CITY OF HAYWARD

Hayward City Hall
777 B Street
Hayward, CA 94541
www.Hayward-CA.gov

Agenda

Wednesday, February 23, 2022

5:30 PM

Remote Participation

SPECIAL MEETING
Council Infrastructure Committee

SPECIAL MEETING

COVID-19 Notice: Consistent with Assembly Bill 361/Gov Code 54953(e), the Council Infrastructure Committee meeting includes teleconference participation by all Council Infrastructure Committee member and the public.

To submit written comments: Send an email to kathy.garcia@hayward-ca.gov by 1:00 p.m. the day of the meeting.

Please identify the Agenda Item Number in the subject line of your email. Emails will be compiled into one file, distributed to the Council Infrastructure Committee and City staff, and published on the City's Meeting and Agenda Center under Documents Received After Published Agenda.

Please click the link below to join the webinar:

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Passcode: CIC@022322

Or Telephone: US: +1 669 900 6833
Webinar ID: 867 6457 6506
Passcode: 3705432557

CALL TO ORDER

ROLL CALL

PUBLIC COMMENTS:

REPORTS/ACTION ITEMS

1. ACT 22-016 Review of Draft Traffic Impact Fee Recommendations

Attachments: Attachment I Staff Report
Attachment II TIF Nexus Study

ORAL REPORTS

FUTURE AGENDA ITEMS

COMMITTEE MEMBER/STAFF ANNOUNCEMENTS AND REFERRALS

ADJOURNMENT

Next Regular Meeting: Wednesday, April 27, 2022

File #: ACT 22-016

DATE: February 23, 2022

TO: Council Infrastructure Committee

FROM: Director of Public Works

SUBJECT

Review of Draft Traffic Impact Fee Recommendations

RECOMMENDATION

That the Council Infrastructure Committee (CIC) reviews and provides feedback and recommends approval of the Traffic Impact Fee program structure to Council.

SUMMARY

A traffic impact fee (TIF) is a one-time fee imposed on new development projects to help mitigate the cumulative transportation impacts of development growth. As importantly, a TIF will bring much-needed certainty to Hayward's development process at the onset of the application process.

TIFs imposed on new development are linked to the concept that traffic generated by the proposed development will cause a nearby traffic deficiency, such as an intersection exceeding a specific level of service or capacity. A TIF does not replace any transportation analysis requirements imposed by the California Environmental Quality Act (CEQA). Also, while a TIF addresses cumulative impacts of all future development projects, it does not address specific or direct impacts from a proposed development. As a result, in some cases, a Local Transportation Analysis (LTA) may still be necessary.

Traffic consultants TJKM prepared The Multimodal Improvement Plan and TIF Nexus Study (Attachment II) that identifies locations of future traffic deficiencies as a result of future development, develops mitigations to these deficiencies, calculates total cost of capital improvements required to implement the mitigations, and provides a calculated maximum allowable traffic fee that would be legally defensible based on projected cumulative traffic impact from different development types.

Economic consultants Community Attributes, Inc., (CAI) reviewed the Nexus Study and assisted the City in developing recommendations for adopting appropriate fees, below the maximum allowable, based on current economic conditions and development feasibility and to maintain competitive overall development fees when compared to surrounding jurisdictions.

Staff recommends the following:

1. Reduce fees for residential developments by 70% and non-residential developments by 30%

below the maximum allowable TIF.

- It was determined that these reductions ensure that the City maintains development feasibility while offering competitive rates with surrounding cities.

2. Postpone implementation of a TIF for multi-family, retail, and office developments.

   - These land uses were hit the hardest from the pandemic and are still recovering; additionally, CAI prepared a financial feasibility analysis that demonstrated that a traffic impact fee at this time may disincentivize development of these land uses in the City. As a result, it is recommended to allow more time for these types of development to recover from the pandemic and to re-evaluate their feasibility in several years.

3. Include an automatic annual construction inflation index adjustment.

   - The cost of construction materials normally increases annually due to inflation - an issue that contractors faced even prior to the pandemic. Building material supply chains have been interrupted and labor has become scarce increasing the magnitude of construction inflation costs due to the pandemic. It is typical practice for local jurisdictions to adjust fees to align with inflation related to construction.

4. Reevaluate TIF program after three years.

   - Three years seems like the appropriate amount of time to reevaluate the TIF program as to whether the postponement of the three land uses - multi-family, retail, and office - should continue. The maximum allowable TIF may also require adjusting due to changes in proposed improvements and traffic patterns that are expected to change in the upcoming years from employers allowing employees to telecommute.

A summary of staff recommendations are presented in the table below.

Land Use Category	**Maximum Allowable**	**Reduction from Maximum Allowable**	**Recommended Fee**	**Feasibility Impacts**	**Postponement?**
Single Family Residence / Unit	**$11,431**	**70%**	**$3,429**	**Marginal**	**No**
Multi-Family Residence / Unit	$7,659	-	-	Marginal	Yes, for development feasibility purposes
Retail/ KSF*	$19,203	-	-	Challenged	Yes, for development feasibility purposes
Office / KSF	$16,232	-	-	Challenged	Yes, for development feasibility purposes
General Industrial / KSF	**$4,572**	**30%**	**$3,201**	**Promising**	**No**

Distribution or e-commerce / KSF	**$8,116**	**30%**	**$5,681**	**Promising**	**No**

*ksf is one thousand square feet

ATTACHMENTS

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Attachment II TIF Nexus Study

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Traffic consultants TJKM prepared The Multimodal Improvement Plan and TIF Nexus Study (Attachment II) that identifies locations of future traffic deficiencies as a result of future development, develops mitigations to these deficiencies, calculates total cost of capital improvements required to implement the mitigations, and provides a calculated maximum allowable traffic fee that would be legally defensible based on projected cumulative traffic impact from different development types.

Economic consultants Community Attributes, Inc., (CAI) reviewed the Nexus Study and assisted the City in developing recommendations for adopting appropriate fees, below the maximum allowable, based on current economic conditions and development feasibility and to maintain competitive overall development fees when compared to surrounding jurisdictions.

Staff recommends the following:

1. Reduce fees for residential developments by 70% and non-residential developments by 30% below the maximum allowable TIF.

    - It was determined that these reductions ensure that the City maintains development feasibility while offering competitive rates with surrounding cities.

2. Postpone implementation of a TIF for multi-family, retail, and office developments.

    - These land uses were hit the hardest from the pandemic and are still recovering; additionally, CAI prepared a financial feasibility analysis that demonstrated that a traffic impact fee at this time may disincentivize development of these land uses in the City. As a result, it is recommended to allow more time for these types of development to recover from the pandemic and to re-evaluate their feasibility in several years.

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    - Three years seems like the appropriate amount of time to reevaluate the TIF program as to whether the postponement of the three land uses – multi-family, retail, and office – should continue. The maximum allowable TIF may also require adjusting due to changes in proposed improvements and traffic patterns that are expected to change in the upcoming years from employers allowing employees to telecommute.

A summary of staff recommendations are presented in the table below..

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*ksf is one thousand square feet

BACKGROUND

The Mitigation Fee Act authorizes a local agency to establish, increase, or impose various fees as a condition of approval of a development project, if specified requirements are met. A TIF is a one-time fee imposed on new development projects to help mitigate the cumulative transportation impacts of development growth. As importantly, a TIF will bring much-needed certainty to the City's development process at the onset of the application process.

Unlike most Bay Area cities, the City does not have a TIF, or other private funding mechanism dedicated solely to transportation improvements. Hayward is the only city in Alameda County, besides Albany (population of less than 20,000 people) and Piedmont (population of less than 11,500 people) with no TIF, meaning that Hayward is left with the responsibility of mitigating future traffic impacts generated by developments.

TIFs imposed on new developments are linked to the concept that traffic generated by the proposed development will cause a nearby traffic deficiency, such as an intersection exceeding a specific level of service or capacity. A TIF does not replace any transportation analysis requirements imposed by the California Environmental Quality Act (CEQA) and while a TIF addresses cumulative impacts of all future development projects, it does not address specific or direct impacts from a proposed development. As a result, in some cases, a Local Transportation Analysis (LTA) may still be necessary.

On July 21, 2015, the City executed a Professional Services Agreement with Traffic Consultants TJKM to conduct the Multimodal Improvement Plan and TIF Nexus Study. TJKM prepared The Multimodal Improvement Plan and TIF Nexus Study (Attachment II) that identifies locations of future traffic deficiencies resulting from future development, develops mitigations to these deficiencies, calculates total cost of capital improvements required to implement the mitigations, and provides a calculated maximum allowable traffic fee that would be legally defensible based on projected cumulative traffic impacts from different development types.

A TIF should not be viewed as a deterrent to development activities. On October 20, 2020, four development experts presented a work session item to Council on *Covid-19 Trends and Impacts on the Real Estate Market*. Jason Ovadia, Industrial Development expert, states that TIFs are funding mechanisms cities can use to offset the transportation and infrastructure degradation from the significant increase in traffic generated by new industrial developments and provide for greater upfront certainty for developers in the development review process. A key factor that affects the feasibility of impact fees is the presence of a strong local economy and the financial feasibility of specific land uses. The supply and demand for developable land must be sufficient to absorb the added expense of impact fees.

To ensure that the City's fees are reasonable and would not adversely impact needed developments in the City, after the completion of the Nexus Study in Summer 2021, the City executed a professional services agreement with economic consultants Community Attributes,

Inc., (CAI) on October 7, 2021. CAI reviewed the Nexus Study and assisted the City in developing recommendations for adopting appropriate fee levels based on current development feasibility and on maintaining competitive overall development fees compared to surrounding jurisdictions.

The provisions of AB 602 regarding the calculation of an impact fee based on square footage, instead of per unit, of proposed residential development will apply to the TIF Nexus Study if the fee is not adopted by July 1, 2022. Many cities assess fees on a per-unit basis, which means a five-bedroom penthouse suite and a small studio apartment would be assessed the same impact fee, essentially penalizing the smaller, more naturally affordable, lower-impact housing projects. After July 1, 2022, Council would be required to make specific findings to justify not basing residential impact fees per square footage, as AB 602 requires, and justify continuing to charge residential impact fees per unit.

DISCUSSION

The TIF Nexus Study prepared by traffic consultants TJKM identifies locations of future traffic deficiencies generated by future development, develops mitigations to these deficiencies, calculates total cost of capital improvements required to implement the mitigations, and provides a calculated maximum allowable traffic fee that would be legally defensible based on projected cumulative traffic impact from different development types. The Nexus Study identifies maximum allowable traffic fees for eighteen different land use categories. CAI researched traffic and overall development impact fees from neighboring jurisdictions and provided staff with valuable information for determining the most appropriate recommended fee amount for the TIF. The number and type of land use categories for the TIF vary widely across jurisdictions. Based on review of neighboring jurisdictions, staff narrowed down the eighteen land use categories identified in the Nexus Study to the proposed recommended six land use categories: single-family residential, multi-family residential, retail, office, general industrial, and distribution/e-commerce.

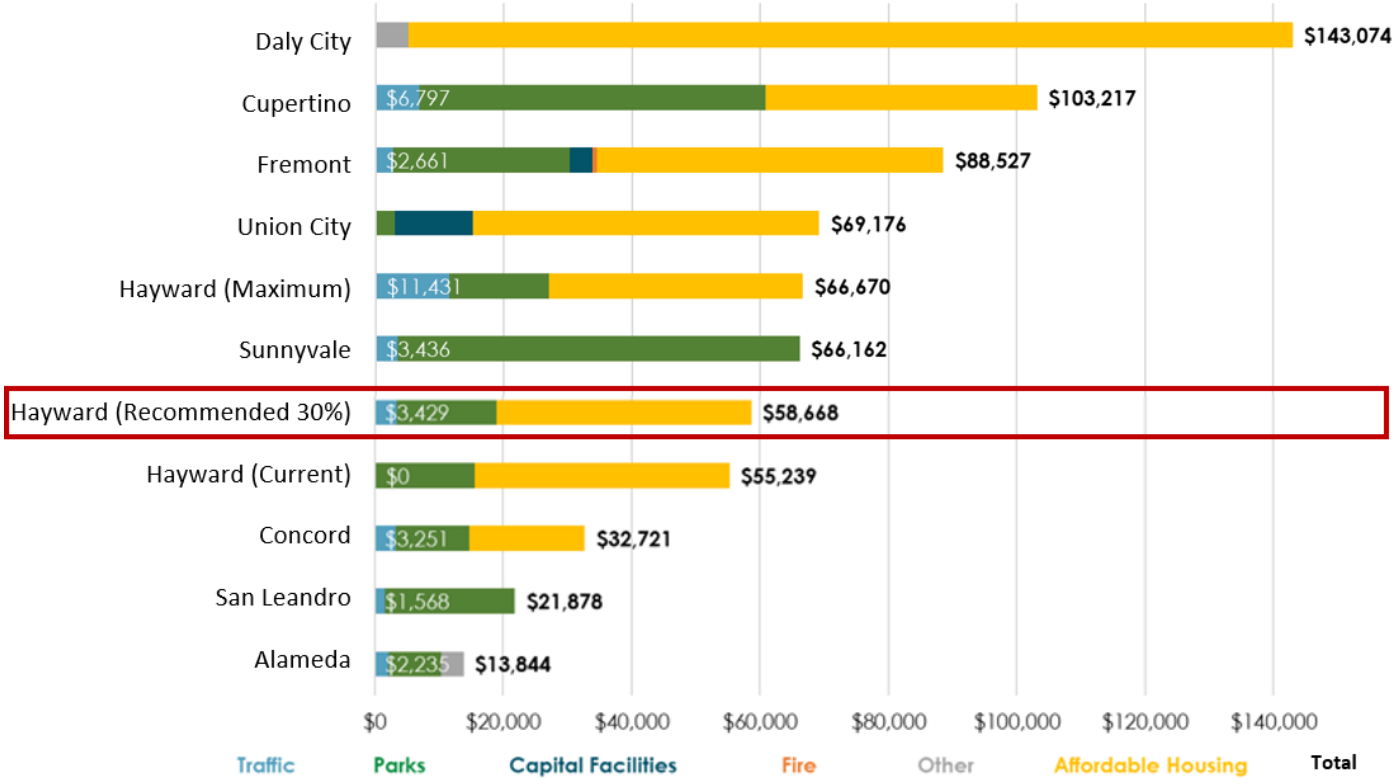
After determining Hayward's TIF land use categories, CAI studied the feasibility of these six development types. The findings and results of this feasibility study are summarized in Table 1.

Table 1. Development Feasibility Study

Land Use Category	Feasibility Findings	Result	Recommend Postponement?
Single-Family Residential	Despite strong sales prices, high development and land costs are challenges; some townhouse development, suggesting that deals are possible. Strong regional demand for housing creates opportunities for Hayward.	Marginal	No
Multi-Family Residential	Some multi-family development has occurred in recent years, though this product is challenged by lease rates that decreased during the pandemic and higher rates of vacancy and credit loss due in part to ongoing eviction moratoria. Given strong regional demand for housing and the prospect that lease rates rebound to pre-pandemic levels, the longer-term prospects for multi-family development are positive.	Marginal	Yes
Retail	Brick and mortar retail faces an uncertain future coming out of the pandemic and achievable lease rates in Hayward generally do not support new construction. Some retail anchors, such as CVS, have adapted in ways that make them more feasible. This trend also affects restaurants, though housing growth will support incremental additions to the retail and restaurant inventory.	Challenged	Yes
Office	The market for office in Hayward is weak and lease rates generally do not support new construction; to that extent that any demand for commercial office exists in Hayward, it is likely to be for medical office in or around the BART stations.	Challenged	Yes
General Industrial	Extremely strong regional demand and Hayward's central location support project feasibility and modeling shows positive residual land value	Promising	No
Distribution/E-commerce	Extremely strong regional demand and Hayward's central location support project feasibility and modeling shows positive residual land value	Promising	No

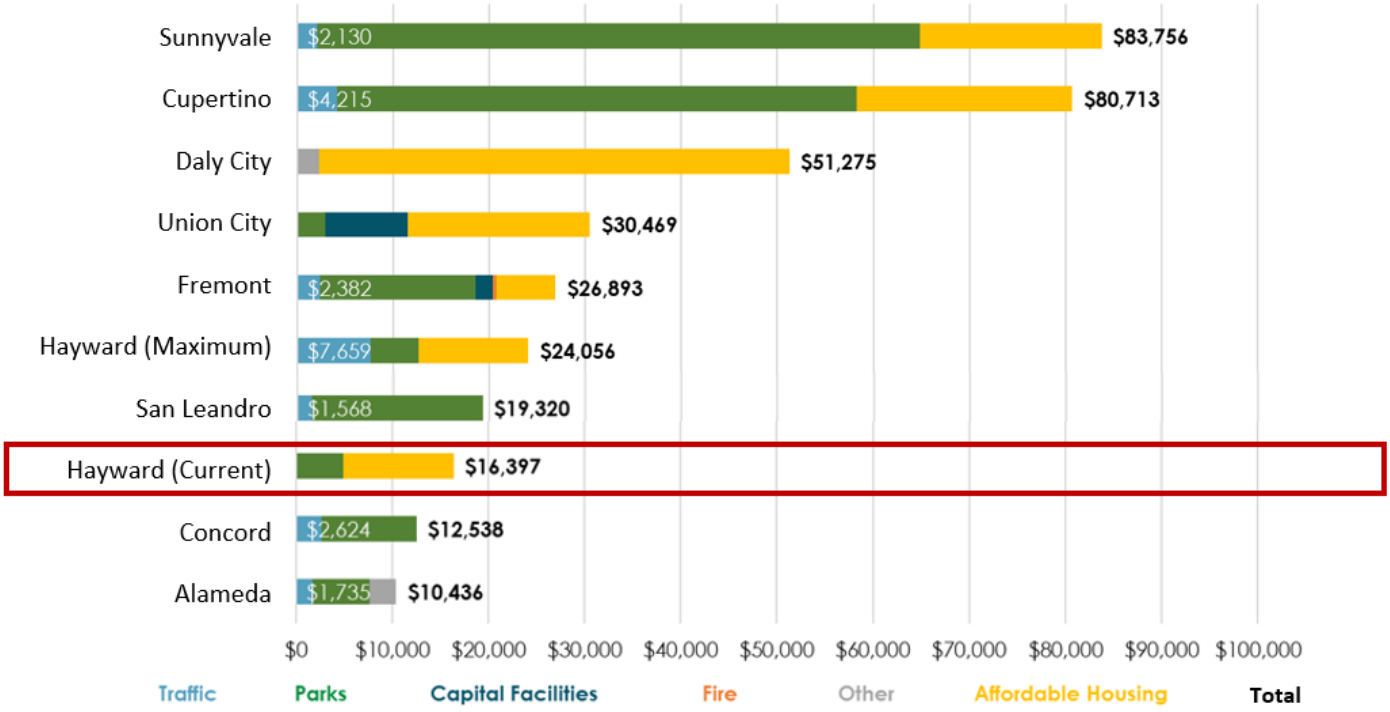
CAI compared traffic impact fees and total cumulative impact fees with selected neighboring cities that are similar in size and location. The following figures show the TIF and cumulative impact fee comparisons with the local cities of Alameda, Concord, Cupertino, Daly City, Fremont, San Leandro, Sunnyvale, and Union City, to Hayward's cumulative impact fee using the maximum allowable TIF, Hayward's cumulative impact fee using the recommended fee, and Hayward's current cumulative impact fee with no TIF.

Figure 1. Single-Family Residential Impact Fee Comparison



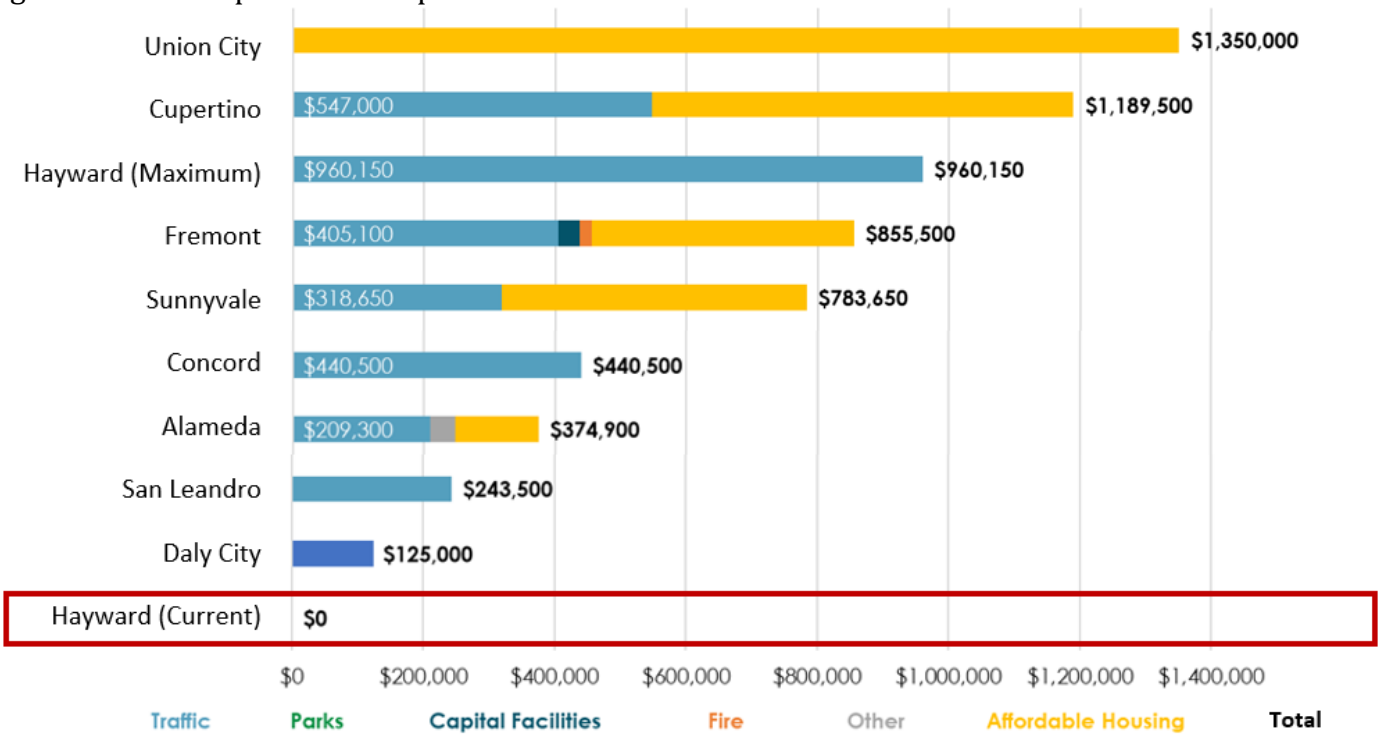
The cumulative impact fee comparison for single-family residential development is depicted in Figure 1 and ranks the fees from highest to lowest. For single-family residential development, Hayward's cumulative impact fee using the maximum allowable TIF, the recommended fee of a 70% reduction, and Hayward's current cumulative impact fee with no TIF rank fifth, seventh, and eighth out of twelve ranks, respectively, when compared to eight other jurisdictions. This seems appropriate given the "marginal" feasibility of this land use based on the CAI feasibility analysis.

Figure 2. Multi-Family Residential Impact Fee Comparison



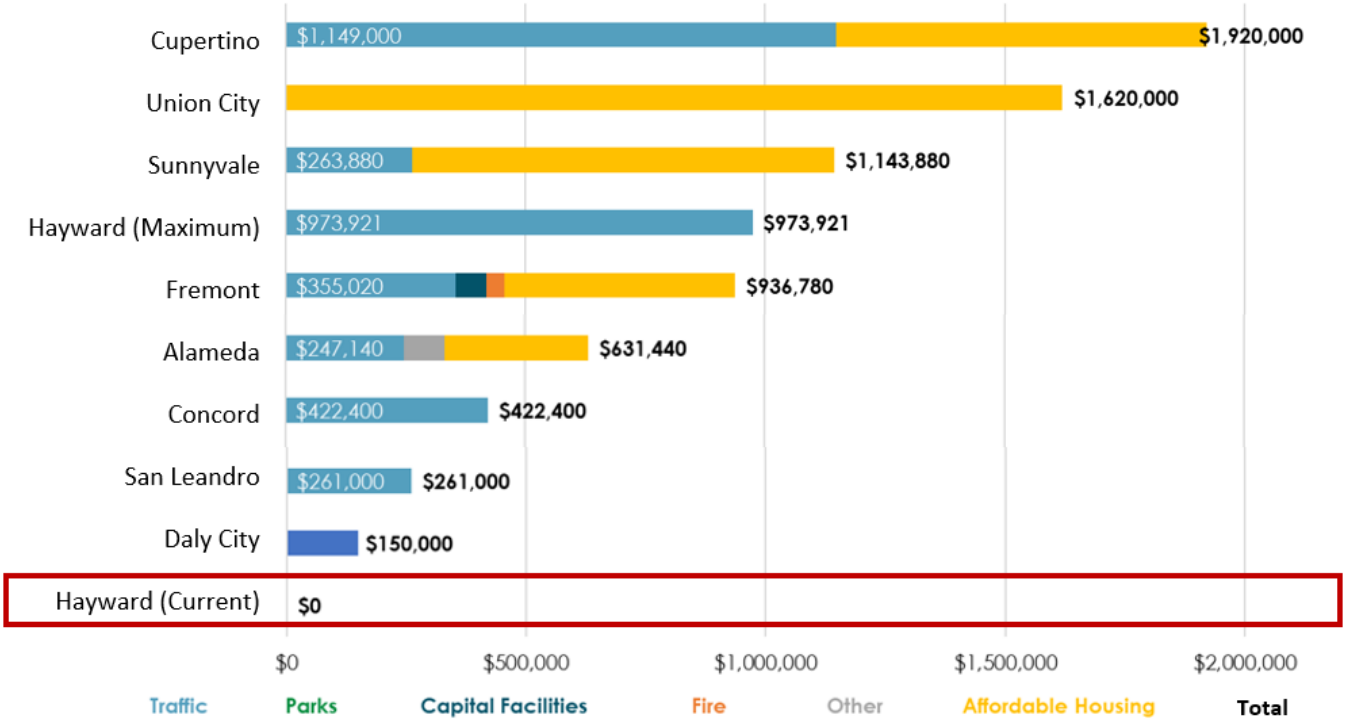
Staff recommends postponing a TIF for multi-family residential land use based on the feasibility challenges posed for this development type and this land use's ongoing recovery from the economic impacts of the pandemic. Considering California's housing crisis, it is in the City's best interest to avoid disincentivizing high-density development and affordable housing at this time. For multi-family residential development, Hayward's cumulative impact fee using the maximum allowable TIF and Hayward's current and recommended cumulative impact fee with no TIF rank sixth and eighth highest out of twelve ranks, respectively, when compared to eight other jurisdictions.

Figure 3. Retail Impact Fee Comparison



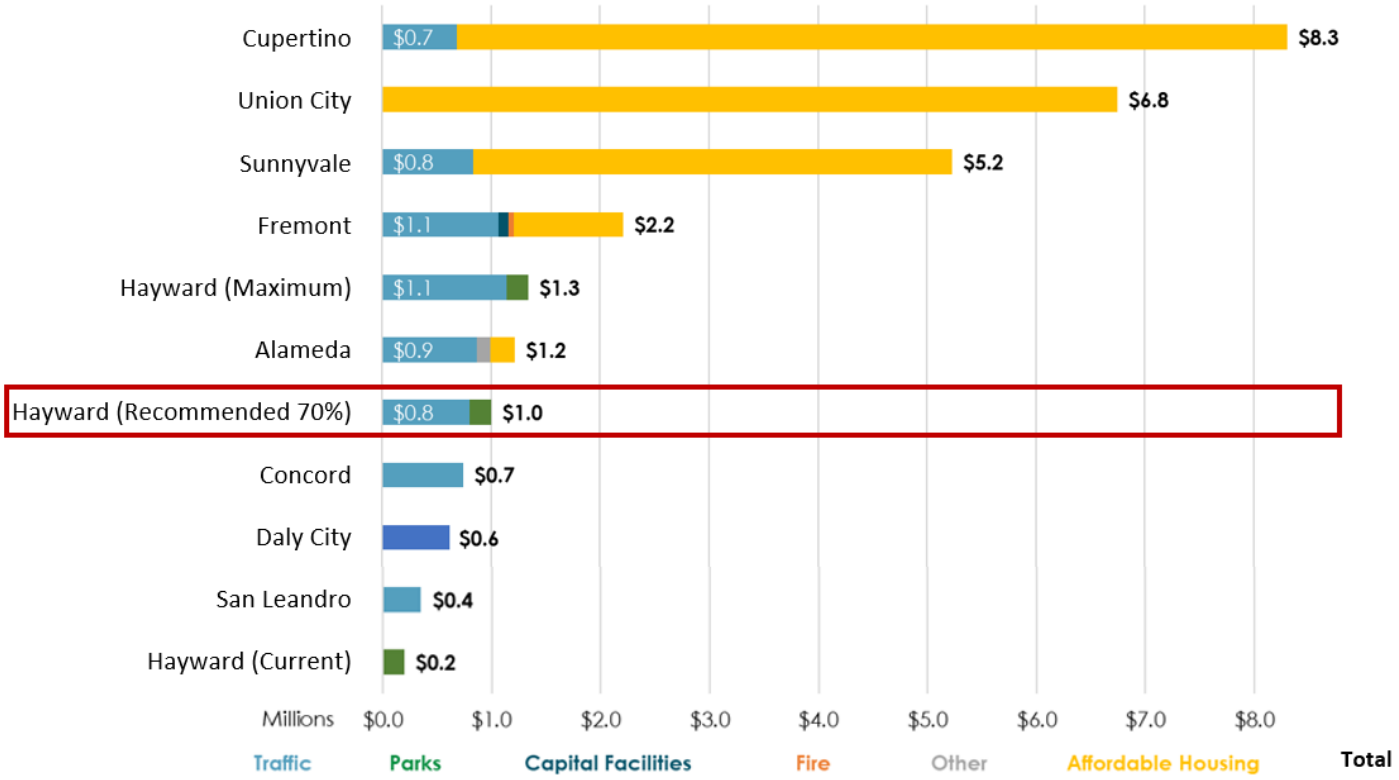
Retail has been one of the businesses hit hardest by pandemic restrictions. Reduced economic activity results in less demand for new commercial retail facilities, and ambiguity about future recovery further dampens investment. To allow more time for retail businesses to recover from the significant impacts of the pandemic, staff recommends postponing the TIF for retail development for three years until the TIF is reevaluated. For retail development, Hayward's cumulative impact fee using the maximum allowable TIF and Hayward's recommended and current cumulative impact fee with no TIF rank third and twelfth (last) highest out of twelve ranks, respectively, when compared to eight other jurisdictions.

Figure 4. Office Impact Fee Comparison



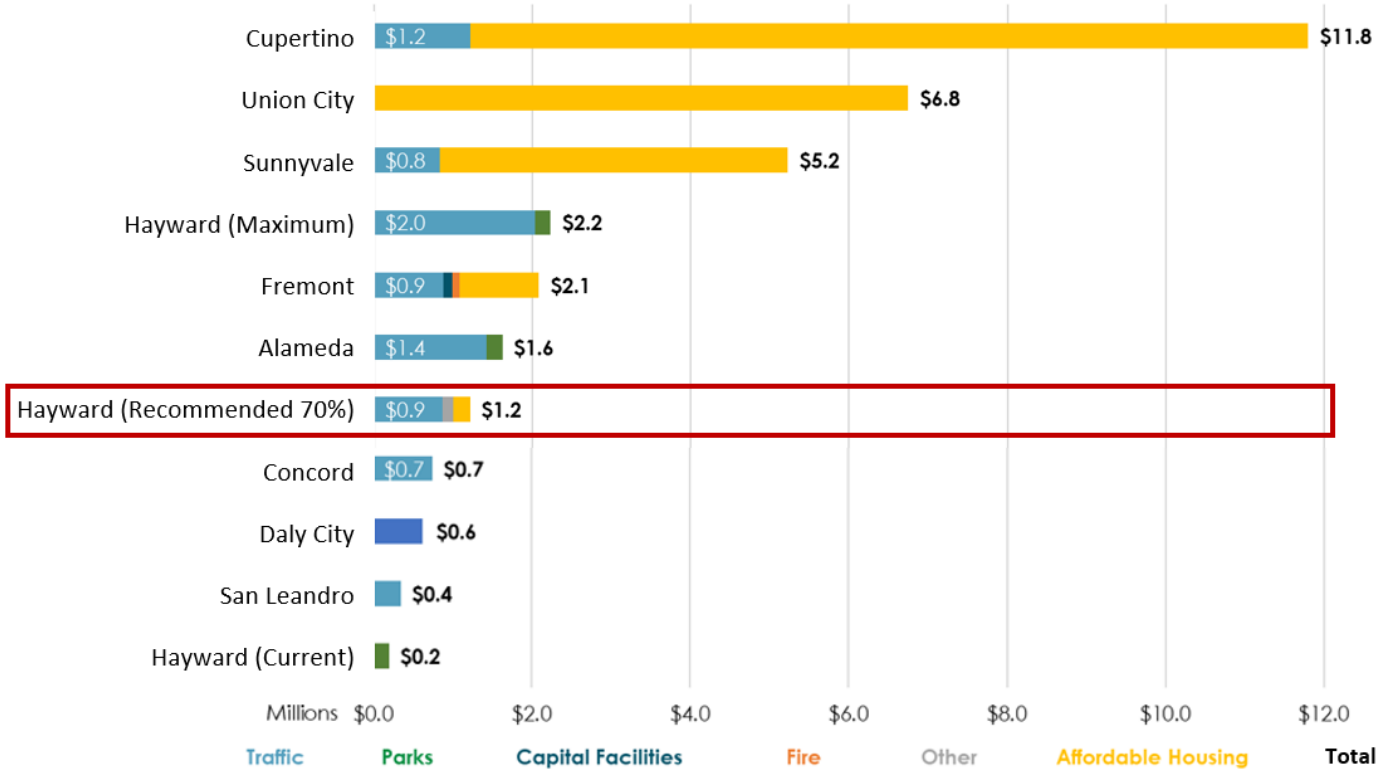
Like retail development, office development has been greatly impacted by pandemic restrictions. The first 16 months of the pandemic, non-essential employees were strictly ordered to telecommute for work resulting in a decrease in demand for office development. As restrictions were lifted, many employers continued to allow employees to telecommute for work either part-time or full-time. For these reasons, staff recommends postponing a TIF for three years to allow more time for the work force to stabilize. For office development, Hayward's cumulative impact fee using the maximum allowable TIF and Hayward's recommended and current cumulative impact fee with no TIF rank fourth and twelfth (last) highest out of twelve ranks, respectively, when compared to eight other jurisdictions.

Figure 5. General Industrial Impact Fee Comparison



Unlike residential, retail, and office development, the industrial economy has not experienced a decrease in demand. In fact, the pandemic restrictions have increased demand for general industrial development. Extremely strong regional demand and Hayward's central location support industrial development feasibility and modeling shows positive residual land value. For general industrial development, Hayward's cumulative impact fee using the maximum allowable TIF, Hayward's recommended traffic impact fee at a 30% reduction, and Hayward's current cumulative impact fee with no TIF rank fifth, seventh, and twelfth (last) highest out of twelve ranks, respectively, when compared to eight other jurisdictions.

Figure 6. Distribution/E-commerce Impact Fee Comparison



Similar to general industrial development, the distribution and e-commerce economy, such as an Amazon last-mile facility, has experienced a dramatic increase in demand. Extremely strong regional demand and Hayward's central location support industrial development feasibility and modeling shows positive residual land value. For distribution/e-commerce development, Hayward's cumulative impact fee using the maximum allowable TIF, Hayward's cumulative impact fee at a 30% reduction, and Hayward's current cumulative impact fee with no TIF rank fourth, sixth, and twelfth (last) highest out of 12 ranks, respectively, when compared to eight other jurisdictions.

Staff recommends the following:

1. Reduce residential developments by 70% and non-residential developments by 30% below the maximum allowable TIF.
    - It was determined that these reductions ensure that the City maintains development feasibility while offering competitive rates with surrounding cities.

2. Postpone implementation of a TIF for multi-family, retail, and office developments.
    - These land uses were hit the hardest from the pandemic and are still recovering; additionally, CAI prepared a financial feasibility analysis that demonstrated that a traffic impact fee at this time may disincentivize development of these land uses in the City. As a result, it is recommended to allow more time for these types of development to recover from the pandemic and to re-evaluate their feasibility in

several years.

3. Include an automatic annual construction inflation index adjustment.
    - The cost of construction materials normally increases annually due to inflation – an issue that contractors faced even prior to the pandemic. Building materials supply chains have been interrupted and labor has become scarce increasing the magnitude of construction inflation costs due to the pandemic. It is typical practice for local jurisdictions to adjust fees to align with inflation related to construction.

4. Reevaluate TIF program after three years.
    - Three years seems like the appropriate amount of time to reevaluate the TIF program as to whether the postponement of the three land uses – multi-family, retail, and office – should continue. The maximum allowable TIF may also require adjusting due to changes in proposed improvements and traffic patterns that are expected to change in the upcoming years from employers allowing employees to telecommute.

A summary of staff recommendations is presented in Table 2 below.

Table 2. Staff Recommendations

Land Use Category	Maximum Allowable	Reduction from Maximum Allowable	Recommended Fee	Feasibility	Postponement?
Single Family Residence / Unit	**$11,431**	**70%**	**$3,429**	**Marginal**	**No**
Multi-Family Residence / Unit	$7,659	-	-	Marginal	Yes, for development feasibility purposes
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*ksf is one thousand square feet

On February 9, 2022, staff held a Stakeholder Meeting to introduce the proposed recommended TIF and solicit feedback from the public. An article publicizing the event was published in The Stack and distributed to subscribers. Additionally, a targeted email with information on how to attend the event was sent to a distribution list of 420 recipients who are involved in some way with Hayward's development process.

The Stakeholder Meeting included less than 10 participants. Feedback received from attendee Zachariah Oquenda could be summarized as general support for the proposed TIF. Mr. Oquenda stated his appreciation for the reasonable fees and the presentation of the jurisdictional comparisons to understand how the implementation of a TIF will affect

Hayward's standing with other local cities. Additionally, Mr. Oquenda asked questions about the reduction of single-family residential fee and whether it should be increased.

An attendee who did not provide a name, provided a comment through the chat box suggesting that the funds collected from the new TIF should be used mostly for improvements to alternative modes of transportation, such as biking, walking, and transit. Staff responded stating that 82% of the TIF fund is dedicated solely to bike and pedestrian improvements and the remaining 18% of the TIF fund is dedicated to vehicular/transit improvements and traffic signal equipment upgrades and improvements that benefit all modes.

Additionally, staff is using the creation of a TIF as an opportunity to evaluate and streamline more comprehensively all of the existing traffic processes for entitlement applications. Developers seek to identify upfront as many costs and risks as possible related to their projects to maximize development feasibility and success. By creating a TIF and clearly identifying the type, cost, and duration of any other local transportation analysis that may be required at the time of permit application, developers will have greater certainty about project feasibility and be more likely to successfully entitle and build their projects. With the goal of minimizing uncertainty, staff is also preparing additional documents, such as a flow chart for determining which traffic analyses will be required for varying types of projects, a Frequently Asked Questions (FAQs) document, and links to easy-to-find resources and guidelines on the transportation webpage for public access at any time.

This CIC meeting is the second of a series of meetings related to the TIF as summarized:

1. February 9, 2022: Stakeholder Meeting to introduce the proposed TIF and solicit feedback from the business/broker/development communities.
2. February 23, 2022: Council Infrastructure Committee review and comment.
3. April 14, 2022: Planning Commission review and comment.
4. May 3, 2022: City Council consideration of recommended approval.

FISCAL IMPACT

A total budget of $700,000 from the Transportation System Improvement Fund (Fund 460) has been allocated for the traffic consultant TJKM for the nexus study of the City's first TIF. The project breakdown is as follows:

Project No.	Project Name	Project Total
05705	Citywide Multi Modal Improvement Study	$400,000
05711	Multi Modal Level of Service Study	$100,000
05274	Traffic Impact Fee Study	$200,000

Approximately $27,500 is remaining of the $700,000 contract.

A total budget of $36,000 has been allocated for the economic consultant, CAI, for support in determining TIF policy recommendations that align with current economic and development activities within Hayward.

TIFs are another source of funds for needed improvements and are commonly viewed in terms of their revenue potential. TIFs are used to offset transportation infrastructure degradation from the significant increase in traffic generated by new developments. TIFs are used to help mitigate the cumulative transportation impacts of development growth, help maintain the City's transportation infrastructure, and not create a long-term liability for the City.

ECONOMIC IMPACT

A TIF will be valuable to the City in ensuring that future developers pay their fair share of needed mitigation measures to minimize future traffic impacts, such as addition of bicycle and pedestrian facilities, installation of traffic signals, efficient re-timing of signals, and the increase of traffic capacity.

Evaluations and studies have consistently shown that this type of funding mechanism increases job growth and revenues in the City. Impact fees have evolved as an element of a broader growth management strategy for cities experiencing strong development pressure. The objective is to encourage development to occur in areas within the City where public facilities have adequate capacity to serve the development. While some may view impact fees as a penalty for development in areas where there is insufficient capacity, the fee acts as an investment in the community, by spurring economic growth through the timely provision of sustainable infrastructure and the expansion of buildable land. Developments bring more jobs, sales tax revenue, and/or property tax revenue.

Without a traffic impact fee, developers must hire a traffic engineering consultant to prepare a study which includes predicting future traffic impacts, developing mitigations, and estimating costs of constructing the mitigations. The City reviews, comments, and uses the study to determine which mitigation projects will be conditions of approval for the development. TIFs streamline the development process by saving time and effort for both developers and City staff.

As cities continue to grapple with the problems of traffic congestion and limited public resources, cities will continue to view impact fees as another source of funds for needed improvements and are commonly viewed in terms of their revenue potential. Because several of the mitigation projects identified in the Multimodal Improvement Plan and Traffic Impact Fee Nexus Study are additions or enhancements of bicycle and pedestrian facilities, the City will become a more pedestrian- and bicycle-friendly community, thus creating positive economic benefits.

STRATEGIC ROADMAP

This agenda item supports the Strategic Priority of Improving Infrastructure. Specifically, this item relates to the implementation of the following project(s):

Project 3. Develop and Submit a Traffic Impact Fee

SUSTAINABILITY FEATURES

The Nexus Study will enhance operations and safety for all modes of transportation. The TIF will align improvements consistent with the City's 2040 General Plan, Complete Streets Strategic Initiative, Pedestrian and Bicycle Master Plan, Neighborhood Traffic Calming Program, and major regional improvements.

PUBLIC CONTACT

The Study includes a comprehensive outreach approach geared in part to addressing potential concerns from the development community, general public, and City leaders. On February 9, 2022, staff held a Stakeholder Meeting to introduce the proposed TIF and solicit feedback from the public. An article publicizing the event was published in The Stack and distributed to its subscribers. Additionally, a targeted email with information on how to attend the event was sent to a distribution list of 420 recipients who are involved in some way to Hayward's development process. The CIC meeting is the second of a series of meetings related to the TIF. The feedback received so far will also be presented to the Planning Commission on April 14, 2022 and introduced to Council for consideration of recommended approval on May 3, 2022.

NEXT STEPS

Planning Commission	April 14, 2022
City Council	May 3, 2022

Prepared by: Charmine Solla, Senior Transportation Engineer
Kathy Garcia, Deputy Director of Public Works

Recommended by: Alex Ameri, Director of Public Works

Approved by:

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Kelly McAdoo, City Manager

City of Hayward

Draft Final

Multimodal Intersection Improvement Plan & Nexus Study

May 2021

TJKM

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Appendices

EXECUTIVE SUMMARY

The Citywide Multimodal Improvement Plan (MIP) is a planning document that identifies measures to improve transportation conditions for multiple modes of transportation on the roadway network. The MIP does not recommend capacity expansions such as widening intersections and roadway segments.

The Hayward 2040 General Plan's policy direction does not support intersection and street widening as a strategy. This is due to limited space for additional right-of-way, increased crossing distance for pedestrians, induced demands, and other issues related to the City's desired future character. Instead, the City directs future actions to include transportation demand management, operational improvements, and multimodal improvements.

Two amendments to the Hayward 2040 General Plan establish Vehicle Miles Traveled (VMT) thresholds for California Environmental Quality Act (CEQA) analysis and Greenhouse Gas (GHG) emission reduction goals. Senate Bill 743 (SB 743) requires cities to evaluate transportation impacts with metrics that support greenhouse gas reduction, multimodal transportation networks, and diversification of land uses. SB 743 shifts the measures of performance from vehicle level of service (LOS) to vehicle miles traveled (VMT). VMT is the total miles of travel by personal motorized vehicles a project is expected to generate in a day. VMT measures the full distance of personal motorized vehicle trips with one end within the project. Use of the VMT metric allows projects to look at regional impacts rather than local and provides a more accurate measure of transportation impacts. As per the General Plan Amendments, the City considers LOS guidelines to support the expansion of a multimodal network for projects that increase transit ridership, biking, and walking, thus, this study evaluates impacts based on LOS guidelines.

The MIP was developed based on the City's recent transportation and land use plans and policies. The bicycle and pedestrian improvements presented in this report are based on the City's recent Bicycle & Pedestrian Master Plan and Hayward Downtown Specific Plan. The vehicular improvements are based on traffic operation analysis conducted in this study by TJKM.

The TJKM Team, in cooperation with the City of Hayward, conducted a comprehensive capacity and safety study of 100 intersections and 15 roadway segments within the City of Hayward to identify impacts resulting from new developments and develop capital improvements to mitigate the impacts. These selected intersections and segments are considered the project study intersections and study segments. The study intersections are evaluated with Level of Service (LOS) D or better as acceptable under Existing Conditions. Under Future Conditions. the study intersections are evaluated with Level of Service (LOS) E or better as acceptable for signalized intersections due to costs of mitigation and limited right-of-way as per the City of Hayward 2040 General Plan, and LOS D or better as acceptable for unsignalized intersections. The study segments are evaluated with LOS standards of LOS D or better as acceptable, except if they are part of the Alameda County Congestion Management Program (CMP) network, in which they are evaluated with standards of LOS E or better as acceptable. **Tables ES1** to **ES4** present intersection and roadway segment level of service for existing and future conditions.

Table ES1 summarizes the intersection operations under Existing Conditions (2019). Under this scenario, 47 study intersections (26 signalized and 21 unsignalized) operate at LOS E or F during

one or both peak periods. The remaining 53 study intersections operate at LOS D or better. Of the 21 unsignalized intersections with failing operations, 15 are one- or two-way stop controlled.

Table ES2 summarizes the results of the LOS analysis for both directions along roadway segments during a.m. and p.m. peak hours. Under Existing Conditions, all study segments operate at LOS E or better both peak hours, except the following two segments:

- Southbound direction of Foothill Boulevard south of City Center Drive during the a.m. peak hour (Segment #4)
- Both directions of Winton Avenue between I-880 Northbound Ramps and Santa Clara Street (Segment #11)

Table ES3 summarizes the study intersection operations under Future Conditions (2040). Under this scenario, 47intersections (24 signalized, 23 unsignalized) operate at unacceptable LOS during the a.m. peak, and 48 intersections (27 signalized, 21 unsignalized) operate at unacceptable LOS during the p.m. peak. The remaining intersections operate at acceptable LOS.

Table ES4 summarizes the results of the LOS analysis for both directions along roadway segments during a.m. and p.m. peak hours. Under Future Conditions, nine study segments operate at unacceptable LOS E or F during at least one peak period, in one or both directions. The remaining six segments operate at acceptable LOS D or better in both directions, during both a.m. and p.m. peaks.

Table ES1: Intersection Level of Service Analysis – Existing Conditions

ID	Study Intersection	Control	Peak Hour	Delay[1]	LOS[2]
1	Foothill Boulevard / Grove Way	Signalized	AM	51.2	D
			PM	36.9	D
2	Foothill Boulevard / City Center	Signalized	AM	**>80**	**F**
			PM	**77.9**	**E**
3	City Center Drive / 2nd Street	Signalized	AM	43.2	D
			PM	**56.3**	**E**
4	2nd Street / Russell Way	Two-Way Stop	AM	15.0	C
			PM	**>50**	**F**
5	Foothill Boulevard / A Street*	Signalized	AM	**61.7**	**E**
			PM	32.8	C
6	A Street / 2nd Street	Signalized	AM	41.4	D
			PM	42.4	D
7	B Street / 2nd Street	Signalized	AM	**55.6**	**E**
			PM	35.5	D
8	B Street / 3rd Street	Two-Way Stop	AM	**38.2**	**E**
			PM	21.9	C
9	B Street / 6th Street	Two-Way Stop	AM	29.8	D
			PM	25.7	D
10	A Street / Mission Boulevard	Signalized	AM	**>80**	**F**
			PM	**69.4**	**E**
11	A Street / Myrtle Street	One-Way Stop	AM	31.1	D
			PM	20.6	C

ID	Study Intersection	Control	Peak Hour	Delay[1]	LOS[2]
12	B Street / Grand Street	Signalized	AM	32.2	C
			PM	21.6	C
13	A Street / Grand Street	Signalized	AM	47.0	D
			PM	37.3	D
14	B Street / Montgomery Street	All-Way Stop	AM	11.7	B
			PM	14.0	B
15	B Street / Watkins Street	Signalized	AM	**>80**	**F**
			PM	33.1	C
16	C Street / Second Street	Signalized	AM	18.6	B
			PM	26.6	C
17	D Street / Grand Street	Signalized	AM	49.2	D
			PM	45.7	D
18	A Street / Happyland Avenue	Two-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
19	D Street / Watkins Avenue	Signalized	AM	27.6	C
			PM	28.4	C
20	Foothill Boulevard/ D Street	Signalized	AM	**>80**	**F**
			PM	**>80**	**F**
21	D Street / 1st Street	Two-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
22	D Street / 2nd Street	Signalized	AM	**64.1**	**E**
			PM	41.0	D
23	D Street / 5th Street	One-Way Stop	AM	**>50**	**F**
			PM	15.7	C
24	Jackson Street / Watkins Street	Signalized	AM	34.8	C
			PM	23.3	C
25	Foothill Boulevard / Jackson Street / Mission Boulevard	Signalized	AM	21.2	C
			PM	**63.6**	**E**
26	E Street / 2nd Street	Signalized	AM	44.6	D
			PM	43.1	D
27	Grand Street / Meek Avenue	All-Way Stop	AM	14.7	B
			PM	13.4	B
28	Jackson Street / Meek Avenue / Silva Avenue	Signalized	AM	38.4	D
			PM	**59.5**	**E**
29	Fletcher Lane / Watkins Street	Two-Way Stop	AM	19.7	C
			PM	30.2	D
30	Mission Boulevard/ Fletcher Lane	Signalized	AM	45.2	D
			PM	23.4	C
31	Santa Clara Street / Ocie Way	Two-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
32	Amador Street / Winton Avenue	Signalized	AM	39.3	D
			PM	**>80**	**F**
33	Myrtle Street / Soto Road / Winton Avenue	Signalized	AM	**56.9**	**E**
			PM	34.9	C
34	D Street / Winton Avenue	Signalized	AM	4.5	A
			PM	4.4	A

ID	Study Intersection	Control	Peak Hour	Delay[1]	LOS[2]
35	Park Street / Winton Avenue	One-Way Stop	AM	10.1	B
			PM	11.3	B
36	Jackson Street / Alice Street / Sycamore Avenue	Two-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
37	2nd Street / Campus Drive	One-Way Stop	AM	**>50**	**F**
			PM	26.8	D
38	Amador Street / Elmhurst Street	All-Way Stop	AM	**39.7**	**E**
			PM	**>50**	**F**
39	Jackson Street / Soto Road	Signalized	AM	**55.6**	**E**
			PM	**79.9**	**E**
40	Jackson Street / Amador Street / Cypress Avenue	Signalized	AM	**60.2**	**E**
			PM	**65.5**	**E**
41	Orchard Avenue / Soto Road	Signalized	AM	33.0	C
			PM	35.9	D
42	Carlos Bee Boulevard / Hayward Boulevard	Signalized	AM	43.8	D
			PM	19.6	B
43	Harder Road / Santa Clara Street	Signalized	AM	8.3	A
			PM	7.9	A
44	Harder Road / Cypress Avenue	Signalized	AM	8.0	A
			PM	11.5	B
45	Harder Road / Gading Road	Signalized	AM	**63.3**	**E**
			PM	**>80**	**F**
46	Harder Road / Soto Road / Mocine Avenue	Signalized	AM	**>80**	**F**
			PM	47.6	D
47	Harder Road / Jane Avenue	Signalized	AM	42.1	D
			PM	29.8	C
48	Harder Road / Mission Boulevard	Signalized	AM	**75.7**	**E**
			PM	**79.1**	**E**
49	Patrick Avenue / Gomer Street	All-Way Stop	AM	**>50**	**F**
			PM	**35.5**	**E**
50	Patrick Avenue / Roosevelt Avenue	All-Way Stop	AM	**49.2**	**E**
			PM	32.9	D
51	Tennyson Road / Patrick Avenue	Signalized	AM	**>80**	**F**
			PM	38.3	D
52	Tennyson Road / Pompano Avenue	Signalized	AM	8.0	A
			PM	7.9	A
53	Tennyson Road / Tampa Avenue	Signalized	AM	41.0	D
			PM	26.0	C
54	Tennyson Road / Dickens Avenue	One-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
55	Tennyson Road / Tyrell Avenue	Signalized	AM	29.6	C
			PM	17.7	B
56	Tennyson Road / Harvey Avenue	One-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
57	Tennyson Road / Ruus Road	Signalized	AM	14.1	B
			PM	17.7	B

ID	Study Intersection	Control	Peak Hour	Delay[1]	LOS[2]
58	Tennyson Road / Baldwin Street	Two-Way Stop	AM	24.0	C
			PM	**>50**	**F**
59	Tennyson Road / Huntwood Avenue	Signalized	AM	54.2	D
			PM	28.4	C
60	Tennyson Road / Beatron Way / Whitman Street	Signalized	AM	43.0	D
			PM	38.6	D
61	Tennyson Road / Pacific Street	One-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
62	Dixon Street / E 12th Street / Tennyson Road	Signalized	AM	21.9	C
			PM	22.0	C
63	Mission Boulevard/ Tennyson Road	Signalized	AM	44.9	D
			PM	36.2	D
64	Ruus Road / Folsom Avenue	All-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
65	Industrial Parkway / Stratford Road	Signalized	AM	27.5	C
			PM	30.2	C
66	Industrial Boulevard / Russ Road	Signalized	AM	54.9	D
			PM	48.9	D
67	Huntwood Avenue / Industrial Parkway	Signalized	AM	**>80**	**F**
			PM	**>80**	**F**
68	Mission Boulevard / Industrial Parkway	Signalized	AM	**60.1**	**E**
			PM	50.4	D
69	Huntwood Avenue/ Sandoval Way	Signalized	AM	28.5	C
			PM	28.9	C
70	Huntwood Avenue / Zephyr Avenue	Two-Way Stop	AM	**43.1**	**E**
			PM	26.5	D
71	Huntwood Avenue / Whipple Road	Signalized	AM	33.1	C
			PM	27.6	C
72	A Street / Hesperian Boulevard	Signalized	AM	45.5	D
			PM	38.9	D
73	A Street / Garden Avenue	One-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
74	Hesperian Boulevard / Sueirro Street*	Signalized	AM	21.3	C
			PM	17.6	B
75	Winton Avenue / Cabot Boulevard**	All-Way Stop	AM	13.1	B
			PM	9.5	A
76	Winton Avenue / Clawiter Road	Signalized	AM	18.6	B
			PM	31.5	C
77	Winton Avenue / Saklan Road	Signalized	AM	13.2	B
			PM	13.7	B
78	Winton Avenue / Hesperian Boulevard	Signalized	AM	47.2	D
			PM	**56.7**	**E**
79	Hesperian Boulevard / La Playa Drive / West Street	Signalized	AM	7.0	A
			PM	16.6	B
80	La Playa Drive / Calaroga Avenue	Signalized	AM	0.9	A
			PM	0.9	A

ID	Study Intersection	Control	Peak Hour	Delay[1]	LOS[2]
81	Clawiter Road / Industrial Boulevard	Signalized	AM	15.5	B
			PM	25.8	C
82	Hesperian Boulevard / Turner Ct	Signalized	AM	48.6	D
			PM	12.5	B
83	Clawiter Road / Depot Road	Signalized	AM	16.1	B
			PM	16.4	B
84	Depot Road / Industrial Boulevard	Signalized	AM	37.3	D
			PM	**57.0**	**E**
85	Depot Road / Cathy Way / Hesperian Boulevard	Signalized	AM	**>80**	**F**
			PM	46.6	D
86	Clawiter Road / Enterprise Avenue	Signalized	AM	13.1	B
			PM	17.6	B
87	Tennyson Road / Industrial Boulevard*	Signalized	AM	26.2	C
			PM	24.1	C
88	Tennyson Road / Hesperian Boulevard	Signalized	AM	44.3	D
			PM	**55.4**	**E**
89	Tennyson Road / Sleepy Hollow Avenue	Signalized	AM	25.6	C
			PM	29.9	C
90	Tennyson Road / Calaroga Avenue	Signalized	AM	**59.4**	**E**
			PM	**>80**	**F**
91	Calaroga Avenue / Bolero Avenue	All-Way Stop	AM	**>50**	**F**
			PM	34.8	D
92	Hesperian Boulevard / Oliver Drive	One-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
93	Calaroga Avenue / Panama Street	All-Way Stop	AM	33.7	D
			PM	12.0	B
94	Industrial Boulevard / Baumberg Avenue	Signalized	AM	19.7	B
			PM	33.1	C
95	Hesperian Boulevard / Catalpa Way	One-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
96	Calaroga Avenue / Catalpa Way	All-Way Stop	AM	29.8	D
			PM	9.1	A
97	Industrial Boulevard / Marina Drive	Signalized	AM	8.1	A
			PM	9.3	A
98	Hesperian Boulevard / Industrial Boulevard	Signalized	AM	**65.8**	**E**
			PM	**75.2**	**E**
99	Hesperian Boulevard / Eden Shores Boulevard	Signalized	AM	10.7	B
			PM	24.2	C
100	Hesperian Boulevard / Eden Park Place	Signalized	AM	6.5	A
			PM	29.6	C

Notes:
[1]Delay: Average control delay in seconds per vehicle, reported values are overall for signalized and all-way-stop-control intersections; and critical minor approaches for two-way- stop-control intersections.
[2]LOS: Level of Service.
* 2000 HCM Methodology is used.
** Intersection LOS evaluated in Traffix software.
Bold text indicates unacceptable intersection operations.

