RESOLUTION NO. 24-9375

A RESOLUTION OF THE CITY OF SANTA CLARA, CALIFORNIA ACCEPTING THE CITY OF SANTA CLARA WALSH AVENUE / MARTIN AVENUE BIKEWAY PLANNING STUDY AND APPROVING ROADWAY CONCEPTS

WHEREAS, in 2021, the City received a Santa Clara Valley Transportation Authority (VTA) Measure B grant totaling $175,000 to prepare the Walsh Avenue/Martin Avenue Bikeway Planning Study ("Study");

WHEREAS, in December 2022, the City Council approved retaining TJKM Transportation Consultants to assist with development of the Study;

WHEREAS, the development of the Study was a collaborative effort involving the public, various stakeholders, the Santa Clara Bicycle and Pedestrian Advisory Committee, the Santa Clara Senior Advisory Commission, the Santa Clara Parks and Recreation Commission, and the Santa Clara Youth Commission;

WHEREAS, the Study identifies concepts for infrastructure improvements designed to encourage bicycling and walking as a safe and healthy alternative to the motor vehicle;

WHEREAS, the City conducted significant community outreach to understand the issues and obtain feedback on concept alternatives, and this outreach consisted of five community meetings, six pop-up events, one City Council study session, City Council briefings, three online surveys, social media, street signs posted along the corridor, mailed notices, a project website, a project email address, a project phone number, and City website;

WHEREAS, the Study is consistent with the goals and policies of the City of Santa Clara Complete Streets Policy, Bicycle Plan Update 2018, and the mobility and transportation element of the 2010-2035 General Plan;

WHEREAS, at its June 17, 2024 meeting, the Santa Clara Bicycle and Pedestrian Advisory Committee recommended City Council approve the Study; and

//

WHEREAS, the acceptance of the Plan is exempt from California Environmental Quality Act (CEQA) review pursuant to Section 15262 of the California Public Resources Code.

NOW THEREFORE, BE IT RESOLVED BY THE CITY OF SANTA CLARA AS FOLLOWS:

1. The City of Santa Clara hereby accepts the Walsh Avenue/Martin Avenue Bikeway Planning Study as attached and referenced herein.

2. The City of Santa Clara hereby approves the roadway concept titled, “Four Lanes, Protected/Buffered Bikeway, Center Turn Lane, No Parking” as the preferred alternative for the 80-foot-wide section of Walsh Avenue.

3. The City of Santa Clara hereby approves the roadway concept titled, “Four Lanes, Protected/Buffered Bikeway, No Parking” as the preferred alternative for the 64-foot-wide section of Walsh Avenue.

4. The City of Santa Clara hereby approves the roadway concept titled, “Four Lanes, Protected/Buffered Bikeway, No Parking” as the preferred alternative for Martin Avenue.

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5. Direct City staff to implement the City Council's preferred roadway designs.

6. Effective date. This resolution shall become effective immediately.

I HEREBY CERTIFY THE FOREGOING TO BE A TRUE COPY OF A RESOLUTION PASSED AND ADOPTED BY THE CITY OF SANTA CLARA, CALIFORNIA, AT A REGULAR MEETING THEREOF HELD ON THE 22ND DAY OF OCTOBER, 2024, BY THE FOLLOWING VOTE:

AYES:	COUNCILORS:	Becker, Chahal, Hardy, Jain, Park, and Watanabe and Mayor Gillmor
NOES:	COUNCILORS:	None
ABSENT:	COUNCILORS:	None
ABSTAINED:	COUNCILORS:	None

ATTEST: _____
NORA PIMENTEL, MMC
ASSISTANT CITY CLERK
CITY OF SANTA CLARA

Attachments incorporated by reference:
1. Walsh-Martin Avenue Bikeway Planning Study

City of Santa Clara

Walsh/Martin Avenue Bikeway Planning Study

DRAFT FINAL | MAY 2024

Prepared by

TJKM Transportation Consultants

2016 MEASURE B VTA

City of Santa Clara
The Center of What's Possible

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County of Santa Clara

Santa Clara Valley Water District

Consultant Team

TJKM Transportation Consultants

Funding Provided by 2016 Measure B

This study would not have been possible without the generous funding provided by 2016 Measure B Grant Program.

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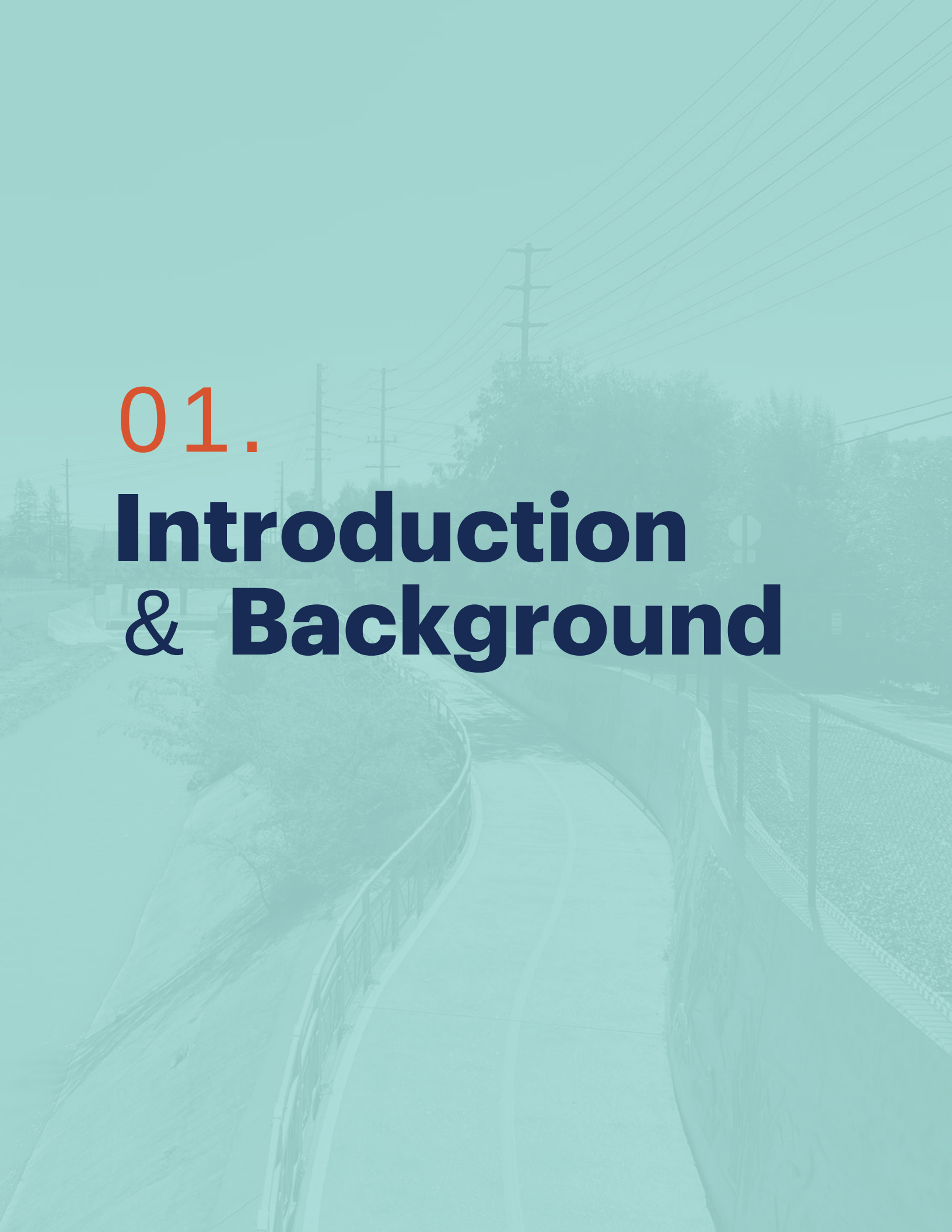
Executive Summary

TO BE ADDED AFTER THE CITY COUNCIL'S APPROVAL OF PREFERRED DESIGN CONCEPTS FOR THIS PROJECT



01. Introduction & Background

01. Introduction & Background

01. Introduction & Background

Study Overview

The City of Santa Clara received a 2016 Measure B Bicycle & Pedestrian Planning Studies grant from the Santa Clara Valley Transportation Authority (VTA) to conduct the Walsh Avenue/Martin Avenue Bikeway Study (Study). This study focuses on a 1.7-mile segment of Walsh Avenue between Bowers Avenue and Lafayette Street, and a half-mile stretch of Martin Avenue between Lafayette Street and De La Cruz Boulevard, as depicted in **Figure 1**. The 2016 Measure B grant aims to close gaps in the existing bicycle network, improve connectivity, and enhance bicycle safety and convenience.

The Study began in January 2023 and was completed in the fall of 2024. Its primary goal was to identify and evaluate design options to install Class IV bikeways on both the Walsh and Martin Avenue corridors, which may include options for parking removal and/or lane reductions. At a minimum, Class II buffered bike lanes are considered for these two corridors. The Class IV bikeways, often referred to as "separated bikeways" or "protected bikeways" are dedicated on-street facilities designed exclusively for bicyclists, with a physical separation that separates the bikeway from the travel lanes. Class IV bikeways provide protection and comfort for people on bikes and do the most to encourage a broad range of users.

This final report of the Walsh Avenue/Martin Avenue Bikeway Study summarizes the design concepts, technical analyses, recommendations, and next steps of the bikeway study. The project team completed the study through extensive outreach with nearby businesses, residents, and stakeholders, including three online community meetings, four pop-up events, and three rounds of online surveys. Communities' priorities for the corridor were established through interactive polling at public workshops and multiple online surveys. The City collected community feedback through in-person pop-up events, interactive activities, and outreach strategies. These priorities helped guide the development and evaluation of potential roadway concepts and acted as a lens to evaluate the design concepts.

