



Sunnyvale

Memorandum

Date: 9/2/2021
To: Trudi Ryan, Director of Community Development Department
Chip Taylor, Director of Department of Public Works
Cc: Andrew Miner, Assistant Director of Community Development
Dennis Ng, Transportation and Traffic Manager
From: Lillian Tsang, Principal Transportation Engineer, Departments of Public Works
Subject: Lawrence Station Area Plan Transportation Impact Fee Nexus Study

Background

The Lawrence Station Area Plan (LSAP) was adopted by the Sunnyvale City Council on December 6, 2016. The City of Sunnyvale now proposes to increase housing in the LSAP area by 3,612 dwelling units, increasing the total allowable housing units within the LSAP area from 2,323 units to 5,935 units. The City contracted with Hexagon Transportation Consultant to prepare a Transportation Impact Analysis Report (TIA) to analyze whether the proposed amendments to the Lawrence Station Area Plan Update (LSAP Update) would cause any deterioration in the transportation network on roads in City of Sunnyvale and neighboring cities under the Cumulative Conditions. Although a project's effect on level of service (LOS) is no longer considered an impact under California Environmental Quality Act (CEQA), City Council Policy 1.2.8 requires a LOS operational analysis to ensure intersection and roadway efficiency and to comply with the VTA's Congestion Management Program (CMP) for both the near-term/background conditions and cumulative conditions. The TIA can be found in **Appendix E** in the *Draft Subsequent Environmental Impact Report (EIR) for the Lawrence Station Area Plan (LSAP) Update/Intuitive Surgical Corporate Campus Project*. As per the adopted LSAP and the Draft amended LSAP, projects within the plan area shall contribute their fair share towards the cost of the identified improvements if an adverse intersection impact or freeway impact is triggered by the LSAP Update.

Because only the cumulative conditions were evaluated in the LSAP Update TIA, subsequent residential development projects when they come forward for development would still need to be studied under near-term/background conditions pursuant to VTA's CMP requirements. If an adverse impact is triggered by project trips to CMP facilities and major intersections are identified for the near-term/background conditions in the future, subsequent residential development projects will be required to make financial contributions towards improvements or construct physical improvements at the affected facilities.

This nexus study explains how the additional residential development authorized by the LSAP Update will generate traffic that will adversely impact major intersections and CMP facilities, and calculates a Transportation Impact Fee that developers within the LSAP will be required to pay for intersection and freeway improvements at locations where an adverse impact is triggered. The first 2,323 residential dwelling units to be built or approved within the LSAP area were included under the adopted 2016 LSAP and will not be required to pay this Transportation Impact Fee. However, in order to mitigate the



Sunnyvale

impact of the additional residential development authorized by the LSAP Update, all residential dwelling units approved after the first 2,323 residential dwelling units shall pay **\$704 per dwelling unit** toward the identified intersection improvements and **\$594 per dwelling unit** toward the identified freeway improvements (through the VTA's Voluntary Freeway Contribution Program), for a total LSAP Transportation Impact Fee of \$1,298 per dwelling unit.

Legal Context

Impact fees are used to cover the cost of constructing capital and infrastructure improvements required to serve new development and growth in the City. As such, impact fees must be based on a reasonable nexus, or connection, between new development and the need for a specific capital facilities and improvements. Impact fee revenue cannot be used to cover the operation and maintenance costs of these or any other facilities and infrastructure. In addition, impact fee revenue cannot be collected or used to cover the cost of pre-existing infrastructure needs or deficiencies.

In establishing, increasing, or imposing a fee as a condition for the approval of a development project, Government Code 66001(a) and (b) state that the local agency must:

1. Identify the purpose of the fee;
2. Identify how the fee is to be used;
3. Determine how a reasonable relationship exists between the fee use and type of development project for which the fee is being used;
4. Determine how the need for the public facility relates to the type of development project for which the fee is imposed; and
5. Show the relationship between the amount of the fee and the cost of the public facility.

Fair Share Contributions for Intersection Improvements

The LSAP Update's percent fair share contribution for intersection improvements is calculated by:

$$\% \text{ share} = \frac{(\text{Trips Generated by LSAP Update})}{(\text{Cumulative with LSAP Update Traffic} - \text{Existing No Project Traffic})}$$

Where the trips generated by the LSAP Update would be divided by the total growth in traffic from the Existing Conditions to Cumulative with LSAP Update Conditions. This is an accepted methodology from the various jurisdictions (e.g., City of Santa Clara, County of Santa Clara, etc.) for calculating fair share contribution for an identified intersection improvement.

In the TIA prepared for the LSAP Update, it was determined that the LSAP Update would generate an adverse intersection impact at the following intersections where improvements have not been included in the City of Sunnyvale Traffic Impact Fee (TIF). **Table 1** provides a summary of the list of intersections impacted by the LSAP Update under the cumulative conditions, the improvements identified, the total cost of the improvements, and the LSAP Update's fair share contribution.



Sunnyvale

Definition of Intersection Impacts at Signalized Intersections

The Cities of Sunnyvale and Santa Clara level of service standards for signalized intersections are LOS D or better, and the County of Santa Clara level of service standard for signalized intersections is LOS E or better. Within the City of Sunnyvale, intersections on roadways considered to be “regionally significant” have a standard of LOS E or better. In the study area, signalized intersections within Sunnyvale along El Camino Real, Sunnyvale-Saratoga Road, Central Expressway and Lawrence Expressway are considered regionally significant. The LOS standard for signalized intersection which belong to the CMP network is LOS E or better.

Pursuant to Sunnyvale City Council Policy 1.2.8, the LSAP Update has an “adverse impact” on traffic conditions at a signalized intersection if for the study peak hour:

1. The level of service at the intersection drops below its respective level of service standard when project traffic is added; or
2. An intersection that operates below its level of service standard under no project conditions experiences an increase in critical-movement delay of four (4) or more seconds, and the critical volume-to-capacity ratio (V/C) is increased by 0.01 or more when project traffic is added.

The exception to this threshold is when the addition of project traffic reduces the amount of average control delay for critical movements (i.e., the change in average control delay for critical movements are negative). In this case, the threshold is when the project increases the critical V/C value by 0.01 or more.

Wolfe Road and Central Expressway Ramps (Intersection #18)

This intersection is under the City of Sunnyvale’s jurisdiction and the LOS standard is LOS D or better. Under Cumulative no LSAP Update conditions, the LOS would be an unacceptable LOS F during both the AM and PM peak hours. The addition of LSAP Update traffic would increase the critical-movement delay by 18.8 seconds and critical V/C ratio by 0.042 during the AM peak hour, and the critical-movement delay by 26.9 seconds and critical V/C ratio by 0.06 during the PM peak hour. Therefore, the addition of LSAP Update traffic would meet the City of Sunnyvale’s adverse intersection impact criteria for both AM and PM peak hours.