Table ES2: Roadway Segment Level of Service Analysis – Existing Conditions

ID	Roadway Segment	Direction	No. of Lanes[1]	Capacity[2]	AM Peak Hour		PM Peak Hour	
					V/C[3]	LOS[4]	V/C[3]	LOS[4]
1*	Mission Blvd b/w Rose St & Sunset Blvd	Northbound	2	1600	0.23	A	0.39	A
		Southbound	2	1600	0.53	A	0.51	A
2*	Mission Blvd b/w A St & B St	Northbound	0	-	-	-	-	-
		Southbound	5	4000	0.47	A	0.40	A
3*	Mission Blvd b/w Fletcher Ln & Sycamore Ave	Northbound	3	2400	0.77	C	0.83	A
		Southbound	3	2400	0.92	E	0.69	B
4*	Foothill Blvd b/w City Center Dr & Russell Way	Northbound	4	3200	0.39	A	0.33	A
		Southbound	2	1600	0.76	C	**1.06**	**F**
5*	A St b/w Western Blvd & Peralta St	Eastbound	2	1600	0.32	A	0.28	A
		Westbound	2	1600	0.47	A	0.36	A
6	Santa Clara St b/w Jackson St & Elmhurst St	Northbound	2	1600	0.29	A	0.40	A
		Southbound	2	1600	0.37	A	0.35	A
7	Soto Rd b/w Orchard Ave & Berry Ave	Northbound	1	800	0.46	A	0.60	A
		Southbound	1	800	0.77	C	0.44	A
8	Campus Dr b/w 2nd St & Oakes Dr	Eastbound	1	800	0.67	B	0.53	A
		Westbound	1	800	0.43	A	0.73	C
9	A St b/w Royal Ave & Hesperian Blvd	Eastbound	2	1600	0.41	A	0.60	B
		Westbound	2	1600	0.64	B	0.59	A
10*	Winton Ave b/w Wright Dr & Stonewall Ave	Eastbound	3	2400	0.41	A	0.59	A
		Westbound	2	1600	0.82	D	0.67	B
11*	Winton Ave b/w I-880 NB Ramps & Santa Clara St	Eastbound	2	1600	0.68	B	**1.23**	**F**
		Westbound	2	1600	**1.12**	**F**	0.84	D
12	Depot Rd b/w Clawiter Rd & Viking St	Eastbound	1	800	0.73	C	0.59	A
		Westbound	1	800	0.54	A	0.82	D
13	Depot Rd b/w Hesperian Blvd & Adrian Ave	Eastbound	2	1600	0.32	A	0.33	A
		Westbound	2	1600	0.25	A	0.20	A
14*	Industrial Blvd b/w Tennyson Rd & Baumberg Ave	Northbound	2	1600	0.60	A	0.58	A
		Southbound	2	1600	0.84	D	0.73	C
15*	Hesperian Blvd b/w Panama St & Catalpa Way	Northbound	3	2400	0.43	A	0.64	B
		Southbound	3	2400	0.47	A	0.39	A

Notes:
[1]Number of Lanes per direction; Does not include TWLTL medians or turn pockets at intersections.
[2]Capacity = 800 vehicles per hour per lane.
[3]V/C: Volume-to-capacity ratio; Calculated using peak hour Average Daily Traffic (ADT) counts.
[4]LOS: Level of Service.
*Indicates Alameda CTC Congestion Management Program (CMP) roadway with minimum standards of LOS E or better.
Bold text indicates unacceptable roadway segment operations.

Table ES3: Intersection Level of Service Analysis – Future Conditions

ID	Intersection Name	Control Type	Method	AM Peak			PM Peak		
				V/C	Delay (s/veh)[1]	LOS[2]	V/C	Delay (s/veh)[1]	LOS[2]
1	Foothill Blvd & Grove Way	SIGNALIZED	HCM 2010		61.4	E		**>80**	**F**
2	Foothill Blvd & City Center Dr	SIGNALIZED	HCM 2010		**>80**	**F**		69.8	E
3	City Center Dr & 2nd St	SIGNALIZED	HCM 2010		43.6	D		58.4	E
4	2nd St & Russell Way	TWSC	HCM 2010		24.5	C		**>50**	**F**
5	Foothill Blvd & A St	SIGNALIZED	HCM 2000	1.030	68.6	E	1.180	76.4	E
6	A St & 2nd St	SIGNALIZED	HCM 2010		54.8	D		74.2	E
7	B St & 2nd St	SIGNALIZED	HCM 2010		**>80**	**F**		41.6	D
8	B St & 3rd St	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
9	B St & 6th St	TWSC	HCM 2010		29.8	D		25.7	D
10	Mission Blvd & A St	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
11	A St & Myrtle St	TWSC	HCM 2010		31.1	D		20.6	C
12	B St & Grand St	SIGNALIZED	HCM 2010		58.3	E		22.3	C
13	A St & Grand St	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
14	B St & Montgomery St	AWSC	HCM 2010		15.8	C		16.1	C
15	B St & Watkins St	SIGNALIZED	HCM 2010		**>80**	**F**		32.7	C
16	C St & Second St	SIGNALIZED	HCM 2010		19.2	B		55.8	E
17	D St & Grand St	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
18	A St & Happyland Ave	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
19	D St & Watkins Ave	SIGNALIZED	HCM 2010		55.6	E		39.6	D
20	Foothill & D Street	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
21	D St & 1st St	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
22	D St & 2nd St	SIGNALIZED	HCM 2010		77.7	E		67.9	E
23	D St & 5th St	TWSC	HCM 2010		**>50**	**F**		22.5	C
24	Watkins & Jackson	SIGNALIZED	HCM 2010		71.6	E		70.2	E
25	Foothill Blvd & Mission Blvd & Jackson St	SIGNALIZED	HCM 2000	0.700	21.2	C	0.960	72.1	E
26	E St & Second St	SIGNALIZED	HCM 2010		46.2	D		64.1	E

ID	Intersection Name	Control Type	Method	AM Peak			PM Peak		
				V/C	Delay (s/veh)[1]	LOS[2]	V/C	Delay (s/veh)[1]	LOS[2]
27	Grand St & Meek Ave	AWSC	HCM 2010		**>50**	**F**		**>50**	**F**
28	Jackson St & Meek Ave % Silva Ave	SIGNALIZED	HCM 2010		39.4	D		**>80**	**F**
29	Fletcher Ln & Watkins St	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
30	Mission Blvd & Fletcher Ln	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
31	Santa Clara St & Ocie Way	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
32	Amador St & Winton Ave	SIGNALIZED	HCM 2010		46.4	D		**>80**	**F**
33	Myrtle St & Soto Rd & Winton Ave	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
34	D St & Winton Ave	SIGNALIZED	HCM 2010		4.2	A		4.3	A
35	Park St & Winton Ave	TWSC	HCM 2010		10.1	B		11.3	B
36	Jackson St & Alice St & Sycamore Ave	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
37	2nd St & Campus Dr	TWSC	HCM 2010		**>50**	**F**		37.7	**E**
38	Amador St & Elmhurst St	AWSC	HCM 2010		49.8	**E**		**>50**	**F**
39	Jackson St & Soto Ave	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
40	Amador St & Cypress Ave & Jackson St	SIGNALIZED	HCM 2010		77.4	E		**>80**	**F**
41	Orchard Ave & Soto Rd	SIGNALIZED	HCM 2010		75.4	E		**>80**	**F**
42	Carlos Bee Blvd & Hayward Blvd	SIGNALIZED	HCM 2010		51.7	D		21.2	C
43	Harder Rd & Santa Clara St	SIGNALIZED	HCM 2010		9.6	A		10.1	B
44	Cypress Ave & Harder Rd & Underwood Ave	SIGNALIZED	HCM 2010		11.6	B		12.6	B
45	Harder Rd & Gading Rd	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
46	Harder Rd & Soto Rd & Mocine Ave	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
47	Harder Rd & Jane Ave	SIGNALIZED	HCM 2010		42.9	D		57.5	E
48	Harder Road & Mission Blvd	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
49	Patrick Ave & Gomer St	AWSC	HCM 2010		**>50**	**F**		**>50**	**F**
50	Patrick Ave & Roosevelt Ave	AWSC	HCM 2010		49.2	**E**		32.9	D
51	Tennyson Rd & Patrick Ave	SIGNALIZED	HCM 2010		**>80**	**F**		71.5	E
52	Tennyson Rd & Pompano Ave	SIGNALIZED	HCM 2010		7.8	A		7.7	A
53	Tennyson Rd & Tampa Ave	SIGNALIZED	HCM 2010		47.3	D		63.6	E

ID	Intersection Name	Control Type	Method	AM Peak			PM Peak		
				V/C	Delay (s/veh)[1]	LOS[2]	V/C	Delay (s/veh)[1]	LOS[2]
54	Tennyson Rd & Dickens Ave	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
55	Tennyson Rd & Tyrell Ave	SIGNALIZED	HCM 2010		32.8	C		27.5	C
56	Tennyson Rd & Harvey Ave	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
57	Tennyson Rd & Russ Rd	SIGNALIZED	HCM 2010		79.4	E		63.8	E
58	Tennyson Rd & Baldwin St	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
59	Tennyson Rd & Huntwood Ave	SIGNALIZED	HCM 2010		62.5	E		47.7	D
60	Tennyson Rd & Beatron Way & Whitman St	SIGNALIZED	HCM 2010		74.8	E		**>80**	**F**
61	Tennyson Rd & Pacific St	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
62	Dixon St & E 12th St & Tennyson Rd	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
63	Mission Blvd & Tennyson Rd	SIGNALIZED	HCM 2010		59.5	E		38.2	D
64	Ruus Rd & Folsom Ave	AWSC	HCM 2010		**>50**	**F**		**>50**	**F**
65	Industrial Pkwy & Stratford Rd	SIGNALIZED	HCM 2010		65.8	E		47.2	D
66	Industrial Pkwy & Russ Rd	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
67	Huntwood Ave & Industrial Pkwy	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
68	Mission Blvd & Industrial Pkwy	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
69	Huntwood Ave & Sandoval Way	SIGNALIZED	HCM 2000	0.760	32.4	C	0.680	33.5	C
70	Huntwood Ave & Zephyr Ave	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
71	Huntwood Ave & Whipple Rd	SIGNALIZED	HCM 2010		**>80**	**F**		>80	E
72	A St & Hesperian Blvd	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
73	A St & Garden Ave	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
74	Hesperian Blvd & Sueirro St	SIGNALIZED	HCM 2000	0.800	21.8	C	0.830	26.7	C
75	Winton Ave & Cabot Blvd	AWSC	HCM 2000 (Traffix)	0.677	14.0	B	0.459	11.5	B
76	Winton Ave & Clawiter Rd	SIGNALIZED	HCM 2010		20.2	C		32.8	C
77	Winton Ave & Saklan Rd	SIGNALIZED	HCM 2010		16.0	B		13.9	B
78	Winton Ave & Hesperian Blvd	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
79	Hesperian Blvd & La Playa Dr & West St	SIGNALIZED	HCM 2010		4.6	A		14.6	B
80	La Playa Dr & Calaroga Ave	SIGNALIZED	HCM 2010		0.9	A		0.9	A

ID	Intersection Name	Control Type	Method	AM Peak			PM Peak		
				V/C	Delay (s/veh)[1]	LOS[2]	V/C	Delay (s/veh)[1]	LOS[2]
81	Clawiter Rd & Industrial Blvd	SIGNALIZED	HCM 2010		38.2	D		38.1	D
82	Hesperian Blvd & Turner Ct	SIGNALIZED	HCM 2010		78.8	E		9.9	A
83	Clawiter Rd & Depot Rd	SIGNALIZED	HCM 2010		16.1	B		19.3	B
84	Depot Rd & Industrial Blvd	SIGNALIZED	HCM 2010		39.4	D		66.8	E
85	Cathy Way & Depot Rd & Hesperian Blvd	SIGNALIZED	HCM 2010		**>80**	**F**		64.0	E
86	Clawiter Rd & Enterprise Ave	SIGNALIZED	HCM 2010		14.9	B		16.7	B
87	Tennyson Rd & Industrial Blvd	SIGNALIZED	HCM 2000	0.750	25.4	C	0.960	**>80**	**F**
88	Tennyson Rd & Hesperian Blvd	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
89	Tennyson Rd & Sleepy Hollow Ave	SIGNALIZED	HCM 2010		25.6	C		31.3	C
90	Tennyson Rd & Calaroga Ave	SIGNALIZED	HCM 2010		65.8	E		**>80**	**F**
91	Calaroga Ave & Bolero Ave	AWSC	HCM 2010		**>50**	**F**		**>50**	**F**
92	Hesperian Blvd & Oliver Dr	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
93	Calaroga Ave & Panama St	AWSC	HCM 2010		**>50**	**F**		32.6	D
94	Industrial Blvd & Baumberg Ave	SIGNALIZED	HCM 2010		63.4	E		60.2	E
95	Hesperian Blvd & Catalpa Way	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
96	Calaroga Ave & Catalpa Way	AWSC	HCM 2010		29.8	D		9.1	A
97	Industrial Blvd & Marina Dr	SIGNALIZED	HCM 2010		9.4	A		11.5	B
98	Hesperian Blvd & Industrial Blvd	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
99	Hesperian Blvd & Eden Shores Blvd	SIGNALIZED	HCM 2010		11.3	B		77.0	E
100	Hesperian Blvd & Eden Park Place	SIGNALIZED	HCM 2010		7.1	A		**>80**	**F**

Notes:
[1]Delay: Average control delay in seconds per vehicle; reported values are overall for signalized and all-way stop-control intersections, and critical minor approaches for two-way stop-control intersections.
[2]LOS: Level of Service
Bold indicates unacceptable intersection operations.

Table ES4: Roadway Segment Level of Service Analysis – Future Conditions

ID	Roadway Segment	Direction	No. of Lanes[1]	Capacity[2]	AM Peak		PM Peak	
					V/C[3]	LOS[4]	V/C[3]	LOS[4]
1*	Mission Blvd b/w Rose St & Sunset Blvd	Northbound	2	1600	0.43	A	**1.14**	**F**
		Southbound	2	1600	**1.11**	**F**	**0.96**	**E**
2*	Mission Blvd b/w A St & B St	Northbound	0	-	-	-	-	-
		Southbound	5	4000	0.58	A	0.52	A
3*	Mission Blvd b/w Fletcher Ln & Sycamore Ave	Northbound	3	2400	**0.91**	**E**	**0.95**	**E**
		Southbound	3	2400	**1.13**	**F**	0.89	D
4*	Foothill Blvd b/w City Center Dr & Russell Way	Northbound	4	3200	0.56	A	0.44	A
		Southbound	2	1600	**0.95**	**E**	**1.22**	**F**
5*	A St b/w Western Blvd & Peralta St	Eastbound	2	1600	0.35	A	0.68	B
		Westbound	2	1600	0.78	C	0.68	B
6	Santa Clara St b/w Jackson St & Elmhurst St	Northbound	2	1600	0.65	B	0.72	C
		Southbound	2	1600	0.72	C	0.60	B
7	Soto Rd b/w Orchard Ave & Berry Ave	Northbound	1	800	0.69	B	**1.40**	**F**
		Southbound	1	800	**1.13**	**F**	**1.02**	**F**
8	Campus Dr b/w 2nd St & Oakes Dr	Eastbound	1	800	0.73	C	**0.97**	**E**
		Westbound	1	800	0.52	A	0.84	D
9	A St b/w Royal Ave & Hesperian Blvd	Eastbound	2	1600	0.44	A	**0.94**	**E**
		Westbound	2	1600	0.85	D	0.62	B
10*	Winton Ave b/w Wright Dr & Stonewall Ave	Eastbound	3	2400	0.42	A	0.72	C
		Westbound	2	1600	0.86	D	0.69	B
11*	Winton Ave b/w I-880 NB Ramps & Santa Clara St	Eastbound	2	1600	0.70	B	**1.61**	**F**
		Westbound	2	1600	**1.54**	**F**	**1.00**	**F**
12	Depot Rd b/w Clawiter Rd & Viking St	Eastbound	1	800	0.73	C	0.59	A
		Westbound	1	800	0.54	A	0.82	D
13	Depot Rd b/w Hesperian Blvd & Adrian Ave	Eastbound	2	1600	0.35	A	0.39	A
		Westbound	2	1600	0.27	A	0.20	A
14*	Industrial Blvd b/w Tennyson Rd & Baumberg Ave	Northbound	2	1600	0.76	C	0.87	D
		Southbound	2	1600	**1.00**	**E**	**0.95**	**E**
15*	Hesperian Blvd b/w Panama St & Catalpa Way	Northbound	3	2400	0.48	A	**0.93**	**E**
		Southbound	3	2400	0.80	C	0.42	A

Notes:
[1]Number of Lanes per direction; Does not include TWLTL medians or turn pockets at intersections.
[2]Capacity = 800 vehicles per hour per lane.
[3]V/C: Volume-to-capacity ratio; Calculated using peak hour Average Daily Traffic (ADT) counts generated from TDM.
[4]LOS: Level of Service.
*Indicates Alameda CTC Congestion Management Program (CMP) roadway with minimum standards of LOS E or better.
Bold indicates unacceptable roadway segment operations.

Based on the analysis results, TJKM provides mitigations to improve intersection operations and roadway segment operations for pedestrians, bicyclists and vehicles. TJKM also considered improvements proposed in the City of Hayward 2040 General Plan, Bicycle and Pedestrian Master Plan, and Downtown Specific Plan. The above-mentioned mitigations and proposed improvements are summarized in Section 5 of this report.

Cost estimates for bicycle and pedestrian improvements were developed via pre-calculated project costs provided in Bicycle and Pedestrian Master Plan while cost estimates for vehicular improvements were developed via typical unit costs for roadway and intersection facilities. **Table ES5** summarizes the total costs calculated for the projects in the City of Hayward. The cost estimates provide in this table are used to calculate the Nexus fee.

Table ES5: Total Cost Estimates

Project Category	Low Cost	High Cost	Existing Cost	Future Cost
Bicycle	$7.3 million	$18.4 million	-	-
Pedestrian	$108.3 million	$124 million	-	-
Vehicle	-	-	$5.2 million	$25.1 million

Traffic Impact Fees are one-time fees typically paid prior to the issuance of a building permit and imposed on development projects by local agencies responsible for regulating land use. The fee's purpose is to help mitigate the transportation impacts of development growth. As an applicant proposes a project, a project-specific traffic impact study may be necessary, as this document only addresses cumulative impacts of all projects, but does not address specific impacts from a proposed development. The development of the MIP Nexus fee program involved the major tasks described below.

1. **List of Projects** The MIP includes the list of projects for the TIF program. All projects identified for inclusion in the fee program were presented in Chapter 5 of this report.
2. **Project Costs** The projects had low-cost and high-cost alternatives and were categorized into short-term, near-term and long-term improvements as part of the Action Plan. The project costs were identified in Chapter 5 of this report. The existing cost for vehicular improvements was adjusted to account for existing deficiencies since the full existing cost is not eligible for TIF funding. Only 20 percent of existing cost for vehicular improvements was added to total vehicular improvement cost.
3. **Trip Generation** An estimate was prepared of the A.M. and P.M. peak hour trip generation that will result from development of the expected future land uses within the City of Hayward.
4. **Cost per Trip** A cost per trip was calculated along with the corresponding schedule of fees. The schedule of fees includes fee categories for residential units, hotel, office, school, service/retail and other standard land uses.

Table ES6 presents a summary of the TIF improvement project costs, the projected future trips to be added by new development, and the resulting estimated TIF improvement cost per trip. The total costs of the TIF projects to be included are $141,740,000 (low cost) and $168,540,000 (high cost). State law allows the City to include costs associated with administering the Fee program in the Fee. These administrative tasks include required reporting and enforcement, and are conservatively estimated at 1% of the total project costs.

The fee calculation is based on trip generation and the cost estimates of the TIF improvement projects. The TIF improvement project costs as well as the calculated new TIF cost per trip are shown in **Table ES6**.

Table ES6: Cost Per Trip Estimate

	A.M. Peak Hour		P.M. Peak Hour	
	Low Cost	**High Cost**	**Low Cost**	**High Cost**
All Projects	$141,740,000	$168,540,000	$141,740,000	$168,540,000
Plus Administrative Costs (1%)	$1, 417,400	$1,685,400	$1, 417,400	$1,685,400
Total TIF Funding	$143,157,400	$170,225,400	$143,157,400	$170,225,400
Total Peak Hour Trips Added by New Development	10,495	10,495	12,524	12,524
TIF Cost Per Trip	**$13,641**	**$16,220**	**$11,431**	**$13,592**

Table ES7 and **Table ES8** present the new schedule of fees. The land use categories in this fee schedule have been determined based on a range of expected development land use types. The fees are calculated by multiplying the ITE trip rates contained in *Trip Generation, 10th Edition* for the A.M. and P.M. peak period by the cost per trip.

The resulting fee rate, shown in the last columns of **Table ES7** and **Table ES8** are the rate per dwelling unit for residential development, per employee for lodging development, or per thousand square feet (KSF) for non-residential development. Trip rate factor for retail land use was adjusted (reduce 60%) to account for pass-by trips. Trip rate factor for gas station was adjusted (reduced 70%) to account for pass-by trips.

Table ES7: Calculations of Fees based on A.M. trips (Per KSF[1] unless noted)

Land Use Category	A.M. Trip Rate[2]	Cost Per A.M. Trip		Fee Rate	
		Low Cost	**High Cost**	**Low Cost**	**High Cost**
Retail [3] /KSF	1.2	$13,641	$16,220	$16,369	$19,464
Office/KSF	1.47	$13,641	$16,220	$20,052	$23,844
School/KSF	5.68	$13,641	$16,220	$77,482	$92,132
Place of worship/KSF	0.65	$13,641	$16,220	$8,867	$10,543
Car dealership/KSF	3.18	$13,641	$16,220	$43,379	$51,581
Auto Service/KSF	2.83	$13,641	$16,220	$38,604	$45,904
Gas Station [4]/KSF	27.07	$13,641	$16,220	$369,252	$439,070
Fast food with drive-through/KSF	50.97	$13,641	$16,220	$695,289	$826,754
Fast food without drive-through/KSF	47.66	$13,641	$16,220	$650,137	$773,064

Land Use Category	A.M. Trip Rate[2]	Cost Per A.M. Trip		Fee Rate	
		Low Cost	High Cost	Low Cost	High Cost
Sit-down restaurant/KSF	14.04	$13,641	$16,220	$191,522	$227,734
Hotel/Room	0.54	$13,641	$16,220	$7,366	$8,759
Warehouse /KSF	0.22	$13,641	$16,220	$3,001	$3,568
Distribution Hub/E-Commerce /KSF	0.88	$13,641	$16,220	$12,004	$14,274
Manufacturing/KSF	0.81	$13,641	$16,220	$11,049	$13,139
Industrial Park/KSF	0.41	$13,641	$16,220	$5,593	$6,650
Other/KSF	1	$13,641	$16,220	$13,641	$16,220
Single Family/Unit	0.76	$13,641	$16,220	$10,367	$12,328
Multi-Family/Unit	0.56	$13,641	$16,220	$7,639	$9,083

Notes:
[1]KSF = Thousand square feet
[2]A.M. peak hour trip rate, based on ITE's Trip Generation, 10th Edition
[3]ITE Retail Trip Rate Adjustment Based on 60% pass-by trip
[4]ITE Retail Trip Rate Adjustment Based on 70% pass-by trip

Table ES8: Calculations of Fees based on P.M. trips (Per KSF[1] unless noted)

Land Use Category	P.M. Trip Rate[2]	Cost Per P.M. Trip		Fee Rate	
		Low Cost	High Cost	Low Cost	High Cost
Retail [3] /KSF	1.68	$11,431	$13,592	$19,203	$22,834
Office/KSF	1.42	$11,431	$13,592	$16,232	$19,301
School/KSF	2.88	$11,431	$13,592	$32,920	$39,145
Place of worship/KSF	0.8	$11,431	$13,592	$9,145	$10,874
Car dealership/KSF	3.79	$11,431	$13,592	$43,265	$51,445
Auto Service/KSF	3.51	$11,431	$13,592	$40,122	$47,708
Gas Station [4]/KSF	35.8	$11,431	$13,592	$409,652	$487,108
Fast food with drive-through/KSF	51.36	$11,431	$13,592	$587,078	$698,082
Fast food without drive-through/KSF	48.7	$11,431	$13,592	$556,673	$661,928
Sit-down restaurant/KSF	17.41	$11,431	$13,592	$199,008	$236,636
Hotel/Room	0.61	$11,431	$13,592	$6,973	$8,291

Land Use Category	P.M. Trip Rate[2]	Cost Per P.M. Trip		Fee Rate	
		Low Cost	High Cost	Low Cost	High Cost
Warehouse /KSF	0.24	$11,431	$13,592	$2,743	$3,262
Distribution Hub/E-Commerce /KSF	0.71	$11,431	$13,592	$8,116	$9,650
Manufacturing/KSF	0.79	$11,431	$13,592	$9,030	$10,738
Industrial Park/KSF	0.4	$11,431	$13,592	$4,572	$5,437
Other/KSF	1	$11,431	$13,592	$11,431	$13,592
Single Family/Unit	1	$11,431	$13,592	$11,431	$13,592
Multi-Family/Unit	0.67	$11,431	$13,592	$7,659	$9,107

Notes:
[1]KSF = Thousand square feet
[2]P.M. peak hour trip rate, based on ITE's Trip Generation, 10th Edition
[3]ITE Retail Trip Rate Adjustment Based on 60% pass-by trip
[4]ITE Retail Trip Rate Adjustment Based on 70% pass-by trip

CHAPTER 1. INTRODUCTION

The City of Hayward is a mid-sized, culturally-diverse community that is centrally located within the San Francisco Bay Area. The city is located in Alameda County, approximately 14 miles south of downtown Oakland, 20 miles southeast of downtown San Francisco, and 25 miles north of downtown San Jose. In 2019, the City of Hayward had a population of over 159,000 and has a very diverse population where no single race or ethnicity is in the majority. According to the 2010 census, the largest ethnic group in the City of Hayward is Hispanic or Latino, which represents over 40 percent of the population.

Land uses in the City of Hayward are commercial, residential, industrial or other urban uses. The majority of City of Hayward's single-family homes were built between 1950 and 1960 and multi-family homes were built between 1960 and 1990. The City of Hayward experienced a boom in commercial and industrial construction during the late 1990's.

The City of Hayward has an extensive regional transportation network. Interstate 880; State Routes (SR) 92, 238, and 185; two BART lines; and one Amtrak line traverse through the City and provide residents and businesses convenient access to the Bay Area's major employment centers and ports via two stations.

The TJKM Team, in cooperation with the City of Hayward, has prepared the Citywide Multimodal Improvement Plan and the Traffic Impact Fee (Nexus Fee).

The Citywide Multimodal Improvement Plan (MIP) is the planning document that identifies measures to improve transportation conditions on the roadway network instead of making physical traffic capacity expansions such as widening an intersection or roadway.

The Hayward 2040 General Plan's policy direction does not support intersection and street widening as a strategy. This is due to limited space for additional right-of-way, increased crossing distance for pedestrians, induced demands, and other issues related to the City's desired future character. Instead, the City directs future actions to include transportation demand management, operational improvements, and multimodal improvements and service.

Two amendments to the Hayward 2040 General Plan establish Vehicle Miles Traveled (VMT) thresholds for California Environmental Quality Act (CEQA) analysis and Greenhouse Gas (GHG) emission reduction goals. Senate Bill 743 (SB 743) requires cities to evaluate transportation impacts with metrics that support greenhouse gas reduction, multimodal transportation networks, and diversification of land uses. SB 743 shifts the measures of performance from vehicle level of service (LOS) to vehicle miles traveled (VMT). VMT is the total miles of travel by personal motorized vehicles a project is expected to generate in a day. VMT measures the full distance of personal motorized vehicle trips with one end within the project. Use of the VMT metric allows projects to look at regional impacts rather than local and provides a more accurate measure of transportation impacts. As per the General Plan Amendments, the City considers LOS guidelines to support the expansion of a multimodal network for projects that increase transit ridership, biking, and walking, thus, this study evaluates impacts based on LOS guidelines.

Traffic Impact Fees are one-time fees typically paid prior to the issuance of a building permit and imposed on development projects by local agencies responsible for regulating land use. The

fee's purpose is to help mitigate the transportation impacts of development growth. As an applicant proposes a project, a project-specific traffic impact study may be necessary, as this document only addresses cumulative impacts of all projects, but does not address specific impacts from a proposed development. In addition to fees and projects considered in this document, other on-site, frontage, and off-site improvements directly associated with future projects may be required. A project-specific traffic impact study will assess this.

This report includes the following seven sections:

1. Introduction
2. Existing Conditions Analysis
3. Developing Traffic Forecast and Future Conditions Analysis
4. Document Review
5. Multimodal Improvement Projects and Action Plan
6. Nexus Study
7. Conclusion

CHAPTER 2. EXISTING CONDITIONS ANALYSIS

Introduction

The TJKM Team, in cooperation with the City of Hayward, conducted a comprehensive capacity and safety study of 100 intersections and 15 roadway segments within the City of Hayward to identify impacts resulting from new developments and develop capital improvements to mitigate the impacts. These selected intersections and segments are considered the project study intersections and study segments. A related aspect of the project is the preparation of a Capital Improvement Program, which will be designed to address and mitigate the traffic impacts resulting from future development within the City.

The purpose of this section is to present the existing conditions of the study intersections and roadway segments.

The project study area is divided into three different zones, which are shown in **Figures 1**, **2** and **3**.

Project Vicinity Map - Zone 1

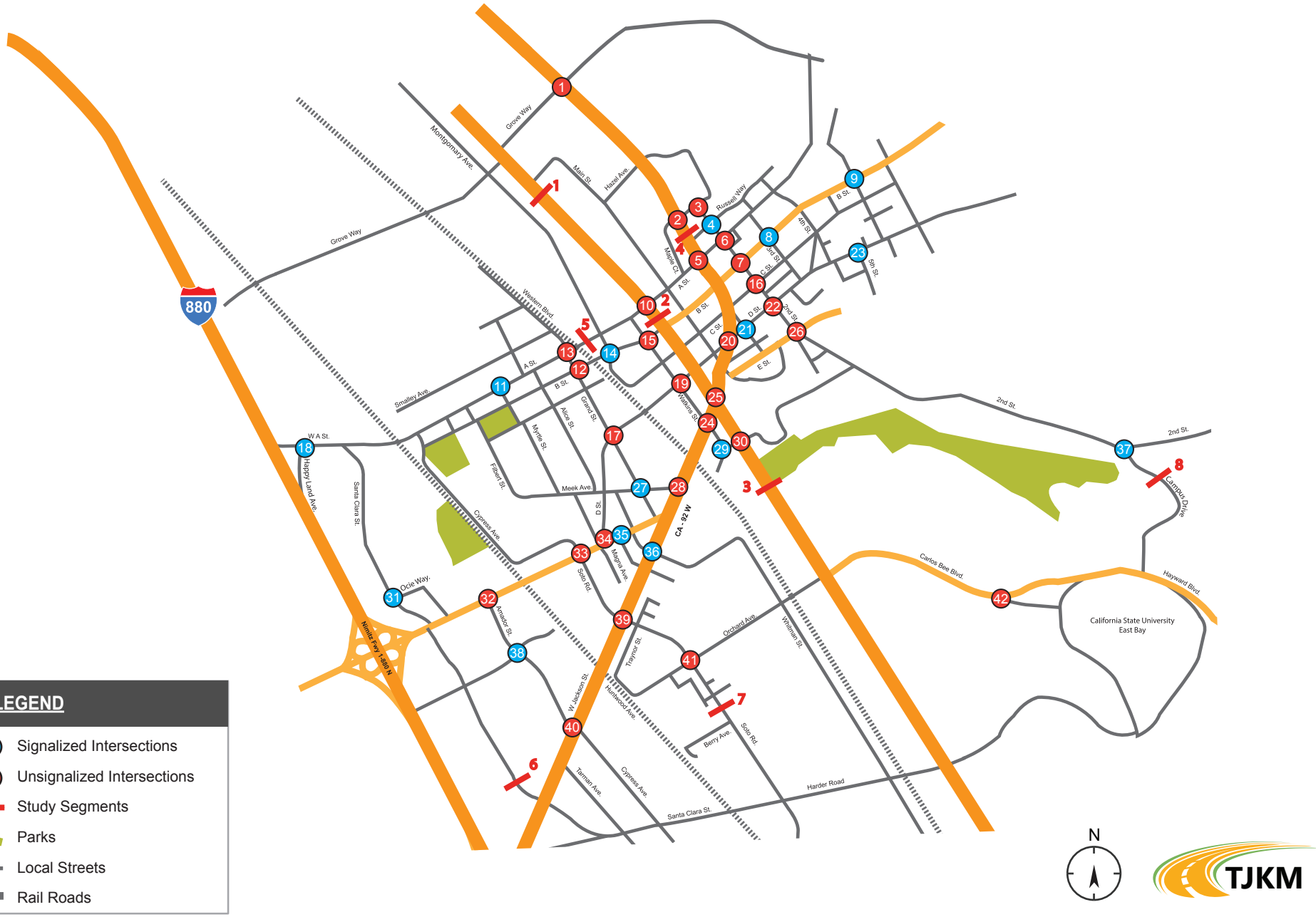


Figure - 1

Project Vicinity Map - Zone 2

Figure - 2

Project Vicinity Map - Zone 3

Figure - 3

Existing Roadway Network

This section describes the existing roadway system within the study area.

Foothill Boulevard is a six-lane, north-south arterial with occasional raised medians. Posted speed limits vary from 25 mph to 35 mph within the study area. This roadway provides local access to residential and commercial developments and the I-580 and I-238 freeways. This corridor is part of the Hayward Loop and operates one-way northbound from Mission Boulevard/Jackson Street to "A" Street.

Mission Boulevard is a four- to six-lane, north-south arterial with a raised median that runs intermittently throughout the corridor. The posted speed limit is 25 mph to 35 mph within the study area. This roadway provides local access to residential and commercial developments, but also serves as a regional facility from Oakland (as International Boulevard/SR 185) to Fremont. This corridor is part of the Hayward Loop and operates one-way southbound from "A" Street to Foothill Boulevard.

City Center Drive is a two- to four-lane, semi-circle roadway from Hazel Avenue and terminating at McKeever Avenue. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential and commercial developments.

A Street is a four- to six-lane, east-west collector from Skywest Drive and terminating at Redwood Road. The posted speed limit is 25 mph to 35 mph within the study area. This roadway is part of the Hayward Loop and becomes one-way westbound from Foothill Boulevard to Mission Boulevard. This corridor provides local access to residential areas, Downtown Hayward commercial developments, and the I-580 and I-880 freeways.

B Street is a two- to four-lane, east-west roadway from Martin Luther King Drive and terminating at Center Street/Kelly Street. B Street functions as a local roadway west of Mission Boulevard and a collector roadway east of Mission Boulevard. The posted speed limit is 25 mph within the study area. This becomes a one-way westbound corridor from Foothill Boulevard to Mission Boulevard. This roadway provides local access to residential areas, Downtown Hayward commercial developments, and the Hayward Amtrak station.

C Street is a two- to four-lane, east-west roadway from Montgomery Avenue and terminating at 7th Street. This roadway provides local access to residential developments. The posted speed limit is 25 mph within the study area.

D Street is a four-lane, east-west roadway from Winton Avenue and terminating at Machado Court. This roadway provides local access to residential areas and Downtown Hayward commercial developments. The posted speed limit is 25 mph to 35 mph within the study area.

E Street is a two-lane, east-west roadway from Main Street and terminating east of Wilma Way. This roadway provides local access to residential developments. The posted speed limit is 25 mph within the study area.

1st Street is a two-lane, north-south roadway from C Street and terminating at E Street. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential developments.

2nd Street is a two- to four-lane, north-south roadway from City Center Drive and terminating at Windfeldt Road. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential developments.

3rd Street is a two-lane, north-south roadway from A Street and terminating at D Street. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential developments.

6th Street is a two-lane, north-south roadway from north of Stafford Avenue and terminating at D Street. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential developments.

Campus Drive is a two-lane, north-south roadway from 2nd Street and terminating at Hayward Boulevard. The posted speed limit is 30 mph within the study area. This roadway provides local access to residential developments.

Watkins Street is a two-lane, north-south roadway from A Street and terminating at Fletcher Lane. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential and commercial developments.

Grand Street is a four-lane, north-south roadway from A Street and terminating at Jackson Street. The posted speed limit is 25 mph to 35 mph within the study area. This roadway provides local access to residential developments.

Jackson Street is a six-lane, east-west arterial from Mission Boulevard and terminating at Santa Clara Street. After Santa Clara Street, Jackson Street continues into SR 92. The posted speed limit is 30 mph to 40 mph within the study area. This roadway provides local access to residential areas and commercial developments.

Soto Road is a two-lane, north-south roadway from Winton Avenue and terminating at Harder Road. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential developments.

Carlos Bee Boulevard is a four-lane, east-west collector roadway that extends from Mission Boulevard and terminates at Hayward Boulevard. The posted speed limit is 30 mph within the study area. This roadway provides local access to residential and commercial developments.

Hayward Boulevard is a four-lane, east-west collector roadway beginning at Carlos Bee Boulevard and terminating at Fairview Avenue. The posted speed limit is 30 mph within the study area. This roadway provides local access to residential and commercial developments.

Amador Street is a two-lane, north-south roadway from Amador Village Circle and terminating at Cypress Avenue. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential developments.

Santa Clara Street is a two-lane to four-lane, north-south collector roadway that extends between West A Street and Harder Road. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential developments.

Harder Road is a two- to four-lane, east-west collector from Jackson Street and terminating at Old Hillary Road. The posted speed is 25 mph to 35 mph within the study area. This roadway provides local access to residential developments.

Cypress Avenue is a two-lane, north-south roadway from Jackson Street and terminating at West Harder Road. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential developments.

Tennyson Road is a four-lane, east-west arterial extending from Mountain View Drive to Industrial Boulevard. The posted speed limit is 25 mph to 35 mph within the study area. This roadway provides local access to residential and commercial developments.

Ruus Road is a two-lane, north-south roadway from West Tennyson Road and terminating at Industrial Parkway West. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential developments.

Industrial Boulevard is a four-lane, north-south collector roadway between Clawiter Road and Hesperian Boulevard. It provides access to I-880 to the north and the SR 92 freeway to the south. The posted speed limit is 35 mph within the study area. This roadway provides local access to residential and commercial developments.

Industrial Parkway West is four-lane, east-west collector roadway, extending from Mission Boulevard to Hesperian Boulevard. The posted speed limit is 45 mph within the study area. This roadway provides local access to commercial developments.

Baumberg Avenue/Arden Road is a two-lane collector roadway between Portsmouth Avenue and Eden Landing Road. Along this route, Baumberg Avenue becomes Arden Road. The posted speed limit is 25 mph in the within the study area. This roadway provides local access to industrial developments.

Industrial Parkway SW is a four-lane, north-south arterial extending from Whipple Road to Industrial Parkway West. The Whipple Road interchange at I-880 connects directly to Industrial Parkway SW. The posted speed limit is 35 mph to 45 mph within the study area. This roadway provides local access to residential and commercial developments.

Huntwood Avenue is a two- to four-lane, north-south collector roadway with a posted speed limit of 25mph to 30 mph within the study area. Huntwood Avenue extends between Whipple Road to the south and Jackson Street to the north. This roadway provides local access to residential and commercial developments.

Whipple Road is a two- to four-lane, east-west collector roadway with a posted speed limit of 30 mph to 40 mph within the study area. Whipple Road connects to Horner Street and extends to Mission Boulevard. This roadway provides local access to residential and commercial developments.

Calaroga Avenue is a two- to four-lane, north-south roadway from La Playa Drive and terminating at Catalpa Way. The posted speed limit is 25 mph within the study area. This roadway collector provides local access to residential neighborhoods.

Patrick Avenue is a two-lane, north-south roadway from Tennyson Road and terminating at Schafer Road. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential developments.

Hesperian Boulevard is a six-lane, north-south arterial that extends from E 14th Street and terminates at Alameda Creek. Posted speed limit is 35 mph within the study area. This roadway provides local access to residential and commercial developments and the I-92, I-880 and I-238 freeways.

W Winton Avenue is a six-lane, east-west roadway extending from D Street and terminating at Jackson Street. W Winton Avenue functions as a collector roadway east of D Street and as an arterial west of D Street. The posted speed limit is 35 mph within the study area. This roadway provides local access to residential and commercial developments.

Clawiter Road is a four-lane, north-south, collector roadway extending south of Industrial Boulevard and as an arterial north of Industrial Boulevard. The posted speed limit is 35 mph to 40 mph within the study area. This roadway provides access to residential developments.

Depot Road is a two- to four-lane, east-west roadway west of Hesperian Boulevard. The posted speed limit is 25 mph within the study area. This roadway provides access to residential and Industrial developments.

La Playa Drive is a six-lane roadway between Hesperian Boulevard and Southland Drive. The posted speed limit is 25 mph within the study area. This roadway provides access to residential and commercial developments.

Panama Street is a two-lane, east-west roadway between Hesperian Boulevard and Decatur Way. The posted speed limit is 25 mph within the study area. This roadway provides access to residential developments.

Catalpa Way is a two-lane, east-west roadway between Hesperian Boulevard and Hesse Drive. The posted speed limit is 25 mph within the study area. This roadway provides access to residential developments.

Walpert Street is a two-lane, east-west roadway between 2nd Street and Fletcher Lane. The posted speed limit is 25 mph within the study area. This roadway has horizontal and vertical curves and provides local access to residential developments.

Fletcher Lane is a two-lane, east-west roadway from Walpert Street and terminating in a cul-de-sac west of Watkins Street. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential and commercial developments.

Grove Way is a two- to four-lane, east-west, collector roadway extending from East Castro Valley Boulevard and terminating at Meekland Avenue in unincorporated Alameda County. The posted speed limit is 25 mph within the study area. This roadway collector provides local access to residential neighborhoods.

Montgomery Street is a two-lane, north-south roadway between Medford Avenue and C Street. The posted speed limit is 25 mph within the study area. This roadway provides access to residential developments.

Meek Avenue is a two-lane, east-west roadway between Jackson Street and Filbert Street. The posted speed limit is 25 mph within the study area. This roadway provides access to residential neighborhoods.

Alice Street is a two-lane, east-west roadway between A Street and Meek Avenue. The posted speed limit is 25 mph within the study area. This roadway provides access to residential neighborhoods.

Eden Shores Boulevard is a four-lane, east-west roadway west of Hesperian Boulevard. The posted speed limit is 25 mph within the study area. This roadway provides access to commercial developments.

Marina Drive is a two-lane, north-south roadway between Industrial Boulevard and Eden Park Place. The posted speed limit is 25 mph within the study area. This roadway provides access to residential developments.

Pompano Avenue is a two-lane, north-south roadway from Tennyson Road and terminating at Folsom Avenue. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential neighborhoods.

Tampa Avenue is a two-lane, north-south roadway from Gomer Street and terminating at Avila Court. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential neighborhoods.

Dickens Avenue is a two-lane, north-south roadway from Tennyson Road and terminating at Folsom Avenue. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential neighborhoods.

Tyrell Avenue is a two-lane, north-south roadway from Tennyson Road and terminating at Schafer Road. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential developments.

Harvey Avenue is a two-lane, north-south roadway from Tennyson Road and terminating at Folsom Avenue. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential neighborhoods.

Whitman Street is a two-lane, north-south roadway from Tennyson Road and terminating at Sycamore Avenue. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential developments.

Dixon Street is a two-lane, north-south roadway from Tennyson Road and terminating at Industrial Parkway. The posted speed limit is 25 mph within the study area. This roadway provides local access to residential and Industrial developments.

Existing Bicycle Facilities

There are four bicycle lane classes, as defined below:

- Bicycle Paths (Class I) – A path physically separated from motor vehicle traffic by an open space or barrier and either within a highway right-of-way or within an independent right-of-way, used by bicyclists, pedestrians, joggers, skater, and other non-motorized travelers. Multi-use paths are the most popular type of facility. Because the availability of uninterrupted rights-of-way is limited, this type of facility may be difficult to locate and expensive to build relative to other types of bicycle and pedestrian facilities, but inexpensive compared to new roadways. Prime locations for bike paths are areas such as power-line easements, utility easements, canal banks, river levees, drainage easements, railroad or highway rights-of-way, or regional community parks.
- Bicycle Lanes (Class II) – A portion of a roadway that has been set aside by striping and pavement markings for the preferential or exclusive use of bicyclists. Bike lanes are intended to promote an orderly flow of bicycle and vehicle traffic. This type of facility is established by using the appropriate striping, legends, and signs.
- Bicycle Routes (Class III) – Bike routes are facilities shared with motor vehicle traffic. Bike routes must be of benefit to the bicyclist and offer a higher degree of service than adjacent streets. They provide for specific bicycle demand and may be used to connect discontinuous segments of streets with bike facilities. Also, bike routes are located on residential streets and rural roads. If the pavement width is sufficient and traffic volume/speeds warrant, an edge line may be painted to further delineate the bike route. Bike routes are signed with the G-93 Bike Route marker, but no striping or legends are required.
- Separated Bikeways (Class IV) – Separated bikeways provide a physical separation from vehicular traffic. This separation may include grade separation, flexible posts, planters or other inflexible barriers, or on-street parking. These bikeways provide some bicyclists a greater sense of comfort and security, especially in the context of high speed roadways. Separated facilities can provide one-way or two-way travel and may be located on either side of a one-way roadway.

According to the latest City of Hayward Bicycle & Pedestrian Master Plan, adopted September 2020, Class I Bike Paths are located on six different corridors as shown in **Table 1**. Existing bicycle facilities within three zone study areas are shown in **Figure 4**, **Figure 5**, and **Figure 6**, respectively.

Table 1 : Existing Class I Bike Paths in the City of Hayward

Name	From	To	Miles
Eden Greenway	East of Soto Road	Hesperian Boulevard	1.48
Ward Creek Trail	Folsom Avenue	Auction Way	1.90
Ward Creek Trail	Hesperian Boulevard	Industrial Parkway SW	0.73
Ward Creek Trail	Pacheco Way	Murcia Street	0.50

Name	From	To	Miles
Industrial Parkway Path	Industrial Parkway SW	Mission Boulevard	1.20
San Francisco Bay Trail	West Winton Avenue	Breakwater Avenue	2.87
		Total Bike Paths	**8.68**

Source: City of Hayward Bicycle and Pedestrian Master Plan, September 2020.

Table 2, **Table 3** and **Table 4** show the existing Class II, Class III and Class IV bikeways within the study area, respectively. Class II bicycle lanes and buffered bicycle lanes are located on 46 different routes with total length of approximately 37 miles.

Table 2 : Existing Class II Bike Lanes in the City of Hayward

Street	From	To	Miles
A Street	Hesperian Boulevard	Mission Boulevard	1.90
Alquire Parkway	Mission Boulevard	Vanderbilt Street	0.13
Arf Avenue	Baumberg Avenue	Hesperian Boulevard	0.40
B Street	Martin Luther King Drive	Grand Street	0.53
Brae Burn Avenue	Rousseau Street	Gresel Street	0.18
C Street	Filbert Street	Alice Street	0.23
D Street	Winton Avenue	2nd Street	1.12
Calaroga Avenue	La Playa Drive	Ashbury Lane	1.41
Calaroga Avenue	Tennyson Road	Catalpa Way	0.70
Campus Drive	2nd Street	Highland Boulevard	0.59
Catalpa Way	Miami Avenue	Hesperian Boulevard	0.43
Cathy Way	Calaroga Avenue	Hesperian Boulevard	0.18
City Center Drive	Foothill Boulevard	Second Street	0.40
Clubhouse Drive	Skywest Drive	Golf Course Road	0.13
Corporate Avenue	Eden Landing Road	Arden Road	0.62
Corsair Boulevard	W Winton Avenue	North of Stearman Avenue	0.80
Dixon Street	Tennyson Road	Industrial Parkway	0.69
Eden Landing Road	Clawiter Road	Corporate Avenue	0.47
Eden Shores Boulevard	Sandcreek Drive	Hesperian Boulevard	0.57
Fairview Avenue	Hayward Boulevard	City Limits	0.60
Garin Avenue	Mission Boulevard	Larrabee Street	0.28
Gresel Street	Medinah Street	Brae Burn Avenue	0.13
Harder Road	Santa Clara Street	West Loop Road	1.90
Hathaway Avenue	San Leandro City Limits	West A Street	0.44
Hesperian Boulevard	Tennyson Road	City Limits	1.60

Street	From	To	Miles
Huntwood Avenue/Huntwood Way	Gading Road	Union City Border	3.44
Marina Drive	Industrial Boulevard	Eden Park Place	0.48
Miami Avenue	Catalpa Way	Hesperian Boulevard	1.10
Morningside Drive	Tahoe Avenue	Arf Avenue	0.20
Panama Street	Hesperian Boulevard	Calaroga Avenue	0.20
Portsmouth Avenue	Sleepy Hollow Avenue	Baumberg Avenue	0.70
Rousseau Street	Prestwick Avenue	Brae Burn Avenue	0.14
Ruus Road	Folsom Avenue	Industrial Parkway West	0.53
Santa Clara Street	West A Street	Harder Road	1.65
Soto Road	Winton Avenue	Harder Road	1.05
Second Street	D Street	Campus Drive	1.00
Skywest Drive	Hesperian Boulevard	Sueirro Street	0.30
Tahoe Avenue	Hesperian Boulevard	Morningside Drive	0.30
Tampa Avenue/Gomer Street	Patrick Avenue	Tennyson Road	0.37
Tennyson Road	Industrial Boulevard	Calaroga Avenue	1.00
Tennyson Road	Patrick Avenue	Vista Grande Drive	1.90
Turner Court	Kay Avenue	Hesperian Boulevard	0.37
West A Street	Montgomery Street	Skywest Drive	1.90
West Winton Avenue	Clawiter Road	Hesperian Boulevard	0.50
West Winton Avenue	Cabot Boulevard	Depot Road	0.50
Whitman Street	Sycamore Avenue	Tennyson Road	2.10
Whitesell Street	Depot Road	Breakwater Avenue	1.20
		Total Bike Lanes	**37.36**

Source: City of Hayward Bicycle and Pedestrian Master Plan, September 2020.

Class III bicycle boulevards and bicycle routes are located on 48 different routes with total length of 31 miles.

Table 3 : Existing Class III Bike Routes in the City of Hayward

Street	From	To	Miles
A Street	Mission Boulevard	East City Limits	0.60
D Street	2nd Street	East City Limits	0.76
E Street	2nd Street	East City Limits	0.19
2nd Street	City Center Drive	East City Limits	1.15

Street	From	To	Miles
4th Street	A Street	D Street	0.29
5th Street	D Street	E Street	0.15
6th Street	B Street	D Street	0.20
Amador Street	Centennial Park	Elmhurst Street	0.35
Arden Road/ Baumberg Avenue	Corporate Avenue	Industrial Boulevard	0.76
Breakwater Avenue	San Francisco Bay Trail	Clawiter Road	0.85
Cabot Boulevard	West Winton Avenue	Depot Road	1.11
Campus Drive	Hayward Boulevard	North of Highland Boulevard	0.17
Carlos Bee Boulevard	Mission Boulevard	Campus Drive	0.61
Cheney Lane	Calaroga Avenue	Peterman Avenue	0.06
City Center Drive	2nd Street	Maple Court	0.13
Clawiter Road	West Winton Avenue	Eden Landing Road	1.84
Depot Road	Cabot Boulevard	Hesperian Boulevard	1.67
Eldridge Avenue	Eden Greenway	Underwood Avenue	0.54
Elmhurst Street	Santa Clara Street	Amador Street	0.20
Fairway Street	Mission Boulevard	Carroll Avenue	0.40
Folsom Avenue	Tampa Avenue	Huntwood Avenue	0.84
Gading Road	Harder Road	Patrick Avenue	0.59
Garin Avenue	Larrabee Street	Bello Road	0.50
Gomer Street	Underwood Avenue	Patrick Avenue	0.20
Grand Street	A Street	Meek Avenue	0.51
Hayward Boulevard	Campus Drive	Fairview Avenue	2.87
Hesperian Boulevard	Northern City Limit	La Playa Drive	1.70
Industrial Boulevard	Clawiter Road	Hesperian Boulevard	2.55
Industrial Parkway SW	Industrial Parkway West	Whipple Road	0.90
Industrial Parkway W	Hesperian Boulevard	Hopkins Street	0.60
La Playa Drive	Hesperian Boulevard	Calaroga Avenue	0.29
Main Street	McKeever Avenue	Sunset Boulevard	0.30
Meek Avenue	Grand Street	Silva Avenue	0.12
Middle Lane	Clawiter Road	Hesperian Boulevard	0.64
Montgomery Street	C Street	Sunset Boulevard	0.70
Orchard Avenue	Soto Road	Mission Boulevard	0.53

Street	From	To	Miles
Pacheco Way/Stratford Road	Folsom Path	Industrial Parkway West	0.22
Patrick Avenue	Gomer Street	West Tennyson Road	0.30
Silva Avenue	Meek Avenue	Sycamore Avenue	0.24
Skywest Drive	West A Street	Sueirro Street	0.30
Southland Drive	Hesperian Boulevard	West Winton Avenue	0.45
Tampa Avenue	Tennyson Road	Folsom Avenue	0.46
Tennyson Road	Calaroga Avenue	Patrick Avenue	0.56
Underwood Avenue	Eldridge Avenue	Gomer Street	0.08
West Winton Avenue	Cabot Boulevard	Clawiter Road	0.99
Western Boulevard	San Leandro City Limits	"A" Street	0.40
Whipple Road	Industrial Parkway SW	Huntwood Avenue	0.50
Winton Avenue	Southland Drive	Soto Road	0.97
		Total Bike Routes	**31.34**

Source: City of Hayward Bicycle and Pedestrian Master Plan, September 2020.

Class IV separated bikeways are located on one corridor with total length of 1.9 miles.

Table 4 : Existing Class I Bike Paths in the City of Hayward

Name	From	To	Miles
Mission Boulevard	Industrial Parkway	South City Limits	1.90
		Total Separated Bikeways	**1.90**

Source: City of Hayward Bicycle and Pedestrian Master Plan, September 2020.

Existing Bicycle Facilities - Zone 1

Figure - 4

Existing Bicycle Facilities - Zone 2

Figure - 5

Existing Bicycle Facilities - Zone 3

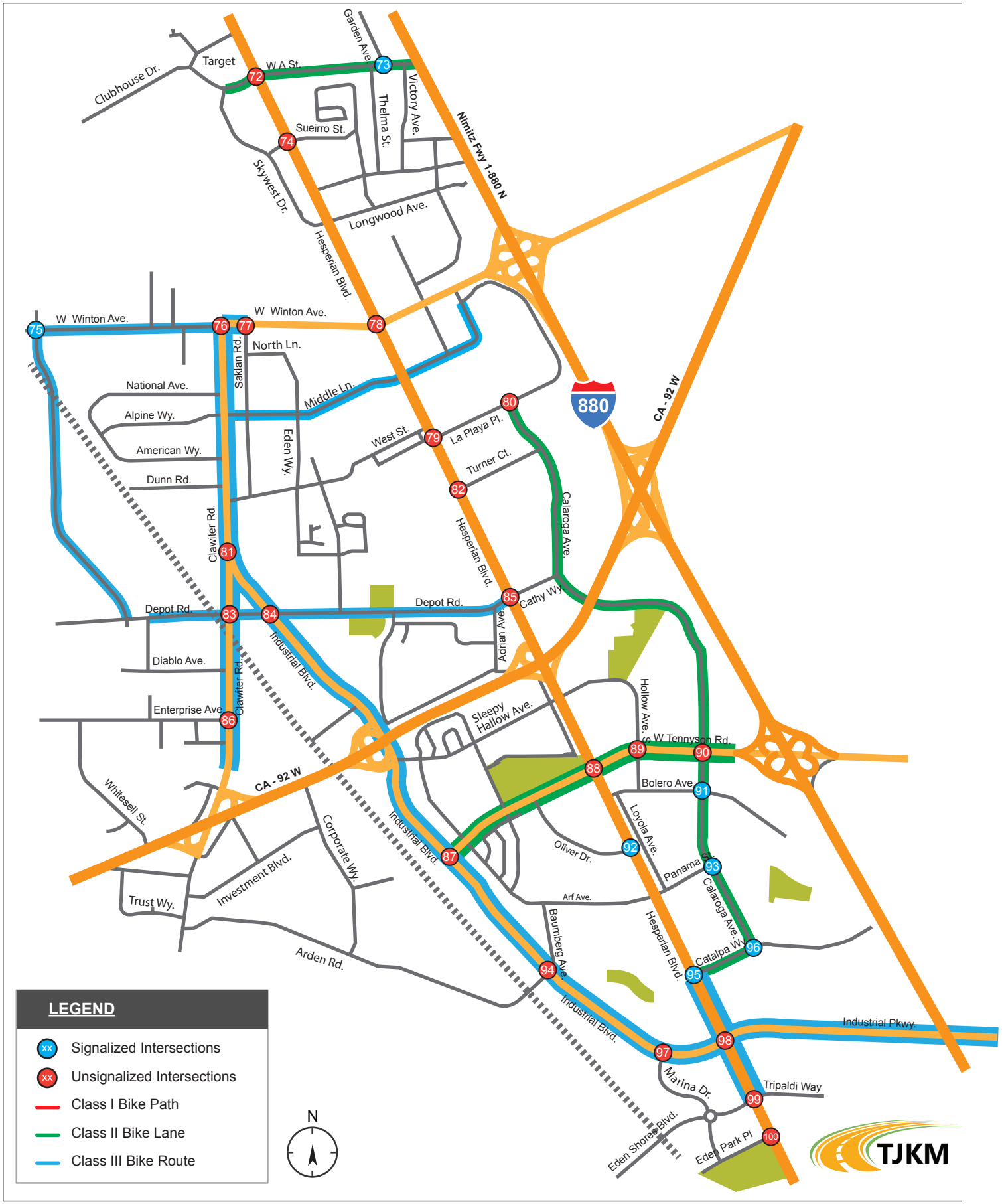


Figure - 6

Existing Pedestrian Facilities

Walkability is defined as the ability to travel easily and safely between various origins and destinations without having to rely on automobiles or other motorized travel. The ideal "walkable" community includes wide sidewalks, a mix of land uses such as residential, employment, shopping opportunities, a limited number of conflict points with vehicle traffic, easy access to transit facilities, and services.

Pedestrian facilities comprise of crosswalks, sidewalks, pedestrian signals, and off-street paths which provide safe and convenient routes for pedestrians to access destinations such as institutions, businesses, public transportation, and recreation facilities.

Existing pedestrian facilities within three zone study areas are shown in **Figure 7**, **Figure 8**, and **Figure 9**, respectively.

Existing Transit Facilities

In addition to two BART lines, AC Transit offers local bus transit service on the following routes within the project limit:

- AC Transit Line 60 provides weekday service at 20-minute headways between 6:02 a.m. and 11:50 p.m. and weekend service at 40-minute headways between 6:00 a.m. and 11:44 p.m. The line runs from Cal State East Bay to Chabot College, while providing loop service between the Hayward BART station and 2nd Street.
- AC Transit Line 83 provides weekday service at 30-minute headways between 6:00 a.m. and 10:43 p.m. The line runs a loop from the Hayward BART station to the South Hayward BART station with stops along Hesperian Boulevard, Winton Avenue, Industrial Boulevard, and Eden Landing Road.
- AC Transit Line 86 provides service at 30-minute headways between 4:15 a.m. and 12:21 a.m. on weekdays, and 35-minute headways between 5:55 a.m. and 11:33 p.m. on weekends. The line provides service between the South Hayward BART station and the Hayward BART station with stops along Tennyson Road, Industrial Boulevard, and Winton Avenue, and at the AC Transit Hayward Division building.
- AC Transit Line 93 provides weekday service at 37- to 47-minute headways between 5:40 a.m. and 11:13 p.m. and one-hour headways between 6:00 a.m. and 10:48 p.m. on weekends. The line runs a loop from the Hayward BART station and stops along Mission Boulevard.
- AC Transit Line 94 provides weekday service at 65-minute headways between 5:05 a.m. and 9:22 p.m. The line runs a loop from Stonebrae Elementary School to the Hayward BART Station.
- AC Transit Line 95 provides daily service at 40-minute headways between 5:30 a.m. and 8:24 p.m. The line runs between the Hayward BART station and a stop located at Kelly Street and Eddy Street. Line 95 extends service to Bret Harte Middle School and Hayward High School on school days.