The Study evaluated six years (January 2017 – December 2022) of collision data along the Walsh Avenue and Martin Avenue corridors to identify high-collision intersections and block faces, to incorporate potential safety enhancements into the concept design.

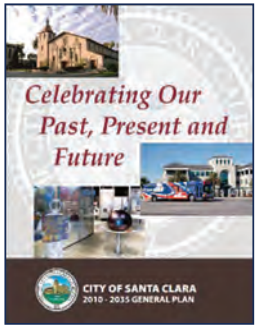
The Study also evaluated existing parking inventory and occupancy along the study corridors and within 500 feet (ft.) of the surrounding streets (Bowers Avenue, San Tomas Expressway, Scott Boulevard, Lafayette Street, and De La Cruz Boulevard). Each design concept as well as the existing roadway configurations were evaluated for their impact on traffic operations through a detailed corridor transportation analysis of 23 intersections along Walsh Avenue and Martin Avenue and parallel roads surrounding the study corridors.

In addition to traffic impacts, the project evaluated impacts on corridor congestion, corridor travel times and Vehicle Miles Traveled (VMT). Results from the data-driven analysis are summarized in this Study with full memorandum, included as Appendices.

It is crucial to note that this is a planning-level document. The City Council will consider design options and decide the best path forward given the collected community input and analysis findings.

Figure 1: Study Area - Walsh Avenue and Martin Avenue Study Corridors

Origins of the Study



City of Santa Clara 2010-2035 General Plan

General Plan (2010 – 2035)

The City of Santa Clara General Plan aims to provide a comprehensive, integrated bicycle and pedestrian network that is accessible to all community members. The plan also identifies the study corridors as potential bike corridors and would help close the gap in the bicycle network.

City of Santa Clara Bicycle Plan Update 2018

City of Santa Clara Bicycle Plan Update 2018

Both the City of Santa Clara and the VTA have adopted plans that highlight the need for bicycle facilities on Walsh Avenue and Martin Avenue. Adopted plans recommend Class IV bicycle lanes on Walsh Avenue and Martin Avenue. The Walsh Avenue and Martin Avenue corridors are identified in the City's 2010-2035 General Plan as a recommended location for potential bicycle corridors.

Following the bike improvement along the two study corridors will aid in closing this gap in the bicycle network and were identified as a high-priority recommendations in the City of Santa Clara's Bicycle Master Plan and a priority "Cross County Bicycle Corridor" in the Santa Clara Valley Transportation Authority (VTA) Countywide Bicycle Plan. The Bicycle Plan Update 2018 recommended Class IV Bicycle lanes as the facility on Walsh Avenue and Martin Avenue.

Class IV separated bikeways are supportive of the City's Complete Streets policy and resolution (No. 18-8593).

City of Santa Clara Bicycle Plan Update 2018 (cont.)

This plan also supports the City's Climate Action Plan by identifying strategies to improve bicycle and pedestrian connectivity and reduce their level of traffic stress to encourage mode shifts from vehicles towards more sustainable modes such as bicycling and walking in Bicycle Plan Update 2018.

The Bicycle Plan Update identifies and recommends a Class IV bicycle facility while also proposing spot improvements at the intersection of Walsh Avenue and San Tomas Expressway. This recommendation is intended to help close the gaps in the existing bicycle infrastructure in the central Santa Clara region of the City.

Santa Clara Countywide Bicycle Plan Update 2018

VTA Countywide Bicycle Plan (2018)

Walsh Avenue and Martin Avenue corridors are identified as high priority "Cross County Bicycle Corridor" in the Santa Clara Valley Transportation Authority (VTA) Countywide Bicycle Plan.

City of Santa Clara Climate Action Plan

City Climate Action Plan (2022)

This plan also aligns with the City's Climate Action Plan by outlining strategies to enhance bicycle and pedestrian connectivity and lower the level of traffic-related stress. These measures are designed to promote a shift away from vehicular transportation in favor of more sustainable modes, like bicycling and walking.

Project Relevance

The Study works toward implementation of the City's adopted plans and policies in the following ways:

- **2016 Measure B Bicycle & Pedestrian Planning Grant:** The City secured a 2016 Measure B Bicycle & Pedestrian Planning Grant, which is dedicated to the improvement and development of bicycle and pedestrian infrastructure. This funding has enabled the study and potential enhancement of these corridors.
- **High Priority Corridor in City's Bicycle Plan Update 2018 and Countywide Bicycle Plan:** These corridors have been identified as high-priority routes in the City's Bicycle Plan Update 2018 and Countywide Bicycle Plan. This designation underscores their significance in promoting cycling as a viable mode of transportation within the region.
- **Implementation of the City's Complete Streets Policy (18-8593):** The study aligns with the City's Complete Streets Policy (Policy 18-8593). Complete Streets policies aim to design and operate streets for the safety and convenience of all users, including pedestrians, cyclists, and motorists.
- **Supporting the Goals of the City's Climate Action Plan:** The study of Walsh Avenue and Martin Avenue is in line with the objectives of the City's Climate Action Plan. Promoting cycling and creating safer and more accessible bicycle infrastructure contributes to reducing greenhouse gas emissions and mitigating the effects of climate change.
- **Enhancing Safety and Comfort for All:** One of the primary goals of this study is to enhance safety and comfort for all road users. Improving the infrastructure along these corridors can reduce accidents and create a more pleasant environment for bike users.
- **Integrating with Other Existing and Planned Bicycle Facilities:** Connect to San Tomas Aquino creek trail, existing bicycle lanes on Scott Boulevard and on Monroe Street, and future Class IV bikeways on Lafayette Street, De La Cruz Boulevard/Coleman Avenue.

Timeline

The project, initiated in January 2023, spans 20 months across three phases. Each phase includes a community workshop, an online survey and various pop-up events:

- Phase 1 focused on project introduction, comprehensive data collection, gathering initial public input on the project vision, and subsequent analysis.
- Phase 2, the project team presented the community and stakeholders with preliminary analyses and draft design concepts for review. This phase incorporated community input from Phase 1, along with collision analysis, a parking occupancy study, and design alternatives.
- Phase 3 delved into an in-depth analysis of the corridor, including collision reduction estimates, parking removal scenarios, and an extensive traffic analysis. The project team evaluated the impacts of existing and proposed design concepts including traffic operations, travel time, parking occupancy, safety improvements, and Vehicles Miles Travelled (VMT).

Community engagement is integral to the entire study featuring four rounds of Bicycle and Pedestrian Advisory Committee (BPAC) meetings and three rounds of community meetings. Various pop-up events were strategically organized to introduce and engage the community and stakeholders further.

The inputs received from these engagements were carefully incorporated into the design, which was then made available for BPAC and community input before being formally presented to the City Council in the fall of 2024.

A graphic of the project timeline is shown in **Figure 2.**

Figure 2: Walsh Avenue and Martin Avenue Bikeway Study Schedule

02.

Existing Conditions

02. Existing Conditions

Roadway Characteristics

The study evaluated a 1.7-mile section of Walsh Avenue between Bowers Avenue and Lafayette Street and a half-mile stretch of Martin Avenue between Lafayette Street and De La Cruz Boulevard.

- Walsh Avenue is an east-west minor arterial running parallel to Central Expressway with a posted speed limit of 35 miles per hour (mph). The study corridor is mostly a four lane, two-way road. The section of Walsh Avenue between Bowers Avenue and San Tomas Expressway has a center turn lane. The adjacent land use is predominantly office buildings, industrial parks, and surface parking lots. The corridor has Class II bicycle lanes or Class III bicycle sharrows on both sides between Bowers Avenue and San Tomas Expressway. There are four transit stops for VTA's Altamont Corridor Express (ACE) Yellow Shuttle Service along the north side of the street.
- Martin Avenue is an east-west collector in central Santa Clara with a posted speed limit of 35 mph. It is a four-lane, two-way road. This segment includes an at-grade rail crossing facility operated by Union Pacific Railroad Company (UP). The adjacent land use is predominantly industrial.

Neighboring Segments

The study area along Walsh Avenue extends from Bowers Avenue to Lafayette Street, while the sections under consideration for the Martin Avenue study stretch from Lafayette Street to De La Cruz Boulevard. Adjacent streets in this area include Bowers Avenue, San Tomas Expressway, Scott Boulevard, Lafayette Street, and De La Cruz Boulevard. Bowers Avenue functions as a crucial north-south major arterial road. Presently, it features a Class II Bicycle Lane, but the 2018 City of Santa Clara Bicycle Update recommends upgrading it to a Class IV Separated Bikeway Facility for improved cyclist safety and convenience. San Tomas Expressway serves as a north-south expressway with a speed limit of 45 mph. In line with the VTA Countywide Bicycle Plan, there is a recommendation to establish protected intersections at the intersection of San Tomas Expressway and Walsh Avenue. Currently, Scott Boulevard operates as a Class II bicycle lane, but as per the Santa Clara Bicycle Plan Update in 2018, it is proposed to be transformed into a Class I Shared-Use Path.

Lafayette Street, also a north-south arterial, is currently in the planning stages for the installation of projected bicycle lanes between Laurelwood Road and Reed Street, an initiative undertaken by the City of Santa Clara. This project is designed to create a seamless connection between the existing bicycle facilities along Walsh Avenue and Martin Avenue Additionally, the City is studying the De La Cruz Boulevard Bicycle Planning Study, another major north-south arterial. At present, it has a Class III Bicycle Route. The objective of this study is to identify and implement improvements that will address gaps in the bicycle network, enhance overall mobility, and encourage the public to opt for more sustainable modes of transportation.