Potential Improvement: To reduce LSAP Update’s adverse impact at this intersection, both the eastbound and westbound Central Expressway off-ramps would need to be widened to include one left-turn lane, one shared through-left lane and one right-turn lane, which is an improvement previously identified by City of Sunnyvale for this location. The improvements would lengthen the respective crosswalks by up to 12 feet. The widened approaches would increase traffic exposure time for pedestrians by 3 to 5 seconds and 1 to 3 seconds for bicyclists crossing the intersection. The estimated cost to implement these improvements is \$3,696,000.

For this intersection, the LSAP Update traffic would trigger an adverse impact during both the AM and PM peak hours. The trips generated by the LSAP Update that would travel through this intersection



Sunnyvale

during the AM peak hour is 321 vehicles, and the total growth in traffic from the Existing Conditions to Cumulative with LSAP Update Conditions is 2,795. As a result, the LSAP Update's percent fair share for the AM peak hour is 11.5%. The trips generated by the LSAP Update which would travel through this intersection during the PM peak hour is 166 vehicles, and the total growth in traffic from the Existing Conditions to Cumulative with LSAP Update Conditions is 1,995. As a result, the LSAP Update percent fair share for the PM peak hour is 8.3%. Since the LSAP Update has a higher percent fair share for the AM peak hour, the AM peak hour percentage is used in calculating its fair share contribution. The LSAP Update shall contribute 11.5% of the total improvement costs at this location, which is equivalent to \$425,040.

Lawrence Expressway and Cabrillo Avenue (Intersection #37)

This intersection is under the County of Santa Clara's jurisdiction and the LOS standard is LOS E or better. Under Cumulative no LSAP Update conditions, the LOS would be an unacceptable LOS F at this intersection during the AM peak hour. The addition of LSAP Update traffic would increase the critical-movement delay by 10.4 seconds and the critical V/C ratio by 0.044 during the AM peak hour, which would the County of Santa Clara's adverse intersection impact criteria.

Potential Improvement: The County of Santa Clara has identified a future project to provide a grade separation at this intersection in the *County of Santa Clara Expressway Plan 2040*. This would improve the north-south flow of traffic and potentially address the LSAP Update's impacts. The estimated cost to implement this improvement is \$70,000,000. The County of Santa Clara and the Cities of Sunnyvale and Santa Clara will be partners for implementing this improvement, and will be responsible for a total of 20% of the improvement costs as local match. The three jurisdictions will look for grant funding opportunity for the remaining 80% of the improvement costs. The City of Sunnyvale will be responsible for the one-third of the 20% local match, which would be equivalent to \$4,666,667.

For this intersection, the LSAP Update traffic would trigger an adverse impact during the AM peak hour. The trips generated by the LSAP Update that would travel through this intersection during the AM peak hour is 260 vehicles, and the total growth in traffic from the Existing Conditions to Cumulative with LSAP Update Conditions is 2,580. As a result, the LSAP Update's the percent fair share for the AM peak hour is 10.1%. The LSAP Update shall contribute 10.1% of Sunnyvale's share of the improvement costs at this location, which is equivalent to \$471,333.

Lawrence Expressway and Benton Avenue (Intersection #39)

This intersection is under the County of Santa Clara's jurisdiction and the LOS standard is LOS E or better. Under Cumulative no LSAP Update conditions, the LOS would be an unacceptable LOS F at this intersection during the PM peak hour. The addition of LSAP Update traffic would decrease the critical-movement delay by 1.5 second, however, it will increase the critical V/C ratio by 0.033 during the PM peak hour, which would meet the County of Santa Clara's adverse intersection impact criteria.

Potential Improvement: The County of Santa Clara has identified a future project to provide a grade separation at this intersection in the *County of Santa Clara Expressway Plan 2040*. This would improve the north-south flow of traffic and potentially address the LSAP Update's impacts. The estimated cost to implement this improvement is \$70,000,000. The County of



Sunnyvale

Santa Clara and the Cities of Sunnyvale and Santa Clara will be partners for implementing this improvement, and will be responsible for a total of 20% of the improvement costs as local match. The three jurisdictions will look for grant funding opportunity for the remaining 80% of the improvement costs. The City of Sunnyvale will be responsible for the one-third of the 20% local match, which would be equivalent to \$4,666,667.

For this intersection, the LSAP Update traffic would trigger an adverse impact during the PM peak hour. The trips generated by the LSAP Update that would travel through this intersection during the PM peak hour is 134 vehicles, and the total growth in traffic from the Existing Conditions to Cumulative with LSAP Update Conditions is 4,315. As a result, the LSAP Update's percent fair share for the PM peak hour is 3.1%. The LSAP Update shall contribute 3.1% of Sunnyvale's share of the improvement costs at this location, which is equivalent to \$144,667.

Lawrence Expressway and Pruneridge Avenue (Intersection #41)

This intersection is under the County of Santa Clara's jurisdiction and the LOS standard is LOS E or better. Under Cumulative no LSAP Update conditions, the LOS would be an unacceptable LOS F at this intersection during the AM peak hour. The addition of LSAP Update traffic would increase the critical-movement delay by 8.5 seconds and critical V/C ratio by 0.035, which would meet the County of Santa Clara's adverse intersection impact criteria.

Potential Improvement: The County of Santa Clara has identified a future project to provide a grade separation at this intersection in the *County of Santa Clara Expressway Plan 2040*. This would improve the north-south flow of traffic and potentially address the LSAP Update's impacts. The estimated cost to implement this improvement is \$70,000,000. The County of Santa Clara and the City of Santa Clara will be partners for implementing this improvement, and will be responsible for a total of 20% of the improvement costs as local match. The two jurisdictions will look for grant funding opportunity for the remaining 80% of the improvement costs. Developments in the City of Sunnyvale will provide its fair share contribution based on one-half of the 20% local match, which would be equivalent to \$7,000,000.

For this intersection, the LSAP Update traffic would trigger an adverse impact during the AM peak hour. The trips generated by the LSAP Update that would travel through this intersection during the AM peak hour is 125 vehicles, and the total growth in traffic from the Existing Conditions to Cumulative with LSAP Update Conditions is 3,481. As a result, the LSAP Update's percent fair share for the AM peak hour is 3.6%. The LSAP Update shall contribute 3.6% of Sunnyvale's share of the improvement costs at this location, which is equivalent to \$252,000.

Oakmead Parkway and Central Expressway (Intersection #47) [Congestion Management Program Intersection]

This intersection is under the County of Santa Clara's jurisdiction, however it is a CMP intersection, therefore the LOS standard is LOS E or better. Under Cumulative no LSAP Update conditions, the LOS would be an acceptable LOS E during the PM peak hour. The addition of LSAP Update traffic would deteriorate traffic operations to an unacceptable LOS F during the PM peak hour, which meets the CMP's adverse intersection impact criteria.



Sunnyvale

Potential Improvement: To reduce LSAP Update's adverse impact at this intersection, it would require further widening of westbound Central Expressway to provide two left-turn lanes. This proposed improvement can be accommodated within the existing right-of-way. The estimated cost to implement these improvements is \$2,000,000.