- AC Transit Line 97 provides weekday service at 11- to 20-minute headways between 5:37 a.m. and 11:53 p.m., and weekend service at 13- to 33-minute headways between 6:00 a.m. and 11:45 p.m. Line 97 runs between the Union City BART station and the Bay Fair BART Station with stops at Chabot College and along Hesperian Boulevard.
- AC Transit Line 99 provides weekday service at 15- to 20-minute headways between 5:00 a.m. and 1:01 a.m. and 25- to 30-minute headways between 6:00 a.m. and approximately 12:50 a.m. on weekends and holidays. The line runs a loop from the Hayward BART station and stops along Mission Boulevard.
- AC Transit Line 801 provides weekday service at one-hour headways between 11:43 p.m. and 6:32 a.m., and weekend service at one-hour headways between 11:39 p.m. and 7:35 a.m. on Saturdays and between 11:39 p.m. and 8:22 a.m. on Sundays and holidays. The line runs provides service between the Fremont BART station and the 12th Street Oakland BART Station with stops at both Hayward BART stations.
- AC Transit Line M provides weekday service at 32- to 43-minute headways between 5:54 a.m. and 5:49 p.m. Line M provides service between the Hayward BART Station and the Hillsdale Shopping Center with a stop at Chabot College.
- AC Transit Line S provides weekday service at 15- to 60-minute headways between 5:10 a.m. and 8:33 a.m. and 30- to 45-minute headways between 4:15 p.m. and 8:00 p.m. Line S provides commuter service between the City of Hayward and the Transbay Terminal in San Francisco.
- AC Transit Line SB provides weekday service at 10- to 45-minute headways between 5:25 a.m. and 9:28 a.m. and 20- to 55-minute headways between 3:30 p.m. and 8:20 p.m. This line runs between the City of Newark and San Francisco with one stop in the City of Hayward.

Existing Pedestrian Facilities - Zone 1

Figure - 7

Existing Pedestrian Facilities - Zone 2

Figure - 8

Existing Pedestrian Facilities - Zone 3

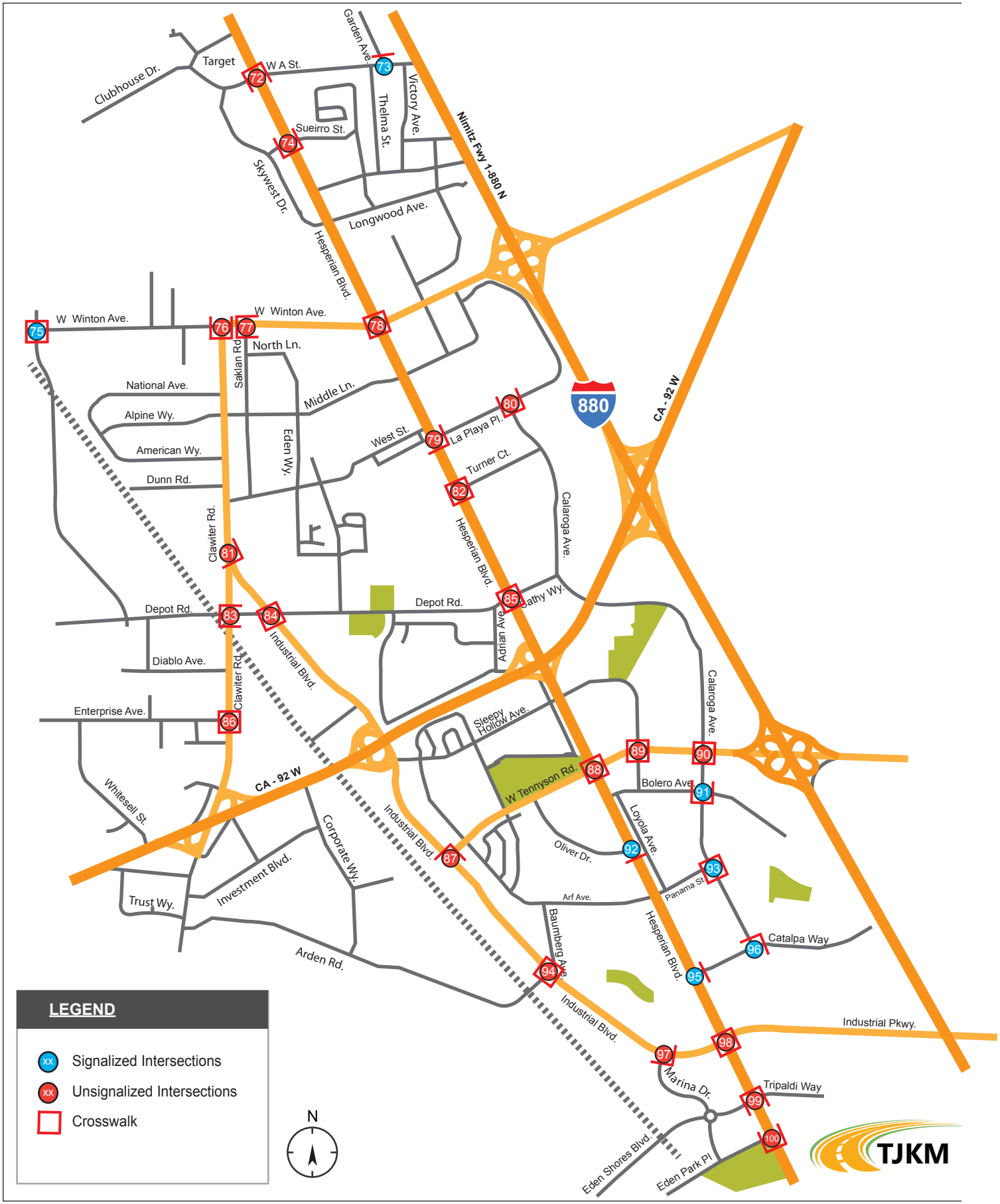


Figure - 9

Study Intersections

TJKM evaluated traffic conditions at 100 study intersections: 70 signalized intersections and 30 un-signalized intersections. The study intersections were selected in consultation with the City of Hayward staff. The peak periods observed were between 7:00-9:00 a.m. and 4:00-6:00 p.m. The study intersections and associated traffic controls are as follows:

1. Foothill Boulevard / Grove Way (Signalized)
2. Foothill Boulevard / City Center Drive (Signalized)
3. City Center Drive / 2nd Street (Signalized)
4. 2nd Street / Russell Way (Two-Way Stop)
5. Foothill Boulevard / A Street (Signalized)
6. A Street / 2nd Street (Signalized)
7. B Street / 2nd Street (Signalized)
8. B Street / 3rd Street (Two-Way Stop)
9. B Street / 6th Street (Two-Way Stop)
10. A Street / Mission Boulevard (Signalized)
11. A Street / Myrtle Street (One-Way Stop)
12. B Street / Grand Street (Signalized)
13. A Street / Grand Street (Signalized)
14. B Street / Montgomery Street (All-Way Stop)
15. B Street / Watkins Street (Signalized)
16. C Street / Second Street (Signalized)
17. D Street / Grand Street (Signalized)
18. A Street / Happyland Avenue (Two-Way Stop)
19. D Street / Watkins Avenue (Signalized)
20. Foothill Boulevard/ D Street (Signalized)
21. D Street / 1st Street (Two-Way Stop)
22. D Street / 2nd Street (Signalized)
23. D Street / 5th Street (One-Way Stop)
24. Watkins Street / Jackson Street (Signalized)
25. Foothill Boulevard / Jackson Street / Mission Boulevard (Signalized)
26. E Street / 2nd Street (Signalized)
27. Grand Street / Meek Avenue (All-Way Stop)

28. Meek Avenue / Silva Avenue / Jackson Street (Signalized)
29. Fletcher Lane / Watkins Street (Two-Way Stop)
30. Mission Boulevard/ Fletcher Lane (Signalized)
31. Santa Clara Street / Ocie Way (Two-Way Stop)
32. Amador Street / Winton Avenue (Signalized)
33. Myrtle Street / Soto Road / Winton Avenue (Signalized)
34. D Street / Winton Avenue (Signalized)
35. Park Street / Winton Avenue (Two-Way Stop)
36. Alice Street / Jackson Street (Two-Way Stop)
37. 2nd Street / Campus Drive (One-Way Stop)
38. Amador Street / Elmhurst Street (All-Way Stop)
39. Soto Road / Jackson Street (Signalized)
40. Amador Street / Cypress Avenue / Jackson Street (Signalized)
41. Orchard Avenue / Soto Road (Signalized)
42. Carlos Bee Boulevard / Hayward Boulevard (Signalized)
43. Harder Road / Santa Clara Street (Signalized)
44. Cypress Avenue / Harder Road / Underwood Avenue (Signalized)
45. Harder Road / Gading Road (Signalized)
46. Harder Road / Soto Road / Mocine Avenue (Signalized)
47. Harder Road / Jane Avenue (Signalized)
48. Harder Road / Mission Boulevard (Signalized)
49. Patrick Avenue / Gomer Street (All-Way Stop)
50. Patrick Avenue / Roosevelt Avenue (All-Way Stop)
51. Patrick Avenue / Tennyson Road (Signalized)
52. Pompano Avenue / Tennyson Road (Signalized)
53. Tampa Avenue / Tennyson Road (Signalized)
54. Tennyson Road / Dickens Avenue (One-Way Stop)
55. Tyrell Avenue / Tennyson Road (Signalized)
56. Tennyson Road / Harvey Avenue (One-Way Stop)
57. Ruus Road / Tennyson Road (Signalized)
58. Tennyson Road / Baldwin Street (One-Way Stop)

59. Huntwood Avenue / Tennyson Road (Signalized)
60. Beatron Way / Whitman Street / Tennyson Road (Signalized)
61. Tennyson Road / Pacific Street (One-Way Stop)
62. Dixon Street / E 12th Street / Tennyson Road (Signalized)
63. Mission Boulevard/ Tennyson Road (Signalized)
64. Ruus Road / Folsom Avenue (All-Way Stop)
65. Industrial Parkway / Stratford Road (Signalized)
66. Industrial Boulevard / Ruus Road (Signalized)
67. Huntwood Avenue / Industrial Parkway (Signalized)
68. Mission Boulevard / Industrial Parkway (Signalized)
69. Huntwood Avenue/ Sandoval Way (Signalized)
70. Huntwood Avenue / Zephyr Avenue (Two-Way Stop)
71. Huntwood Avenue / Whipple Road (Signalized)
72. A Street / Hesperian Boulevard (Signalized)
73. Garden Avenue / A Street (Two-Way Stop)
74. Hesperian Boulevard / Sueirro Street (Signalized)
75. Winton Avenue / Cabot Boulevard (All-Way Stop)
76. Clawiter Road / Winton Avenue (Signalized)
77. Saklan Road / Winton Avenue (Signalized)
78. Winton Avenue / Hesperian Boulevard (Signalized)
79. Hesperian Boulevard / La Playa Drive / West Street (Signalized)
80. La Playa Drive / Calaroga Avenue (Signalized)
81. Clawiter Road / Industrial Boulevard (Signalized)
82. Hesperian Boulevard / Turner Court (Signalized)
83. Clawiter Road / Depot Road (Signalized)
84. Depot Road / Industrial Boulevard (Signalized)
85. Depot Road / Cathy Way / Hesperian Boulevard (Signalized)
86. Clawiter Road / Enterprise Avenue (Signalized)
87. Industrial Boulevard/ Tennyson Road (Signalized)
88. Hesperian Boulevard / Tennyson Road (Signalized)
89. Sleepy Hollow Avenue / Tennyson Road (Signalized)

90. Calaroga Avenue / Tennyson Road (Signalized)
91. Calaroga Avenue / Bolero Avenue (All-Way Stop)
92. Hesperian Boulevard / Oliver Drive (One-Way Stop)
93. Calaroga Avenue / Panama Street (All-Way Stop)
94. Baumberg Avenue / Industrial Boulevard (Signalized)
95. Hesperian Boulevard / Catalpa Way (One-Way Stop)
96. Calaroga Avenue / Catalpa Way (All-Way Stop)
97. Industrial Boulevard/ Marina Drive (Signalized)
98. Hesperian Boulevard / Industrial Boulevard (Signalized)
99. Hesperian Boulevard / Eden Shores Boulevard (Signalized)
100. Hesperian Boulevard / Eden Park Place (Signalized)

The study intersection lane geometry and traffic controls are illustrated in **Figure 10**, **Figure 11**, **Figure 12**, **Figure 13** and **Figure 14**.

Study Segments

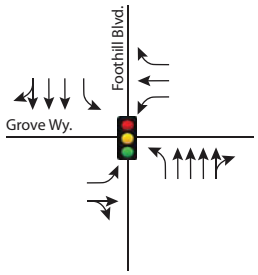
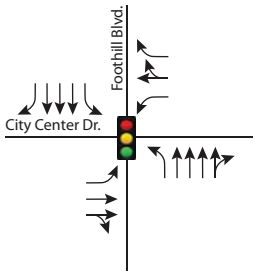
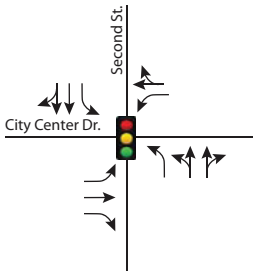
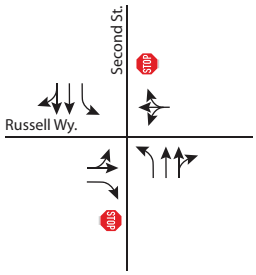
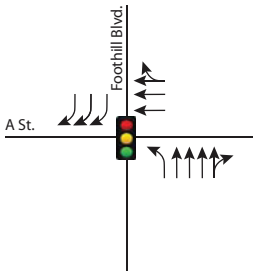
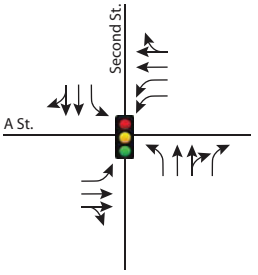
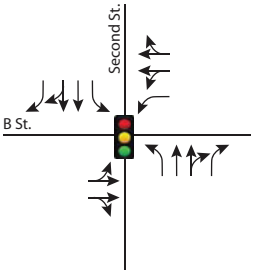
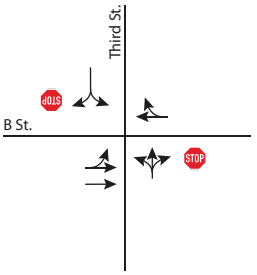
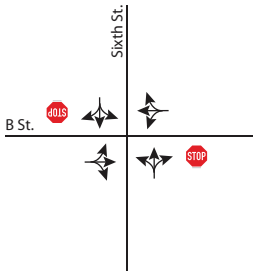
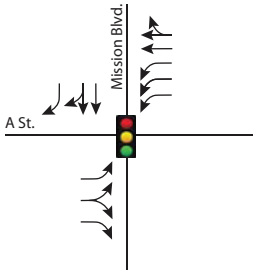
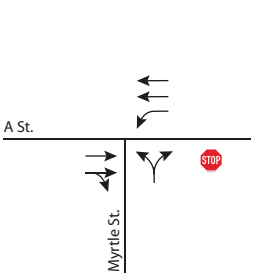
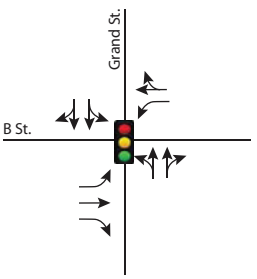
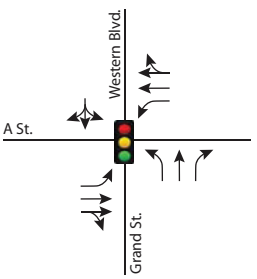
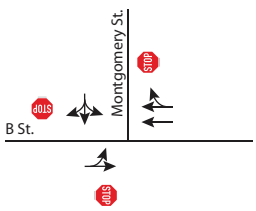
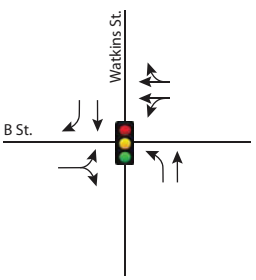
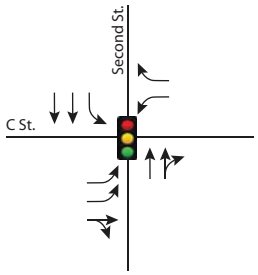
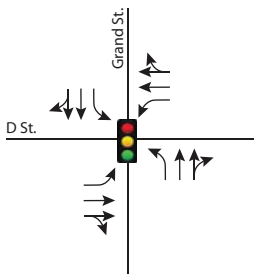
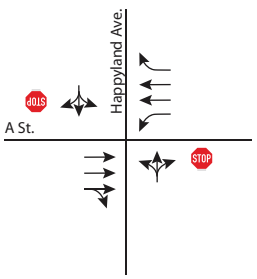
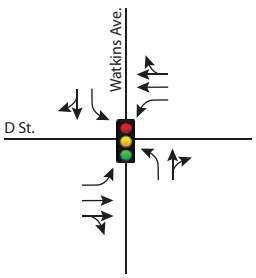
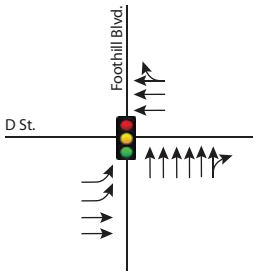
TJKM evaluated traffic conditions at 15 study segments within the project study zones. The study segments were evaluated for both directions during weekday a.m. and p.m. peak periods. The study segments and associated classifications are as follows:

1. Mission Boulevard between Rose Street & Sunset Boulevard (State Route/Arterial)*
2. Mission Boulevard between A Street & B Street (State Route/Arterial)*
3. Mission Boulevard between Fletcher Lane & Sycamore Avenue (State Route/Arterial)*
4. Foothill Boulevard between City Center Drive & Russell Way (Arterial)*
5. A Street between Western Boulevard & Peralta Street (Arterial)*
6. Santa Clara Street between Jackson Street & Elmhurst Street (Arterial)
7. Soto Road between Orchard Avenue & Berry Avenue (Collector)
8. Campus Drive between 2nd Street & Oakes Drive (Arterial)
9. A Street between Royal Avenue & Hesperian Boulevard (Arterial)
10. Winton Avenue between Wright Drive & Stonewall Avenue (Arterial)**
11. Winton Avenue between I-880 Northbound Ramps & Santa Clara Street (Arterial)**
12. Depot Road between Cabot Boulevard & Industrial Boulevard (Collector)
13. Depot Road between Hesperian Boulevard & Adrian Avenue (Local Road)
14. Industrial Boulevard between Tennyson Road & Baumberg Avenue (Arterial)**
15. Hesperian Boulevard between Panama Street & Catalpa Way (Arterial)**

*Tier 1 CMP Roadway

**Tier 2 CMP Roadway

Existing Lane Geometry and Traffic Controls

Intersection #1 Foothill Blvd./ Grove Wy.	Intersection #2 Foothill Blvd./ City Center Dr.	Intersection #3 City Center Dr./ Second St.	Intersection #4 Second St./ Russell Wy.	Intersection #5 Foothill Blvd./ A St.
				
Intersection #6 A St./ Second St.	**Intersection #7** B St./ Second St.	**Intersection #8** B. St./ Third St.	**Intersection #9** B St./ Sixth St.	**Intersection #10** A St./ Mission Blvd.
				
Intersection #11 A St./ Myrtle St.	**Intersection #12** B St./ Grand St.	**Intersection #13** A St./Grand St./ Western Blvd.	**Intersection #14** B St./ Montgomery St.	**Intersection #15** B St./ Watkins St.
				
Intersection #16 C St./ Second St.	**Intersection #17** D St./ Grand St.	**Intersection #18** A St./ Happyland Ave.	**Intersection #19** D St./ Watkins St.	**Intersection #20** Foothill Blvd./ D. St.
				

LEGEND

- Traffic Signal
- Stop Sign

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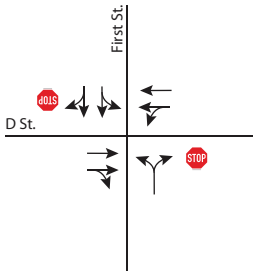
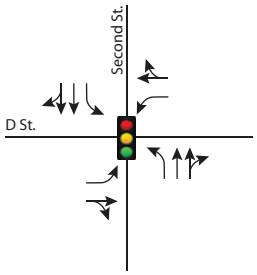
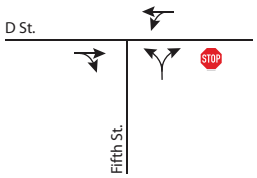
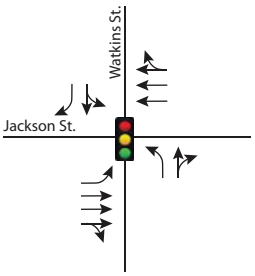
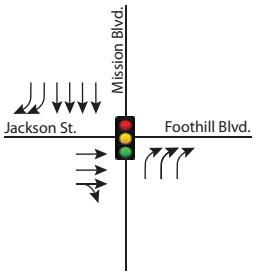
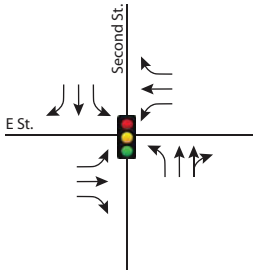
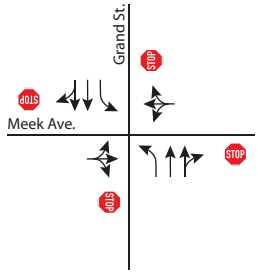
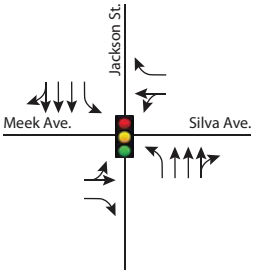
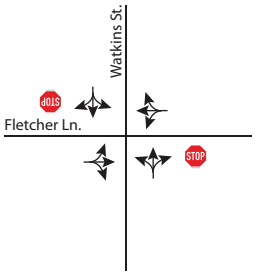
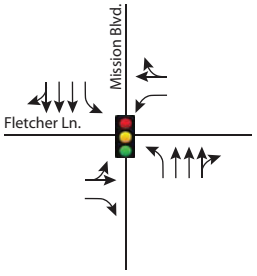
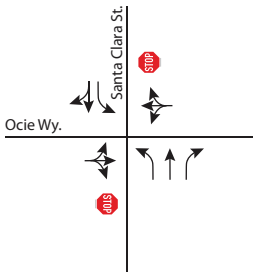
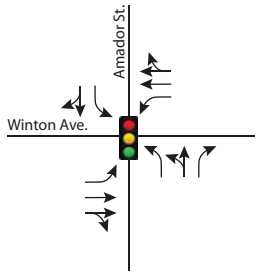
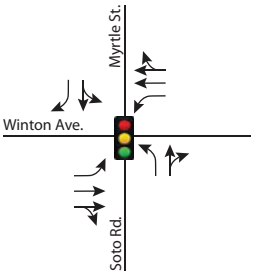
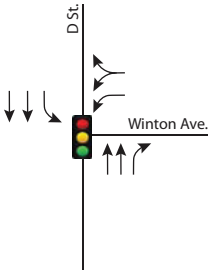
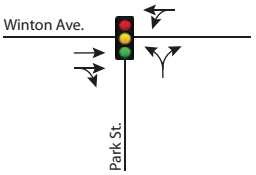
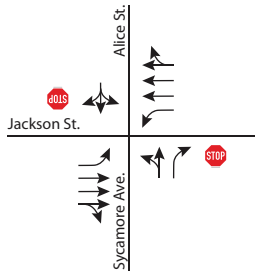
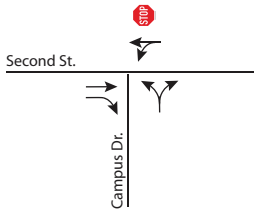
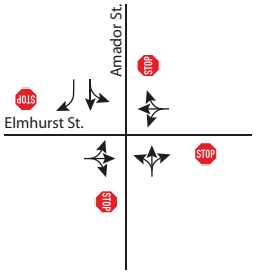
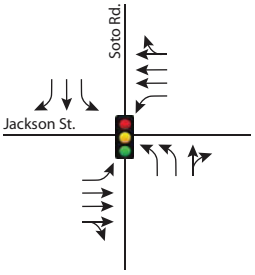
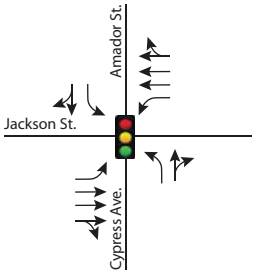
Figure 10

Existing Lane Geometry and Traffic Controls

Intersection #21 D St./ First St.	Intersection #22 D St./ Second St.	Intersection #23 D. St./ Fifth St.	Intersection #24 Watkins St./ Jackson St.	Intersection #25 Foothill Blvd./Jackson St./ Mission Blvd.
				
Intersection #26 **E St./** **Second St.**	**Intersection #27** **Grand St./** **Meek Ave.**	**Intersection #28** **Meek Ave./Silva Ave./** **Jackson St.**	**Intersection #29** **Fletcher Ln./** **Watkins St.**	**Intersection #30** **Mission Blvd./** **Fletcher Ln.**
				
Intersection #31 **Santa Clara St./** **Ocie Wy.**	**Intersection #32** **Amador St./** **Winton Ave.**	**Intersection #33** **Myrtle St./Soto Rd./** **Winton Ave.**	**Intersection #34** **D St./** **Winton Ave.**	**Intersection #35** **Park St./** **Winton Ave.**
				
Intersection #36 **Alice St./Sycamore Ave./** **Jackson St.**	**Intersection #37** **Second St./** **Campus Dr.**	**Intersection #38** **Amador St./** **Elmhurst St.**	**Intersection #39** **Soto Rd./** **Jackson St.**	**Intersection #40** **Amador Ave./Cypress Ave./** **Jackson St.**
				

LEGEND

- Traffic Signal
- Stop Sign

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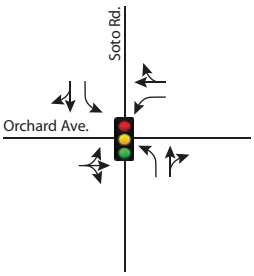
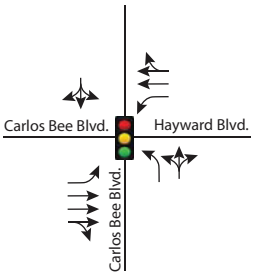
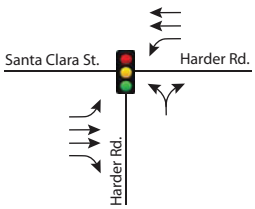
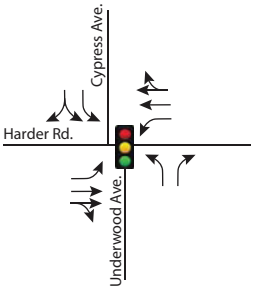
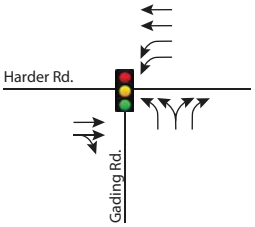
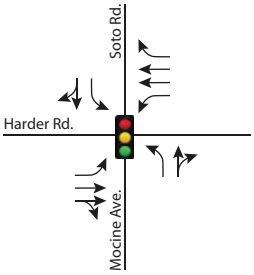
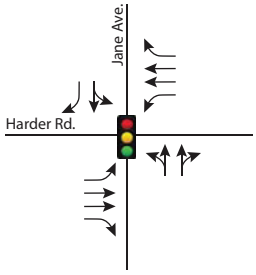
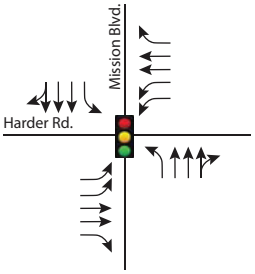
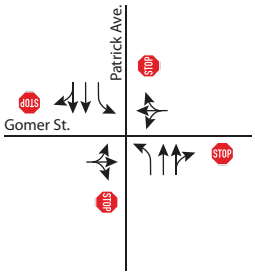
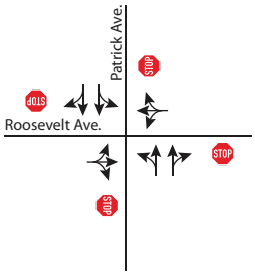
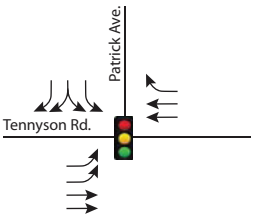
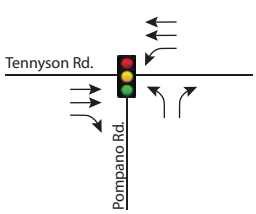
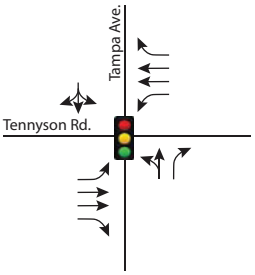
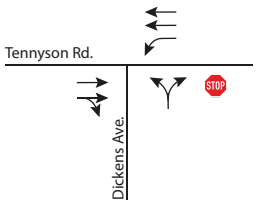
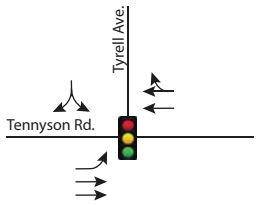
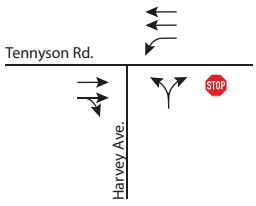
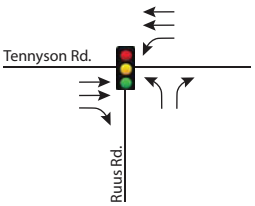
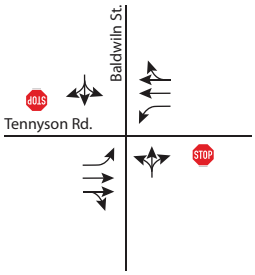
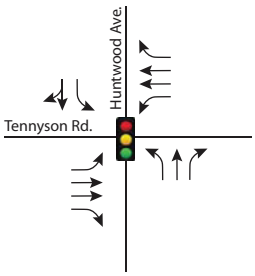
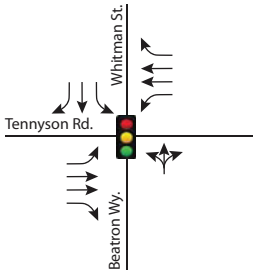
Figure 11

Existing Lane Geometry and Traffic Controls

Intersection #41 Orchard Ave./ Soto Rd.	Intersection #42 Carlos Bee Blvd./ Hayward Blvd.	Intersection #43 Harder Rd./ Santa Clara St.	Intersection #44 Cypress Ave./Harder Rd./ Underwood Ave.	Intersection #45 Harder Rd./ Gading Rd.
				
Intersection #46 Harder Rd./ Soto Rd./Mocine Ave.	Intersection #47 Harder Rd./ Jane Ave./	Intersection #48 Harder Rd./ Mission Blvd.	Intersection #49 Patrick Ave./ Gomer St.	Intersection #50 Patrick Ave./ Roosevelt Ave.
				
Intersection #51 Patrick Ave./ Tennyson Rd.	Intersection #52 Pompano Ave./ Tennyson Rd.	Intersection #53 Tampa Ave./ Tennyson Rd.	Intersection #54 Tennyson Rd./ Dickens Ave.	Intersection #55 Tyrell Ave./ Tennyson Rd.
				
Intersection #56 Tennyson Rd./ Harvey Ave.	Intersection #57 Ruus Rd./ Tennyson Rd.	Intersection #58 Tennyson Rd./ Baldwin St.	Intersection #59 Huntwood Ave./ Tennyson Rd.	Intersection #60 Beatron Wy./Whitman St./ Tennyson Rd.
				

LEGEND

- Traffic Signal
- Stop Sign

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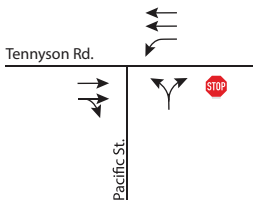
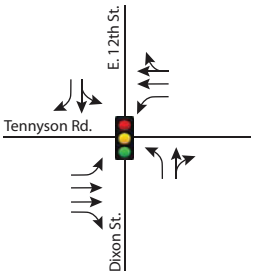
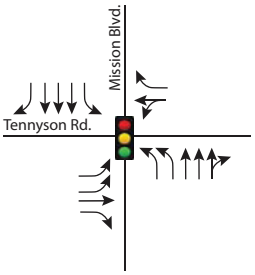
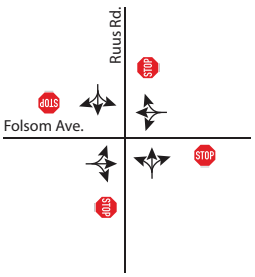
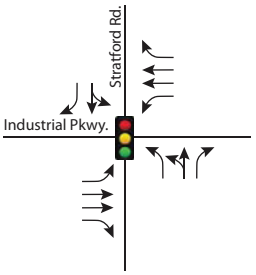
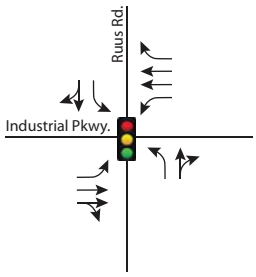
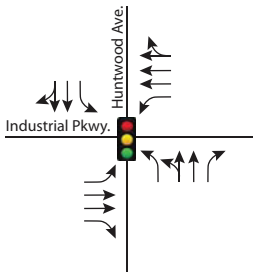
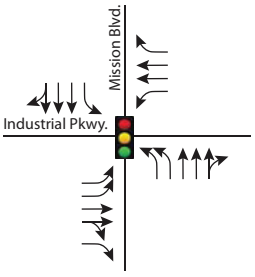
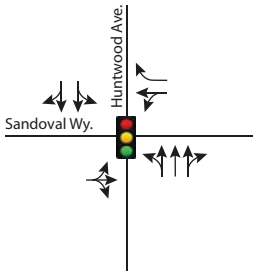
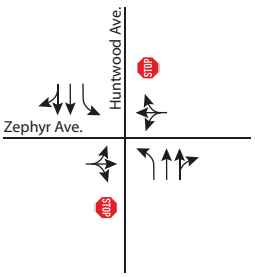
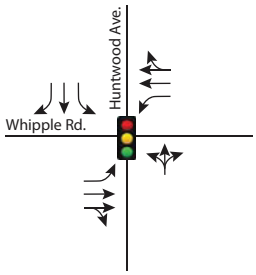
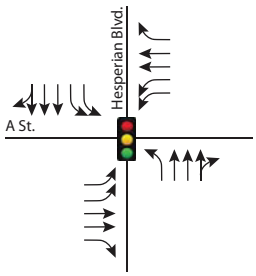
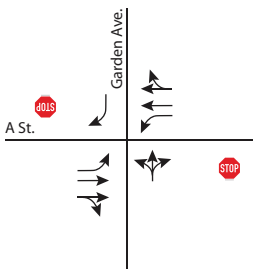
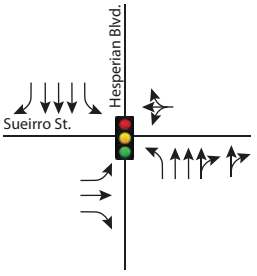
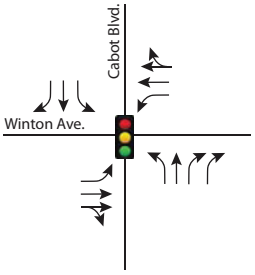
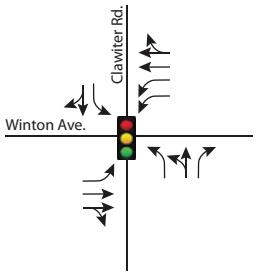
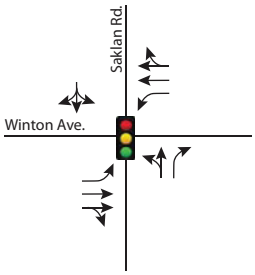
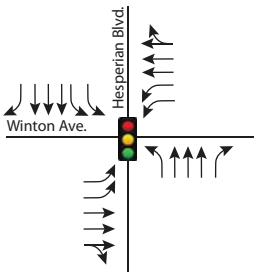
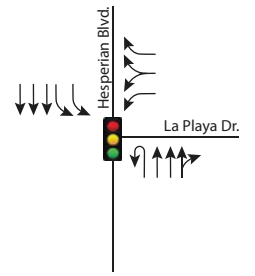
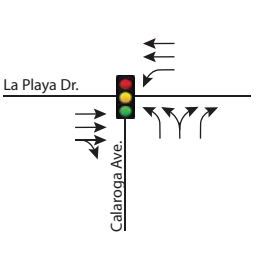
TJKM

Figure 12

Existing Lane Geometry and Traffic Controls

Intersection #61 Tennyson Rd./ Pacific St.	Intersection #62 Dixon St./E. 12th St./ Tennyson Rd.	Intersection #63 Mission Blvd./ Tennyson Rd.	Intersection #64 Ruus Rd./ Folsom Ave.	Intersection #65 Industrial Pkwy./ Stratford Rd.
				
Intersection #66 **Industrial Pkwy./** **Ruus Rd.**	**Intersection #67** **Huntwood Ave./** **Industrial Pkwy.**	**Intersection #68** **Mission Blvd./** **Industrial Pkwy.**	**Intersection #69** **Huntwood Ave./** **Sandoval Wy.**	**Intersection #70** **Huntwood Ave./** **Zephyr Ave.**
				
Intersection #71 **Huntwood Ave./** **Whipple Rd.**	**Intersection #72** **A St./** **Hesperian Blvd.**	**Intersection #73** **Garden Ave./** **A St.**	**Intersection #74** **Hesperian Blvd./** **Sueirro St.**	**Intersection #75** **Winton Ave./** **Cabot Blvd.**
				
Intersection #76 **Clawiter Rd./** **Winton Ave.**	**Intersection #77** **Saklan Rd/** **Winton Ave.**	**Intersection #78** **Winton Ave./** **Hesperian Blvd.**	**Intersection #79** **Hesperian Blvd./** **La Playa Dr.**	**Intersection #80** **La Playa Dr./** **Calaroga Ave.**
				

LEGEND

- Traffic Signal
- Stop Sign

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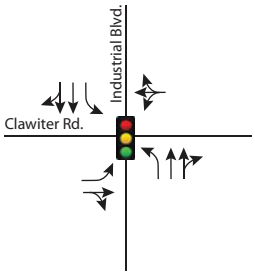
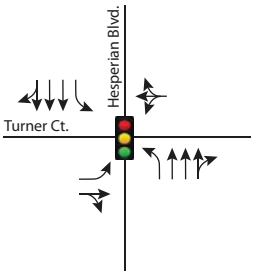
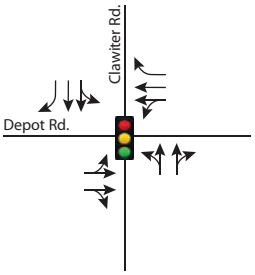
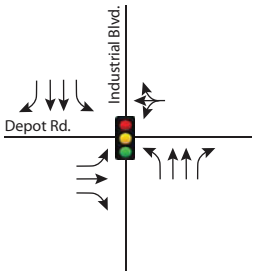
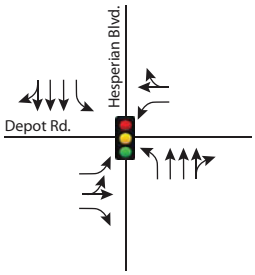
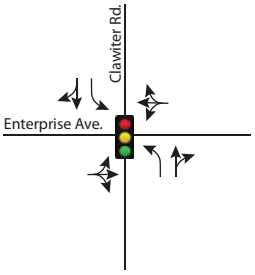
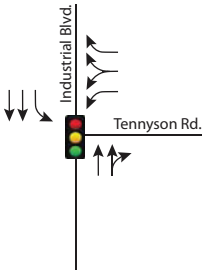
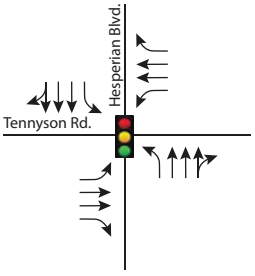
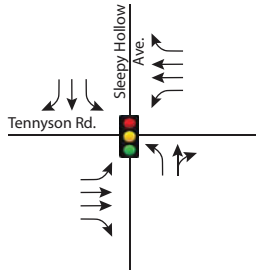
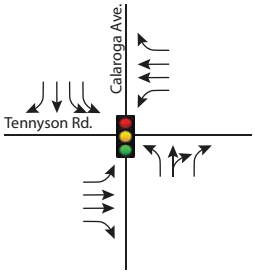
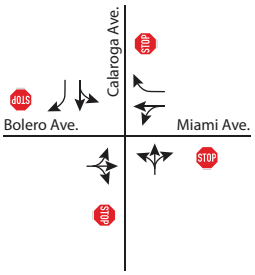
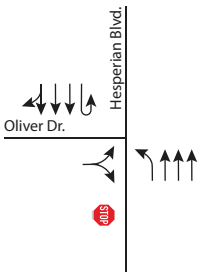
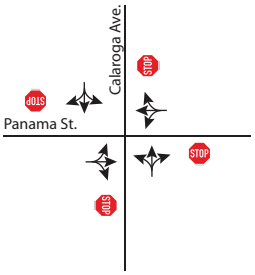
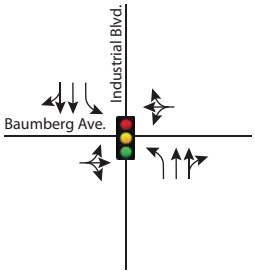
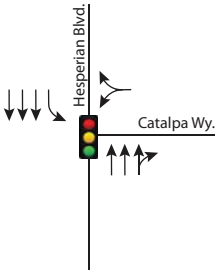
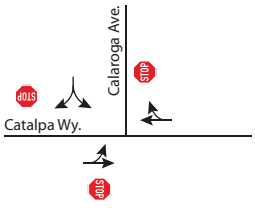
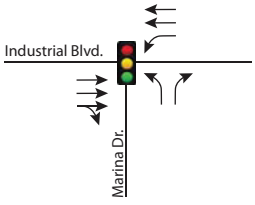
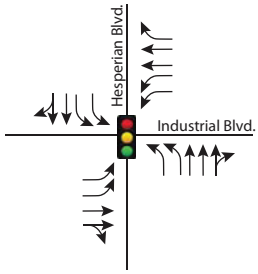
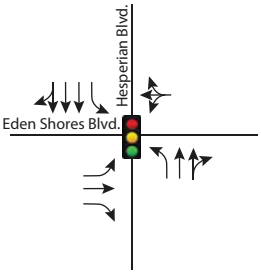
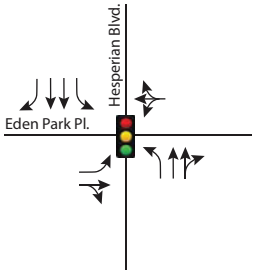
TJKM

Figure 13

Existing Lane Geometry and Traffic Controls

Intersection #81 Clawiter Rd./ Industrial Blvd.	Intersection #82 Hesperian Blvd./ Turner Ct.	Intersection #83 Clawiter Rd./ Depot Rd.	Intersection #84 Depot Rd./ Industrial Blvd.	Intersection #85 Depot Rd./ Hesperian Blvd.
				
Intersection #86 **Clawiter Rd./** **Enterprise Ave.**	**Intersection #87** **Industrial Blvd./** **Tennyson Rd.**	**Intersection #88** **Hesperian Blvd./** **Tennyson Rd.**	**Intersection #89** **Sleepy Hollow Ave./** **Tennyson Rd.**	**Intersection #90** **Calaroga Ave./** **Tennyson Rd.**
				
Intersection #91 **Calaroga Ave./** **Miami Ave./Bolero Ave.**	**Intersection #92** **Hesperian Blvd./** **Oliver Dr.**	**Intersection #93** **Calaroga Ave./** **Panama St.**	**Intersection #94** **Baumberg Ave./** **Industrial Blvd.**	**Intersection #95** **Hesperian Blvd./** **Catalpa Wy.**
				
Intersection #96 **Calaroga Ave./** **Catalpa Wy.**	**Intersection #97** **Industrial Blvd./** **Marina Dr.**	**Intersection #98** **Hesperian Blvd./** **Industrial Blvd.**	**Intersection #99** **Hesperian Blvd./** **Eden Shores Blvd.**	**Intersection #100** **Hesperian Blvd./** **Eden Park Pl.**
				

LEGEND

- Traffic Signal
- Stop Sign

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Figure 14

Data Collection

This section summarizes the data collection efforts for the City of Hayward Citywide Intersection Improvement Study. Two primary types of data were collected to support the determination of existing conditions: (1) peak hour turning movement volume counts; and (2) signal timings. Intersection level of service (LOS) analysis was performed using the turning movement data for both the a.m. and p.m. peak hours.

Turning Movement Counts

TJKM collected the turning movement counts (TMC) for 70 intersections during the a.m. (7:00 – 9:00 a.m.) and p.m. (4:00 – 6:00 p.m.) peak periods between January 28, 2016 and February 11, 2016. These counts were done at each location using manual observations to record the number of vehicles that turn left or right or drive straight through the intersection for each of the intersection approaches. To assure proper data collection on typical traffic days, each day and time were carefully reviewed, and any questionable days/times were eliminated from the data collection schedule. This included identifying school holidays across the city and any events that occurred during the data collection period. During the data collection days and times, no public holidays, special events or weather conditions were observed that could have impacted the usefulness of the collected data. The data was collected on the days and hours representative of normal traffic conditions. Significant construction impacts were not present during the data collection period, thus no data was disqualified from the process. **Appendix A** contains the vehicle, pedestrian, and bicycle turning movement counts for the study intersections.

The remaining 30 intersection volumes were provided by the City of Hayward; however, they were collected in 2014 and 2015. After discussing with the City staff, the 2019 volumes were projected by applying a growth rate of 1.3 percent per year, obtained from the City of Hayward General Plan, to 2014, 2015, and 2016 volumes.

Signal Timing Plans

Signal timing plans were obtained from City of Hayward and Caltrans for the studied signalized intersections. The following key parameters were included in the Synchro analysis for every signalized study intersection to accurately model existing conditions:

- Walk Time – This is the amount of time for a pedestrian walk phase. The Walk Time is activated when the signal is on pedestrian recall or when a pedestrian makes a call by pushing the pedestrian push button.
- Flashing Don't Walk Time – This is the amount of time for a pedestrian Flash Don't Walk Phase. This represents the amount of time remaining before the pedestrian phase is completed.
- Minimum Green Time – This is the shortest time that the phase will show green.
- Yellow Time – This is the amount of time for the yellow interval.
- All-Red Time – This is the amount of time for the all-red interval that follows the yellow interval. The all red time should be of sufficient duration to permit the intersection to clear before cross traffic is released.

- Vehicle Extension Time – This is also known as the maximum gap. When a vehicle crosses a detector, it will extend the green time by the vehicle extension time.
- Minimum Gap Time – This is the minimum gap that the controller will use with volume-density operation.
- Phasing – The type of left-turn phasing (protected, split, permissive).
- Coordination Plans (Splits) – The maximum amount of time a phase can be served during the relevant peak period.
- Offsets – The offset value represents the number of seconds that the reference phase lags the master reference (or arbitrary reference if no master is specified). The master reference synchronizes the intersections sharing a common cycle length to provide a coordinated system.

The existing (2019) conditions intersection turning volumes are illustrated in **Figure 15**, **Figure 16**, **Figure 17**, **Figure 18** and **Figure 19**.

Average Daily Traffic Counts

TJKM collected the average daily traffic (ADT) counts for 15 study segments. The counts were provided by the City from previous projects and were collected in the years 2017 and 2018. The counts consist of 24-hour, bi-directional ADT conducted during typical weekday conditions. Segments with multi-day counts used a mid-week average calculated from counts conducted on Tuesday and Thursday. Segments with single-day counts consist of data conducted on either Tuesdays, Wednesdays, or Thursdays. To ensure typical weekday conditions were reflected, similar procedures as discussed above for the turning movement counts were applied when conducting ADT counts. **Appendix B** contains the 24-hour, bi-directional ADT counts for the study segments.

Existing Peak Hour Traffic Volumes

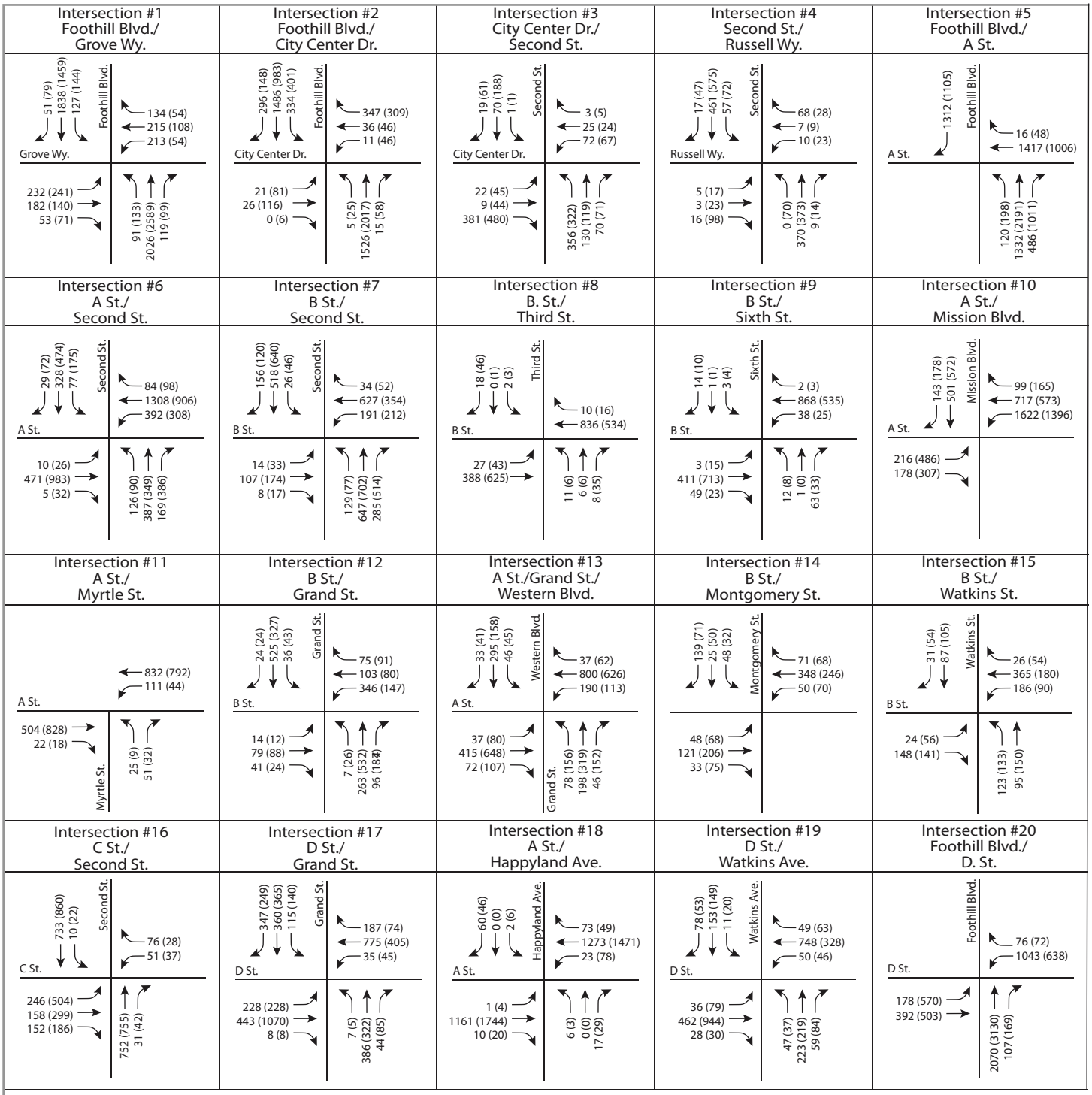
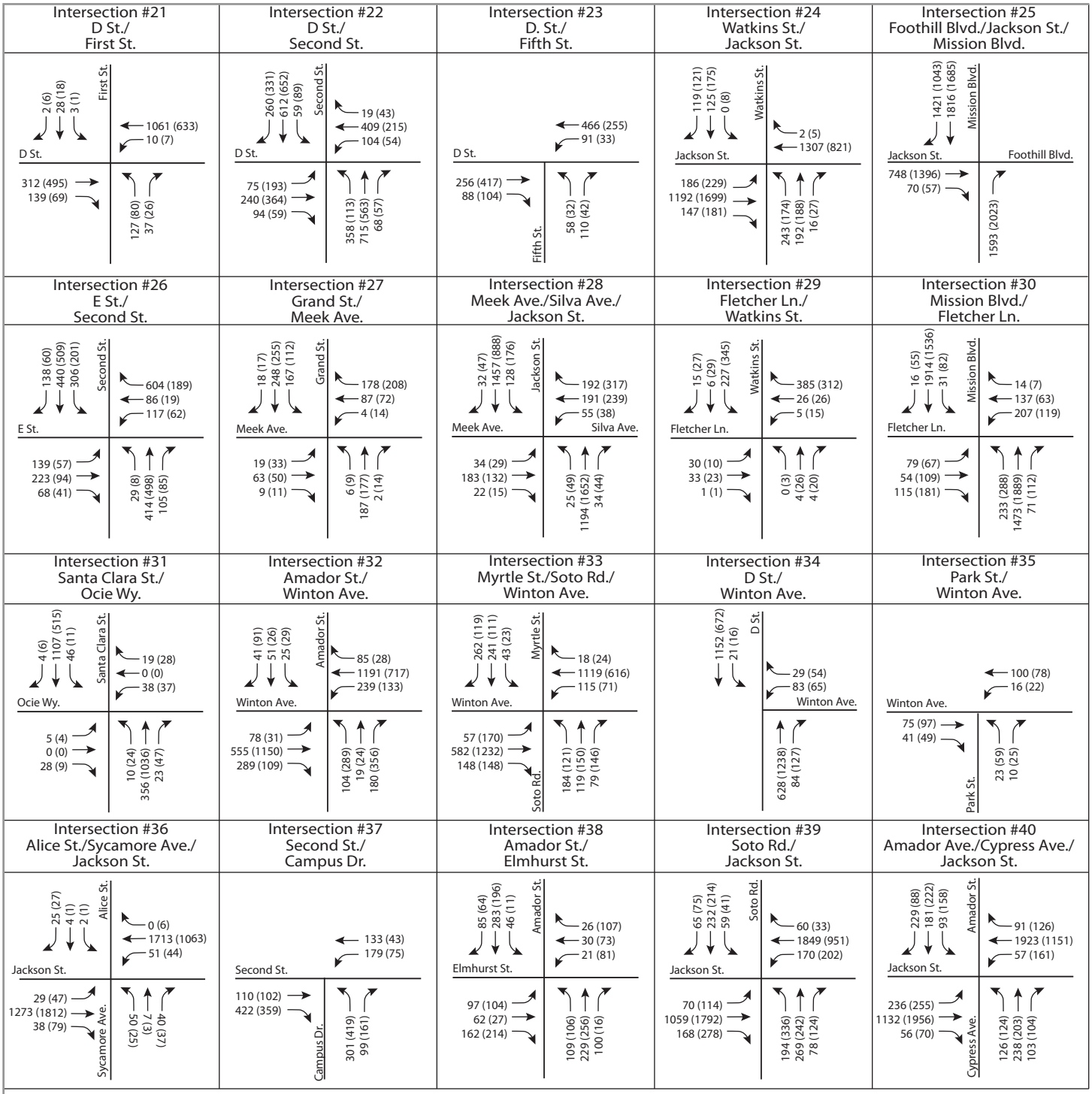


Figure 15

Existing Peak Hour Traffic Volumes



LEGEND

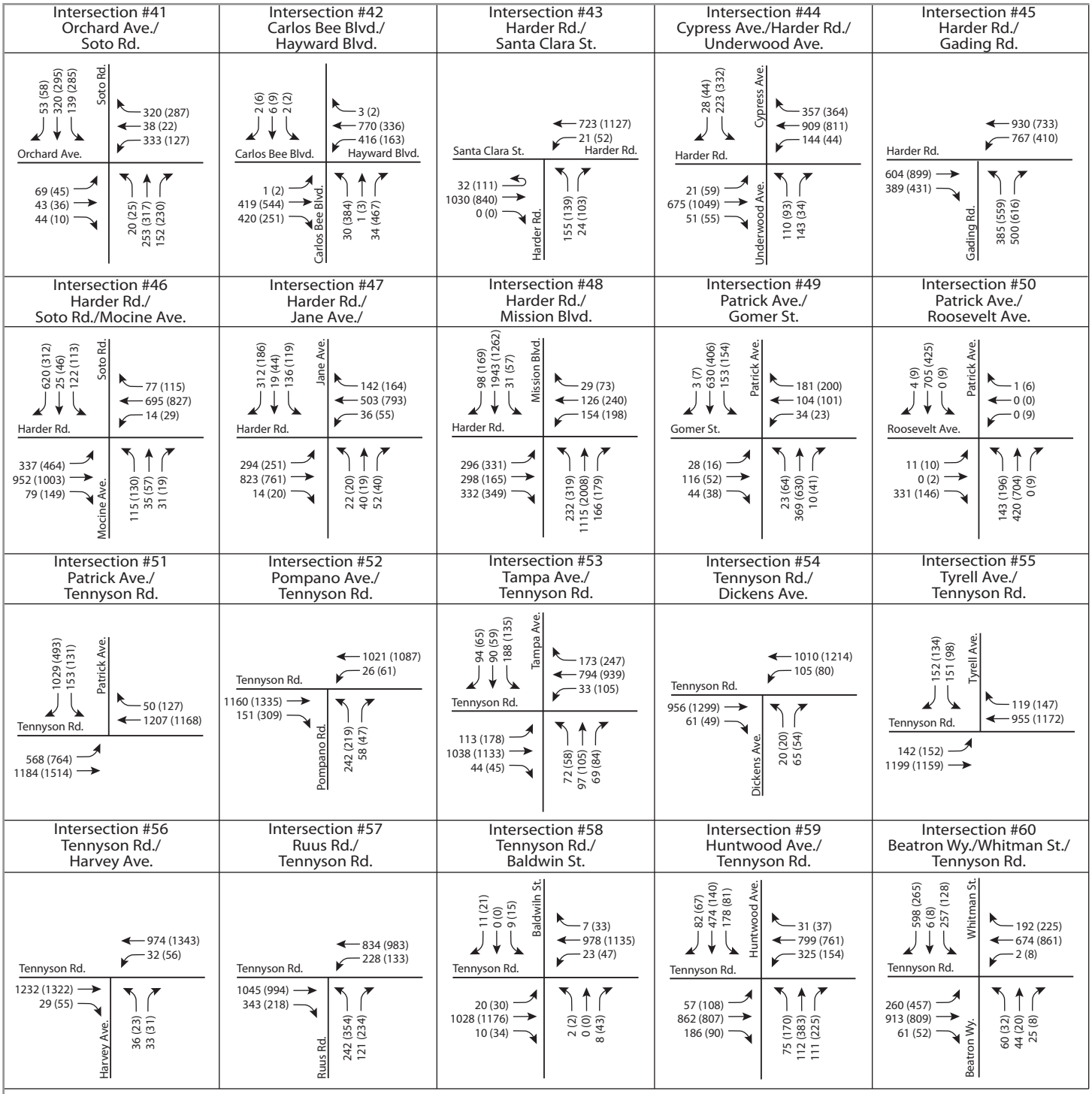
XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes

N

TJKM

Figure 16

Existing Peak Hour Traffic Volumes



LEGEND

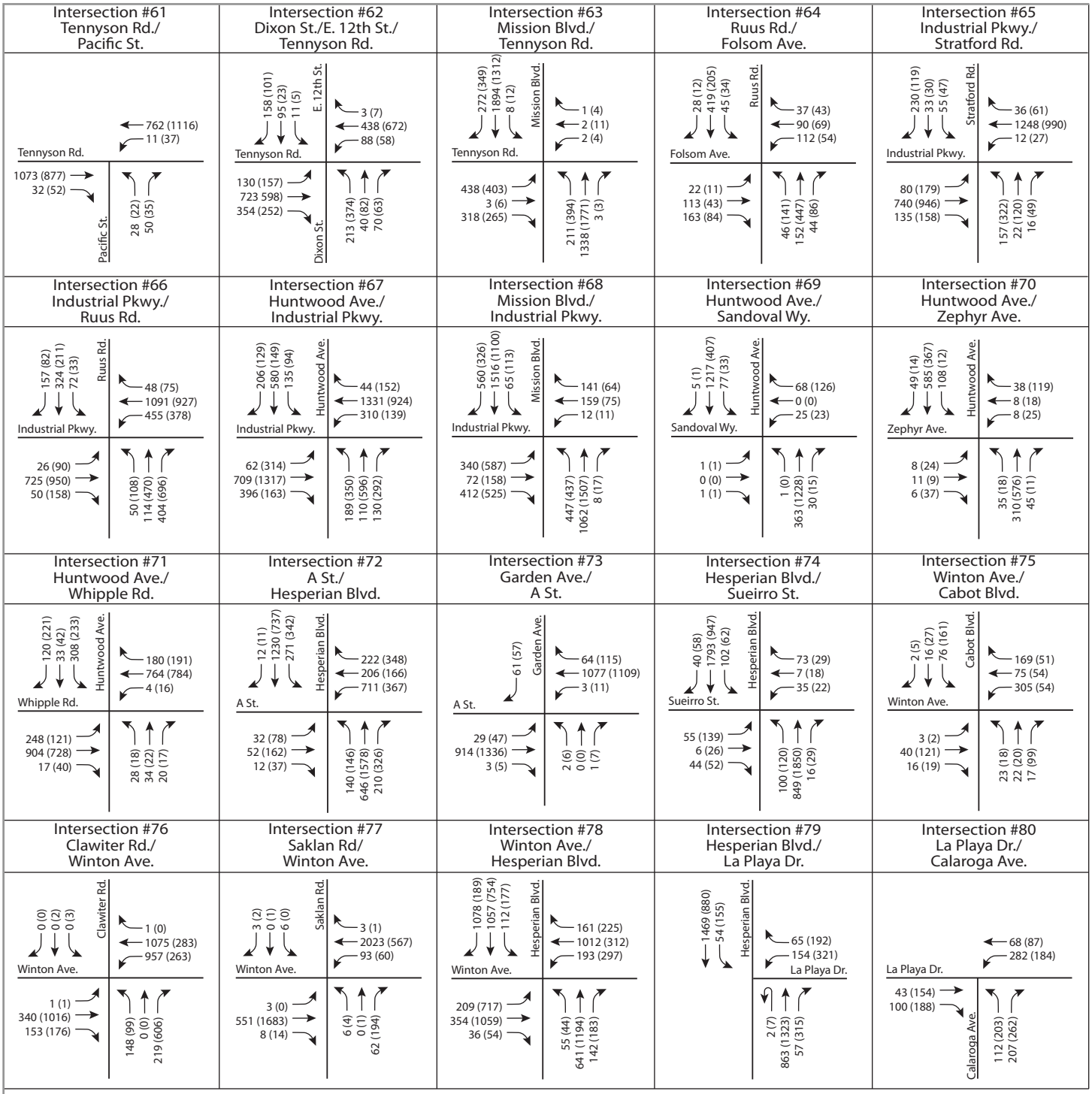
XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes

N

TJKM

Figure 17

Existing Peak Hour Traffic Volumes



LEGEND

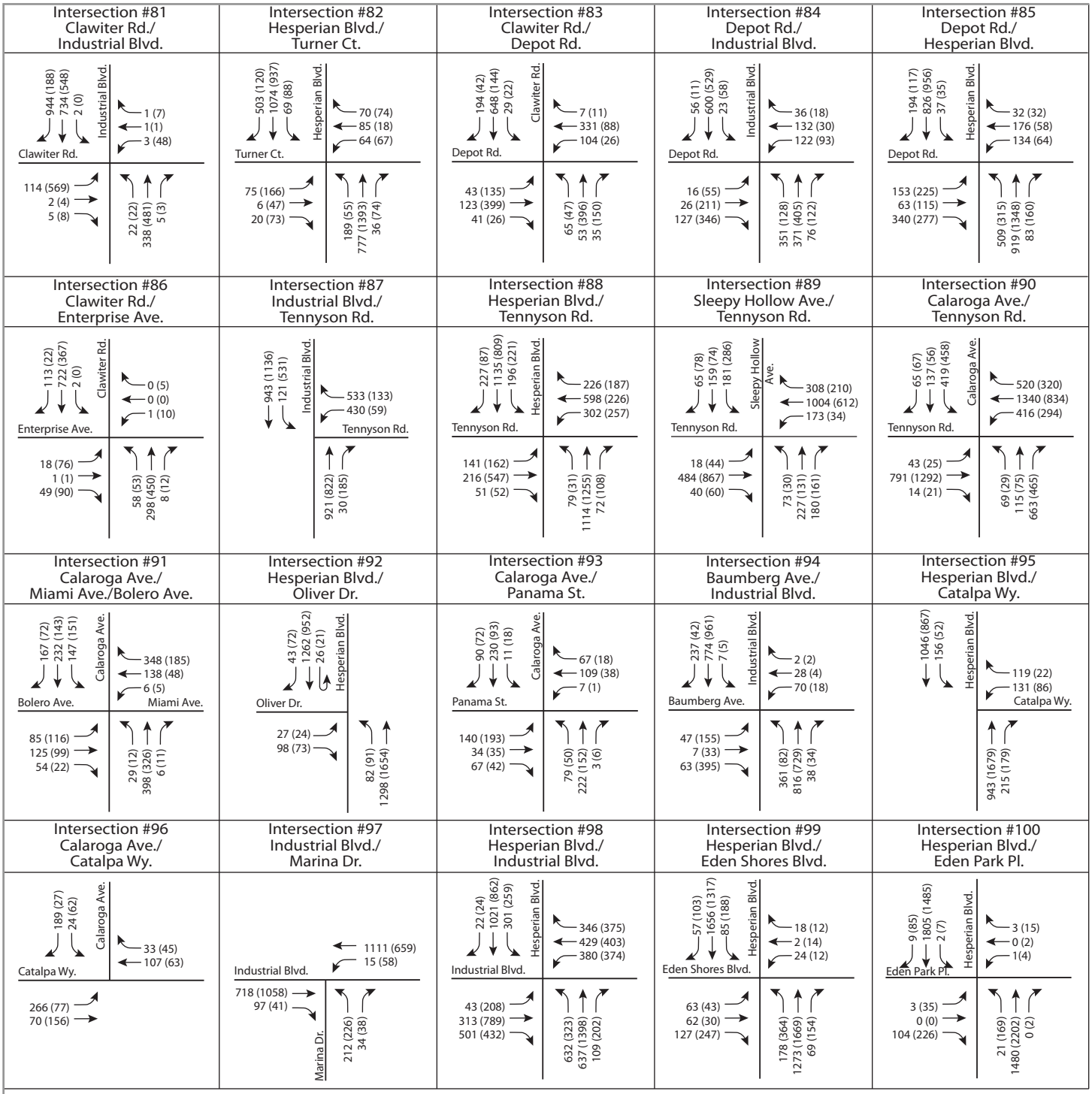
XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes

N

TJKM

Figure 18

Existing Peak Hour Traffic Volumes



LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes

N

TJKM

Figure 19

Collision Data

The collision data was extracted from Statewide Integrated Traffic Records System (SWITRS) for a three-year period from 01/01/2016 to 12/31/2018. Collisions were observed at the study intersections within the study area.

