CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

Memorandum

TO: HONORABLE MAYOR AND CITY COUNCIL

FROM: Jim Ortbal
Harry Freitas

SUBJECT: **I-280/WINCHESTER TRANSPORTATION DEVELOPMENT POLICY**

DATE: September 9, 2016

Approved D. D Syl Date 9/9/16

COUNCIL DISTRICT: 1 & 6

RECOMMENDATION

1. Adopt a resolution approving the Interstate 280/Winchester Boulevard Transportation Development Policy to create a traffic impact fee program to assist in funding future modifications to the I-280/Winchester Boulevard interchange;

2. Consideration of an ordinance to approve a new Traffic Impact Fee associated with implementation of the I-280/Winchester Boulevard Transportation Development Policy.

OUTCOME

The I-280/Winchester Transportation Development Policy and Traffic Impact Fee will facilitate near term development in the West San José area and associated Urban Villages; and create a mechanism to partially fund the construction of a planned freeway off-ramp from northbound I-280 to Winchester Boulevard to facilitate traffic circulation as growth occurs in the area over time.

BACKGROUND

The Envision San José 2040 General Plan includes 12 major strategies, including Focused Growth, Regional Employment Centers, Urban Villages, and a Fiscally Strong City. The goal of Urban Villages is to focus planned growth in mixed-use urban settings, creating new employment and housing opportunities attractive to an innovative workforce and consistent with the General Plan's environmental goals. Balanced development of Urban Villages is intended to promote economic growth, fiscal sustainability, and quality of life, furthering General Plan strategies and goals.

The West San José area contains multiple Urban Villages, including the Santana Row/Valley Fair, Winchester, and Stevens Creek Villages, for which Urban Village Plans are currently being developed with the community. The Plans are expected to include improvements to regional and

local transportation, as well as implementation mechanisms to realize them. The Plans are estimated to be complete in 2017. In the meantime, these Urban Villages are experiencing significant development interest, including applications for development.

At the September 22, 2015 City Council meeting, staff was urged to explore creation of a mechanism to ensure that new development in the vicinity of Santana Row/Valley Fair contributes its fair share to regional transportation improvements, including General Plan defined Signature Projects that may be approved prior to the adoption of the Urban Village Plans. Consistent with this request, the Interstate 280/Winchester Transportation Development Policy (TDP) and Traffic Impact Fee (TIF) was developed and is proposed to partially fund planned interchange improvements at Interstate 280 and Winchester Boulevard from the new development projects that will generate a need for the improvements in advance of the completion of the Urban Village Plans.

The Reserve project in the Winchester Urban Village was approved by City Council on February 23, 2016. Recognizing that the TDP was under development and anticipated in September 2016, the Reserve project voluntarily contributed $2.24 million towards the future I-280/Winchester project in advance of the adoption of the TDP and TIF.

The TDP builds upon prior and on-going efforts to study and fund transportation facilities in the vicinity of Valley Fair, Santana Row, and Winchester Boulevard, including the following:

- The Valley Transportation Authority (VTA) and Caltrans conducted traffic analyses and preliminary design work in advance of the I-880/Stevens Creek and SR-17/I-280/I-880 interchange improvement project. This analysis determined that adding a new northbound off-ramp to the I-280/Winchester Boulevard interchange would provide significant transportation benefit. However, due to design considerations related to configuration of the ramp, timing, and funding availability construction of the improvements to the SR-17/I-280/I-880 and I-880/Stevens Creek commenced in 2012 and were completed in 2015 without the I-280 off-ramp to Winchester Boulevard.

- VTA and the City of San José have entered into a cooperative agreement to advance improvements at I-280/Winchester in collaboration with Caltrans and other stakeholders. This VTA led effort aims to identify, evaluate and prioritize a range of possible transportation improvements to relieve congestion, improve traffic operations and improve local circulation in the vicinity of the I-280/Winchester Boulevard interchange. As of August 2016, the effort is underway, with consultants selected and initial data collection occurring.

- The I-280/Winchester Boulevard Interchange Improvements are included in the Valley Transportation Plan and the Envision Silicon Valley Highway Program Candidate List for consideration as part of the ½-cent VTA Sales Tax Measure on the November 2016 ballot.

ANALYSIS

The proposed I-280/Winchester TDP (attached) would achieve the following goals:

- Accommodate growth in planned Urban Villages and other new development and redevelopment in the vicinity of the Interchange by allowing the Winchester Boulevard/Tisch Way intersection to operate below the LOS "D" standard.
- Facilitate the implementation of the General Plan 2040 transportation, land use, and economic development goals.
- Create a funding mechanism to partially fund construction of the planned freeway off-ramp from northbound I-280 to Winchester Boulevard to which all new development causing a need for the improvement in the TDP area would contribute its fair share on a per vehicle trip basis.

Implementing the northbound I-280 off-ramp to Winchester Boulevard would greatly improve access from I-280 to Santana Row, Winchester Boulevard and the surrounding areas. It would provide a more direct way to travel from I-280 northbound to the West San José Urban Village areas than the existing options, namely the I-880/Stevens Creek and I-280/Saratoga interchanges. The new off-ramp is projected to decrease traffic volumes at existing off-ramps and improve overall traffic circulation in the area, including for transit and private vehicles along Stevens Creek and Winchester Boulevards. This will facilitate development of the Urban Villages and other areas in the vicinity of the Villages, and partially mitigate some of the traffic impacts of such development in conformance with the General Plan goals and policies.

The Santana West Development project EIR analyzed I-280/Winchester Boulevard northbound off-ramp and found that the TDP and off-ramp improvement would fully mitigate the project's otherwise significant and unavoidable impacts at the intersection of Winchester and Tisch. As such, the TDP must be adopted prior to approval of the Santana West project. The EIR does not approve the design of the improvement. Development and approval regarding the design will be advanced by VTA working with Caltrans, the City of San José, the community, and other stakeholders. It is very important to understand that the Santana West EIR provided the earliest opportunity for CEQA review of the TDP in order to create and apply a new traffic impact fee to new development projects within the TDP area.

I-280/Winchester Project Cost Estimates and Traffic Impact Fee Methodology

The I-280/Winchester Boulevard Interchange project cost was initially estimated in VTA's 2010 Project Study Report. That estimate has been updated to approximately $145 million (in 2017 dollars), including pre-construction work, construction of the proposed off-ramp, and project administration. The traffic modeling and demand analysis conducted for the I-280/Winchester Boulevard TDP Nexus Study (attached) demonstrates that new development in the TDP area are projected to generate approximately 30% of the total demand for the plan area freeway off-ramps. Therefore, upon adoption, the TDP will establish a Traffic Impact Fee (TIF) to fund approximately 30% of the estimated cost of the planned I-280/Winchester off-ramp, which is $43 million.

The projected demand at the planned I-280/Winchester off-ramp is 1,677 PM peak hour trips. The Traffic Impact Fee for each off-ramp trip is proposed to be $25,641, which is calculated by apportioning the $43 million new development share of the cost of the planned improvement across the 1,677 trips that would travel through the ramp in the future. The number of off-ramp trips attributed to a development would be determined based on the number of PM peak hour trips that traffic demand modeling would assign and add to the I-280 Northbound off-ramp from that development. To ensure the amount remains at a consistent value over time, the amount of the TIF will be increased annually on January 1st based on the Engineering News-Record (ENR) Construction Cost Index.

The TIF amount is reasonably similar to other existing City transportation fees and requirements, however it is complex and imprecise to compare one fee to another, as they depend on the nature and extent of the improvements being funded and the benefit that new development receives from the improvement(s) being funded. The most closely structured TIF currently in place in the City of San José is the 101/Oakland/Mabury Transportation Development Policy TIF, which in 2016 is roughly $36,000 per PM peak hour trip sent through the 101/Oakland Interchange. The table below summarizes the methodology for calculating the Traffic Impact Fee identified in the TDP:

Summary: Methodology and Calculations of Traffic Impact Fee

Step	Calculation
1. Define TDP Area – Area of Primary Benefit	
2. Estimated future demand for Area off-ramps from new growth in the TDP Area (Year 2035)	30%
3. Estimate "fair-share" of cost of off-ramp	$145M * 30% = $43M
4. Total projected demand for I-280/Winchester off-ramp	1,677 PM peak hour trips
5. Apportion the cost of the improvement across new trips	$43M / 1,677 = $25,641

Because the VTA and Caltrans will be the lead agencies to implement the off-ramp project, the City will administer the traffic impact fees it collects and then transfer those funds to VTA/Caltrans as appropriate for studies, design, environmental clearance, and construction of the off-ramp.

POLICY ALTERNATIVES

Alternative 1 – Do not approve the TDP and require development in the vicinity of West San José to develop according to the Citywide Transportation Policy 5-3

Pros: Would not allow for near term congestion at the intersection of Tisch and Winchester.

Cons:

- Jeopardizes the approval of the Santana West project and any other projects on file prior to the adoption of the Urban Village Plans and associated policy modifications.
- Does not provide a funding mechanism to support needed transportation improvements in

advance of the adoption of Urban Village Plans and associated policy modifications.
- Prevents local circulation improvements and congestion relief along Stevens Creek and Winchester Boulevards anticipated from the I-280/Winchester off-ramp.

EVALUATION AND FOLLOW-UP

The TDP and TIF will be evaluated as part of the development of an anticipated Area Development Policy (ADP) for the Santana Row/Winchester, Winchester and Stevens Creek Urban Villages. It is anticipated that this TDP will be integrated into and/or modified alongside that potential ADP after the Urban Village Planning processes have completed.

PUBLIC OUTREACH

City staff have presented on and discussed the I-280/Winchester TDP in numerous public meetings, including Community/Environmental Impact Report Scoping Meetings for the Santana West Development project and Transportation Development Policy on November 19 and December 15, 2015 at the Cypress Community Center; and at the Winchester Advisory Group meetings on February 8, 2016 and August 8, 2016.

This memorandum will be posted on the City's Council Agenda website for the September 20, 2016 City Council Meeting.

COORDINATION

The preparation of this report has been coordinated with the Departments of Public Works and the City Attorney's Office.

COMMISSION RECOMMENDATION/INPUT

No commission recommendation or input is associated with this action, although the Planning Commission will be making recommendations to the City Council regarding the adequacy of the Santana West EIR and the Santana West Development project on September 14, 2016. Discussion of the TDP and TIF is included in the staff report to the Planning Commission.

CEQA

Environmental Impact Report for the Santana West Development Project and I-280-Winchester/Moorpark Transportation Development Policy.

/s/
JIM ORTBAL
Director, Department of Transportation

/s/
HARRY FREITAS, Director
Planning, Building and Code Enforcement

For questions, please contact Jessica Zenk, Division Manager, at (408) 535-3543, or Karen Mack, Traffic Manager, at (408) 535-6816.

Attachments

Interstate 280
Winchester Boulevard
Transportation Development Policy

City of San Jose

September 2016

TABLE OF CONTENTS

1.0 INTRODUCTION

In the late 1990s and early 2000s, the Santa Clara Valley Transportation Authority (VTA), the City of San Jose, and Caltrans undertook various traffic analyses for the area centered on the State Route 17 (SR-17)/Interstate 880 (I-880)/Interstate 280 (I-280) and I-880/Stevens Creek Boulevard interchanges. The purpose of the studies was to evaluate potential improvements to those facilities since they were experiencing substantial peak-period congestion due to ongoing growth in the area. The studies determined that improvements to these facilities were feasible but that the improvements would not be sufficient to fully address congestion levels to accommodate the future growth.

As a result, the parties evaluated more than 25 options for reducing congestion, including improvements at SR-17/Hamilton Avenue, I-880/Bascom Avenue, I-280/Winchester Boulevard, and I-280/Saratoga Avenue, as well as new interchanges at I-280/San Tomas Expressway, I-880/Forest Avenue, and SR-17/Williams Road. Of all of these options, improvements to the I-280/Winchester Boulevard interchange by adding a new northbound off-ramp were deemed the preferred overall solution in terms of traffic benefit, cost, and feasibility.

Subsequently, the I-280 Northbound/Winchester Boulevard off-ramp was added to the I-880/Stevens Creek and SR-17/I-280/I-880 interchanges improvement project. In November 2010, a Draft Environmental Impact Report (EIR) was released for public circulation, which included two design options for the I-280 Northbound/Winchester Boulevard off-ramp: 1) a four-legged 'hook' ramp design with the ramp connecting to Tisch Way just east of Winchester Boulevard, and 2) a five-legged design with the off-ramp forming the fifth leg of the Winchester Boulevard/Tisch Way/I-280 Northbound on-ramp intersection.

Because a determination had not been made on the final configuration and a lack of available funding for the I-280 Northbound off-ramp to Winchester Boulevard was delaying the I-880/Stevens Creek and SR-17/I-280/I-880 interchange improvements, the I-280 Northbound/Winchester Boulevard off-ramp was dropped from the project. The Draft EIR was revised by VTA and circulated in April 2011. The Final EIR was released and approved by Caltrans in July 2011. Construction of the improvements to the SR-17/I-280/I-880 and I-880/Stevens Creek interchanges commenced in 2012 and was completed in 2015 without the I-280 Northbound/Winchester Boulevard off-ramp.

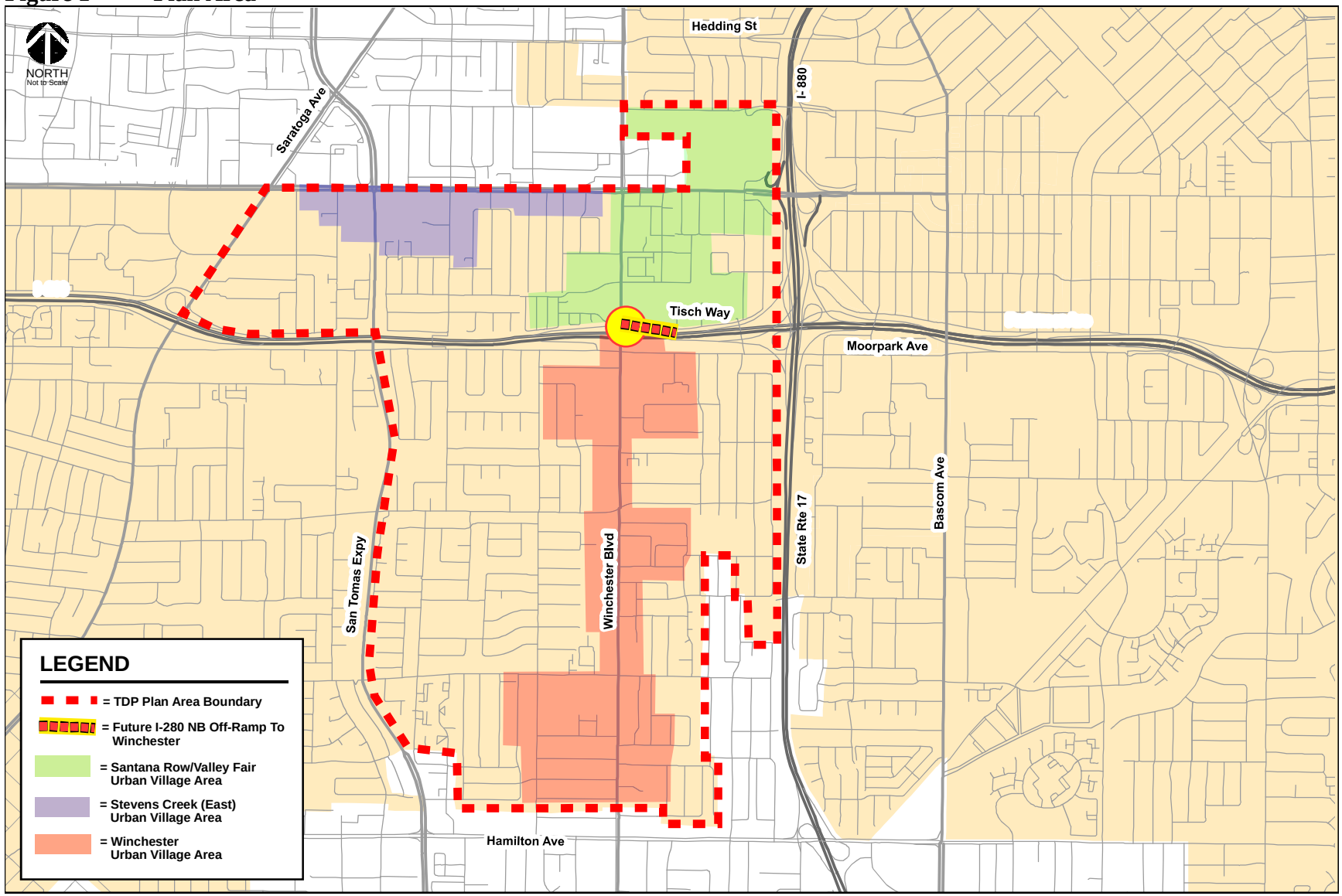
In 2011, the City of San Jose approved the *Envision San Jose 2040 General Plan* (General Plan), which is a long-range plan for the future growth of the City. The General Plan includes 12 major strategies, including the development of Urban Villages. The General Plan created a policy framework that directs most of San Jose's new job and housing growth to occur within walkable and bike-friendly Urban Villages, which have good access to transit and other existing infrastructure and facilities. The Urban Villages were identified along major transportation corridors to allow intensification of growth while preserving established single-family neighborhoods. The General Plan goals of the Urban Villages are to 1) support and encourage increased use of alternative modes of transportation, 2) protect open spaces and hillsides, 3) reduce greenhouse gas (GHG) emissions, 4) promote economic development, and 5) build more healthy communities.

Because of a current significant demand for development approvals in the area of the I-280/Winchester Interchange (including three urban villages and other areas in the vicinity of the Interchange), the City prepared a traffic/nexus study to determine the impact of projected new development on the Interchange. The September 2016 study, entitled "Interstate 280 Winchester Boulevard Transportation Development Policy Nexus Study" ("Nexus Study"), establishes that the transportation demand from future development in the area using 2040 General Plan projections requires improvements to the I-280/Winchester Interchange – specifically the off-ramp identified above – in order to partially mitigate the traffic impacts of new development in the area.