With the proposed improvement, the intersection would operate at an acceptable LOS E under cumulative conditions during the PM peak. The LSAP Update shall contribute its fair share towards the cost of the identified improvement. The LSAP Update traffic would trigger an adverse impact during the PM peak hour at this intersection. The trips generated by the LSAP Update which would travel through this intersection during the PM peak hour is 345 vehicles, and the total growth in traffic from the Existing Conditions to Cumulative with LSAP Update Conditions is 2,897. As a result, the LSAP Update's percent fair share for the PM peak hour is 11.9%. The LSAP Update shall contribute 11.9% of the total improvement costs at this location, which is equivalent to \$238,000.

Bowers Avenue and Scott Boulevard (Intersection #53) [Congestion Management Program Intersection]

This intersection is under the City of Santa Clara's jurisdiction; however, it is a CMP intersection, therefore the LOS standard is LOS E or better. Under Cumulative no LSAP Update conditions, the LOS would be an unacceptable LOS F during the PM peak hour. The addition of LSAP Update traffic would increase the critical-movement delay by 7.8 seconds and the critical V/C ratio by 0.018, which meets the CMP's adverse intersection impact criteria.

Potential Improvement: To reduce the LSAP Update's adverse impact at this intersection, it would require widening southbound Bowers Avenue to include a second southbound left-turn lane, which is an improvement identified in the City of Santa Clara Multimodal Improvement Plan. This improvement could potentially be accommodated within the existing right-of-way by removing the existing median. The estimated cost to implement these improvements is \$516,625.

With the proposed improvement, the intersection would remain operating at LOS F under cumulative conditions during the PM peak, but the intersection operations would improve in comparison to the Cumulative no LSAP Update conditions. The LSAP Update shall contribute its fair share towards the cost of the identified improvement. For this intersection, the LSAP Update traffic would trigger an adverse impact during the PM peak hour. The trips generated by the LSAP Update that would travel through this intersection during the PM peak hour is 49 vehicles, and the total growth in traffic from the Existing Conditions to Cumulative with LSAP Update Conditions is 5,253. As a result, the LSAP Update's percent fair share for the PM peak hour is 0.9%. The LSAP Update shall contribute 0.9% of the total improvement costs at this location, which is equivalent to \$4,650.

Bowers Avenue and Central Expressway (Intersection #54) [Congestion Management Program Intersection]

This intersection is under the County of Santa Clara's jurisdiction; however, it is a CMP intersection, therefore the LOS standard is LOS E or better. Under Cumulative no LSAP Update conditions, the LOS would be an unacceptable LOS F during both the AM and PM peak hours at this intersection. The addition of LSAP Update traffic would increase the critical-movement delay by 42.4 seconds and



Sunnyvale

critical V/C ratio by 0.078 during the AM peak hour, and it would increase the critical-movement delay by 7.1 seconds and critical V/C ratio by 0.02 during the PM peak hour, which would meet the CMP's adverse intersection impact criteria.

Potential Improvement: The County of Santa Clara has identified a future project to provide a grade separation at this intersection in the *County of Santa Clara Expressway Plan 2040*. This would improve the east-west flow of traffic and potentially address LSAP Update's impacts. The estimated cost to implement this improvement is \$60,000,000. The County of Santa Clara will be responsible for implementing this improvement, and will be responsible for a 20% local match; they will look for grant funding opportunity for the remaining 80% of the improvement costs. Given the proximity of the intersection to the Sunnyvale's city limits, developments in Sunnyvale will provide its fair share contribution based on 50% of the County's local match.

The LSAP Update shall contribute its fair share towards the cost of the identified improvement. For this intersection, the LSAP Update traffic would trigger an adverse impact during both the AM and PM peak hours. The trips generated by the LSAP Update which would travel through this intersection during the AM peak hour is 593 vehicles, and the total growth in traffic from the Existing Conditions to Cumulative with LSAP Update Conditions is 8,612. As a result, the LSAP Update's percent fair share for the AM peak hour is 6.9%. The trips generated by the LSAP Update which would travel through this intersection during the PM peak hour is 294 vehicles, and the total growth in traffic from the Existing Conditions to Cumulative with LSAP Update Conditions is 7,695. As a result, the LSAP Update percent fair share for the PM peak hour is 3.8%. Since the LSAP Update has a higher percent fair share for the AM peak hour, the AM peak hour percentage of 6.9% is used in calculating its fair share contribution. Given the proximity of the intersection to the Sunnyvale City Limits, the LSAP Update shall contribute its fair share contribution of 50% of the County's local match, which is equivalent to \$414,000.

Bowers Avenue and Kifer Road (#55)

This intersection is under the City of Santa Clara's jurisdiction and the LOS standard is LOS D or better. Under Cumulative no LSAP Update conditions, the LOS would be an acceptable LOS D during the AM peak hour. The addition of LSAP Update traffic would deteriorate traffic operations to an unacceptable LOS E, which meets the City of Santa Clara's adverse intersection impact criteria.

Potential Improvement: To reduce LSAP Update's adverse impact at this intersection, it would require widening eastbound Kifer Road to include a second eastbound left-turn lane. This improvement could potentially be accommodated within the existing right-of-way. The estimated cost to implement these improvements is \$51,750.

With the proposed improvement, the intersection would operate at an acceptable LOS D under cumulative conditions during the AM peak. The LSAP Update shall contribute its fair share towards the cost of the identified improvement. For this intersection, the LSAP Update traffic would trigger an adverse impact during the AM peak hour. The trips generated by the LSAP Update which would travel through this intersection during the AM peak hour is 872 vehicles, and the total growth in traffic from the Existing Conditions to Cumulative with LSAP Update Conditions is 2,324. As a result, the LSAP Update's percent fair share for the PM peak hour is 37.5%. The LSAP Update shall contribute 37.5% of the total improvement costs at this location, which is equivalent to \$19,406.

**San Tomas Expressway and Scott Boulevard (Intersection #58) [Congestion Management Program Intersection]**

This intersection is under the County of Santa Clara's jurisdiction; however, it is a CMP intersection, therefore the LOS standard is LOS E or better. Under Cumulative no LSAP Update conditions, the LOS would be an unacceptable LOS F during the AM peak hour. The addition of LSAP Update traffic would decrease the critical-movement delay by 47.6 second, but it will increase the critical V/C ratio by 0.01, which would meet the CMP's adverse intersection impact criteria.

Potential Improvement: In the City of Santa Clara Multimodal Improvement Plan, a future project to provide a grade separation at this intersection was identified. This improvement would improve the north-south flow of traffic and potentially address the LSAP Update's impacts. The estimated cost to implement this improvement is \$42,500,000. The County of Santa Clara will be responsible for implementing this improvement, and will be responsible for a 20% local match; they will look for grant funding opportunity for the remaining 80% of the improvement costs. Given the proximity of the intersection to the Sunnyvale's city limits, developments in Sunnyvale will provide its fair share contribution based on 50% of the County's local match.

