTS |
| 14 | B | Lick Mill Boulevard/ Tasman Drive | LTS | LTS | LTSM | LTSM | LTS | LTS | LTSM | LTSM | LTSM | LTS | LTSM | NI | LTS | LTS |
| 22 | B | Agnew Road-De La Cruz Boulevard/Montague Expressway | LTS | LTS | LTSM | LTSM | LTS | LTS | LTSM | LTS | LTS | LTS | LTSM | NI | LTS | LTS |
| 23 | A | Lick Mill Boulevard/ Montague Expressway | LTS | LTS | LTSM | LTSM | LTS | LTS | LTS | LTS | LTS | LTS | LTS | NI | LTS | LTS |
| 27 | D | Trimble Road/ Montague Expressway | PSU | LTSM | PSU | PSU | LTSM | LTS | PSU | LTS | LTSM | LTSM | LTSM | NI | LTS | LTS |
| 28 | D | McCarthy Boulevard-O'Toole Avenue/ Montague Expressway | PSU | LTSM | PSU | PSU | LTSM | LTS | PSU | LTS | LTSM | LTSM | LTSM | NI | LTS | LTS |
| 50 | D | Lawrence Expressway/Arques Avenue | LTS | LTSM | PSU | PSU | LTSM | LTS | PSU | LTS | LTSM | LTSM | LTSM | NI | LTS | LTS |
| 51 | D | Lawrence Expressway/Kifer Road | LTS | LTSM | PSU | PSU | LTSM | LTS | PSU | LTS | LTSM | LTSM | LTSM | NI | LTS | LTS |
| 52 | D | Lawrence Expressway/Reed Avenue-Monroe Street | PSU | PSU | PSU | PSU | LTSM | PSU | PSU | LTS | LTSM | LTSM | LTSM | NI | LTS | LTS |
| 54 | B | Lawrence Expressway/ Benton Street | LTS | LTSM | LTSM | LTSM | LTS | LTS | LTS | LTSM | LTS | LTS | LTSM | NI | LTS | LTS |
| 57 | C | Great America Parkway/ SR 237 Westbound Ramps | LTS | LTS | PSU | LTSM | LTSM | LTS | LTSM | LTSM | LTSM | LTSM | LTSM | NI | LTS | LTS |

**Table 3.3-61. Summary of Secondary Impacts from Intersection Improvements**

| Int. # | Type | Intersection Name | LU | AES | TRA | AQ | GHG | NOI | CR | BIO | GEO | HWQ | HAZ | POP/H | PS | UT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 58 | C | Great America Parkway/ SR 237 Eastbound Ramps | LTS | LTSM | PSU | LTSM | LTSM | LTS | LTSM | LTSM | LTSM | LTSM | LTSM | NI | LTS | LTS |
| 59 | B | Great America Parkway/ Yerba Buena (Great America) Way | LTS | LTS | LTSM | LTSM | LTS | LTS | LTSM | LTSM | LTS | LTS | LTSM | NI | LTS | LTS |
| 60 | B | Great America Parkway/ Old Mountain View-Alviso Road | LTS | LTS | LTSM | LTSM | LTS | LTS | LTSM | LTSM | LTS | LTS | LTSM | NI | LTS | LTS |
| 71 | B | Bowers Avenue/Central Expressway | LTS | LTSM | LTSM | LTSM | LTS | LTS | LTSM | LTSM | LTS | LTS | LTSM | NI | LTS | LTS |
| 75 | D | San Tomas Expressway/Scott Road | LTS | LTSM | PSU | PSU | LTSM | LTS | LTSM | LTS | LTSM | LTSM | LTSM | NI | LTS | LTS |
| 76 | B | San Tomas Expressway/ Walsh Avenue | LTS | LTS | LTSM | LTSM | LTS | LTS | LTSM | LTS | LTS | LTS | LTSM | NI | LTS | LTS |
| 78 | D | San Tomas Expressway/El Camino Real | LTS | LTSM | PSU | LTSM | LTSM | LTS | LTSM | LTS | LTSM | LTSM | LTSM | NI | LTS | LTS |
| 79 | B | San Tomas Expressway/ Benton Street | LTS | LTSM | LTSM | LTSM | LTS | LTS | LTSM | LTSM | LTS | LTS | LTSM | NI | LTS | LTS |
| 82 | A | San Tomas Expressway/ Pruneridge Avenue | LTS | LTSM | LTSM | LTS | LTS | LTS | LTS | LTSM | LTS | LTS | LTS | NI | LTS | LTS |
| 84 | B | Gold Street/Gold Street Connector | LTS | LTS | LTSM | LTSM | LTS | LTS | LTSM | LTSM | LTSM | LTSM | LTSM | NI | LTS | LTS |
| 90 | A | Lafayette Street/Calle De Luna | LTS | LTS | LTSM | LTS | LTS | LTS | LTS | LTS | LTS | LTS | LTS | NI | LTS | LTS |
| 96 | B | Lafayette Street/ Montague Expressway Westbound Ramps | LTS | LTS | LTSM | LTSM | LTS | LTS | LTSM | LTSM | LTS | LTS | LTSM | NI | LTS | LTS |
| 98 | D | Lafayette Street/Central Expressway | PSU | LTS | PSU | PSU | LTSM | LTS | PSU | LTS | LTSM | LTSM | LTSM | PSU | LTS | LTS |

**Table 3.3-61. Summary of Secondary Impacts from Intersection Improvements**

| Int. # | Type | Intersection Name | LU | AES | TRA | AQ | GHG | NOI | CR | BIO | GEO | HWQ | HAZ | POP/H | PS | UT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 114 | B | Calle Del Sol/Calle Del Luna | NI | NI | LTS | LTSM | LTS | NI | NI | NI | NI | NI | NI | NI | NI | LTS |
| 120 | A | De La Cruz Boulevard/ Laurelwood Road | LTS | LTS | LTSM | LTS | LTS | LTS | LTS | LTS | LTS | LTS | LTS | NI | LTS | LTS |
| 123 | B | Great America Parkway/ Gold Street Connector | LTS | LTS | LTSM | LTSM | LTS | LTS | LTSM | LTSM | LTS | LTS | LTSM | NI | LTS | LTS |

NI = No Impact
LTS = Less than significant
LTSM = Less than significant with mitigation
PSU = Potentially significant and unavoidable
LU = Land Use and Planning
AES = Aesthetics
TRA = Transportation and Traffic
AQ = Air Quality
GHG = Greenhouse Gas Emissions
NOI = Noise and Vibration
CR = Cultural Resources
BIO = Biological Resources
GEO = Geology and Soils
HWQ = Hydrology and Water Quality
HAZ = Hazards and Hazardous Materials
POP/H = Population and Housing
PS = Public Services
UT = Utilities and Services Systems