Fatal collisions were found to occur at five locations within the three-year analysis period: Foothill Boulevard/City Center Drive (Intersection #2), Industrial Parkway/Stratford Road (Intersection #65), Hesperian Boulevard/A Street (Intersection #72), Hesperian Boulevard/Turner Court (Intersection #82), and Hesperian Boulevard/Eden Shores Boulevard-Tripaldi Way (Intersection #99). Each location experienced one fatal collision in either 2016 or 2017, and no fatal collisions were observed for the 2018 year. **Table 5** shows the types of collisions observed at the study intersections. The collision types are defined below.

DEFINITIONS FOR COLLISION TYPES: The types of collisions and their definitions as defined by CHP are listed below:

HEAD-ON: A head-on collision is a traffic collision where the front ends of two vehicles hit each other when traveling in opposite directions towards each other. For example, the front of one vehicle collides with the front of another, or prior to impact, one vehicle skids sideways, causing the side of the skidding vehicle to collide with the front of the

SIDESWIPE: A sideswipe collision is any collision between two vehicles in which the point of impact is on the side of both vehicles. For example, two vehicles are proceeding in the same direction or from opposite directions, and the side of one vehicle strikes the side of the other.

REAR-END: A rear-end collision occurs when the front bumper of a vehicle makes contact with another vehicle from the rear. For example, the front of one vehicle strikes the rear of another vehicle, or Vehicle #1 approaches Vehicle #2 from the rear and skids sideways during a braking action, causing the side of Vehicle #1 to strike the rear of

BROADSIDE: A broadside collision occurs when the side of one vehicle is struck by the front of another vehicle.

HIT OBJECT: A motor vehicle strikes a fixed object or other object.

OVERTURNED: A motor vehicle overturns and no prior collision or hitting an object caused the overturning. This would include a motorcyclist losing control, causing the vehicle to lie down on its side. Vehicles that collided with other vehicles or objects prior to overturning are considered as broadside, side swipe, etc. based on the travel direction of involved parties before the collision.

	**AUTO/PED:** A vehicle strikes a pedestrian.
	**OTHER:** A collision not covered in the preceding elements. This entry shall be explained in the narrative, such as a vehicle involved with – a bicycle, train, or animal; an automobile fire; passengers falling or jumping from a vehicle; a vehicle backing; a bicycle involved with a pedestrian or another bicycle, etc.

Table 5 : Collision History Summary – 2016 – 2018

#	Study Intersections	Total	Collision Type									Injury	Fatal
			Head-On	Side-Swipe	Rear-End	Broadside	Hit Object	Pedestrian	Bicycle	Overturned	Other		
1	Foothill Blvd / Grove Way	12	0	2	4	3	0	2	0	0	1	6	0
2	Foothill Blvd / City Center Dr	20	0	3	7	2	3	4	1	0	0	10	1
3	City Center Dr / Second St	2	0	0	0	0	2	0	0	0	0	0	0
4	Russell Way/Second St	3	0	0	0	2	0	1	0	0	0	1	0
5	Foothill Blvd / A St	15	1	3	3	2	3	2	1	0	0	11	0
6	A St / Second St	3	1	0	1	0	0	1	0	0	0	3	0
7	B St / Second St	6	0	2	2	0	2	0	0	0	0	4	0
8	B St / Third St	4	0	1	2	0	0	0	1	0	0	2	0
9	B St/ Sixth St	1	0	1	0	0	0	0	0	0	0	0	0
10	Mission Blvd / A St	9	0	3	3	1	2	0	0	0	0	4	0
11	Myrtle St/ A St	3	1	1	0	0	0	1	0	0	0	1	0
12	B St / Grand St	8	2	1	1	2	2	0	0	0	0	6	0
13	A St / Grand St-Western Blvd	13	0	0	1	8	0	2	2	0	0	11	0
14	B St / Montgomery Ave	3	0	2	0	1	0	0	0	0	0	1	0
15	B St/ Watkins Ave	2	1	0	0	0	0	1	0	0	0	1	0
16	C St / Second St	5	0	0	1	4	0	0	0	0	0	4	0
17	D St / Grand St	6	0	0	2	3	1	0	0	0	0	4	0
18	W A St / Happyland Ave	6	0	0	0	3	0	2	1	0	0	5	0
19	D St / Watkins St	6	0	2	0	3	0	1	0	0	0	4	0
20	Foothill Blvd / D St	13	0	3	3	4	3	0	0	0	0	4	0
21	D St / First St	8	0	1	0	7	0	0	0	0	0	6	0

#	Study Intersections	Total	Collision Type									Injury	Fatal
			Head-On	Side-Swipe	Rear-End	Broadside	Hit Object	Pedestrian	Bicycle	Overturned	Other		
22	D St / Second St	9	0	1	4	3	0	1	0	0	0	4	0
23	D St / Fifth St	0	0	0	0	0	0	0	0	0	0	0	0
24	Watkins Ave / Jackson St	14	1	1	2	4	3	1	2	0	0	8	0
25	Foothill Blvd / Mission Blvd-Jackson St	11	0	3	1	2	5	0	0	0	0	6	0
26	E St / Second St	5	0	1	0	2	2	0	0	0	0	3	0
27	Meek Ave / Grand St	1	0	0	1	0	0	0	0	0	0	0	0
28	Jackson St / Meek Ave-Silva Ave	13	0	0	4	4	2	3	0	0	0	9	0
29	Fletcher Ln / Watkins Ave	1	0	0	1	0	0	0	0	0	0	0	0
30	Fletcher Ln / Mission Blvd	11	1	0	5	3	0	1	1	0	0	6	0
31	Santa Clara St / Ocie Way	1	0	0	0	0	0	0	1	0	0	1	0
32	Amador St / Winton Ave	8	0	0	5	0	2	1	0	0	0	5	0
33	Winton Ave / Soto Rd-Myrtle Ave	5	0	0	2	2	1	0	0	0	0	3	0
34	D St / Winton Ave	2	0	1	0	0	1	0	0	0	0	1	0
35	Winton Ave / Park St	1	0	0	0	1	0	0	0	0	0	0	0
36	Jackson St / Alice St-Sycamore Ave	8	0	1	0	3	4	0	0	0	0	4	0
37	Campus Dr / Second St	0	0	0	0	0	0	0	0	0	0	0	0
38	Amador St / Elmhurst St	4	0	1	0	1	0	2	0	0	0	2	0
39	Jackson St / Soto Ave	9	0	2	3	2	1	0	1	0	0	3	0
40	Jackson St / Cypress Ave-Amador St	19	0	4	3	8	2	1	1	0	0	5	0
41	Soto Rd / Orchard Ave	2	0	0	0	1	0	0	1	0	0	2	0

#	Study Intersections	Total	Collision Type									Injury	Fatal
			Head-On	Side-Swipe	Rear-End	Broadside	Hit Object	Pedestrian	Bicycle	Overturned	Other		
42	Carlos Bee Blvd / Hayward Blvd	1	0	0	1	0	0	0	0	0	0	0	0
43	Harder Rd / Santa Clara St	3	0	1	1	0	1	0	0	0	0	0	0
44	Harder Rd / Cypress Ave-Underwood Ave	6	0	2	2	1	0	1	0	0	0	3	0
45	Harder Rd / Gading Rd	2	0	1	0	1	0	0	0	0	0	1	0
46	Harder Rd / Soto Rd-Mocine Ave	10	0	3	2	3	2	0	0	0	0	6	0
47	Harder Rd / Jane Ave	5	0	0	1	1	2	1	0	0	0	4	0
48	Harder Rd / Mission Blvd	16	1	4	6	2	2	1	0	0	0	8	0
49	Patrick Ave / Gomer St	7	0	0	1	3	1	2	0	0	0	5	0
50	Patrick Ave / Roosevelt Ave	1	0	0	1	0	0	0	0	0	0	0	0
51	Patrick Ave / Tennyson Rd	15	3	3	3	2	2	0	2	0	0	6	0
52	Tennyson Rd / Pompano Ave	13	1	2	5	1	2	2	0	0	0	6	0
53	Tennyson Rd / Tampa Ave	10	0	0	2	4	1	3	0	0	0	5	0
54	Tennyson Rd / Dickens Ave	4	0	1	0	0	0	2	0	0	1	2	0
55	Tennyson Rd / Tyrell Ave	7	0	0	2	1	3	1	0	0	0	2	0
56	Tennyson Rd / Harvey Ave	3	0	0	0	3	0	0	0	0	0	1	0
57	Tennyson Rd / Ruus Rd	7	0	0	2	0	3	2	0	0	0	1	0
58	Tennyson Rd / Baldwin St	2	0	0	0	0	1	1	0	0	0	1	0
59	Tennyson Rd / Huntwood Ave	20	3	3	7	1	3	1	1	0	1	8	0
60	Tennyson Rd / Beatron Way-Whitman St	9	0	0	3	2	1	2	1	0	0	5	0
61	Tennyson Rd / Pacific St	6	0	2	0	3	0	0	0	1	0	5	0

#	Study Intersections	Total	Collision Type									Injury	Fatal
			Head-On	Side-Swipe	Rear-End	Broadside	Hit Object	Pedestrian	Bicycle	Overturned	Other		
62	Tennyson Rd / Dixon St-E 12th St	10	0	1	2	5	1	1	0	0	0	7	0
63	Tennyson Rd / Mission Blvd	7	1	2	1	2	0	1	0	0	0	5	0
64	Ruus Rd / Folsom Ave	3	0	0	1	2	0	0	0	0	0	1	0
65	Stratford Rd / Industrial Pkwy	8	0	2	1	4	0	1	0	0	0	5	1
66	Industrial Pkwy / Ruus Rd-Industrial Pkwy SW	22	3	0	3	12	4	0	0	0	0	17	0
67	Huntwood Ave / Industrial Pkwy	14	0	3	4	3	2	1	1	0	0	9	0
68	Mission Blvd / Industrial Pkwy-Alquire Pkwy	7	0	3	2	0	1	0	1	0	0	5	0
69	Huntwood Ave / Sandoval Way	3	0	0	1	0	2	0	0	0	0	1	0
70	Huntwood Ave / Zephyr Ave	3	0	0	1	0	1	0	0	1	0	1	0
71	Huntwood Ave / Whipple Rd	0	0	0	0	0	0	0	0	0	0	0	0
72	Hesperian Blvd / A St	13	0	1	6	2	3	1	0	0	0	6	1
73	W A St / Garden Ave	4	0	0	2	2	0	0	0	0	0	2	0
74	Hesperian Blvd / Sueirro St	2	0	0	H2	0	0	0	0	0	0	1	0
75	Winton Ave / Cabot Blvd	2	0	0	0	0	2	0	0	0	0	1	0
76	Winton Ave / Clawiter Rd	5	0	0	0	4	1	0	0	0	0	3	0
77	Winton Ave / Saklan Rd	2	0	0	1	0	0	1	0	0	0	1	0
78	Winton Ave / Hesperian Blvd	19	0	2	7	2	4	1	3	0	0	7	0
79	Hesperian Blvd / La Playa Dr-West St	11	0	0	4	5	0	2	0	0	0	7	0
80	La Playa Dr / Calaroga Ave	3	0	1	0	1	1	0	0	0	0	1	0
81	Clawiter Rd / Industrial Blvd	2	0	0	0	0	2	0	0	0	0	1	0

#	Study Intersections	Total	Collision Type									Injury	Fatal
			Head-On	Side-Swipe	Rear-End	Broadside	Hit Object	Pedestrian	Bicycle	Overturned	Other		
82	Hesperian Blvd / Turner Ct	9	0	2	2	1	3	1	0	0	0	3	1
83	Clawiter Rd / Depot Rd	3	0	1	0	1	1	0	0	0	0	1	0
84	Industrial Blvd / Depot Rd	4	0	1	1	1	1	0	0	0	0	1	0
85	Hesperian Blvd / Cathy Way-Depot Rd	15	0	4	7	2	2	0	0	0	0	6	0
86	Clawiter Rd / Enterprise Ave	1	0	0	1	0	0	0	0	0	0	0	0
87	Tennyson Rd / Industrial Blvd	1	0	1	0	0	0	0	0	0	0	1	0
88	Tennyson Rd / Hesperian Blvd	5	0	1	3	0	1	0	0	0	0	1	0
89	Tennyson Rd / Sleepy Hollow Ave	8	0	0	1	2	1	4	0	0	0	5	0
90	Tennyson Rd / Calaroga Ave	10	0	1	6	2	0	1	0	0	0	8	0
91	Calaroga Ave / Bolero Ave-Miami Ave	4	0	0	2	0	0	0	2	0	0	2	0
92	Hesperian Blvd / Oliver Dr	2	0	0	1	1	0	0	0	0	0	2	0
93	Calaroga Ave / Panama St	0	0	0	0	0	0	0	0	0	0	0	0
94	Industrial Blvd / Baumberg Ave	2	0	1	0	1	0	0	0	0	0	0	0
95	Hesperian Blvd / Catalpa Way-Tahoe Ave	13	0	1	1	7	2	2	0	0	0	6	0
96	Calaroga Ave / Catalpa Way	2	1	0	0	0	1	0	0	0	0	1	0
97	Industrial Blvd / Marina Dr	4	0	1	1	0	2	0	0	0	0	1	0
98	Hesperian Blvd / Industrial Blvd-Industrial Pkwy	11	0	0	5	4	2	0	0	0	0	4	0
99	Hesperian Blvd / Eden Shores Blvd-Tripaldi Way	10	2	1	4	2	0	1	0	0	0	4	1
100	Hesperian Blvd / Eden Park Pl-North Pepsi Dwy	6	1	2	1	2	0	0	0	0	0	2	0

#	Study Intersections	Total	Collision Type									Injury	Fatal
			Head-On	Side-Swipe	Rear-End	Broadside	Hit Object	Pedestrian	Bicycle	Overturned	Other		
Totals		**670**	**24**	**94**	**174**	**179**	**106**	**64**	**24**	**2**	**3**	**348**	**5**

Source: Statewide Integrated Traffic Records System (SWITRS), California Highway Patrol

Level of Service (LOS) Methodology

Level of Service (LOS) is a qualitative measure that describes operational conditions as they relate to the traffic stream and perceptions by motorists and passengers. The LOS generally describes these conditions in terms of such factors as speed, travel time, delays, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. The operational LOS are given letter designations from A to F, with A representing the best operating conditions (free-flow) and F the worst (severely congested flow with high delays). Generally, intersections are the capacity-controlling locations with respect to traffic operations on arterial and collector streets. Under Existing Conditions, a standard of LOS D or better is considered as acceptable for all study intersections. Under Future Conditions. the study intersections are evaluated with Level of Service (LOS) E or better as acceptable for signalized intersections due to costs of mitigation and limited right-of-way as per the City of Hayward 2040 General Plan, and LOS D or better as acceptable for unsignalized intersections. The Alameda CTC Congestion Management Program (2017) identifies a worst case of LOS E as acceptable for CMP segments, except where the facility historically operates at LOS F or it is not feasible to improve operations. Non-CMP roadway segments are evaluated with LOS D or better as acceptable.

Signalized Intersections

The study intersections under traffic signal control were analyzed using the 2010 Highway Capacity Manual (2010 HCM) Operations Methodology for signalized intersections described in Chapter 18. This methodology determines LOS based on average control delay per vehicle for the overall intersection during peak hour intersection operating conditions. Control delay includes initial deceleration delay, queuing time, stopped delay, and final acceleration delay. The average control delay for signalized intersections was calculated using Synchro analysis software and was correlated to a LOS designation. **Table 6** presents the HCM 2010 delay and LOS definitions.

Unsignalized Intersections

The unsignalized study intersections were analyzed using the 2010 HCM Operations Methodology for Unsignalized intersections described in Chapters 19 and 20. LOS ratings for unsignalized intersections are based on the average control delay expressed in seconds per vehicle and is calculated for each movement, not for the intersection as a whole. For approaches composed of a single lane, the control delay is computed as the average of all movements in that lane. The weighted average delay for the entire intersections is presented for all-way stop controlled intersections. The average control delay for unsignalized intersections was calculated using Synchro analysis software and was correlated to a LOS designation. Major street traffic typically has no delay at two-way stop-controlled intersections and by definition have acceptable conditions; however, the major street left-turn movements and the minor street movements are all susceptible to delay of varying degrees. Generally, as major street volumes increase, the delay for the minor street increases. HCM 2010 definitions for delay and LOS at unsignalized intersections are presented in **Table 6**.

All intersection analyses were conducted using procedures and methodologies consistent with the 2010 HCM. These methodologies were applied using Synchro 10 traffic analysis software. At a few intersections, where the HCM 2010 methodology does not support lane configuration or

signal timing sequence, the HCM 2000 methodology was used instead. These intersections include Foothill Boulevard/A Street (Intersection #5), Foothill Boulevard/Mission Boulevard-Jackson Street (Intersection #25), Huntwood Boulevard/Sandoval Way (Intersection #69), Hesperian Boulevard/Sueirro Street (Intersection #74) and Industrial Boulevard/Tennyson Road (Intersection #87). HCM 2000 and HCM 2010 methodologies did not support the lane configuration at the intersection of Winton Avenue/Cabot Boulevard (Intersection #75) in Synchro 10, thus traffic conditions were evaluated using HCM 2000 procedures in Traffix analysis software. In Synchro software, HCM 2000 and HCM 2010 do not support intersections with two to three or more lanes.

The analysis methodology described above was used to measure a.m. and p.m. peak-hour traffic operations for the all study intersections.

Table 6 describes the LOS thresholds for intersections under the HCM 2010 and HCM 2000 methodologies. The intersection LOS thresholds differ between signalized and unsignalized intersections. The LOS is determined by the average control delay on an intersection-wide basis for signalized and all-way stop-controlled intersections and on the movement with the highest delay for minor-street stop-controlled intersections.

Table 6 : Level of Service Thresholds Based on Intersection Control Delay

Level of Service	Description	Signalized Intersection Delay (D) (sec)	Unsignalized Intersection Delay (D) (sec)
A	Very low control delay, up to 10 seconds per vehicle. Progression is extremely favorable, and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.	0 ≤ A ≤ 10	0 ≤ A ≤ 10
B	Control delay greater than 10 and up to 20 seconds per vehicle. There is good progression, short cycle lengths or both. More vehicles stop causing higher levels of delay.	10 < B ≤ 20	10 < B ≤ 15
C	Control delay greater than 20 and up to 35 seconds per vehicle. Higher delays are caused by fair progression, longer cycle lengths or both. Individual cycle failures may begin to appear. Cycle failure occurs when a given green phase does not serve queued vehicles and overflow occurs. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.	20 < C ≤ 35	15 < C ≤ 25
D	Control delay greater than 35 and up to 55 seconds per vehicle. The influence of congestions becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volumes. Many vehicles stop and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	35 < D ≤ 55	25 < D ≤ 35
E	Control delay greater than 55 and up to 80 seconds per vehicle, the limit of acceptable delay. High delays usually indicate poor progression, long cycle lengths, and high volumes. Individual cycle failures are frequent.	55 < E ≤ 80	35 < E ≤ 50
F	Control delay in excess of 80 seconds per vehicle. Unacceptable to most drivers. Oversaturation, arrival flow rates exceed the capacity of the intersection. Many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to higher delay.	80 < F	50 < F

Source: Highway Capacity Manual (HCM), 2010 Edition; Highway Capacity Manual (HCM), 2000.

Roadway Segments

Operations of the street segments were assessed based on volume-to-capacity (V/C) ratios. A per-lane capacity of 800 vehicles per hour was used for street segments, consistent with the Alameda CTC Congestion Management Program (2017). These capacities do not reflect additional capacity provided along segments through two-way left-turn lanes and at intersections through turn pockets. Roadway segments with a V/C ratio greater than 1.0 are assigned LOS F. Volume-to-capacity ratios and the corresponding levels of service are shown in **Table 7**.

Table 7: Level of Service Thresholds Based on Segment Capacity

Level of Service	V/C[1]
A	≤ 0.60
B	0.61 to 0.70
C	0.71 to 0.80
D	0.81 to 0.90
E	0.91 to 1.00
F	> 1.00

Source: 2017 ACTC Congestion Management Program
Notes:
[1]V/C = Volume-to-capacity ratio

Synchro Model Development

Existing Conditions (2019) traffic operations were evaluated based on LOS criteria using Synchro 10, a software package for modeling and optimizing traffic systems. The analysis uses procedures documented under Chapter 18 (Signalized Intersections) and Chapters 19 and 20 (Unsignalized Intersections) of the HCM, 2010 Edition (unless in special circumstance as described above), published by the Transportation Research Board.

The Synchro model setup requires the input of geometric configurations, traffic flow, traffic control, and signal timings at the study intersections under Existing Conditions (2019). The operational models were developed for the a.m. and p.m. peak hours, based on data collected for this project.

Existing Conditions Analysis Results

Delay and LOS

Existing intersection lane configurations, signal timings, and peak hour turning movement volumes were used to calculate the levels of service for the study intersections during each peak hour. The peak hour factors based on the counts were used at all study intersections for the existing condition analysis. Synchro 10 operations analysis software was used to complete the HCM 2010 and HCM 2000 LOS analysis procedures for all study intersections, except the intersection at Winton Avenue/Cabot Boulevard (Intersection #75) which was analyzed using HCM 2000 procedures in Traffix software.

Three different types of intersection controls exist among the 100 study intersections within the City of Hayward. Side street stop controlled intersections, which are present at 20 (nine one-way stop controlled intersections and 11 two-way stop controlled intersections) of the 100 study intersections, have no control on the major street and stop signs controlling the minor side street. Due to the inherent lack of delay on the street with no control (the vehicles on the uncontrolled streets are able to move freely through the intersection and therefore experience no delay), average vehicle delay is only measured for those movements that have stop control and yield conflicts with other movements rather than for the entire intersection. In this report, the average vehicle delay and level of service reported for one- and two-way stop controlled

intersections represent the approach with the highest delay to reflect the magnitude of the primary performance limitation of the intersection. Since no delay is experienced on the uncontrolled street (with the exception of yield requirements for left turning movements from the uncontrolled street), ensuring manageable delay on specific approaches represents the main consideration of side-street stop controlled intersection performance and is therefore the basis for LOS determination.

The second type of intersection control in the study sample is the all-way stop controlled intersection, which is present at 10 of the 100 study intersections. These intersections have stop signs for all approaches and all vehicles using the intersection experience delay. For this reason, average vehicle delay is reported for the entire intersection rather than specific movements or approaches to provide an indication of the overall performance of the intersection. For intersections with traffic control on all approaches, balancing the delay incurred on each of the various approaches to achieve the minimum average delay for the entire intersection is the fundamental premise for maximizing intersection performance and thus is the basis for identifying LOS.

The third type of control is a traffic signal, which is present at 70 of the 100 study intersections. While there are various types of phasing at the different signalized intersections, delay is experienced by vehicles on each of the approaches. Since optimizing the performance of a signalized intersection is generally predicated on minimizing the average delay to all vehicles using the intersection, LOS is based on the average vehicle delay for the entire intersection.

Intersection Analysis Results

Table 8 summarizes the intersection operations under Existing Conditions (2019). Under this scenario, 47 study intersections (26 signalized and 21 unsignalized) operate at unacceptable LOS E or F during one or both peak periods. The remaining 53 study intersections operate at LOS D or better. Of the 21 unsignalized intersections with failing operations, 15 are one- or two-way stop controlled. At many of these intersections, the number of vehicles on the side streets are low, but are opposed by such heavy volumes on the major street that there are insufficient gaps for them to turn onto or cross the street, resulting in extensive delays on the side streets. In the overall context of intersection performance, the average vehicle delay is low due to the much greater number of vehicles able to pass freely through the intersection without delay, although the fewer vehicles using the side streets experience poor levels of service. This scenario occurs at most of the unsignalized study intersections along Hesperian Boulevard, Tennyson Road, 2nd Street, A Street, Santa Clara Street, and D Street.

Table 8: Intersection Level of Service Analysis – Existing Conditions

ID	Study Intersection	Control	Peak Hour	Delay[1]	LOS[2]
1	Foothill Boulevard / Grove Way	Signalized	AM	51.2	D
			PM	36.9	D
2	Foothill Boulevard / City Center	Signalized	AM	**>80**	**F**
			PM	**77.9**	**E**
3	City Center Drive / 2nd Street	Signalized	AM	43.2	D
			PM	**56.3**	**E**
4	2nd Street / Russell Way	Two-Way Stop	AM	15.0	C
			PM	**>50**	**F**
5	Foothill Boulevard / A Street*	Signalized	AM	**61.7**	**E**
			PM	32.8	C
6	A Street / 2nd Street	Signalized	AM	41.4	D
			PM	42.4	D
7	B Street / 2nd Street	Signalized	AM	**55.6**	**E**
			PM	35.5	D
8	B Street / 3rd Street	Two-Way Stop	AM	**38.2**	**E**
			PM	21.9	C
9	B Street / 6th Street	Two-Way Stop	AM	29.8	D
			PM	25.7	D
10	A Street / Mission Boulevard	Signalized	AM	**>80**	**F**
			PM	**69.4**	**E**
11	A Street / Myrtle Street	One-Way Stop	AM	31.1	D
			PM	20.6	C
12	B Street / Grand Street	Signalized	AM	32.2	C
			PM	21.6	C
13	A Street / Grand Street	Signalized	AM	47.0	D
			PM	37.3	D
14	B Street / Montgomery Street	All-Way Stop	AM	11.7	B
			PM	14.0	B
15	B Street / Watkins Street	Signalized	AM	**>80**	**F**
			PM	33.1	C

ID	Study Intersection	Control	Peak Hour	Delay[1]	LOS[2]
16	C Street / Second Street	Signalized	AM	18.6	B
			PM	26.6	C
17	D Street / Grand Street	Signalized	AM	49.2	D
			PM	45.7	D
18	A Street / Happyland Avenue	Two-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
19	D Street / Watkins Avenue	Signalized	AM	27.6	C
			PM	28.4	C
20	Foothill Boulevard/ D Street	Signalized	AM	**>80**	**F**
			PM	**>80**	**F**
21	D Street / 1st Street	Two-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
22	D Street / 2nd Street	Signalized	AM	**64.1**	**E**
			PM	41.0	D
23	D Street / 5th Street	One-Way Stop	AM	**>50**	**F**
			PM	15.7	C
24	Jackson Street / Watkins Street	Signalized	AM	34.8	C
			PM	23.3	C
25	Foothill Boulevard / Jackson Street / Mission Boulevard	Signalized	AM	21.2	C
			PM	**63.6**	**E**
26	E Street / 2nd Street	Signalized	AM	44.6	D
			PM	43.1	D
27	Grand Street / Meek Avenue	All-Way Stop	AM	14.7	B
			PM	13.4	B
28	Jackson Street / Meek Avenue / Silva Avenue	Signalized	AM	38.4	D
			PM	**59.5**	**E**
29	Fletcher Lane / Watkins Street	Two-Way Stop	AM	19.7	C
			PM	30.2	D
30	Mission Boulevard/ Fletcher Lane	Signalized	AM	45.2	D
			PM	23.4	C
31	Santa Clara Street / Ocie Way	Two-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
32	Amador Street / Winton Avenue	Signalized	AM	39.3	D
			PM	**>80**	**F**
33	Myrtle Street / Soto Road / Winton Avenue	Signalized	AM	**56.9**	**E**
			PM	34.9	C
34	D Street / Winton Avenue	Signalized	AM	4.5	A
			PM	4.4	A
35	Park Street / Winton Avenue	One-Way Stop	AM	10.1	B
			PM	11.3	B
36	Jackson Street / Alice Street / Sycamore Avenue	Two-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
37	2nd Street / Campus Drive	One-Way Stop	AM	**>50**	**F**
			PM	26.8	D
38	Amador Street / Elmhurst Street	All-Way Stop	AM	**39.7**	**E**
			PM	**>50**	**F**

ID	Study Intersection	Control	Peak Hour	Delay[1]	LOS[2]
39	Jackson Street / Soto Road	Signalized	AM	**55.6**	**E**
			PM	**79.9**	**E**
40	Jackson Street / Amador Street / Cypress Avenue	Signalized	AM	**60.2**	**E**
			PM	**65.5**	**E**
41	Orchard Avenue / Soto Road	Signalized	AM	33.0	C
			PM	35.9	D
42	Carlos Bee Boulevard / Hayward Boulevard	Signalized	AM	43.8	D
			PM	19.6	B
43	Harder Road / Santa Clara Street	Signalized	AM	8.3	A
			PM	7.9	A
44	Harder Road / Cypress Avenue	Signalized	AM	8.0	A
			PM	11.5	B
45	Harder Road / Gading Road	Signalized	AM	**63.3**	**E**
			PM	**>80**	**F**
46	Harder Road / Soto Road / Mocine Avenue	Signalized	AM	**>80**	**F**
			PM	47.6	D
47	Harder Road / Jane Avenue	Signalized	AM	42.1	D
			PM	29.8	C
48	Harder Road / Mission Boulevard	Signalized	AM	**75.7**	**E**
			PM	**79.1**	**E**
49	Patrick Avenue / Gomer Street	All-Way Stop	AM	**>50**	**F**
			PM	**35.5**	**E**
50	Patrick Avenue / Roosevelt Avenue	All-Way Stop	AM	**49.2**	**E**
			PM	32.9	D
51	Tennyson Road / Patrick Avenue	Signalized	AM	**>80**	**F**
			PM	38.3	D
52	Tennyson Road / Pompano Avenue	Signalized	AM	8.0	A
			PM	7.9	A
53	Tennyson Road / Tampa Avenue	Signalized	AM	41.0	D
			PM	26.0	C
54	Tennyson Road / Dickens Avenue	One-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
55	Tennyson Road / Tyrell Avenue	Signalized	AM	29.6	C
			PM	17.7	B
56	Tennyson Road / Harvey Avenue	One-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
57	Tennyson Road / Ruus Road	Signalized	AM	14.1	B
			PM	17.7	B
58	Tennyson Road / Baldwin Street	Two-Way Stop	AM	24.0	C
			PM	**>50**	**F**
59	Tennyson Road / Huntwood Avenue	Signalized	AM	54.2	D
			PM	28.4	C
60	Tennyson Road / Beatron Way / Whitman Street	Signalized	AM	43.0	D
			PM	38.6	D
61	Tennyson Road / Pacific Street	One-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**

ID	Study Intersection	Control	Peak Hour	Delay[1]	LOS[2]
62	Dixon Street / E 12th Street / Tennyson Road	Signalized	AM	21.9	C
			PM	22.0	C
63	Mission Boulevard/ Tennyson Road	Signalized	AM	44.9	D
			PM	36.2	D
64	Ruus Road / Folsom Avenue	All-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
65	Industrial Parkway / Stratford Road	Signalized	AM	27.5	C
			PM	30.2	C
66	Industrial Boulevard / Russ Road	Signalized	AM	54.9	D
			PM	48.9	D
67	Huntwood Avenue / Industrial Parkway	Signalized	AM	**>80**	**F**
			PM	**>80**	**F**
68	Mission Boulevard / Industrial Parkway	Signalized	AM	**60.1**	**E**
			PM	50.4	D
69	Huntwood Avenue/ Sandoval Way	Signalized	AM	28.5	C
			PM	28.9	C
70	Huntwood Avenue / Zephyr Avenue	Two-Way Stop	AM	**43.1**	**E**
			PM	26.5	D
71	Huntwood Avenue / Whipple Road	Signalized	AM	33.1	C
			PM	27.6	C
72	A Street / Hesperian Boulevard	Signalized	AM	45.5	D
			PM	38.9	D
73	A Street / Garden Avenue	One-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
74	Hesperian Boulevard / Sueirro Street*	Signalized	AM	21.3	C
			PM	17.6	B
75	Winton Avenue / Cabot Boulevard**	All-Way Stop	AM	13.1	B
			PM	9.5	A
76	Winton Avenue / Clawiter Road	Signalized	AM	18.6	B
			PM	31.5	C
77	Winton Avenue / Saklan Road	Signalized	AM	13.2	B
			PM	13.7	B
78	Winton Avenue / Hesperian Boulevard	Signalized	AM	47.2	D
			PM	**56.7**	**E**
79	Hesperian Boulevard / La Playa Drive / West Street	Signalized	AM	7.0	A
			PM	16.6	B
80	La Playa Drive / Calaroga Avenue	Signalized	AM	0.9	A
			PM	0.9	A
81	Clawiter Road / Industrial Boulevard	Signalized	AM	15.5	B
			PM	25.8	C
82	Hesperian Boulevard / Turner Ct	Signalized	AM	48.6	D
			PM	12.5	B
83	Clawiter Road / Depot Road	Signalized	AM	16.1	B
			PM	16.4	B
84	Depot Road / Industrial Boulevard	Signalized	AM	37.3	D
			PM	**57.0**	**E**

ID	Study Intersection	Control	Peak Hour	Delay[1]	LOS[2]
85	Depot Road / Cathy Way / Hesperian Boulevard	Signalized	AM	**>80**	**F**
			PM	46.6	D
86	Clawiter Road / Enterprise Avenue	Signalized	AM	13.1	B
			PM	17.6	B
87	Tennyson Road / Industrial Boulevard*	Signalized	AM	26.2	C
			PM	24.1	C
88	Tennyson Road / Hesperian Boulevard	Signalized	AM	44.3	D
			PM	**55.4**	**E**
89	Tennyson Road / Sleepy Hollow Avenue	Signalized	AM	25.6	C
			PM	29.9	C
90	Tennyson Road / Calaroga Avenue	Signalized	AM	**59.4**	**E**
			PM	**>80**	**F**
91	Calaroga Avenue / Bolero Avenue	All-Way Stop	AM	**>50**	**F**
			PM	34.8	D
92	Hesperian Boulevard / Oliver Drive	One-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
93	Calaroga Avenue / Panama Street	All-Way Stop	AM	33.7	D
			PM	12.0	B
94	Industrial Boulevard / Baumberg Avenue	Signalized	AM	19.7	B
			PM	33.1	C
95	Hesperian Boulevard / Catalpa Way	One-Way Stop	AM	**>50**	**F**
			PM	**>50**	**F**
96	Calaroga Avenue / Catalpa Way	All-Way Stop	AM	29.8	D
			PM	9.1	A
97	Industrial Boulevard / Marina Drive	Signalized	AM	8.1	A
			PM	9.3	A
98	Hesperian Boulevard / Industrial Boulevard	Signalized	AM	**65.8**	**E**
			PM	**75.2**	**E**
99	Hesperian Boulevard / Eden Shores Boulevard	Signalized	AM	10.7	B
			PM	24.2	C
100	Hesperian Boulevard / Eden Park Place	Signalized	AM	6.5	A
			PM	29.6	C

Notes:
[1]Delay: Average control delay in seconds per vehicle, reported values are overall for signalized and all-way-stop-control intersections; and critical minor approaches for two-way- stop-control intersections.
[2]LOS: Level of Service.
* 2000 HCM Methodology is used.
** Intersection LOS evaluated in Traffix software.
Bold text indicates unacceptable intersection operations.

Appendix C contains the existing conditions LOS analysis reports from Synchro 10 software. The a.m. and p.m. peak hour intersection LOS within the three study zones shown in **Figure 20, Figure 21, and Figure 22**, respectively.

Roadway Segment Analysis Results

Table 9 summarizes the results of the LOS analysis for both directions along roadway segments during a.m. and p.m. peak hours. Under Existing Conditions, all study segments operate at LOS E or better both peak hours, except the following two segments:

- Southbound direction of Foothill Boulevard south of City Center Drive during the a.m. peak hour (Segment #4)
- Both directions of Winton Avenue between Interstate 880 and Santa Clara Street (Segment #11)

Table 9: Roadway Segment Level of Service Analysis – Existing Conditions

ID	Roadway Segment	Direction	No. of Lanes[1]	Capacity [2]	AM Peak Hour		PM Peak Hour	
					V/C[3]	LOS[4]	V/C[3]	LOS[4]
1*	Mission Blvd b/w Rose St & Sunset Blvd	Northbound	2	1600	0.23	A	0.39	A
		Southbound	2	1600	0.53	A	0.51	A
2*	Mission Blvd b/w A St & B St	Northbound	0	-	-	-	-	-
		Southbound	5	4000	0.47	A	0.40	A
3*	Mission Blvd b/w Fletcher Ln & Sycamore Ave	Northbound	3	2400	0.77	C	0.83	A
		Southbound	3	2400	0.92	E	0.69	B
4*	Foothill Blvd b/w City Center Dr & Russell Way	Northbound	4	3200	0.39	A	0.33	A
		Southbound	2	1600	0.76	C	**1.06**	**F**
5*	A St b/w Western Blvd & Peralta St	Eastbound	2	1600	0.32	A	0.28	A
		Westbound	2	1600	0.47	A	0.36	A
6	Santa Clara St b/w Jackson St & Elmhurst St	Northbound	2	1600	0.29	A	0.40	A
		Southbound	2	1600	0.37	A	0.35	A
7	Soto Rd b/w Orchard Ave & Berry Ave	Northbound	1	800	0.46	A	0.60	A
		Southbound	1	800	0.77	C	0.44	A
8	Campus Dr b/w 2nd St & Oakes Dr	Eastbound	1	800	0.67	B	0.53	A
		Westbound	1	800	0.43	A	0.73	C
9	A St b/w Royal Ave & Hesperian Blvd	Eastbound	2	1600	0.41	A	0.60	B
		Westbound	2	1600	0.64	B	0.59	A
10*	Winton Ave b/w Wright Dr & Stonewall Ave	Eastbound	3	2400	0.41	A	0.59	A
		Westbound	2	1600	0.82	D	0.67	B
11*	Winton Ave b/w I-880 NB Ramps & Santa Clara St	Eastbound	2	1600	0.68	B	**1.23**	**F**
		Westbound	2	1600	**1.12**	**F**	0.84	D
12	Depot Rd b/w Clawiter Rd & Viking St	Eastbound	1	800	0.73	C	0.59	A
		Westbound	1	800	0.54	A	0.82	D
13	Depot Rd b/w Hesperian Blvd & Adrian Ave	Eastbound	2	1600	0.32	A	0.33	A
		Westbound	2	1600	0.25	A	0.20	A
14*	Industrial Blvd b/w Tennyson Rd & Baumberg Ave	Northbound	2	1600	0.60	A	0.58	A
		Southbound	2	1600	0.84	D	0.73	C
15*	Hesperian Blvd b/w Panama St & Catalpa Way	Northbound	3	2400	0.43	A	0.64	B
		Southbound	3	2400	0.47	A	0.39	A

Notes:
[1]Number of Lanes per direction; Does not include TWLTL medians or turn pockets at intersections.
[2]Capacity = 800 vehicles per hour per lane.
[3]V/C: Volume-to-capacity ratio; Calculated using peak hour Average Daily Traffic (ADT) counts.
[4]LOS: Level of Service.
*Indicates Alameda CTC Congestion Management Program (CMP) roadway with minimum standards of LOS E or better.
Bold text indicates unacceptable roadway segment operations.

City of Hayward Citywide Intersection Improvement Project LOS - Zone 1

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Figure - 20

City of Hayward Citywide Intersection Improvement Project LOS - Zone 2

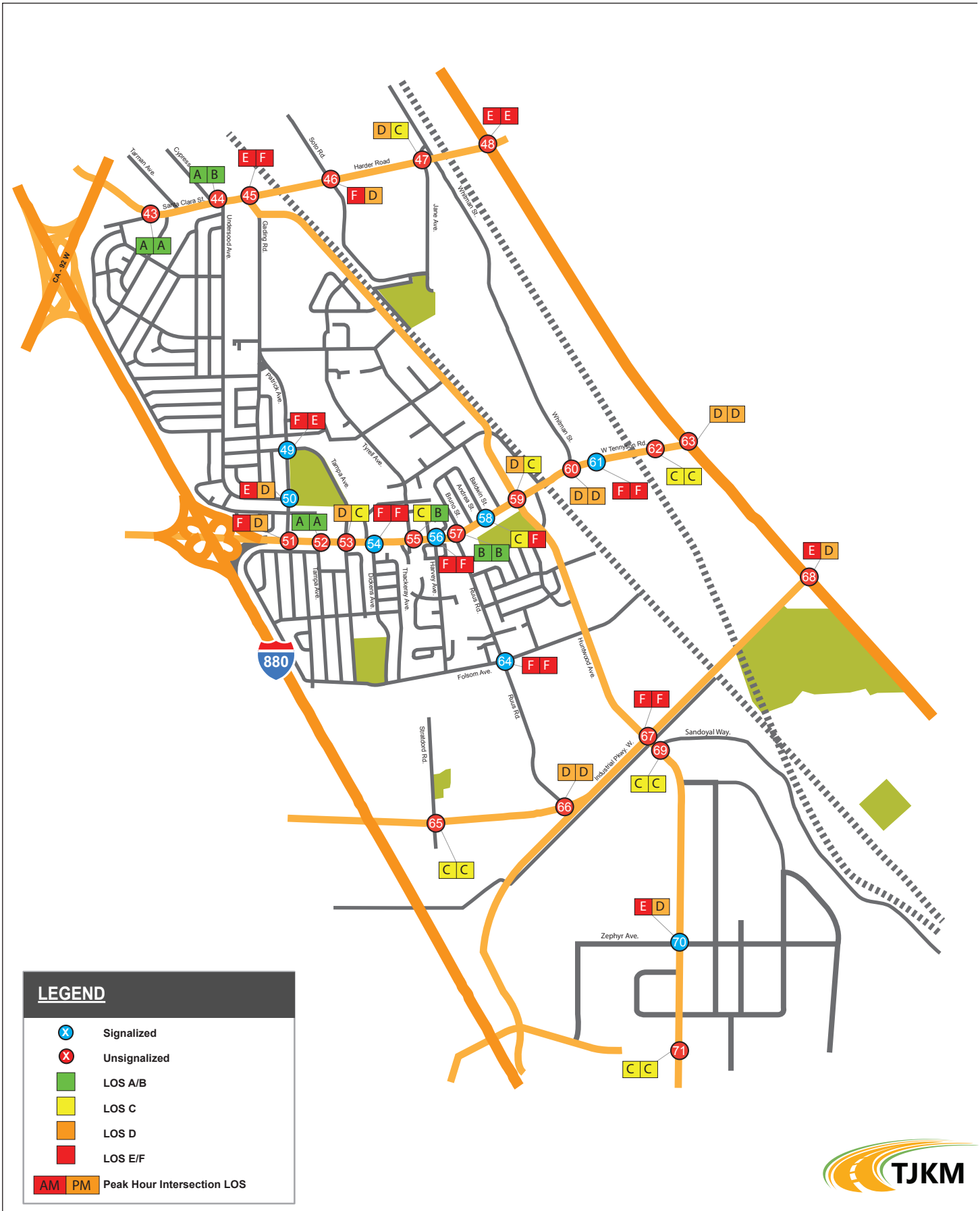

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Figure - 21

City of Hayward Citywide Intersection Improvement Project LOS - Zone 3

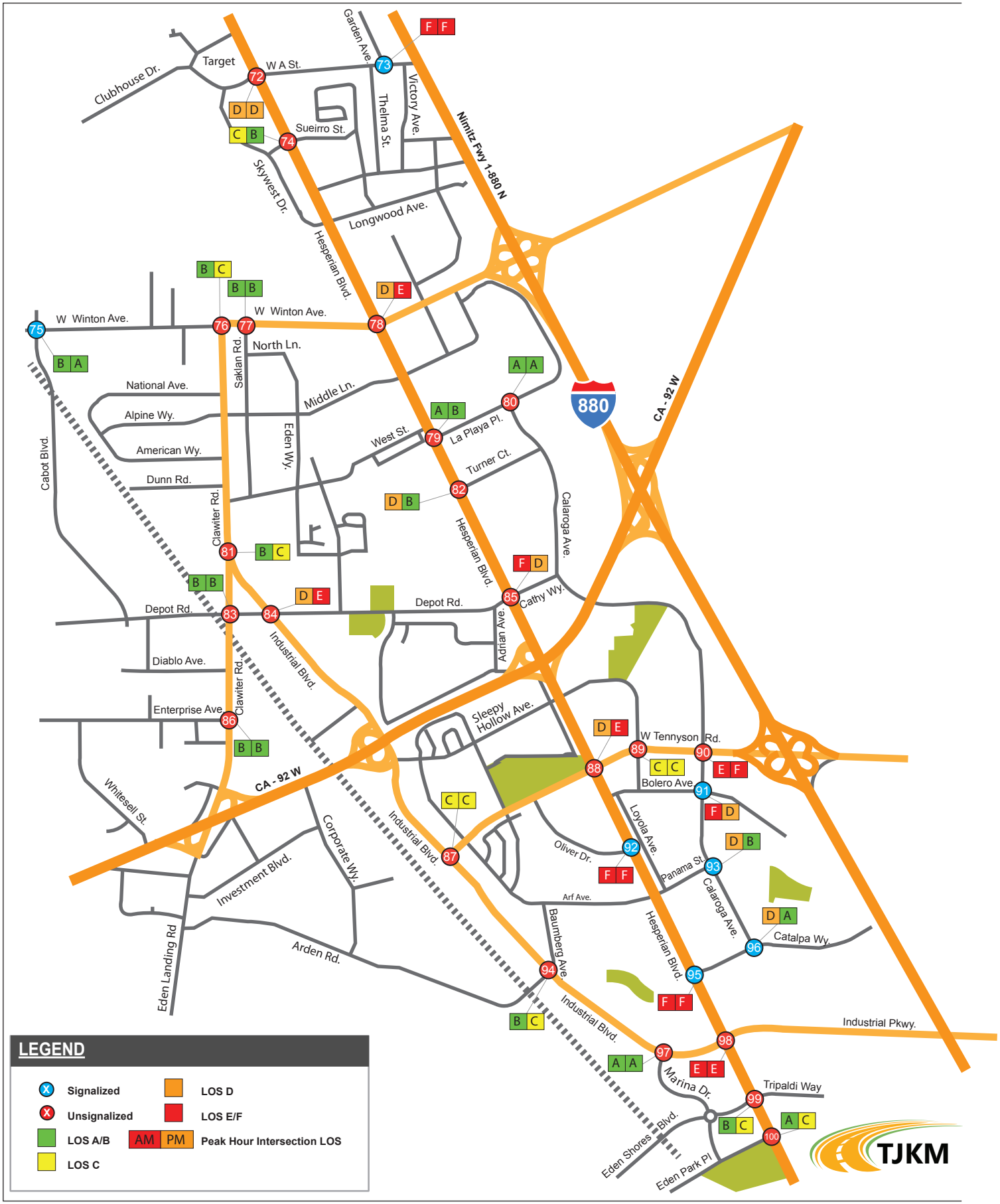
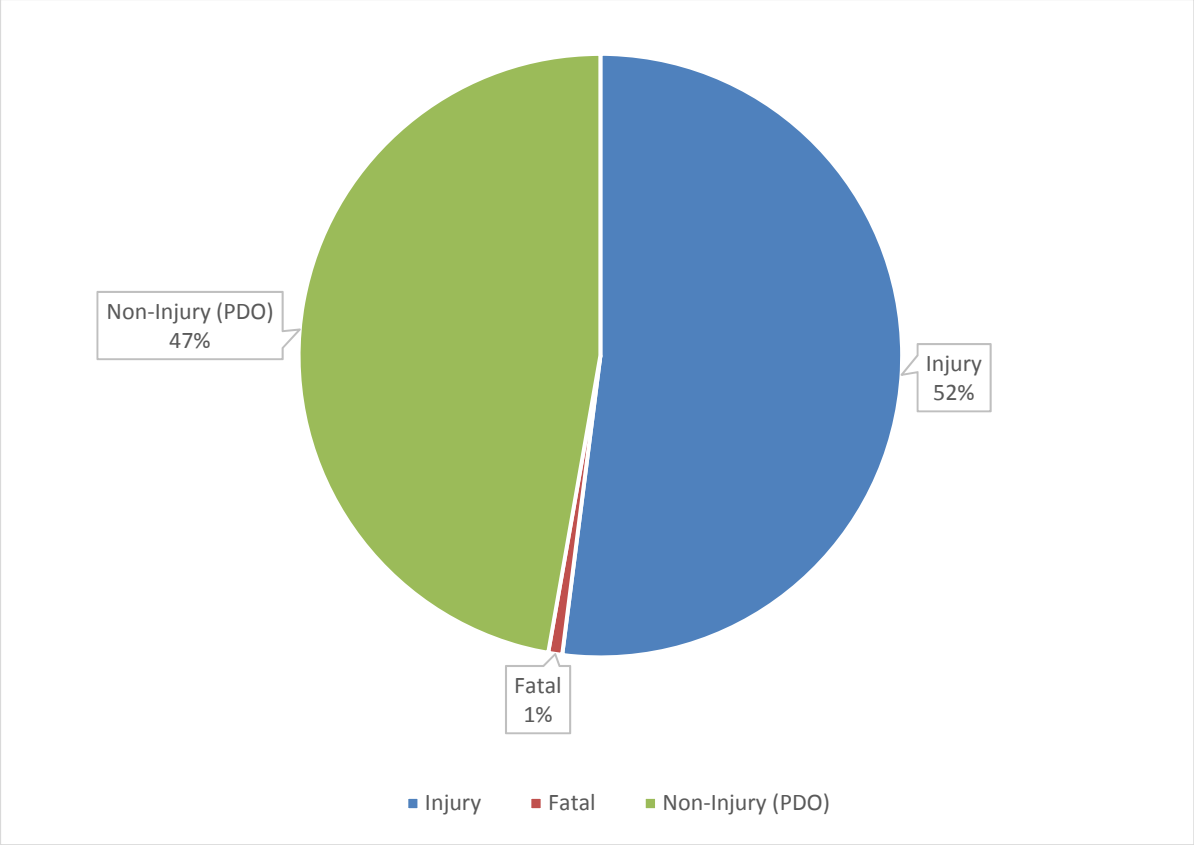


Figure - 22

Collision Analysis Results

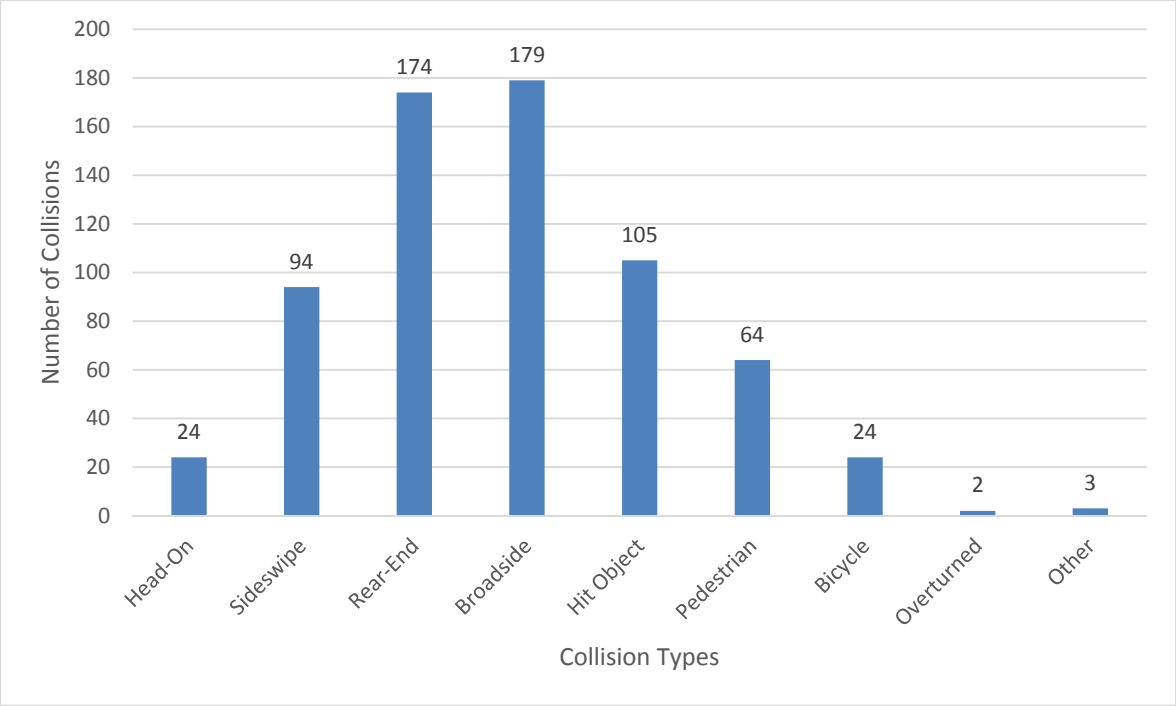
This section summarizes the collision analysis by severity and by type. The collision severity result is shown in **Figure 23**. Fatal accidents are approximately one percent and injury accidents are approximately 52 percent of all collisions.