Plan Area

The geographic area to which the TDP and associated traffic impact fee (TIF) applies is called the Plan Area, the boundaries of which are a result of the analysis in the Nexus Study of where in the vicinity of the I-280/Winchester Interchange the traffic projected from future development would require improvement of the interchange. The plan area encompasses the entirety of the three urban villages boundaries as well as surrounding areas that would be served by the I-280 Northbound off-ramp to Winchester Boulevard. The plan area, shown in Figure 1, is generally bounded by the City limit line to the north that runs along Stevens Creek Boulevard/Forest Avenue, I-880 to the east, the city limit line to the south, north of Hamilton Avenue, and San Tomas Expressway/Saratoga Avenue to the west.

Figure 1 Plan Area



Future Development

There are three Urban Villages within the Plan Area – Valley Fair/Santana Row, Winchester Boulevard, and Stevens Creek Boulevard – as well as other potential development outside the Urban Village boundary within the Plan Area. The planned future growth for the Plan Area is shown in Table 1 below:

Table 1 Future Development Growth

Urban Village	Non-Residential Development	No. of Jobs	No. of Dwelling Units
Valley Fair/Santana Row	723,000 square feet	2,410	2,635
Winchester Boulevard	1,380,000 square feet	4,600	2,000
Stevens Creek Boulevard[1]	210,000 square feet	700	1,300
Total	2,313,000 square feet	7,710	5,935

Notes:
1. Only includes the portion of the growth in the Stevens Creek Urban Village that is anticipated to occur within the TDP Area (the portion of the Village east of Saratoga Avenue).

The Plan Area shown in Figure 1 includes the three planned urban villages and their surrounding area defined in the City's Envision 2040 General Plan. The planned growth of these three urban villages include 2,313,000 square feet (7,710 jobs) of non-residential development and 5,935 dwelling units. The other future growth outside the urban villages and within the Plan Area is nominal. The basis for this Plan and the associated TIF is the projected growth in the Plan Area, and its transportation impacts from this growth on the I-880/Stevens Creek Boulevard, I-280/Winchester Boulevard, and surrounding interchanges as well as the Stevens Creek Boulevard and Winchester Boulevard corridors.

The City's General Plan recognizes that in some areas, such as Urban Villages, there may be other economic benefits to the City that can warrant exceptions from compliance with the City's Traffic Level of Service ("LOS") Policy minimum LOS D standard. The City is currently undertaking but has yet to adopt a comprehensive Urban Village Plan for Valley Fair/Santana Row, Winchester Boulevard and Stevens Creek Boulevard Urban Villages. Development of the Urban Villages at strategic locations throughout the City is key to achieving planned jobs and housing growth consistent with the General Plan. Development that precedes an adopted Urban Village Plan may not have the balance of jobs, housing, and transportation improvements necessary in the interim to fully support the General Plan goals.

Furthermore, prior to adoption of the Urban Village Plans, there would be no mechanism to allow the City to collect traffic impact fees for larger regional improvements other than those associated with the City's Traffic Level of Service Policy. In order to consider such exceptions, the City's General Plan identifies that alternatives to the traditional LOS mitigation for traffic impacts may be acceptable and should be explored. As a result, Transportation Development Policies such as this Policy are desirable and required to provide a funding mechanism for identified transportation improvements that are necessary to support future development in the Plan Area.

2.0 TRANSPORTATION STANDARDS AND POLICIES

New development projects are required to analyze the potentially significant environmental impacts associated with their projects in accordance with the California Environmental Quality Act of 1970 (CEQA) and Title 21 of the City's Municipal Code.

The San Jose City Council has adopted a Traffic Level of Service (LOS) Policy, Council Policy 5-3, that establishes acceptable thresholds for intersection operations (also referenced in the General Plan in Chapter 6, Policy TR-5.3). The purpose of Council Policy 5-3, is to guide analyses and determinations regarding the overall conformance of a proposed development and establish the City's thresholds of significant transportation impacts to satisfy the requirements of CEQA.

The City's LOS policy establishes an alphanumeric rating (A – F) for the operating conditions of signalized intersections, on the basis of average delay time for all vehicles at the intersection, during the peak morning and evening commute hours on weekdays. The policy establishes LOS D as acceptable and any project that would degrade an intersection to LOS E or F is deemed to cause a potentially significant environmental impact. In accordance with City policy, when a proposed project's Traffic Impact Analysis (TIA) concludes that the project would result in a significant LOS impact, the project is required to provide mitigation identified in the TIA as necessary to mitigate the significant LOS impact.

Council Policy 5-3 includes a provision that allows the Council to designate selected intersections as "protected." The policy provides an exemption for intersections that are located along major transit corridors for which substantial transit improvements are planned.

Based on the City's LOS Policy, the City has determined that further expansion of the Stevens Creek Boulevard and Winchester Boulevard corridors is no longer feasible to accommodate approved, pending, and planned future development within the Valley Fair/Santana Row, Winchester Boulevard, and Stevens Creek Boulevard Urban Villages. The City has already protected two intersections on Stevens Creek Boulevard at Monroe Street and at Winchester Boulevard. Future development is expected to trigger the need for protecting additional intersections along the two corridors.

With the current proposed developments along Winchester Boulevard, the intersection of Winchester Boulevard and Tisch Way is projected to exceed the LOS "D" standard. This intersection is not eligible for protection consideration since one leg of the intersection, I-280 Northbound/Winchester Boulevard on-ramp, is under the jurisdiction of Caltrans. Furthermore, expansion of the intersection is not feasible to mitigate due to the right-of-way limitations along the existing Winchester Boulevard bridge over I-280.

The City has determined that completion of the I-280 Northbound/Winchester Boulevard off-ramp as identified in the Valley Transportation Plan (VTP) 2040 would provide significant transportation benefits to support Urban Village growth in the area including the current development proposals. The I-280 Northbound/Winchester Boulevard off-ramp would add regional traffic capacity to the study area and improve local traffic circulation by introducing a second access into the area south of the existing I-880/Stevens Creek Boulevard access in the opposite direction. Therefore, this capital

improvement is recommended in lieu of other intersection improvements at the intersection of Winchester Boulevard and Tisch Way for the reasons above.

In order to implement the recommended off-ramp improvement as an alternative to other intersection improvements at the Winchester Boulevard/Tisch Way intersection, the City's General Plan allows for adoption of a Transportation Development Policy (TDP) to provide a funding mechanism to collect a proportional contribution from future development. This would require an exception to the City's LOS policy at the Winchester Boulevard/Tisch Way intersection.

The Interstate 280 Winchester Boulevard Transportation Development Policy (TDP) is intended to provide partial mitigation of transportation impacts from new development in the Plan Area as projected in the 2040 General Plan and evaluated in the Nexus Study.

3.0 PURPOSE AND GOALS OF THE TRANSPORTATION DEVELOPMENT POLICY

3.0.1 Purpose and Goals

The purpose of this Transportation Development Policy is to identify necessary improvements to the City's transportation system and establish a funding mechanism for the improvements. Specifically, the proposed TDP would achieve the following goals:

- Facilitate the planned Urban Villages by providing an exception to the City's LOS standard at the intersection of Winchester Boulevard and Tisch Way. The City's General Plan polices allow for the adoption of a TDP to provide improvements to the transportation system that allow for improved mobility of all travel modes.
- Facilitate the implementation of the General Plan 2040 transportation, land use, and economic development goals.
- Create a funding mechanism from new development to contribute its proportional share based upon projected transportation needs to the pre-construction work and construction of the proposed I-280 Northbound/Winchester Boulevard off-ramp.

Construction of the I-280 Northbound/Winchester Boulevard off-ramp would complement the established traffic flow along Stevens Creek Boulevard and along Winchester Boulevard to/from the I-880/Stevens Creek Boulevard interchange by providing an alternative travel route, improving local traffic circulation, reducing traffic congestion along Stevens Creek Boulevard, and thereby minimizing the need to protect more intersections.

3.0.2 Existing Setting 2016

The I-880/Stevens Creek Boulevard and I-280/Winchester interchanges serve as the primary access points to regional freeway facilities in the study area. As such, the Stevens Creek Boulevard and Winchester Boulevard corridors that serve the I-880/Stevens Creek Boulevard and I-280/Winchester Boulevard interchanges currently experience traffic congestion during the peak commute hours. The corridors include two Protected Intersections that are projected to operate below the City's standard Level of Service Policy with the approved developments. It is also anticipated that the additional

traffic associated with planned development in the area (which includes several Urban Village Plan Areas within the City of San Jose) will worsen traffic congestion along the corridors and at the I-880/Stevens Creek Boulevard and I-280/Winchester Boulevard interchanges and no further vehicular capacity improvements have been identified.

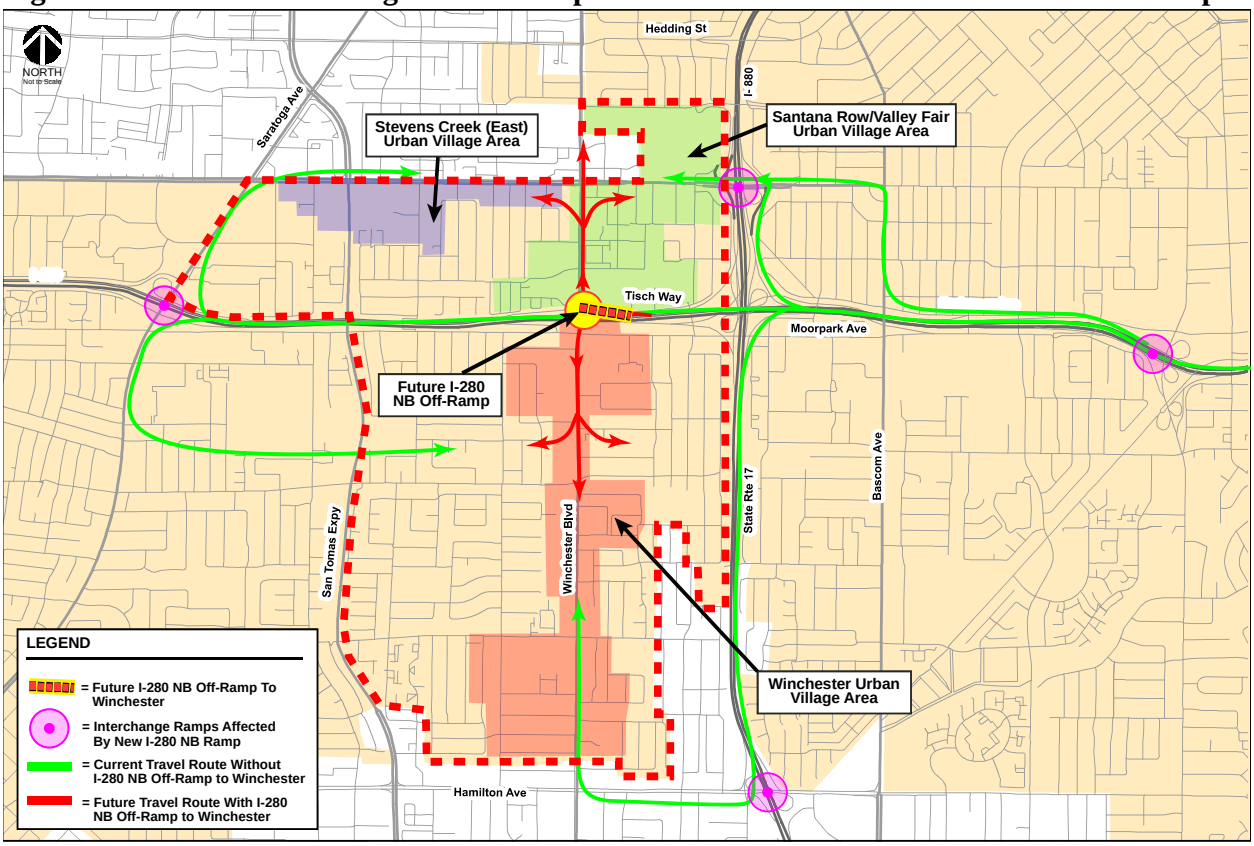
3.0.3 Nexus Study

The Nexus Study was conducted to evaluate demand at the proposed off-ramp as well as intersection operations. The evaluation is based on the travel routes that would be most affected by the implementation of the new I-280 Northbound/Winchester Boulevard off-ramp. The area studied, the Plan Area, encompasses developments that would be in proximity to and would benefit the most from implementation of the proposed I-280 Northbound/Winchester Boulevard off-ramp. Developments outside of the Plan Area are better served by other more convenient freeway interchanges.

The preliminary design shows that the proposed off-ramp would start east of the I-280/I-880/SR-17 interchanges and would therefore serve only I-280 Northbound traffic. For the purpose of the Nexus Study, the focus area was selected based on the travel routes from I-280 Northbound that would be most affected by the implementation of the new I-280 Northbound/Winchester Boulevard off-ramp. Figure 2 shows the anticipated effects on travel routes and freeway interchanges that are expected to be most affected by the new I-280 northbound off-ramp at Winchester Boulevard.

There are five current access points to the Winchester Boulevard/Stevens Creek Boulevard area from I-280 Northbound: (1) to the north of the study area, the current primary access point at I-880/Stevens Creek Boulevard interchange, (2) to the east, the I-280 Northbound/Bascom Avenue off-ramp, (3) to the west, the I-280 Northbound/Saratoga Avenue diagonal off-ramp, (4) to the west, the I-280 Northbound/Saratoga Avenue loop off-ramp, and (5) to the south, the SR 17/Hamilton Avenue off-ramp. The five off-ramps and their surrounding local intersections are locations where the new I-280 Northbound/Winchester Boulevard off-ramp would have the greatest effect. This new off-ramp would reduce backup at the existing off-ramps during peak travel periods by providing additional off-ramp capacity in the area and an alternative travel route to the established major commute pattern.

Figure 2: Travel Route Changes Due to Proposed I-280 NB/Winchester Boulevard Off-Ramp



3.0.4 Envision San Jose 2040 General Plan Conformity

The Envision San Jose 2040 General Plan, adopted in 2011, seeks to make land use decisions in an environmentally, economically, and fiscally sustainable manner. The General Plan provides guidance for the development of new employment and housing growth areas, while reducing the environmental impacts of that development by promoting proximity, transit use, biking, and walking. The General Plan utilizes Major Strategy #5 - Urban Villages, as the mechanism for directing most of the City's planned new job and housing growth. The objective of the Urban Village Strategy is to create a policy framework for new growth to occur within walkable and bike friendly Urban Villages that have good access to transit and other existing infrastructure and facilities. This concept is further supported by the following General Plan policies:

- **Land Use – Growth Areas, LU-2.1:** Provide significant job and housing growth capacity within strategically identified "Growth Areas" in order to maximize use of existing or planned infrastructure (including fixed transit facilities), minimize the environmental impacts of new development, provide for more efficient delivery of City services, and foster the development of more vibrant, walkable urban settings.

Through the General Plan's following policies it also recognizes the importance of preserving existing employment lands and promoting the addition of new employment lands as an important goal. The Urban Village concept demonstrates the City of San Jose's employment goals with the inclusion of 7,710 new jobs within the Valley Fair/Santana Row, Winchester Boulevard, and Stevens Creek Boulevard Urban Village boundaries.

- **Diverse and Innovative Economy – Land Use and Employment, IE-1.3:** As part of the intensification of commercial, Village, Industrial Park and Employment Center Job Growth Areas, create complete, mixed-employment areas that include business support uses, public and private amenities, child care, restaurants and retail goods and services that serve employees of these businesses and nearby businesses.

- **Diverse and Innovative Economy – Land Use and Employment, IE-1.4** Manage land uses to enhance employment lands to improve the balance between jobs and workers residing in San José. Strive to achieve a minimum ratio of 1.3 jobs/employed resident to attain fiscal sustainability for the City.

Through Major Strategy #6 - Streetscapes for People, the General Plan seeks to design "Complete Streets" that are accessible and function well for everyone, supporting a full range of activities, including pedestrians, bicycles, utilities, outdoor gathering spaces and vehicle movement. This strategy also utilizes the development of Grand Boulevards and Main Streets to connect multiple neighborhoods and act as urban design elements at a citywide scale. Although the goal of the City is that every street be a "Complete Street," seven Grand Boulevards stand out as having great potential to connect City neighborhoods and to contribute to the City's overall identity through cohesive design. Of these seven Grand Boulevards, two traverse the subject planning area and include; San Carlos Street/Stevens Creek Boulevard and Winchester Boulevard. Because of their importance and location as major transportation routes, and because of the land uses they support, these Grand Boulevards play an important role in shaping the City's image for its residents, workers, and visitors.

The Valley Fair/Santana Row Urban Village is also an existing regional destination that is vehicle centric and conveniently accessible from Interstates 280 and 880 and State Route 17, and by bus routes on both Stevens Creek and Winchester Boulevards. The Winchester Urban Village, while not a regional destination, includes a major north/south vehicular route, Winchester Boulevard, as well as limited bus service. One of the goals of the urban village concept in this planning area is to provide more and better pedestrian, bicycle, and transit opportunities, while balancing the efficient movement of cars into and out of the popular Valley Fair/Santana Row regional destination. Balancing the regional vehicular need of the area with the complete streets goal of the General Plan is further supported by the following General Plan policies:

- **Balanced Transportation System – Balanced Transportation System, TR-1.2** Consider impacts on overall mobility and all travel modes when evaluating transportation impacts of new developments or infrastructure projects.

- **Balanced Transportation System – Balanced Transportation System, TR-1.5:** Design, construct, operate, and maintain public streets to enable safe, comfortable, and attractive access and travel for motorists and for pedestrians, bicyclists, and transit users of all ages, abilities, and preferences.

- **Balanced Transportation System – Balanced Transportation System, TR-1.9:** Give priority to the funding of multimodal projects that provide the most benefit to all users. Evaluate new transportation projects to make the most efficient use of transportation resources and capacity.

The proposed I-280 Northbound/Winchester Boulevard off-ramp is expected to improve traffic flow for transit and private vehicles along Stevens Creek Boulevard and Winchester Boulevard and also to facilitate development of the Urban Villages in conformance with the General Plan goals and policies.