Study Area Observations

The project team conducted multiple field visits, thoroughly assessing the study area in terms of safety, access, and overall usability. Participants from the City of Santa Clara Bicycle and Pedestrian Advisory Committee (BPAC), City of Santa Clara staff, and the project consultants conducted a site visit on March 24, 2023.

During this visit, the team studied the Walsh and Martin Avenue corridors, carefully observing field conditions such as sight distances, conflict zones, existing facilities, and specific pinch points. These observations were pivotal in tackling potential challenges and directing concentrated efforts during the analysis and design phase. The consulting team conducted field visits for both weekday and weekend periods, covering morning, midday, and afternoon sessions on April 4th, 5th, 6th, and 8th, 2023.

Walsh Avenue

Walsh Avenue, spanning from Bowers Avenue to Lafayette Street, features a four-lane roadway with parking on both sides between Martin Avenue and Lafayette Street. No parking is allowed on Walsh Avenue between Bowers Avenue and Martin Avenue. There is one-hour on-street parking restriction on the south side of Walsh Avenue between Martin Avenue and Scott Boulevard. During the site visit, it was observed that some trucks parked along the corridor, despite a no-stopping or parking restriction for vehicles over 20 feet in length throughout the entire corridor.

Moreover, the sidewalks along this section of Walsh Avenue are discontinuous, so the project team observed only small amount of pedestrians travelling along the corridor. The traffic volume on this corridor is relatively low, making it susceptible to speeding, and there are numerous office driveways opening onto the corridor.

During the site visit, the project team noted traffic activity on both weekdays (AM., Midday, and PM) and weekends. Of the seven intersections, five are signalized, while the other two, including the Northwestern Parkway intersection and Martin Avenue intersection, are side street stop-controlled. On weekdays, traffic is generally light at most intersections in both eastbound and westbound directions, except for queuing observed on the eastbound left turn of Kifer Road and northbound through lane of Bowers Avenue.

The Walsh Avenue and San Tomas Expressway intersection experience high traffic volumes on San Tomas Expressway in both directions and westbound movement of Walsh Avenue, with light traffic on the eastbound movement but during weekday PM periods the eastbound left turn queue spilled over the left turn pocket on Walsh Avenue. Light pedestrian and bicycle activity was noted at the intersection of San Tomas Expressway and Walsh Avenue.

Queuing observed at the intersection of San Tomas Expressway and Walsh Avenue

Light pedestrian activity noted at the intersection of San Tomas Expressway and Walsh Avenue

Martin Avenue

Moving on to Martin Avenue, which extends from Lafayette Street to De La Cruz Boulevard, it is a four-lane roadway with parking on both sides. There is a four-hour on-street parking restriction on the south side of Martin Avenue and a six-hour restriction on the north side. Similar to Walsh Avenue, trucks were observed parked along the corridor despite the no stopping or parking restriction for vehicles over 20 feet in length.

The sidewalks along Martin Avenue are also discontinuous, resulting in minimal pedestrian and bicyclist movement. The traffic volume on this corridor is relatively low, making it susceptible to speeding, and there are several driveways from offices opening onto the corridor. the project team observed traffic activity on Martin Avenue during weekdays (AM, Midday, and PM) and weekends.

All three intersections on Martin Avenue are signalized. Traffic is mostly light at two of the three intersections, but the Martin Avenue and De La Cruz Boulevard intersection experiences heavy traffic on De La Cruz Boulevard in both directions and eastbound direction, but the queue spills back on the eastbound left turn movement of Martin Avenue.

Light pedestrian and bicycle activity was observed at the intersection of Martin Avenue and Scott Boulevard.

Barriers along Martin Avenue inhibit pedestrian access

Parking restrictions along the Martin Avenue corridor

Bicycle activity observed at the intersection of Martin Avenue and Scott Boulevard pedestrian access

Pedestrian activity observed at the intersection of Martin Avenue and Scott Boulevard pedestrian access

Traffic

The project conducted detailed traffic modeling throughout the project area, including at 23 intersections shown in **Figure 3** and **Table 1**. This effort evaluated the overall Level of Service (LOS) of each intersection using baseline traffic volumes and compared this to the LOS policy criteria from the City for each intersection. The study evaluated current traffic operations with the existing configuration and all concept designs assuming pre-COVID traffic levels. 2023 counts were compared with historical traffic data (pre-COVID) in the study area.

The project developed an adjustment factor by comparing pre-COVID data and traffic data collected during hybrid or remote working opportunities. This factor was applied to 2023 data, where there was no historical data to develop a representation of baseline traffic volumes for analysis purposes. The comparison showed that 2023 traffic counts needed to be increased by 35% for the AM peak period (7:00 to 9:00 a.m.) and by 26% for the PM peak period (4:00 to 6:00 p.m.)

Figure 3: Study Intersections

Table 1: Study Cross Streets and Intersections

Cross-Streets (North-South)	Corridor (East-West)				
	Walsh Avenue	**Martin Avenue**	**Central Expressway**	**Reed Street**	**Monroe Street**
	1. Bowers Avenue	2. Scott Boulevard	3. Bowers Avenue	4. De La Cruz Boulevard	5. Scott Boulevard
	6. Northwestern Parkway	7. Lafayette Street	8. Scott Boulevard	9. Lafayette Street	10. Los Padres Boulevard
	11. NVIDIA Driveway	12. De La Cruz Boulevard	13. Owens Corning		14. San Tomas Expressway
	15. San Tomas Expressway		16. Lafayette Street		17. San Tomas Aquino Creek Trail Crossing
	18. Martin Avenue		19. De La Cruz Boulevard		20. Quinn Avenue
	21. Scott Boulevard				22. Bowers Avenue
	23. Lafayette Street				

The project team evaluated the time it currently takes to travel the entire length of the Walsh Avenue and Martin Avenue corridors in a car at multiple periods (on a weekday morning between 7:00 and 9:00 a.m., midday between 1:30 and 3:30 p.m., and evening between 4:00 and 6:00 p.m., and on Saturday between 11:30 a.m. and 1:30 p.m.). During the busiest time of day going westbound (AM peak period from 7:00 to 9:00 a.m.), it takes 5 minutes and 31 seconds to travel the Walsh Avenue corridor.

During the busiest time of day going eastbound (PM peak period from 4:00 to 6:00 p.m.), it takes 4 minutes and 23 seconds to travel the Walsh Avenue corridor, as shown in **Table 2**. On Martin Avenue, the travel time is in the range of less than 1 minute during AM and PM peak period, as shown in **Table 2**.

Table 2: Corridor Travel Time

Time Period	Corridor Travel Time (min:sec)	Time Period	Corridor Travel Time (min:sec)
Westbound Walsh Avenue		**Westbound Martin Avenue**	
AM Peak	05:31	AM Peak	01:04
PM Peak	06:00	PM Peak	01:01
Midday	05:10	Midday	00:52
Saturday	04:53	Saturday	00:52
Eastbound Walsh Avenue		**Eastbound Martin Avenue**	
AM Peak	04:19	AM Peak	01:05
PM Peak	04:23	PM Peak	01:08
Midday	04:34	Midday	01:05
Saturday	04:20	Saturday	01:10

Traffic Volume

Baseline Existing Volumes

The project team collected traffic data on Walsh Avenue and Martin Avenue for a full seven-day period from April 2, 2023, to April 8, 2023. During this time period, average daily traffic (ADT) volumes along Walsh Avenue and Martin Avenue were approximately 6,000 vehicles per day. Historical traffic data in this study area showed that there are approximately 15,000 vehicles a day that traveled along Walsh Avenue and approximately 9,000 vehicles a day traveled along Martin Avenue during pre-COVID, with a higher volume split between eastbound and westbound traffic.

The comparison shows that the current ADT is approximately 50% lower on Walsh Avenue and 20% lower on Martin Avenue compared to pre-COVID volumes. The baseline existing traffic volumes were increased to reflect higher historical traffic on the study corridors for a more conservative traffic operations analysis. Corridor ADT volumes are shown in **Table 3**. Methodologies and assumptions for the traffic operation analysis are included in **Appendix A** - **Technical Memorandums**.

Table 3: Walsh Avenue and Martin Avenue — Existing Average Daily Traffic Counts

#	Location	Time Period	Average Daily Traffic (ADT)					
			2023 Counts			Pre-COVID[1]		
			EB	WB	Total	EB	WB	Total
1	Walsh Avenue (Bowers Avenue - San Tomas Expressway)	7-Day	2,910	3,635	6,545	-	-	-
		Weekday (T-Th)	3,906	4,791	8,697	10,200	5,256	15,456
		Weekend (Sat & Sun)	1,253	1,642	2,895	-	-	-
2	Walsh Avenue (San Tomas Expressway - Scott Boulevard)	7-Day	2,249	2,309	4,558		-	-
		Weekday (T-Th)	3,005	2,977	5,982	7,944	6,408	14,352
		Weekend (Sat & Sun)	878	962	1,840	-	-	-
3	Walsh Avenue (Scott Boulevard - Lafayette Street)	7-Day	1,575	1,748	3,323	-	-	-
		Weekday (T-Th)	1,991	2,291	4,282	6,576	2,940	9,516
		Weekend (Sat & Sun)	684	659	1,343	-	-	-
4	Martin Avenue (Lafayette Street - De La Cruz Boulevard)	7-Day	3,391	2,824	6,215	-	-	-
		Weekday (T-Th)	4,232	3,513	7,745	8,568	1,296	9,864
		Weekend (Sat & Sun)	1,597	1,371	2,968	-	-	-

Notes: [1]For segments, 1, 2 3, and 4 in Figure 2, the pre-COVID ADT was calculated based on the historical AM and PM peak hour turning movement counts (i.e. ADT = 12 p.m. peak hour volume as a general rule of thumb).*

Level of Service – Existing Conditions

For this study, LOS D or better is considered meeting intersection operation standard, and LOS E or F is considered substandard operation for City intersections. For Congestion Management Program (CMP) intersections and intersections along County expressways, LOS E or better is considered meeting intersection operation standard and LOS F is considered substandard operation.