The LSAP Update shall contribute its fair share towards the cost of the identified improvement. For this intersection, the LSAP Update traffic would trigger an adverse impact during the AM peak hour. The trips generated by the LSAP Update which would travel through this intersection during the AM peak hour is 210 vehicles, and the total growth in traffic from the Existing Conditions to Cumulative with LSAP Update Conditions is 6,633. As a result, the LSAP Update's percent fair share for the AM peak hour is 3.2%. Given the proximity of the intersection to the Sunnyvale City Limits, the LSAP Update shall contribute its fair share contribution of 50% of the County's local match, which is equivalent to \$136,000.

San Tomas Expressway and Walsh Avenue (Intersection #59)

This intersection is under the County of Santa Clara's jurisdiction and the LOS standard is LOS E or better. Under Cumulative no LSAP Update conditions, the LOS would be an unacceptable LOS F during the AM peak. The addition of LSAP Update traffic would increase the critical-movement delay by 44.8 seconds and critical V/C ratio by 0.114 during the AM peak hour, which is sufficient to meet the County of Santa Clara's adverse intersection impact criteria.

Potential Improvement: The County of Santa Clara has identified a future project to provide a grade separation at this intersection in the *County of Santa Clara Expressway Plan 2040*, which would improve the north-south flow of traffic and potentially address the LSAP Update's impacts. The estimated cost to implement this improvement is \$43,000,000. The County of Santa Clara will be responsible for implementing this improvement, and will be responsible for a 20% local match; they will look for grant funding opportunity for the remaining 80% of the improvement costs. Given the proximity of the intersection to the Sunnyvale's city limits, developments in Sunnyvale will provide its fair share contribution based on 50% of the County's local match.



Sunnyvale

The LSAP Update shall contribute its fair share towards the cost of the identified improvement. For this intersection, the LSAP Update traffic would trigger an adverse impact during the AM peak hour. The trips generated by the LSAP Update which would travel through this intersection during the AM peak hour is 486 vehicles, and the total growth in traffic from the Existing Conditions to Cumulative with LSAP Update Conditions is 5,665. As a result, the LSAP Update's percent fair share for the AM peak hour is 8.6%. Given the proximity of the intersection to the Sunnyvale City Limits, the LSAP Update shall contribute its fair share contribution of 50% of the County's local match, which is equivalent to \$369,800.

San Tomas Expressway and Monroe Street (Intersection #60) [Congestion Management Program Intersection]

This intersection is under the County of Santa Clara's jurisdiction; however, it is a CMP intersection, therefore the LOS standard is LOS E or better. Under Cumulative no LSAP Update conditions, the LOS would be an unacceptable LOS F during the AM peak hour. The addition of LSAP Update traffic would decrease the critical-movement delay by 7.9 second but will increase the critical V/C ratio by 0.022, which would meet the CMP's adverse intersection impact criteria during the AM peak hour.

Potential Improvement: To improve the north-south flow of traffic and potentially address the LSAP Update's impacts, a grade separation at this location is identified as a future project. The estimated cost to implement this improvement is \$43,000,000. The County of Santa Clara will be responsible for implementing this improvement, and will be responsible for a 20% local match; they will look for grant funding opportunity for the remaining 80% of the improvement costs. Given the proximity of the intersection to the Sunnyvale's city limits, developments in Sunnyvale will provide its fair share contribution based on 50% of the County's local match.

The LSAP Update shall contribute its fair share towards the cost of the identified improvement. For this intersection, the LSAP Update traffic would trigger an adverse impact during the AM peak hour. The trips generated by the LSAP Update which would travel through this intersection during the AM peak hour is 36 vehicles, and the total growth in traffic from the Existing Conditions to Cumulative with LSAP Update Conditions is 6,237. As a result, the LSAP Update's percent fair share for the AM peak hour is 0.6%. Given the proximity of the intersection to the Sunnyvale City Limits, the LSAP Update shall contribute its fair share contribution of 50% of the County's local match, which is equivalent to \$25,800.

San Tomas Expressway and El Camino Real (Intersection #61) [Congestion Management Program Intersection]

This intersection is under the County of Santa Clara's jurisdiction; however, it is a CMP intersection, therefore the LOS standard is LOS E or better. Under Cumulative no LSAP Update conditions, the LOS would be an unacceptable LOS F during both the AM and PM peak hours. The addition of LSAP Update traffic would increase the critical-movement delay by 7.5 seconds and critical V/C ratio by 0.041 during the AM peak hour, and it would decrease the critical-movement delay by 0.4 seconds and increase the critical V/C ratio by 0.061 during the PM peak hour, which would meet the CMP's adverse intersection impact criteria during both peak hours.



Sunnyvale

Potential Improvement: The County of Santa Clara has identified a future project to provide a grade separation at this intersection in the *County of Santa Clara Expressway Plan 2040*, which would improve the north-south flow of traffic and potentially address the LSAP Update's impacts. The estimated cost to implement this improvement is \$22,000,000. The County of Santa Clara will be responsible for implementing this improvement, and will be responsible for a 20% local match; they will look for grant funding opportunity for the remaining 80% of the improvement costs. Given the proximity of the intersection to the Sunnyvale's city limits, developments in Sunnyvale will provide its fair share contribution based on 50% of the County's local match.

The LSAP Update shall contribute its fair share towards the cost of the identified improvement. For this intersection, the LSAP Update traffic would trigger an adverse impact during both the AM and PM peak hours. The trips generated by the LSAP Update which would travel through this intersection during the AM peak hour is 141 vehicles, and the total growth in traffic from the Existing Conditions to Cumulative with LSAP Update Conditions is 7,468. As a result, the LSAP Update's percent fair share for the AM peak hour is 1.9%. The trips generated by the LSAP Update which would travel through this intersection during the PM peak hour is 12 vehicles, and the total growth in traffic from the Existing Conditions to Cumulative with LSAP Update Conditions is 2,995. As a result, the LSAP Update percent fair share for the PM peak hour is 0.4%. Since the LSAP Update has a higher percent fair share for the AM peak hour, the AM peak hour percentage of 1.9% is used in calculating its fair share contribution. Given the proximity of the intersection to the Sunnyvale City Limits, the LSAP Update shall contribute its fair share contribution of 50% of the County's local match, which is equivalent to \$41,800.

Fair Share Contributions for Freeway Improvements

The LSAP Update's percent fair share contribution for freeway improvements is calculated by:

$$\% \text{ share} = \frac{(\text{Trips Generated by LSAP Update})}{(\text{Cumulative Plus LSAP Update Traffic})}$$

Where the trips generated by the LSAP Update would be divided by the cumulative plus LSAP Update traffic volume.

The Santa Clara Valley Transportation Authority's Valley Transportation Plan (VTP) 2040 identifies freeway express lane projects on the following freeways:

- US 101 between Whipple Avenue in San Mateo County to Cochrane Road in Morgan Hill
- SR 237 between N. First Street and Mathilda Avenue
- I-880 between the Alameda County Line at Dixon Landing Road and US 101

The existing HOV lanes on these freeway segments are proposed to be converted to express lanes. On US 101 along the identified segments, a second express lane is proposed to be implemented, for a total of two express lanes in each direction.