Figure 23: Collision Severity



The collision type result is shown in **Figure 24**. Broadside collisions have the highest rate (27 percent) followed by the rear-end collisions (26 percent). Both broadside and rear-end collisions are typical for intersection collisions, especially at signalized intersections. Detailed collision Data is provided in **Appendix D**.

Figure 24: Collision Types



Signal Warrant Analysis

Unsignalized intersections were evaluated using the Peak Hour Volume Warrant (i.e., Warrant 3) from the Manual on Uniform Traffic Control Devices (MUTCD). Unsignalized intersections shown to trigger the peak hour signal warrant are considered deficient in this analysis. However, the decision to install a traffic signal should not be based solely upon a single warrant. Other factors, such as delay, congestion, driver confusion, future land use or other evidence for right-of-way assignment, should also be considered.

Warrant 3 assesses peak hour traffic volume for the need for a traffic signal. Traffic signals tend to reduce the potential for right-angle type (broadside) collisions, but also tend to increase the potential for less severe, rear-end collisions. Signal warrant peak hour volumes represent the threshold point at which the potential for more rear-end collisions is offset by the potential for fewer more severe right-angle collisions. Data needed to perform these warrant analyses include peak hour traffic counts collected as part of this study, number of travel lanes and area characteristics.

Signal warrant analysis was conducted for 17 unsignalized study intersections with unacceptable LOS F under existing conditions. **Table 10** summarizes the results of the peak hour signal warrant at intersections with unacceptable LOS. Seven of the evaluated unsignalized intersections meet the peak hour signal warrant for one or both peak hours. Peak Hour Signal Warrant Analysis worksheets are provided in **Appendix E**.

Table 10 : Existing Conditions Intersection Signal Warrant Summary

#	Intersection	Control	Existing Conditions	
			Meets AM Peak Hour[1]	Meets PM Peak Hour[1]
4	Second Street /Russell Way	Two-Way Stop	No	No
18	A Street / Happyland Avenue	Two-Way Stop	No	**Yes**
21	D Street / 1st Street	Two-Way Stop	**Yes**	No
23	D Street / 5th Street	One-Way Stop	No	No
31	Santa Clara Street / Ocie Way	Two-Way Stop	No	No
36	Jackson Street / Alice Street-Sycamore Avenue	Two-Way Stop	**Yes**	No
37	2nd Street / Campus Drive	One-Way Stop	**Yes**	**Yes**
38	Amador Street / Elmhurst Street	All-Way Stop	No	No
49	Patrick Avenue / Gomer Street	All-Way Stop	**Yes**	**Yes**
54	Tennyson Road / Dickens Avenue	One-Way Stop	No	No
56	Tennyson Road / Harvey Avenue	One-Way Stop	No	No
58	Tennyson Road / Baldwin Street	Two-Way Stop	No	No
61	Tennyson Road / Pacific Street	One-Way Stop	No	No
64	Ruus Road / Folsom Avenue	All-Way Stop	No	No
70	Huntwood Ave/Zephyr Ave	Two-Way Stop	No	No
73	Garden Avenue / A Street	Two-Way Stop	No	No
91	Calaroga Avenue / Bolero Avenue	All-Way Stop	**Yes**	No
92	Hesperian Boulevard / Oliver Drive	One-Way Stop	**Yes**	No
95	Hesperian Boulevard / Catalpa Way	One-Way Stop	**Yes**	**Yes**

Notes:
[1]AM – morning peak hour, PM – evening peak hour
N/A – Intersection level of Service D or better for respective peak hour.
Bold – Peak hour signal warrant is met.

Existing Conditions Mitigations

Under Existing Conditions, 47 study intersections operate at unacceptable LOS E or F during one or both peak periods. These intersections, listed below, were evaluated for mitigations to improve intersection operations. **Table 11** details the mitigations and associated LOS scores at the following intersections:

- Foothill Boulevard/City Center Drive (Signalized)
- City Center Drive/2nd Street (Signalized)
- 2nd Street/Russell Way (Unsignalized)
- Foothill Boulevard/A Street (Signalized)
- B Street/2nd Street (Signalized)
- B Street/3rd Street (Unsignalized)
- A Street/Mission Boulevard (Signalized)
- B Street/Watkins Street (Signalized)
- A Street/Happyland Avenue (Unsignalized)
- Foothill Boulevard/D Street (Signalized)
- D Street/1st Street (Unsignalized)
- D Street/2nd Street (Signalized)
- D Street/5th Street (Unsignalized)
- Jackson Street/Foothill Boulevard & Mission Street (Signalized)
- Jackson Street/Meek Avenue & Silva Avenue (Signalized)
- Santa Clara Street/Ocie Way (Unsignalized)
- Amador Street/Winton Avenue (Signalized)
- Winton Avenue/Myrtle Street-Soto Road (Signalized)
- Jackson Street/Alice Street & Sycamore Avenue (Unsignalized)
- 2nd Street/Campus Drive (Unsignalized)
- Amador Street/Elmhurst Street (Unsignalized)
- Jackson Street/Soto Avenue (Signalized)
- Jackson Street/Amador Street & Cypress Avenue (Signalized)
- Harder Road/Gading Road (Signalized)
- Harder Road/Soto Road-Mocine Avenue (Signalized)
- Mission Boulevard/Harder Road (Signalized)
- Patrick Avenue/Gomer Street (Unsignalized)

- Patrick Avenue/Roosevelt Avenue (Unsignalized)
- Tennyson Road/Patrick Avenue (Signalized)
- Tennyson Road/Dickens Avenue (Unsignalized)
- Tennyson Road/Harvey Avenue (Unsignalized)
- Tennyson Road/Baldwin Street (Unsignalized)
- Tennyson Road/Pacific Street (Unsignalized)
- Ruus Road/Folsom Avenue (Unsignalized)
- Industrial Parkway/Huntwood Avenue (Signalized)
- Mission Boulevard/Industrial Parkway (Signalized)
- Huntwood Avenue/Zephyr Avenue (Unsignalized)
- A Street/Garden Avenue (Unsignalized)
- Hesperian Boulevard/Winton Avenue (Signalized)
- Industrial Boulevard/Depot Road (Signalized)
- Hesperian Boulevard/Depot Road-Cathy Way (Signalized)
- Hesperian Boulevard/Tennyson Road (Signalized)
- Tennyson Road/Calaroga Avenue (Signalized)
- Calaroga Avenue/Bolero Avenue (Unsignalized)
- Hesperian Boulevard/Oliver Drive (Unsignalized)
- Hesperian Boulevard/Catalpa Way (Unsignalized)
- Hesperian Boulevard/Industrial Boulevard & Industrial Parkway (Signalized)

Table 11 : Intersection Level of Service for Existing Conditions Mitigations

ID	Intersection	Peak[1]	Existing Conditions			Mitigations		
			Delay	LOS	Worst Mvmt[2]	Details	Delay	LOS[3]
2	Foothill Blvd/City Center Dr	AM	**84.2**	**F**	WBR	Optimize phase splits for 157 s CL (AM Peak) and 157 s CL (PM Peak); Modify phase sequence to leading left-turns.	27.8	C
		PM	**77.9**	**E**	WBR		42.8	D
3	City Center Dr/2nd St	*AM*	*43.2*	*D*	*EBR*	Add eastbound right turn overlap with northbound phase.	*25.9*	*C*
		PM	**56.3**	**E**	EBR		26.9	C
4	2nd St/Russell Way	*AM*	*15.0*	*C*	*WB*	Signal warrant not met; Add westbound left turn pocket with 70 ft storage & 50 ft taper length by adding red zone along curb for 70 feet; Convert westbound shared left-through-right lane into through-right lane; Convert eastbound through-left lane into exclusive left-turn pocket with 70 ft storage & 50 ft taper length; Convert eastbound right-turn lane into shared through-right lane.	*14.8*	*B*
		PM	**78.8**	**F**	WB		49.0	E
5	Foothill Blvd/A St	AM	**61.7**	**E**	SBR	Optimize phase splits while keeping existing cycle length of 88 s.	39.1	D
		PM	32.5	C	SBR	No mitigations applied to PM peak.	32.5	C
7	B St/2nd St	AM	**55.6**	**E**	WBR	Optimize phase splits while keeping existing cycle length of 157 s.	39.4	D
		PM	35.5	D	EBL	No mitigations applied to PM peak.	35.5	D
8	B St/3rd St	AM	**38.2**	**E**	NB	Modify striping at northbound approach to consist of one northbound left turn pocket with 75 ft storage & 25 ft taper length by adding a red curb for 75 feet.	34.7	D
		PM	*21.9*	*C*	*NB*		*20.1*	*C*
10	A St/Mission Blvd	AM	**102.7**	**F**	WBL	Increase cycle length to 115 s.	54.5	D
		PM	**69.4**	**E**	WBL	Optimize phase splits while keeping existing cycle length of 112 s.	38.9	D

ID	Intersection	Peak[1]	Existing Conditions			Mitigations		
			Delay	LOS	Worst Mvmt[2]	Details	Delay	LOS[3]
15	B St/Watkins St	AM	**110.6**	**F**	EBL	Optimize cycle length & splits; Increase cycle length to 62 s.	32.0	C
		PM	33.1	C	EBL	No mitigation applied to PM peak.	33.1	C
18	A St/Happyland Ave	AM	**66.5**	**F**	NB	Signal warrant not met; Prohibit left turn movement at northbound approach.	16.9	C
		PM	**546.9**	**F**	NB		28.9	D
20	Foothill Blvd/D St	AM	**101.7**	**F**	EBT	Optimize cycle length & splits to 135 s (AM Peak) & 145 s (PM Peak).	50.3	D
		PM	**101.1**	**F**	EBL		55.9	E
21	D St/1st St	AM	**741.1**	**F**	NBT	Modify intersection control from TWSC to signalized intersection control with 67.5 s cycle length (AM Peak) & 72.5 s cycle length (PM Peak) with split phasing along D St; Coordinate with Foothill Blvd/D St.	35.4	D
		PM	**164.4**	**F**	NB		26.4	C
22	D St/2nd St	AM	**64.1**	**E**	WBL	No right-of-way; No mitigations applied. Significant & unavoidable impact.	**64.1**	**E**
		PM	41.0	D	NBL		41.0	D
23	D St/5th St	AM	**255.1**	**F**	NB	Signal warrant not met; No right-of-way; No mitigations applied. Significant & unavoidable impact.	**255.1**	**F**
		PM	15.7	C	-		15.7	C
25	Foothill Blvd/Mission Blvd & Jackson St	AM	21.2	C	-	No mitigation applied to AM peak.	21.2	C
		PM	**63.6**	**E**	NBR	Optimize phase splits while keeping existing cycle length of 155 s.	35	C
28	Jackson St/Meek Ave & Silva Ave	*AM*	*38.4*	*D*	*WBL*	Add northbound right turn overlap with westbound left turn; Optimize cycle length and phase splits to 140 s cycle length for PM peak only.	*37.7*	*D*
		PM	**59.5**	**E**	WBL		47.8	D

ID	Intersection	Peak[1]	Existing Conditions			Mitigations		
			Delay	LOS	Worst Mvmt[2]	Details	Delay	LOS[3]
32	Amador St/Winton Ave	AM	39.3	D	NBR	No right-of-way; No mitigations applied. Significant & unavoidable impact.	39.3	D
		PM	**133.6**	**F**	NBR		**133.6**	**F**
33	Winton Ave/Myrtle St-Soto Rd	AM	**56.9**	**E**	SBR	Add southbound right turn overlap with eastbound left turn.	45.6	D
		PM	*34.9*	*C*	*NBR*		*52.2*	*D*
36	Jackson St/Alice St-Sycamore Ave	AM	**488.7**	**F**	NBR	Signal warrant not met; Convert northbound shared through-left lane into exclusive left turn lane; Convert northbound right turn pocket into shared through-right turn pocket with 110 ft storage & 25 ft taper length; No right-of-way for additional improvements; Significant & unavoidable impact.	**377.2**	**F**
		PM	**233.4**	**F**	NBR		**208.6**	**F**
37	2nd St/Campus Dr	AM	**1158.8**	**F**	WB	Remove westbound channelized right turn; Modify intersection control to uncoordinated signalized intersection with 80 s cycle length (AM Peak) & 61 s cycle length (PM Peak).	30.8	C
		PM	*26.8*	*D*	*WB*		*11.2*	*B*
38	Amador St/Elmhurst St	AM	**39.7**	**E**	NB	Signal warrant not met; Restripe eastbound approach to add eastbound right turn pocket with 150 ft storage & 50 ft taper length; Convert eastbound shared left-through-right lane into shared through-left lane; Restripe northbound approach to add northbound through-right pocket with 70 ft storage & 25 ft taper length; Convert northbound shared left-through-right lane into exclusive left turn lane. Add red curbs along turn pockets to restrict parking.	23.4	C
		PM	**65.0**	**F**	NB		34.8	D
39	Jackson St/Soto Ave	AM	**55.6**	**E**	WBL	Optimize phase splits keeping existing 169.4 cycle length.	48.3	D
		PM	**79.9**	**E**	NBR	Optimize cycle length and phase splits for 135 s cycle length.	53.7	D

ID	Intersection	Peak[1]	Existing Conditions			Mitigations		
			Delay	LOS	Worst Mvmt[2]	Details	Delay	LOS[3]
40	Jackson St/Amador St-Cypress Ave	AM	**60.2**	**E**	SBR	No right-of-way for additional turn pockets; Optimize phase splits. Significant & unavoidable impact.	**60.0**	**E**
		PM	**65.5**	**E**	NBR		**65.2**	**E**
45	Harder Rd/Gading Rd	AM	**63.3**	**E**	WBL	No right-of-way; No mitigations applied. Significant & unavoidable impact.	**63.3**	**E**
		PM	**84.0**	**F**	EBR		**84.0**	**F**
46	Harder Rd/Soto Rd-Mocine Ave	AM	**95.5**	**F**	NBL	Convert southbound exclusive left turn lane into shared through-left lane; Convert southbound shared through-right lane into exclusive right lane; Add southbound right turn overlap with eastbound left turn movement; Prohibit U-turn movement at northbound approach.	35.1	D
		PM	*47.6*	*D*	*NBL*		*44.5*	*D*
48	Mission Blvd/Harder Rd	AM	**75.7**	**E**	EBR	No right-of-way for additional turn pockets; Add eastbound right turn overlap with northbound left turn; Optimize phase splits keeping existing cycle length of 142 s. Significant & unavoidable impact.	**59.9**	**E**
		PM	**79.1**	**E**	NBL		**63.1**	**E**
49	Patrick Ave/Gomer St	AM	**80.8**	**F**	WB	Modify intersection control to a coordinated, 6-phase signal with 110 s cycle length (AM Peak) & 84 s cycle length (PM Peak).	25.6	C
		PM	**35.5**	**E**	NB		18.5	B
50	Patrick Ave/Roosevelt Ave	AM	**49.2**	**E**	SB	Modify intersection control to 4-phase, coordinated signal with 110 s cycle length (AM) & 84 s cycle length (PM).	20.2	C
		PM	*32.9*	*D*	*NB*		*9.2*	*A*
51	Patrick Ave/Tennyson Rd	AM	**88.0**	**F**	SBR	Convert southbound shared left-right turn lane into exclusive right turn lane; Add southbound right turn overlap with eastbound left turn movement.	41.4	D
		PM	*38.3*	*D*	*WB*		*34.8*	*C*
54	Tennyson Rd/Dickens Ave	AM	**126.4**	**F**	NB	Signal warrant not met; Convert landscape median on west leg into a TWLTL median.	27.4	D
		PM	**297.4**	**F**	NB		34.1	D

ID	Intersection	Peak[1]	Existing Conditions			Mitigations		
			Delay	LOS	Worst Mvmt[2]	Details	Delay	LOS[3]
56	Tennyson Rd/Harvey Ave	AM	**261.4**	**F**	NB	No right-of-way; No mitigations applied. Significant & unavoidable impact.	**261.4**	**F**
		PM	**394.3**	**F**	NB		**394.3**	**F**
58	Tennyson Rd/Baldwin St	*AM*	*24.0*	*C*	*SB*	Signal warrant not met; Add southbound left turn pocket with 75 ft storage & 25 ft taper length; Restrict on-street parking at southbound approach for 100 feet north of intersection; Convert southbound shared lane into exclusive right turn lane. Significant & unavoidable impact.	*23.2*	*C*
		PM	**561.3**	**F**	SB		**346.2**	**F**
61	Tennyson Rd/Pacific St	AM	**72.2**	**F**	NB	Signal warrant not met; Add northbound right turn pocket with 50 ft storage & 25 ft taper length; Requires red curb along northbound approach. Significant & unavoidable impact.	**47.0**	**E**
		PM	**51.3**	**F**	NB		**41.4**	**E**
64	Ruus Rd/Folsom Ave	AM	**83.6**	**F**	SB	Signal warrant not met; Add exclusive left turn pockets at all approach legs with 100 ft storage & 25 ft taper length; Requires restriping of lanes and red curbs along all approached for the extents of the turn pockets. Significant & unavoidable impact.	**51.2**	**F**
		PM	**87.1**	**F**	NB		**43.2**	**E**
67	Huntwood Ave/ Industrial Pkwy	AM	**99.9**	**F**	WBL	Convert eastbound exclusive right turn lane into shared through-right lane; Add northbound right turn overlap with westbound left movement; Optimize CL & phase splits for 145 s (AM Peak) & 137.5 s (PM Peak) cycle length. Significant & unavoidable impact.	**80.6**	**F**
		PM	**150.2**	**F**	EBL		**78.1**	**E**
68	Mission Blvd/Industrial Pkwy	AM	**60.1**	**E**	SBR	Add eastbound right turn overlap with northbound left turn; Optimize phase splits for 137 s cycle length.	53.5	D
		PM	*50.4*	*D*	*WBL*	Add eastbound right turn overlap with northbound left turn.	*48.5*	*D*
70	Huntwood Ave/Zephyr Ave	AM	**43.1**	**E**	EB	Signal warrant not met; Restripe eastbound approach to have one exclusive left turn lane and one shared through-right lane with 100 ft storage & 50 ft taper length. Significant & unavoidable impact.	**37.9**	**E**
		PM	*26.5*	*D*	*WB*		*26.5*	*D*

ID	Intersection	Peak[1]	Existing Conditions			Mitigations		
			Delay	LOS	Worst Mvmt[2]	Details	Delay	LOS[3]
73	Garden Ave/A St	AM	**67.9**	**F**	NB	Signal warrant not met; No right-of-way; No mitigations applied. Significant & unavoidable impact.	**67.9**	**F**
		PM	**336.1**	**F**	NB		**336.1**	**F**
78	Hesperian Blvd/Winton Ave	*AM*	*47.2*	*D*	*NBL*	Increase NBL split to 15 s and decrease SBT split to 46 s; Maintain 130 s cycle length.	*47.2*	*D*
		PM	**56.7**	**E**	SBL	Optimize phase splits so NBL & SBL have 15 s splits while maintaining 140 s cycle length; Convert sequence to lagging left turns on EB & WB approaches.	54.9	D
84	Industrial Blvd/Depot Rd	*AM*	*37.3*	*D*	*WBL*	Add eastbound right turn overlap (permissive) with northbound left turn; Prohibit U-turn movement at northbound approach.	*34.7*	*C*
		PM	**57.0**	**E**	EBR		23.0	C
85	Hesperian Blvd/Depot Rd-Cathy Way	AM	**87.5**	**F**	EBR	Convert one northbound through lane into an exclusive left turn lane; Optimize splits for AM peak. Significant & unavoidable impact.	**58.8**	**E**
		PM	*46.6*	*D*	*EBR*		*42.9*	*D*
88	Hesperian Blvd/Tennyson Rd	*AM*	*44.3*	*D*	*SBL*	Convert westbound through lane into exclusive left turn lane; Convert westbound right turn pocket into a shared through-right pocket.	*53.2*	*D*
		PM	**55.4**	**E**	WBL, SBL	Convert westbound through lane into exclusive left turn lane; Increase NBL split to 15 s while maintaining 140 s cycle length.	51.1	D
90	Tennyson Rd/Calaroga Ave	AM	**59.4**	**E**	EB	Add northbound right turn overlap with westbound left turn; Prohibit U-turn movement at westbound approach.	50.7	D
		PM	**81.6**	**F**	NBR		49.2	D
91	Calaroga Ave/Bolero Ave	AM	**141.4**	**F**	NB	No right-of-way for addition of turn pockets; Modify signal control to an uncoordinated, signalized intersection with a 60 s cycle length and split phasing at northbound and southbound approaches during both peak periods. Significant & unavoidable impact.	**63.8**	**E**
		PM	*34.8*	*D*	*NB*		*24.2*	*C*

ID	Intersection	Peak[1]	Existing Conditions			Mitigations		
			Delay	LOS	Worst Mvmt[2]	Details	Delay	LOS[3]
92	Hesperian Blvd/Oliver Dr	AM	**1451.7**	**F**	EB	Modify intersection control to a coordinated, 5-phase signal with 130 s cycle length to coordinate with Hesperian Blvd intersections.	4.7	A
		PM	**73.2**	**F**	EB		9.1	A
95	Hesperian Blvd/Catalpa Way	AM	**6991.3**	**F**	WB	Modify intersection control to a coordinated, 4-phase signal with 130 s cycle length to coordinate with Hesperian Blvd intersections.	30.9	C
		PM	**1357.6**	**F**	WB		10.0	A
98	Hesperian Blvd/Industrial Blvd & Industrial Pkwy	AM	**65.8**	**E**	WBL	Add permissive overlap phasing at WBR movement; No right-of-way for widening. Significant & unavoidable impact.	**60.5**	**E**
		PM	**75.2**	**E**	WBL		**72.8**	**E**

Notes:
[1]AM – Morning peak period; PM – Evening peak period.
[2]Worst movement delay during respective peak hour.
[3]Delay: Average control delay in seconds per vehicle, reported values are overall for signalized and all-way-stop-control intersections; and critical minor approaches for two-way-stop-control intersections.
[4]LOS – Level of Service.
Bold indicates failing level of service.
Text – Peak hour not failing under existing conditions, but mitigations applied to this peak.

Summary

Under Existing Conditions, the traffic operation and traffic safety within the study area are summarized below:

- 1 percent of the collisions are fatal collisions.
- 52 percent of the collisions are injury collisions.
- Broadside & rear-end are the main types of traffic collisions at the study intersections.
- 26 out of 70 signalized intersections operate at LOS E or F under Existing Conditions.
- 21 out of 30 unsignalized intersections operate at LOS E or F under Existing Conditions.
- Two out of 15 study segments operate at unacceptable conditions during at least one peak period. Both failing segments are CMP roadways.
- Seven out of 21 failing, unsignalized intersections meet the peak hour signal warrant for one or both peaks.
- 33 out of 47 failing intersections improve from unacceptable to acceptable operations during one or both peak hours when mitigations are applied.

CHAPTER 3. DEVELOPING TRAFFIC FORECAST AND FUTURE CONDITIONS ANALYSIS

This section of the report provides a summary of travel demand forecasting methods and results for the Hayward Citywide Multimodal Improvement Study. This chapter includes the following sections:

- City of Hayward General Plan Transportation Model Description
- Model Validation
- 2040 Forecasts of Study Intersections and Segments

City of Hayward General Plan Transportation Model

The Hayward City Transportation model is based on the Alameda County Transportation Commission Model. 2005 is the model base year and 2035 is the model future year.

The Hayward model has recently been updated with the following key changes:

- Update Base Year from 2000 to 2005 and extend the Future Year to 2035
- Update Traffic Analysis Zones (TAZ)
- Update 2035 Future Year with Hayward general plan improvements
- Update Networks to be consistent with the Plan Bay Area
- Improve Model Sensitivity to Bicycle and Pedestrian modes

The latest Hayward model was obtained as the travel demand-forecasting tool for this project. The Hayward model can forecast traffic in a.m. /p.m. 4-hour peak periods and a.m. /p.m. peak hour conditions.

Model Validation

The Hayward Model was based on the Alameda County Transportation Commission 2010 model. TJKM collected turning movement counts (TMC) for the morning and evening peak periods for 70 study intersections throughout the year 2016, and received TMC for 30 study intersections from the City for the years 2014 and 2015, both of which were projected to the year 2019 for Existing Conditions. The Hayward Model was modified slightly to add missing roadways and correct errors in speeds and capacity. Peaking factors were also slightly modified to increase trips in the study area to improve assignment validation. This was done separately for AM and PM peak hours in the base year model.

For the future year model, Hayward General Plan improvements were coded into the land use data used for forecasting future traffic volumes. The future model volumes are then compared to the base year to get a growth rate, which was then applied to the count data for forecasting purposes.

2040 Forecasts of Study Intersections and Segments

The Hayward model network was used to generate forecasts of the turning volumes at the study intersections and study segments for the base and future years. Based on the review of the

travel demand model output, manual adjustments were made to the model-generated forecast to replicate some of the existing conditions. Turning movements were generated directly from the highway assignment module of the CUBE model.

The 2040 demands were generated by applying the NCHRP 255 delta method. The growth between 2018 and 2040 was estimated by taking the delta or difference between two model forecasts. In the few locations where the 2018-to-2040 growth was negative, the growth was assumed to be zero. In other words, the existing volumes will be used if negative growth is forecasted. The processed growth was then added to the 2018 counts to produce 2040 demands.

2040 demands will be used as inputs to subsequent traffic analyses of the study intersections and study segments. Turning movement forecasts are summarized in **Table 12**, and study segment forecasts are summarized in **Table 13**. Travel demand model is a regional model and it cannot cover all local intersections. Turning movement volumes show zero values for the entire intersections in **Table 12** because intersection nodes were not included in the travel demand model.

Table 12: 2040 AM and PM Peak Hour Study Intersections Forecasts

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Foothill Blvd / Grove Way	EBL	159	261	220	242	232	241	275	241
		EBT	24	126	48	402	182	140	199	334
		EBR	0	0	38	13	53	71	80	80
		WBL	366	111	436	354	213	54	262	224
		WBT	27	38	136	59	215	108	291	123
		WBR	173	111	165	104	134	54	134	54
		NBL	0	1	8	44	91	133	97	163
		NBT	2581	3499	3483	3711	2026	2589	2657	2738
		NBR	0	0	0	0	119	99	119	99
		SBL	80	163	75	152	127	144	127	144
		SBT	2529	2373	2768	2630	1838	1459	2005	1639
		SBR	1	1	44	64	51	79	81	123
2	Foothill Blvd / City Center Dr	EBL	12	345	295	667	21	81	219	306
		EBT	11	16	39	62	26	116	46	149
		EBR	23	21	66	74	0	6	30	43
		WBL	0	0	1	20	11	46	12	60
		WBT	7	19	27	66	36	46	50	79
		WBR	115	113	210	120	347	309	414	314
		NBL	21	13	42	71	5	25	20	66
		NBT	2498	3306	3106	3153	1526	2017	1952	2017
		NBR	0	1	1	17	15	58	15	69
		SBL	85	116	106	200	334	401	348	460
		SBT	2773	2330	2820	2702	1486	983	1519	1244

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		SBR	34	20	313	83	296	148	492	192
3	2nd St / City Center Dr	EBL	0	0	0	0	22	45	22	45
		EBT	35	47	50	85	9	44	20	70
		EBR	474	693	488	709	381	480	391	491
		WBL	14	18	46	35	72	67	94	78
		WBT	55	44	103	54	25	24	59	31
		WBR	0	0	0	0	3	5	3	5
		NBL	20	35	29	59	356	322	362	339
		NBT	0	0	0	0	130	119	130	119
		NBR	602	441	588	548	70	71	70	146
		SBL	0	0	0	0	1	1	1	1
		SBT	0	0	0	0	70	188	70	188
		SBR	0	0	0	0	19	61	19	61
4	2nd St / Russell Way	EBL	0	0	0	3	5	17	5	19
		EBT	35	41	44	31	3	23	9	23
		EBR	0	0	0	0	16	98	16	98
		WBL	37	54	41	56	10	23	13	24
		WBT	0	0	0	1	7	9	7	10
		WBR	0	0	0	0	68	28	68	28
		NBL	57	0	193	190	0	70	95	203
		NBT	57	0	193	190	370	373	465	506
		NBR	4	13	8	19	9	14	12	18
		SBL	0	0	0	0	57	72	57	72
		SBT	488	712	533	744	461	575	492	597
		SBR	0	0	0	0	17	47	17	47
5	A St / Foothill Blvd	EBL	0	0	0	0	0	0	0	0
		EBT	0	0	0	0	0	0	0	0
		EBR	0	0	0	0	0	0	0	0
		WBL	0	0	25	240	0	0	0	0
		WBT	1863	1627	1888	1679	1417	1006	1434	1043
		WBR	0	0	0	0	16	48	33	216
		NBL	92	4	139	563	120	198	152	589
		NBT	1958	2942	2492	2325	1332	2191	1705	2191
		NBR	1720	1645	1711	1831	486	1011	486	1142
		SBL	0	58	0	134	0	0	0	0
		SBT	0	0	0	0	0	0	0	0
		SBR	2352	1646	2459	2000	1312	1105	1387	1353
6	2nd St / A St	EBL	0	0	0	0	10	26	10	26
		EBT	1720	1660	1711	1873	471	983	471	1132

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		EBR	0	43	0	93	5	32	5	67
		WBL	48	260	208	378	392	308	504	390
		WBT	1771	1502	1734	1480	1308	906	1308	906
		WBR	213	146	129	82	84	98	84	98
		NBL	62	82	156	405	126	90	192	317
		NBT	470	343	689	730	387	349	540	620
		NBR	80	158	96	35	169	386	181	386
		SBL	120	128	95	55	77	175	77	175
		SBT	375	594	455	712	328	474	384	557
		SBR	30	43	24	34	29	72	29	72
7	2nd St / B St	EBL	0	0	0	0	14	33	14	33
		EBT	516	307	591	179	107	174	160	174
		EBR	0	0	0	6	8	17	8	21
		WBL	16	20	46	38	191	212	212	225
		WBT	759	675	892	758	627	354	720	413
		WBR	44	41	161	90	34	52	116	86
		NBL	99	77	146	102	129	77	162	94
		NBT	568	541	781	1081	647	702	796	1080
		NBR	12	556	99	717	285	514	346	626
		SBL	6	89	21	188	26	46	36	115
		SBT	410	655	450	743	518	640	546	702
		SBR	7	153	192	251	156	120	285	188
8	3rd St / B St	EBL	0	0	0	6	27	43	27	47
		EBT	534	900	711	994	388	625	512	691
		EBR	0	53	0	84	0	0	0	0
		WBL	0	0	0	0	0	0	0	0
		WBT	788	735	983	805	836	534	972	583
		WBR	16	18	8	27	10	16	10	22
		NBL	30	2	116	76	11	6	72	58
		NBT	23	6	93	50	6	6	55	37
		NBR	0	0	0	0	8	35	8	35
		SBL	33	10	21	20	2	3	2	10
		SBT	2	71	2	17	0	0	0	0
		SBR	0	0	0	5	18	46	18	49
9	6th St / B St	EBL	0	0	0	0	3	15	3	15
		EBT	0	0	0	0	411	713	411	713
		EBR	0	0	0	0	49	23	49	23
		WBL	0	0	0	0	38	25	38	25
		WBT	0	0	0	0	868	535	868	535

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		WBR	0	0	0	0	2	3	2	3
		NBL	0	0	0	0	12	8	12	8
		NBT	0	0	0	0	1	0	1	0
		NBR	0	0	0	0	63	33	63	33
		SBL	0	0	0	0	3	4	3	4
		SBT	0	0	0	0	1	1	1	1
		SBR	0	0	0	0	14	10	14	10
10	Mission Blvd / A St	EBL	57	179	174	763	216	486	298	895
		EBT	0	0	0	0	0	0	0	0
		EBR	298	482	384	805	178	307	238	533
		WBL	3142	2616	2691	2045	1622	1396	1622	1396
		WBT	912	415	1261	929	717	573	962	933
		WBR	85	251	443	1387	99	165	349	960
		NBL	0	0	0	0	0	0	0	0
		NBT	0	0	0	0	0	0	0	0
		NBR	0	0	0	0	0	0	0	0
		SBL	0	0	0	0	0	0	0	0
		SBT	404	501	1335	1138	501	572	1153	1018
		SBR	21	26	150	341	143	178	234	398
11	Myrtle St / A St	EBL	0	0	0	0	0	0	0	0
		EBT	0	0	0	0	504	828	504	828
		EBR	0	0	0	0	22	18	22	18
		WBL	0	0	0	0	111	44	111	44
		WBT	0	0	0	0	832	792	832	792
		WBR	0	0	0	0	0	0	0	0
		NBL	0	0	0	0	25	9	25	9
		NBT	0	0	0	0	0	0	0	0
		NBR	0	0	0	0	51	32	51	32
		SBL	0	0	0	0	0	0	0	0
		SBT	0	0	0	0	0	0	0	0
		SBR	0	0	0	0	0	0	0	0
12	Grand St / B St	EBL	23	35	30	23	14	12	18	12
		EBT	2	3	15	46	79	88	88	118
		EBR	3	7	7	30	41	24	43	40
		WBL	2	0	108	6	346	147	420	151
		WBT	4	4	18	47	103	80	113	110
		WBR	20	30	291	37	75	91	265	96
		NBL	9	6	14	8	7	26	11	27
		NBT	77	172	176	623	263	532	332	848

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		NBR	0	3	0	6	96	184	96	186
		SBL	17	30	29	43	36	43	45	52
		SBT	247	143	586	593	525	327	762	642
		SBR	34	36	33	39	24	24	24	26
13	Grand St / A St	EBL	0	0	0	99	37	80	37	149
		EBT	333	491	368	1247	415	648	439	1177
		EBR	21	33	43	67	72	107	87	131
		WBL	260	160	572	586	190	113	409	412
		WBT	652	295	810	645	800	626	911	871
		WBR	0	0	6	57	37	62	42	102
		NBL	35	42	303	45	78	156	266	158
		NBT	14	24	14	335	198	319	198	537
		NBR	71	170	180	303	46	152	122	245
		SBL	0	2	38	15	46	45	72	54
		SBT	18	16	33	22	295	158	306	162
		SBR	0	0	1	0	33	41	34	41
14	Montgomery Ave / B St	EBL	0	0	0	0	48	68	48	68
		EBT	8	14	28	60	121	206	135	238
		EBR	12	23	15	35	33	75	35	83
		WBL	1	2	8	15	50	70	55	79
		WBT	13	22	397	77	348	246	617	285
		WBR	0	0	0	0	71	68	71	68
		NBL	13	12	21	12	0	0	0	0
		NBT	0	0	0	0	0	0	0	0
		NBR	0	0	0	0	0	0	0	0
		SBL	0	0	0	0	48	32	48	32
		SBT	0	0	0	0	25	50	25	50
		SBR	0	0	0	0	139	71	139	71
15	Watkins St / B St	EBL	0	0	0	0	24	56	24	56
		EBT	0	0	0	0	0	0	0	0
		EBR	0	0	0	0	148	141	148	141
		WBL	0	0	0	0	186	90	186	90
		WBT	0	0	0	0	365	180	365	180
		WBR	0	0	0	0	26	54	26	54
		NBL	0	0	0	0	123	133	123	133
		NBT	0	0	0	0	95	150	95	150
		NBR	0	0	0	0	0	0	0	0
		SBL	0	0	0	0	0	0	0	0
		SBT	6	25	12	21	87	105	92	105

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		SBR	0	0	0	1	31	54	31	55
16	2nd St / C St	EBL	78	640	185	844	246	504	321	647
		EBT	2	52	2	152	158	299	158	369
		EBR	40	54	49	173	152	186	158	269
		WBL	0	0	0	0	51	37	51	37
		WBT	0	0	0	0	0	0	0	0
		WBR	68	0	112	4	76	28	107	31
		NBL	0	0	0	0	0	0	0	0
		NBT	521	466	753	962	752	755	914	1102
		NBR	0	0	0	1	31	42	31	42
		SBL	0	30	0	2	10	22	10	22
		SBT	366	600	409	743	733	860	763	960
		SBR	0	0	0	0	0	0	0	0
17	Grand St / D St	EBL	21	76	55	381	228	228	251	441
		EBT	64	543	276	313	443	1070	591	1070
		EBR	17	0	5	3	8	8	8	10
		WBL	119	12	734	65	35	45	466	82
		WBT	285	69	136	304	775	405	775	570
		WBR	7	20	23	18	187	74	198	74
		NBL	0	13	0	0	7	5	7	5
		NBT	59	75	120	233	386	322	428	433
		NBR	9	620	220	676	44	85	191	124
		SBL	4	6	22	52	115	140	128	173
		SBT	56	58	151	482	360	365	426	662
		SBR	165	53	508	95	347	249	587	279
18	A St / Happyland Ave	EBL	8	26	23	30	0	0	0	0
		EBT	649	990	679	1675	1161	1744	1161	1744
		EBR	246	374	818	370	10	20	10	20
		WBL	424	126	587	477	23	78	23	78
		WBT	891	617	1406	937	1273	1471	1273	1471
		WBR	0	1	23	7	73	49	73	49
		NBL	312	341	623	793	6	3	6	3
		NBT	2	96	159	886	0	0	0	0
		NBR	87	522	331	668	17	29	17	29
		SBL	0	0	14	26	0	0	0	0
		SBT	19	2	497	79	0	0	0	0
		SBR	2	8	43	16	60	46	60	46
19	D St / Watkins St	EBL	5	289	159	63	36	79	144	79
		EBT	85	916	422	1062	462	944	697	1046

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		EBR	0	4	11	6	28	30	36	32
		WBL	594	347	554	428	50	46	50	102
		WBT	420	90	878	368	748	328	1069	523
		WBR	0	1	11	18	49	63	57	75
		NBL	11	18	19	33	47	37	52	48
		NBT	31	281	60	626	223	219	244	461
		NBR	1	89	426	72	59	84	357	84
		SBL	0	0	0	0	11	20	11	20
		SBT	12	122	98	6	153	149	213	149
		SBR	18	11	40	40	78	53	93	73
20	Foothill Blvd / D St	EBL	59	668	716	170	178	570	638	570
		EBT	16	132	89	154	392	503	443	519
		EBR	0	0	0	0	0	0	0	0
		WBL	0	0	0	0	0	0	0	0
		WBT	555	210	286	506	1043	638	1043	845
		WBR	63	67	115	102	76	72	112	96
		NBL	229	266	714	169	0	0	0	0
		NBT	4077	4138	3956	4476	2070	3130	2070	3367
		NBR	174	411	184	335	107	169	114	169
		SBL	0	0	0	0	0	0	0	0
		SBT	0	0	0	0	0	0	0	0
		SBR	0	0	0	0	0	0	0	0
21	1st St/ D St	EBL	0	0	0	0	0	0	0	0
		EBT	13	322	33	203	312	495	326	495
		EBR	137	190	147	222	139	69	146	91
		WBL	53	76	45	90	10	7	10	17
		WBT	447	58	198	182	1061	633	1061	720
		WBR	0	0	0	0	0	0	0	0
		NBL	175	156	191	310	127	80	138	188
		NBT	0	0	0	0	0	0	0	0
		NBR	27	31	43	185	37	26	49	134
		SBL	0	0	0	0	3	1	3	1
		SBT	14	30	32	120	28	18	41	81
		SBR	0	0	1	1	2	6	3	7
22	2nd St / D St	EBL	40	146	78	240	75	193	101	259
		EBT	15	226	23	178	240	364	246	364
		EBR	0	0	0	0	94	59	94	59
		WBL	9	7	67	6	104	54	145	54
		WBT	419	38	152	62	409	215	409	232

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		WBR	0	0	0	0	19	43	19	43
		NBL	0	0	0	0	358	113	358	113
		NBT	481	320	675	722	715	563	851	845
		NBR	6	22	5	49	68	57	68	76
		SBL	0	0	0	0	59	89	59	89
		SBT	311	538	347	682	612	652	637	753
		SBR	95	115	112	233	260	331	272	413
23	5th St / D St	EBL	0	0	0	0	0	0	0	0
		EBT	30	208	28	185	256	417	256	417
		EBR	47	91	44	96	88	104	88	107
		WBL	1	1	1	1	91	33	91	33
		WBT	160	28	218	92	466	255	506	299
		WBR	0	0	0	0	0	0	0	0
		NBL	81	59	90	132	58	32	65	83
		NBT	0	0	0	0	0	0	0	0
		NBR	1	1	1	1	110	42	110	42
		SBL	0	0	0	0	0	0	0	0
		SBT	0	0	0	0	0	0	0	0
		SBR	0	0	0	0	0	0	0	0
24	Watkins St / Jackson St	EBL	42	22	428	124	186	229	456	300
		EBT	2768	2950	2538	3033	1192	1699	1192	1757
		EBR	17	30	18	230	147	181	147	321
		WBL	0	7	0	63	0	0	0	0
		WBT	2148	2026	2049	1910	1307	821	1307	821
		WBR	0	0	0	0	2	5	2	5
		NBL	278	133	353	76	243	174	296	174
		NBT	26	380	114	618	192	188	254	355
		NBR	0	0	5	0	16	27	19	27
		SBL	8	19	5	26	0	8	0	13
		SBT	0	9	235	23	125	175	289	184
		SBR	612	490	433	453	119	121	119	121
25	Mission Blvd / Foothill Blvd	EBL	0	0	0	0	0	0	0	0
		EBT	2639	2860	2482	2944	748	1396	748	1455
		EBR	0	0	0	0	70	57	70	57
		WBL	0	0	0	0	0	0	0	0
		WBT	0	0	0	0	0	0	0	0
		WBR	0	0	0	0	0	0	0	0
		NBL	0	0	0	0	0	0	0	0
		NBT	0	0	0	0	0	0	0	0

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		NBR	0	0	0	0	1593	2023	1593	2023
		SBL	0	0	0	0	0	0	0	0
		SBT	0	0	0	0	1816	1685	1816	1685
		SBR	2148	2033	2049	1973	1421	1043	1421	1043
26	2nd St / E St	EBL	0	0	0	0	139	57	139	57
		EBT	98	132	92	139	223	94	223	98
		EBR	3	4	28	52	68	41	85	74
		WBL	39	24	100	31	117	62	160	67
		WBT	88	64	65	352	86	19	86	220
		WBR	242	96	345	43	604	189	676	189
		NBL	6	13	10	10	29	8	32	8
		NBT	245	246	335	728	414	498	477	835
		NBR	5	19	15	14	105	85	112	85
		SBL	109	224	108	308	306	201	306	259
		SBT	210	322	306	380	440	509	507	550
		SBR	0	0	0	0	138	60	138	60
27	Grand St / Meek Ave	EBL	0	3	4	5	19	33	22	35
		EBT	16	23	51	172	63	50	88	154
		EBR	13	31	164	39	9	11	115	17
		WBL	5	0	21	0	4	14	15	14
		WBT	27	59	75	428	87	72	121	330
		WBR	13	26	37	264	178	208	195	375
		NBL	23	8	25	77	6	9	8	58
		NBT	46	677	284	635	187	177	354	177
		NBR	0	10	0	6	2	14	2	14
		SBL	3	5	411	188	167	112	453	240
		SBT	181	56	476	339	248	255	455	453
		SBR	5	0	2	9	18	17	18	23
28	Jackson St / Meek Ave	EBL	21	20	16	122	25	49	25	120
		EBT	13	22	456	251	1194	1652	1504	1812
		EBR	15	15	22	27	34	44	39	52
		WBL	0	0	0	2	128	176	128	177
		WBT	37	75	87	360	1457	888	1492	1087
		WBR	2	11	156	585	32	47	140	449
		NBL	11	18	18	353	55	38	60	273
		NBT	2804	2971	2812	2680	191	239	197	239
		NBR	0	0	0	4	192	317	192	320
		SBL	0	0	6	34	34	29	39	53
		SBT	3025	2640	2789	2398	183	132	183	132

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		SBR	13	10	40	7	22	15	41	15
29	Fletcher Ln / Watkins St	EBL	21	33	51	26	30	10	51	10
		EBT	23	32	43	47	33	23	47	33
		EBR	0	0	0	0	1	1	1	1
		WBL	0	0	0	0	5	15	5	15
		WBT	30	31	43	24	26	26	35	26
		WBR	283	481	421	668	385	312	481	443
		NBL	0	0	0	0	0	3	0	3
		NBT	0	0	0	0	4	26	4	26
		NBR	0	0	0	0	4	20	4	20
		SBL	0	19	232	230	227	345	389	493
		SBT	0	0	0	0	6	29	6	29
		SBR	18	27	21	86	15	27	17	68
30	Mission Blvd / Fletcher Ln	EBL	22	29	41	193	79	67	92	181
		EBT	1	17	2	16	54	109	55	109
		EBR	0	5	232	68	115	181	278	225
		WBL	83	63	273	99	207	119	340	144
		WBT	240	100	278	56	137	63	164	63
		WBR	0	0	0	65	14	7	14	53
		NBL	46	383	143	614	233	288	301	450
		NBT	1819	1926	2330	1779	1473	1889	1831	1889
		NBR	98	107	157	705	71	112	112	531
		SBL	117	111	52	71	31	82	31	82
		SBT	2033	2113	2450	2939	1914	1536	2206	2115
		SBR	27	28	43	23	16	55	27	55
31	Santa Clara St / Ocie Way	EBL	0	0	0	0	5	4	5	4
		EBT	0	0	0	0	0	0	0	0
		EBR	0	0	0	0	28	9	28	9
		WBL	125	101	72	114	38	37	38	47
		WBT	0	0	0	0	0	0	0	0
		WBR	150	155	179	104	19	28	39	28
		NBL	0	0	0	0	10	24	10	24
		NBT	252	804	934	2244	356	1036	833	2044
		NBR	83	136	78	61	23	47	23	47
		SBL	132	170	94	185	46	11	46	22
		SBT	557	333	1808	741	1107	515	1983	800
		SBR	0	0	0	0	4	6	4	6
32		EBL	0	0	0	39	78	31	78	58
		EBT	269	1355	392	1727	555	1150	641	1410

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
	Amador St. W Winton Ave	EBR	202	315	224	360	289	109	304	141
		WBL	221	154	259	159	239	133	266	137
		WBT	944	293	1323	671	1191	717	1457	982
		WBR	18	21	53	33	85	28	110	36
		NBL	279	301	298	242	104	289	117	289
		NBT	20	22	20	61	19	24	19	51
		NBR	112	255	135	342	180	356	196	416
		SBL	56	34	51	67	25	29	25	52
		SBT	19	25	34	26	51	26	61	27
		SBR	0	0	42	0	41	91	70	91
33	Winton Ave / Soto Rd / Myrtle St	EBL	79	210	164	1238	57	170	117	890
		EBT	0	0	0	0	582	1232	582	1232
		EBR	372	1409	457	842	148	148	207	148
		WBL	50	65	143	180	115	71	180	151
		WBT	963	351	1337	655	1119	616	1380	829
		WBR	0	0	0	0	18	24	18	24
		NBL	193	105	236	183	184	121	214	175
		NBT	0	0	0	0	119	150	119	150
		NBR	53	216	125	1017	79	146	129	706
		SBL	0	0	0	0	43	23	43	23
		SBT	0	0	0	0	241	111	241	111
		SBR	0	0	0	0	262	119	262	119
34	Winton Ave / D St	EBL	72	628	292	423	0	0	0	0
		EBT	352	997	289	1435	0	0	0	0
		EBR	0	0	0	0	0	0	0	0
		WBL	0	0	0	0	83	65	83	65
		WBT	524	257	765	334	0	0	0	0
		WBR	0	3	0	315	29	54	29	54
		NBL	0	0	0	0	0	0	0	0
		NBT	0	0	0	0	628	1238	782	1238
		NBR	489	160	715	502	84	127	84	433
		SBL	0	0	0	0	21	16	21	16
		SBT	0	0	0	0	1152	672	1320	725
		SBR	0	0	0	0	0	0	0	0
35	Park St / Winton Ave	EBL	0	0	0	0	0	0	0	0
		EBT	0	0	0	0	75	97	75	97
		EBR	0	0	0	0	41	49	41	49
		WBL	0	0	0	0	16	22	16	22
		WBT	0	0	0	0	100	78	100	78

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		WBR	0	0	0	0	0	0	0	0
		NBL	0	0	0	0	23	59	23	59
		NBT	0	0	0	0	0	0	0	0
		NBR	0	0	0	0	10	25	10	25
		SBL	0	0	0	0	0	0	0	0
		SBT	0	0	0	0	0	0	0	0
		SBR	0	0	0	0	0	0	0	0
36	Jackson St / Sycamore Ave / Alice St	EBL	0	0	0	0	29	47	29	47
		EBT	2435	2680	2751	2619	1273	1812	1494	1812
		EBR	0	0	0	471	38	79	38	409
		WBL	76	154	90	144	51	43	61	43
		WBT	2704	2399	2695	2427	1713	1063	1713	1083
		WBR	0	0	0	0	0	6	0	6
		NBL	0	0	0	21	50	25	50	40
		NBT	0	0	0	0	7	3	7	3
		NBR	159	78	167	123	40	37	46	69
		SBL	0	0	0	0	2	1	2	1
		SBT	0	0	0	0	4	1	4	1
		SBR	0	0	0	0	25	27	25	27
37	Campus Dr / 2nd St	EBL	0	0	0	0	0	0	0	0
		EBT	33	94	33	74	112	102	112	102
		EBR	305	201	237	238	422	359	422	385
		WBL	0	0	0	0	0	0	0	0
		WBT	130	97	86	38	0	0	0	0
		WBR	0	0	0	0	0	0	0	0
		NBL	0	0	0	0	301	418	301	418
		NBT	0	0	0	0	0	1	0	1
		NBR	0	0	0	0	99	161	99	161
		SBL	122	81	184	113	179	75	222	97
		SBT	0	0	0	0	133	43	133	43
		SBR	0	0	0	0	0	0	0	0
38	Amador St / Elmhurst St	EBL	344	485	348	324	97	104	99	104
		EBT	0	0	0	0	62	27	62	27
		EBR	22	38	33	165	162	214	170	303
		WBL	0	0	0	0	21	81	21	81
		WBT	0	0	0	0	30	73	30	73
		WBR	0	0	0	0	26	107	26	107
		NBL	29	49	25	218	109	106	109	224
		NBT	66	93	105	321	229	256	256	415

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		NBR	0	0	0	0	100	16	100	16
		SBL	0	0	0	0	46	11	46	11
		SBT	52	90	84	229	283	196	305	294
		SBR	390	404	432	315	85	64	115	64
39	Jackson St / Soto Rd	EBL	61	188	102	563	70	114	98	377
		EBT	2357	2618	2555	2179	1059	1792	1198	1792
		EBR	348	269	314	570	168	278	168	488
		WBL	42	75	72	266	170	202	191	335
		WBT	2662	2324	2623	2180	1849	951	1849	951
		WBR	0	0	0	1	60	33	60	34
		NBL	350	204	338	302	194	336	194	404
		NBT	200	136	273	653	269	242	320	604
		NBR	78	43	196	56	78	124	161	133
		SBL	0	19	0	855	59	41	59	626
		SBT	69	183	198	508	232	214	322	442
		SBR	62	94	105	79	65	75	96	75
40	Jackson St / Cypress Ave / Amador St	EBL	0	15	0	220	236	255	236	398
		EBT	2382	2879	2547	2905	1132	1956	1248	1975
		EBR	122	147	81	104	56	70	56	70
		WBL	216	336	497	325	57	161	254	161
		WBT	2835	2263	2552	2188	1923	1151	1923	1151
		WBR	22	22	18	48	91	126	91	144
		NBL	187	173	134	144	126	124	126	124
		NBT	73	105	112	271	238	203	265	319
		NBR	366	167	410	281	103	104	134	184
		SBL	18	28	15	126	93	158	93	227
		SBT	56	99	98	268	181	222	210	341
		SBR	0	0	4	0	229	88	231	88
41	Soto Rd / Orchard Ave	EBL	0	0	0	0	69	45	69	45
		EBT	0	0	0	0	43	36	43	36
		EBR	0	0	0	0	44	10	44	10
		WBL	10	13	305	223	333	127	539	274
		WBT	0	0	0	0	38	22	38	22
		WBR	361	192	409	386	320	287	354	423
		NBL	0	0	0	0	20	25	20	25
		NBT	193	156	350	598	253	317	363	626
		NBR	21	34	70	348	152	230	186	450
		SBL	337	281	359	447	139	285	155	401
		SBT	91	187	223	847	320	295	413	757

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		SBR	0	0	0	0	53	58	53	58
42	Carlos Bee Blvd/ Hayward Blvd	EBL	0	0	0	0	1	2	1	2
		EBT	127	410	169	478	419	544	448	591
		EBR	1194	201	1062	199	420	251	420	251
		WBL	594	42	700	146	416	163	490	236
		WBT	652	267	666	259	770	336	780	336
		WBR	0	0	0	0	3	2	3	2
		NBL	61	396	72	343	30	384	38	384
		NBT	0	0	0	0	1	3	1	3
		NBR	20	316	16	854	34	467	34	843
		SBL	0	0	0	0	2	2	2	2
		SBT	0	0	0	0	6	9	6	9
		SBR	0	0	0	0	2	6	2	6
43	Harder Rd / Santa Clara St	EBL	341	184	288	150	32	111	32	111
		EBT	0	0	0	0	1030	840	1347	1386
		EBR	0	0	0	0	0	0	24	0
		WBL	0	0	0	0	21	52	21	52
		WBT	0	0	0	0	723	1127	980	1537
		WBR	1031	773	1398	1359	0	0	0	0
		NBL	0	0	0	0	155	139	155	139
		NBT	0	0	0	0	0	0	0	0
		NBR	0	0	0	0	24	103	24	103
		SBL	558	1012	1010	1792	0	0	0	0
		SBT	0	0	0	0	0	0	0	0
		SBR	99	298	133	255	0	0	0	0
44	Harder Rd / Cypress Ave	EBL	0	40	22	121	21	59	36	116
		EBT	549	939	959	1421	726	1104	1013	1441
		EBR	9	33	30	250	0	0	15	152
		WBL	21	37	29	53	0	0	6	11
		WBT	991	730	1341	1308	1020	903	1265	1308
		WBR	319	173	390	313	357	364	406	462
		NBL	30	44	41	30	0	0	8	0
		NBT	31	33	29	233	0	0	0	140
		NBR	40	37	45	97	0	0	4	42
		SBL	178	294	569	433	223	332	497	429
		SBT	37	36	27	122	0	0	0	60
		SBR	10	0	15	21	28	44	32	58
45	Gading Rd / Harder Rd	EBL	221	563	954	806	0	0	0	0
		EBT	546	707	618	1146	604	899	654	1206

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		EBR	0	0	0	0	389	431	902	601
		WBL	91	92	600	716	767	410	1123	846
		WBT	624	561	620	638	930	733	930	787
		WBR	0	0	0	0	0	0	0	0
		NBL	708	379	1140	1036	385	559	687	1019
		NBT	0	0	0	0	0	0	0	0
		NBR	404	283	795	962	500	616	774	1092
		SBL	0	0	0	0	0	0	0	0
		SBT	0	0	0	0	0	0	0	0
		SBR	0	0	0	0	0	0	0	0
46	Harder Rd/ Soto Rd	EBL	36	136	217	829	337	464	464	949
		EBT	881	759	1158	1238	952	1003	1146	1338
		EBR	33	95	38	41	79	149	83	149
		WBL	15	17	15	21	14	29	14	32
		WBT	524	546	654	730	695	827	786	956
		WBR	15	26	23	69	77	115	83	145
		NBL	110	66	106	61	115	130	115	130
		NBT	46	24	51	38	35	57	39	67
		NBR	20	27	26	38	31	19	35	26
		SBL	23	22	51	286	122	113	141	298
		SBT	24	43	41	77	25	46	37	70
		SBR	81	40	461	563	620	312	886	678
47	Harder Rd / Jane Ave	EBL	0	0	0	0	294	251	294	251
		EBT	885	606	1177	1294	823	761	1028	1243
		EBR	54	120	64	214	14	20	21	86
		WBL	141	245	124	226	36	55	36	55
		WBT	346	515	466	757	503	793	587	963
		WBR	3	7	19	555	142	164	154	548
		NBL	101	79	110	43	22	20	28	20
		NBT	90	68	189	207	40	19	109	116
		NBR	327	304	351	551	52	40	69	212
		SBL	1	1	12	129	136	119	144	208
		SBT	16	21	440	250	19	44	316	204
		SBR	0	0	0	0	312	186	312	186
48	Mission Blvd / Harder Rd	EBL	284	390	323	836	296	331	324	643
		EBT	795	303	1021	821	298	165	457	528
		EBR	284	390	323	836	332	349	359	661
		WBL	79	291	154	285	154	198	206	198
		WBT	104	323	220	423	126	240	207	310

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		WBR	1	3	1	3	29	73	29	73
		NBL	151	136	114	753	232	319	232	751
		NBT	1226	1441	1452	1116	1115	2008	1274	2008
		NBR	542	264	521	275	166	179	166	186
		SBL	183	2	1	12	31	57	31	64
		SBT	956	1376	1709	1554	1943	1262	2470	1387
		SBR	198	242	181	285	98	169	98	200
49	Patrick Ave / Gomer St	EBL	13	24	12	50	28	16	28	34
		EBT	2	3	2	17	116	52	116	62
		EBR	167	161	200	428	44	38	67	225
		WBL	101	63	72	75	34	23	34	31
		WBT	2	3	2	16	104	101	104	110
		WBR	53	55	66	42	181	200	190	200
		NBL	162	223	147	342	23	64	23	148
		NBT	425	316	661	1269	369	630	534	1297
		NBR	65	111	51	77	10	41	10	41
		SBL	33	45	51	65	153	154	165	168
		SBT	190	77	1135	488	630	406	1291	694
		SBR	14	15	23	102	3	7	9	68
50	Patrick Ave / Roosevelt Ave	EBL	0	0	0	0	11	10	11	10
		EBT	0	0	0	0	0	2	0	2
		EBR	0	0	0	0	331	146	331	146
		WBL	0	0	0	0	0	9	0	9
		WBT	0	0	0	0	0	0	0	0
		WBR	0	0	0	0	1	6	1	6
		NBL	0	0	0	0	143	196	143	196
		NBT	0	0	0	0	420	704	420	704
		NBR	0	0	0	0	0	9	0	9
		SBL	0	0	0	0	0	9	0	9
		SBT	0	0	0	0	705	425	705	425
		SBR	0	0	0	0	4	9	4	9
51	Tennyson Rd / Patrick Ave	EBL	0	0	0	0	568	764	568	764
		EBT	393	1139	416	1089	1184	1514	1200	1514
		EBR	514	518	543	1103	0	0	0	0
		WBL	0	0	0	0	0	0	0	0
		WBT	1116	684	1425	1004	1207	1168	1423	1392
		WBR	139	132	316	585	50	127	174	444
		NBL	0	0	0	0	0	0	0	0
		NBT	0	0	0	0	0	0	0	0