The existing four-lane configuration on Walsh Avenue and Martin Avenue was analyzed using baseline traffic volumes with a detailed traffic analysis model for 23 intersections along and around the corridors. This analysis indicated that all signalized intersections “meets standard” except for three intersections which are Walsh Avenue/Bowers Avenue, Central Expressway/De La Cruz Boulevard, and Monroe Street/Scott Boulevard. Unsignalized intersections which are Walsh Avenue/Northwestern Parkway and Walsh Avenue/Martin Avenue currently operates at substandard during weekday PM peak hour. The baseline conditions LOS is shown in **Figure 4** to **Figure 6** on the following pages. A full breakdown of traffic operations analysis results are included in **Appendix A - Working Paper 3**.

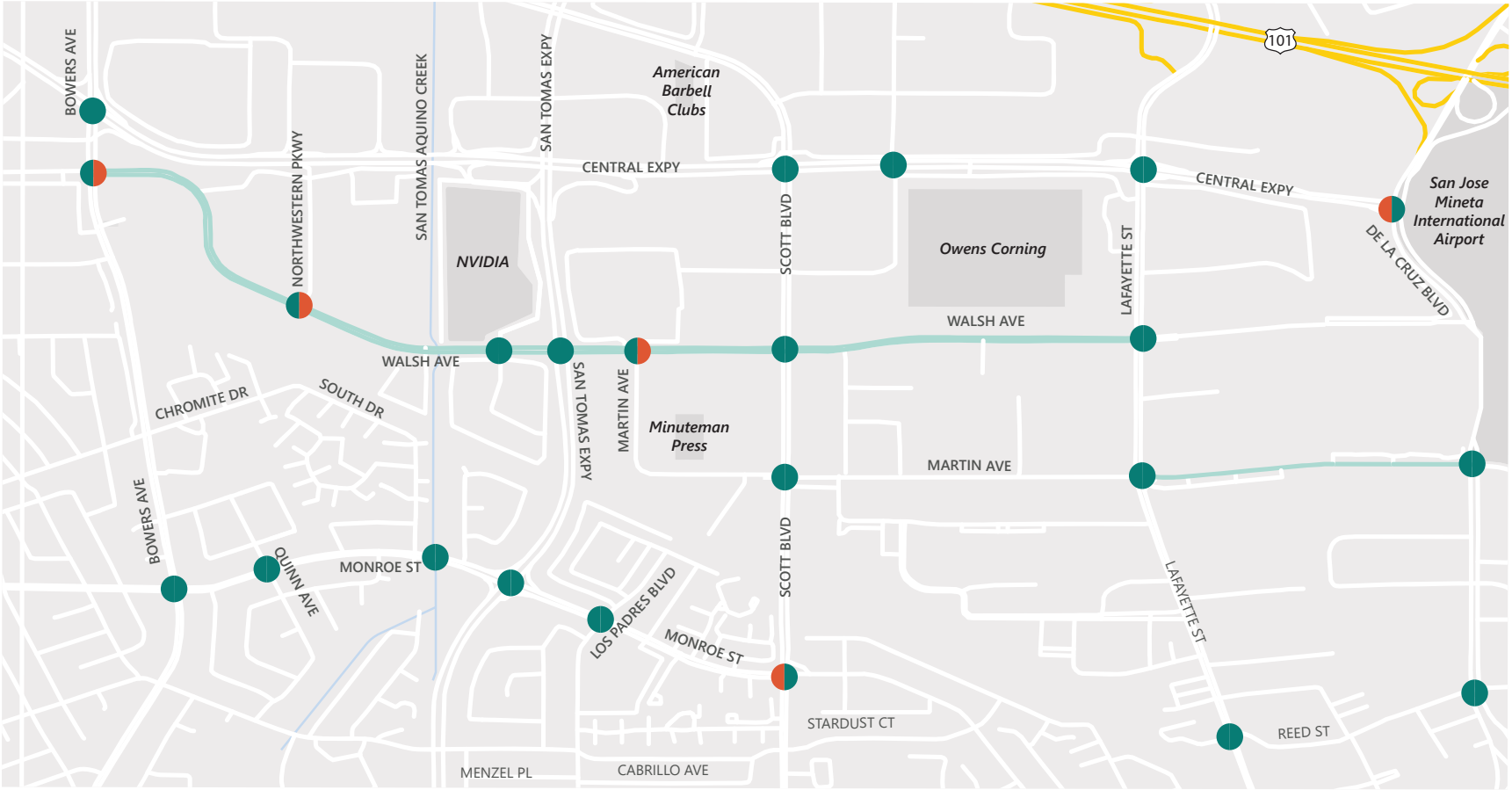
Of the 23 intersections studied, two are currently substandard in the AM peak period, and three are substandard in the PM peak period on weekdays, as shown in **Table 4** Corridor and Surrounding Networks Level of Service. It should be noted, however, that this analysis accounts for high levels of traffic, but not for overbuilt roadways, where utilization is too low for the current allocations and design.

Table 4: Corridor and Surrounding Networks Level of Service

Time Period	Meets Standard	Substandard
AM Peak	21	2
PM Peak	20	3
Midday	23	0
Saturday	23	0

02. Existing Conditions

Figure 4: Level of Service Analysis for Existing Conditions (Weekday AM and PM Peaks)



LEGEND

Project Street

Baseline (Existing) AM PM

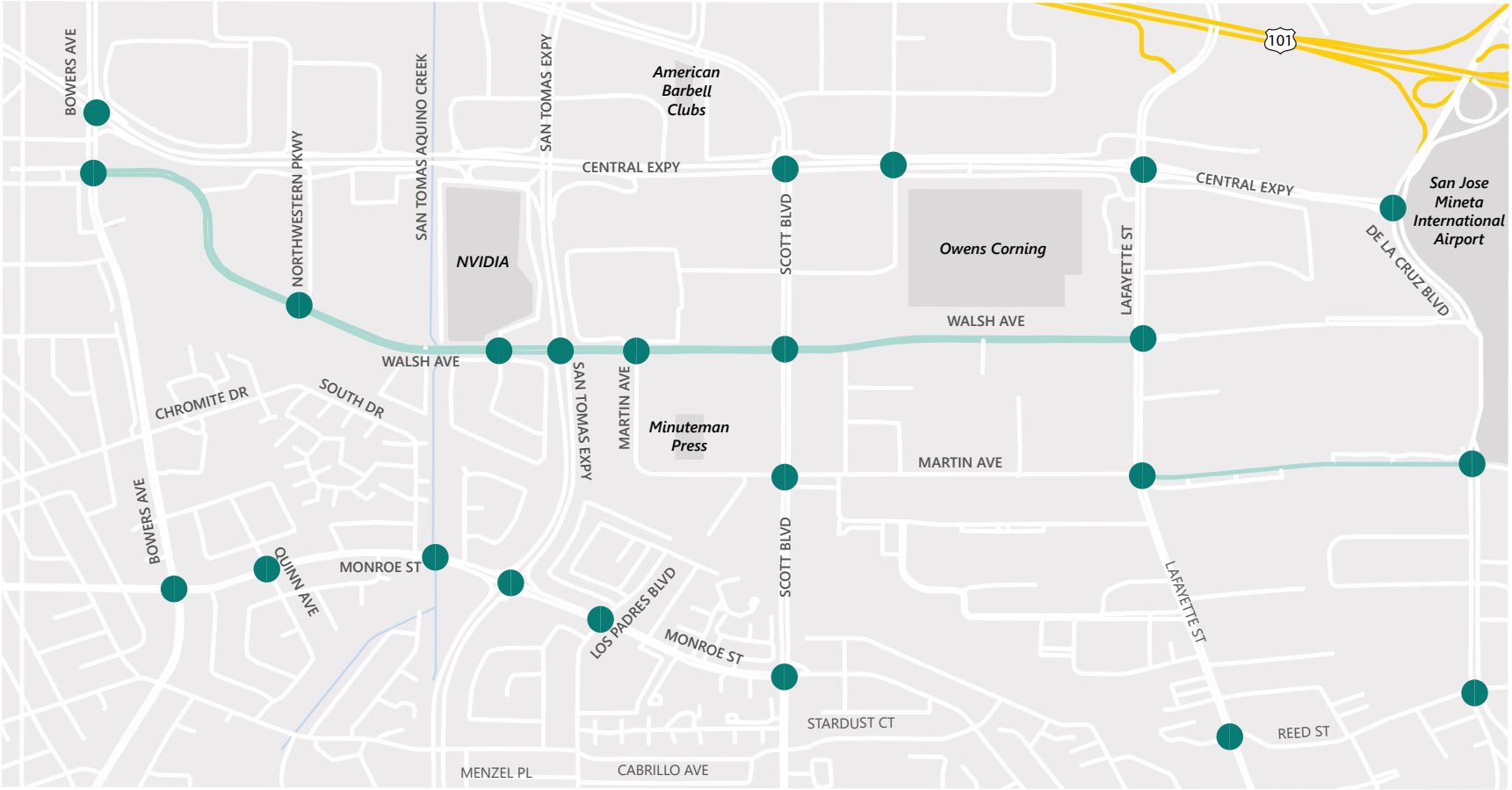
Meets Standard*

Substandard

**LOS D or better is considered acceptable for City intersections.*
LOS E or better is considered acceptable for County, CMP, and non-CMP intersections.