4.0 NEXUS STUDY SUMMARY

4.0.1 Project Scenarios

The roadway improvement project, as planned, consists of the construction of a new I-280 Northbound off-ramp to Winchester Boulevard. The preliminary design shows that the planned off-ramp would start east of the I-280/I-880/SR-17 interchanges and would therefore serve only I-280 Northbound traffic. Therefore, for the purpose of this TDP, the analysis presumes that the new off-ramp to Winchester Boulevard would serve only I-280 Northbound traffic. Access from I-880 is not assumed to be provided to the new ramp. The capacity evaluation and LOS analysis includes only the following two ramp alternatives. Additional ramp alternatives will be evaluated in the VTA's "I-280/Winchester Boulevard Improvement Project" study which will result in the final off-ramp design.

Four-Leg Alternative: The new I-280 Northbound/Winchester Boulevard off-ramp would replace Tisch Way as the east approach to the existing Winchester Boulevard and Tisch Way intersection. This configuration would result in the general closure of Tisch Way between Winchester Boulevard and Dudley Avenue, via a cul-de-sac, to accommodate the new ramp.

Five-Leg Alternative: The new I-280 Northbound/Winchester Boulevard off-ramp would connect to the existing Winchester Boulevard and Tisch Way intersection as a fifth approach leg. Full access to Tisch Way would be maintained. One lane, however, would be removed from Tisch Way, along with signal phasing adjustments, to accommodate the new ramp.

The purpose of the new off-ramp is to manage existing traffic congestion in the I-880/Stevens Creek Boulevard and I-280/Winchester Boulevard interchange areas as well as provide additional traffic capacity to accommodate future development in the Plan Area. The new ramp would provide additional capacity to reduce traffic congestion at the I-880/Stevens Creek Boulevard and surrounding freeway interchanges as well as the Stevens Creek Boulevard and Winchester Boulevard corridors.

4.0.2 Summary of Nexus Study Findings

The Nexus Study evaluates off-ramp demand, peak hour intersection operations, and vehicle miles traveled to determine the effects of the I-280 Northbound/Winchester Boulevard off-ramp on traffic patterns in the Plan Area. The key findings of the Nexus Study include the following:

- The largest projected traffic volumes from implementation of the General Plan growth in the Plan Area would occur during the PM peak hour. Therefore, the new demand due to future growth at the freeway off-ramps is determined based on PM peak hour traffic volumes.

- The four-leg off-ramp alternative results in projected demand at the new ramp of 1,677 peak hour trips while the five-leg alternative results in 1,548 trips.

- The new demand due to future growth at the five existing off-ramps plus the four-leg off-ramp is determined to be 2,907 peak hour trips, or approximately 30% of the total demand at the six off-ramps. The new demand due to future growth at the five existing off-ramps plus the five-leg off-ramp is determined to be 2,859 peak hour trips, or approximately 30% of the total demand at the six off-ramps.

- Implementation of the I-280 Northbound off-ramp to Winchester Boulevard would result in the following:

    - Reduction in delay along Stevens Creek Boulevard and at most of the studied intersections along Winchester Boulevard under the four-legged ramp alternative. The reduction in delay would not equate to an improvement in level of service grade designation.

    - The Winchester Boulevard/I-280/Tisch Way intersection would continue to exceed the level of service standard under the PM peak hour. Improvements to the intersection will be addressed during the design stage of the off-ramp.

    - Slight increase in daily VMT on roadways in the vicinity of I-280/Winchester Boulevard interchange. The increase in VMT is presumed to result from the net effect of an increase in trips and a decrease in trip lengths due to the proposed I-280 Northbound/Winchester Boulevard off-ramp.

    - Shorter travel times for trips within the Plan Area. The reduction in travel time is primarily due to the use of the shorter route provided by the new ramp by traffic bound for Winchester Boulevard, south of I-280, which would have otherwise utilized the congested Stevens Creek Boulevard and Winchester Boulevard corridors

5.0 COMPONENTS OF THE TDP

5.0.1 Regional Support:

Caltrans and VTA would have authority over approval and construction of a northbound off-ramp from I-280 to Winchester Boulevard, and would be responsible for design options and completion of the necessary environmental review under CEQA.

On June 4, 2015, the Santa Clara Valley Transportation Authority voted to authorize the General Manager to negotiate and enter into cooperative agreements with California Department of Transportation (Caltrans), local jurisdictions, and regulatory agencies, covering planning, preliminary engineering/environmental, design, right-of-way, and construction phases for three projects, one of which is the "I-280/Winchester Boulevard Improvements Project".

Because of the continued development interest in the vicinity of the I-280/Winchester area, the VTA is moving forward with the I-280/Winchester Boulevard Improvement Project to develop a long-term solution for the area that improves access, addresses traffic operations and relieves congestion.

5.0.2 Funding Strategy

The purpose of the TDP and the associated ordinance establishing the TIF is to provide partial funding from projected development in the Plan Area for the implementation of the new northbound off-ramp from I-280 to Winchester Boulevard. The TIF will be based on the estimated trips to be added to the new northbound off-ramp from I-280 to Winchester Boulevard by each individual new development in the Plan Area. The full project cost is estimated to be $145 million (2017 estimated cost) based on the Four-Leg Alternative included in VTA/Caltrans' *2010 Project Study Report (PSR) for Improvements at SR-17/I-280/I-880 Interchange, I-280/Winchester Boulevard Interchange, and I-880/Stevens Creek Boulevard Interchange*, with adjustments including project administration and cost escalation. The final ramp design will be determined with the VTA I-280 Winchester Boulevard Improvement Project that is currently underway. However, it is presumed that the cost of the ramp design alternatives will be similar given the limited right-of-way to implement the ramp. The estimated project cost breakdown, in 2017 dollars, is shown in Table 2.

Table 2 I-280 Northbound/Winchester Boulevard Off-Ramp Cost Estimate[1]

Cost Items	Cost (in 2017 dollars)
Construction Cost	
Roadway Items[2]	$31.5 million
Structure Items[3]	$71.8 million
Subtotal	$103 million
Right Of Way & Utility[4]	$7 million
Capital Outlay Support	
Engineering[5]	$18.6 million
Right Of Way Support[6]	$0.9 million
Construction Support[7]	$15.5 million
Subtotal	$35 million
Total	$145 million

Notes:

1. Project cost is estimated based on the 2010 cost estimates and methodology obtained from the *2010 Project Study Report (PSR) for Improvements at SR-17/I-280/I-880 Interchange, I-280/Winchester Boulevard Interchange, and I-880/Stevens Creek Boulevard Interchange*, with escalations to 2017 dollars.
2. Cost is escalated from $25.6 million in 2010 dollars to 2017 dollars at 3%/year, consistent with the 2010 PSR's methodology.
3. Cost is escalated from $58.4 million in 2010 dollars to 2017 dollars at 3%/year, consistent with the 2010 PSR's methodology.
4. Cost is escalated from $5.3 million in 2010 dollars to 2016 dollars at 5%/year, consistent with the 2010 PSR's methodology.
5. Estimated at 18% of construction cost, consistent with the 2010 PSR's methodology.
6. Estimated at 12% of right-of-way & utility cost, consistent with the 2010 PSR's methodology.
7. Estimated at 15% of construction cost, consistent with the 2010 PSR's methodology.

The City has identified regional and local (traffic impact fee) sources of funding to support the construction of the northbound I-280 off-ramp to Winchester Boulevard. However, the VTA and Caltrans will be the lead agencies to implement the project. With support from both Caltrans and the VTA, the traffic impact fee will provide additional funding by future developments and ensures construction of the project.

The full project cost is estimated to be $145 million including construction of the proposed off-ramp and project administration and is included in the Valley Transportation Plan 2040 (VTP 2040). The VTP 2040 is a long-range transportation plan for Santa Clara County and identifies the programs and projects that VTA is committed to pursue with member agencies over the lifetime of the plan. The plan connects transportation projects with anticipated funds and provides a framework for planning and delivering those projects over the next 25 years using a combination of federal, state and regional, and local fund sources. This contribution is estimated at $102 million.

Along with its adoption, this TDP establishes a Traffic Impact Fee program to collect a proportional contribution from future development toward implementation of the proposed off-ramp. The ramp demand analysis shows that new demand due to future growth is projected to be approximately 30% of the total demand. Therefore, a fair-share 30% contribution would be collected from new development through the applicable Traffic Impact Fee. The Traffic Impact Fee would be based on $43 million proportional cost, calculated as 30% of the $145 million project (2017 estimate). New development in the Plan Area that generates demand for the off-ramp to pay the traffic impact fee. The City will administer the traffic impact fees it collects and contribute to the appropriate studies, design, environmental clearance, and construction of the off-ramp as funds become available from payment of the impact fee by new development and regional funding source as identified above. The VTA and Caltrans will be the lead agencies to implement the project.

Table 3 presents the breakdown of the proposed financial plan.

Table 3 Proposed Financial Plan (in 2017 $)

Funding Source	Amount
Traffic Impact Fee	$43 million
Other Funding Sources[1]	$102 million
Total	$145 million

Notes:
1. Other funding sources include regional funding and other fees collected from development outside of the Plan Area that would be required to mitigate its traffic impacts at the interchange.

5.0.3 Traffic Impact Fee

This TDP establishes PM peak hour vehicle trips as the measurement for the demand at the proposed off-ramp because the capacity constraints at the off-ramp are projected to be more significant in the PM peak hour than in the AM peak hour. For the purpose of this TDP, any trip utilizing the I-280 Northbound/Winchester Boulevard off-ramp during the PM peak hour is considered as one trip against the projected demand at the off-ramp. All other trips approaching the intersection of I-280 Northbound/Winchester Boulevard without using the off-ramp are not treated as trips against the demand at the off-ramp.

New development will be required to pay a traffic impact fee toward the fair-share contribution of $43 million based on the off-ramp demand generated by future development within the Plan Area. Development outside of the Plan Area may be required to pay the traffic impact fee when it would result in impacts that could be mitigated by the implementation of the I-280 Northbound/Winchester Boulevard off-ramp. The projected demand at the off-ramp is 1,677 PM peak hour trips. The Traffic Impact Fee for each off-ramp trip is $25,641, calculated by apportioning $43 million across 1,677 trips. The number of off-ramp trips contributed by a development is determined based on the number of PM peak hour trips added to the I-280 Northbound off-ramp by that development. Fees will be collected prior to issuance of building permits for any project. In addition, in order to reflect consistent construction cost over time, the amount of the Traffic Impact Fee will increased annually on January 1 pursuant to the Engineering News Record (ENR) Construction Cost Index for San Francisco published by the McGraw Hill.

Table 4 Traffic Impact Fee

Items	Amount
Fair Share	$43 million
Maximum Off-ramp Capacity	1,677 PM peak-hour trips
Traffic Impact Fee	$25,641 per PM peak-hour trips

5.0.4 Other Jurisdiction Coordination

Currently, as stated in section 6.0 Components of the TDP, the VTA has entered into cooperative agreements with Caltrans and other local jurisdictions including San Jose to complete the appropriate studies for the planning, preliminary engineering/environmental, design, right-of-way, and construction phases for the I-280/Winchester Boulevard Improvements Project with the goal of designing an approvable plan.

Future development in the Plan Area would contribute $43 million toward the $145 million project. The remaining $102 million is anticipated to be funded from other sources including state or regional funds and some future development outside of the Plan Area.

With completion of the VTA's "I-280/Winchester Boulevard Improvement Project" and support from both Caltrans and the VTA, adoption of this policy provides proportional funding by future development and enables construction of the project to serve the development in the Plan Area as projected in the 2040 General Plan.

6.0 IMPLEMENTATION

Implementation of this improvement is anticipated to occur within a 5 to 10 year timeframe. While development projects pay traffic impacts fees toward this improvement, the VTA is working with Caltrans to provide the necessary environmental clearance and project design. The VTP 2040 provides a funding strategy that relies on federal, state, regional and local funding sources which will be supplemented by the fees that will be adopted in conjunction with this policy in order to deliver a complete project.

7.0 CONCLUSION

The pending development in the project area offers an opportunity to advance the goals of the City's General Plan in terms of smart growth. Optimizing mixed-use development with the Urban Villages along major transportation corridors with multiple transportation options is paramount in facilitating optimal traffic flow and circulation.

The project area is expected to experience LOS delays at the major intersections along Stevens Creek Boulevard and Winchester Boulevard by 2035. The City, VTA, and Caltrans continue the on-going effort to evaluate area-wide improvements, including the proposed I-280 Northbound/Winchester Boulevard off-ramp, that would help to facilitate traffic and reduce congestion as future development occurs.

Projected development in the urban villages and other sections of the Plan Area would increase the number of residents and employees within walking distance to jobs, services, and transit. With the planned growth in eh Plan Area, this off-ramp will provide additional inbound traffic capacity, improve circulation along Stevens Creek Boulevard and Winchester Boulevard corridors, and reduce back-up at the I-880/Stevens Creek interchange and surrounding off-ramps.

Interstate 280
Winchester Boulevard
Transportation Development Policy
Nexus Study

Prepared for:

City of San Jose

Prepared by:

Hexagon Transportation Consultants, Inc.

September 2016

Introduction

The purpose of this document is to explain the need caused by future development in the area of the I-280/Winchester interchange for traffic improvements to that Interchange and the funding of the construction such improvements. The City has determined that the construction of a new I-280 Northbound off-ramp to Winchester Boulevard, as identified in the Valley Transportation Plan (VTP) 2040, would provide significant transportation benefits to support future growth in the geographic area that that includes three Urban Villages identified in the City's Envision 2040 General Plan as well as other projected growth in the area of the interchange. Constructing the I-280 Northbound off-ramp to Winchester Boulevard would greatly improve access from Interstate 280 to Santana Row, Winchester Boulevard and surrounding areas. The ramp will provide a more direct of travel from I-280 northbound to the Urban Village areas than that provided by the existing rout options that rely on the I-880/Stevens Creek and I-280/Saratoga interchanges. The ramp is projected to decrease traffic volumes at other existing off-ramps and improve overall traffic circulation in the area, including for transit and private vehicles along Stevens Creek and Winchester Boulevards. This will facilitate development of the Urban Villages and other areas in the vicinity of the Villages and partially mitigate some of the traffic impacts of such development in conformance with the General Plan goals and policies.

As a result of the analysis in this study and the evaluation of future transportation needs, the I-280 Northbound/Winchester Boulevard off-ramp has been identified as the primary roadway improvement project to support growth and forms the basis of the "*Interstate 280-Winchester Boulevard Transportation Development Policy*" prepared by the City of San Jose, September 2016. The Transportation Development Policy (TDP) was completed for the purpose of managing traffic congestion along travel corridors serving the I-880/Stevens Creek and I-280/Winchester interchanges as well as provide additional traffic capacity to accommodate future development such as in the planned Urban Villages at Valley Fair/Santana Row, Winchester Boulevard, and Stevens Creek Boulevard. The proposed TDP would achieve the following goals:

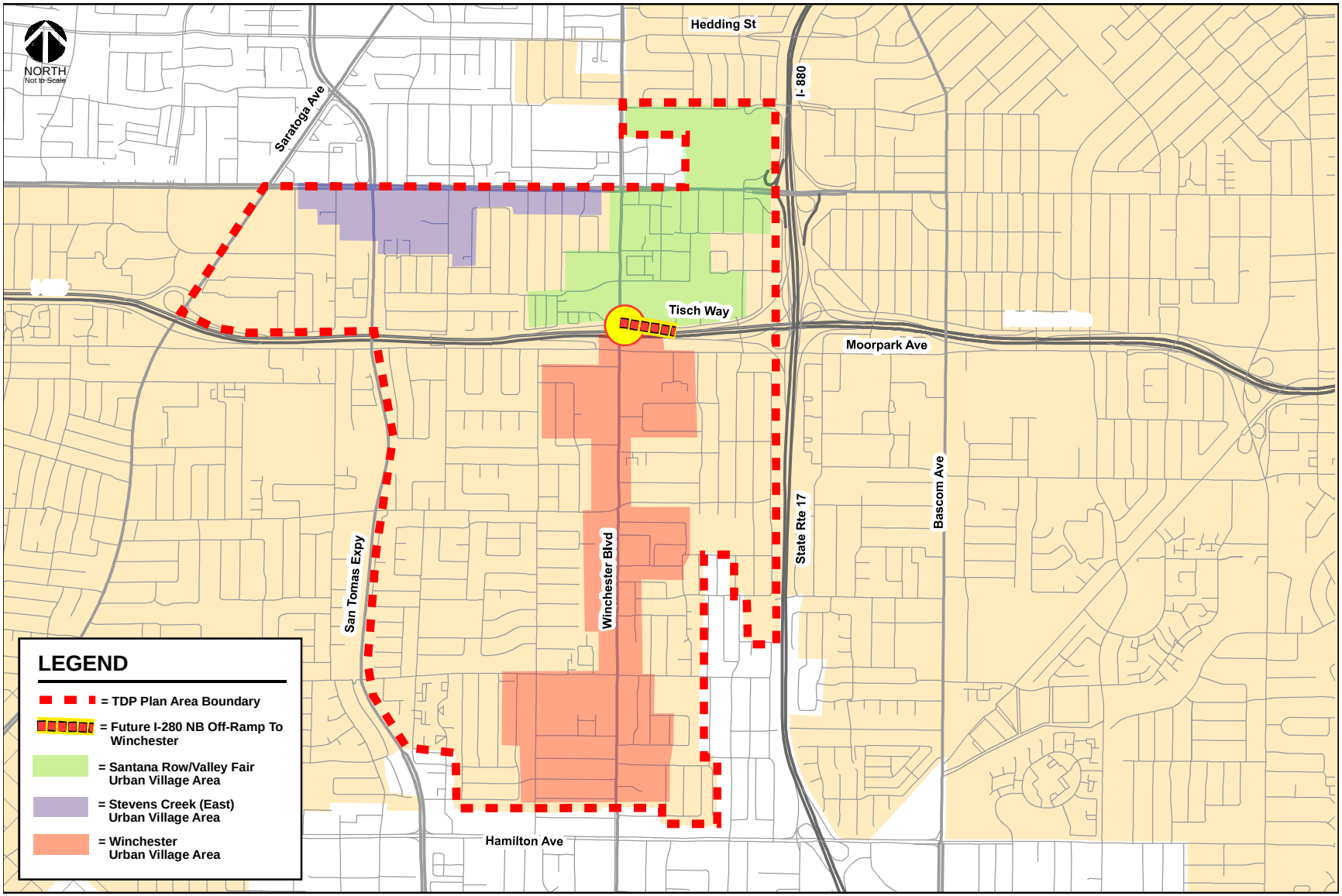
- Facilitate the planned Urban Villages by providing an exception to the City's LOS standard at the intersection of Winchester Boulevard and Tisch Way. The City's General Plan polices allow for the adoption of a TDP to provide improvements to the transportation system that allow for improved mobility of all travel modes.
- Facilitate the implementation of the General Plan 2040 transportation, land use, and economic development goals.
- Create a funding mechanism from new development to contribute its proportional share based upon projected transportation needs to the pre-construction work and construction of the proposed I-280 Northbound/Winchester Boulevard off-ramp.