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		NBR	0	0	0	0	0	0	0	0
		SBL	52	98	770	612	153	131	655	491
		SBT	0	0	0	0	0	0	0	0
		SBR	406	202	637	379	1029	493	1191	617
52	Tennyson Rd / Pompano Ave	EBL	0	0	0	0	0	0	0	0
		EBT	0	0	0	0	1160	1335	1160	1335
		EBR	0	0	0	0	151	309	151	309
		WBL	0	0	0	0	26	61	26	61
		WBT	0	0	0	0	1021	1087	1021	1087
		WBR	0	0	0	0	0	0	0	0
		NBL	0	0	0	0	242	219	242	219
		NBT	0	0	0	0	0	0	0	0
		NBR	0	0	0	0	58	47	58	47
		SBL	0	0	0	0	0	0	0	0
		SBT	0	0	0	0	0	0	0	0
		SBR	0	0	0	0	0	0	0	0
53	Tennyson Rd / Tampa Ave	EBL	0	0	0	0	113	178	113	178
		EBT	289	865	916	1289	1038	1133	1477	1430
		EBR	156	372	271	412	44	45	124	73
		WBL	34	50	47	59	33	105	42	111
		WBT	866	590	1340	1225	794	939	1126	1383
		WBR	26	34	32	54	173	247	177	261
		NBL	389	226	400	364	72	58	79	155
		NBT	3	4	3	4	97	105	97	105
		NBR	41	48	58	70	69	84	81	100
		SBL	20	50	46	51	188	135	206	136
		SBT	3	4	3	4	90	59	90	59
		SBR	0	0	0	0	94	65	94	65
54	Tennyson Rd / Dickens Ave	EBL	0	0	0	0	0	0	0	0
		EBT	0	0	0	0	956	1299	956	1299
		EBR	0	0	0	0	61	49	61	49
		WBL	0	0	0	0	105	80	105	80
		WBT	0	0	0	0	1010	1214	1010	1214
		WBR	0	0	0	0	0	0	0	0
		NBL	0	0	0	0	20	20	20	20
		NBT	0	0	0	0	0	0	0	0
		NBR	0	0	0	0	65	54	65	54
		SBL	0	0	0	0	0	0	0	0
		SBT	0	0	0	0	0	0	0	0

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		SBR	0	0	0	0	0	0	0	0
55	Tyrell Ave / Tennyson Rd	EBL	1	1	1	9	142	152	142	158
		EBT	323	891	978	1260	1199	1159	1657	1417
		EBR	0	0	0	0	0	0	0	0
		WBL	0	0	0	0	0	0	0	0
		WBT	850	632	1281	1267	955	1172	1257	1617
		WBR	11	33	22	107	119	147	126	199
		NBL	0	0	0	0	0	0	0	0
		NBT	0	0	0	0	0	0	0	0
		NBR	0	0	0	0	0	0	0	0
		SBL	23	35	59	35	151	98	176	98
		SBT	0	0	0	0	0	0	0	0
		SBR	1	1	1	1	152	134	152	134
56	Tennyson Rd / Harvey Ave	EBL	0	0	0	0	0	0	0	0
		EBT	0	0	0	0	1232	1322	1232	1322
		EBR	0	0	0	0	29	55	29	55
		WBL	0	0	0	0	32	56	32	56
		WBT	0	0	0	0	974	1343	974	1343
		WBR	0	0	0	0	0	0	0	0
		NBL	0	0	0	0	36	23	36	23
		NBT	0	0	0	0	0	0	0	0
		NBR	0	0	0	0	33	31	33	31
		SBL	0	0	0	0	0	0	0	0
		SBT	0	0	0	0	0	0	0	0
		SBR	0	0	0	0	0	0	0	0
57	Tennyson Rd / Ruus Rd	EBL	0	0	0	0	0	0	0	0
		EBT	185	537	246	633	1045	994	1087	1061
		EBR	41	94	672	260	343	218	785	334
		WBL	44	36	436	98	228	133	502	176
		WBT	506	242	663	454	834	983	944	1132
		WBR	0	0	0	0	0	0	0	0
		NBL	52	276	205	669	242	354	349	630
		NBT	0	0	0	0	0	0	0	0
		NBR	62	83	114	427	121	234	157	475
		SBL	0	0	0	0	0	0	0	0
		SBT	0	0	0	0	0	0	0	0
		SBR	0	0	0	0	0	0	0	0
58	Tennyson Rd / Baldwin St	EBL	0	0	0	0	20	30	20	30
		EBT	247	621	359	1060	1028	1176	1106	1483

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		EBR	0	0	0	0	10	34	10	34
		WBL	0	0	0	0	23	47	23	47
		WBT	549	277	1098	552	978	1135	1362	1328
		WBR	70	105	97	173	7	33	26	81
		NBL	0	0	0	0	2	2	2	2
		NBT	0	0	0	0	0	0	0	0
		NBR	0	0	0	0	8	43	10	45
		SBL	84	91	202	150	9	15	92	56
		SBT	0	0	0	0	0	0	0	0
		SBR	0	0	0	0	11	21	11	21
59	Tennyson Rd / Huntwood Ave	EBL	0	0	0	0	57	108	57	108
		EBT	298	636	491	1064	862	807	997	1106
		EBR	33	77	70	146	186	90	212	139
		WBL	182	213	178	304	325	154	325	218
		WBT	489	322	1072	694	799	761	1207	1021
		WBR	24	30	260	440	31	37	196	324
		NBL	130	60	123	31	75	170	75	170
		NBT	36	38	142	28	112	383	186	383
		NBR	249	325	305	628	111	225	150	437
		SBL	24	26	118	140	178	81	244	161
		SBT	23	31	109	136	474	140	534	214
		SBR	0	0	0	0	82	67	82	67
60	Tennyson Rd / Beatron Way / Whitman St	EBL	304	436	356	794	260	457	296	708
		EBT	229	481	496	910	913	809	1100	1109
		EBR	39	70	63	128	61	52	78	93
		WBL	14	15	39	55	2	8	20	36
		WBT	379	255	1105	997	674	861	1182	1380
		WBR	102	45	181	18	192	225	248	225
		NBL	68	52	143	95	60	32	113	62
		NBT	26	27	31	15	44	20	47	20
		NBR	15	17	45	45	25	8	46	28
		SBL	34	36	389	219	257	128	505	256
		SBT	22	29	15	39	6	8	6	15
		SBR	248	259	263	346	598	265	608	326
61	Tennyson Rd / Pacific St	EBL	0	0	0	0	0	0	0	0
		EBT	0	0	0	0	1073	877	1073	877
		EBR	0	0	0	0	32	52	32	52
		WBL	0	0	0	0	11	37	11	37
		WBT	0	0	0	0	762	1116	762	1116

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		WBR	0	0	0	0	0	0	0	0
		NBL	0	0	0	0	28	22	28	22
		NBT	0	0	0	0	0	0	0	0
		NBR	0	0	0	0	50	35	50	35
		SBL	0	0	0	0	0	0	0	0
		SBT	0	0	0	0	0	0	0	0
		SBR	0	0	0	0	0	0	0	0
62	Tennyson Rd / Dixon St	EBL	23	30	71	272	130	157	164	326
		EBT	238	441	363	474	723	598	811	621
		EBR	17	63	495	429	354	252	689	508
		WBL	11	117	45	144	88	58	112	77
		WBT	335	246	636	365	438	672	648	755
		WBR	0	0	10	10	3	7	10	14
		NBL	138	50	444	603	213	374	427	761
		NBT	18	20	44	151	40	82	58	174
		NBR	36	23	202	55	70	63	186	86
		SBL	0	0	2	12	11	5	13	14
		SBT	13	17	63	99	95	23	130	80
		SBR	22	19	245	102	158	101	314	159
63	Mission Blvd / Tennyson Rd	EBL	83	54	299	160	438	403	589	478
		EBT	5	12	29	78	3	6	20	52
		EBR	186	397	241	302	318	265	357	265
		WBL	0	0	0	0	2	4	2	4
		WBT	12	7	102	60	2	11	65	49
		WBR	13	10	72	25	1	4	42	15
		NBL	273	215	401	221	211	394	301	398
		NBT	1773	1810	1658	1861	1338	1771	1338	1807
		NBR	0	0	0	0	3	3	3	3
		SBL	7	13	23	70	8	12	20	52
		SBT	1118	1604	1761	1691	1894	1312	2344	1373
		SBR	60	140	188	238	272	349	362	418
64	Ruus Rd / Folsom Ave	EBL	24	78	38	69	22	11	32	11
		EBT	10	9	10	20	113	43	113	50
		EBR	85	56	86	56	163	84	164	84
		WBL	0	0	26	0	112	54	130	54
		WBT	8	12	14	5	90	69	95	69
		WBR	7	9	7	17	37	43	37	48
		NBL	23	60	28	92	46	141	49	164
		NBT	171	465	368	1353	152	447	290	1069

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		NBR	0	0	0	273	44	86	44	277
		SBL	4	8	10	7	45	34	49	34
		SBT	219	226	1346	458	419	205	1208	367
		SBR	48	26	78	39	28	12	49	22
65	Industrial Rd / Stratford Rd	EBL	235	169	292	344	80	179	120	301
		EBT	421	1231	854	1864	740	946	1043	1389
		EBR	56	21	67	34	135	158	143	167
		WBL	0	0	27	0	12	27	31	27
		WBT	1574	981	1849	1205	1248	990	1441	1146
		WBR	0	0	0	63	36	61	36	105
		NBL	20	57	20	63	157	322	157	326
		NBT	1	1	1	2	22	120	22	120
		NBR	0	0	0	26	16	49	16	67
		SBL	0	0	8	0	55	47	61	47
		SBT	1	1	2	2	33	30	34	31
		SBR	193	268	270	251	230	119	284	119
66	Industrial Pkwy / Ruus Rd	EBL	3	9	7	453	26	90	29	401
		EBT	275	459	339	800	725	950	769	1189
		EBR	142	763	516	637	50	158	312	158
		WBL	504	404	559	407	455	378	494	380
		WBT	589	398	882	685	1091	927	1297	1128
		WBR	46	26	31	526	48	75	48	425
		NBL	975	574	699	556	50	108	50	108
		NBT	365	639	464	808	114	470	184	588
		NBR	388	722	416	1034	404	696	424	915
		SBL	16	39	81	56	72	33	117	45
		SBT	322	419	1193	625	324	211	934	355
		SBR	9	10	296	28	157	82	358	95
67	Industrial Pkwy / Huntwood Ave	EBL	198	433	245	243	62	314	95	314
		EBT	320	722	421	1557	709	1317	780	1902
		EBR	161	64	171	90	396	163	403	181
		WBL	261	127	634	229	310	139	571	211
		WBT	657	437	916	1061	1331	924	1512	1361
		WBR	34	45	57	35	44	152	60	152
		NBL	111	154	40	243	189	350	189	413
		NBT	167	214	139	661	110	596	110	909
		NBR	95	298	126	297	130	292	152	292
		SBL	36	46	143	89	135	94	210	124
		SBT	126	110	242	219	580	149	661	225

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		SBR	371	237	515	315	206	129	307	183
68	Mission Blvd / Industrial Pkwy W / Alquire Pkwy	EBL	279	467	177	790	340	587	340	813
		EBT	6	13	24	97	72	158	84	217
		EBR	166	561	928	860	412	525	945	734
		WBL	5	3	44	13	12	11	40	18
		WBT	12	8	89	83	159	75	213	127
		WBR	0	0	0	6	141	64	141	69
		NBL	579	318	700	1413	447	437	532	1203
		NBT	1767	1559	1870	1354	1062	1507	1134	1507
		NBR	1	6	5	21	8	17	11	27
		SBL	0	0	0	0	65	113	65	113
		SBT	981	1727	1418	1771	1516	1100	1822	1131
		SBR	323	274	616	206	560	326	765	326
69	Huntwood Ave / Sandoval Way	EBL	0	0	0	0	1	1	1	1
		EBT	0	0	0	0	0	0	0	0
		EBR	0	0	0	0	1	1	1	1
		WBL	3	4	3	6	25	23	25	24
		WBT	0	0	0	0	0	0	0	0
		WBR	56	322	80	366	68	126	84	157
		NBL	0	0	0	0	1	0	1	0
		NBT	317	345	226	835	363	1228	363	1571
		NBR	3	4	3	3	30	15	30	15
		SBL	0	0	0	0	77	33	77	33
		SBT	318	114	325	187	1217	407	1222	459
		SBR	229	187	722	351	5	1	350	116
70	Huntwood Ave / Zephyr Ave	EBL	0	0	0	0	8	24	8	24
		EBT	0	0	0	0	11	9	11	9
		EBR	0	0	0	0	6	37	6	37
		WBL	37	249	72	438	8	25	33	157
		WBT	0	0	0	0	8	18	8	18
		WBR	0	0	1	0	38	119	39	119
		NBL	0	0	0	0	35	18	35	18
		NBT	303	247	209	787	310	576	310	954
		NBR	241	88	408	167	45	11	162	67
		SBL	0	0	0	3	108	12	108	15
		SBT	149	160	635	315	585	367	925	475
		SBR	0	0	0	0	49	14	49	14
71		EBL	298	87	338	127	248	121	276	149
		EBT	368	671	845	902	904	728	1238	889

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
	Huntwood Ave / Whipple Rd	EBR	240	343	215	372	17	40	17	60
		WBL	55	51	48	117	4	16	4	62
		WBT	534	374	698	766	764	784	879	1058
		WBR	142	119	189	758	180	191	213	639
		NBL	260	223	270	362	28	18	35	115
		NBT	105	128	91	70	34	22	34	22
		NBR	38	67	86	106	20	17	53	44
		SBL	62	113	469	350	308	233	593	399
		SBT	71	98	81	92	33	42	40	42
		SBR	52	197	158	311	120	221	194	301
72	Hesperian Blvd / A St	EBL	28	167	34	109	32	78	36	78
		EBT	14	119	16	423	52	162	53	375
		EBR	14	119	16	423	12	37	14	250
		WBL	98	0	615	9	711	367	1073	373
		WBT	125	45	248	76	206	166	292	188
		WBR	578	727	619	1022	222	348	251	555
		NBL	0	0	0	0	140	146	140	146
		NBT	745	2228	1624	2048	646	1578	1261	1578
		NBR	0	110	27	867	210	326	229	856
		SBL	1499	718	2359	1456	271	342	873	859
		SBT	151	59	132	76	1230	737	1230	749
		SBR	151	59	132	76	12	11	12	23
73	A St / Garden Ave	EBL	0	0	0	0	29	47	29	47
		EBT	0	0	0	0	914	1336	1360	1949
		EBR	0	0	0	0	3	5	3	5
		WBL	0	0	0	0	3	11	3	11
		WBT	0	0	0	0	1077	1109	1465	1617
		WBR	0	0	0	0	64	115	64	115
		NBL	0	0	0	0	2	6	2	6
		NBT	0	0	0	0	0	0	0	0
		NBR	0	0	0	0	1	7	1	7
		SBL	0	0	0	0	0	4	0	4
		SBT	0	0	0	0	0	0	0	0
		SBR	0	0	0	0	61	57	61	57
74	Hesperian Blvd / Sueirro St	EBL	0	0	0	153	55	139	55	246
		EBT	1	5	1	7	6	26	6	27
		EBR	0	0	0	0	44	52	44	52
		WBL	127	49	99	80	35	22	35	44
		WBT	5	2	6	3	7	18	8	18

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		WBR	0	0	14	0	73	29	83	29
		NBL	0	0	0	0	100	120	100	120
		NBT	745	2337	1637	2762	849	1850	1474	2148
		NBR	25	122	46	92	16	29	30	29
		SBL	0	0	0	24	102	62	102	79
		SBT	1597	718	2916	1440	1793	947	2716	1452
		SBR	0	0	59	0	40	58	81	58
75	Cabot Blvd / Winton Ave	EBL	0	0	0	0	3	2	3	2
		EBT	0	0	0	0	40	121	40	121
		EBR	0	0	0	0	16	19	16	19
		WBL	491	146	403	208	305	54	305	97
		WBT	0	0	0	0	75	54	75	54
		WBR	168	61	152	67	169	51	169	55
		NBL	0	0	0	0	23	18	23	18
		NBT	6	18	62	36	22	20	61	32
		NBR	59	531	99	366	17	99	45	99
		SBL	24	178	27	150	76	161	78	161
		SBT	7	12	12	85	16	27	19	78
		SBR	0	0	0	0	2	5	2	5
76	Clawiter Rd / Winton Ave	EBL	0	0	0	0	1	1	1	1
		EBT	173	1382	215	1098	340	1016	369	1016
		EBR	11	74	19	136	153	176	158	219
		WBL	164	67	443	124	957	263	1153	303
		WBT	1327	427	1246	517	1075	283	1075	346
		WBR	271	140	272	141	1	0	2	1
		NBL	59	31	64	65	148	99	151	123
		NBT	27	25	51	52	0	0	17	19
		NBR	26	182	136	592	219	606	296	893
		SBL	81	288	85	255	0	3	3	3
		SBT	12	36	22	98	0	2	7	45
		SBR	0	0	0	0	0	0	0	0
77	Winton Ave / Salkan Rd	EBL	0	0	0	0	3	0	3	0
		EBT	277	1838	430	1918	551	1683	658	1739
		EBR	4	14	5	27	8	14	9	23
		WBL	67	69	70	87	93	60	95	73
		WBT	1750	625	1936	772	2023	567	2153	669
		WBR	0	0	0	0	3	1	3	1
		NBL	13	8	24	10	6	4	14	6
		NBT	0	0	0	0	0	1	0	1

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		NBR	74	82	92	72	62	194	75	194
		SBL	0	0	0	0	6	0	6	0
		SBT	0	0	0	0	0	1	0	1
		SBR	0	0	0	0	3	2	3	2
78	Hesperian Blvd / Winton Ave	EBL	126	892	244	899	209	717	292	722
		EBT	203	900	254	925	354	1059	390	1077
		EBR	22	128	24	166	36	54	38	81
		WBL	488	203	401	263	193	297	193	339
		WBT	1042	468	1190	548	1012	312	1116	368
		WBR	31	160	52	433	161	225	176	416
		NBL	143	75	179	65	55	44	80	44
		NBT	589	1403	1347	2151	641	1194	1172	1718
		NBR	115	252	161	745	142	183	175	528
		SBL	229	35	371	89	112	177	212	215
		SBT	855	590	2196	1198	1057	754	1996	1179
		SBR	633	151	636	245	1078	189	1080	255
79	Hesperian Blvd / La Playa Dr	EBL	0	0	0	0	0	0	0	0
		EBT	0	0	0	0	0	0	0	0
		EBR	0	0	0	0	0	0	0	0
		WBL	2	4	4	4	154	321	155	321
		WBT	0	0	0	0	0	0	0	0
		WBR	60	95	64	58	65	192	68	192
		NBL	0	0	0	0	2	7	2	7
		NBT	713	1515	1530	2333	863	1323	1435	1896
		NBR	2	4	2	45	57	315	57	344
		SBL	48	65	43	61	54	155	54	155
		SBT	1202	789	2530	1470	1469	880	2398	1357
		SBR	0	0	0	0	0	0	0	0
80	Calaroga Ave / La Playa Dr	EBL	0	0	0	0	0	0	0	0
		EBT	0	0	0	10	43	154	43	161
		EBR	43	53	38	54	100	188	100	189
		WBL	73	85	155	86	282	184	339	185
		WBT	0	0	2	0	68	87	69	87
		WBR	0	0	0	0	0	0	0	0
		NBL	57	84	59	46	112	203	114	203
		NBT	0	0	0	0	0	0	0	0
		NBR	64	99	59	292	207	262	207	397
		SBL	0	0	0	0	0	0	0	0
		SBT	0	0	0	0	0	0	0	0

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		SBR	0	0	0	0	0	0	0	0
81	Industrial Blvd / Clawiter Dr	EBL	111	129	164	791	114	569	151	1032
		EBT	15	29	21	27	2	4	6	4
		EBR	0	0	0	0	5	8	5	8
		WBL	0	0	0	0	3	48	3	48
		WBT	0	0	0	0	1	1	1	1
		WBR	0	0	0	0	1	7	1	7
		NBL	0	0	0	0	22	22	22	22
		NBT	179	88	289	450	338	481	415	735
		NBR	3	4	10	20	5	3	10	14
		SBL	0	0	0	8	2	0	2	6
		SBT	35	196	115	428	734	548	790	710
		SBR	58	153	309	157	944	188	1120	191
82	Hesperian Blvd / Turner Ct	EBL	40	239	47	190	75	166	80	166
		EBT	1	5	1	4	6	47	6	47
		EBR	47	264	43	333	20	73	20	121
		WBL	0	0	0	0	64	67	64	67
		WBT	6	3	36	3	85	18	106	18
		WBR	66	60	80	39	70	74	79	74
		NBL	877	126	996	144	189	55	272	68
		NBT	609	1219	1405	2149	777	1393	1334	2044
		NBR	0	0	0	4	36	74	36	77
		SBL	40	69	35	83	69	88	69	98
		SBT	559	633	2044	1285	1074	937	2113	1393
		SBR	605	90	456	106	503	120	503	131
83	Clawiter Rd / Depot Rd	EBL	14	28	19	148	43	135	46	219
		EBT	89	481	9	54	123	399	123	399
		EBR	17	103	0	0	41	26	41	26
		WBL	0	0	1	0	104	26	105	26
		WBT	484	218	29	14	331	88	331	88
		WBR	0	0	0	0	7	11	7	11
		NBL	89	64	0	0	65	47	65	47
		NBT	112	129	165	670	53	396	90	775
		NBR	0	2	0	2	35	150	35	150
		SBL	0	0	0	0	29	22	29	22
		SBT	59	130	236	144	648	144	772	154
		SBR	18	43	95	42	194	42	248	42
84		EBL	0	0	0	0	16	55	16	55
		EBT	9	31	10	40	26	211	27	217

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
	Industrial Blvd / Depot Rd	EBR	80	452	0	17	127	346	127	346
		WBL	0	0	0	1	122	93	122	93
		WBT	25	21	24	14	132	30	132	30
		WBR	13	6	16	15	36	18	38	24
		NBL	459	197	5	0	351	128	351	128
		NBT	170	86	283	455	371	405	450	663
		NBR	0	0	0	1	76	122	76	123
		SBL	3	14	6	16	23	58	25	59
		SBT	38	194	119	451	600	529	657	709
		SBR	0	0	0	0	56	11	56	11
85	Hesperian Blvd / Depot Rd / Cathy Way	EBL	33	56	62	88	153	225	173	247
		EBT	19	44	33	62	63	115	73	128
		EBR	210	199	208	234	340	277	340	301
		WBL	234	320	245	560	134	64	142	232
		WBT	29	28	64	27	176	58	200	58
		WBR	66	60	183	54	32	32	114	32
		NBL	410	296	378	273	509	315	509	315
		NBT	1388	1230	2155	2155	919	1348	1456	1996
		NBR	246	404	383	492	83	160	179	222
		SBL	22	62	29	84	37	35	42	51
		SBT	545	805	1988	1498	826	956	1837	1441
		SBR	39	30	69	36	194	117	215	122
86	Clawiter Rd / Enterprise Ave	EBL	5	25	3	18	18	76	18	76
		EBT	0	1	3	7	1	1	3	5
		EBR	0	0	0	0	49	90	49	90
		WBL	2	14	3	19	1	10	2	14
		WBT	0	1	2	7	0	0	1	4
		WBR	5	26	7	12	0	5	1	5
		NBL	0	0	0	0	58	53	58	53
		NBT	192	145	155	642	298	450	298	798
		NBR	15	9	18	7	8	12	10	12
		SBL	16	11	44	13	2	0	22	1
		SBT	52	214	181	128	722	367	813	367
		SBR	8	8	12	3	113	22	116	22
87	Tennyson Rd / Industrial Blvd	EBL	80	474	96	558	0	0	0	0
		EBT	11	82	19	111	0	0	0	0
		EBR	47	232	50	242	0	0	0	0
		WBL	13	5	22	12	430	59	437	64
		WBT	109	46	89	46	0	0	0	0

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		WBR	48	10	110	61	533	133	577	169
		NBL	181	100	241	144	0	0	0	0
		NBT	842	663	934	1168	921	822	985	1176
		NBR	2	12	12	33	30	185	37	200
		SBL	2	21	4	174	121	531	122	638
		SBT	358	925	700	1247	943	1136	1182	1362
		SBR	422	207	497	231	0	0	0	0
88	Tennyson Rd / Hesperian Blvd	EBL	0	0	0	0	141	162	141	162
		EBT	10	79	26	239	216	547	227	659
		EBR	2	9	2	23	51	52	51	62
		WBL	97	111	264	181	302	257	419	306
		WBT	118	41	169	55	598	226	633	235
		WBR	626	211	651	345	226	187	243	281
		NBL	15	6	13	40	79	31	79	55
		NBT	2043	2271	2170	2541	1114	1255	1203	1444
		NBR	69	107	178	231	72	108	148	195
		SBL	138	388	186	589	196	221	230	362
		SBT	1483	1894	2183	2048	1135	809	1625	917
		SBR	0	0	0	0	227	87	227	87
89	Tennyson Rd / Sleepy Hollow Ave	EBL	26	53	41	76	18	44	28	60
		EBT	190	520	348	983	484	867	595	1191
		EBR	0	0	0	0	40	60	40	60
		WBL	231	115	133	102	173	34	173	34
		WBT	812	333	1033	537	1004	612	1159	755
		WBR	53	67	61	75	308	210	313	216
		NBL	0	0	0	0	73	30	73	30
		NBT	2	4	2	4	227	131	227	131
		NBR	40	123	51	120	180	161	188	161
		SBL	74	71	59	82	181	286	181	294
		SBT	3	3	3	4	159	74	159	75
		SBR	30	29	51	43	65	78	80	88
90	Tennyson Rd / Caloroga Ave	EBL	21	23	51	58	43	25	64	49
		EBT	273	644	395	1058	791	1292	876	1582
		EBR	10	47	12	68	14	21	15	35
		WBL	205	233	398	229	416	294	551	294
		WBT	979	439	1105	642	1340	834	1428	976
		WBR	364	254	423	318	520	320	561	365
		NBL	100	43	91	11	69	29	69	29
		NBT	20	18	24	22	115	75	118	78

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		NBR	128	134	285	517	663	465	773	733
		SBL	164	409	159	393	419	458	419	458
		SBT	5	14	20	21	137	56	148	61
		SBR	16	33	30	61	65	67	75	86
91	Caloroga Ave / Bolero Ave / Miami Ave	EBL	0	0	0	0	85	116	85	116
		EBT	1	4	1	3	125	99	125	99
		EBR	3	6	2	5	54	22	54	22
		WBL	38	23	49	68	6	5	14	37
		WBT	3	3	3	2	138	48	138	48
		WBR	220	98	204	53	348	185	348	185
		NBL	4	5	4	3	29	12	29	12
		NBT	28	96	197	497	398	326	516	607
		NBR	17	56	28	42	6	11	14	11
		SBL	55	177	45	190	147	151	147	160
		SBT	164	118	385	129	232	143	387	151
		SBR	0	0	0	0	167	72	167	72
92	Hesperian Blvd / Oliver Dr	EBL	252	201	319	264	27	24	74	68
		EBT	5	40	24	27	0	0	0	0
		EBR	228	185	202	178	98	73	98	73
		WBL	32	19	305	24	0	0	0	0
		WBT	11	17	18	12	0	0	0	0
		WBR	0	0	0	65	0	0	0	0
		NBL	161	237	168	262	82	91	87	109
		NBT	1844	1991	2018	2326	1298	1654	1420	1888
		NBR	16	60	33	470	0	0	0	0
		SBL	0	0	121	0	26	21	111	21
		SBT	1318	1716	1993	1910	1262	952	1734	1088
		SBR	214	279	226	299	43	72	51	86
93	Caloroga Ave / Panama St	EBL	22	100	169	497	140	193	243	471
		EBT	0	0	0	0	34	35	34	35
		EBR	0	0	10	0	67	42	74	42
		WBL	0	0	0	0	7	1	7	1
		WBT	0	0	0	0	109	38	109	38
		WBR	0	0	0	0	67	18	67	18
		NBL	0	0	0	25	79	50	79	67
		NBT	28	56	59	45	222	152	244	152
		NBR	0	0	0	0	3	6	3	6
		SBL	0	0	0	0	11	18	11	18
		SBT	162	111	113	123	230	93	230	101

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		SBR	44	36	323	79	90	72	286	102
94	Baumberg Ave / Industrial Blvd	EBL	26	170	88	204	47	155	90	179
		EBT	4	22	6	26	7	33	9	36
		EBR	26	170	88	204	63	395	107	419
		WBL	0	0	0	0	70	18	70	18
		WBT	20	12	31	17	28	4	36	8
		WBR	137	106	124	115	2	2	2	8
		NBL	326	136	630	258	361	82	574	168
		NBT	862	500	975	1026	816	729	895	1097
		NBR	0	0	0	0	38	34	38	34
		SBL	31	115	46	146	7	5	18	27
		SBT	239	997	548	1249	774	961	991	1137
		SBR	147	50	178	106	237	42	259	81
95	Hesperian Blvd / Catalpa Way	EBL	0	0	0	0	0	0	0	0
		EBT	0	0	0	0	0	0	0	0
		EBR	0	0	0	0	0	0	0	0
		WBL	0	0	0	1	131	86	131	87
		WBT	0	0	0	0	0	0	0	0
		WBR	125	174	131	184	119	22	123	29
		NBL	0	0	0	0	0	0	0	0
		NBT	1896	2114	2088	2875	943	1679	1077	2212
		NBR	0	0	0	3	215	179	215	181
		SBL	45	70	117	84	156	52	206	62
		SBT	1533	1851	2383	2028	1046	867	1641	991
		SBR	0	0	0	0	0	0	0	0
96	Catalpa Way / Calaroga Ave	EBL	0	0	0	0	266	77	266	77
		EBT	0	0	0	0	70	156	70	156
		EBR	0	0	0	0	0	0	0	0
		WBL	0	0	0	0	0	0	0	0
		WBT	0	0	0	0	107	63	107	63
		WBR	0	0	0	0	33	45	33	45
		NBL	0	0	0	0	0	0	0	0
		NBT	0	0	0	0	0	0	0	0
		NBR	0	0	0	0	0	0	0	0
		SBL	0	0	0	0	24	62	24	62
		SBT	0	0	0	0	0	0	0	0
		SBR	0	0	0	0	189	27	189	27
97		EBL	0	0	0	0	0	0	0	0
		EBT	289	1305	602	1552	718	1058	937	1231

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
	Industrial Blvd / Marina Dr	EBR	12	15	30	59	97	41	109	71
		WBL	100	36	169	152	15	58	63	139
		WBT	1180	601	1564	1220	1111	659	1380	1092
		WBR	0	0	0	0	0	0	0	0
		NBL	8	34	41	64	212	226	235	247
		NBT	0	0	0	0	0	0	0	0
		NBR	14	86	127	154	34	38	113	86
		SBL	0	0	0	0	0	0	0	0
		SBT	0	0	0	0	0	0	0	0
		SBR	0	0	0	0	0	0	0	0
98	Hesperian Blvd / Industrial Blvd / Industrial Pkwy W	EBL	193	638	368	741	43	208	165	280
		EBT	139	460	672	707	313	789	686	962
		EBR	0	0	0	0	501	432	501	432
		WBL	65	83	207	100	380	374	480	386
		WBT	10	54	85	100	429	403	482	436
		WBR	632	285	1037	891	346	375	630	799
		NBL	0	0	0	0	632	323	632	323
		NBT	429	356	544	964	637	1398	718	1824
		NBR	592	333	617	443	109	202	127	279
		SBL	1457	1704	1459	1814	301	259	303	336
		SBT	84	102	74	241	1021	862	1021	959
		SBR	56	19	79	63	22	24	38	55
99	Hesperian Blvd / Eden Shores Blvd / Tripaldi Way	EBL	16	53	60	79	63	43	94	61
		EBT	0	0	0	3	62	30	62	32
		EBR	0	0	0	0	127	247	127	247
		WBL	4	20	5	20	24	12	25	12
		WBT	0	0	0	0	2	14	2	14
		WBR	0	0	0	1	18	12	18	13
		NBL	0	0	0	0	178	364	178	364
		NBT	0	0	1	0	1273	1669	1274	1669
		NBR	48	29	52	75	69	154	71	186
		SBL	2132	2139	2150	2498	85	188	98	439
		SBT	29	12	19	17	1656	1317	1656	1321
		SBR	0	0	0	0	57	103	57	103
100	Hesperian Blvd / Eden Park Pl	EBL	0	0	0	0	3	35	3	35
		EBT	53	25	64	31	0	0	8	4
		EBR	0	0	0	0	104	226	104	226
		WBL	0	0	0	0	1	4	1	4
		WBT	0	0	0	0	0	2	0	2

#	Name	Turning Movement	2005 Model		2035 Model		Traffic Count		2040 Projected	
			AM	PM	AM	PM	AM	PM	AM	PM
		WBR	0	0	0	0	3	15	3	15
		NBL	0	0	0	0	21	169	21	169
		NBT	15	54	20	116	1480	2202	1484	2245
		NBR	0	0	0	0	0	2	0	2
		SBL	2194	2127	2201	2474	2	7	7	250
		SBT	0	0	0	0	1805	1485	1805	1485
		SBR	0	0	0	0	9	85	9	85

Table 13: 2040 AM and PM Peak Hour Study Segments Forecasts

ID	Segment Name	Direction	AM	PM	2005 Model		2035 Model		2040 Forecast	
			Volume	Volume	AM	PM	AM	PM	AM	PM
1	Mission Blvd North of A St	Northbound	369	619	127	464	553	2104	682	1,822
		Southbound	840	815	443	485	1710	1458	1,769	1,528
2	Mission Blvd North of Jackson St	Northbound	-	-	-	-	-	-	-	-
		Southbound	1864	1604	3886	3674	4479	4277	2,318	2,066
3	Mission Blvd South of Jackson St	Northbound	1848	1988	1863	1972	2295	2361	2,179	2,286
		Southbound	2205	1661	2194	2279	2875	2927	2,705	2,136
4	Foothill Blvd North of Winton Ave	Northbound	1232	1050	1996	2935	2747	3434	1,783	1,416
		Southbound	1211	1698	2373	1724	2790	2060	1,516	1,945
5	A St East of I-880	Eastbound	508	440	407	668	487	1555	567	1,090
		Westbound	745	583	921	460	1615	1156	1,254	1,093
6	Santa Clara St North of Jackson St	Northbound	459	641	619	1474	1418	2174	1,044	1,154
		Southbound	589	563	900	723	1671	1275	1,155	967
7	Soto Rd South of SR-92	Northbound	370	477	214	190	449	1028	550	1,119
		Southbound	616	351	101	200	473	801	902	812
8	Campus Dr South of Second St	Eastbound	536	422	676	311	741	789	584	772
		Westbound	344	582	213	269	314	390	419	670
9	A St West of I-880	Eastbound	657	963	426	795	487	1538	702	1,508
		Westbound	1020	951	808	777	1281	835	1,366	994
10	Winton Ave West of I-880	Eastbound	987	1418	571	1208	606	1639	1,013	1,734
		Westbound	1305	1070	1596	863	1703	914	1,383	1,108
11	Winton Ave East of I-880	Eastbound	1083	1973	462	1282	507	2096	1,116	2,570
		Westbound	1785	1341	1172	511	2105	870	2,469	1,604
12	Depot Rd West of Industrial Blvd	Eastbound	582	472	135	628	33	212	582	472
		Westbound	429	659	607	343	155	67	429	659

ID	Segment Name	Direction	AM	PM	2005 Model		2035 Model		2040 Forecast	
			Volume	Volume	AM	PM	AM	PM	AM	PM
13	Depot Rd West of Hesperian Blvd	Eastbound	519	524	263	301	314	444	556	629
		Westbound	403	319	480	356	514	284	428	319
14	Industrial Blvd South of SR-92	Northbound	958	926	1042	805	1384	1417	1,220	1,395
		Southbound	1340	1170	444	1193	773	1656	1,592	1,525
15	Hesperian Blvd South of SR-92	Northbound	1043	1537	2063	2329	2203	3269	1,145	2,227
		Southbound	1133	932	1619	1974	2685	2078	1,915	1,008

2040 Study Intersections Analysis Results

Future intersection lane configurations, peak hour turning movement volumes, and optimized signal timings were used to calculate the levels of service for the study intersections during each peak hour. The peak hour factors are based on the peak hour counts generated from the Travel Demand Model (TDM) and the lane configurations reflect changes proposed and approved in the Hayward 2040 General Plan (2014). Planned segment improvements, such as one-way or two-way conversions, transit lanes, lane removals, etc. are not considered in this analysis. Synchro 10 operations analysis software was used to complete the HCM 2010 and HCM 2000 level of service (LOS) analysis procedures for all study intersections. As per the 2040 General Plan, the City of Hayward has minimum LOS standards of LOS E at signalized intersections during the peak commute periods, except where there are high costs of mitigation or other unacceptable impacts which LOS F is acceptable.

Table 14 summarizes the study intersection operations under Future Conditions (2040). Under this scenario, 47 intersections (24 signalized, 23 unsignalized) operate at unacceptable LOS during the a.m. peak, and 48 intersections (27 signalized, 21 unsignalized) operate at unacceptable LOS during the p.m. peak. The remaining intersections operate at acceptable LOS. **Appendix F** contains the future conditions LOS analysis reports from Synchro 10 and Traffix software. The a.m. and p.m. peak hour intersection LOS within the three study zones area shown in **Figure 25, Figure 26, and Figure 27**, respectively.

Table 14: Intersection Level of Service Analysis – Future (2040) Conditions

ID	Intersection Name	Control Type	Method	AM Peak			PM Peak		
				V/C	Delay (s/veh)[1]	LOS[2]	V/C	Delay (s/veh)[1]	LOS[2]
1	Foothill Blvd & Grove Way	SIGNALIZED	HCM 2010		61.4	E		**>80**	**F**
2	Foothill Blvd & City Center Dr	SIGNALIZED	HCM 2010		**>80**	**F**		69.8	E
3	City Center Dr & 2nd St	SIGNALIZED	HCM 2010		43.6	D		58.4	E
4	2nd St & Russell Way	TWSC	HCM 2010		24.5	C		**>50**	**F**
5	Foothill Blvd & A St	SIGNALIZED	HCM 2000	1.030	68.6	E	1.180	76.4	E
6	A St & 2nd St	SIGNALIZED	HCM 2010		54.8	D		74.2	E
7	B St & 2nd St	SIGNALIZED	HCM 2010		**>80**	**F**		41.6	D
8	B St & 3rd St	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
9	B St & 6th St	TWSC	HCM 2010		29.8	D		25.7	D
10	Mission Blvd & A St	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
11	A St & Myrtle St	TWSC	HCM 2010		31.1	D		20.6	C
12	B St & Grand St	SIGNALIZED	HCM 2010		58.3	E		22.3	C
13	A St & Grand St	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
14	B St & Montgomery St	AWSC	HCM 2010		15.8	C		16.1	C
15	B St & Watkins St	SIGNALIZED	HCM 2010		**>80**	**F**		32.7	C
16	C St & Second St	SIGNALIZED	HCM 2010		19.2	B		55.8	E
17	D St & Grand St	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
18	A St & Happyland Ave	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
19	D St & Watkins Ave	SIGNALIZED	HCM 2010		55.6	E		39.6	D
20	Foothill & D Street	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
21	D St & 1st St	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
22	D St & 2nd St	SIGNALIZED	HCM 2010		77.7	E		67.9	E
23	D St & 5th St	TWSC	HCM 2010		**>50**	**F**		22.5	C
24	Watkins & Jackson	SIGNALIZED	HCM 2010		71.6	E		70.2	E
25	Foothill Blvd & Mission Blvd & Jackson St	SIGNALIZED	HCM 2000	0.700	21.2	C	0.960	72.1	E
26	E St & Second St	SIGNALIZED	HCM 2010		46.2	D		64.1	E

ID	Intersection Name	Control Type	Method	AM Peak			PM Peak		
				V/C	Delay (s/veh)[1]	LOS[2]	V/C	Delay (s/veh)[1]	LOS[2]
27	Grand St & Meek Ave	AWSC	HCM 2010		**>50**	**F**		**>50**	**F**
28	Jackson St & Meek Ave % Silva Ave	SIGNALIZED	HCM 2010		39.4	D		**>80**	**F**
29	Fletcher Ln & Watkins St	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
30	Mission Blvd & Fletcher Ln	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
31	Santa Clara St & Ocie Way	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
32	Amador St & Winton Ave	SIGNALIZED	HCM 2010		46.4	D		**>80**	**F**
33	Myrtle St & Soto Rd & Winton Ave	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
34	D St & Winton Ave	SIGNALIZED	HCM 2010		4.2	A		4.3	A
35	Park St & Winton Ave	TWSC	HCM 2010		10.1	B		11.3	B
36	Jackson St & Alice St & Sycamore Ave	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
37	2nd St & Campus Dr	TWSC	HCM 2010		**>50**	**F**		37.7	**E**
38	Amador St & Elmhurst St	AWSC	HCM 2010		49.8	**E**		**>50**	**F**
39	Jackson St & Soto Ave	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
40	Amador St & Cypress Ave & Jackson St	SIGNALIZED	HCM 2010		77.4	E		**>80**	**F**
41	Orchard Ave & Soto Rd	SIGNALIZED	HCM 2010		75.4	E		**>80**	**F**
42	Carlos Bee Blvd & Hayward Blvd	SIGNALIZED	HCM 2010		51.7	D		21.2	C
43	Harder Rd & Santa Clara St	SIGNALIZED	HCM 2010		9.6	A		10.1	B
44	Cypress Ave & Harder Rd & Underwood Ave	SIGNALIZED	HCM 2010		11.6	B		12.6	B
45	Harder Rd & Gading Rd	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
46	Harder Rd & Soto Rd & Mocine Ave	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
47	Harder Rd & Jane Ave	SIGNALIZED	HCM 2010		42.9	D		57.5	E
48	Harder Road & Mission Blvd	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
49	Patrick Ave & Gomer St	AWSC	HCM 2010		**>50**	**F**		**>50**	**F**
50	Patrick Ave & Roosevelt Ave	AWSC	HCM 2010		49.2	**E**		32.9	D
51	Tennyson Rd & Patrick Ave	SIGNALIZED	HCM 2010		**>80**	**F**		71.5	E
52	Tennyson Rd & Pompano Ave	SIGNALIZED	HCM 2010		7.8	A		7.7	A
53	Tennyson Rd & Tampa Ave	SIGNALIZED	HCM 2010		47.3	D		63.6	E

ID	Intersection Name	Control Type	Method	AM Peak			PM Peak		
				V/C	Delay (s/veh)[1]	LOS[2]	V/C	Delay (s/veh)[1]	LOS[2]
54	Tennyson Rd & Dickens Ave	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
55	Tennyson Rd & Tyrell Ave	SIGNALIZED	HCM 2010		32.8	C		27.5	C
56	Tennyson Rd & Harvey Ave	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
57	Tennyson Rd & Russ Rd	SIGNALIZED	HCM 2010		79.4	E		63.8	E
58	Tennyson Rd & Baldwin St	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
59	Tennyson Rd & Huntwood Ave	SIGNALIZED	HCM 2010		62.5	E		47.7	D
60	Tennyson Rd & Beatron Way & Whitman St	SIGNALIZED	HCM 2010		74.8	E		**>80**	**F**
61	Tennyson Rd & Pacific St	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
62	Dixon St & E 12th St & Tennyson Rd	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
63	Mission Blvd & Tennyson Rd	SIGNALIZED	HCM 2010		59.5	E		38.2	D
64	Ruus Rd & Folsom Ave	AWSC	HCM 2010		**>50**	**F**		**>50**	**F**
65	Industrial Pkwy & Stratford Rd	SIGNALIZED	HCM 2010		65.8	E		47.2	D
66	Industrial Pkwy & Russ Rd	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
67	Huntwood Ave & Industrial Pkwy	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
68	Mission Blvd & Industrial Pkwy	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
69	Huntwood Ave & Sandoval Way	SIGNALIZED	HCM 2000	0.760	32.4	C	0.680	33.5	C
70	Huntwood Ave & Zephyr Ave	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
71	Huntwood Ave & Whipple Rd	SIGNALIZED	HCM 2010		**>80**	**F**		>80	E
72	A St & Hesperian Blvd	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
73	A St & Garden Ave	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
74	Hesperian Blvd & Sueirro St	SIGNALIZED	HCM 2000	0.800	21.8	C	0.830	26.7	C
75	Winton Ave & Cabot Blvd	AWSC	HCM 2000 (Traffix)	0.677	14.0	B	0.459	11.5	B
76	Winton Ave & Clawiter Rd	SIGNALIZED	HCM 2010		20.2	C		32.8	C
77	Winton Ave & Saklan Rd	SIGNALIZED	HCM 2010		16.0	B		13.9	B
78	Winton Ave & Hesperian Blvd	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
79	Hesperian Blvd & La Playa Dr & West St	SIGNALIZED	HCM 2010		4.6	A		14.6	B
80	La Playa Dr & Calaroga Ave	SIGNALIZED	HCM 2010		0.9	A		0.9	A

ID	Intersection Name	Control Type	Method	AM Peak			PM Peak		
				V/C	Delay (s/veh)[1]	LOS[2]	V/C	Delay (s/veh)[1]	LOS[2]
81	Clawiter Rd & Industrial Blvd	SIGNALIZED	HCM 2010		38.2	D		38.1	D
82	Hesperian Blvd & Turner Ct	SIGNALIZED	HCM 2010		78.8	E		9.9	A
83	Clawiter Rd & Depot Rd	SIGNALIZED	HCM 2010		16.1	B		19.3	B
84	Depot Rd & Industrial Blvd	SIGNALIZED	HCM 2010		39.4	D		66.8	E
85	Cathy Way & Depot Rd & Hesperian Blvd	SIGNALIZED	HCM 2010		**>80**	**F**		64.0	E
86	Clawiter Rd & Enterprise Ave	SIGNALIZED	HCM 2010		14.9	B		16.7	B
87	Tennyson Rd & Industrial Blvd	SIGNALIZED	HCM 2000	0.750	25.4	C	0.960	**>80**	**F**
88	Tennyson Rd & Hesperian Blvd	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
89	Tennyson Rd & Sleepy Hollow Ave	SIGNALIZED	HCM 2010		25.6	C		31.3	C
90	Tennyson Rd & Calaroga Ave	SIGNALIZED	HCM 2010		65.8	E		**>80**	**F**
91	Calaroga Ave & Bolero Ave	AWSC	HCM 2010		**>50**	**F**		**>50**	**F**
92	Hesperian Blvd & Oliver Dr	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
93	Calaroga Ave & Panama St	AWSC	HCM 2010		**>50**	**F**		32.6	D
94	Industrial Blvd & Baumberg Ave	SIGNALIZED	HCM 2010		63.4	E		60.2	E
95	Hesperian Blvd & Catalpa Way	TWSC	HCM 2010		**>50**	**F**		**>50**	**F**
96	Calaroga Ave & Catalpa Way	AWSC	HCM 2010		29.8	D		9.1	A
97	Industrial Blvd & Marina Dr	SIGNALIZED	HCM 2010		9.4	A		11.5	B
98	Hesperian Blvd & Industrial Blvd	SIGNALIZED	HCM 2010		**>80**	**F**		**>80**	**F**
99	Hesperian Blvd & Eden Shores Blvd	SIGNALIZED	HCM 2010		11.3	B		77.0	E
100	Hesperian Blvd & Eden Park Place	SIGNALIZED	HCM 2010		7.1	A		**>80**	**F**

Notes:
[1]Delay: Average control delay in seconds per vehicle; reported values are overall for signalized and all-way stop-control intersections, and critical minor approaches for two-way stop-control intersections.
[2]LOS: Level of Service
Bold indicates unacceptable intersection operations.

2040 Roadway Segment Analysis Results

Table 15 summarizes the results of the LOS analysis for both directions along roadway segments during a.m. and p.m. peak hours. Under Future Conditions, nine study segments operate at unacceptable LOS E or F during at least one peak period, in one or both directions. The remaining six segments operate at acceptable LOS D or better in both directions, during both a.m. and p.m. peaks.

Table 15: Roadway Segment Level of Service Analysis – Future (2040) Conditions

ID	Roadway Segment	Direction	No. of Lanes[1]	Capacity[2]	AM Peak		PM Peak	
					V/C[3]	LOS[4]	V/C[3]	LOS[4]
1*	Mission Blvd b/w Rose St & Sunset Blvd	Northbound	2	1600	0.43	A	**1.14**	**F**
		Southbound	2	1600	**1.11**	**F**	**0.96**	**E**
2*	Mission Blvd b/w A St & B St	Northbound	0	-	-	-	-	-
		Southbound	5	4000	0.58	A	0.52	A
3*	Mission Blvd b/w Fletcher Ln & Sycamore Ave	Northbound	3	2400	**0.91**	**E**	**0.95**	**E**
		Southbound	3	2400	**1.13**	**F**	0.89	D
4*	Foothill Blvd b/w City Center Dr & Russell Way	Northbound	4	3200	0.56	A	0.44	A
		Southbound	2	1600	**0.95**	**E**	**1.22**	**F**
5*	A St b/w Western Blvd & Peralta St	Eastbound	2	1600	0.35	A	0.68	B
		Westbound	2	1600	0.78	C	0.68	B
6	Santa Clara St b/w Jackson St & Elmhurst St	Northbound	2	1600	0.65	B	0.72	C
		Southbound	2	1600	0.72	C	0.60	B
7	Soto Rd b/w Orchard Ave & Berry Ave	Northbound	1	800	0.69	B	**1.40**	**F**
		Southbound	1	800	**1.13**	**F**	**1.02**	**F**
8	Campus Dr b/w 2nd St & Oakes Dr	Eastbound	1	800	0.73	C	**0.97**	**E**
		Westbound	1	800	0.52	A	0.84	D
9	A St b/w Royal Ave & Hesperian Blvd	Eastbound	2	1600	0.44	A	**0.94**	**E**
		Westbound	2	1600	0.85	D	0.62	B
10*	Winton Ave b/w Wright Dr & Stonewall Ave	Eastbound	3	2400	0.42	A	0.72	C
		Westbound	2	1600	0.86	D	0.69	B
11*	Winton Ave b/w I-880 NB Ramps & Santa Clara St	Eastbound	2	1600	0.70	B	**1.61**	**F**
		Westbound	2	1600	**1.54**	**F**	**1.00**	**F**
12	Depot Rd b/w Clawiter Rd & Viking St	Eastbound	1	800	0.73	C	0.59	A
		Westbound	1	800	0.54	A	0.82	D
13	Depot Rd b/w Hesperian Blvd & Adrian Ave	Eastbound	2	1600	0.35	A	0.39	A
		Westbound	2	1600	0.27	A	0.20	A
14*	Industrial Blvd b/w Tennyson Rd & Baumberg Ave	Northbound	2	1600	0.76	C	0.87	D
		Southbound	2	1600	**1.00**	**E**	**0.95**	**E**
15*	Hesperian Blvd b/w Panama St & Catalpa Way	Northbound	3	2400	0.48	A	**0.93**	**E**
		Southbound	3	2400	0.80	C	0.42	A

Notes:
[1]Number of Lanes per direction; Does not include TWLTL medians or turn pockets at intersections.
[2]Capacity = 800 vehicles per hour per lane.
[3]V/C: Volume-to-capacity ratio; Calculated using peak hour Average Daily Traffic (ADT) counts generated from TDM.
[4]LOS: Level of Service.
*Indicates Alameda CTC Congestion Management Program (CMP) roadway with minimum standards of LOS E or better.
Bold indicates unacceptable roadway segment operations.

Based on the analysis results, TJKM provides mitigations to improve intersection operations and roadway segment operations for pedestrians, bicyclists and vehicles. TJKM also considered improvements proposed in the General Plan, Bicycle and Pedestrian Master Plan, and Downtown Specific Plan for the City of Hayward. The above-mentioned mitigations and proposed improvements are summarized in Section 5 of this report.

City of Hayward Citywide Intersection Improvement Project Future Conditions LOS - Zone 1

TJKM

Figure - 25

City of Hayward Citywide Intersection Improvement Project Future Conditions LOS - Zone 2

Figure - 26

City of Hayward Citywide Intersection Improvement Project Future Conditions LOS - Zone 3

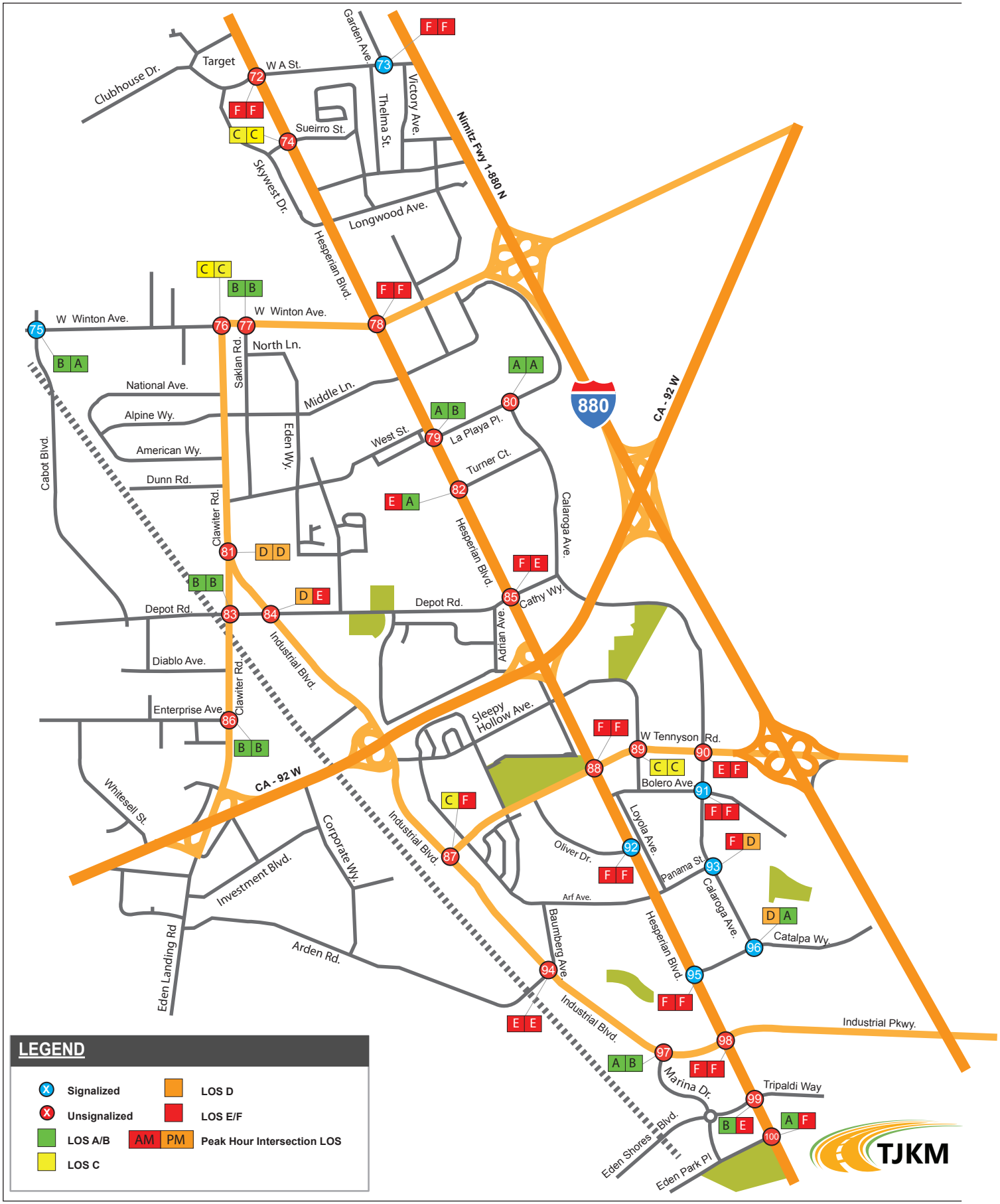
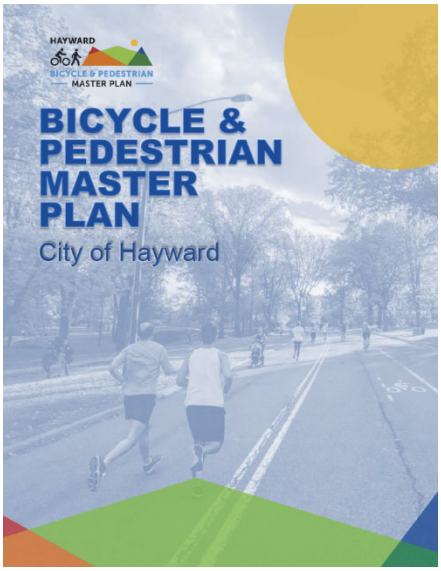


Figure - 27

CHAPTER 4. DOCUMENT REVIEW

A comprehensive review of prior planning decisions and technical studies is essential to acquire a full understanding of City polices and a study area's existing conditions, to explore opportunities of incorporating City and County planning goals and objectives, and to ensure alternatives are developed consistent with local and regional policies, standards and guidelines. The documents that have been reviewed for the City of Hayward include local plans, regional transportation plans, and regional active transportation plans. In addition, this review focuses on the City's planned multimodal improvements for this Citywide Multimodal Study to build upon and identify any gaps that need to be addressed. Some plans have specific planned projects listed while others have vision, goals and objectives. Detailed policies, programs, and projects are summarized in **Table 16**.

Hayward Bicycle and Pedestrian Master Plan Update



The City of Hayward has developed the Bicycle and Pedestrian Master Plan to update and replace the 2007 Bicycle Master Plan. The updated plan is used by the City and other relevant agencies to guide, prioritize and implement a comprehensive network of bicycle and pedestrian facilities. The plan guides the City in providing a safe, comfortable, convenient and connected transportation network for people of all ages and abilities, and is supported by programs and policies promoting complete communities and sustainable transportation. The goals of the Plan include increasing safety for cyclists and pedestrians travelling in the City of Hayward, providing complete streets, providing a connected network and continuous system of active transportation facilities that accommodate daily needs of people of all ages and abilities, and obtaining and maintaining funding for implementation and maintenance of said facilities.