Within Santa Clara County, freeway segments are analyzed as prescribed in the Santa Clara County CMP technical guideline. For all freeway segments, the LOS standard is LOS E or better. VTA CMP guidelines define that a project would cause a freeway impact if the project would deteriorate freeway levels of service from an acceptable level (LOS E) to an unacceptable level (LOS F), or if the freeway already operates at an unacceptable level under Cumulative No Project Conditions (LOS F), the project would add traffic exceeding 1% of the freeway capacity. To determine the LSAP Update's potential freeway impacts, a select zone analysis within the Sunnyvale Travel Demand Forecast Model was performed to estimate the increase in LSAP Update traffic volume between the Cumulative no LSAP Update and Cumulative with LSAP Update conditions, and it was determined that LSAP Update would generate an adverse freeway impact for the following freeway segments.

US 101, northbound from Lawrence Expressway to Embarcadero Road – Mixed Flow Lanes – AM Peak hour

During the AM peak hour, this freeway segment would operate at LOS F under the Cumulative no LSAP Update conditions. The addition of LSAP Update traffic would increase the V/C ratio by 1% between Lawrence Expressway and SR 237, and increase by 2% between SR 237 and Embarcadero Road, which would meet the CMP's adverse freeway impact criteria during the AM peak hour.

Potential Improvement: Convert the existing HOV lane to express lane. Under VTP ID: H2, Convert HOV Lanes to Express Lanes on US 101 from Whipple Ave. in San Mateo County to Cochrane Rd. in Morgan Hill (34.7-mile in length), the directional improvement cost would be \$232,500,000. For the impacted segment between Lawrence Expressway and Embarcadero Road, the impacted length is 8.3 mile, therefore the Project Cost for the impact segment is \$55,612,392.

The LSAP Update shall participate in VTA's Voluntary Freeway Contribution Program and contribute its fair share towards the cost of the identified improvement. For this freeway segment, the LSAP Update traffic would trigger an adverse impact during the AM peak hour. The trips generated by the LSAP Update which would travel on this freeway segment during the AM peak hour is 162 vehicles, and the Cumulative with LSAP Update Conditions traffic is 9,764 vehicles. As a result, the LSAP Update shall contribute 1.66% of the total improvement costs for this project segment, which is equivalent to \$923,166.

The LSAP Update will also trigger a freeway impact on the HOV lane on northbound US 101 from Lawrence Expressway to Mathilda Avenue and from Ellis Street to SR 85. Since these two impacted HOV segments are part of mainline segment that is impacted by the LSAP Update (between Lawrence Expressway and Embarcadero Road), no additional fair share contribution is calculated.



US 101, southbound from Oregon Expressway to San Antonio Road – Mixed Flow Lanes – AM Peak Hour

During the AM peak hour, this freeway segment would operate at LOS F under the Cumulative no LSAP Update conditions. The addition of LSAP Update traffic would increase the V/C ratio by 3% on this freeway segment, which would meet the CMP's adverse freeway impact criteria during the AM peak hour.

Potential Improvement: Convert the existing HOV lane to express lane. Under VTP ID: H2, Convert HOV Lanes to Express Lanes on US 101 from Whipple Ave. in San Mateo County to Cochrane Rd. in Morgan Hill (34.7-mile in length), the directional improvement cost would be \$232,500,000. For the impacted segment between Oregon Expressway and San Antonio Road, the impacted length is 1.7 mile, therefore the Project Cost for the impact segment is \$11,390,490.

The LSAP Update shall participate in VTA's Voluntary Freeway Contribution Program and contribute its fair share towards the cost of the identified improvement. For this freeway segment, the LSAP Update traffic would trigger an adverse impact during the AM peak hour. The trips generated by the LSAP Update which would travel on this freeway segment during the AM peak hour is 239 vehicles, and the Cumulative with LSAP Update Conditions traffic is 9,696 vehicles. As a result, the LSAP Update shall contribute 2.46% of the total improvement costs for this project segment, which is equivalent to \$280,206.

US 101, southbound from Moffett Boulevard to Ellis Street – Mixed Flow Lanes – AM Peak Hour

During the AM peak hour, this freeway segment would operate at LOS F under the Cumulative no LSAP Update conditions. The addition of LSAP Update traffic would increase the V/C ratio by 2% on this freeway segment, which would meet the CMP's adverse freeway impact criteria during the AM peak hour.

Potential Improvement: Convert the existing HOV lane to express lane. Under VTP ID: H2, Convert HOV Lanes to Express Lanes on US 101 from Whipple Ave. in San Mateo County to Cochrane Rd. in Morgan Hill (34.7-mile in length), the directional improvement cost would be \$232,500,000. For the impacted segment between Moffett Boulevard and Ellis Street, the impacted length is 0.9 mile, therefore the Project Cost for the impact segment is \$6,030,259.

The LSAP Update shall participate in VTA's Voluntary Freeway Contribution Program and contribute its fair share towards the cost of the identified improvement. For this freeway segment, the LSAP Update traffic would trigger an adverse impact during the AM peak hour. The trips generated by the LSAP Update which would travel on this freeway during the AM peak hour is 165 vehicles, and the Cumulative with LSAP Update Conditions traffic is 8,830 vehicles. As a result, the LSAP Update shall contribute 1.87% of the total improvement costs for this project segment, which is equivalent to \$112,766.



SR 237, eastbound from Great America Parkway to North First Street – Mixed Flow Lanes – AM Peak Hour

During the AM peak hour, this freeway segment would operate at LOS F under the Cumulative no LSAP Update conditions. The addition of LSAP Update traffic would increase the V/C ratio by 2% on this freeway segment, which would meet the CMP's adverse freeway impact criteria during the AM peak hour.

Potential Improvement: Convert the existing HOV lane to express lane. Under VTP ID: H3, Convert HOV Lanes to Express Lanes on SR 237 between North First St. and Mathilda Ave (3.86-mile in length), the directional improvement cost would be \$10,000,000. For the impacted segment between Great America Parkway and North First Street, the impacted length is 1.1 mile, therefore the Project Cost for the impact segment is \$2,849,741.

The LSAP Update shall participate in VTA's Voluntary Freeway Contribution Program and contribute its fair share towards the cost of the identified improvement. For this freeway segment, the LSAP Update traffic would trigger an adverse impact during the AM peak hour. The trips generated by the LSAP Update which would travel on this freeway segment during the AM peak hour is 114 vehicles, and the Cumulative with LSAP Update Conditions traffic is 6,356 vehicles. As a result, the LSAP Update shall contribute 1.79% of the total improvement costs for this project segment, which is equivalent to \$51,010.

SR 237, westbound from I-880 to Lawrence Expressway – Mixed Flow Lanes – AM Peak Hour

During the AM peak hour, this freeway segment would operate at LOS F under the Cumulative no LSAP Update conditions. The addition of LSAP Update traffic would increase the V/C ratio by 1% on this freeway segment, which would meet the CMP's adverse freeway impact criteria during the AM peak hour.