This nexus study provides a preliminary estimate of the projected traffic demand from new development as well as cumulative demand, estimated cost, and funding plan for the new I-280 Northbound/Winchester Boulevard off-ramp on which the TDP Traffic Impact Fee (TIF) is based. In addition, the effects of the new ramp on projected peak-hour intersection level of service and vehicle-miles-traveled/vehicle-hours-traveled are evaluated.

Plan Area

The plan area shown in Figure 1 includes three planned urban villages (Valley Fair/Santana Row, Winchester Boulevard, and Stevens Creek Boulevard) as defined in the City's Envision 2040 General Plan, and their surrounding area ("Plan Area"). The plan area encompasses the entirety of the three urban villages boundaries as well as surrounding areas that would be served by the I-280 Northbound off-ramp to Winchester Boulevard. The plan area is generally bound by the City limit line to the north that runs along Stevens Creek Boulevard/Forest Avenue, I-880 to the east, the City limit line to the south, north of Hamilton Avenue, and San Tomas Expressway/Saratoga Avenue to the west. The boundaries studied, and included in the proposed TDP, were drawn to encompass an area including the most predictable contributors to the need for the interchange improvement, and to eliminate areas where traffic would use other interchanges. Current traffic models indicate that current I-280/Winchester interchange conditions operate at acceptable levels, but will degrade significantly to unacceptable levels with future development in the Plan Area.

Figure 1
Plan Area



The planned growth of the three urban villages in the Plan Area include 2,831,000 square feet (9,410 jobs) of non-residential development and 8,495 dwelling units. The focus of the evaluation is the planned growth within Plan Area, and its effects on the I-880/Stevens Creek Boulevard and I-280/Winchester Boulevard interchanges as well as the Stevens Creek Boulevard and Winchester Boulevard corridors.

The study evaluates the travel routes that would be most affected by the implementation of the new I-280 Northbound/Winchester Boulevard off-ramp. The plan area encompasses developments that would be in proximity to and would benefit the most from implementation of the proposed I-280 Northbound/Winchester Boulevard off-ramp. Developments outside of the plan area would be better served by other more convenient regional facilities. Currently, the primary regional access to the Winchester Boulevard/Stevens Creek Boulevard area is provided by the I-880/Stevens Creek Boulevard interchange ramps. Access to the area is also provided by I-280 interchange ramps at Saratoga Avenue and Moorpark/Bascom Avenues as well as the SR 17/Hamilton Avenue interchange. It is the freeway off-ramps at each of these interchanges that the proposed I-280 Northbound off-ramp would have the greatest effect. Figure 2 presents the travel routes and the freeway interchanges that are anticipated to be most affected by the proposed I-280 Northbound off-ramp at Winchester Boulevard. The ramp demand analysis focuses on each of the off-ramps mentioned above as well as intersection operations at each interchange and along the Winchester/Stevens Creek travel corridor listed below. Figure 3 presents the study interchanges and intersections.

Study Freeway Ramps

1 I-880 NB Diagonal Off-Ramp to Stevens Creek Boulevard
2 I-880 NB Loop On-Ramp from EB Stevens Creek Boulevard
3 I-880 NB Diagonal On-Ramp from WB Stevens Creek Boulevard
4 I-880 SB Off-Ramp to Stevens Creek Boulevard
5 I-880 SB On-Ramp from Stevens Creek Boulevard
6 I-280 NB On-Ramp from Winchester Boulevard
7 I-280 SB Off-Ramp to Moorpark Avenue
8 I-280 NB Off-Ramp to Bascom Avenue
9 I-280 SB On-Ramp from Bascom Avenue
10 I-280 NB Diagonal Off-Ramp to NB Saratoga Avenue
11 I-280 NB Loop Off-Ramp to SB Saratoga Avenue

Study Intersections

1 I-880 NB Ramps and Stevens Creek Boulevard
2 I-880 SB Ramps and Stevens Creek Boulevard
3 Monroe Street and Stevens Creek Boulevard*
4 Winchester Boulevard and Stevens Creek Boulevard*
5 Winchester Boulevard and Tisch Way
6 Winchester Boulevard and Moorpark Avenue
7 I-280 SB Off-Ramp and Moorpark Avenue
8 Saratoga Avenue and I-280 NB Ramps
9 Saratoga Avenue and I-280 SB Ramps
10 Bascom Avenue and Parkmoor Avenue
11 Bascom Avenue and Moorpark Avenue
12 Leland Avenue and Parkmoor Avenue
13 Leland Avenue and Moorpark Avenue
14 Leigh Avenue and Parkmoor Avenue
15 Leigh Avenue and Moorpark Avenue

* Indicates City of San Jose Protected Intersection

Figure 2
Travel Route Changes Due to Proposed I-280 Northbound/Winchester Boulevard Off-Ramp

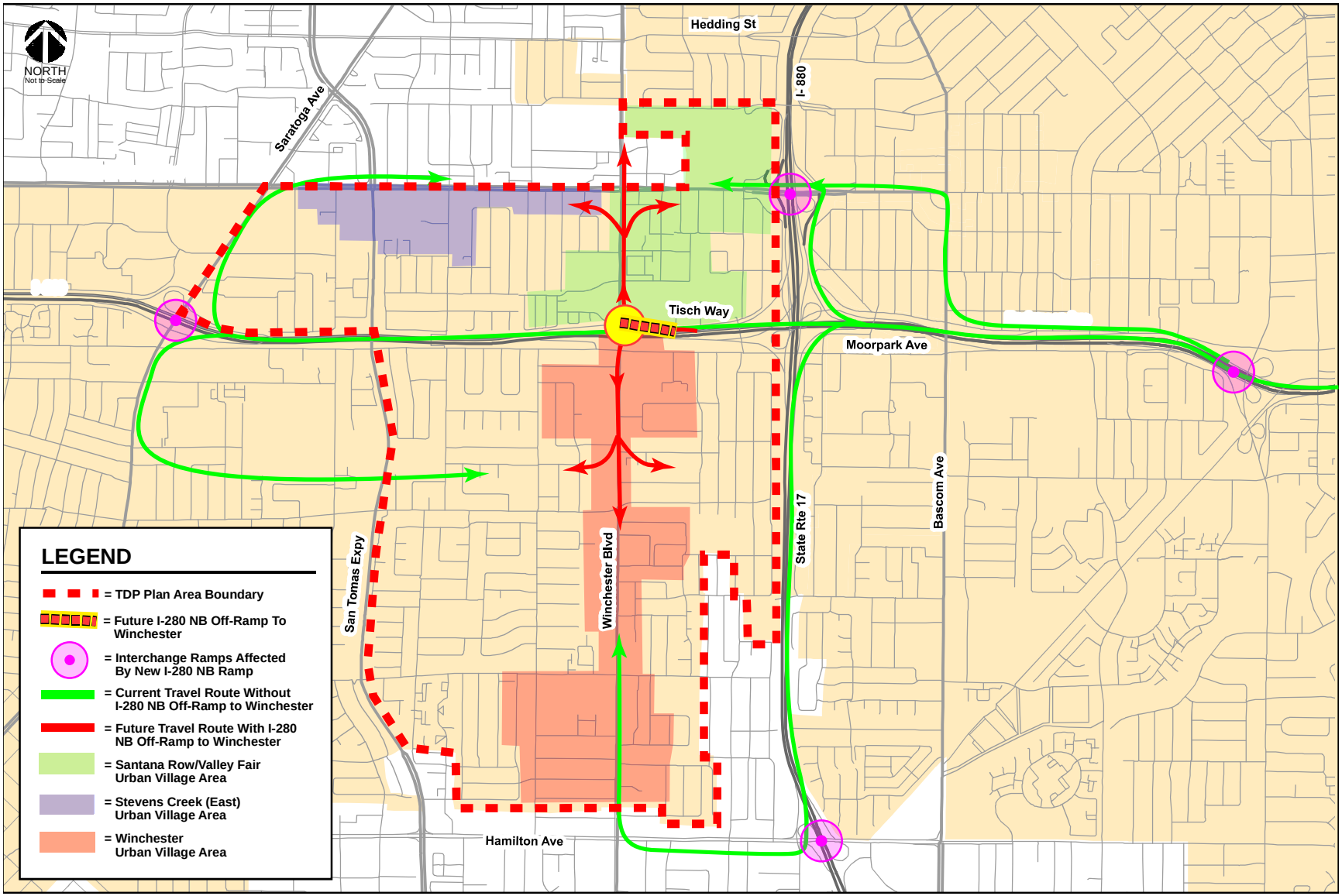
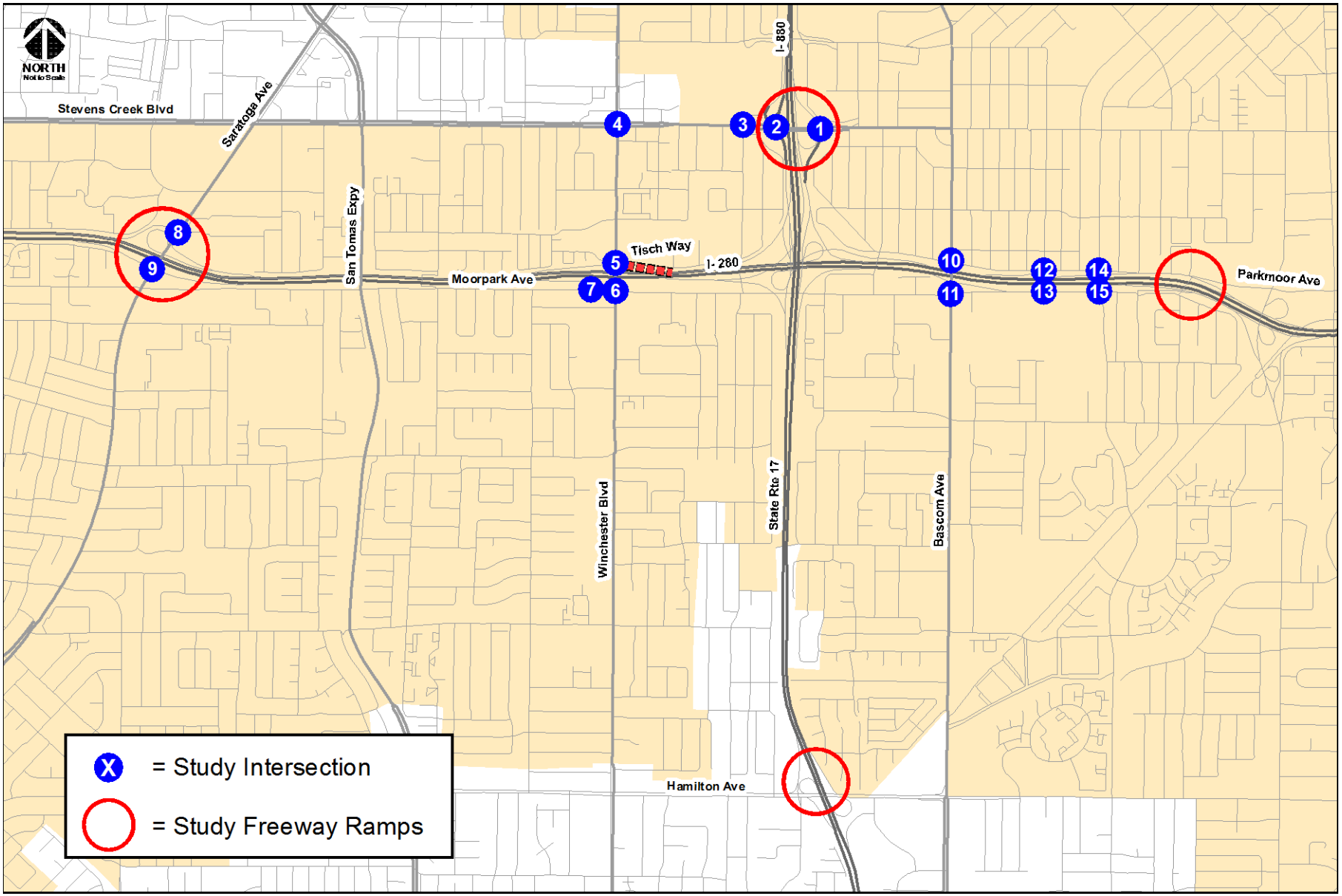


Figure 3
Study Intersections and Freeway Ramps



Existing Setting

The I-880/Stevens Creek Boulevard and I-280/Winchester Boulevard interchanges serve as the primary access points to regional freeway facilities in the Plan Area. The Stevens Creek Boulevard and Winchester Boulevard corridors that serve the I-880/Stevens Creek Boulevard and I-280/Winchester Boulevard interchanges currently experience traffic congestion during the peak commute hours. The corridors include two City of San Jose Protected Intersections (Stevens Creek Boulevard/Winchester Boulevard and Stevens Creek Boulevard/Monroe Street) that are projected to continue to operate well below the City's standard Level of Service Policy.[1] It is anticipated that the additional traffic associated with planned development in the area (which includes several planned Urban Village Areas) will worsen traffic congestion along the corridors and at the I-880/Stevens Creek Boulevard and I-280/Winchester Boulevard interchanges. Further vehicular capacity improvements at intersections along the corridors would not be consistent with General Plan goals that encourage the use of multi-modal travel.

However, the I-280 Northbound off-ramp to Winchester Boulevard would complement the established traffic flow along Stevens Creek Boulevard and along Winchester Boulevard to/from the I-880/Stevens Creek Boulevard interchange by providing an alternative travel route for commuters and thereby minimize the need to protect additional intersections along Stevens Creek Boulevard.

I-280 Northbound/Winchester Boulevard Off-Ramp

The initial project for the I-280/I-880/Stevens Creek Boulevard Interchange Improvement Project (which has been completed) originally included a ramp connection from northbound I-280 to Winchester Boulevard. However, in 2011, the Winchester Boulevard connection ramp was removed from the I-280/I-880/ Stevens Creek Boulevard Interchange Improvement Project due to the inability to identify a preferred alternative of the two ramp design options under consideration.

Due to the continued development interest in the vicinity of the I-280/Winchester Boulevard area, VTA is now moving forward with the I-280/Winchester Boulevard Improvement Project to develop a long-term solution for the area that improves access, addresses traffic operations and relieves congestion.

On June 4, 2015, the Santa Clara Valley Transportation Authority voted to authorize the General Manager to negotiate and enter into cooperative agreements with California Department of Transportation (Caltrans), local jurisdictions, and regulatory agencies, covering planning, preliminary engineering/environmental, design, right-of-way, and construction phases for the I-280/Winchester Boulevard Improvements Project.

Two design options for the northbound I-280/Winchester Boulevard off-ramp were considered in 2011. The preliminary ramp designs indicated that the proposed ramp would begin east of the I-280/I-880/SR 17 interchange ramps. Therefore, this study and analysis presumes that the new off-ramp to Winchester Boulevard would serve only I-280 northbound traffic. Access from I-880 is not assumed to be provided to the new ramp.

The ramp design will have the greatest effect on traffic conditions at the Winchester Boulevard and Tisch Way intersection. The alignment of the ramp will have minimal effect on traffic circulation outside of the immediate area of the Winchester Boulevard and Tisch Way intersection. However, the connection of the ramp to Tisch Way, rather than at the existing Winchester Boulevard and Tisch Way intersection, may require the closure of Tisch Way, via a cul-de-sac, so as to accommodate the new ramp. The closure of Tisch Way would result in changes to traffic patterns along surrounding roadways. Therefore, for the purposes of this study, the following two ramp alternatives, which include the closure of Tisch Way, were selected for evaluation:

Four-Leg Alternative: The new I-280 Northbound off-ramp would replace Tisch Way as the east approach to the existing Winchester Boulevard and Tisch Way intersection. The new ramp would result in

[1] An explanation of the City's Protected Intersections and Protected Intersection Policy is included on Page 12 herein.

the closure of Tisch Way between Winchester Boulevard and Dudley Avenue, via a cul-de-sac, to accommodate the new ramp.

Five-Leg Alternative: The new I-280 Northbound off-ramp would connect to the existing Winchester Boulevard and Tisch Way intersection as a fifth approach leg. Full access to Tisch Way would be maintained. However, one lane would be removed from Tisch Way, along with signal phasing adjustments, to accommodate the new ramp.

The ramp alternatives were selected for the evaluation only and the final design will be determined with the VTA I-280 Winchester Boulevard Improvement Project. Regardless of the final ramp design, the traffic forecasts indicate the need for the I-280 Northbound off-ramp to Winchester Boulevard to facilitate, in part, traffic from projected development in the Plan Area.

Evaluation Approach

Traffic Model and Study Scenarios

Hexagon utilized the City of San Jose CUBE travel demand forecasting (TDF) model with land use and roadway network refinements to complete traffic forecasts for Baseline Year 2015 and Future Year 2035 conditions without and with the new I-280 Northbound off-ramp to Winchester Boulevard. The CUBE model was used for the long-range transportation planning in the City's General Plan and establishes a consistent transportation model for use in the evaluation of long-term traffic conditions. The City of San Jose's CUBE software-based traffic forecasting model produces peak hour traffic generation based on projected land uses. The TDF model also has the ability to project the diversion of traffic and change in travel patterns due to roadway network changes, such as the new I-280 off-ramp. The traffic forecasts were then used to determine peak-hour freeway ramp demand as well as evaluate peak-hour intersection level of service at selected intersections.