The Existing Conditions Report of the Master Plan analyzed bicycle Level of Traffic Stress (LTS), pedestrian- and bicycle-related collisions and high injury corridors within the City of Hayward. Findings of the report include the following:

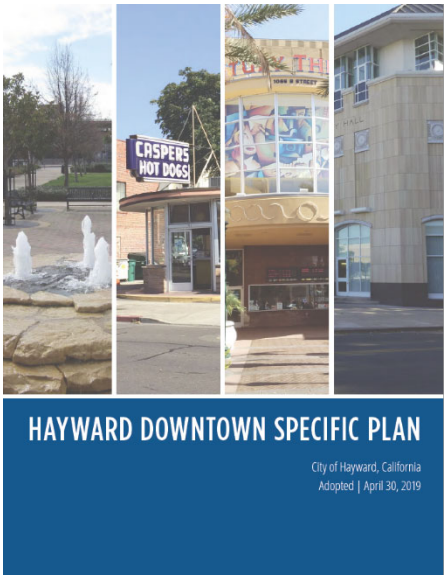
- 3.4% of Hayward residents bike and walk to work with a majority being low-income residents and young families/professionals
- The majority of trips in Hayward are internal, allowing for potential growth in active transportation use
- The majority of arterial streets in the City are high-stress segments for bicyclists
- Arterial roadways with posted speeds of 35 miles per hour or higher pose an increased risk for pedestrians and bicyclists

The Plan recommends improvements to the City's bicycle and pedestrian networks, transit infrastructure and priority intersections. Recommendations include separated bikeways, trail network expansions and neighborhood bikeways along the bicycle network; ADA curb ramps, high-visibility crosswalks, midblock rectangular rapid flashing beacons (RRFBs), curb extensions, signal improvements and midblock pedestrian hybrid beacons along the pedestrian network; and shared Class II bike lane and bus stop lane and floating bus boarding islands along priority transit corridors.

The following intersections are identified as priority intersections because they exhibit higher pedestrian collision rates than observed in the rest of the network:

- West Tennyson Road and Huntwood Avenue
- Jackson Street and Silva Avenue/Meek Avenue
- Whipple Road and Dyer Street
- Foothill Boulevard and City Center Drive

City of Hayward Downtown Specific Plan and Code (2019)

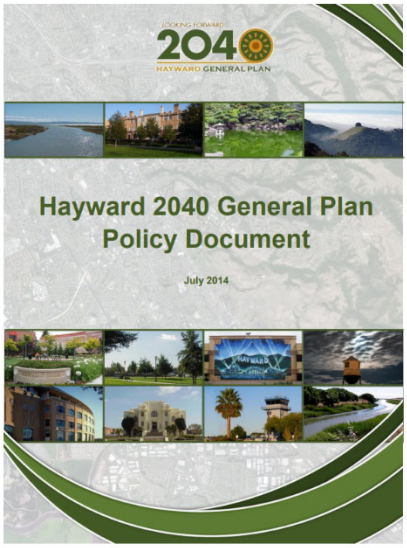


The City of Hayward Downtown Specific Plan (DTSP) and Code serves as a strategy to reach the community's vision for a safe and historical-rich downtown area that provides vibrant multimodal networks and acts as a destination for residents and visitors. The DTSP encompasses a Plan Area generally bounded by Grand Street to the west, E Street to the south, 3rd Street to the east, and Hazel Avenue to the north; and discusses short- and long-term goals, mobility improvements, infrastructure standards, and development codes. Chapter 6, the Development Code section of the Plan, details Downtown zone classifications, zone standards, and permits and procedures required for different development projects. The Code details zoning standards and procedures for implementation of the DTSP. Its purpose is to protect the community's safety, welfare, and culture from adverse effects of land use changes, new developments, and modifications to existing developments. The Code applies to the following zones in the Plan Area, listed from least urban to most urban: Neighborhood Edge (NE), Neighborhood General (NG), Urban Neighborhood (UN), Downtown Main Street (DT-MS), and Urban Center (UC). The Code identifies standards for setbacks, driveways, building height, footprint, etc. for developments in each zone. Developments such as Central-City residential, Central-City commercial, planned development and open space are exempt from the Code and subject to standards in the Hayward Municipal Code.

The plan identifies short term, midterm, long term and final vision buildout improvements ranging five, five to ten, 11-15 and 15-20 years, respectively. These improvements are detailed in **Table 16** at the end of this document. Aside from major roadway improvements, the plan also proposes intersection, pedestrian, bicycle, greening, median and open space improvements.

Proposed improvements include bulbouts and high-intensity activated crosswalks (HAWK) at intersections; parklets, lighting and benches along the pedestrian network; and sidewalk bike racks and bike corrals for bicycle parking. Additional proposed improvements include implementing tree wells and planting strips for greening along Foothill Boulevard; reconstructing the median island at the Foothill Boulevard/Mission Boulevard/D Street intersection; and programming of open space such as plazas and event space.

City of Hayward 2040 General Plan Update and General Plan EIR (2014)



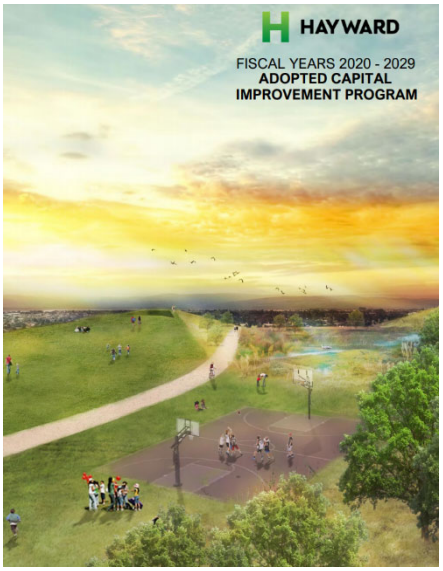
Adopted in 2014, the City of Hayward 2040 General Plan consists of a Background Report, detailing 2012 demographic, land use, economic, etc. conditions, and a Policy Document, consisting of principles, policies, and goals to be considered in decision-making processes for the City. The General Plan consists of eight guiding principles which prioritize the enhancement of youth programs, safety and cleanliness of neighborhoods, technological infrastructure, business opportunities, Downtown streetscape and destinations, community character and college relations, alternative transportation facilities, and environmental habitats and resources. This document sets 12 mobility goals that aim to improve local multimodal systems, regional transportation connections, development of complete streets, local traffic circulation and operations, pedestrian facilities, bicycle networks, coordination with and between public transit agencies, automobile traffic congestion, parking demand/supply, airport operations, safety and efficiency of goods movement, and transportation funding.

Two amendments to the Hayward 2040 General Plan establish Vehicle Miles Traveled (VMT) as a California Environmental Quality Act (CEQA) threshold for transportation impact analysis, consistent with Senate Bill 743 (SB 743), and new Greenhouse Gas (GHG) emission reduction goals. The amendments conform with the adopted SB 743 legislation, which changes the focus of transportation impact analysis in CEQA from measuring impacts to drivers to measuring the impact of driving. VMT measures the total amount of driving over a given area, and connects the environmental impacts of driving from transportation to State greenhouse gas emissions reduction goals. As per the General Plan Amendments, the City will "adopt new VMT thresholds to reduce VMT Per Capita and VMT Per Employee and consider the adoption of local Level of Service guidelines to support the expansion of a multimodal network for projects that increase transit ridership, biking and walking". Additionally, the City will work to reduce community based and municipal GHG emissions to the following:

- 20% below 2005 baseline levels by 2020
- 30% below 2005 baseline levels by 2025
- 55% below 2005 baseline levels by 2030

Additionally, the City and community will develop a plan that aims to reduce community based GHG emissions to achieve carbon neutrality by 2045.

City of Hayward Adopted Capital Improvement Program (FY 2020-29)

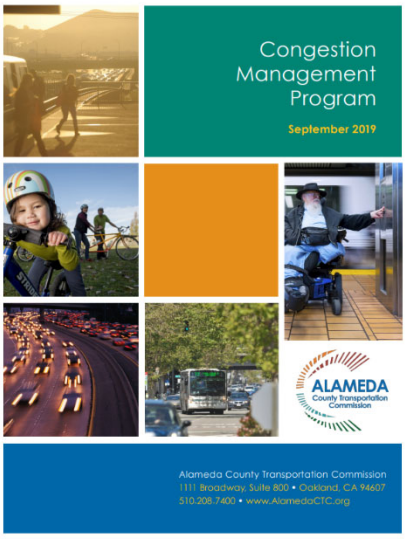


The Hayward Capital Improvement Program (CIP) for the fiscal years of 2020-2029 was adopted in May 2019. The Hayward CIP is a planning document which supports the City Council's priorities of Safe, Clean, Green, and Thrive and includes revenue and expenditure estimates for proposed and planned public infrastructure projects. This document includes 255 projects, and estimates a $147.83 million budget and $410.40 million of unfunded capital needs. Funded projects are supported by several funding sources including state and federal grants, government and internal service funds, Measure C, Gas Tax, Measure B and enterprise and utility profits. The document organizes CIP improvements based on the City Council priority they align with. CIP improvement projects are as follows:

- Safety: New Fires Station No. 6 and Fire Training Center; Water systems improvements
- Clean: Sewer Collection System pipeline improvements; Water Pollution Control Facility improvements
- Green: Recycled Water project; Groundwater Sustainability Plan; Solar Energy installations; Fleet Management Program
- Thrive: Street and Roadway improvements; Municipal Lot 7, D-1 and D-2 improvements; Sidewalk installments and improvements; 21st Century Library and Community Learning Center and Heritage Plaza Arboretum; Downtown Specific Plan Implementation Project; Hayward Boulevard Traffic Calming Project; Hayward Executive Airport improvements; Information Technology replacements; La Vista Park project; Tennyson Road Complete Streets Feasibility Study; South Hayward Youth and Family Center

Table 16 details the capital budget for the major projects listed above.

Alameda CTC Deficiency Plan Guidelines (2017)



The Deficiency Plan Guidelines were developed as part of the Alameda County Transportation Commission (CTC) Congestion Management Program (2017). This plan guides jurisdictions in efforts to remain in compliance with the CTC's Congestion Management Program (CMP) and provides methods to improve conditions for roadways that do not meet CMP standards. The guidelines establish roadway capacity standards, deficiency plan standards and requirements, and acceptable implementation actions. The Alameda CTC identifies deficient roadways through LOS monitoring of roadway segments under p.m. peak conditions. If a roadway does not meet LOS standards after applying required exemptions, it is identified as deficient and the relative jurisdiction must prepare a deficiency plan to improve the roadway conditions.

The following types of travel are exempt from deficiency identification:

- Interregional travel
- Construction, rehabilitation or maintenance of facilities that impact the transportation system
- Freeway ramp metering
- Traffic signal coordination by state or local agency
- Traffic generated by the provision of low to very low income housing
- Traffic generated by high-density residential development within one-fourth mile of a fixed rail passenger station; and
- Traffic generated by any mixed-use development located within one-fourth mile of a fixed rail passenger station; and if more than half of the land area or floor area of the mixed use development is used for high density residential housing.

Deficiency plans are evaluated based on the following criteria:

- Completeness of requirements defined in California Government Code Section 65089.5,
- Suitability of the Deficiency Plan actions in relation to the level of deficiency present,
- Dependability of plan funds,
- Capacity of implementation (actions can be implemented with relative ease), and
- Practicality of implementation schedule.

Climate Action Plan (2014)

The City of Hayward Climate Action Plan was developed in 2009 and later adopted into the City's 2040 General Plan in 2014. The Climate Action Plan consists of policies and programs

which aim to achieve greenhouse gas reductions from 2005 baseline levels of 20 percent by year 2020, 62.7 percent by year 2040, and 82.5 percent by year 2050. This plan also includes a timeline of implementation programs to guide efforts from 2014-2040, shown in **Table 16**. Some programs highlighted in the plan include water conservation programs, environmental education programs, and City employee car and bike share programs. Transportation-related policies of the Plan include support of high-density transit-oriented development, encouragement of bicycling, walking and transit amenities, consideration of pedestrian needs, development of a continuous pedestrian system, collaboration with BART and AC Transit for service expansions, support of programs that increase vehicle occupancy, etc.

Table 16: Matrix of Planning Goals, Polices and Projects

<table>
<tr><th>Document</th><th>Plans, Policies, Goals and Proposed Projects</th></tr>
<tr><td>Hayward Bicycle and Pedestrian Master Plan Update</td><td>
The following bicycle recommendations are proposed as part of the Bicycle and Pedestrian Master Plan Update:

32 mi of Class I paths
35 mi of Class II bike lanes
18 mi of Class III bike routes
68 mi of Class IV separated bike lanes

The following table details costs of the improvements recommended by the Plan:
<table>
<tr><th>Component</th><th>Low End Estimate ($Million)</th><th>High End Estimate ($Million)</th></tr>
<tr><td>Bicycle Network</td><td>$25.9</td><td>$43.3</td></tr>
<tr><td>Pedestrian Network</td><td colspan="2">$61.2</td></tr>
<tr><td>Transit Supportive Facilities</td><td colspan="2">$9.6</td></tr>
<tr><td>Total</td><td>$96.7</td><td>$114.1</td></tr>
</table>
</td></tr>
<tr><td>Hayward Downtown Specific Plan (2019)</td><td>
The following table discusses street modifications proposed in the DTSP:
<table>
<tr><th>Location</th><th>Phase</th><th>Proposed Improvement</th></tr>
<tr><td>Main Street b/w McKeever Ave & D St</td><td>Short Term</td><td>Main Street Complete Streets project.</td></tr>
<tr><td>2nd Street</td><td>Short Term</td><td>2nd Street road diet and bike lane within DTSP area.</td></tr>
<tr><td>Foothill Boulevard b/w D St & City Center Dr</td><td>Short Term</td><td>Foothill Boulevard single-lane reduction and two-way cycle track.</td></tr>
<tr><td>Mission Boulevard b/w A St & D St</td><td>Short Term</td><td>Mission Boulevard single-lane reduction and two-way cycle track.</td></tr>
<tr><td>A Street b/w Mission Blvd & Foothill Blvd</td><td>Short Term</td><td>A Street two-way conversion.</td></tr>
<tr><td>Foothill Boulevard/A Street and Foothill Boulevard/D Street</td><td>Mid Term</td><td>Realign channelized turn pockets.</td></tr>
<tr><td>C Street b/w Mission Blvd & 2nd St</td><td>Mid Term</td><td>C Street two-way conversion.</td></tr>
<tr><td>1st Street b/w C St & D St</td><td>Mid Term</td><td>1st Street two-way conversion.</td></tr>
<tr><td>Mission Boulevard b/w Five Flags & Industrial Pkwy</td><td>Mid Term</td><td>Add northbound and southbound bike lanes on Mission Boulevard.</td></tr>
<tr><td>B Street b/w Watkins St & Foothill Blvd</td><td>Mid Term</td><td>B Street two-way conversion.</td></tr>
<tr><td>Mission Boulevard</td><td>Long Term</td><td>Mission Boulevard two-way conversion within DTSP area.</td></tr>
</table>
</td></tr>
</table>

	Foothill Boulevard	Long Term	Mission Boulevard two-way conversion within DTSP area.
	Mission Boulevard/ Foothill Boulevard	Final Vision Buildout	Roundabout at intersection of Mission Boulevard and Foothill Boulevard.

Capital Improvement Program (FY 2020 – FY 2029)

The following table details the capital budget for major projects identified in the CIP:

Projects	Priority	Lifetime Project Expenses
Highspeed Hayward	Thrive	$3.5 million ($2.75 million provided via Federal Funds)
La Vista Park	Thrive	$23.25 million
Mission Blvd. Improvement Phase 3 Final Design + Construction	Thrive	$15.5 million
Pavement Rehabilitation Projects (Gas Tax and other Roadway Funding)	Thrive	$101.67 million

Local Hazard Mitigation Plan (2016)

The following table lists mitigation activities recommended by the LHMP:

Priority Level	Activity Group	Activities
High	Collaboration to Mitigate Sea Level Rise	Implement Adapting to Rising Tides Multiagency Support SR-92 Study
	Planning	Recovery Plan Shoreline Realignment Plan Hayward Executive Airport Seismic Evaluation
Moderate	Fragile Housing Retrofits	Mobile Home Retrofits
	Environmental Programs	Expand Hayward Area Shoreline Protection Agency (HASPA) Renewable Emergency Energy Sources Watershed Analysis Hillside Landslide Mitigation
Low	Administrative Programs	Building Occupancy Resumption Program 911 Registry Priority Inspection List

Climate Action Plan (2014)

The following table shows the implementation timeline for the Climate Action Plan Policies & Programs:

Policy	Implementation Timeline	2014-16	2017-19	2020-40	Annual	Ongoing
M 18	City Commuter Benefits					X
LU 1	Comprehensive Zoning Ordinance Update	X				
NR 16	Green Portal	X				X
M 9	Improved Traffic Flow Program		X			
M 11	Pedestrian Master Plan		X			
M12	Shuttle Service Study		X			
M16	Citywide TDM Plan		X			
M 19	TDM Amendments		X			
M 20	Off-Street Parking Regulations Comprehensive Update		X			
M 12	Downtown Parking Management Plan		X			
PFS 5	Construction and Demolition Debris Recycling Ordinance		X			
PFS 6	Rainwater Harvesting and Greywater Systems		X			
M 17	City Employee Car/Bike Share Programs			X		
M 22	Truck Routes Study			X		
NR 11	City Building Audits and Reports			X		

CHAPTER 5. MULTIMODAL IMPROVEMENT PROJECTS AND ACTION PLAN

This Chapter of the report presents the proposed multimodal improvement projects and cost estimates under Existing and Future Conditions. The proposed mitigations were developed based on previous transportation plans in the City of Hayward, along with mitigations prepared as part of this study. Referenced plans include the City of Hayward Bicycle and Pedestrian Master Plan, the 2040 General Plan and the Downtown Specific Plan, and additional information provided by the City of Hayward staff. The proposed improvements and cost estimates were approved by the City of Hayward staff. The cost estimates provided in this Chapter are used to estimate the Nexus fee, presented in following sections of this report. This Chapter also details a preliminary action plan for implementation of the proposed improvement projects.

Improvement Projects Methodology

Mitigation Methodology

TJKM developed mitigations for the study intersections based on the synchro analysis for Existing and Future Conditions and considering proposed improvements from the Hayward Downtown Specific Plan (2019) and the Hayward Bicycle and Pedestrian Master Plan (2020). This study does not consider the mitigations in the General Plan which were labelled as infeasible or any mitigations that conflict with existing infrastructure. The City provided near-term and mid-term pedestrian, bicycle and vehicle improvements proposed on E. 14th Street/Mission Boulevard and Fremont Boulevard by the Alameda County Transportation Commission (ACTC) to be included in the cost estimate calculations. The study considers improvements from all three plans and the near-term/mid-term improvements, except where the proposed improvements conflict with each other, in which the Bicycle and Pedestrian Master Plan improvements were prioritized, or they are already completed. Additionally, TJKM developed mitigations at the study intersections based on the level of service (LOS) results of the intersection analyses under Existing and Future (2040) conditions. These mitigations are only proposed at intersections and do not make changes to roadway segments in order to avoid conflict with the adopted City of Hayward plans.

Cost Estimate Methodology

Cost estimates for the bicycle and pedestrian improvements were developed via pre-calculated project costs provided in Appendix A of the Bicycle and Pedestrian Master Plan, and unit costs for bicycle and pedestrian facilities in Appendix F of the Bicycle and Pedestrian Master Plan. The Plan provides low-cost and high-cost scenarios which are also considered in this study. Cost estimates for the vehicle improvements were developed via typical unit costs for roadway and intersection facilities. The City provided unit costs for some pedestrian crossing treatments along with preliminary cost estimates from the Main Street Complete Streets Project, which were used to calculate costs for proposed pedestrian improvements. The cost estimates were separated into the following categories: bicycle projects, pedestrian projects, and vehicle projects. The bicycle and pedestrian project lists provide low- and high-cost estimates, and the vehicle projects provide existing and future mitigations cost estimates. The vehicle cost estimates are calculated for existing and future mitigations proposed to improve LOS under the Existing and Future (2040) Conditions analyses performed as part of the Hayward Citywide Multimodal Improvement Study.

Action Plan Methodology

The projects are categorized into short-term, near-term and long-term projects based on the Bicycle and Pedestrian Master Plan and information provided by the City. The Bicycle and Pedestrian Master Plan prioritizes projects based on implementation timelines and available funding sources. Projects that close gaps in existing transportation networks and provide direct access to transit and schools are categorized as near-term and should be implemented within the next five years. Projects that improve large arterial facilities are categorized as long-term and should be implemented five to ten years after adoption. The Bicycle and Pedestrian Master Plan provides funding sources for each project, however, this study only considers funding expected to be received based on funding received by the City for the past five years. The potential funding sources should be updated as the City receives more or less funding in the future.

Multimodal Improvement Projects

The proposed mitigations and their respective costs are categorized into tables for bicycle, pedestrian and vehicle projects. **Table 17** summarizes the total costs calculated for the projects in the City of Hayward.

Bicycle Projects

The bicycle projects improve access and safety of bicyclists in the City of Hayward transportation network. The goals of these projects are to improve bicycle safety, eliminate obstructions to bicycle travel, and encourage bicycle transportation. Bicycle projects include gap closures, facility-type enhancements, and connectivity to other transportation facilities. The bicycle projects conform to the existing transportation network and avoid conflicts with pedestrian, transit and vehicle projects and approved plans in the City of Hayward. The projects are from the Bicycle and Pedestrian Master Plan, Downtown Specific Plan, 2040 General Plan, and Mid-term and Near-term improvements summary provided by the City of Hayward. Additionally, the City of Hayward and TJKM replaced some projects from the plans with improvements that fit within the existing and future planned transportation network. Separate bicycle facilities are assumed as Class II bike lanes at intersection approaches, especially at intersections where addition of turn lanes are proposed. **Table 18** lists the bicycle projects along with their costs and action plan categorizations at the end of this Chapter.

Pedestrian Projects

The pedestrian projects improve access and safety of pedestrians in the City of Hayward transportation network with a focus near transit stops and schools. The goal of these projects is to encourage walking, lowering vehicle speeds and improving connection to transit centers. Pedestrian projects include road diets, sidewalk and crossing enhancements, trail improvements, and ADA accessibility enhancements. The pedestrian projects conform to the existing roadway network and avoid conflicts with bicycle, transit and vehicle projects and approved plans in the City of Hayward. The projects are from the Bicycle and Pedestrian Master Plan, Downtown Specific Plan, and Mid-term and Near-term improvements summary provided by the City of Hayward. Additionally, the City of Hayward and TJKM replaced some projects from the plans with improvements that fit within the existing and future planned transportation network. **Table 19** lists the pedestrian projects along with their costs and action plan categorizations at the end of this Chapter.

Vehicle Projects

The vehicle projects improve intersection and roadway operations under Existing and Future Conditions. Vehicle projects include addition of turn lanes at intersections, signal timing improvements, controller improvements, and signalization of stop-controlled intersections. Roadway segment widening projects are not recommended in this study. The vehicle projects conform to the existing transportation network and avoid conflicts with bicycle, pedestrian and transit projects and approved plans in the City of Hayward. The vehicle projects were developed by TJKM based on results from the intersection level of service performed for Existing and Future Conditions and approved by the City, and projects from the 2040 General Plan and the Mid-term and Near-term improvements summary provided by the City of Hayward. **Table 20** lists the vehicle projects along with their costs and action plan categorizations at the end of this Chapter.

Cost Estimate Calculations

Table 17 summarizes the total costs calculated for the projects in the City of Hayward. Detailed cost estimate tables for bicycle, pedestrian, transit and vehicle projects are included on the following pages.

Table 17: Total Cost Estimates

Project Category	Low Cost	High Cost	Existing Cost	Future Cost
Bicycle	$7.3 million	$18.4 million	-	-
Pedestrian	$108.3 million	$124 million	-	-
Vehicle	-	-	$5.2 million	$25.1 million

Action Plan

The Action Plan categorizes each project into short-term, near-term and long-term projects. Implementation of the improvement projects are consistent with the Bicycle and Pedestrian Master Plan and are as follows:

- Short-Term: Implement immediately
- Near-Term: Implement within the next 5 years
- Long-Term: Implement 5-10 years after Plan approval.

The bicycle, pedestrian and transit improvement projects are categorized based on the Bicycle and Pedestrian Master Plan and information provided by the City. The vehicle projects are separated into Existing Conditions improvements and Future Conditions improvements. The improvements under Existing Conditions are considered near-term projects, and improvements under Future Conditions are considered long-term projects in the Action Plan.

The proposed projects, costs and action plan categories are summarized in the following tables.

Table 18: Bicycle Improvement Projects

Project	Corridor	Extents	Proposed Facility	Unit Cost	per Unit	Area	Total Cost	Total Cost (High Cost of Range)	Action Plan
159A	Watkins Street	Fletcher Lane to Jackson Street	Class II Buffered Bicycle Lane				$ 9,512.00		Near Term
159B	Watkins Street	Jackson Street to B Street	Class II Bicycle Lane				$ 15,100.00		Near Term
189A	Florida Street	Calaroga Avenue to Miami Avenue	Class III Bicycle Boulevard				$ 12,183.00		Near Term
101A	A Street	Skywest Drive to Princeton Street	Class IV Separated Bikeway	1.3 mi			$ 97,269.27	$ 690,645.27	Long Term
101A	A Street	Hesperian Boulevard to S Garden Avenue	Class II Buffered Bicycle Lane for 0.5 mi	$ 232,000.00	Mile	0.5	$ 116,000.00		Long Term
101A	A Street	Happyland Ave to Fuller Avenue	Class II Buffered Bicycle Lane for 285 ft	$ 232,000.00	Mile	0.053977	$ 12,522.73		Long Term
101B	A Street	Princeton Street to Grand Street	Class II Buffered Bicycle Lane for 0.4 mi	$ 232,000.00	Mile	0.4	$ 92,800.00		Long Term
101C	A Street	Grand St to Watkins St	Class II Buffered Bicycle Lane for 0.2 mi	$ 232,000.00	Mile	0.2	$ 46,400.00		Long Term
101C	A Street	Watkins St to Mission Blvd	Class III Bike Route	$ 28,000.00	Mile	0.04	$ 1,120.00		Long Term
101D	A Street	Mission Boulevard to 4th Street	Class II Bike Lane	$ 151,000.00	Mile	0.6	$ 90,600.00		Long Term
115A	Tennyson Road	Industrial Boulevard to Hesperian Boulevard	Class II Buffered Bicyle Lane				$ 51,272.00		Near Term
115B	Tennyson Road	Hesperian Boulevard to Calaroga Avenue	Class IV Separated Bikeway				$ 49,076.00	$ 217,729.00	Near Term
115B	Tennyson Road	Hesperian Boulevard to Sleepy Hollow Avenue	Class II Bike Lane for 0.1 mi	$ 151,000.00	Mile	0.1	$ 15,100.00		Near Term
115C	Tennyson Road	Calaroga Avenue to Patrick Avenue	Class III Bike Route for 0.5 mi	$ 28,000.00	Mile	0.5	$ 14,000.00		Near Term
151A	Grand Street	Meek Avenue to D Street	Class II Bicycle Lane for 0.2 mi	$ 151,000.00	Mile	0.2	$ 30,200.00		Near Term
151B	Grand Street	D Street to B Street	Class II Bicycle Lane for 0.2 mi	$ 151,000.00	Mile	0.2	$ 30,200.00		Near Term
183A	Jackson St/Foothill Boulevard	Santa Clara Street to City Limits North	Class III Bike Route for 2.8 mi	$ 28,000.00	Mile	2.8	$ 78,400.00		Near Term & Long Term
117A	Industrial Pkwy/Alquire Rd	Hesperian Boulevard to Hopkins Street	Class IV Separated Bikeway				$ 59,552.00	$ 374,783.00	Long Term
117A	Industrial Pkwy/Alquire Rd	Hall Road to Hopkins Street	Class II Bicycle Lane for 0.4 mi	$ 151,000.00	Mile	0.4	$ 60,400.00		Long Term
117B	Industrial Pkwy/Alquire Rd	Hopkins Street to Mission Boulevard	Class IV Separated Bikeway				$ 276,372.00	$ 1,381,888.00	Long Term
117B	Industrial Pkwy/Alquire Rd	I880 SB Ramps to Stratford Rd	Class III Bike Route for 0.3 mi	$ 28,000.00	Mile	0.3	$ 8,400.00		Long Term
117B	Industrial Pkwy/Alquire Rd	Ruus Road to Taylor Avenue	Class II Bicycle Lane for 0.6 mi	$ 151,000.00	Mile	0.6	$ 90,600.00		Long Term
117B	Industrial Pkwy/Alquire Rd	Mission Hills of Hayward Golf Course to Mission Blvd	Class II Bicycle Lane for 0.3 mi	$ 151,000.00	Mile	0.3	$ 45,300.00		Long Term
117D	Industrial Pkwy/Alquire Rd	Vanderbildt Street to Cantera Drive	Class III Bicycle Boulevard				$ 31,309.00		Long Term
165B	Mission Boulevard	Fairway Street to A Street	Class IV Separated Bikeway				$ 363,436.14	$ 3,186,466.00	Near Term & Long Term
105A	Winton Avenue/D Street	San Francisco Bay Trail to Bay Trail Parking Lot	Class I Multi-Use Path				$ 146,664.00		Long Term
105B	Winton Avenue/D Street	Bay Trail Parking Lot to Cabot Boulevard	Class III Bicycle Boulevard				$ 51,352.00		Near Term
105C	Winton Avenue/D Street	Cabot Boulevard to Clawiter Road	Class IV Separated Bikeway				$ 103,824.00	$ 376,671.00	Near Term
105D	Winton Avenue/D Street	Clawiter Road to Hesperian Boulvard	Class IV Separated Bikeway				$ 72,912.00	$ 264,523.00	Near Term
105E	Winton Avenue/D Street	Hesperian Boulevard to Southland Place	Class II Bicycle Lane for 0.2 mi	$ 151,001.00	Mile	0.2	$ 30,200.20		Near Term
105E	Winton Avenue/D Street	Santa Clara Street to Eldoe Drive	Class II Bicycle Lane for 350 ft	$ 151,001.00	Mile	0.07	$ 10,570.07		Near Term
105E	Winton Avenue/D Street	Eldo Drive to Amador Street	Class III Bike Route	$ 28,000.00	Mile	0.12	$ 3,360.00		Near Term
105E	Winton Avenue/D Street	Amador Street to Soto Road	Class II Bicycle Lane for 0.3 mi	$ 151,001.00	Mile	0.3	$ 45,300.30		Near Term
105F	Winton Avenue/D Street	Soto Road to Mission Boulevard	Add buffer to Class II bike lane	$ 81,000.00	Mile	0.8	$ 64,800.00		Near Term
105F	Winton Avenue/D Street	Mission Boulevard to Foothill Boulevard	Add Class II bike lane on North Side	$ 75,500.00	Mile	0.1	$ 7,550.00		Near Term
105G	Winton Avenue/D Street	2nd St to City Limits (Compass Ct)	Class III Bike Route	$ 28,000.00	Mile	0.8	$ 22,400.00		Near Term
102B	B Street	Grand Street to Watkins Street	Class II Bicycle Lane				$ 11,778.00		Near Term
102C	B Street	Watkins Street to Mission Boulevard	Class III Bicycle Boulevard				$ 2,882.00		Near Term
102D	B Street	Mission Boulevard to Foothill Boulevard	Class III Bicycle Boulevard				$ 8,515.00		Near Term
102E	B Street	Foothill Boulevard to 4th Street	Class II Bicycle Lane						Near Term
102E	B Street	Foothill Boulevard to 3rd Street	Class III Bike Route	$ 28,000.00	Mile	0.2	$ 5,600.00		Near Term
102E	B Street	3rd Street to 4th Street	Class II Bicycle Lane	$ 151,000.00	Mile	0.1	$ 15,100.00		Near Term
102F	B Street	4th Street to Center Street	Class III Bicycle Boulevard				$ 6,552.00		Near Term
103B	C Street	Alice Street to Grand Street	Class II Bicycle Lane				$ 5,889.00		Near Term
104A	C Street	Atherton Street to Watkins Street	Class II Bicycle Lane				$ 2,416.00		Near Term
104B	C Street	Watkins Street to Foothill Boulevard	Class IV Separated Bikeway				$ 27,552.00	$ 99,958.00	Long Term
104C	C Street	Foothill Boulevard to 2nd Street	Class IV Separated Bikeway				$ 13,776.00	$ 49,979.00	Long Term
158A	Main Street	D Street to McKeever Avenue	Class IV Separated Bikeway				$ 43,344.00	$ 157,251.00	Near Term
158B	Main Street	McKeever Avenue to Rose Street	Class II Bicycle Lane				$ 19,781.00		Near Term
142A	Amador Street/Cypress Avenue	Elmhurst Street to Winton Avenue	Class II Bicycle Lane				$ 9,362.00		Near Term
142B	Amador Street/Cypress Avenue	Jackson Street to Elmhurst Street	Class II Bicycle Lane				$ 14,496.00		Near Term
142C	Amador Street/Cypress Avenue	Harder Road to Jackson Street	Class II Bicycle Lane				$ 19,932.00		Near Term
118A	Industrial Parkway Southwest	Whipple Road to Industrial Parkway West	Class II Bicycle Lane				$ 75,198.00		Near Term
140A	Hesperian Boulevard	City Limits South (S Pepsi Dr) to Eden Shores Blvd	Class II Bike Lane (one side only)	$ 75,500.00	Mile	0.3	$ 22,650.00		Near Term & Long Term
140A	Hesperian Boulevard	Eden Shored Blvd to Tennyson Road	Class III Bike Route	$ 28,000.00	Mile	1.3	$ 36,400.00		Near Term & Long Term

Table 18: Bicycle Improvement Projects

Project	Corridor	Extents	Proposed Facility	Unit Cost	per Unit	Area	Total Cost	Total Cost (High Cost of Range)	Action Plan
140B	Hesperian Boulevard	Tennyson Rd to La Playa Dr	Class III Bike Route	$ 28,000.00	Mile	1.2	$ 33,600.00		Near Term & Long Term
140C	Hesperian Boulevard	La Playa Dr to Southland Dr	Class III Bike Route	$ 28,000.00	Mile	0.2	$ 5,600.00		Near Term & Long Term
140C	Hesperian Boulevard	Southland Dr to 300 ft n/o Pope Way	Class II Bike Lane	$ 151,000.00	Mile	0.1	$ 15,100.00		Near Term & Long Term
140C	Hesperian Boulevard	300 ft N/O Pope Way to City Limits North	Class III Bike Route	$ 28,000.00	Mile	1.2	$ 33,600.00		Near Term & Long Term
173A	Elmwood Lane/UPRR Crossing	Santa Clara Street to Amador Street	Class III Bicycle Boulevard				$ 9,825.00		Long Term
106A	E Street	Main Street to 1st Street	Class II Bicycle Lane				$ 7,550.00		Near Term
106B	E Street	1st Street to 2nd Street	Class II Bicycle Lane				$ 6,191.00		Near Term
143A	Patrick Avenue/Gading Road	Tennyson Road to W. Harder Road	Class IV Separated Bikeway				$ 125,664.00	$ 455,906.00	Near Term
113A	Depot Road/Cathy Way	Cabot Boulevard to Industrial Boulevard	Class IV Separated Bikeway				$ 88,704.00	$ 321,816.00	Long Term
113B	Depot Road/Cathy Way	Industrial Boulevard to Adrian Avenue	Class II Bicycle Lane				$ 35,787.00		Near Term
113C	Depot Road/Cathy Way	Adrian Avenue to Calaroga Avenue	Class II Buffered Bicycle Lane				$ 17,864.00		Near Term
153A	Montgomery Avenue	C Street to City Limits North	Class III Bicycle Boulevard				$ 101,525.00		Near Term
174A	Longwood Avenue	Hesperian Boulevard to Nevada Road	Class III Bicycle Boulevard				$ 16,113.00		Near Term
149A	Huntwood Avenue	Whipple Road to Industrial Parkway West	Class IV Separated Bikeway				$ 106,812.00	$ 408,798.00	Near Term
149A	Huntwood Avenue	San Antonio St to Sandoval Way	Class IV Separated Bikeway	$ 81,000.00	Mile	0.1	$ 8,100.00		Near Term
149D	Huntwood Avenue	Schafer Road to Gading Road	Class II Buffered Bicycle Lane				$ 46,168.00		Near Term
123A	Whipple Road	Dyer St to 765 ft e/o Dyer Street	Class II Bike Lane	$ 151,000.00	Mile	0.14	$ 21,140.00		Near Term & Long Term
123A	Whipple Road	765 e/o Dyer St to Wiegman Rd	Class III Bike Route	$ 28,000.00	Mile	0.3	$ 8,400.00		Near Term & Long Term
123A	Whipple Road	Wiegman Rd to Amaral St	Class II Bike Lane	$ 151,000.00	Mile	0.1	$ 15,100.00		Near Term & Long Term
123A	Whipple Road	Amaral St to Huntwood Ave	Class II Bike Lane (one side only)	$ 75,500.00	Mile	0.2	$ 15,100.00		Near Term & Long Term
123A	Whipple Road	Adjust Median Striping on north side	Remove Median Restriping for 530 ft	$ 0.50	LF	530	$ 265.00		Near Term & Long Term
123A	Whipple Road	Adjust Median Striping on north side	Replace Median Restriping for 530 ft	$ 1.50	LF	530	$ 795.00		Near Term & Long Term
152A	Western Boulevard	A Street to Sunset Boulevard	Class III Bicycle Boulevard				$ 16,637.00		Near Term
137A	Calaroga Avenue	Catalpa Way to La Playa Drive	Class II Buffered Bicycle Lane				$ 165,648.00		Near Term
150B	Mission Alternative - Whitman St/Silva Ave/Meek Ave/Filbert St	Raymond Drive to Silva Avenue	Class IV Separated Bikeway				$ 151,200.00	$ 548,550.00	Long Term
150C	Mission Alternative - Whitman St/Silva Ave/Meek Ave/Filbert St	Sycamore Street to Jackson Street	Class III Bicycle Boulevard				$ 10,480.00		Near Term
150D	Mission Alternative - Whitman St/Silva Ave/Meek Ave/Filbert St	Jackson Street to Filbert Street	Class III Bicycle Boulevard				$ 21,353.00		Near Term
150E	Mission Alternative - Whitman St/Silva Ave/Meek Ave/Filbert St	Meek Avenue to A Street	Class III Bicycle Boulevard				$ 11,397.00		Near Term
116A	Industrial Boulevard	Tennyson Road to Mt Eden Business Park	Class II Bike Lane	$ 151,000.00	Mile	0.7	$ 105,700.00		Near Term
116A	Industrial Boulevard	Depot Road to Clawiter Road	Class II Bike Lane	$ 151,000.00	Mile	0.2	$ 30,200.00		Near Term
163A	Dixon Street/12th Street	Industrial Parkway to Tennyson Rd	Class II Buffered Bicycle Lane				$ 49,184.00		Near Term
163B	Dixon Street/12th Street	Tennyson Road to Jefferson Street	Class III Bicycle Boulevard				$ 19,257.00		Near Term
126A	McKeever Avenue/City Center Drive	Main Street to Foothill Boulevard	Class III Bicycle Boulevard				$ 7,598.00		Near Term
126B	McKeever Avenue/City Center Drive	Foothill Boulevard to 2nd Street	Class II Bicycle Lane				$ 3,775.00		Near Term
112A	Harder Road	Santa Clara Street to W Loop Road	Class IV Separated Bikeway				$ 411,936.00	$ 1,494,494.00	Near Term
146A	Tampa Avenue/Gomer Street	Folsom Avenue to Glad Tidings Way	Class II Buffered Bicycle Lane				$ 40,136.00		Near Term
108A	Elmhurst Street	Santa Clara Street to Amador Street	Class IV Separated Bikeway				$ 20,832.00	$ 75,578.00	Long Term
120A	Folsom Avenue	Tampa Avenue to Huntwood Avenue	Class II Bicycle Lane				$ 37,901.00		Near Term
120B	Folsom Avenue	Havana Avenue to Tampa Avenue	Class III Bicycle Boulevard				$ 6,943.00		Near Term
167A	Fairway Street	Carroll Avenue to Mission Boulevard	Class III Bicycle Boulevard				$ 16,506.00		Near Term
185A	Martin Luther King Drive	Winton Avenue to A Street	Class III Bicycle Boulevard				$ 31,702.00		Near Term
164A	Arrowhead Way	Industrial Parkway to Mission Boulevard	Class III Bicycle Boulevard				$ 28,820.00		Near Term
107B	Middle Lane/Southland Drive	Eden Avenue to Winton Avenue	Class II Buffered Bicycle Lane				$ 61,480.00		Near Term
109A	Hesperian Bypass - La Playa Drive/Southland Place/Stonewall Drive/Thelma Street/La Playa Drive	Calaroga Avenue to Hesperian Boulevard	Class II Buffered Bicycle Lane				$ 20,648.00		Long Term
109B	Hesperian Bypass - La Playa Drive/Southland Place/Stonewall Drive/Thelma Street	La Playa Drive to Southland Drive	Class II Bicycle Lane				$ 16,459.00		Long Term
109C	Hesperian Bypass - La Playa Drive/Southland Place/Stonewall Drive/Thelma Street	Southland Drive to W Winton Avenue	Class IV Separated Bikeway				$ 19,488.00	$ 70,702.00	Long Term
109D	Hesperian Bypass - La Playa Drive/Southland Place/Stonewall Drive/Thelma Street	W Winton Avenue to W A Street	Class III Bicycle Boulevard				$ 39,169.00		Long Term
110A	Orchard Avenue/Hayward Boulevard	Soto Road to Mission Boulevard	Class II Bicycle Lane				$ 26,274.00		Near Term

Table 18: Bicycle Improvement Projects

Project	Corridor	Extents	Proposed Facility	Unit Cost	per Unit	Area	Total Cost	Total Cost (High Cost of Range)	Action Plan
110B	Orchard Avenue/Hayward Boulevard	Mission Boulevard to Farm Hill Drive	Class IV Separated Bikeway				$ 247,296.00	$ 897,184.00	Near Term
110C	Orchard Avenue/Hayward Boulevard	Farm Hill Drive to Fairview Avenue	Class III Bicycle Boulevard				$ 57,509.00		Near Term
181A	Highland Boulevard	Mission Boulevard to University Court	Class III Bicycle Boulevard				$ 50,959.00		Near Term
172A	Fletcher Lane	Watkins Street to Mission Boulevard	Class II Bicycle Lane				$ 2,567.00		Near Term
148A	Ruus Road	Industrial Parkway to Folsom Avenue	Class IV Separated Bikeway				$ 57,456.00	$ 208,449.00	Long Term
148B	Ruus Road	Folsom Avenue to Tennyson Road	Class IV Separated Bikeway				$ 47,712.00	$ 173,098.00	Long Term
155A	4th Street	D Street to A Street	Class III Bicycle Boulevard				$ 12,445.00		Near Term
144A	Elridge Avenue I-880 Overcrossing Access-Gomer Street/Underwood Aveue/Elridge Avenue	Underwood Avenue to Tampa Avenue	Class II Bicycle Lane				$ 9,966.00		Long Term
144B	Elridge Avenue I-880 Overcrossing Access-Gomer Street/Underwood Aveue/Elridge Avenue	Gomer Street to Elridge Avenue	Class III Bicycle Boulevard				$ 3,144.00		Long Term
144C	Elridge Avenue I-880 Overcrossing Access-Gomer Street/Underwood Aveue/Elridge Avenue	Underwood Avenue to Eden Greenway	Class III Bicycle Boulevard				$ 23,056.00		Long Term
129C	Whitesell Street/Cabot Boulevard	Depot Road to City Limit - Future SF Bay Trail Access	Class IV Separated Bikeway				$ 148,848.00	$ 540,017.00	Long Term
136B	Portsmouth Avenue/Arf Avenue/Panama Street	Baumberg Avenue to Calaroga Avenue	Class IV Separated Bikeway				$ 63,504.00	$ 230,391.00	Long Term
170B	Gresel Street	Carroll Avenue to Brae Burn Avenue	Class III Bicycle Boulevard				$ 11,528.00		Near Term
135B	Skywest Drive	Suerrio Street to Airport Access	Class II Bicycle Lane				$ 6,040.00		Near Term
135C	Skywest Drive	Airport Access to W A Street	Class II Bicycle Lane				$ 8,154.00		Near Term
141A	Santa Clara Street/Hathaway Avenue	W Harder Road to W A Street	Class IV Separated Bikeway				$ 186,144.00	$ 675,326.00	Long Term
141B	Santa Clara Street/Hathaway Avenue	W A Street to Lansing Way	Class IV Separated Bikeway				$ 25,536.00	$ 92,644.00	Long Term
166A	Revere Avenue/Brae Burn Avenue	Lafayette Avenue to Gresel Street	Class III Bicycle Boulevard				$ 33,536.00		Near Term
166C	Revere Avenue/Brae Burn Avenue	Rousseau Street to St Andrews Street	Class III Bicycle Boulevard				$ 9,039.00		Near Term
114A	Breakwater Avenue	SF Bay Trail to Whitesell Street	Class II Bicycle Lane				$ 31,861.00		Near Term
114B	Breakwater Avenue	Whitesell Street to Clawiter Road	Class II Bicycle Lane				$ 14,949.00		Near Term
131A	Eden Landing Road/Clawiter Road	SF Bay Trail to Arden Road	Class III Bicycle Boulevard				$ 14,803.00		Long Term
131B	Eden Landing Road/Clawiter Road	Arden Road to Clawiter Road	Class II Buffered Bicycle Lane				$ 18,792.00		Long Term
131C	Eden Landing Road/Clawiter Road	Eden Landing Road to Breakwater Avenue	Class IV Separated Bikeway				$ 23,856.00	$ 86,549.00	Long Term
131D	Eden Landing Road/Clawiter Road	Breakwater Avenue to Depot Road	Class IV Separated Bikeway				$ 62,832.00	$ 227,953.00	Long Term
131E	Eden Landing Road/Clawiter Road	Depot Road to Industrial Boulevard	Update Existing Bicycle Route to Bicycle Boulevard	$ 123,000.00	Mile	0.18	$ 22,140.00		Long Term
131F	Eden Landing Road/Clawiter Road	Industrial Boulevard to W Winton Avenue	Update Existing Bicycle Route to Bicycle Boulevard	$ 123,000.00	Mile	0.8	$ 98,400.00		Near Term
154A	2nd Street	Campus Drive to D Street	Class III Bicycle Boulevard				$ 42,313.00		Near Term
133A	Arden Road/Baumberg Avenue	Corporate Avenue to Industrial Boulevard	Class II Bicycle Lane				$ 63,420.00		Long Term
119A	Catalpa Way	Hesperian Boulevard to Miami Avenue	Class II Bicycle Lane				$ 20,687.00		Near Term
130A	Corsair Boulevard	W Winton Avenue to Clubhouse Drive	Class II Buffered Bicycle Lane				$ 55,448.00		Near Term
128A	Fairview Avenue	Hayward Boulevard to Woodstock Road	Class II Bicycle Lane				$ 29,898.00		Near Term
161A	Campus Drive	Hayward Boulevard to Oaks Drive	Class IV Separated Bikeway				$ 50,400.00	$ 182,850.00	Long Term
161B	Campus Drive	Oaks Drive to 2nd Street	Class IV Separated Bikeway				$ 29,904.00	$ 108,491.00	Long Term
171B	Sunset Boulevard	Western Boulevard to Main Street	Class II Bicycle Lane				$ 14,345.00		Near Term
177A	San Mateo Bridge Path	San Mateo Bridge to Breakwater Avenue	Class I Multi-Use Path				$ 314,280.00		Long Term
179A	E Loop Rd/W Loop Rd	Harder Road to Harder Road	Class II Bicycle Lane				$ 75,500.00		Long Term
	Main Street	A Street to B Street	Class II Buffered Bicycle Lane	$ 232,000.00	Mile	0.08	$ 18,560.00		Near Term
	A Street/Clubhouse Drive	West of Hesperian Boulevard	Class II Bicycle Lane	$ 85,000.00	Mile	0.56	$ 47,600.00		Long Term
	Pacific Street	North of Industrial Parkway West	Class I Bike Path	$ 1,164,000.00	Mile	0.4	$ 465,600.00		Long Term
	Grove Way	Foothill Boulevard to Oak Street	Class II Bike Lane	$ 151,000.00	Mile	0.06	$ 9,060.00		Near Term
	Foothill Boulevard	D Street to City Center Drive	Two-Way Cycle Track	$215,000-$760000	Mile	0.4	$ 86,000.00	$ 304,000.00	Long Term
	Mission Boulevard	A Street to D Street	Two-Way Cycle Track	$215,000-$760000	Mile	0.3	$ 64,500.00	$ 228,000.00	Long Term
							$ 7,323,248.71	**$ 18,371,544.57**	

Notes:

Projects proposed as part of Bicycle & Pedestrian Master Plan.

Projects proposed as part of Downtown Specific Plan.

Projects Proposed as part of 2040 General Plan.

Near-Term Projects from Summary of Near-Term and Mid-Term Improvements provided by City of Hayward.

Mid-Term Projects from Summary of Near-Term and Mid-Term Improvements provided by City of Hayward.

Highlighted with Green Text indicates Improvements from Plan(s) changed as per comments provide by City of Hayward Staff.

Table 19: Pedestrian Improvement Projects

Project	Corridor	Extents	Proposed Facility	Unit Cost	Unit	Total Cost	Total Cost (High Cost Alt)	Action Plan
159A	Watkins Street	Fletcher Lane to Jackson Street	ADA Curb Ramps High-Visibility Crosswalks			$ 43,050.00		Near Term
159B	Watkins Street	Jackson Street to B Street	ADA Curb Ramps High-Visibility Crosswalks			$ 105,000.00		Near Term
189A	Florida Street	Calaroga Avenue to Miami Avenue	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 97,650.00		Long Term
101A	A Street	Skywest Drive to Princeton Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 1,619,520.00		Long Term
101B	A Street	Princeton Street to Grand Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 621,780.00		Long Term
101C	A Street	Grand Street to Mission Boulevard	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 224,130.00		Long Term
101D	A Street	Mission Boulevard to 4th Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 419,340.00		Long Term
127A	Garin Avenue	Mission Boulevard to Larrabee Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 151,300.00		Long Term
115A	Tennyson Road	Industrial Boulevard to Hesperian Boulevard	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 532,610.00		Near Term
115B	Tennyson Road	Hesperian Boulevard to Calaroga Avenue	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 460,310.00		Near Term
115C	Tennyson Road	Calaroga Avenue to Patrick Avenue	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 465,130.00		Near Term
115D	Tennyson Road	Patrick Avenue to Mission Boulevard	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 1,911,130.00		Near Term
151A	Grand Street	Meek Avenue to D Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 108,580.00		Near Term

Table 19: Pedestrian Improvement Projects

Project	Corridor	Extents	Proposed Facility	Unit Cost	Unit	Total Cost	Total Cost (High Cost Alt)	Action Plan
151B	Grand Street	D Street to B Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions					Near Term
151B	Grand Street	B Street to A Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 174,440.00		Near Term
183A	Foothill Boulevard	Santa Clara Street to City Limits North	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 1,696,640.00		Near Term & Long Term
		Santa Clara St to City Limits North	RRFB (2 per mile)	$ 35,360.00	2.8	$ (198,016.00)		Near Term & Long Term
		Santa Clara St to City Limits North	HAWK Signal (1 per mile)	$ 200,000.00	2.8	$ 672,000.00		Near Term & Long Term
117A	Industrial Pkwy/Alquire Rd	Hesperian Boulevard to Hopkins Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 860,370.00		Long Term
117B	Industrial Pkwy/Alquire Rd	Hopkins Street to Mission Boulevard	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 3,017,320.00		Long Term
117D	Industrial Pkwy/Alquire Rd	Vanderbildt Street to Cantera Drive	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 250,950.00		Long Term
165A	Mission Boulevard	City Limits South to Fairway Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 1,335,140.00		Near Term & Long Term
165B	Mission Boulevard	Fairway Street to A Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 6,299,740.00		Near Term & Long Term
	Mission Boulevard	Carlos Bee Boulevard to Jackson St/Foothill Blvd	RRFB (2 per mile)	$ 35,360.00	0.7	$ (49,504.00)		
	Mission Boulevard	Carlos Bee Boulevard to Jackson St/Foothill Blvd	HAWK Signal (1 per mile)	$ 200,000.00	0.7	$ 168,000.00		
165C	Mission Boulevard	A Street to City Limits North	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 414,520.00		Near Term & Long Term
105B	Winton Avenue/D Street	Bay Trail Parking Lot to Cabot Boulevard	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 944,720.00		Long Term
105C	Winton Avenue/D Street	Cabot Boulevard to Clawiter Road	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 744,690.00		Near Term

Table 19: Pedestrian Improvement Projects

Project	Corridor	Extents	Proposed Facility	Unit Cost	Unit	Total Cost	Total Cost (High Cost Alt)	Action Plan
105D	Winton Avenue/D Street	Clawiter Road to Hesperian Boulvard	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 522,970.00		Near Term
105E	Winton Avenue/D Street	Hesperian Boulevard to Soto Road	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 1,848,470.00		Near Term
105F	Winton Avenue/D Street	Soto Road to Foothill Boulevard	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 872,420.00		Near Term
	D Street	Mission Boulevard to Foothill Boulevard	RRFB (2 per mile)	$ 35,360.00	0.1	$ (7,072.00)		
	D Street	Mission Boulevard to Foothill Boulevard	HAWK Signal (1 per mile)	$ 200,000.00	0.1	$ 24,000.00		
105G	Winton Avenue/D Street	Foothill Boulevard to City Limits	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 766,380.00		Near Term
102B	B Street	Grand Street to Watkins Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 187,980.00		Near Term
102C	B Street	Watkins Street to Mission Boulevard	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 53,020.00		Near Term
102D	B Street	Mission Boulevard to Foothill Boulevard	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 156,650.00		Near Term
102E	B Street	Foothill Boulevard to 4th Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 281,970.00		Near Term
102F	B Street	4th Street to Center Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 563,940.00		Near Term
103B	C Street	Alice Street to Grand Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 69,420.00		Near Term
104A	C Street	Atherton Street to Watkins Street	ADA Curb Ramps High-Visibility Crosswalks			$ 16,800.00		Near Term
104B	C Street	Watkins Street to Foothill Boulevard	ADA Curb Ramps High-Visibility Crosswalks			$ 86,100.00		Near Term
104C	C Street	Foothill Boulevard to 2nd Street	ADA Curb Ramps High-Visibility Crosswalks			$ 43,050.00		Near Term

Table 19: Pedestrian Improvement Projects

Project	Corridor	Extents	Proposed Facility	Unit Cost	Unit	Total Cost	Total Cost (High Cost Alt)	Action Plan
158A	Main Street	D Street to McKeever Avenue	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 229,620.00		Near Term
158B	Main Street	McKeever Avenue to Rose Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 137,550.00		Near Term
142A	Amador Street/Cypress Avenue	Elmhurst Street to Winton Avenue	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 110,360.00		Near Term
142B	Amador Street/Cypress Avenue	Jackson Street to Elmhurst Street	Signal Improvements ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 170,880.00		Near Term
142C	Amador Street/Cypress Avenue	Harder Road to Jackson Street	Signal Improvements ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 318,120.00		Near Term
118A	Industrial Parkway Southwest	Whipple Road to Industrial Parkway West	Signal Improvements Midblock Pedestrian Hybrid Beacon ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 1,200,180.00		Long Term
140A	Hesperian Boulevard	City Limits South to Tennyson Road	Signal Improvements Midblock Pedestrian Hybrid Beacon ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 2,395,540.00		Near Term & Long Term
	Hesperian Boulevard	Eden Shores Blvd to Tennyson Rd	Signal Improvements Midblock Pedestrian Hybrid Beacon RRFB (2 per mile)	$ 35,360.00	1.3	$ (91,936.00)		
	Hesperian Boulevard	Eden Shores Blvd to Tennyson Rd	HAWK Signal (1 per mile)	$ 200,000.00	1.3	$ 312,000.00		
140B	Hesperian Boulevard	Tennyson Road to La Playa Drive	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 1,901,490.00		Near Term & Long Term
	Hesperian Boulevard	Tennyson Rd to La Playa Drive	Midblock Pedestrian Hybrid Beacon RRFB (2 per mile)	$ 35,360.00	1.3	$ (91,936.00)		
	Hesperian Boulevard	Tennyson Rd to La Playa Drive	HAWK Signal (1 per mile)	$ 200,000.00	1.3	$ 312,000.00		
140C	Hesperian Boulevard	La Playa Drive to City Limits North	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 2,482,300.00		Near Term & Long Term
	Hesperian Boulevard	La Playa Drive to City Limits North	Midblock Pedestrian Hybrid Beacon RRFB (2 per mile)	$ 35,360.00	1.6	$ (113,152.00)		Long Term
	Hesperian Boulevard	La Playa Drive to City Limits North	HAWK Signal (1 per mile)	$ 200,000.00	1.6	$ 384,000.00		Long Term
173A	Elmwood Lane/UPRR Crossing	Santa Clara Street to Amador Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 78,750.00		Long Term
106A	E Street	Main Street to 1st Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 89,000.00		Long Term

Table 19: Pedestrian Improvement Projects

Project	Corridor	Extents	Proposed Facility	Unit Cost	Unit	Total Cost	Total Cost (High Cost Alt)	Action Plan
106B	E Street	1st Street to 2nd Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 72,980.00		Long Term
113A	Depot Road/Cathy Way	Cabot Boulevard to Industrial Boulevard	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 469,920.00		Near Term
113B	Depot Road/Cathy Way	Industrial Boulevard to Adrian Avenue	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 421,860.00		Near Term
113C	Depot Road/Cathy Way	Adrian Avenue to Calaroga Avenue	Signal Improvements ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 137,060.00		Near Term
153A	Montgomery Avenue	C Street to City Limits North	Signal Improvements ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 813,750.00		Long Term
174A	Longwood Avenue	Hesperian Boulevard to Nevada Road	Signal Improvements ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 129,150.00		Long Term
149D	Huntwood Avenue	Schafer Road to Gading Road	Signal Improvements ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 403,970.00		Near Term
123A	Whipple Road	Dyer Street to Huntwood Avenue	Signal Improvements Midblock Pedestrian Hybrid Beacon ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 487,200.00		Long Term
152A	Western Boulevard	A Street to Sunset Boulevard	Signal Improvements Midblock Pedestrian Hybrid Beacon ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 133,350.00		Near Term
137A	Calaroga Avenue	Catalpa Way to La Playa Drive	Signal Improvements ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 749,700.00		Long Term
150B	Mission Alternative - Whitman St/Silva Ave/Meek Ave/Filbert St	Raymond Drive to Silva Avenue	Signal Improvements ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 472,500.00		Long Term
150C	Mission Alternative - Whitman St/Silva Ave/Meek Ave/Filbert St	Sycamore Street to Jackson Street	Signal Improvements ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 84,000.00		Long Term
150D	Mission Alternative - Whitman St/Silva Ave/Meek Ave/Filbert St	Jackson Street to Filbert Street	Signal Improvements ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 140,180.00		Long Term
150E	Mission Alternative - Whitman St/Silva Ave/Meek Ave/Filbert St	Meek Avenue to A Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 74,820.00		Long Term