02. Existing Conditions

Figure 5: Level of Service Analysis for Existing Conditions (Weekday Midday)



LEGEND

Project Street

Baseline (Existing)

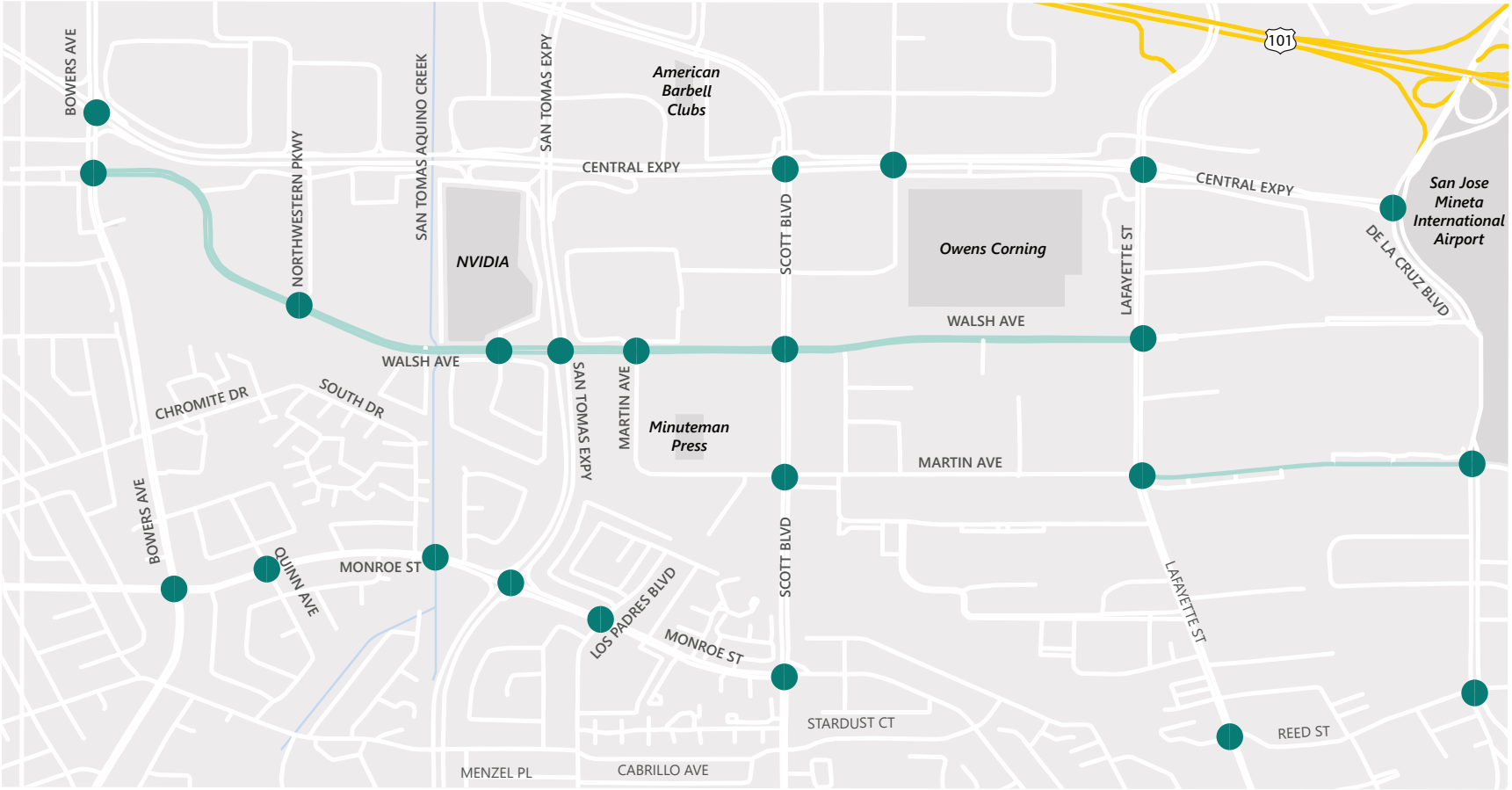
Meets Standard*

Substandard

**LOS D or better is considered acceptable for City intersections.*
LOS E or better is considered acceptable for County, CMP, and non-CMP intersections.

02. Existing Conditions

Figure 6: Level of Service Analysis for Existing Conditions (Saturday)



LEGEND

Project Street

Baseline (Existing)

Meets Standard*

Substandard

**LOS D or better is considered acceptable for City intersections.*
LOS E or better is considered acceptable for County, CMP, and non-CMP intersections.

02. Existing Conditions

Safety

Between January 2017 and December 2022, there were a total of 75 collisions (including property damage) recorded within the study area which includes 11 visible injuries collisions (15%), 17 complaints of pain collisions (23%) and 47 property damage only collisions (62%). No reported collisions involved a fatality or severe injury. **Figure 7** shows the collisions by mode and **Figure 8** shows the collisions severity.

Figure 8: Walsh Avenue and Martin Avenue - Collision Severity

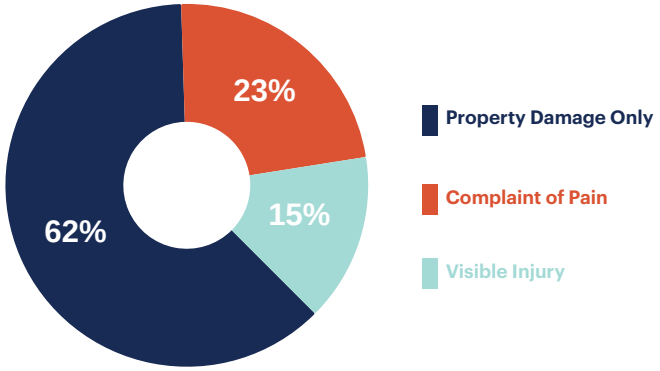


Figure 7: Collision by Mode

Walsh Avenue (from Bowers Avenue to Lafayette Street)

Between 2017 and 2022, there were 52 reported collisions on Walsh Avenue. These included one bicycle-related collision at Walsh Avenue and San Tomas Expressway due to unsafe vehicle maneuvers and one pedestrian-related collision at Walsh Avenue and Airborne Gymnastics Driveway due to right-of-way violation by automobiles. None of these 52 collisions resulted in fatalities or severe injuries. **Figure 9** Illustrates collision patterns for the majority of collisions.

The collision rate on Walsh Avenue during this period was approximately 1.12 collisions per million vehicle miles traveled, which is lower than the 2020 California average of 1.46 for similar urban roadways.

The majority (33%) collisions occurred at the intersection of San Tomas Expressway and Walsh Avenue. The primary contributing factors were traffic signal/ sign violations, automobile right-of-way violations, speeding, and improper turning as shown in **Figure 10.** Broadside collisions made up 48% of all collisions, while hit-object collisions comprised 21%. **Figure 11** shows the type of collisions along Walsh Avenue. **Figure 12** shows the collision severity by time of the day on the Walsh Avenue corridor.

Figure 9: Collision Trends on Walsh Avenue between Bowers Avenue and Lafayette Street (2017 – 2022)

Figure 10: Primary Collision Factors (Walsh Avenue) 2017-2022

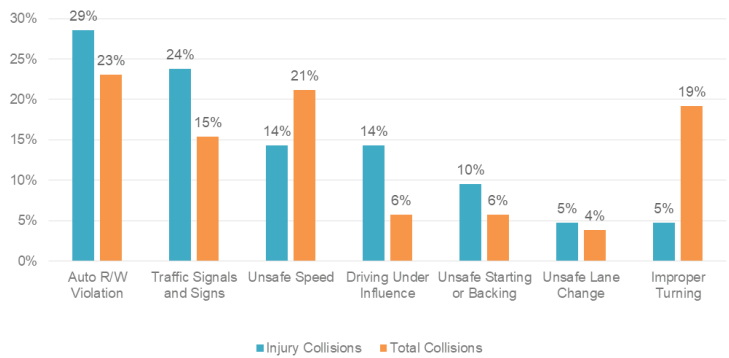
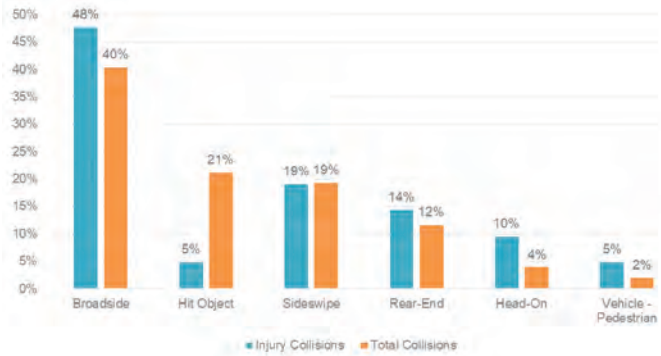
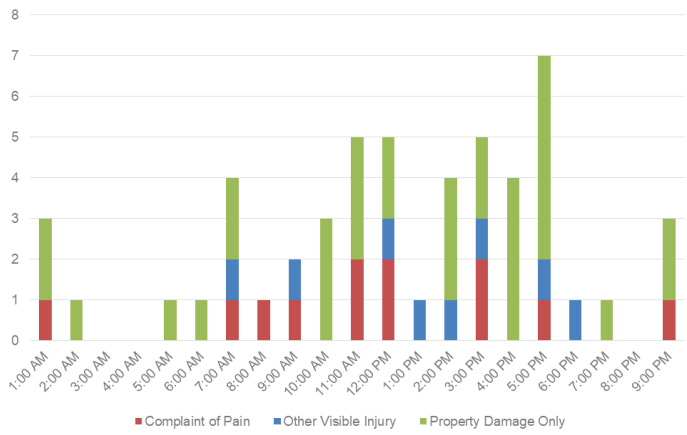


Figure 11: Type of Collision (Walsh Avenue) 2017-2022



Over 70% of the injury collisions occurred 11:00 a.m. and 3:00 p.m **Figure 12** illustrates the collision severity by time of day.