The analysis focuses on the effects on the roadway system with implementation of the Urban Village plans and other growth based on the horizon year of the City of San Jose General Plan (2035). Although the San Jose General Plan is entitled Envision 2040, the actual horizon year for the plan is 2035. The analysis is based on the projected transportation conditions in the future when the General Plan capacities for housing and jobs are fully developed.

Traffic conditions were evaluated for the following traffic scenarios using the City of San Jose's TDF model:

Existing Conditions: Existing conditions represent existing peak-hour volumes on the existing roadway network. Existing traffic volumes were obtained from new traffic counts collected in January 2016.

Existing Conditions with the I-280 NB Ramp: Existing conditions with the I-280 NB ramp is comprised of the existing traffic volumes and existing transportation network with the addition of the northbound I-280 to Winchester Boulevard off-ramp.

Year 2035 No Build Conditions: Year 2035 No Build conditions represent future traffic volumes on the future transportation network. Year 2035 No Build conditions includes land use growth projections within the City of San Jose through the year 2035 and the roadway network identified in the City's Envision 2040 General Plan.

Year 2035 Conditions with the I-280 NB Ramp: Year 2035 conditions with the I-280 NB ramp consists of Year 2035 traffic volumes and future transportation network with the addition of the northbound I-280 to Winchester Boulevard off-ramp.

Analysis Methodologies and Level of Service Standards

Travel Demand Forecasting Model

The citywide travel demand forecasting model (TDF model) was prepared as part of the Envision San Jose 2040 General Plan. The TDF model was developed to provide improved citywide travel demand forecasting as part of continued planning efforts to address transportation infrastructure needs and to

assist in the update of the City's General Plan. The model was developed from the VTA countywide travel demand model. The VTA model contains all cities and counties within the model's extents roughly bounded by southern Monterey County, eastern San Joaquin County, northern Sonoma County, and the Pacific Ocean. The San Jose model is a sub-area model of the VTA model – it maintains the general inputs (roadway network, land use, trip generation rates, etc.), structure, and process as the VTA model, but with refinement within the City of San Jose. This allows regional travel patterns and behavior to be accounted for in the focused area of San Jose, which will become more important with the recent legislative requirements associated with greenhouse gas quantification and impacts. The land use data, roadway network, and counts used in the base year validation reflect April and May 2008 conditions.

The VTA and San Jose models both include four elements traditionally associated with models of this kind. These elements include trip generation, trip distribution, mode choice, and traffic assignment.

- **Trip Generation.** Trip generation involves estimating the number of trips that would occur with the proposed General Plan land uses. The City's TDF model includes trip generation formulas that are based upon the Metropolitan Transportation Commission (MTC) regional travel demand model. Trip generation estimates are based upon the type and amount of specific land uses within each travel analysis zone (TAZ). The TDF model produces trip estimates in person trips (as opposed to vehicle trips, which are typical in near-term traffic analyses).

- **Trip Distribution.** Trip distribution is the second element of the model. Trip distribution involves distributing the trips to various internal destinations and external gateways. The model pairs trip origins and trip destinations (starting and ending points) for each person trip based on the type of trip (e.g., home-to-work, home-to-school, etc.) and the distance a person is willing to travel for that purpose. The distance a person is willing to travel is determined by a "gravity model," which is analogous to Newton's law of gravity. The gravity model estimates how many trips occur between two locations, with the interaction between those two locations diminishing with increasing distance, time, and cost between them.

- **Mode Choice.** Mode choice is the third element of the model. Mode choice determines which mode of transport a person will choose for each trip, based on the availability of a vehicle, the trip distance, and the trip purpose.

- **Traffic Assignment.** Traffic assignment is the fourth and final element of the model. Traffic assignment involves determining which route to take to travel between the trip origin and destination. The model assigns the trips to the roadway network to minimize travel time between the start and end points.

Subsequent trip distribution, assignment, and mode choice iterations are completed by the model to account for roadway congestion. These iterations continue under equilibrium traffic conditions until the optimal trip assignment is reached.

Transportation Network and Traffic Analysis Zones (TAZs)

The fundamental structure of the model includes a computer readable representation of the roadway system (highway network) that defines roadway segments (links) identified by end points (nodes). Each roadway link is further represented by key characteristics (link attributes) that describe the length, travel speeds, and vehicular capacity of the roadway segment. Small geographic areas (TAZs) are used to quantify the planned land use activity throughout the City's planning area. The boundaries of these small geographic areas are typically defined by the modeled roadway system, as well as natural and man-made barriers that have an effect on traffic access to the modeled network. Transit systems are represented in the model by transit networks that are also identifiable by links and nodes. Unlike the roadway network, the key link attributes of a transit link are operating speed and headways – elapsed time between successive transit services. Transit stops and "dwelling times" (the time allowed for passengers embarking and disembarking transit vehicles) are described as transit node attributes. Transit networks are further grouped by type of transit (rail versus bus) and operator (VTA bus versus AC Transit bus). Transit accessibility for each TAZ is evaluated by proximity to transit stops or stations, and the connectivity of transit lines to destinations.

The socioeconomic data for each TAZ in the model includes information about the number of households (stratified by household income and structure type), population, average income, population age distribution, and employment (stratified by groupings of Standard Industrial Codes). The worker per household ratios and auto ownership within a TAZ are calculated based on these factors and the types and densities of residences. The model projects trip generation rates and the traffic attributable to residents and resident workers, categorized by trip purposes, using set trip generation formulas that are based on the MTC regional travel demand model.

Traffic Assignment

Travel times within and between TAZs (intra-zonal, inter-zonal and terminal times) are developed from the network being modeled. Travel times within zones (intra-zonal travel times) are derived for each zone based on half its average travel time to the nearest three adjacent zones. Time to walk to and from the trip maker's car (terminal times) are also added. The projected daily trips are distributed using a standard gravity model and friction factors calibrated for the modeling region, which presently consists of 13 counties.

The City of San Jose TDF model is capable of estimating up to 7 modes of transportation:

- auto drive alone
- auto carpool with two persons
- auto carpool with three+ persons
- rail transit
- bus transit
- bicycle
- walk

Before the traffic is assigned to the roadway networks, time-of-day factors and directionality factors are applied to automobile trips occurring during the:

- AM peak hour
- AM 4-hour peak
- PM peak hour
- PM 4-hour peak
- mid-day 6-hour
- mid-night 10-hour periods

The assignment of the trip tables to the roadway network uses a route selection procedure based on minimum travel time paths (as opposed to minimum travel distance paths) between TAZs and is done using a capacity-constrained user equilibrium-seeking process. This capacity constrained traffic assignment process enables the model to reflect diversion of traffic around congested areas of the overall street system. High Occupancy Vehicle (HOV) lanes on freeways, expressways, and on-ramps are specifically dealt with in the model network, with access restricted to auto-shared-ride mode trips only, similar to real world operations of roadway facilities with HOV lanes.

Transit Mode Share

Transit use is modeled for peak and non-peak periods based on computed transit levels of services (speeds and wait times). Based on the conditions that influence transit speeds and wait times (such as traffic congestion), transit use numbers are modified to reflect the likelihood of transit use, based on the constraints to the system. This feedback loop is a modern enhancement in the model to address the dynamics of transit ridership related to the expansion or contraction of roadway capacities.

General Plan Transportation Network

The TDF model includes all major transportation infrastructure identified in the Envision San Jose 2040 *Land Use/Transportation Diagram*, including planned infrastructure that is not yet built and/or funded.

Vehicle Miles Traveled and Vehicle Hours Traveled

In addition to providing projected peak-hour and peak-period volumes and ratios comparing projected traffic volume to available roadway capacity (V/C ratios) on each roadway segment, the model provides information on vehicle-miles and vehicle-hours of travel by facility type (freeway, expressways, arterial streets, etc.).

Model Validation

The model baseline conditions at the time the Envision San Jose 2040 General Plan model was developed were validated to reflect traffic volumes and land use in 2008 and a land use growth horizon year of 2035 throughout the City. The projection of future traffic volumes on the roadway system is based on a comparison of model baseline conditions and the projected land use growth represented in each of the land use zones in the traffic model. Thus, accurate projections of future traffic volumes are highly dependent on model baseline conditions that are calibrated to existing land use and traffic volumes and patterns. Therefore, Hexagon completed a limited update/validation of the model baseline conditions in the immediate Plan Area to reflect a base year of 2015.

City staff provided Hexagon with existing land use data for the entire City. The existing land use data was utilized to make adjustments to the existing land uses coded in the model traffic analysis zones that are located in the Plan Area including the Valley Fair/Santana Row, Winchester Boulevard, and Stevens Creek Boulevard urban villages and other projected development in their vicinity. The updated land use data contained in the model was then used to produce baseline (Year 2015) traffic conditions at each of the study intersections for the analysis. Year 2015 land use data for the TAZ's representing other counties in the region were obtained from the VTA.

The validation process consisted of: (a) review and update the model roadway network to ensure that changes in the roadway network affecting the TDP plan area that have occurred between 2008 and 2015 are included, (b) comparing the model trip distribution with VTA 2015 trip distribution and, if necessary, recalibrate the distribution model to reflect 2015 trip patterns, and (c) review of the model trip assignment to ensure that the forecasted traffic volumes are reflective of current traffic conditions in the plan area. Where necessary, adjustments to the model roadway network were made to refine the model assignment to more accurately reflect existing traffic patterns on each of the study intersections and freeway ramps. Adjustments included changes to roadway capacity and speed.

Traffic Projections

Traffic volume forecasts were completed by Hexagon using the City's TDF model. Model volume forecasts were developed for both the updated Year 2015 baseline conditions and the Year 2035 General Plan conditions without and with the new northbound off-ramp from I-280 to Winchester Boulevard. These forecasts are considered "raw" model volume forecasts, which on their own do not represent future volume conditions, but are simply used to forecast growth and travel pattern changes expected in the future due to the land use changes associated with the City of San Jose 2035 General Plan. To obtain the final traffic volume forecasts, adjustments are made to raw model volume forecasts and used in conjunction with existing count data. Final future traffic volume forecasts are developed by adding to the existing traffic count data the projected growth between the baseline (Year 2015) and the General Plan (Year 2035) raw model volume forecasts. The adjustment process is outlined below:

Final Traffic Volume Forecast = Existing Count + (2035 GP Forecast - 2015 Baseline Forecast)

Signalized Intersections

Traffic conditions at the study intersections were evaluated using level of service (LOS). *Level of Service* is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays. The analysis methods are described below.

The City of San Jose level of service methodology for signalized intersections is the 2000 *Highway Capacity Manual* (HCM) method. This method is applied using the TRAFFIX software. TRAFFIX evaluates signalized intersections operations on the basis of average delay time for all vehicles at the

intersection. The City of San Jose level of service standard for intersections is LOS D or better. The correlation between average delay and level of service is shown in Table 1.

Table 1
Signalized Intersection Level of Service Definitions Based on Control Delay

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

Source: Transportation Research Board, *Highway Capacity Manual 2000,(Washington, D.C., 2000)*

City of San Jose Protected Intersection Policy

Winchester Boulevard & Stevens Creek Boulevard and Monroe Street & Stevens Creek Boulevard are identified as Protected Intersections in the City of San Jose's Protected Intersection Policy (Council Policy 5-3). Protected Intersections consist of locations (there are a total of 29) that have been built to their planned maximum capacity and where expansion of the intersection would have an adverse effect on other transportation facilities (such as pedestrian, bicycle, transit systems, etc.). Protected Intersections are, therefore, not required to maintain a Level of Service D, which is the City of San Jose standard. The deficiencies at all 29 Protected Intersections in the City of San Jose have been disclosed and overridden in previous EIRs.

If a development project has significant traffic impacts at a designated Protected Intersection, the project may be approved if offsetting Transportation System Improvements are provided. The offsetting improvements are intended to provide other transportation benefits for the community adjacent to the traffic impact. The improvements may include enhancements to pedestrian, bicycle, and transit facilities, as well as neighborhood traffic calming measures and other roadway improvements. Priority is given to improvements identified in previously adopted plans such as area-wide specific or master plans, redevelopment plans, or plans prepared through the Strong Neighborhoods Initiative along with community input. Where a new development in the Plan Area would also impact a protected intersection, the development will also be required to pay the protected intersection LOS impact fee.

Projected Ramp Traffic Demand and Intersection Operations

The model runs and projected traffic volumes show that implementation of the I-280 Northbound/Winchester Boulevard off-ramp, and thereby providing direct access to Winchester Boulevard from northbound I-280, would result in a diversion of traffic to the new ramp from other freeway ramps, including ramps at I-880/Stevens Creek Boulevard, I-280/Saratoga Avenue, I-280/Bascom Avenue, and SR 17/Hamilton Avenue. Specifically, it is projected that the northbound left-turn movement volume at the I-880 northbound off-ramp and Stevens Creek Boulevard intersection would decrease with the construction of the northbound I-280 off-ramp to Winchester Boulevard by as much as 30 percent. The reductions in traffic volume at the other affected ramps are projected to be less. However, the diversion of small amounts of traffic that is currently using one of the existing ramps serving I-280 northbound traffic to the new I-280 Northbound off-ramp to Winchester creates capacity on the existing ramps that may also be utilized by future traffic from the Plan Area.

Ramp Demand Evaluation

Peak-hour traffic forecasts at each of the on- and off-ramps at the identified freeway interchanges were completed for each of the study scenarios. The freeway off-ramps that currently provide access to the Plan Area from northbound I-280 that would be most affected by the new northbound I-280 to Winchester Boulevard off-ramp. Demand due to future growth at the freeway off-ramps is determined by comparing existing traffic volumes to forecasted Year 2035 traffic volumes at the five off-ramps currently serving northbound I-280 traffic in the Plan Area and vicinity.

Table 2 and Figure 4 present the peak-hour traffic volumes at each of the study off-ramps under each of the study scenarios. Under the Year 2035 No Build scenario, the planned development growth will result in additional peak hour volume demands of 1,352 AM peak hour trips and 2,061 PM peak hour trips at the five existing off-ramps. With the proposed off-ramp, the planned development growth will result in additional peak hour volume demands of 1,927 AM peak hour trips and 2,907 PM peak hour trips at the five existing plus the new off-ramp. The ramp demand evaluation also indicates the following:

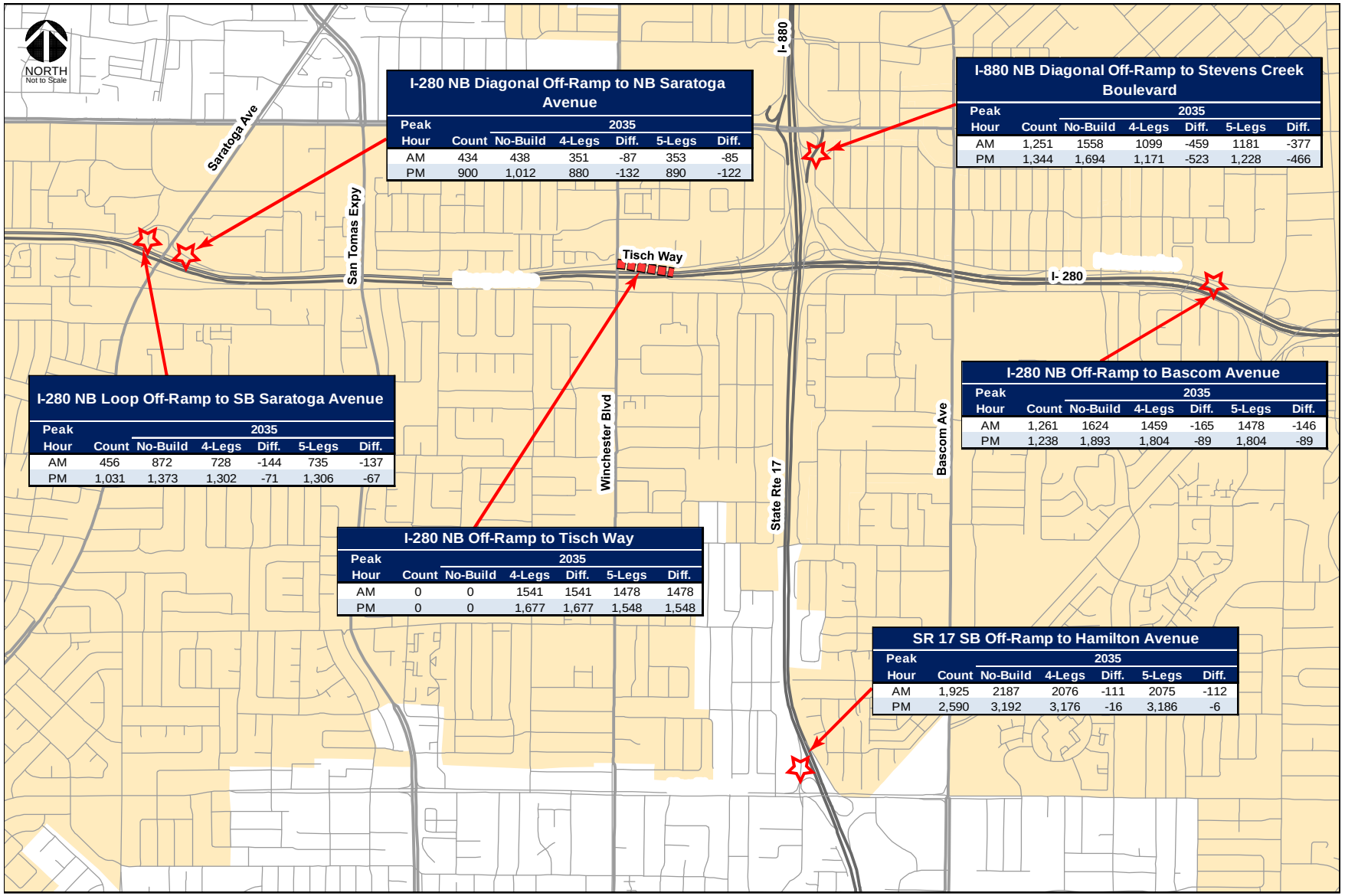
- The largest projected traffic volumes from implementation of the General Plan growth including the three Urban Villages in the growth area occur during the PM peak hour. Therefore, the new demand due to future growth at the freeway off-ramps is determined based on PM peak hour traffic volumes.
- The four-leg off-ramp alternative results in projected demand at the new ramp of 1,677 peak hour trips while the five-leg alternative results in 1,548 trips.
- The new demand due to future growth at the five existing off-ramps plus the four-leg off-ramp is determined to be 2,907 peak hour trips, or approximately 30% of the total demand of 10,010 peak hour trips at the six off-ramps. The new demand due to future growth at the five existing off-ramps plus the five-leg off-ramp is determined to be 2,859 peak hour trips, or approximately 30% of the total demand of 9,962 peak hour trips at the six off-ramps.
- The new off-ramp would decrease the traffic volume at the I-280/I-880 off-ramp to Stevens Creek Boulevard by as much as 30 percent. Less change in traffic volumes were projected at the Saratoga Avenue, Bascom Avenue, and Hamilton Avenue off-ramps.