Potential Improvement: Convert the existing HOV lane to express lane. Under VTP ID: H3, Convert HOV Lanes to Express Lanes on SR 237 between North First St. and Mathilda Ave (3.86-mile in length), the directional improvement cost would be \$10,000,000. The impacted segment would start prior to the project limits, and therefore only the impacted length of 2.3 mile is considered between North First Street and Lawrence Expressway, and the Project Cost for the impact segment is \$5,958,549.

The LSAP Update shall participate in VTA's Voluntary Freeway Contribution Program and contribute its fair share towards the cost of the identified improvement. For this freeway segment, the LSAP Update traffic would trigger an adverse impact during the AM peak hour. The trips generated by the LSAP Update which would travel on this freeway segment during the AM peak hour is 80 vehicles, and the Cumulative with LSAP Update Conditions traffic is 8,933 vehicles. As a result, the LSAP Update shall contribute 0.89% of the total improvement costs for this project segment, which is equivalent to \$53,031.

I-880, northbound from SR 237 to Dixon Landing Road – Mixed Flow Lanes – AM Peak Hour

During the AM peak hour, this freeway segment would operate at LOS F under the Cumulative no LSAP Update conditions. The addition of LSAP Update traffic would increase the V/C ratio by 2% on this



Sunnyvale

freeway segment, which would meet the CMP's adverse freeway impact criteria during the AM peak hour.

Potential Improvement: Convert the existing HOV lane to express lane. Under VTP ID: H7, Convert HOV Lanes to Express Lanes on I-880 between the Alameda County Line (Dixon Landing Road) and US 101 (6.4-mile in length), the directional improvement cost would be \$11,500,000. For the impacted segment between SR 237 and Dixon Landing Road, the impacted length is 2.0 mile, therefore the Project Cost for the impact segment is \$3,593,750.

The LSAP Update shall participate in VTA's Voluntary Freeway Contribution Program and contribute its fair share towards the cost of the identified improvement. For this freeway segment, the LSAP Update traffic would trigger an adverse impact during the AM peak hour. The trips generated by the LSAP Update which would travel on this freeway segment during the AM peak hour is 238 vehicles, and the Cumulative with LSAP Update Conditions traffic is 12,592 vehicles. As a result, the LSAP Update shall contribute 1.89% of the total improvement costs for this project segment, which is equivalent to \$67,922.

I-880, southbound from Dixon Landing Road to SR 237 – Mixed Flow Lanes – AM Peak Hour

During the AM peak hour, this freeway segment would operate at LOS F under the Cumulative no LSAP Update conditions. The addition of LSAP Update traffic would increase the V/C ratio by 1% on this freeway segment, which would meet the CMP's adverse freeway impact criteria during the AM peak hour.

Potential Improvement: Convert the existing HOV lane to express lane. Under VTP ID: H7, Convert HOV Lanes to Express Lanes on I-880 between the Alameda County Line (Dixon Landing Road) and US 101 (6.4-mile in length), the directional improvement cost would be \$11,500,000. For the impacted segment between Dixon Landing Road and SR 237, the impacted length is 2.0 mile, therefore the Project Cost for the impact segment is \$3,593,750.

The LSAP Update shall participate in VTA's Voluntary Freeway Contribution Program and contribute its fair share towards the cost of the identified improvement. For this freeway segment, the LSAP Update traffic would trigger an adverse impact during the AM peak hour. The trips generated by the LSAP Update which would travel on this freeway segment during the AM peak hour is 146 vehicles, and the Cumulative with LSAP Update Conditions traffic is 14,165 vehicles. As a result, the LSAP Update shall contribute 1.03% of the total improvement costs for this project segment, which is equivalent to \$37,016.

I-880, southbound from Tasman Drive to Montague Expressway – Mixed Flow Lanes – AM Peak Hour

During the AM peak hour, this freeway segment would operate at LOS F under the Cumulative no LSAP Update conditions. The addition of LSAP Update traffic would increase the V/C ratio by 1% on this freeway segment, which would meet the CMP's adverse freeway impact criteria during the AM peak hour.



Sunnyvale

Potential Improvement: Convert the existing HOV lane to express lane. Under VTP ID: H7, Convert HOV Lanes to Express Lanes on I-880 between the Alameda County Line (Dixon Landing Road) and US 101 (6.4-mile in length), the directional improvement cost would be \$11,500,000. For the impacted segment between Tasman Drive to Montague Expressway, the impacted length is 1.0 mile, therefore the Project Cost for the impact segment is \$1,796,875.

The LSAP Update shall participate in VTA's Voluntary Freeway Contribution Program and contribute its fair share towards the cost of the identified improvement. For this freeway segment, the LSAP Update traffic would trigger an adverse impact during the AM peak hour. The trips generated by the LSAP Update which would travel on this freeway segment during the AM peak hour is 89 vehicles, and the Cumulative with LSAP Update Conditions traffic is 7,905 vehicles. As a result, the LSAP Update shall contribute 1.13% of the total improvement costs for this project segment, which is equivalent to \$20,305.

US 101, southbound from San Antonio Road to Lawrence Expressway– Mixed Flow Lanes – PM Peak Hour

During the PM peak hour, this freeway segment would operate at LOS F under the Cumulative no LSAP Update conditions. The addition of LSAP Update traffic would increase the V/C ratio by 1% on this freeway segment, which would meet the CMP's adverse freeway impact criteria during the PM peak hour.

Potential Improvement: Convert the existing HOV lane to express lane. Under VTP ID: H2, Convert HOV Lanes to Express Lanes on US 101 from Whipple Ave. in San Mateo County to Cochrane Rd. in Morgan Hill (34.7-mile in length), the directional improvement cost would be \$232,500,000. For the impacted segment between San Antonio Road and Lawrence Expressway, the impacted length is 6.5 mile, therefore the Project Cost for the impact segment is \$43,511,873.

The LSAP Update shall participate in VTA's Voluntary Freeway Contribution Program and contribute its fair share towards the cost of the identified improvement. For this freeway segment, the LSAP Update traffic would trigger an adverse impact during the PM peak hour. The trips generated by the LSAP Update which would travel on this freeway segment during the PM peak hour is 112 vehicles, and the Cumulative with LSAP Update Conditions traffic is 9,474 vehicles. As a result, the LSAP Update shall contribute 1.18% of the total improvement costs for this project segment, which is equivalent to \$513,912.

The LSAP Update will also trigger a freeway impact on the HOV lane on southbound US 101 from SR 85 to Lawrence Expressway. Since this impacted HOV segment is part of mainline segment that is impacted by the LSAP Update (between San Antonio Road and Lawrence Expressway), no additional fair share contribution is calculated.

US 101, southbound from Montague Expressway to SR 87 – HOV Lane – PM Peak Hour

During the PM peak hour, this HOV freeway segment would operate at LOS F under the Cumulative no LSAP Update conditions. The addition of LSAP Update traffic would increase the V/C ratio by 1% on



this freeway segment, which would meet the CMP's adverse freeway impact criteria during the PM peak hour.