Figure 12: Collision Severity by Time of the Day (Walsh Avenue) 2017-2022



Martin Avenue (from Lafayette Street to De La Cruz Boulevard)

From 2017 to 2022, Martin Avenue had 23 collisions, with two resulting in visible injuries, five resulting in complaints of pain, and 16 as Property Damage Only (PDO). Fortunately, no severe injuries or fatalities were recored during this period. The collision rate on Martin Avenue was 3.29 collisions per million vehicle miles traveled, higher than the 2020 California average for similar urban roadways. Note that this rate may be slightly inflated due to high traffic and a short analysis segment. If the entire Martin Avenue length is considered, the rate may be lower.

Figure 13 illustrates observed collision patterns for the majority of collisions. Broadside collisions accounted for 48% of all collisions.

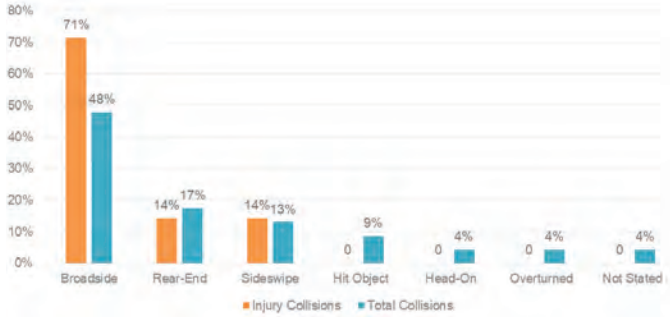
Figure 14 illustrates the types of collisions along the Martin Avenue study corridor.

Key contributing factors identified for these collisions included: improper turning traffic signs, sign violations and violation of automobile right-of-way. **Figure 15** illustrates the primary collision factors contributing to the collisions along the Martin Avenue study corridor.

Over 50% of the injury collisions occurred between 1:00 p.m. and 4:00 p.m. **Figure 16** illustrates the collision severity by time of day.

Figure 13: Collision Trends on Martin Avenue between Lafayette Street and De La Cruz Boulevard (2017 – 2022)

Figure 14: Types of Collision (Martin Avenue) 2017-2022



Key contributing factors identified for these collisions included: improper turning (4 out of 16 collisions) traffic signs and sign violations (3 out of 16 collisions) and violation of automobile right-of-way (3 out of 16 collisions). **Figure 15** illustrates the primary collision factors contributing to the collisions along the Martin Avenue study corridor.

Over 50% of the injury collisions occurred between 1:00 p.m. and 4:00 p.m. **Figure 16** illustrates the collision severity by time of day.

Figure 15: Primary Collision Factors (Martin Avenue) 2017-2022

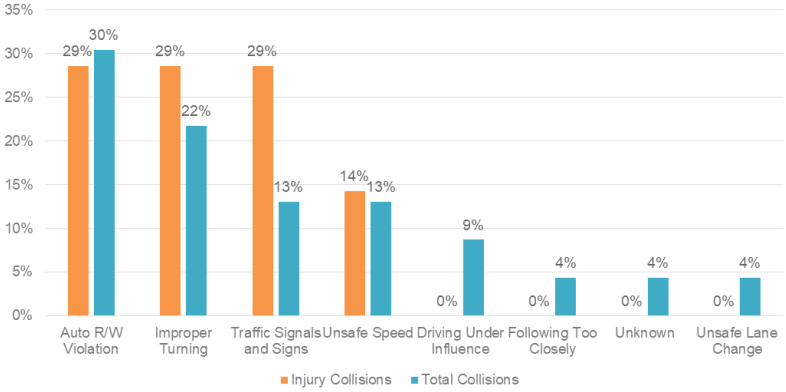
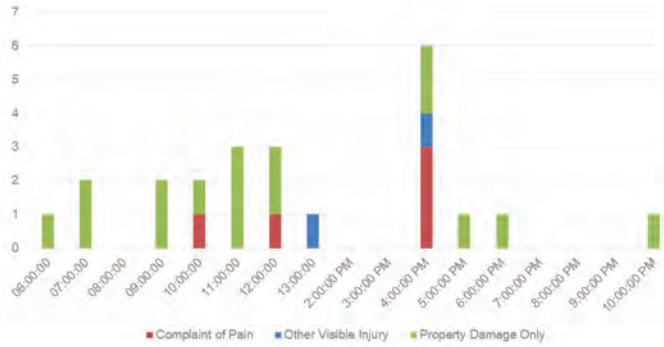


Figure 16: Collision Severity by Time of the Day (Martin Avenue) 2017-2022



Parking Utilization

The project team evaluated the current parking utilization and occupancy along Walsh Avenue (between Bowers Avenue and Lafayette Street) and Martin Avenue (between Lafayette Street and De La Cruz Boulevard). The parking study also accounted for on-street parking spaces within 500 feet of the surrounding streets (Bowers Avenue, San Tomas Expressway, Scott Boulevard, Lafayette Street, and De La Cruz Boulevard).

The project team conducted parking inventory and occupancy analysis along both sides of Walsh Avenue and Martin Avenue, and all side streets along the two corridors (500 feet up from each street intersection) on weekdays and weekends. Parking occupancy counts were collected in half-hour intervals between 9:00 a.m. to 5:00 p.m. and 11:00 p.m. to 1:00 a.m., on three weekdays: Tuesday, April 11th, Thursday, April 6th, Friday, April 7th, and on Saturday, April 8th, 2023.

Available parking spaces were calculated by measuring the full length of the available frontage along the roadway and discounting the red curb frontage. Driveways were also counted and then subtracted (20 feet per driveway). This number was then divided by the average parallel parking spot length of 22 feet Within the study area, Walsh Avenue corridor accommodates 150 on-street parking spaces and Martin Avenue corridor accommodates 124 parking spaces. There are 58 parking spaces on side streets. Utilization rates are calculated by the number of parking spaces used out of the full available inventory of legal spaces.

The study corridors reach a maximum parking occupancy of approximately 37% during the weekdays, with 111 occupied spaces and 221 parking spaces unoccupied, and approximately 29% during the weekends, with 97 occupied parking spaces and 235 parking spaces unoccupied. The highest area of localized parking demand exists between Scott Boulevard and Lafayette Street.

Table 5 shows the parking availability along the Walsh and Martin Avenue Corridors. **Table 6** shows on average, 68% of the parking spaces along Walsh Avenue and 74% of the parking spaces along Martin Avenue are available throughout the day.

On the following page, **Figure 17** shows the peak occupancy along the corridors. (For the full report, please see **Appendix A – Technical Memorandums**).

Table 5: Parking Availability Summary by Location

Location	Available Parking Spaces	Average Cars Observed	Parking Utilization Rate	Parking Availability
Overall Study Area	332	97	29%	71%
Walsh Avenue – Overall	150	56	37%	63%
Martin Avenue – Overall	124	30	24%	76%
Walsh Avenue – North Side	83	39	47%	53%
Walsh Avenue – South Side	67	17	25%	75%
Martin Avenue – North Side	67	11	16%	84%
Martin Avenue – South Side	57	19	33%	67%
Side Streets	58	11	19%	81%

Table 6: Parking Average Availability by Day and Time

Parking Count Period	Walsh Avenue Utilization	Walsh Avenue Availability	Martin Avenue Utilization	Martin Avenue Availability	Side Street Utilization	Side Street Availability
Weekday Morning, 9:00 - 11:00 a.m.	46%	54%	31%	69%	26%	74%
Weekday Midday, 12:00 - 2:00 p.m.	45%	55%	30%	70%	27%	73%
Weekday Overnight, 11:00 p.m. - 1:00 a.m.	16%	84%	19%	81%	17%	83%
Weekend Morning, 7:00 - 9:00 a.m.	36%	64%	26%	74%	23%	77%
Weekend Midday, 11:00 a.m. - 2:00 p.m.	35%	65%	27%	73%	24%	76%
Weekend Overnight, 11:00 p.m. - 1:00 a.m.	17%	83%	22%	78%	19%	81%

02. Existing Conditions

Figure 17: Corridor Peak Parking Occupancy (Weekday - 1:00pm)

Speed Data

Walsh Avenue

The project team collected vehicle speed data at four locations along Walsh Avenue across an entire seven-day period during peak and non-peak periods to gauge speeding issues on Walsh Avenue and Martin Avenue. Walsh Avenue and Martin Avenue have a posted speed limit of 35 mph.

Walsh Avenue westbound between San Tomas Expressway and Scott Boulevard experienced 68% of vehicles traveling faster than 35 mph during the study period. The speed survey showed that 85th percentile speed varied between 39 mph to 44 mph and, on average, 52% of the traffic traveled at higher than the posted speed limit on Walsh Avenue. The speed study showed that the 85th percentile is generally higher than the posted speed limit of 35 mph but within approximately 4 to 9 mph, as shown in **Table 7** and illustrated in **Figure 18**. Based on this survey, there is an opportunity to reduce vehicle speeds through the application of roadway designs and additional enforcement.