Table 2
Year 2035 Forecasted Peak Hour Freeway Ramp Volumes and Additional Capacity

	AM Peak Hour						PM Peak Hour					
	2015	2035					2015	2035				
Ramps	Count	No-Build	4-Legs	Difference	5-Legs	Difference	Count	No-Build	4-Legs	Difference	5-Legs	Difference
I-880 NB Diagonal Off-Ramp to Stevens Creek Boulevard	1,251	1,558	1,099	-459	1,181	-377	1,344	1,694	1,171	-523	1,228	-466
I-280 NB Off-Ramp to Bascom Avenue	1,261	1,624	1,459	-165	1,478	-146	1,238	1,893	1,804	-89	1,804	-89
I-280 NB Diagonal Off-Ramp to NB Saratoga Avenue	434	438	351	-87	353	-85	900	1,012	880	-132	890	-122
I-280 NB Loop Off-Ramp to SB Saratoga Avenue	456	872	728	-144	735	-137	1,031	1,373	1,302	-71	1,306	-67
SR 17 SB Off-Ramp to Hamilton Avenue	1,925	2,187	2,076	-111	2,075	-112	2,590	3,192	3,176	-16	3,186	-6
I-280 NB Off-Ramp to Winchester		0	1,541	0	1,478	1,478		0	**1,677**	0	1,548	0
Total of Affected Off-Ramps	5,327	6,679	7,254	-966	7,300	621	7,103	9,164	10,010	-831	9,962	-750
Projected Traffic Growth		**1,352**	**1,927**		**1,973**			**2,061**	**2,907**		**2,859**	
Percent Fair-Share			**27%**		**27%**				**29%**		**29%**	

Notes:
Based on CSJ Cube TDF model runs completed February 2016, by Hexagon Transportation Consultants.

Figure 4
Year 2035 Freeway Ramp Volume Alternatives Comparison



Intersection Level of Service Evaluation

The evaluation of peak hour intersection operations is summarized in Table 3 and presented graphically in Figure 5. The results of the intersection level of service evaluation indicate the following:

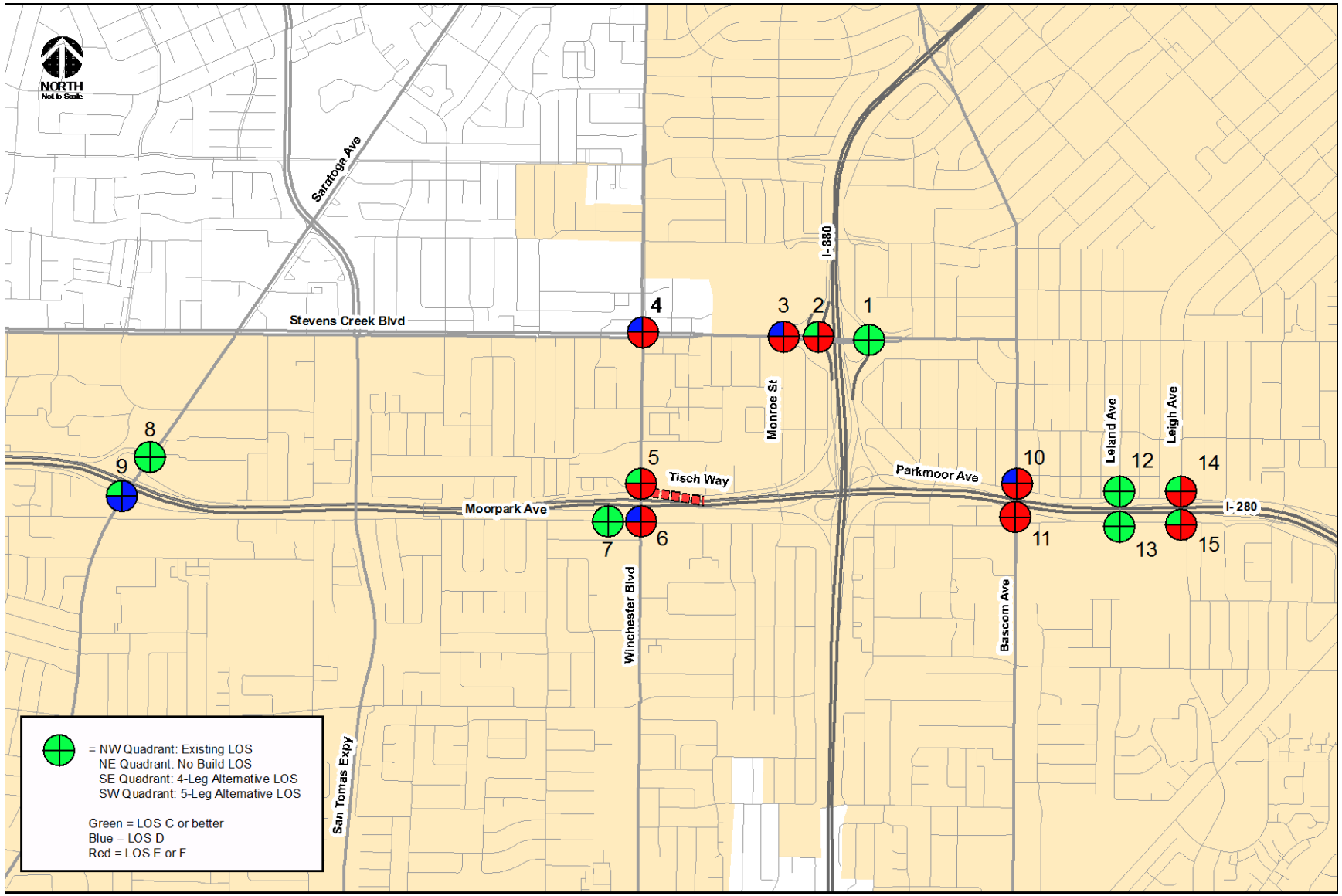
- Existing intersection levels of service indicate that all intersections, with the exception of Bascom Avenue/Moorpark Avenue, currently operate at levels that meet the City's LOS D standard.
- The existing intersections levels of service indicate that the new I-280 Northbound off-ramp to Winchester Boulevard is not required to improve existing traffic condition issues.
- Year 2035 conditions level of service analysis indicates that nine intersections will degrade to LOS E or F conditions with the addition of traffic from future development in the Plan Area.
- Each of the intersections along the Winchester Boulevard and Stevens Creek Boulevard corridors are projected to operate at LOS E or F conditions during at least one peak hour for Year 2035 conditions both without and with the I-280 Northbound off-ramp to Winchester Boulevard.
- The proposed I-280 off-ramp would reduce delay along Stevens Creek Boulevard and at most of the studied intersections along Winchester Boulevard under the four-legged ramp alternative. However, the reduction in delay would not equate to an improvement in level of service grade designation.
- The I-280 Northbound off-ramp to Winchester Boulevard would cause the Winchester Boulevard/I-280/Tisch Way intersection to continue to exceed the level of service standard under the PM peak hour. Improvements to the intersection will be addressed during the design stage of the off-ramp.
- The four-legged ramp alternative would provide slightly better operations in terms of intersection delay at the Winchester Boulevard and I-280/Tisch Way intersection when compared to the five-legged ramp alternative. The need to serve an additional approach at the intersection with the five-legged ramp alternative will result in an increase in delay for all other approaches.

Table 3
Peak Hour Intersection Level of Service

Study Number	Intersection	Peak Hour	Count Date	Existing Avg. Delay	Existing LOS	Existing + 4Leg Alternative Avg. Delay	Existing + 4Leg Alternative LOS	Existing + 4Leg Alternative Diff	Existing + 5Leg Alternative Avg. Delay	Existing + 5Leg Alternative LOS	Existing + 5Leg Alternative Diff	2035 No Build Avg. Delay	2035 No Build LOS	2035 4-Leg Alternative Avg. Delay	2035 4-Leg Alternative LOS	2035 4-Leg Alternative Diff	2035 5-Leg Alternative Avg. Delay	2035 5-Leg Alternative LOS	2035 5-Leg Alternative Diff
1	NB I-880 Ramps and Stevens Creek Boulevard	AM	10/21/15	20.5	C	15.7	B	-4.8	15.6	B	-4.9	21.9	C	18.1	B	-3.8	19.3	B	-2.6
		PM	10/20/15	22.8	C	19.3	B	-3.5	19.3	B	-3.5	25.1	C	18.2	B	-6.9	19.1	B	-6.0
2	I-880 SB off-ramp and Stevens Creek Boulevard *	AM	10/21/15	24.7	C	26.1	C	1.4	26.1	C	1.4	28.4	C	27.6	C	-0.8	27.9	C	-0.5
		PM	10/20/15	23.7	C	25.4	C	1.7	25.4	C	1.7	**70.8**	**E**	**69.8**	**E**	**-1.0**	**73.0**	**E**	**2.2**
3	Monroe Street and Stevens Creek Boulevard	AM	10/21/15	29.8	C	34.1	C	4.3	32.5	C	2.7	40.3	D	43.4	D	3.1	40.4	D	0.1
		PM	10/21/15	35.4	D	39.4	D	4.0	36.7	D	1.3	**131.9**	**F**	**85.7**	**F**	**-46.2**	**83.4**	**F**	**-48.5**
4	Winchester Boulevard and Stevens Creek Boulevard *	AM	10/21/15	35.2	D	36.8	D	1.6	36.1	D	0.9	47.9	D	47.5	D	-0.4	46.8	D	-1.1
		PM	10/21/15	46.6	D	46.9	D	0.3	45.9	D	-0.7	**125.2**	**F**	**107.7**	**F**	**-17.5**	**99.9**	**F**	**-25.3**
5	Winchester Boulevard and I-280 WB on-ramp/Tisch Way	AM	10/20/15	25.6	C	41.1	D	15.5	**69.0**	**E**	**43.4**	28.1	C	50.3	D	22.2	**94.3**	**F**	**66.2**
		PM	10/20/15	34.6	C	47.6	D	13.0	**109.1**	**F**	**74.5**	**124.7**	**F**	**185.5**	**F**	**60.8**	**308.8**	**F**	**184.1**
6	Winchester Boulevard and Moorpark Avenue	AM	10/20/15	38.6	D	34.5	C	-4.1	34.3	C	-4.3	**102.9**	**F**	**61.1**	**E**	**-41.8**	**56.9**	**E**	**-46.0**
		PM	10/20/15	42.1	D	36.4	D	-5.7	36.5	D	-5.6	**72.8**	**E**	**91.7**	**F**	**18.9**	**92.0**	**F**	**19.2**
7	I-280 EB off-ramp and Moorpark Avenue *	AM	10/20/15	11.1	B	10.4	B	-0.7	10.4	B	-0.7	9.6	A	9.3	A	-0.3	9.1	A	-0.5
		PM	10/20/15	12.9	B	12.6	B	-0.3	12.5	B	-0.4	14.6	B	15.4	B	0.8	15.6	B	1.0
8	Saratoga Avenue and I-280 (North) *	AM	10/21/15	29.7	C	29.5	C	-0.2	29.3	C	-0.4	29.3	C	29.4	C	0.1	29.1	C	-0.2
		PM	09/24/14	23.9	C	23.8	C	-0.1	23.8	C	-0.1	19.1	B	20.1	C	1.0	20.5	C	1.4
9	Saratoga Avenue and I-280 (South) *	AM	10/21/14	34.1	C	34.8	C	0.7	34.8	C	0.7	41.0	D	46.1	D	5.1	46.1	D	5.1
		PM	09/24/14	33.2	C	33.5	C	0.3	33.5	C	0.3	30.4	C	30.8	C	0.4	30.9	C	0.5
10	Bascom Avenue and Parkmoor Avenue	AM	05/07/15	42.9	D	41.8	D	-1.1	41.3	D	-1.6	54.8	D	**68.4**	**E**	**13.6**	**68.3**	**E**	**13.5**
		PM	05/06/15	36.2	D	30.8	C	-5.4	30.5	C	-5.7	**86.0**	**F**	**73.1**	**E**	**-12.9**	**68.7**	**E**	**-17.3**
11	Bascom Avenue and Moorpark Avenue *	AM	05/07/15	38.1	D	38.7	D	0.6	38.9	D	0.8	**127.2**	**F**	**124.4**	**F**	**-2.8**	**126.6**	**F**	**-0.6**
		PM	09/23/14	**57.9**	**E**	**58.9**	**E**	**1.0**	**59.2**	**E**	**1.3**	**115.3**	**F**	**125.1**	**F**	**9.8**	**122.1**	**F**	**6.8**
12	Leland Avenue and Parkmoor Avenue	AM	02/02/16	22.5	C	23.1	C	0.6	23.2	C	0.7	20.9	C	21.1	C	0.2	21.6	C	0.7
		PM	02/02/16	22.4	C	23.9	C	1.5	23.9	C	1.5	36.7	D	34.8	C	-1.9	34.8	C	-1.9
13	Leland Avenue and Moorpark Avenue *	AM	02/02/16	8.6	A	8.5	A	-0.1	8.5	A	-0.1	5.8	A	6.0	A	0.2	5.9	A	0.1
		PM	02/02/16	4.9	A	4.9	A	0.0	4.9	A	0.0	5.3	A	4.8	A	-0.5	4.8	A	-0.5
14	Leigh Avenue and Parkmoor Avenue	AM	02/02/16	28.8	C	30.0	C	1.2	30.0	C	1.2	**61.4**	**E**	**80.2**	**F**	**18.8**	**81.5**	**F**	**20.1**
		PM	02/02/16	23.2	C	24.7	C	1.5	24.3	C	1.1	**168.7**	**F**	**192.7**	**F**	**24.0**	**191.0**	**F**	**22.3**
15	Leigh Avenue and Moorpark Avenue *	AM	02/02/16	28.1	C	28.3	C	0.2	28.3	C	0.2	48.5	D	44.9	D	-3.6	45.0	D	-3.5
		PM	02/02/16	19.1	B	19.5	B	0.4	19.1	B	0.0	**63.2**	**E**	**79.7**	**E**	**16.5**	**77.4**	**E**	**14.2**

* Denotes CMP Intersection
Bold indicates unacceptable level of service.

Figure 5
Intersection LOS Comparison



Vehicle Miles Traveled

A comparison of Vehicle Miles Traveled (VMT) under Year 2035 conditions without and with the new I-280 northbound off-ramp to Winchester Boulevard was made to determine the effects of the I-280 Northbound off-ramp to Winchester Boulevard on traffic patterns in the Plan Area. Vehicle miles traveled refers to daily trips multiplied by the trip distances. The analysis evaluates VMT on roadways within an approximately 1.5 mile radius of the I-280/Winchester Boulevard interchange for each of the year 2035 study scenarios. Roadway facilities within the 1.5 mile radius will be most affected by changes in travel routes with the implementation of the new I-280 northbound off-ramp to Winchester Boulevard. Changes to traffic patterns outside of the 1.5 mile radius will be minimal given that traffic will continue to originate or be bound for destinations served by the surrounding freeway interchanges.

The VMT analysis shows that the new I-280 northbound off-ramp to Winchester Boulevard would result in a modest increase (approximately 1.0 percent) in daily VMT on roadways within the 1.5 mile radius of the I-280/Winchester Boulevard interchange. The increase in VMT is presumed to be due to the net effect of an increase in trips and a decrease in trip lengths due to the proposed I-280 Northbound/Winchester Boulevard off-ramp.

For the purpose of comparison, Vehicle Hours Traveled (VHT) for Year 2035 conditions without and with the new I-280 northbound off-ramp to Winchester Boulevard also were evaluated. The VHT analysis indicates that the new I-280 northbound off-ramp to Winchester Boulevard would result in a reduction in VHT. The reduction in VHT indicates that the new I-280 northbound off-ramp to Winchester Boulevard would result in shorter travel times for trips within the immediate Plan Area. The reduction in travel time is primarily due to the use of the shorter route provided by the new ramp by traffic bound for Winchester Boulevard, south of I-280, which would have otherwise utilized the congested Stevens Creek Boulevard and Winchester Boulevard corridors.

The VMT and VHT, and speed data provided in Table 4 were calculated using the City's TDF model and represent trips on roadways within the 1.5 mile radius of the I-280/Winchester Boulevard interchange.

Table 4
Year 2035 Vehicle Miles Traveled and Vehicle Hours Traveled Comparison

Study Scenario		VMT	VHT	Speed
Year 2035 General Plan No Project Conditions		**1,297,267**	**94,361**	**13.7**
Year 2035 4-Legged Alternative		1,314,492	94,050	14.0
	Difference	**17,225**	**-311**	**0.2**
	Percent	**1.3%**	**-0.3%**	**1.7%**
Year 2035 5-Legged Alternative		1,309,516	89,673	14.6
	Difference	**12,249**	**-4,688**	**0.9**
	Percent	**0.9%**	**-5.0%**	**6.2%**

Notes:
Based on CSJ Cube model runs completed February 2016, by Hexagon Transportation Consultants.