Table 19: Pedestrian Improvement Projects

Project	Corridor	Extents	Proposed Facility	Unit Cost	Unit	Total Cost	Total Cost (High Cost Alt)	Action Plan
116A	Industrial Boulevard	Hesperian Boulevard to Clawiter Road	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 1,808,730.00		Near Term
163A	Dixon Street/12th Street	Industrial Parkway to Tennyson Rd	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 222,600.00		Long Term
163B	Dixon Street/12th Street	Tennyson Road to Jefferson Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 126,420.00		Long Term
126A	McKeever Avenue/City Center Drive	Main Street to Foothill Boulevard	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 49,880.00		Near Term
126B	McKeever Avenue/City Center Drive	Foothill Boulevard to 2nd Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 26,250.00		Near Term
112A	Harder Road	Santa Clara Street to W Loop Road	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements - W of Mission Blvd Midblock Pedestrian Hybrid Beacon - W of Mission Blvd			$ 2,488,780.00		Near Term
146A	Tampa Avenue/Gomer Street	Folsom Avenue to Glad Tidings Way	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 181,650.00		Near Term
108A	Elmhurst Street	Santa Clara Street to Amador Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 65,100.00		Long Term
120A	Folsom Avenue	Tampa Avenue to Huntwood Avenue	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 263,550.00		Near Term
120B	Folsom Avenue	Havana Avenue to Tampa Avenue	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 55,650.00		Near Term
167A	Fairway Street	Carroll Avenue to Mission Boulevard	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 132,300.00		Near Term
185A	Martin Luther King Drive	Winton Avenue to A Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 208,120.00		Near Term
164A	Arrowhead Way	Industrial Parkway to Mission Boulevard	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 189,200.00		Near Term
107B	Middle Lane/Southland Drive	Eden Avenue to Winton Avenue	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 227,900.00		Near Term

Table 19: Pedestrian Improvement Projects

Project	Corridor	Extents	Proposed Facility	Unit Cost	Unit	Total Cost	Total Cost (High Cost Alt)	Action Plan
109A	Hesperian Bypass - La Playa Drive/Southland Place/Stonewall Drive/Thelma Street/La Playa Drive	Calaroga Avenue to Hesperian Boulevard	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 93,450.00		Long Term
109B	Hesperian Bypass - La Playa Drive/Southland Place/Stonewall Drive/Thelma Street	La Playa Drive to Southland Drive	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 93,740.00		Long Term
109C	Hesperian Bypass - La Playa Drive/Southland Place/Stonewall Drive/Thelma Street	Southland Drive to W Winton Avenue	ADA Curb Ramps High-Visibility Crosswalks			$ 49,880.00		Long Term
109D	Hesperian Bypass - La Playa Drive/Southland Place/Stonewall Drive/Thelma Street	W Winton Avenue to W A Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 313,950.00		Long Term
110A	Orchard Avenue/Hayward Boulevard	Soto Road to Mission Boulevard	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 353,220.00		Near Term
110B	Orchard Avenue/Hayward Boulevard	Mission Boulevard to Farm Hill Drive	Midblock Pedestrian Hybrid Beacon ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 1,494,080.00		Near Term
110C	Orchard Avenue/Hayward Boulevard	Farm Hill Drive to Fairview Avenue	Midblock Pedestrian Hybrid Beacon ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 891,170.00		Long Term
181A	Highland Boulevard	Mission Boulevard to University Court	Midblock Pedestrian Hybrid Beacon ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 334,540.00		Long Term
172A	Fletcher Lane	Watkins Street to Mission Boulevard	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 14,620.00		Near Term
148A	Ruus Road	Industrial Parkway to Folsom Avenue	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 179,550.00		Near Term
155A	4th Street	D Street to A Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 81,700.00		Long Term
144A	Elridge Avenue I-880 Overcrossing Access-Gomer Street/Underwood Aveue/Elridge Avenue	Underwood Avenue to Tampa Avenue	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 56,760.00		Near Term
144B	Elridge Avenue I-880 Overcrossing Access-Gomer Street/Underwood Aveue/Elridge Avenue	Gomer Street to Elridge Avenue	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 25,200.00		Near Term
144C	Elridge Avenue I-880 Overcrossing Access-Gomer Street/Underwood Aveue/Elridge Avenue	Underwood Avenue to Eden Greenway	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 184,800.00		Near Term
129C	Whitesell Street/Cabot Boulevard	Depot Road to City Limit - Future SF Bay Trail Access	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs - S of Winton Curb Extensions - S of Winton			$ 465,150.00		Long Term

Table 19: Pedestrian Improvement Projects

Project	Corridor	Extents	Proposed Facility	Unit Cost	Unit	Total Cost	Total Cost (High Cost Alt)	Action Plan
136B	Portsmouth Avenue/Arf Avenue/Panama Street	Baumberg Avenue to Calaroga Avenue	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 198,450.00		Long Term
170B	Gresel Street	Carroll Avenue to Brae Burn Avenue	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 75,680.00		Long Term
135B	Skywest Drive	Suerrio Street to Airport Access	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 34,400.00		Long Term
135C	Skywest Drive	Airport Access to W A Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 46,440.00		Long Term
141A	Santa Clara Street/Hathaway Avenue	W Harder Road to W A Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 1,124,620.00		Long Term
141B	Santa Clara Street/Hathaway Avenue	W A Street to Lansing Way	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 154,280.00		Long Term
166A	Revere Avenue/Brae Burn Avenue	Lafayette Avenue to Gresel Street	Midblock Pedestrian Hybrid Beacon ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements - b/w Lafayette Ave to Revere Ave			$ 220,160.00		Long Term
166C	Revere Avenue/Brae Burn Avenue	Rousseau Street to St Andrews Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 72,450.00		Long Term
114A	Breakwater Avenue	SF Bay Trail to Whitesell Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 181,460.00		Near Term
114B	Breakwater Avenue	Whitesell Street to Clawiter Road	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 85,140.00		Near Term
131A	Eden Landing Road/Clawiter Road	SF Bay Trail to Arden Road	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 118,650.00		Long Term
131B	Eden Landing Road/Clawiter Road	Arden Road to Clawiter Road	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 85,050.00		Long Term
131C	Eden Landing Road/Clawiter Road	Eden Landing Road to Breakwater Avenue	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 74,550.00		Long Term
131D	Eden Landing Road/Clawiter Road	Breakwater Avenue to Depot Road	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 196,350.00		Long Term

Table 19: Pedestrian Improvement Projects

Project	Corridor	Extents	Proposed Facility	Unit Cost	Unit	Total Cost	Total Cost (High Cost Alt)	Action Plan
131E	Eden Landing Road/Clawiter Road	Depot Road to Industrial Boulevard	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 84,000.00		Long Term
131F	Eden Landing Road/Clawiter Road	Industrial Boulevard to W Winton Avenue	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 491,260.00		Near Term
154A	2nd Street	Campus Drive to D Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 655,690.00		Long Term
154B	2nd Street	D Street to A Street	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements Midblock Pedestrian Hybrid Beacon			$ 170,520.00		Long Term
154C	2nd Street	A Street to City Center Drive	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 47,250.00		Long Term
133A	Arden Road/Baumberg Avenue	Corporate Avenue to Industrial Boulevard	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 441,000.00		Long Term
119A	Catalpa Way	Hesperian Boulevard to Miami Avenue	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 143,850.00		Near Term
130A	Corsair Boulevard	W Winton Avenue to Clubhouse Drive	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions			$ 205,540.00		Long Term
128A	Fairview Avenue	Hayward Boulevard to Woodstock Road	ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 401,940.00		Long Term
161A	Campus Drive	Hayward Boulevard to Oaks Drive	Midblock Pedestrian Hybrid Beacon ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 304,500.00		Long Term
161B	Campus Drive	Oaks Drive to 2nd Street	Midblock Pedestrian Hybrid Beacon ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 180,670.00		Long Term
171B	Sunset Boulevard	Western Boulevard to Main Street	Midblock Pedestrian Hybrid Beacon W of Montgomery Ave: ADA Curb Ramps High-Visibility Crosswalks Midblock RRFBs Curb Extensions Signal Improvements			$ 99,750.00		Long Term
179A	E Loop Rd/W Loop Rd	Harder Road to Harder Road	ADA Curb Ramps High-Visibility Crosswalks			$ 430,000.00		Long Term
	Foothill Boulevard	b/w City Center Drive (S) & Hazel Avenue	HAWK Signal	$ 200,000.00	1	$ 240,000.00		Long Term

Table 19: Pedestrian Improvement Projects

Project	Corridor	Extents	Proposed Facility	Unit Cost	Unit	Total Cost	Total Cost (High Cost Alt)	Action Plan
	Foothill Boulevard	at B Street	Curb Bulbout (2)	$ 4,700.00	2	$ 11,280.00		Near Term
	Foothill Boulevard	Hazel Avenue to Mission Boulevard/Jackson Street	Road Diet for 0.9 mi			$ 4,500,000.00	$ 10,200,000.00	Long Term
	Mission Boulevard	at Smalley Avenue	Curb Bulbout (1)	$ 4,700.00	1	$ 5,640.00		Near Term
	Mission Boulevard	at A Street	Curb Bulbout (1)	$ 4,700.00	1	$ 5,640.00		Near Term
	Main Street	McKeever Avenue to D Street	Road Diet for 0.4 mi			$ 2,250,000.00	$ 5,100,000.00	
	A Street	Grand Street to Mission Boulevard & Foothill Boulevard to 3rd Street	Road Diet for 0.5 mi			$ 2,250,000.00	$ 5,100,000.00	Long Term
	B Street	Grand Street to Watkins Street	Road Diet for 0.2 mi			$ 1,125,000.00	$ 2,550,000.00	Long Term
	2nd Street	Russell Way to E Street	Road Diet for 0.4 mi			$ 2,250,000.00	$ 5,100,000.00	Long Term
	Mission Boulevard	Calhoun Street	Adjust signal timing to provide a Leading Pedestrian Interval at crosswalk	$200-$1200	1	$ 240.00	$ 1,440.00	Near Term
	Citywide		Add sidewalks to missing segments.			$ 37,700,000.00		
	Citywide		Remove pedestrian signal improvements			$ (2,000,000.00)		
						$ 108,331,234.00	**$ 124,007,434.00**	

Notes:

Projects proposed as part of Bicycle & Pedestrian Master Plan.

Projects proposed as part of Downtown Specific Plan.

Near-Term Projects from Summary of Near-Term and Mid-Term Improvements provided by City of Hayward.

Red indicates cost calculated and not from Plan. City to confirm costs estimates

Table 20: Vehicle Improvement Projects

Corridor	Location	Existing Mitigations				Cumulative Mitigations				Action Plan
		Proposed Improvements	Area/Length	Unit Costs	Total Cost	Proposed Improvements	Area/Length	Unit Costs	Total Cost	
Foothill Boulevard	Foothill Boulevard/Grove Way	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	Foothill Boulevard/City Center Drive	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Convert exclusive eastbound through lane into a left turn lane. Signal timing improvements.	Lane restriping @ EB approach signal timing	$4500/intersection $500/remove or install pavement marking	$ 5,700.00	Near-Term
	Foothill Boulevard/A Street	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	Foothill Boulevard/D Street	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	Foothill Boulevard/Mission Boulevard & Jackson Street	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
2nd Street	2nd Street/City Center Drive	Add EBR overlap with NB phase.				Add EBR overlap with NB phase.	1 new signal head "No U-Turn" sign	$5000/signal head $550/New sign on new post	$ 6,660.00	Near-Term
	2nd Street/Russell Way	Add westbound left turn pocket with 70 ft storage & 50 ft taper length by adding red zone along curb for 70 feet; Convert westbound shared left-through-right lane into through-right lane; Convert eastbound through-left lane into exclusive left turn pocket with 70 ft storage & 50 ft taper length; Convert eastbound right turn lane into shared through-right lane.	Lane restriping @ WB & EB approaches	$0.50/LF Remove striping $$1.50/LF new striping	$ 288.00	Add westbound left turn pocket with 70 ft storage & 50 ft taper length by adding red zone along curb for 70 feet; Convert westbound shared left-through-right lane into through-right lane; Convert eastbound through-left lane into exclusive left turn pocket with 70 ft storage & 50 ft taper length; Convert eastbound right turn lane into shared through-right lane. Convert intersection control to AWSC	Lane restriping @ WB & EB approaches Red curb paint @ WB approach Add stop signs @ 2nd St approaches	$0.50/LF Remove striping $$1.50/LF new striping $5/LF Red Curb $550/New stop sign $2/LF stop bar $500/stop pavement marking	$ 6,384.00	Near-Term
	2nd Street/A Street	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	2nd Street/B Street	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	2nd Street/C Street	-				Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	2nd Street/D street	Add southbound right turn pocket with 50 ft storage & 25 ft taper length; Convert southbound shared through-right lane into exclusive through lane; Move bus stop in southbound direction to south of intersection. Add SBR overlap with EBL movement.	Lane restriping @ SB approach Remove/replace bus stop signage 1 new signal head	$1.50/LF new striping $500/new pavement marking $225/sign relocation $5000/signal head	$ 7,005.00	Add southbound right turn pocket with 50 ft storage & 25 ft taper length; Convert southbound shared through-right lane into exclusive through lane; Move bus stop in southbound direction to south of intersection. Add SBR overlap with EBL movement. Signal timing improvements.	Lane restriping @ SB approach Remove/replace bus stop signage 1 new signal head signal timing	$1.50/LF new striping $500/new pavement marking $225/sign relocation $5000/signal head $4500/intersection	$ 11,505.00	Near-Term
	2nd Street/E Street	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	2nd Street/Campus Drive	Remove westbound channelized right turn; Modify intersection control to uncoordinated, 4-phase signal.	Lane restriping for intersection 363 sf removal Signalize 1 intersection	$8/SF Demo $500000/intersection	$ 603,484.80	Remove westbound channelized right turn. Modify intersection control to uncoordinated signalized intersection.	Lane restriping for intersection 363 sf removal Signalize 1 intersection	$8/SF Demo $500000/intersection signalization	$ 603,484.80	Long-Term
B Street	B Street/3rd Street	Modify striping at northbound approach to consist of one northbound left turn pocket with 75 ft storage & 25 ft taper length by adding a red curb for 75 feet.	Lane restriping @ NB approach Paint curb red @ NB approach	$1.50/LF new striping $500/remove or new pavement marking $5.00/LF red curb	$ 3,030.00	Modify striping at northbound approach to consist of one northbound left turn pocket with 75 ft storage & 25 ft taper length by adding a red curb for 75 feet.	Lane restriping @ NB approach Paint curb red @ NB approach	$1.50/LF new striping $500/remove or new pavement marking $5.00/LF red curb	$ 3,030.00	Near-Term
	B Street/Grand Street	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	B Street/Watkins Street	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
A Street	A Street/Mission Boulevard	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Convert westbound shared through-right lane into exclusive right turn lane. Add westbound right turn overlap phase with southbound phase. Signal timing improvements.	Lane restriping @ WB approach Replace sign for WB approach 2 new signal heads signal timing	$500/remove or new pavement marking $1000/new sign on mast arm $5000/signal head $4500/intersection	$ 18,900.00	Near-Term
	A Street/Grand Street & Western Boulevard	Due to constrained ROW, no mitigation was proposed at this intersection.	-	-	-	Due to constrained ROW, no mitigation was proposed at this intersection.	-	-	-	-
	A Street/Happyland Avenue	Prohibit NBL movement at NB approach.	Lane striping "No Left-Turn" sign	$500/new pavement marking $550/new sign on new post	$ 1,260.00	Prohibit NBL movement at NB approach.	Lane striping "No Left-Turn" sign	$500/new pavement marking $550/new sign on new post	$ 1,260.00	Near-Term
	A Street/Hesperian Boulevard	-	-	-	-	Convert northbound shared through-right lane into an exclusive right-turn lane. Add NBR overlap with WBL movement; Add WBR overlap with SBL movement. Signal timing improvements.	Lane restriping @ NB approach Remove pavement marking @ WBR lane 4 new signal heads 1 "No U-Turn" sign signal timing	$500/remove or new pavement marking $5000/signal head $1000/new sign on mast arm $4500/intersection	$ 30,900.00	Near-Term
D Street	D Street/Grand Street	-	-	-	-	Add southbound right-turn pocket with 60 ft storage & 25 ft taper length by adding red curb; Convert southbound shared through-right lane into exclusive through lane. Signal timing improvements.	Lane restriping @ SB approach Paint curb red @ SB approach signal timing	$1.50/LF new striping $500/remove or new pavement marking $5.00/LF red curb $4500/intersection	$ 5,763.00	Near-Term
	D Street/Watkins Street	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	D Street/1st Street	Modify intersection control from TWSC to signalized intersection control.	Signalize 1 intersection	$500000/intersection	$ 600,000.00	Convert southbound approach to consist of one shared through-left lane and one exclusive right turn lane. Modify intersection control from TWSC to signalized intersection.	Lane restriping @ SB approach Signalize 1 intersection	$500/remove or new pavement marking $500000/intersection	$ 602,400.00	Long-Term
	D Street/2nd Street	Due to constrained ROW, no mitigation was proposed at this intersection.	-	-	-	Due to constrained ROW, no mitigation was proposed at this intersection.	-	-	-	-
	D Street/5th Street	-	-	-	-	Convert northbound approach to consist of exclusive left-turn pocket with 50 ft taper & 25 ft storage length and exclusive right turn lane; requires removal of on street parking on both sides of the street for at least 75 ft south of the intersection.	Lane restriping @ NB approach Paint curb red @ NB approach	$0.50/LF remove striping $1.50/LF new striping $500/remove or new pavement marking $5.00/LF red curb	$ 3,015.00	Near-Term
Jackson Street	Jackson Street/Watkins Street	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	Jackson Street/Meek Avenue & Silva Avenue	Add NBR overlap with WBL movement. Signal timing improvements.	1 new signal head "No U-Turn" sign signal timing	$5000/signal head $550/new sign on post $4500/intersection	$ 11,160.00	Add NBR overlap with WBL movement. Signal timing improvements.	1 new signal head "No U-Turn" sign signal timing	$5000/signal head $550/new sign on post $4500/intersection	$ 11,160.00	Near-Term
	Jackson Street/Alice Street & Sycamore Avenue	Convert northbound shared through-left lane into exclusive left-turn lane; Convert northbound right-turn pocket into shared through-right turn pocket with 110 ft storage & 25 ft taper length.	Lane restriping @ NB approach	$500/remove or new pavement marking	$ 1,200.00	Convert northbound shared through-left lane into exclusive left-turn lane; Convert northbound right-turn pocket into shared through-right turn pocket with 110 ft storage & 25 ft taper length. Modify intersection control from TWSC to 6-phase signal control.	Lane restriping @ NB approach Signalize 1 intersection	$500/remove or new pavement marking $500000/intersection	$ 601,200.00	Long-Term
	Jackson Street/Soto Road	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Due to constrained ROW, no mitigation was proposed at this intersection.	-	-	-	Long-Term
	Jackson Street/Amador Street & Cypress Avenue	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
Santa Clara Street	Santa Clara Street/Ocie Way	Due to constrained ROW, no mitigation was proposed at this intersection	-	-	-	Due to constrained ROW, no mitigation was proposed at this intersection	-	-	-	-
Winton Avenue	Winton Avenue/Amador Street	Due to constrained ROW, no mitigation was proposed at this intersection.	-	-	-	Due to constrained ROW, no mitigation was proposed at this intersection.	-	-	-	-
	Winton Avenue/Myrtle Street & Soto Road	Add SBR overlap with EBL movement.	1 new signal head	$5000/signal head	$ 6,000.00	Add SBR overlap with EBL movement. Signal timing improvements.	1 new signal head signal timing	$5000/signal head $4500/intersection	$ 10,500.00	Near-Term

Table 20: Vehicle Improvement Projects

Corridor	Location	Existing Mitigations				Cumulative Mitigations				Action Plan
		Proposed Improvements	Area/Length	Unit Costs	Total Cost	Proposed Improvements	Area/Length	Unit Costs	Total Cost	
	Witnon Avenue/D Street	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
Amador Street	Amador Street/Elmhurst Street	Restripe eastbound approach to add eastbound right turn pocket with 150 ft storage & 50 ft taper length; Convert eastbound shared left-through-right lane into shared through-left lane; Restripe northbound approach to add northbound through-right pocket with 70 ft storage & 25 ft taper length; Convert northbound shared left-through-right lane into exclusive left turn lane. Add red curbs along turn pockets to restrict parking.	Lane restriping @ EB & NB approaches Paint curb red @ EB & NB approaches	$1.50/LF new striping $500/remove or new pavement marking $5/LF red curb	$ 5,331.00	Restripe eastbound approach to add eastbound right turn pocket with 150 ft storage & 50 ft taper length; Convert eastbound shared left-through-right lane into shared through-left lane; Restripe northbound approach to add northbound through-right pocket with 70 ft storage & 25 ft taper length; Convert northbound shared left-through-right lane into exclusive left turn lane. Add red curbs along turn pockets to restrict parking. Modify intersection control from AWSC to 6-phase uncoordinated signal control.	Lane restriping @ EB & NB approaches Paint curb red @ EB & NB approaches Signalize 1 intersection	$1.50/LF new striping $500/remove or new pavement marking $5/LF red curb $500000/intersection	$ 605,331.00	Long-Term
	Harder Road/Soto Road & Mocine Avenue	Convert southbound exclusive left-turn lane into shared through-left lane; Convert southbound shared through-right lane into exclusive right-turn lane. Add SBR overlap with EBL movement; Prohibit U-turn movement at EB approach.	Lane restriping @ SB approach 2 new signal heads "No U-Turn" Sign	$500/remove or new pavement marking $5000/signal head $1000/sign on mast arm	$ 15,600.00	Due to constrained ROW, no mitigation was proposed at this intersection.	-	-	-	Long-Term
	Harder Road/Jane Avenue	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
Mission Boulevard	Mission Boulevard/Fletcher Lane	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	Mission Boulevard/Harder Road	Add EBR overlap with NBL movement. Signal timing improvements.	2 new signal heads "No U-Turn" sign signal timing	$5000/signal head $1000/sign on mast arm $4500/intersection	$ 17,700.00	Due to constrained ROW, no mitigation was proposed at this intersection.	-	-	-	Long-Term
	Mission Boulevard/Tennyson Road	-	-	-	-	Convert westbound shared through-left lane into exclusive left-turn lane and add through movement to exclusive right-turn lane. Signal timing improvements.	Lane restriping @ WB approach 1 new signal head Signal timing	$500/remove or new pavement marking $5000/signal head $4500/intersection	$ 12,900.00	Near-Term
	Mission Boulevard/Industrial Parkway	Add EBR overlap with NBL movement. Signal timing improvements.	2 new signal heads "No U-Turn" sign signal timing	$5000/signal head $1000/sign on mast arm $4500/intersection	$ 17,700.00	Convert eastbound through-right lane into exclusive right-turn lane. Add EBR overlap with NBL movement. Signal timing improvements.	Lane restriping @ EB approach 1 new signal head "No U-Turn" sign signal timing	$500/remove or new pavement marking $5000/signal head $1000/sign on mast arm $4500/intersection	$ 18,900.00	Near-Term
Patrick Avenue	Patrick Avenue/Gomer Street	Modify intersection control to an uncoordinated, 6-phase signal.	Signalize 1 intersection	$500000/intersection	$ 600,000.00	Modify intersection control to an uncoordinated, 6-phase signal.	Signalize 1 intersection	$500000/intersection	$ 600,000.00	Long-Term
	Patrick Avenue/Roosevelt Avenue	Modify intersection control to an uncoordinated, 4-phase signal.	Signalize 1 intersection	$500000/intersection	$ 600,000.00	Modify intersection control to 4-phase, uncoordinated signal.	Signalize 1 intersection	$500000/intersection	$ 600,000.00	Long-Term
	Patrick Avenue/Tennyson Road	Convert southbound shared left-right turn lane into exclusive right-turn lane. Add SBR overlap with EBL movement.	Lane restriping @ SB approach 1 new signal head "No U-Turn" Sign	500/remove or new pavement marking $5000/signal head $1000/sign on mast arm	$ 7,800.00	Convert southbound shared left-right turn lane into exclusive right-turn lane. Add SBR overlap with EBL movement. Signal timing improvements.	Lane restriping @ SB approach 1 new signal head "No U-Turn" Sign signal timing	$500/remove or new pavement marking $5000/signal head $1000/sign on mast arm $4500/intersection	$ 12,300.00	Near-Term
Tennyson Road	Tennyson Road/Pompano Ave	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	Tennyson Road/Tampa Avenue	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	Tennyson Road/Dickens Avenue	Convert landscape median on west leg into a TWLTL median.	2635 sf median removal @ EB approach TWLTL median striping	$8/Demo $3/LF TWLTL striping	$ 25,926.00	Convert landscape median on west leg into a TWLTL median.	2635 sf median removal @ EB approach TWLTL median striping	$8/Demo $3/LF TWLTL striping	$ 25,926.00	Long-Term
	Tennyson Road/Tyrrell Avenue	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	Tennyson Road/Harvey Avenue	-	-	-	-	Convert northbound shared lane into exclusive left-turn lane; Add northbound right-turn pocket with 100 ft storage & 50 ft taper length; Add eastbound TWLTL median (requires removal of median island)	Lane restriping @ NB approach Paint curb red @ NB approach Remove 385 sf median TWLTL striping @EB approach	$0.50/LF remove striping $1.50/LF new striping $500/remove or new pavement marking $5/LF red curb $8/SF Demo $12/SF new pavement section $3/LF TWLTL striping	$ 13,955.40	Long-Term
	Tennyson Road/Ruus Road	-	-	-	-	Add EBR overlap with NB movement; Prohibit U-Turns from NB approach. Signal timing improvements.	2 new signal heads "No U-Turn" sign signal timing	$5000/signal head $550/sign on new post $4500/intersection	$ 17,160.00	Near-Term
	Tennyson Road/Baldwin Street	Add southbound left turn pocket with 75 feet storage & 25 ft taper length; Restrict on-street parking at southbound approach for 100 feet north of intersection; Convert southbound shared-lane into exclusive right turn lane.	Lane restriping @ SB approach Paint curb red @ SB approach	$1.50/LF new striping $500/remove or new pavement marking $5/LF red curb	$ 4,560.00	Add southbound left-turn pocket with 75 ft storage & 25 ft taper length; Restrict on-street parking at southbound approach for 100 feet north of intersection; Convert southbound shared lane into exclusive right turn-lane. Modify intersection control from TWSC to coordinated, 6-phase signal.	Lane restriping @ SB approach Paint curb red @ SB approach Signalize 1 intersection	$1.50/LF new striping $500/remove or new pavement marking $5/LF red curb $500000/intersection	$ 604,560.00	Long-Term
	Tennyson Road/Huntwood Avenue	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	Tennyson Road/Beatron Way-Whitman Street	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	Tennyson Road/Pacific Street	Add northbound right turn pocket with 50 ft storage & 25 ft taper length; Requires red curb along northbound approach.	Lane restriping @ NB approach Paint curb red @ NB approach	$0.50/LF remove striping $1.50/LF new striping $500/new pavement marking $5/LF red curb	$ 4,215.00	Add northbound right turn pocket with 50 ft storage & 25 ft taper length; Convert northbound shared left-right lane into exclusive left-turn lane; Requires red curb along northbound approach. Convert median block and eastbound left-turn pocket at Oharron Drive into TWLTL on eastbound leg approach.	Lane restriping @ NB approach Paint curb red @ NB approach TWLTL striping @ EB approach	$0.50/LF remove striping $1.50/LF new striping $500/new pavement marking $5/LF red curb $3/LF TWLTL striping	$ 5,241.00	Long-Term
	Tennyson Road/Dixon Street & East 12th Street	-	-	-	-	Convert southbound shared through-left turn into exclusive left turn lane; Convert exclusive southbound right-turn pocket into shared through-right pocket. Modify signal phasings into 8-phase uncoordinated signal; EBR overlap with NBL movement.	Lane restriping @ SB approach 2 new signal heads "No U-Turn" sign signal timing	$500/remove or new pavement marking $5000/signal head $1000/new sign on mast arm $4500/intersection	$ 20,100.00	Near-Term
	Tennyson Road/Industrial Boulevard	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	Tennyson Road/Sleepy Hollow Avenue South	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	Tennyson Road/Calaroga Avenue	Add northbound right turn overlap with westbound left turn; Restrict westbound U-turn movement with "No U-Turn" sign.	1 new signal head "No U-Turn" Sign	$5000/signal head $1000/new sign on mast arm	$ 7,200.00	Due to constrained ROW, no mitigation was proposed at this intersection.	-	-	-	Long-Term
Ruus Road	Ruus Road/Folsom Avenue	Add exclusive left turn pockets at all approach legs with 100 ft storage & 25 ft taper length. Requires restripe of lanes and red curbs along all approaches for the exntents of the turn pockets.	Lane restriping @ all approaches Paint curb red @ all approaches	$0.50/LF remove striping $500/new pavement marking $1.50/LF new striping $5/LF red curb	$ 10,590.00	Due to constrained ROW, no mitigation was proposed at this intersection.	-	-	-	Long-Term
Huntwood Avenue	Huntwood Avenue/Industrial Parkway	Convert eastbound exclusive right turn lane into shared through-right lane. Add NBR overlap with WBL movement. Signal timing improvements.	Lane restriping @ EB approach 1 new signal head 2 "No U-Turn" signs signal timing	$0.50/LF remove striping $500/remove or new pavement marking $1000/sign on mast arm $550/sign on pole $5000/signal head $4500/intersection	$ 13,560.00	Convert eastbound exclusive right turn lane into shared through-right lane. Add NBR overlap with WBL movement. Modify signal operations from 6-phase to 8-phase signal. Signal timing improvements.	Lane restriping @ EB approach 1 new signal head 2 "No U-Turn" signs signal timing	$0.50/LF remove striping $500/remove or new pavement marking $1000/sign on mast arm $550/sign on pole $5000/signal head $4500/intersection	$ 13,560.00	Near-Term
	Huntwood Avenue/Zephyr Avenue	Restripe eastbound approach to have one exclusive left turn lane and one shared through-right lane with 100 ft storage & 50 ft taper length.	Lane restriping @ EB approach	$1.50/LF new striping $500/remove or new pavement marking	$ 2,070.00	Restripe eastbound approach to have one exclusive left-turn lane and one shared through-right lane with 100 ft storage & 50 ft taper length. Modify intersection control to uncoordinated 6-phase signal.	Lane restriping @ EB approach Signalize 1 intersection	$1.50/LF new striping $500/remove or new pavement marking $500000/intersection	$ 602,070.00	Long-Term
	Huntwood Avenue/Whipple Road	-	-	-	-	Add SBR overlap with EBL movement. Signal timing improvements.	2 new signal heads "No U-Turn" sign	$5000/signal head $1000/sign on mast arm	$ 13,200.00	Near-Term
Hesperian Boulevard	Hesperian Boulevard/Sueirro Street	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	Hesperian Boulevard/Winton Avenue	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Convert westbound shared through-right lane into exclusive right turn lane. Add NBR overlap with WBL movement. Signal timing improvements.	Lane restriping @ WB approach 2 new signal heads signal timing	$500/remove or new pavement marking $5000/signal head $4500/intersection	$ 17,700.00	Near-Term
	Hesperian Boulevard/La Playa Drive	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	Hesperian Boulevard/Turner Court	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term

Table 20: Vehicle Improvement Projects

Corridor	Location	Existing Mitigations				Cumulative Mitigations				Action Plan
		Proposed Improvements	Area/Length	Unit Costs	Total Cost	Proposed Improvements	Area/Length	Unit Costs	Total Cost	
Hesperian Boulevard	Hesperian Boulevard/Depot Road & Cathy Way	Convert one northbound through lane into an exclusive left-turn lane. Signal timing improvements (AM Peak only).	Lane restriping @NB approach signal timing	$500/remove or new pavement marking $4500/intersection	$ 5,100.00	Due to constrained ROW, no mitigation was proposed at this intersection.	-	-	-	Near-Term
	Hesperian Boulevard/Tennyson Road	Convert westbound through lane into exclusive left-turn lane; Convert westbound right-turn pocket into a shared through-right pocket. Signal timing improvements (PM Peak only).	Lane restriping @ WB approach signal timing	$500/remove or new pavement marking $4500/intersection	$ 6,300.00	Convert one southbound through lane into southbound left-turn lane. Signal timing improvements.	Lane restriping @ SB approach signal timing	$500/remove or new pavement marking $4500/intersection	$ 5,100.00	Near-Term
	Hesperian Boulevard/Oliver Drive	Modify intersection control to a coordinated, 5-phase signal.	Signalize 1 intersection	$500000/intersection	$ 600,000.00	Add eastbound right-turn pocket with 100 ft storage & 50 ft taper length. Modify intersection control to uncoordinated, 5-phase signal.	Lane restriping @ EB approach Paint curb red @ EB approach Sienalize 1 intersection	$1.50/LF new striping $500/remove or new pavement marking $500000/intersection	$ 602,970.00	Long-Term
	Hesperian Boulevard/Catalpa Way & Tahoe Avenue	Modify intersection control to a coordinated, 4-phase signal.	Signalize 1 intersection	$500000/intersection	$ 600,000.00	Modify intersection control to a coordinated, 4-phase signal.	Signalize 1 intersection	$500000/intersection	$ 600,000.00	Long-Term
	Hesperian Boulevard/Industrial Boulevard	Add permissive overlap phasing WBR movement; signal timing improvements.	replace 1 signal head Relocate 2 signs/posts signal timing improvements	$5000/signal head $225/sign relocation $4500/intersection	$ 11,040.00	Convert westbound through lane into exclusive right-turn lane. Signal timing improvements.	Lane restriping @ WB approach signal timing	$500/remove or new pavement marking $4500/intersection	$ 5,700.00	Near-Term
	Hesperian Boulevard/Eden Shores Boulevard-Tripaldi Way	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
	Hesperian Boulevard/Eden Park Plavce-North Pepsi Drive	-	-	-	-	Signal timing improvements.	signal timing	$4500/intersection	$ 4,500.00	Near-Term
Industrial Boulevard	Industrial Boulevard/Depot Road	Add EBR overlap with NBL movement; Must restrict northbound U turns.	1 new signal head 2 "No U-Turn" Siens	$550/new sign on pole $5000/signal head	$ 7,320.00	Add EBR overlap with NBL movement; Must restrict northbound U turns.	1 new signal head 2 "No U-Turn" Siens	$550/new sign on pole $5000/signal head	$ 7,320.00	Near-Term
Calaroga Avenue	Calaroga Avenue/Bolero Avenue & Miami Avenue	Modify signal control to an uncoordinated, 4-phase signal.	Signalize 1 intersection	$500000/intersection	$ 600,000.00	Modify signal control to an uncoordinated, 4-phase signal.	Signalize 1 intersection	$500000/intersection	$ 600,000.00	Long-Term
	Calaroga Ave/Panama Ave	-	-	-	-	Add southbound right-turn pocket with 100 ft storage & 50 ft taper length; Convert shared southbound lane to shared through-left lane.	Lane restriping @ SB approach Paint curb red @ SB approach	$0.50/LF remove striping $1.50/LF new striping $5/LF red curb $500/remove or new pavement marking	$ 3,150.00	Near-Term
Industrial Parkway	Industrial Parkway/Stratford Road	-	-	-	-	Convert northbound shared through-left lane into exclusive through lane; Add westbound through pocket with 120 ft storage & 25 ft taper length (requires reduction of median). Signal timing improvements.	Lane restriping @ NB approach Remove 855 sf of median @ WB approach signal timing	$0.50/LF remove striping $1.50/LF new striping $500/remove or new pavement marking $8/SF Demo $4500/intersection	$ 15,126.00	Long-Term
	Industrial Parkway/Ruus Road	-	-	-	-	Add westbound left-turn pocket with 255 ft storage & 100 ft taper length; Add eastbound right-turn pocket with 75 ft storage & 25 ft taper length; Convert eastbound shared through-right lane into exclusive through lane; Add southbound right-turn pocket with 75 ft storage & 25 ft taper length; Convert southbound shared through-right lane into exclusive through lane. Add EBR overlap with NBL movement and SBR overlap with EBL movement. Signal timing improvements.	Lane restriping @ WB, EB & SB approaches Remove 2140 sf of median @ WB approach Paint curb red @ SB approach 3 new signal heads 2 "No U-Turn" sign	$0.50/LF remove striping $1.50/LF new striping $8/SF Demo $5/LF red curb $5000/signal head $1000/new sign on mast arm	$ 54,987.00	Long-Term
Grand Street	Grand Street/Meek Avenue	-	-	-	-	Modify intersection control from AWSC to uncorrdinated, 6-phase signal control.	Signalize 1 intersection	$500000/intersection	$ 600,000.00	Long-Term
Fletcher Lane	Fletcher Lane/Watkins Street	-	-	-	-	Add westbound right-turn lane by removing parking on north side of Fletcher Lane; Remove right-turn from shared westbound LTR lane; Add southbound left-turn lane with 100 ft storage & 50 ft taper length by removing parking from west side of Watkins St; Remove left-turn from southbound LTR lane.	Lane restriping @ WB, EB & SB approaches Paint curb red @ SB approach	$1.50/LF new striping $500/remove or new pavement marking $5/LF red curb	$ 7,140.00	Near-Term
Orchard Avenue	Orchard Avenue/Soto Road	-	-	-	-	Add northbound right-turn pocket with 75 ft storage & 25 ft taper length; Convert northbound through-right lane into exclusive through lane; Add southbound right-turn pocket with 95 ft storage & 50 ft taper length; Convert southbound shared through-right lane into exclusive through lane. Signal timing updates.	Lane restriping @ NB & SB approaches Paint curb red @ NB approach signal timing	$0.50/LF remove striping $1.50/LF new striping $500/remove or new pavement marking $5/LF red curb $4500/intersection	$ 14,949.00	Near-Term
Citywide		Controller/signal timing upgrades							$ 16,600,000.00	-
Foothill Boulevard	D Street to City Center Drive	Reduce one travel lane (remove striping; install striping) Mobilization Traffic Control	1961	$0.50/LF $1.50/LF $50,000 $50,000	$ 124,706.40	Reduce one travel lane (remove striping; install striping) Mobilization Traffic Control	1961	$0.50/LF $1.50/LF $50,000 $50,000	$ 124,706.40	Near-Term
Mission Boulevard	A Street to D Street	Reduce one travel lane (remove striping; install striping) Mobilization Traffic Control	1183	$0.50/LF $1.50/LF $50,000 $50,000	$ 122,839.20	Reduce one travel lane (remove striping; install striping) Mobilization Traffic Control	1183	$0.50/LF $1.50/LF $50,000 $50,000	$ 122,839.20	Near-Term
A Street	Mission Blvd to Foothill Blvd	Two-Way Conversion (remove striping; install Striping Detail 22) Mobilization Traffic Control	981	$0.50/LF $3.50/LF $50,000 $50,000	$ 124,708.80	Two-Way Conversion (remove striping; install Striping Detail 22) Mobilization Traffic Control	981	$0.50/LF $3.50/LF $50,000 $50,000	$ 124,708.80	Near-Term
B Street	Foothill Blvd to Watkins St	Two-Way Conversion (remove striping; install Striping Detail 22) Mobilization Traffic Control	1234	$0.50/LF $3.50/LF $50,000 $50,000	$ 125,923.20	Two-Way Conversion (remove striping; install Striping Detail 22) Mobilization Traffic Control	1234	$0.50/LF $3.50/LF $50,000 $50,000	$ 125,923.20	Near-Term
C Street	Mission Blvd to 2nd St	Two-Way Conversion (remove striping; install Striping Detail 22) Mobilization Traffic Control	1423	$0.50/LF $3.50/LF $50,000 $50,000	$ 126,830.40	Two-Way Conversion (remove striping; install Striping Detail 22) Mobilization Traffic Control	1423	$0.50/LF $3.50/LF $50,000 $50,000	$ 126,830.40	Near-Term
1st Street	C St to D St	Two-Way Conversion (remove striping; install Striping Detail 22) Mobilization Traffic Control	393	$0.50/LF $3.50/LF $50,000 $50,000	$ 121,886.40	Two-Way Conversion (remove striping; install Striping Detail 22) Mobilization Traffic Control	393	$0.50/LF $3.50/LF $50,000 $50,000	$ 121,886.40	Near-Term
Total					**$ 5,187,334.20**				**$ 25,094,101.60**	

Notes:

Projects proposed as part of Citywide Multimodal Study Mitigations

Projects proposed as part of 2040 General Plan, but no cost provided in GP. Hesperian Boulevard improvements were included in the Citywide Multimodal Study Existing Mitigations.

Mid-Term Projects from Summary of Near-Term and Mid-Term Improvements provided by City of Hayward

Red indicates improvements not included in cost calculation.

Orange indicates City to clarify if improvements to be included in cost. If so, City to provide cost estimate.

CHAPTER 6. NEXUS STUDY

Nexus Fee Introduction

Traffic Impact Fee/Nexus Fee

This analysis provides the technical basis for establishing the required nexus between anticipated future development in the City of Hayward and the need for certain improvements to the local transportation facilities.

Traffic Impact Fees (TIF), or Nexus fees, are one-time fees typically paid prior to the issuance of a building permit and imposed on development projects by local agencies responsible for regulating land use. The fee's purpose is to help mitigate the transportation impacts of development growth. As an applicant proposes a project, a project-specific traffic impact study may be necessary, as this document only addresses cumulative impacts of all projects, but does not address specific impacts from a proposed development. In addition to fees and projects considered in this document, other on-site, frontage, and off-site improvements directly associated with future projects may be required. A project-specific traffic impact study will assess this.

To guide the widespread imposition of public facilities fees, the State Legislature adopted the Mitigation Fee Act (the Act) with Assembly Bill 1600 in 1987 and subsequent amendments. The Act, contained in California Government Code §§66000-66025, establishes requirements on local agencies for the imposition and administration of fee programs. The specific tasks performed in preparing this analysis and their results are summarized in this Chapter.

Congestion Management Program

The CMP is mandated by State law and is maintained for the County by the Alameda County Transportation Commission (ACTC). The CMP is a comprehensive transportation improvement program with the goal to reduce traffic congestion, improve air quality, and inform land use decisions. The ACTC has established a list of major intersections monitored for congestion with Level of Service (LOS) standards set by the CMP statute.

The Citywide Multimodal Improvement Plan (MIP), also referred to as the Deficiency Plan per state's Congestion Management Program (CMP) legislation, is a plan that identifies offsetting measures to improve transportation conditions on the CMP transportation network in lieu of making physical traffic capacity expansions such as widening an intersection or roadway. The CMP legislation requires local jurisdictions to prepare MIPs for CMP system facilities located within their jurisdictions that exceed the established ACTC traffic LOS standard, LOS E. The legislation allows the MIPs to trade off a traffic LOS violation on one particular CMP System facility for transportation system improvements to other facilities or services and contribute to an improvement in air quality. MIPs can be a way for local jurisdictions to pursue multimodal improvements (such as bicycle, pedestrian, transit, or Transportation Demand Management (TDM) measures) or off-setting auto capacity improvements when it is infeasible or undesirable to make physical traffic capacity improvements at an impacted location. If adopted, the Nexus fee described in this report would provide funding toward MIP projects through funds paid by developers.

Traffic Impact/Nexus Fee Development Process

The development of the MIP Nexus fee program involved the major tasks described below.

1. **List of Projects** The MIP includes the list of projects for the TIF program. All projects identified for inclusion in the fee program were presented in Chapter 5 of this report.
2. **Project Costs** The projects had low-cost and high-cost alternatives and were categorized into short-term, near-term and long-term improvements as part of the Action Plan. The project costs were identified in Chapter 5 of this report. The existing cost for vehicular improvements was adjusted to account for existing deficiencies, which are not eligible for TIF funding. Only 20 percent of existing cost for vehicular improvements was added to total vehicular improvement cost.
3. **Trip Generation** An estimate was prepared of the A.M. and P.M. peak hour trip generation that will result from development of the expected future land uses within the City of Hayward.
4. **Cost per Trip** A cost per trip was calculated along with the corresponding schedule of fees. The schedule of fees includes fee categories for residential units, hotel, office, school, service/retail and other standard land uses.

Existing and Future Peak Hour Trips

A key step in the fee development process is to determine the number of trips that will be generated by growth within the City during the life of the fee. TJKM used General Plan travel demand model to extract the all trips that have origin and/or destination within the City of Hayward. **Table 21** below summarizes the trips growth within the City by A.M. peak hour and P.M. peak hour

Table 21: Determination of TIF Trips

Scenarios	2005 (trips)	2040 (trips)	Trip Growth from 2020 to 2040
A.M. Peak Hour	45,564	63,929	10,495
P.M. Peak Hour	52,017	73,934	12,524

Source: TJKM 2021

It is noted that the planned growth during this period are 10,495 during A.M. peak hour and 12,524 during P.M. peak hour trips. This number should be adjusted each time the MIP TIF is updated to reflect the latest cost of projects and most recent land use projections.

Improvement Projects and Cost Estimate

In the previous section, all improvement projects were identified for inclusion in the Nexus fee program. These projects, their costs, and the proportion of the costs to be shared by others, are presented in Chapter 5. Transit improvement costs will be funded by the AC Transit; therefore, transit improvement cost are not included in the Nexus cost. No other sources of funding are available for all improvement projects identified in Chapter 5. **Table 22** presents proposed TIF projects and costs.

Table 22: Proposed TIF Projects and Costs

#	Project	Low Cost	High Cost
1	Bicycle Improvement Projects	$7,300,000	$18,400,000
2	Pedestrian Improvement Projects	$108,300,000	$124,000,000
3	Vehicular Improvement Project	$26,140,000	$26,140,000
Total		$141,740,000	$168,540,000

The costs of these projects have been calculated in dollars. The proposed Hayward TIF ordinance will make provisions for annual adjustments to the fee based on published construction cost indices. In this way, any escalation in construction costs will be covered by commensurate fee adjustments.

Program Costs and Fee Calculation

Table 23 presents a summary of the TIF improvement project costs, the projected future trips to be added by new development, and the resulting estimated TIF improvement cost per trip. The total costs of the TIF projects to be included are $141,740,000 (low cost) and $168,540,000 (high cost). State law allows the City to include costs associated with administering the Fee program in the Fee. These administrative tasks include required reporting and enforcement, and are conservatively estimated at 1% of the total project costs.

The fee calculation is based on trip generation estimates in **Table 21** and the cost estimates of the TIF improvement projects. The TIF improvement project costs as well as the calculated new TIF cost per trip are shown in **Table 23**.

Table 23: Cost per Trip Estimate

	A.M. Peak Hour		P.M. Peak Hour	
	Low Cost	High Cost	Low Cost	High Cost
All Projects	$141,740,000	$168,540,000	$141,740,000	$168,540,000
Plus Administrative Costs (1%)	$1, 417,400	$1,685,400	$1, 417,400	$1,685,400
Total TIF Funding	$143,157,400	$170,225,400	$143,157,400	$170,225,400
Total Peak Hour Trips Added by New Development	10,495	10,495	12,524	12,524
TIF Cost Per Trip	**$13,641**	**$16,220**	**$11,431**	**$13,592**

Table 24 and **Table 25** present the new schedule of fees. The land use categories in this fee schedule have been determined based on a range of expected development land use types. The fees are calculated by multiplying the ITE trip rates contained in *Trip Generation, 10th Edition* for the A.M. and P.M. peak period by the cost per trip.

The resulting fee rate, shown in the last columns of **Table 24** and **Table 25** are the rate per dwelling unit for residential development, per employee for lodging development, or per thousand square feet (KSF) for non-residential development. Trip rate factor for retail land use

was adjusted (reduce 60%) to account for the pass-by-trips. Trip rate factor for gas station was adjusted (reduced 70%) to account for the pass-by-trips.

Table 24: Calculations of Fees based on A.M. trips (Per KSF[1] unless noted)

Land Use Category	A.M. Trip Rate[2]	Cost Per A.M. Trip		Fee Rate	
		Low Cost	High Cost	Low Cost	High Cost
Retail [3] /KSF	1.2	$13,641	$16,220	$16,369	$19,464
Office/KSF	1.47	$13,641	$16,220	$20,052	$23,844
School/KSF	5.68	$13,641	$16,220	$77,482	$92,132
Place of worship/KSF	0.65	$13,641	$16,220	$8,867	$10,543
Car dealership/KSF	3.18	$13,641	$16,220	$43,379	$51,581
Auto Service/KSF	2.83	$13,641	$16,220	$38,604	$45,904
Gas Station [4]/KSF	27.07	$13,641	$16,220	$369,252	$439,070
Fast food with drive-through/KSF	50.97	$13,641	$16,220	$695,289	$826,754
Fast food without drive-through/KSF	47.66	$13,641	$16,220	$650,137	$773,064
Sit-down restaurant/KSF	14.04	$13,641	$16,220	$191,522	$227,734
Hotel/Room	0.54	$13,641	$16,220	$7,366	$8,759
Warehouse /KSF	0.22	$13,641	$16,220	$3,001	$3,568
Distribution Hub/E-Commerce /KSF	0.88	$13,641	$16,220	$12,004	$14,274
Manufacturing/KSF	0.81	$13,641	$16,220	$11,049	$13,139
Industrial Park/KSF	0.41	$13,641	$16,220	$5,593	$6,650
Other/KSF	1	$13,641	$16,220	$13,641	$16,220
Single Family/Unit	0.76	$13,641	$16,220	$10,367	$12,328
Multi-Family/Unit	0.56	$13,641	$16,220	$7,639	$9,083

Notes:
[1]KSF = Thousand square feet
[2]A.M. peak hour trip rate, based on ITE's Trip Generation, 10th Edition
[3]ITE Retail Trip Rate Adjustment Based on 60% pass-by trip
[4]ITE Retail Trip Rate Adjustment Based on 70% pass-by trip

Table 25: Calculations of Fees based on P.M. trips (Per KSF[1] unless noted)

Land Use Category	P.M. Trip Rate[2]	Cost Per P.M. Trip		Fee Rate	
		Low Cost	High Cost	Low Cost	High Cost
Retail [3] /KSF	1.68	$11,431	$13,592	$19,203	$22,834
Office/KSF	1.42	$11,431	$13,592	$16,232	$19,301
School/KSF	2.88	$11,431	$13,592	$32,920	$39,145
Place of worship/KSF	0.8	$11,431	$13,592	$9,145	$10,874
Car dealership/KSF	3.79	$11,431	$13,592	$43,265	$51,445
Auto Service/KSF	3.51	$11,431	$13,592	$40,122	$47,708
Gas Station [4]/KSF	35.8	$11,431	$13,592	$409,652	$487,108
Fast food with drive-through/KSF	51.36	$11,431	$13,592	$587,078	$698,082
Fast food without drive-through/KSF	48.7	$11,431	$13,592	$556,673	$661,928
Sit-down restaurant/KSF	17.41	$11,431	$13,592	$199,008	$236,636
Hotel/Room	0.61	$11,431	$13,592	$6,973	$8,291
Warehouse/KSF	0.24	$11,431	$13,592	$2,743	$3,262
Distribution Hub/E-Commerce /KSF	0.71	$11,431	$13,592	$8,116	$9,650
Manufacturing/KSF	0.79	$11,431	$13,592	$9,030	$10,738
Industrial Park/KSF	0.4	$11,431	$13,592	$4,572	$5,437
Other/KSF	1	$11,431	$13,592	$11,431	$13,592
Single Family/Unit	1	$11,431	$13,592	$11,431	$13,592
Multi-Family/Unit	0.67	$11,431	$13,592	$7,659	$9,107

Notes:
[1]KSF = Thousand square feet
[2]P.M. peak hour trip rate, based on ITE's Trip Generation, 10th Edition
[3]ITE Retail Trip Rate Adjustment Based on 60% pass-by trip
[4]ITE Retail Trip Rate Adjustment Based on 70% pass-by trip

Other Factors in TIF

Establishment of Final TIF - The City may decide not to levy the maximum fee that has been established as a part of this study as it may reduce development feasibility, make the City less competitive with its peers, or other purposes. The Final TIF will be established through resolution amending the Master Fee Schedule.

Intensification or Change in Land Use - When a land use is intensified, such as replacing a group of single family homes with multi-family homes, the fee to be charged is the difference in calculated fees for the two land uses. The same principle is applied with changes in land use, such as demolishing an industrial building to build a residential development.

Other Land Uses - The City may decide to use the $13,641 (low cost) and $16,220 (high cost) per A.M. peak hour trip rate and to use the $11,431 (low cost) and $13,592 (high cost) per P.M. peak hour trip rate to apply to other specific land uses not covered by **Table 24** and **Table 25**. The latest edition of ITE's *Trip Generation* should be used as a source for A.M. and P.M. peak hour trip rates.

Nexus Findings

TIF's are one-time fees typically paid prior to the issuance of a building permit and imposed on development projects by local agencies responsible for regulating land use (cities and counties) to mitigate the transportation impacts of the development. To guide the widespread imposition of public facilities fees, the State Legislature adopted the Act with Assembly Bill 1600 in 1987 and subsequent amendments. The Act, contained in California Government Code §§66000-66025, establishes requirements on local agencies for the imposition and administration of fee programs. The Act requires local agencies to document five findings when adopting a fee.

The five statutory findings required for adoption of the maximum justified fee documented in this report are presented in this chapter and supported in detail by this report. All statutory references are to the Act.

1. Purpose of the Fee

For the first finding, the City must:

Identify the purpose of the fee. (§66001(a)(1))

The purpose of this fee is to implement the actions of the Citywide MIP, which is mandated under ACTC's Congestion Management Program when regional intersections fall below LOS E. The imposition of impact fees is one of the preferred methods of ensuring that development bears a proportionate share of the cost of capital facilities necessary to accommodate new development. This fee will charge new development the fair share cost of transportation improvements needed to mitigate the transportation impacts created by that development.

2. Use of Fee Revenues

For the second finding, the City must:

Identify the use to which the fee is to be put. (§66001(a)(2))

If the use is financing public facilities, the facilities shall be identified. That identification may, but need not, be made by reference to a capital improvement plan as specified in Section 65403 or 66002, may be made in applicable general or specific plan requirements, or may be made in other public documents that identify the public facilities for which the fee is charged.

3. Benefit Relationship

For the third finding, the City must:

Determine how there is a reasonable relationship between the fee's use and the type of development project on which the fee is imposed. (§66001(a)(3))

The City has determined that the improvements listed in the report are necessary to address deficiencies related to traffic congestion and CMP compliance, as identified in the MIP and the City's environmental documents, due to future development under the 2040 General Plan. Public facilities funded by the fee will provide a network of transportation infrastructure accessible to the additional residents and workers associated with new development, resulting in mobility and accessibility benefits to the new development. Thus, there is a reasonable relationship between the use of fee revenues and the new residential and nonresidential development that will pay the fee.

4. Burden Relationship

For the fourth finding, the City must:

Determine how there is a reasonable relationship between the need for the public facility and the type of development project on which the fee is imposed. (§66001(a)(4))

The number of residential dwelling units and building square footage are indicators of the demand for transportation facilities needed to accommodate growth. As new building square footage is created, the occupants of the new structures will place additional burdens on the transportation facilities. The need for the fee is based on traffic engineering studies assessing the impact of additional vehicle trips from new development as well as City policies governing the design of a transportation system needed to serve new growth areas. Traffic engineering and related data were also used to inform the scope of improvements included in the fee program. For transportation improvements needed to accommodate the development anticipated in the near term, the cost burden is fully allocated based on development anticipated in the near term. For transportation improvements that are not immediately needed to accommodate near term development, but that will be needed to accommodate development in the longer term, the cost burden is allocated based on projections of new development. Thus, there is a reasonable relationship between the need for the planned improvements, the scope of the improvements, and the parcels that will pay the fee.

5. Proportionality

For the fifth finding, the City must:

Determine how there is a reasonable relationship between the amount of the fee and the cost of the public facility or portion of the public facility attributable to the development on which the fee is imposed. (§66001(b))

There is a reasonable relationship between the TIF for a specific development project and the cost of the facilities attributable to that development based on the estimated vehicle trip demand the development will generate in the MIP. The total fee for a specific development is based on its planned square footage for nonresidential uses, the number of rooms for lodging uses, and the number of dwelling units for residential uses. Larger projects of a certain land use type will have a higher trip generation and pay a higher fee than smaller projects of the same land use type. Thus, the fee schedule ensures a reasonable relationship between the TIF for a specific development project and the cost of the facilities attributable to that project.

6. Impact Fees in Other Cities

Transportation Impact Fees (TIF) of numerous nearby cities were shown in **Table 26** in order provide context for considering Hayward citywide TIF.

Table 26: TIF from Nearby Cities

City	Single Family/d.u.	Multi-Family/d.u.	Office/KSF	Retail/KSF	Industrial/KSF	Cost/Trip
Sunnyvale s/o 237	$3,336	$2,068	$4,971	$6,187	$3,236	$3,322
Sunnyvale n/o 237	--	--	--	$5,710	$3,602	$6,106
Los Altos	$6,152	$3,777	$9,076	$11,269	-	$6,091
San Jose	$10,326	$8,262	--	$21,090	$15,410	$16,444
Los Gatos	--	--	--	--	--	$9,020
Palo Alto (all trips)	$7,886	--	--	--	--	$7,886
Palo Alto (SR Park-non res.)	x	x	--	--	--	$11,640
Palo Alto (San Antonio-non res.)	x	x	--	--	--	$2,400
Menlo Park	$15,155	$5,108	$17,600	$10,260	$7,500	--
San Mateo	$4,100	$2,517	$3,763	$7,043	$2,452	$4,507
East Palo Alto	$11,967	$13,698	$22,680	--	$16,710	$2,059
San Carlos	$3,052	$1,892	$4,547	$11,323	$2,298	--
Milpitas	--	--	--	--	--	$1,024
Milpitas (Transit Area Fee)	--	$32,781	$36,600	$22,800	--	--
Fremont	--	$3,877	$5,663	$7,754	$4,105	--
Newark	$5,113	$3,170	$4,530	$4,530	$2,480	--
Morgan Hill	$3,373	$2,090	$3,373	$3,373	$3,373	--
Gilroy	$12,265	$9,943	--	$20,492	$5,378	--
Cupertino	$10,573	$6,556	$29,780	$17,010	--	$10,675

CHAPTER 7. CONCULSION

Existing Conditions Analysis

Under Existing Conditions, the traffic operation and traffic safety within the study area are summarized below:

- 1 percent of the collisions are fatal collisions.
- 52 percent of the collisions are injury collisions.
- Broadside & rear-end are the main types of traffic collisions at the study intersections.
- 26 out of 70 signalized intersections operate at LOS E or F.
- 21 out of 30 unsignalized intersections operate at LOS E or F.
- Two out of 15 study segments operate at unacceptable conditions during at least one peak period. Both failing segments are CMP roadways.
- Seven out of 21 failing, unsignalized intersections meet the peak hour signal warrant for one or both peaks.
- 33 out of 47 failing intersections improve from unacceptable to acceptable operations during one or both peak hours when mitigations are applied.

Developing Traffic Forecast and Future Conditions Analysis

The Future (2040) Conditions traffic flows were projected with a growth rate developed from the City of Hayward CUBE Model. Under Future Conditions, the traffic operation and traffic safety within the study area are summarized below:

- 24 out of 70 signalized intersections operate at LOS F during the a.m. peak.
- 27 out of 70 signalized intersections operate at LOS F during the p.m. peak.
- 23 out of 30 unsignalized intersections operate at LOS E or F during the a.m. peak.
- 21 out of 30 unsignalized intersections operate at LOS E or F during the p.m. peak.

Multimodal Improvement Projects and Action Plan

TJKM proposed multimodal improvement projects in the City of Hayward for bicycle, pedestrian and vehicular facilities based on the Intersection and roadway level of service analyses completed as part of this study, and recommendations made in previous plans adopted by the City. The improvement costs were developed with project and unit costs provided in the Bicycle and Pedestrian Master Plan and by the City. The action plan was developed based on information provided in the Bicycle and Pedestrian Master Plan and by the City of Hayward.

Nexus Study

The TIF improvement costs per trip were developed based on the projected future trips to be added by new developments and the multimodal improvement project costs calculated as part of this study. The total costs of the TIF projects are $141,740,000 (low cost) and $168,540,000 (high cost). The TIF cost per trip are as follows:

- Low Cost A.M. Peak - $13,641
- Low Cost P.M. Peak - $11,431
- High Cost A.M. Peak - $16,220
- High Cost P.M. Peak - $13,592