Potential Improvement: Convert the existing HOV lane to express lane. Under VTP ID: H2, Convert HOV Lanes to Express Lanes on US 101 from Whipple Ave. in San Mateo County to Cochrane Rd. in Morgan Hill (34.7-mile in length), the directional improvement cost would be \$232,500,000. For the impacted segment between Montague Expressway and SR 87, the impacted length is 2.1 mile, therefore the Project Cost for the impact segment is \$14,070,605.

The LSAP Update shall participate in VTA's Voluntary Freeway Contribution Program and contribute its fair share towards the cost of the identified improvement. For this HOV freeway segment, the LSAP Update traffic would trigger an adverse impact during the PM peak hour. The trips generated by the LSAP Update which would travel on this freeway segment during the PM peak hour is 39 vehicles, and the Cumulative with LSAP Update Conditions traffic is 11,209 vehicles. As a result, the LSAP Update shall contribute 0.35% of the total improvement costs for this project segment, which is equivalent to \$49,247.

SR 237, westbound from North First Street to Lawrence Expressway – HOV Lane – PM Peak Hour

During the PM peak hour, this HOV freeway segment would operate at LOS F under the Cumulative no LSAP Update conditions. The addition of LSAP Update traffic would increase the V/C ratio by 1% on this freeway segment, which would meet the CMP's adverse freeway impact criteria during the PM peak hour.

Potential Improvement: Convert the existing HOV lane to express lane. Under VTP ID: H3, Convert HOV Lanes to Express Lanes on SR 237 between North First St. and Mathilda Ave (3.86-mile in length), the directional improvement cost would be \$10,000,000. For the impacted segment between I-880 and Lawrence Expressway, the impacted length is 2.3 mile, therefore the Project Cost for the impact segment is \$5,958,549.

The LSAP Update shall participate in VTA's Voluntary Freeway Contribution Program and contribute its fair share towards the cost of the identified improvement. For this HOV freeway segment, the LSAP Update traffic would trigger an adverse impact during the PM peak hour. The trips generated by the LSAP Update which would travel on this freeway segment during the PM peak hour is 48 vehicles, and the Cumulative with LSAP Update Conditions traffic is 8,016 vehicles. As a result, the LSAP Update shall contribute 0.59% of the total improvement costs for this project segment, which is equivalent to \$35,155.

Table 2 provides a summary of the list of freeway segments impacted by the LSAP Update, the improvements identified in the VTP, the total cost of the improvements, and LSAP Update's fair share contribution. LSAP Update shall require future residential projects (after the first 2,323 units as allowed under the LSAP adopted in 2016) to participate in VTA's Voluntary Freeway Contribution Program and contribute their fair share payments towards the VTA's Express Lane Projects along US 101, SR 237 and I-880.



Total Fair Share Contribution for LSAP Update per Dwelling Unit

As shown in Table 1, the LSAP Update's fair share contribution for intersection improvements is **\$2,542,496**. Since the LSAP Update is adding 3,612 housing dwelling units within the LSAP area, the fair share contribution for intersection improvements is **\$704 per dwelling unit**.

As shown in Table 2, the LSAP Update's fair share contribution for freeway improvements is **\$2,143,736**, which equates to **\$594 per dwelling unit**.

**Table 1: LSAP Update Fair Share Contribution to Identified Intersection Improvements**

Intersection	Peak Hour	Cumulative No LSAP Update		Cumulative + LSAP Update		Proposed Improvements	Est. Imp. Cost ¹	LSAP Update Responsibility ²	
		Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS			%	Amount
Wolfe Rd & Central Expwy Ramps ³	AM	89.8	F	116.1	F	Widen EB & WB Central Expwy off-ramps to include one left-turn, one shared through-left lane and a right-turn lane	\$3,696,000	11.5%	\$425,040
	PM	>120	F	>120	F				
Lawrence Expwy & Cabrillo Ave ³	AM	>120	F	>120	F	Grade separation (Total project cost is \$70 million, of which 20% of is the local match from County of Santa Clara and Cities of Sunnyvale and Santa Clara. The city's fair share is 33% of the local match, \$4,666,667).	\$4,666,667	10.1%	\$471,333
	PM	>120	F	>120	F				
Lawrence Expwy & Benton St ³	AM	>120	F	>120	F	Grade separation (Total project cost is \$70 million, of which 20% of is the local match from County of Santa Clara and Cities of Sunnyvale and Santa Clara. The city's fair share is 33% of the local match, \$4,666,667).	\$4,666,667	3.1%	\$144,667
	PM	>120	F	>120	F				
Lawrence Expwy & Pruneridge Ave ³	AM	16.2	C	89.0	F	Grade separation (Total project cost is \$70 million, of which 20% of is the local match from County of Santa Clara. Developments in Sunnyvale will contribute toward 50% of County's local match, which is \$7 million).	\$7,000,000	3.6%	\$252,000
	PM	95.9	F	>120	F				
Oakmead Pkwy & Central Expwy ³	AM	48.8	D	55.4	E+	Widen westbound Central Expwy to include two left-turn lanes.	\$2,000,000	11.9%	\$238,000
	PM	66.9	E	87.4	F				



Sunnyvale

Intersection	Peak Hour	Cumulative No LSAP Update		Cumulative + LSAP Update		Proposed Improvements	Est. Imp. Cost ¹	LSAP Update Responsibility ²	
		Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS			%	Amount
Bowers Ave & Scott Blvd	AM	>120	F	>120	F	Widen southbound Bowers Ave to include a second southbound left-turn lane.	\$516,625	0.9%	\$4,650
	PM	>120	F	>120	F				
Bowers Ave & Central Expwy ³	AM	>120	F	>120	F	Grade separation (Total project cost is \$60 million, of which 20% of is the local match from County of Santa Clara. Developments in Sunnyvale will contribute toward 50% of County's local match, which is \$6 million).	\$6,000,000	6.9%	\$414,000
	PM	>120	F	>120	F				
Bowers Ave & Kifer Rd	AM	48.4	D	64.3	E	Widen eastbound Kifer Road to include a second eastbound left-turn lane	\$51,750	37.5%	\$19,406
	PM	50.1	D	53.1	D-				
San Tomas Expwy & Scott Blvd ³	AM	>120	F	>120	F	Grade Separation (Total project cost is \$42.5 million, of which 20% of is the local match from County of Santa Clara. Developments in Sunnyvale will contribute toward 50% of County's local match, which is \$4.25 million).	\$4,250,000	3.2%	\$136,000
	PM	108.5	F	109.5	F				
San Tomas Expwy & Walsh Ave ³	AM	>120	F	>120	F	Grade Separation (Total project cost is \$43 million, of which 20% of is the local match from County of Santa Clara. Developments in Sunnyvale will contribute toward 50% of County's local match, which is \$4.3 million).	\$4,300,000	8.6%	\$369,800
	PM	>120	F	>120	F				
San Tomas Expwy & Monroe St ³	AM	>120	F	>120	F	Grade Separation (Total project cost is \$43 million, of which 20% of is the local match from County of Santa Clara. Developments in Sunnyvale will contribute toward 50% of County's local match, which is \$4.3 million).	\$4,300,000	0.6%	\$25,800
	PM	70.3	E	72.2	E				