Cost Estimate and Funding

The TDP proposes to provide partial funding through the imposition of a traffic impact fee on proposed development in the Plan Area, for the implementation of the new northbound off-ramp from I-280 to Winchester Boulevard. The traffic fee would be based on the estimated trips to be added to the new northbound off-ramp from I-280 to Winchester Boulevard by each individual development. The full project cost is estimated to be $145 million based on the 4-Legged Alternative, included in VTA/Caltrans' *2010 Project Study Report (PSR) for Improvements at SR-17/I-280/I-880 Interchange, I-280/Winchester Boulevard Interchange, and I-880/Stevens Creek Boulevard Interchange*, with adjustments including project administration and cost escalation. The final ramp design will be determined with the VTA I-280 Winchester Boulevard Improvement Project that is currently underway. However, it is presumed that the cost of the ramp design alternatives will be similar given the limited right-of-way to implement the ramp. The estimated project cost breakdown, in estimated 2017 dollars, are shown in Table 5. See Exhibit for the cost estimates included in the PSR.

Table 5
I-280 Northbound Off-Ramp Cost Estimate

Cost Items		Cost in Millions (2017 dollars)
Construction Costs		
Roadway Items[2]	**$31.5**	
Structure Items[3]	**$71.8**	
Subtotal		$103
Right-of-Way & Utility[4]		
		$7.0
Capitol Outlay Support		
Engineering[5]	**$18.6**	
Right-of-Way Support[6]	**$0.9**	
Construction Support[7]	**$15.5**	
Subtotal		$35.0
Total		**$145**

Notes:
1. Project cost is estimated based on the 2010 cost estimates and methodology obtained from the *2010 Project* Study Report (PSR) for Improvements at SR-17/I-280/I-880 Interchange, I-280/Winchester Boulevard Interchange, and I-880/Stevens Creek Boulevard Interchange, with escalations to 2017 dollars.
2. Cost is escalated from $25.6 million in 2010 dollars to 2017 dollars at 3%/year, consistent with the 2010 PSR's methodology.
3. Cost is escalated from $58.4 million in 2010 dollars to 2017 dollars at 3%/year, consistent with the 2010 PSR's methodology.
4. Cost is escalated from $5.3 million in 2010 dollars to 2016 dollars at 5%/year, consistent with the 2010 PSR's methodology.
5. Estimated at 18% of construction cost, consistent with the 2010 PSR's methodology.
6. Estimated at 12% of right-of-way & utility cost, consistent with the 2010 PSR's methodology.
7. Estimated at 15% of construction cost, consistent with the 2010 PSR's methodology.

The City has identified regional and local (traffic impact fee) sources of funding to support the construction of the northbound I-280 off-ramp to Winchester Boulevard. However, the VTA and Caltrans will be the lead agencies to implement the project. With support from both Caltrans and the VTA, the traffic impact fee will provide additional funding by future developments and ensures construction of the project with the development projected in the 2040 General Plan for the Plan Area. Table 6 presents the breakdown of the proposed funding plan and traffic impact fee.

Regional Funding

The VTP 2040 is a long-range transportation plan for Santa Clara County and identifies the programs and projects that VTA is committed to pursue with member agencies over the lifetime of the plan. The plan connects transportation projects with anticipated funds and provides a framework for planning and delivering those projects over the next 25 years using a combination of federal, state and regional, and local fund sources. This contribution is estimated at $102 million.

Developer Funding

The Ramp Demand Analysis shows that new demand at the five existing off-ramps plus the proposed off-ramp due to future growth in the Plan Area is projected to be approximately 30% of the total demand. This nexus study aims to provide a fair-share 30% contribution from new development, via a Traffic Impact Fee program, toward implementation of the proposed off-ramp. The Traffic Impact Fee Program would be based on $43 million, calculated at 30% of the $145 million project (in estimated 2017 dollars). The Traffic Impact Fee Program will require new development that generates demand for the off-ramp to pay a traffic impact fee towards mitigation for the impact at the intersection of Winchester Boulevard and Tisch Way. The City will administer the traffic impact fees it collects and contribute to the appropriate studies, design, environmental clearance, and construction of the off-ramp project as funds become available from payment of the impact fee by new development and regional and other funding sources as identified above.

Table 6
Proposed Funding Plan & Traffic Impact Fee

Funding Source	Amount (2017 dollars)
Traffic Impact Fee	
Ramp Improvement Cost	**$145 Million**
Other Funding Sources[1]	**$102 Million**
Required Funding via Impact Fee	**$43 Million**
I-280 NB Off-Ramp Demand	**1,677**
I-280 Winchester TDP Traffic Impact Fee	**$25,641**

Notes:
1. Other funding sources include regional funding and other fees collected from development outside of the Plan Area that would be required to mitigate its traffic impacts at the interchange.

Traffic Impact Fee

The Traffic Impact Fee is based upon PM peak hour vehicle trips because the demand at the off-ramps are projected to be more significant in the PM peak hour than in the AM peak hour. For the purpose of this TIF, any trip utilizing the I-280 Northbound/Winchester Boulevard off-ramp during the PM peak hour is considered as one trip against the projected demand at the off-ramp. All other trips approaching the intersection of I-280 Northbound/Winchester Boulevard without using the off-ramp are not treated as trips against the capacity of the off-ramp.

New development will be required to pay a traffic impact fee toward the fair-share contribution of $43 million based on the off-ramp demand generated by future development within the Plan Area. Development outside of the Plan Area may be required to pay the traffic impact fee should it result in impacts that could be mitigated by the implementation of the I-280 Northbound/Winchester Boulevard off-ramp. The projected demand at the off-ramp is 1,677 PM peak hour trips. The Traffic Impact Fee for each off-ramp trip is $25,641, calculated by apportioning $43 million across 1,677 trips. The number of off-ramp

trips contributed by a development is determined based on the number of PM peak hour trips added to the I-280 Northbound off-ramp by that development. Fees will be collected prior to issuance of building permits for any project. In addition, in order to reflect consistent construction cost over time, the amount of the Traffic Impact Fee will increased annually on January 1 pursuant to the Engineering News Record (ENR) Construction Cost Index for San Francisco published by the McGraw Hill.

Exhibit

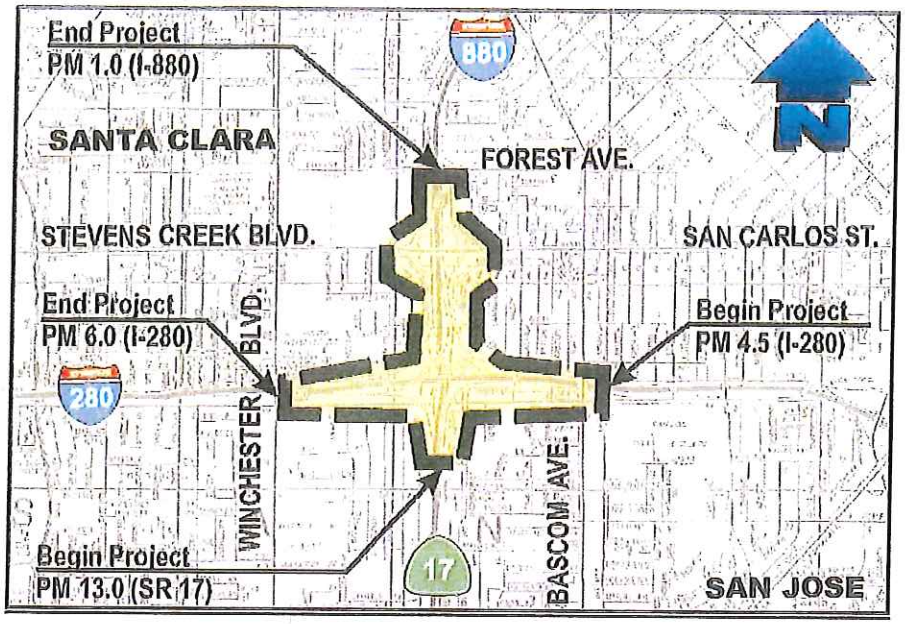
2010 Project Study Report for Improvements at SR-17/I-280/I-880 Interchange, I-280/Winchester Boulevard Interchange, and I-880/Stevens Creek Boulevard Interchange

04 – SCL – 17 - PM 13.80/13.94
04 – SCL – 280 - PM 4.50/6.00
04 - SCL - 880 – PM 0.00/1.00
EA 44560K
October 2010

PROJECT STUDY REPORT

To

Request Conceptual Approval



Improvements at
SR-17/I-280/I-880 Interchange,
I-280/Winchester Boulevard Interchange,
and
I-880/Stevens Creek Boulevard Interchange

APPROVAL RECOMMENDED: _____
NICK SALEH
PROJECT MANAGER

APPROVED: _____ 10.29.10
BIJAN SARTIPI *DATE*
DISTRICT DIRECTOR

04 – SCL – 17 - PM 13.80/13.94
04 – SCL – 280 - PM 4.50/6.00
04 - SCL - 880 – PM 0.00/1.00
EA 44560K
October 2010

This Project Study Report (PSR) has been prepared under the direction of the following Registered Engineer. The registered Civil Engineer attests to the technical information contained herein and has judged the qualifications of any technical specialists providing engineering data upon which recommendations, conclusions, and decisions are based.

10/20/10

REGISTERED CIVIL ENGINEER *DATE*

Richard Tanaka
Mark Thomas & Company, Inc.
1960 Zanker Road
San Jose, CA 95112

ATTACHMENT N-1

PRELIMINARY COST ESTIMATE

BUILD ALTERNATIVE WITH NB I-280/WINCHESTER BOULEVARD 5-LEGGED INTERSECTION DESIGN OPTION

DIST - CO - RTE	04-SCL-880/17/280
PSR, PR, etc.:	PSR
Program Code:	
PM:	880 - PM 0.00-01.00
	17 - PM 13.80-13.94
	280 - PM 04.50-06.00
EA:	44560K
PP No. :	

Project Description:

Limits: **Along I-880 between I-280 and Bascom Ave**
Along I-280 between I-880 and Winchester Blvd

Proposed Improvements: **Build Alternative with I-280/Winchester Boulevard 5-legged Intersection Design Optior**

This Build Alternative includes the following:

- I-880/STEVENS CREEK BLVD INTERCHANGE IMPROVEMENTS

Reconstruct NB I-880/Stevens Creek Interchange to a partial clover leaf configuration

Reconstruct SB I-880/Stevens Creek Interchange to a diamond configuration

Construct Direct Connector Ramp from NB I-280 to NB I-880

Widen Stevens Creek Blvd Overcrossing

Construct Monroe Dedicated Lane from the NB I-880/Stevens Creek Boulevard Off-ramp

- WINCHESTER OFF-RAMP (5-LEGGED INTERSECTION)

Reconfigure NB I-280 On Ramp (from end of NB I-880 to NB I-280 Loop Ramp) to join SB I-880 to NB I-280 Direct Connector Ramp

Construct new NB I-280 Elevated Off Ramp to Winchester Blvd/Tisch Way Intersection

	CURRENT VALUE[1]	ESCALATED[2]	ROUNDED
CONSTRUCTION PHASE			
(1) ROADWAY ITEMS	$55,000,000	$63,760,074	$63,800,000
(2) STRUCTURE ITEMS	$41,300,000	$47,878,019	$47,900,000
SUBTOTAL CONSTRUCTION COST[4]	$96,300,000	$111,638,093	$111,700,000
(3) RIGHT OF WAY & UTILITY[5]	$9,600,000	$11,113,200 [3]	$11,120,000
SUBTOTAL CONSTRUCTION PHASE	$105,900,000	$122,751,293	$122,820,000
CAPITAL OUTLAY SUPPORT			
(1) ENGINEERING (@18% OF CONSTR COST)	$17,330,000	$18,936,959	$19,000,000
(2) RIGHT OF WAY SUPPORT (@12% OF ROW & UTILITY COST)	$1,150,000	$1,256,636	$1,300,000
(3) CONSTRUCTION SUPPORT (@15% OF CONSTR COST)	$14,450,000	$17,254,056	$17,300,000
SUBTOTAL CAPITAL OUTLAY SUPPORT	$32,930,000	$37,447,651	$37,600,000
TOTAL PROJECT COST	**$138,800,000**		**$160,400,000**

Reviewed by Project Engineer	Ivy To	(408) 453-5373	10/19/10
Approved by Project Manager	Daniel Ho	(408) 453-5373	10/19/10 (Date)

[1] CURRENT VALUE REFLECTS 2010 DOLLARS
[2] COSTS ARE ESCALATED TO 2014 DOLLARS AT 3%/YEAR
[3] COSTS ARE ESCALATED TO 2013 DOLLARS AT 5%/YEAR
[4] INCLUDES 20% CONTINGENCY
[5] INCLUDES 25% CONTINGENCY

DIST - CO - RTE: **04-SCL-880/17/280**
PSR, PR, etc.: **PSR**
Program Code:
PM: **880 - PM 0.00-01.00**
17 - PM 13.80-13.94
280 - PM 04.50-06.00
EA: **44560K**
PP No. :

Project Description:

Limits: Along I-280 between I-880 and Winchester Blvd.

Proposed Improvements: **Winchester Off Ramp (ONLY)**
of Build Alternative with 5-legged Intersection Design Option

- Reconfigure NB 280 on ramp to join NB 880 to NB 280 loop on ramp.
- Construct New NB 280 off ramp elevated Structure to Winchester Blvd.

	CURRENT	ESCALATED	ROUNDED
(1) ENGINEERING		$0	$0
(2) RIGHT OF WAY & UTILITY	$4,384,000		$0
(3) CONSTRUCTION PHASE			
ROADWAY ITEMS	$24,710,000		$0
STRUCTURE ITEMS	$33,110,000		$0
SUBTOTAL CONSTRUCTION PHASE	$57,820,000	$0	$0
TOTAL PHASE COST	$62,200,000		**$0**

Reviewed by Project Engineer Ivy To (408) 453-5373 10/19/10

Approved by Project Manager Daniel Ho (408) 453-5373 10/19/10 (Date)

DIST - CO - RTE: 04-SCL-880/17/280
PSR, PR, etc.: PSR
Program Code:
PM: 880 - PM 0.00-01.00
17 - PM 13.80-13.94
280 - PM 04.50-06.00
EA: 44560K
PP No. :

I. ROADWAY ITEMS

	Quantity	Unit	Unit Price	Unit Cost	Section Cost
Section 1 - Earthwork					
Imported Borrow	0	TON	$9	$0	
Roadway Excavation	68,200	CY	$30	$2,046,000	
Roadway Excavation (ADL)	3,000	CY	$60	$180,000	
Remove Base & Surfacing	99,000	SF	$1	$99,000	
Clearing & Grubbing	1	LS	$80,000	$80,000	
Develop Water Supply	1	LS	$20,000	$20,000	
				Total Earthwork	$2,425,000
Section 2 - Structural Section*					
Hot Mix Asphalt (Type A)	10,500	TON	$105	$1,102,500	
Rubberized Hot Mix Asphalt	4,700	TON	$112	$526,400	
Aggregate Base	9,400	CY	$50	$470,000	
Cold Plane AC Pavement	7,300	SF	$2	$14,600	
Aggregate Subbase	14,000	CY	$29	$406,000	
Place AC Dike	0	LF	$5	$0	
				Total Structural Section	$2,520,000
Section 3 - Drainage					
Rdwy Drainage (15% Sec 1&2)	1	LS	$750,000	$750,000	
Pump Station	1	LS	$1,200,000	$1,200,000	
				Total Drainage	$1,950,000

*The following are the structural section depths for all pavement sections:

RHMA	0.2 ft
HMA	0.45 ft
AB	0.9 ft
AS	1.35 ft

DIST - CO - RTE: 04-SCL-880/17/280
PSR, PR, etc.: PSR
Program Code:
PM: 880 - PM 0.00-01.00
17 - PM 13.80-13.94
280 - PM 04.50-06.00
EA: 44560K
PP No. :

	Quantity	Unit	Unit Price	Unit Cost	Section Cost
Section 4 - Specialty Items					
Sound Wall	3,300	SF	$51	$168,300	
Retaining Wall (Type 1)	25,910	SF	$102	$2,642,820	
Water Assessment	1	LS	$20,000	$20,000	
Chain Link Fence	1,700	LF	$31	$52,700	
Concrete Curb & Gutter	700	LF	$42	$29,400	
Minor Concrete (Sidewalk)	3,700	SF	$9	$33,300	
Remove Chain Link Fence	0	LF	$0	$0	
Metal Beam Guard Railing	500	LF	$48	$24,000	
Environmental Mitigation	1	LS	$200,000	$200,000	
Concrete Barrier	4,200	LF	$80	$336,000	
Prepare SWPPP	1	LS	$5,000	$5,000	
WPC - Water Quality	1	LS	$300,000	$300,000	
Temporary Water Pollution Control	1	LS	$60,000	$60,000	
Additional Water Pollution Control	1	LS	$36,000	$36,000	
Non-Storm Water Discharges	1	LS	$50,000	$50,000	
Temp Construction Site BMPs	1	LS	$190,000	$190,000	
Permament Treatment BMPs	1	LS	$270,000	$270,000	
Design Pollutions Prevention BMPs	1	LS	$153,000	$153,000	
				Total Specialty Items	$4,571,000
Section 5 - Traffic Items					
Lighting	1	LS	$120,000	$120,000	
Traffic Signals	0	EA	$0	$0	
Signal Modification	1	EA	$300,000	$300,000	
Remove Existing Lighting	0	LS	$0	$0	
Permanent Signing	1	LS	$20,000	$20,000	
Overhead Signing	2	EA	$50,000	$100,000	
Traffic Operation System	1	LS	$160,000	$160,000	
Traffic Control Systems	1	LS	$750,000	$750,000	
Striping	42,000	LF	$2	$84,000	
Crash Cushion Module	0	EA	$0	$0	
Relocate Ramp Meters	1	EA	$80,000	$80,000	
Pavement Marking	1,900	SF	$4	$7,600	
Stage Contruction	1	LS	$2,080,000	$2,080,000	
TMP	1	LS	$500,000	$500,000	
				Total Traffic Items	$4,202,000
Section 6 - Planting and Irrigation					
Highway Planting	1	LS	$382,000	$382,000	
Replacement Planting	1	LS	$860,000	$860,000	
Irrigation Modification & Relocating	1	LS	$175,000	$175,000	
Irrigation Crossovers	1	LS	$15,000	$15,000	
				Subtotal Planting and Irrigation Section	$1,432,000
Section 7 - Roadside Management and Safety Section					
Gore Area Pavement	95	CY	$400	$38,000	
Erosion Control	5,000	SY	$3	$15,000	
Side Slopes/Embankment Slopes	100	CY	$700	$70,000	
Maintenance Vehicle Pull outs	1	EA	$8,000	$8,000	
Construction Site Management	1	LS	$200,000	$200,000	
				Subtotal Roadside Management and Safety Section	$331,000
				TOTAL SECTIONS: 1 thru 7	$17,431,000