Table 7: Speed Survey Results - Walsh Avenue

#	Location	Direction	Speed (85th Percentile)	% of Vehicles (>35 mph Speed Limit)
1	Walsh Avenue between Bowers Avenue & Northwestern Parkway	EB	40 mph	40%
		WB	42 mph	68%
2	Walsh Avenue between Northwestern Parkway & San Tomas Expressway	EB	42 mph	62%
		WB	40 mph	38%
3	Walsh Avenue between San Tomas Expressway & Scott Boulevard	EB	41 mph	56%
		WB	44 mph	68%
4	Walsh Avenue between Scott Boulevard & Lafayette Street	EB	40 mph	40%
		WB	39 mph	44%
	Corridor Average		41 mph	52%

Notes: EB – Eastbound; WB - Westbound

Figure 18: Speed Study - Walsh Avenue

Martin Avenue

Speed data was collected at one location along Martin Avenue across an entire seven-day period during peak and non-peak periods to gauge speeding issues on Martin Avenue. Martin Avenue has a posted speed limit of 35 mph.

On Martin Avenue, the 85th percentile speed varied between 41 mph to 44 mph. Approximately 59% of the traffic traveled at higher than the 35 mph posted speed limit. The speed study showed that the 85th percentile is generally higher than the posted speed limit of 35 mph but within approximately 6 to 9 mph, as shown in **Table 8** and **Figure 19**. Based on this survey, the project presents an opportunity to reduce vehicle speeds through the application of roadway designs and additional enforcement.

Table 8: Speed Survey Results - Martin Avenue

#	Location	Direction	Speed (85th Percentile)	% of Vehicles (>35 mph Speed Limit)
1	Martin Avenue between Lafayette Street & De La Cruz Boulevard	EB	41 mph	52%
		WB	44 mph	66%
	Corridor Average		43 mph	

Notes: EB – Eastbound; WB - Westbound

Figure 19: Speed Study - Martin Avenue

03.

Corridor Alternative Concepts & Analysis

03. Corridor Alternative Concepts & Analysis

The project team developed four roadway design concepts for each of the Walsh Avenue and Martin Avenue corridors to meet the project goals. This section provides descriptions of each design concept, as well as the current configuration ("No Build" scenario), along with a corridor transportation analysis. Towards the end of this chapter, you will find a summary comparing these design concepts. The study corridors are divided into five sections due to variations in existing cross-sections: Section 1, Section 2, Section 3, Section 4, and Section 5 as shown in **Figure 20**.

- **Section 1:** Walsh Avenue from Bowers Avenue to Transition
- **Section 2:** Walsh Avenue from Transition to San Tomas Aquino Creek Trail Bridge
- **Section 3:** Walsh Avenue - San Tomas Aquino Creek Trail Bridge
- **Section 4:** Walsh Avenue from Martin Avenue to Lafayette Street
- **Section 5:** Martin Avenue from Lafayette Street to De La Cruz Boulevard

These roadway cross-sections, and following concepts, show prototypical locations on Walsh Avenue and on Martin Avenue to demonstrate different roadway and intersection design features. The concepts are not specific to a particular location or intersection on Walsh Avenue or Martin Avenue. The existing conditions are summarized below and represented a "No Build" scenario.

This study proposes four roadway concepts for Walsh Avenue 64-foot typical sections:

- **No Build**
- **Concept A:** Four Travel Lanes with No Parking
- **Concept B:** Four Travel Lanes, Remove Parking on One Side from Martin Avenue to Lafayette Street
- **Concept C:** Two Travel Lanes with Center Turn Lane, Parking on Both Sides from Martin Avenue to Lafayette Street

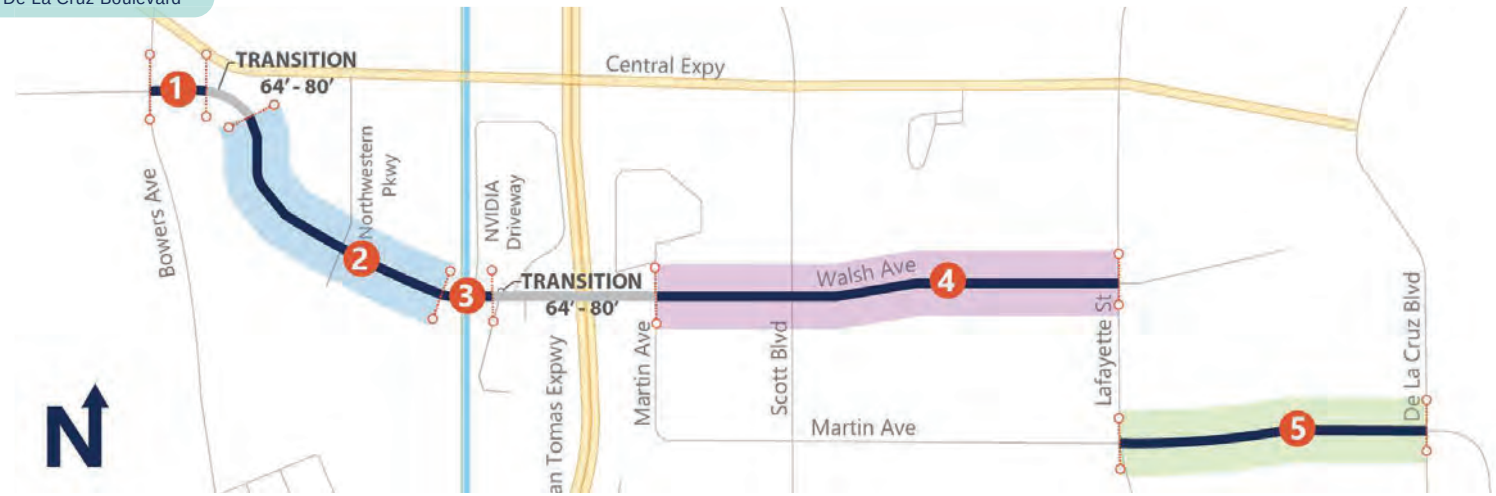
Four roadway concepts for Martin Avenue:

- **No Build**
- **Concept D:** Four Travel Lanes with No Parking
- **Concept E:** Four Travel Lanes, Remove Parking on One Side
- **Concept F:** Two Travel Lanes with Center Turn Lane, Parking on Both Sides

Near Bowers Avenue and at the San Tomas Expressway, the transition areas are wider than 64-foot typical roadway width allowing opportunities to fit wider bikeways. For the purpose of this study, the conceptual design focuses on the 64-foot typical roadway. The key map below shows the location of each of these sections on the study corridors.

Technical analysis serves as a crucial tool for the proactive evaluation of the anticipated impacts arising from modifications to roadway design. The following section also presents a comprehensive quantification of the potential design-induced effects, for both current and future scenarios, to facilitate informed decision-making. This section provides a summary of the main analytical methods and key findings from each analysis, with detailed information available in the Appendices.

Figure 20: Study Corridor - Section Map



03. Corridor Alternative Concepts & Analysis

Walsh Avenue - Existing Conditions/No Build

Section 1 - Walsh Avenue (Bowers Avenue to Transition)

Four Travel Lanes with No Parking on Both Sides

On Walsh Avenue between Bowers Avenue and the transition section, the curb-to-curb width is 80 feet, with four travel lanes, a center turn lane, Class II bicycle lane on both sides and no parking as shown in **Figure 21**.

- 11 feet to 14 feet travel lanes
- 11 ft. center turn lane
- 3 ft. median
- 7 ft. Class II bicycle lane on both sides

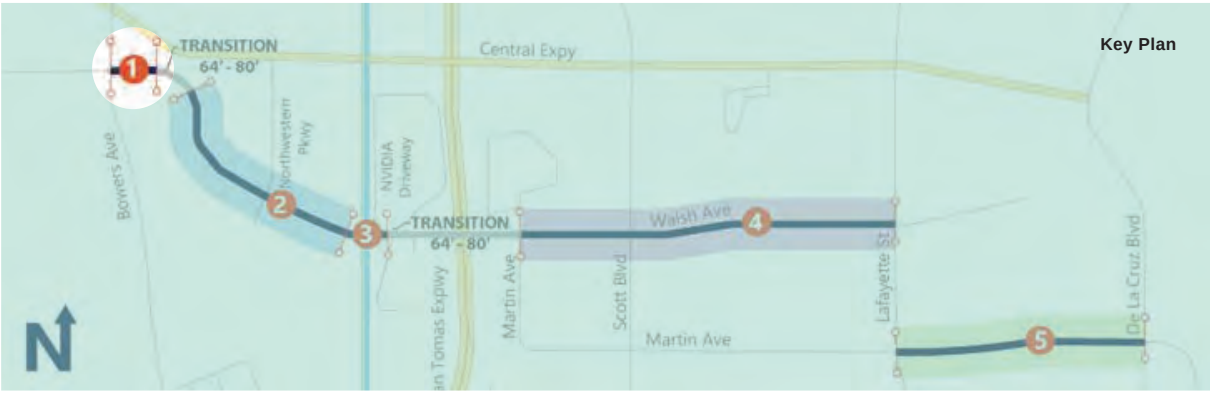
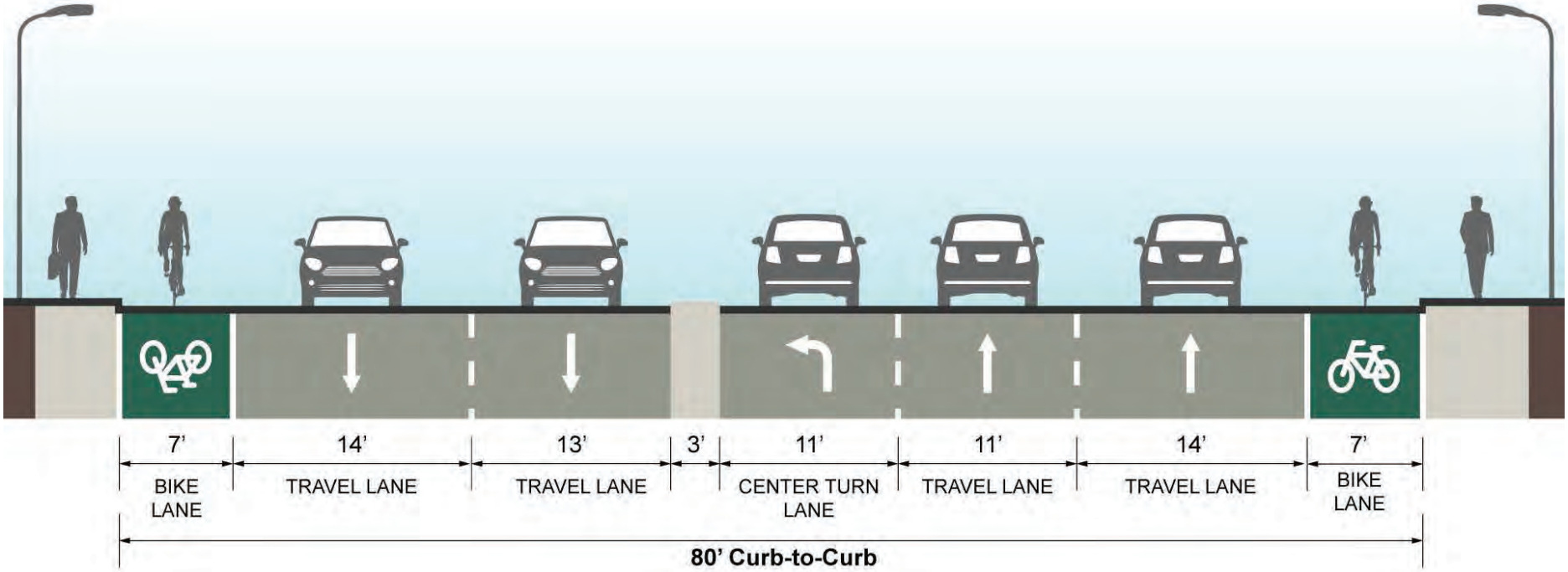