Sunnyvale

Intersection	Peak Hour	Cumulative No LSAP Update		Cumulative + LSAP Update		Proposed Improvements	Est. Imp. Cost ¹	LSAP Update Responsibility ²	
		Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS			%	Amount
San Tomas Expwy & El Camino Real ³	AM	>120	F	>120	F	Grade Separation (Total project cost is \$22 million, of which 20% of is the local match from County of Santa Clara. Developments in Sunnyvale will contribute toward 50% of County’s local match, which is \$2.2 million).	\$2,200,000	1.9%	\$41,800
	PM	107.1	F	99.2	F				
Total Fair Share Contribution for Identified Intersection Improvements									\$2,542,496
LSAP Update Land Use						3,612 Residential Dwelling Units			
Total Fair Share Contribution for Intersection Improvements per Unit Cost									\$704
Notes:									
Bold text indicates the intersection operates at an unacceptable level of service									
Text in box indicates an adverse intersection impact									
(1) Estimated cost is total improvement cost, unless the City’s share is noted with the improvement.									
(2) LSAP Update’s fair share contribution to the identified improvements in terms of % and dollars									
(3) The proposed improvement is not fully funded; City of Sunnyvale will coordinate with the County of Santa Clara on developing a funding agreement and implementation plan.									



Sunnyvale

Table 2: LSAP Update Fair Share Contribution to Identified Freeway Improvements

LSAP Update Impacted Freeway Segment	Peak Hour	Lane Type	LSAP Update Project Trips	Cumulative with LSAP Update Freeway Volume	Proposed Improvements	Est. Directional Imp. Cost for the entire VTA Project Limits ¹	Length (mile)		LSAP Update Responsibility ²	
							VTA Project Length	Impacted Length	%	Amount
Northbound US 101 between Lawrence Expressway and Embarcadero Road	AM	Mixed Flow	162	9,764	VTP ID: H2, Convert HOV Lanes to Express Lanes on US 101 from Whipple Ave. in San Mateo County to Cochrane Rd. in Morgan Hill	\$232,500,000	34.7	8.3	1.66%	\$923,166
Southbound US 101 between Oregon Expressway and San Antonio Road	AM	Mixed Flow	239	9,696	VTP ID: H2, Convert HOV Lanes to Express Lanes on US 101 from Whipple Ave. in San Mateo County to Cochrane Rd. in Morgan Hill	\$232,500,000	34.7	1.7	2.46%	\$280,206
Southbound US 101 between Moffett Boulevard and Ellis Street	AM	Mixed Flow	165	8,830	VTP ID: H2, Convert HOV Lanes to Express Lanes on US 101 from Whipple Ave. in San Mateo County to Cochrane Rd. in Morgan Hill	\$232,500,000	34.7	0.9	1.87%	\$112,766



Sunnyvale

LSAP Update Impacted Freeway Segment	Peak Hour	Lane Type	LSAP Update Project Trips	Cumulative with LSAP Update Freeway Volume	Proposed Improvements	Est. Directional Imp. Cost for the entire VTA Project Limits ¹	Length (mile)		LSAP Update Responsibility ²	
							VTA Project Length	Impacted Length	%	Amount
Eastbound SR 237 between Great America Parkway and North First Street	AM	Mixed Flow	114	6,356	VTP ID: H3, Convert HOV Lanes to Express Lanes on SR 237 between North First St. and Mathilda Ave	\$10,000,000	3.86	1.1	1.79%	\$51,010
Westbound SR 237 between I-880 and Lawrence Expressway	AM	Mixed Flow	80	8,933	VTP ID: H3, Convert HOV Lanes to Express Lanes on SR 237 between North First St. and Mathilda Ave	\$10,000,000	3.86	2.3	0.89%	\$53,031
Northbound I-880 between SR 237 and Dixon Landing Road	AM	Mixed Flow	238	12,592	VTP ID: H7, Convert HOV Lanes to Express Lanes on I-880 between the Alameda County Line (Dixon Landing Road) and US 101	\$11,500,000	6.4	2.0	1.89%	\$67,922
Southbound I-880 between Dixon Landing Road and SR 237	AM	Mixed Flow	146	14,165	VTP ID: H7, Convert HOV Lanes to Express Lanes on I-880 between the Alameda County Line (Dixon Landing Road) and US 101	\$11,500,000	6.4	2.0	1.03%	\$37,016



Sunnyvale

LSAP Update Impacted Freeway Segment	Peak Hour	Lane Type	LSAP Update Project Trips	Cumulative with LSAP Update Freeway Volume	Proposed Improvements	Est. Directional Imp. Cost for the entire VTA Project Limits ¹	Length (mile)		LSAP Update Responsibility ²	
							VTA Project Length	Impacted Length	%	Amount
Southbound I-880 between Tasman Drive and Montague Expressway	AM	Mixed Flow	89	7,905	VTP ID: H7, Convert HOV Lanes to Express Lanes on I-880 between the Alameda County Line (Dixon Landing Road) and US 101	\$11,500,000	6.4	1.0	1.13%	\$20,305
Southbound US 101 between San Antonio Road and Lawrence Expressway	PM	Mixed Flow	112	9,474	VTP ID: H2, Convert HOV Lanes to Express Lanes on US 101 from Whipple Ave. in San Mateo County to Cochrane Rd. in Morgan Hill	\$232,500,000	34.7	6.5	1.18%	\$513,912
Southbound US 101 between Montague Expressway and SR 87	PM	HOV	39	11,209	VTP ID: H2, Convert HOV Lanes to Express Lanes on US 101 from Whipple Ave. in San Mateo County to Cochrane Rd. in Morgan Hill	\$232,500,000	34.7	2.1	0.35%	\$49,247



Sunnyvale

LSAP Update Impacted Freeway Segment	Peak Hour	Lane Type	LSAP Update Project Trips	Cumulative with LSAP Update Freeway Volume	Proposed Improvements	Est. Directional Imp. Cost for the entire VTA Project Limits ¹	Length (mile)		LSAP Update Responsibility ²	
							VTA Project Length	Impacted Length	%	Amount
Westbound SR 237 between North First Street and Lawrence Expressway	PM	HOV	48	8,016	VTP ID: H3, Convert HOV Lanes to Express Lanes on SR 237 between North First St. and Mathilda Ave	\$10,000,000	3.86	2.3	0.59%	\$35,155
Total Fair Share Contribution for Identified Freeway Improvements									\$2,143,736	
LSAP Update Land Use						3,612 Residential Dwelling Units				
Total Fair Share Contribution for Intersection Improvements per Unit Cost									\$594	
Notes:										
(1) Estimated cost of the identified improvements by direction for the entire VTA Project Limits										
(2) LSAP Update’s fair share contribution to the identified improvements in terms of % and dollars										