DIST - CO - RTE: **04-SCL-880/17/280**
PSR, PR, etc.: **PSR**
Program Code: **4257**
PM: **880 - PM 0.00-01.00**
17 - PM 13.80-13.94
280 - PM 04.50-06.00
EA: **44560K**
PP No. :

				Unit Cost	Section Cost
Section 8 - Minor Items					
Subtotal Sections 1 - 7	$17,431,000	X	5%	$871,550	
TOTAL MINOR ITEMS:					$872,000
Section 9 - Roadway Mobilization					
Subtotal Sections 1 - 7	$17,431,000				
Minor Items	$872,000				
Sum	$18,303,000	X	10%	$1,830,300	
TOTAL ROADWAY MOBILIZATION					$1,831,000
Section 10 - Roadway Additions					
Supplemental Work					
Subtotal Sections 1 - 7	$17,431,000				
Minor Items	$872,000				
Sum	$18,303,000	X	5%	$915,150	
Contingencies					
Subtotal Sections 1 - 7	$17,431,000				
Minor Items	$872,000				
Sum	$18,303,000	X	20%	$3,660,600	
TOTAL ROADWAY ADDITIONS					$4,576,000
TOTAL ROADWAY ITEMS (Total of Sections 1 - 10)					$24,710,000

Estimate Prepared By:	Ivy To	(408) 453-5373	10/19/10
	(Print Name)	(Phone)	(Date)

DIST - CO - RTE: 04-SCL-880/17/280
PSR, PR, etc.: PSR
Program Code:
PM: 880 - PM 0.00-01.00
17 - PM 13.80-13.94
280 - PM 04.50-06.00
EA: 44560K
PP No. :

II. STRUCTURES ITEMS

Bridge Name	Winch offramp	Ped crossing	NB17-NB280 Culvert	Winch OC
Structure Type	Box Girder	Box Girder	Precast Slab	Box Girder
Width (ft) - out to out	37.1(avg)	10.00	37.33	10.00
Span Length (ft)	1,765.0	1,100.0	487.0	240.0
Total Area (ft^2)	65,482	11,000	18,180	2,400
Footing Type (pile/spread)	Pile	Pile	CDSM	Pile
Cost per Sq. Ft.	$273	$291	$583	$415
Including: Mobilization: 10% Contingency: 20%				
Remove OC		$200,000		
Total Cost For Structure	$17,900,000	$3,410,000	$10,600,000	$1,000,000

TOTAL STRUCTURES ITEMS $33,110,000

COMMENTS:

Estimate Prepared By:	Ivy To	(408) 453-5373	10/19/10
	(Print Name)	(Phone)	(Date)

DIST - CO - RTE: 04-SCL-880/17/280
PSR, PR, etc.: PSR
Program Code:
PM: 880 - PM 0.00-01.00
17 - PM 13.80-13.94
280 - PM 04.50-06.00
EA: 44560K
PP No. :

III. RIGHT OF WAY

Right-of-Way estimates should consider the probable highest and best use and type and intent of improvements at the time of acquisition. Assume acquisition including utility reloctaion occurs at the right of way certification milestone as shown in the Funding and Scheduling Section of the PSR. For further guidance see Chapter 1, Caltrans Right of Way Procedural Handbook.

	Current Values (Future Use)	Escalation Rate (%/yr)	Escalated Value
Acquisition, including excess lands and damages to remainders	$235,000 *	5.00%	$272,042
Utility Relocation	$3,000,000	5.00%	$3,472,875
Clearance / Demolition			$0
RAP	$0	5.00%	$0
R/W Services - Title and Escrow Fees	$80,000	5.00%	$92,610
CONSTRUCTION CONTRACT WORK			$0
Temporary Easement	$192,000	5.00%	$222,264
Wetland Mitigation			$0
TOTAL RIGHT OF WAY (CURRENT VALUE)	$3,507,000	TOTAL ESCALATED RIGHT OF WAY	$4,060,000
TOTAL RIGHT OF WAY (CURRENT VALUE) 25% Contingency	$4,384,000	TOTAL ESCALATED RIGHT OF WAY 25% Contingency	$5,075,000

Estimate Prepared By: Ivy To (Print Name) (408) 453-5373 (Phone) 10/19/10 (Date)

ATTACHMENT N-2

PRELIMINARY COST ESTIMATE

BUILD ALTERNATIVE WITH NB I-280/WINCHESTER BOULEVARD HOOK-RAMP DESIGN OPTION

DIST - CO - RTE	04-SCL-880/17/280
PR, PSR, etc.:	PSR
Program Code:	
PM:	880 - PM 0.00-01.00
	17 - PM 13.80-13.94
	280 - PM 04.50-06.00
EA:	44560K
PP No. :	

Project Description:

Limits: Along I-880 between I-280 and Bascom Ave
Along I-280 between I-880 and Winchester Blvd

Proposed Improvements: BUILD ALTERNATIVE with I-280/Winchester Boulevard Hook Off-Ramp Design Option

This Build Alternative includes the following:

- I-880/STEVENS CREEK BLVD INTERCHANGE IMPROVEMENTS

Reconstruct NB I-880/Stevens Creek Interchange to a partial clover leaf configuration
Reconstruct SB I-880/Stevens Creek Interchange to a diamond configuration
Construct Direct Connector Ramp from NB I-280 to NB I-880
Widen Stevens Creek Blvd Overcrossing
Construct Monroe Dedicated Lane from the NB I-880/Stevens Creek Boulevard Off-ramp

- WINCHESTER OFF-RAMP (HOOK RAMP)

Reconfigure NB I-280 On Ramp (from end of NB I-880 to NB I-280 Loop Ramp)
to join SB I-880 to NB I-280 Direct Connector Ramp
Construct new NB I-280 Elevated Off Ramp to Tisch Way

	CURRENT VALUE[1]	ESCALATED[2]	ROUNDED
CONSTRUCTION PHASE			
(1) ROADWAY ITEMS	$55,900,000	$64,803,421	$64,900,000
(2) STRUCTURE ITEMS	$66,600,000	$77,207,653	$77,300,000
SUBTOTAL CONSTRUCTION COST[4]	$122,500,000	$142,011,074	$142,200,000
(3) RIGHT OF WAY & UTILITY[5]	$10,500,000	$12,155,063 [3]	$12,160,000
SUBTOTAL CONSTRUCTION PHASE	$133,000,000	$154,166,137	$154,360,000
CAPITAL OUTLAY SUPPORT			
(1) ENGINEERING (@18% OF CONSTR COST)	$22,050,000	$24,094,630	$24,100,000
(2) RIGHT OF WAY SUPPORT (@12% OF ROW & UTILITY COST)	$1,260,000	$1,376,836	$1,400,000
(3) CONSTRUCTION SUPPORT (@15% OF CONSTR COST)	$18,380,000	$21,946,681	$22,000,000
SUBTOTAL CAPITAL OUTLAY SUPPORT	$41,690,000	$47,418,148	$47,500,000
TOTAL PROJECT COST	**$174,700,000**		**$201,900,000**

Reviewed by Project Engineer	Ivy To	(408) 453-5373	10/19/10
Approved by Project Manager	Daniel Ho	(408) 453-5373	10/19/10 (Date)

[1] CURRENT VALUE REFLECTS 2010 DOLLARS
[2] COSTS ARE ESCALATED TO 2014 DOLLARS AT 3%/YEAR
[3] COSTS ARE ESCALATED TO 2013 DOLLARS AT 5%/YEAR
[4] INCLUDES 20% CONTINGENCY
[5] INCLUDES 25% CONTINGENCY

DIST - CO - RTE: 04-SCL-880/17/280
PSR, PR, etc.: PSR
Program Code:
PM: 880 - PM 0.00-01.00
17 - PM 13.80-13.94
280 - PM 04.50-06.00
EA: 44560K
PP No. :

Project Description:

Limits: Along I-280 between I-880 and Winchester Blvd.

Proposed Improvements: **Winchester Off Ramp (ONLY)**
of Build Alternative with Hook Off-Ramp Design Option

- Reconfigure NB 280 on ramp to join NB 880 to NB 280 loop on ramp.
- Construct New NB 280 off ramp elevated Structure to Winchester Blvd.

	CURRENT	ESCALATED	ROUNDED
(1) ENGINEERING		$0	$0
(2) RIGHT OF WAY & UTILITY	$5,288,000		$0
(3) CONSTRUCTION PHASE			
ROADWAY ITEMS	$25,580,000		$0
STRUCTURE ITEMS	$58,410,000		$0
SUBTOTAL CONSTRUCTION PHASE	$83,990,000	$0	$0
TOTAL PHASE COST	$89,300,000		**$0**

Reviewed by Project Engineer Ivy To (408) 453-5373 10/19/10

Approved by Project Manager Daniel Ho (408) 453-5373 10/19/10 (Date)

DIST - CO - RTE: 04-SCL-880/17/280
PSR, PR, etc.: PSR
Program Code:
PM: 880 - PM 0.00-01.00
17 - PM 13.80-13.94
280 - PM 04.50-06.00
EA: 44560K
PP No. :

I. ROADWAY ITEMS

	Quantity	Unit	Unit Price	Unit Cost	Section Cost
Section 1 - Earthwork					
Imported Borrow	0	CY	$15	$0	
Roadway Excavation	68,200	CY	$30	$2,046,000	
Roadway Excavation (ADL)	3,000	CY	$60	$180,000	
Remove Base & Surfacing	99,000	SF	$1	$99,000	
Clearing & Grubbing	1	LS	$80,000	$80,000	
Develop Water Supply	1	LS	$20,000	$20,000	
				Total Earthwork	$2,425,000
Section 2 - Structural Section*					
Hot Mix Asphalt (Type A)	10,000	TON	$105	$1,050,000	
Rubberized Hot Mix Asphalt	4,500	TON	$112	$504,000	
Aggregate Base	8,900	CY	$50	$445,000	
Cold Plane AC Pavement	7,300	SF	$2	$14,600	
Aggregate Subbase	13,000	CY	$29	$377,000	
Place AC Dike	0	LF	$5	$0	
				Total Structural Section	$2,391,000
Section 3 - Drainage					
Rdwy Drainage (15% Sec 1&2)	1	LS	$730,000	$730,000	
Pump Station	1	LS	$1,200,000	$1,200,000	
				Total Drainage	$1,930,000

*The following are the structural section depths for all pavement sections:

RHMA	0.2 ft
HMA	0.45 ft
AB	0.9 ft
AS	1.35 ft

DIST - CO - RTE: 04-SCL-880/17/280
PSR, PR, etc.: PSR
Program Code:
PM: 880 - PM 0.00-01.00
17 - PM 13.80-13.94
280 - PM 04.50-06.00
EA: 44560K
PP No. :

	Quantity	Unit	Unit Price	Unit Cost	Section Cost
Section 4 - Specialty Items					
Sound Wall	3,300	SF	$51	$168,300	
Retaining Wall (Type 1)	29,810	SF	$102	$3,040,620	
Water Assessment	1	LS	$20,000	$20,000	
Chain Link Fence	1,700	LF	$31	$52,700	
Concrete Curb & Gutter	1,200	LF	$42	$50,400	
Minor Concrete (Sidewalk)	7,700	SF	$9	$69,300	
Metal Beam Guard Railing	500	LF	$48	$24,000	
Environmental Mitigation	1	LS	$200,000	$200,000	
Concrete Barrier	9,900	LF	$80	$792,000	
Prepare SWPPP	1	LS	$5,000	$5,000	
WPC - Water Quality	1	LS	$300,000	$300,000	
Temporary Water Pollution Control	1	LS	60,000	$60,000	
Additional Water Pollution Control	1	LS	36,000	$36,000	
Non-Storm Water Discharges	1	LS	50,000	$50,000	
Temp Construction Site BMPs	1	LS	220,000	$220,000	
Permanent Treatment BMPs	1	LS	270,000	$270,000	
Design Pollutions Prevention BMPs	1	LS	$153,000	$153,000	
				Total Specialty Items	$5,512,000
Section 5 - Traffic Items					
Lighting	1	LS	$120,000	$120,000	
Traffic Signals	1	EA	$250,000	$250,000	
Signal Modification	1	EA	$150,000	$150,000	
Remove Existing Lighting	0	LS	$0	$0	
Permanent Signing	1	LS	$20,000	$20,000	
Overhead Signing	2	EA	$50,000	$100,000	
Traffic Operation System	1	LS	$160,000	$160,000	
Traffic Control Systems	1	LS	$750,000	$750,000	
Striping	45,000	LF	$2	$90,000	
Crash Cushion Module	0	EA	$0	$0	
Relocate Ramp Meters	1	EA	$80,000	$80,000	
Pavement Marking	1,900	SF	$4	$7,600	
Stage Contruction	1	LS	$2,450,000	$2,450,000	
TMP	1	LS	$500,000	$500,000	
				Total Traffic Items	$4,678,000
Section 6 - Planting and Irrigation					
Highway Planting	1	LS	$415,000	$415,000	
Replacement Planting	1	LS	$200,000	$200,000	
Irrigation Modification & Relocating	1	LS	$175,000	$175,000	
Irrigation Crossovers	1	LS	$15,000	$15,000	
				Subtotal Planting and Irrigation Section	$805,000
Section 7 - Roadside Management and Safety Section					
Gore Area Pavement	95	CY	$400	$38,000	
Erosion Control	5,000	SY	$3	$15,000	
Side Slopes/Embankment Slopes	52	CY	$700	$36,400	
Maintenance Vehicle Pull outs	1	EA	$8,000	$8,000	
Construction Site Management	1	LS	$200,000	$200,000	
				Subtotal Roadside Management and Safety Section	$298,000
				TOTAL SECTIONS: 1 thru 7	$18,039,000

DIST - CO - RTE **04-SCL-880/17/280**
PSR, PR, etc.: **PSR**
Program Code:
PM: **880 - PM 0.00-01.00**
17 - PM 13.80-13.94
280 - PM 04.50-06.00
EA: **44560K**
PP No. :

			Unit Cost	Section Cost
Section 8 - Minor Items				
Subtotal Sections 1 - 7	$18,039,000	X 5%	$901,950	
TOTAL MINOR ITEMS:				$902,000
Section 9 - Roadway Mobilization				
Subtotal Sections 1 - 7	$18,039,000			
Minor Items	$902,000			
Sum	$18,941,000	X 10%	$1,894,100	
TOTAL ROADWAY MOBILIZATION				$1,895,000
Section 10 - Roadway Additions				
Supplemental Work				
Subtotal Sections 1 - 7	$18,039,000			
Minor Items	$902,000			
Sum	$18,941,000	X 5%	$947,050	
Contingencies				
Subtotal Sections 1 - 7	$18,039,000			
Minor Items	$902,000			
Sum	$18,941,000	X 20%	$3,788,200	
TOTAL ROADWAY ADDITIONS				$4,736,000
TOTAL ROADWAY ITEMS (Total of Sections 1 - 10)				$25,580,000

Estimate Prepared By:	Ivy To	(408) 453-5373	10/19/10
	(Print Name)	(Phone)	(Date)

DIST - CO - RTE **04-SCL-880/17/280**
PSR, PR, etc.: **PSR**
Program Code:
PM: **880 - PM 0.00-01.00**
17 - PM 13.80-13.94
280 - PM 04.50-06.00
EA: **44560K**
PP No. :

II. STRUCTURES ITEMS

Bridge Name	Winch offramp	Ped crossing	NB17-NB280 Culvert
Structure Type	Box Girder	Box Girder	Precast Slab
Width (ft) - out to out	39.00(avg)	10.00	37.33
Span Length (ft)	1,873.0	1,100.0	487.0
Total Area (ft^2)	73,047	11,000	18,180
Footing Type (pile/spread)	Pile	Pile	CDSM
Cost per Sq. Ft.	$605	$291	$583
Including: Mobilization: 10% Contingency: 20%			
Remove OC		$200,000	
Total Cost For Structure	$44,200,000	$3,410,000	$10,600,000

TOTAL STRUCTURES ITEMS $58,410,000

COMMENTS:

Estimate Prepared By:	Ivy To	(408) 453-5373	10/19/10
	(Print Name)	(Phone)	(Date)

DIST - CO - RTE **04-SCL-880/17/280**
PSR, PR, etc.: **PSR**
Program Code:
PM: **880 - PM 0.00-01.00**
17 - PM 13.80-13.94
280 - PM 04.50-06.00
EA: **44560K**
PP No. :

III. RIGHT OF WAY

Right-of-Way estimates should consider the probable highest and best use and type and intent of improvements at the time of acquisition. Assume acquisition including utility relocataion occurs at the right of way certification milestone as shown in the Funding and Scheduling Section of the PSR. For further guidance see Chapter 1, Caltrans Right of Way Procedural Handbook.

	Current Values (Future Use)	Escalation Rate (%/yr)	Escalated Value
Acquisition, including excess lands and damages to remainders	$820,000 *	5.00%	$949,253
Utility Relocation	$3,000,000	5.00%	$3,472,875
Clearance / Demolition			$0
RAP	$0	5.00%	$0
R/W Services - Title and Escrow Fees	$80,000	5.00%	$92,610
CONSTRUCTION CONTRACT WORK			$0
Temporary Easement	$330,000	5.00%	$382,016
Wetland Mitigation			$0
TOTAL RIGHT OF WAY (CURRENT VALUE)	$4,230,000	TOTAL ESCALATED RIGHT OF WAY	$4,897,000
TOTAL RIGHT OF WAY (CURRENT VALUE) 25% Contingency	$5,288,000	TOTAL ESCALATED RIGHT OF WAY 25% Contingency	$6,122,000

Estimate Prepared By: Ivy To (Print Name) | (408) 453-5373 (Phone) | 10/19/10 (Date)