Figure 21: Existing Conditions/No Build
Section 1 - Walsh Avenue (Bowers Avenue to Transition)



03. Corridor Alternative Concepts & Analysis

Section 2 - Walsh Avenue
(Transition to San Tomas Aquino Creek Trail Bridge)

Four Travel Lanes with Center Turn Lane, No Parking on Both Sides

On Walsh Avenue between the transition section and the bridge section, the curb-to-curb width is 64 feet. It has four travel lanes, a 10-foot center turn lane, Class II bicycle lane on both sides and no parking as shown in **Figure 22**.

- 10 ft. to 11 ft. travel lanes
- 10 ft. center turn lane
- 6 ft. Class II bicycle lane on both sides

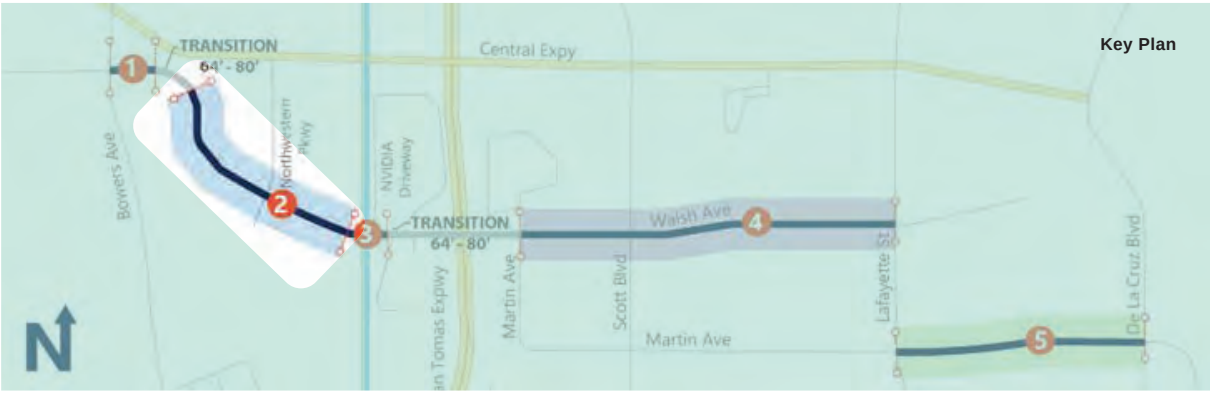
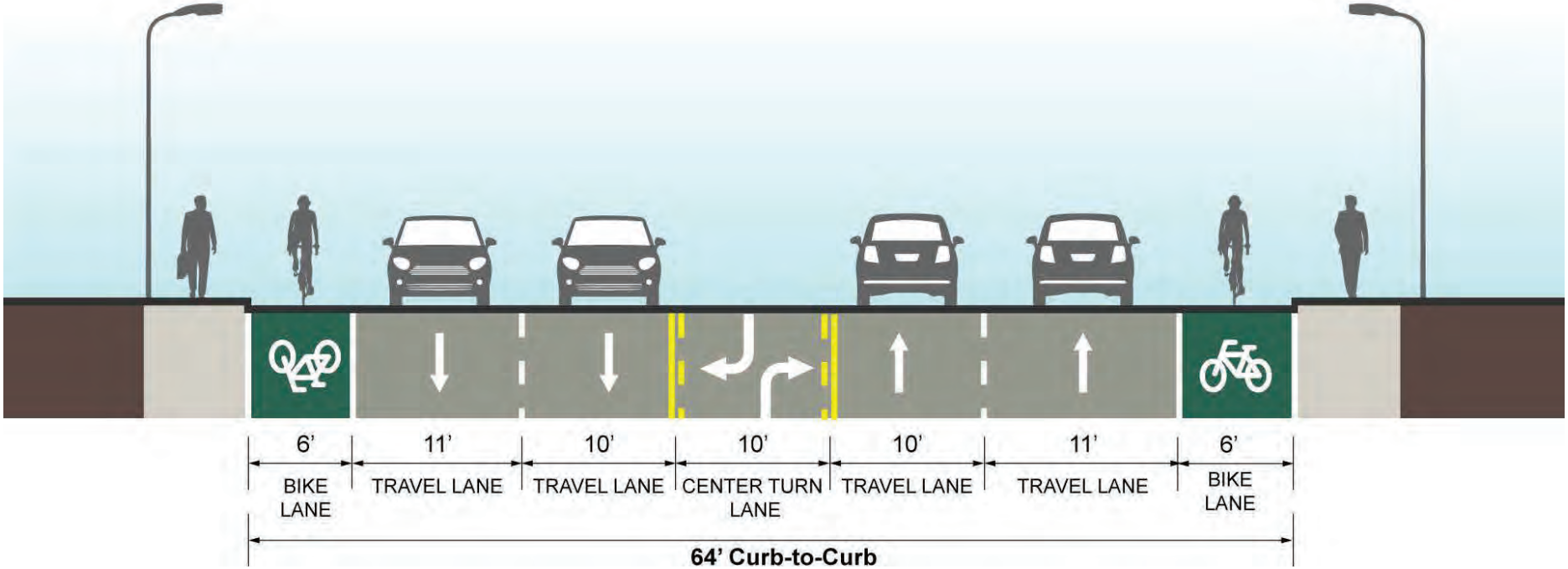


Figure 22: Existing Conditions/No Build
Section 2 - Walsh Avenue (Transition to San Tomas Aquino Creek Trail Bridge)



03. Corridor Alternative Concepts & Analysis

Section 3 - Walsh Avenue
(San Tomas Aquino Creek Trail Bridge Section)

Four Travel Lanes (2 Sharrow Lanes) with Center Turn Lane, No Parking on Both Sides

On the San Tomas Aquino Creek Trail bridge section along Walsh Avenue, the curb-to-curb width is 64 feet It has four travel lanes, a 12-foot center turn lane and no parking is allowed. The outermost travel lane in each direction is designated as a sharrow (a shared lane for bicycles and automobiles) as shown in **Figure 23**.

- 12 ft. to 13 ft. travel lanes
- 12 ft. center turn lane
- 2 ft. median

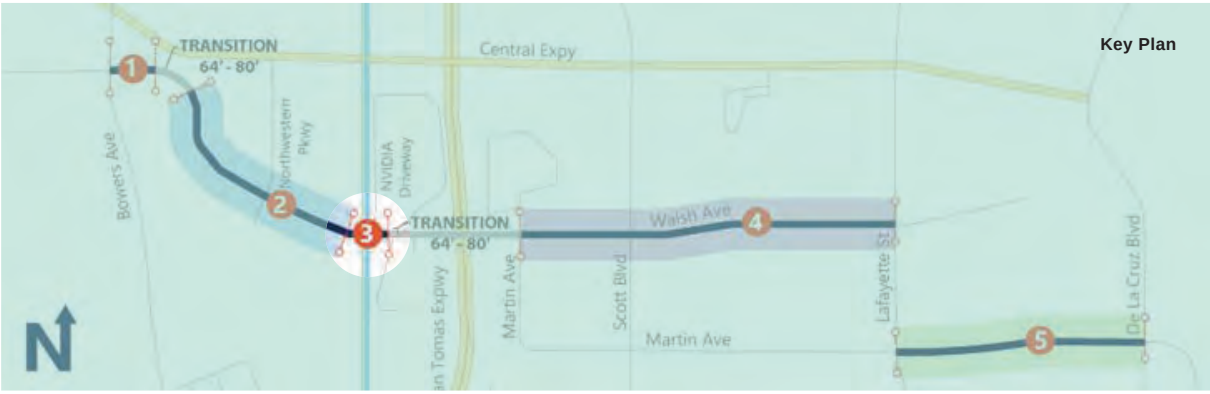
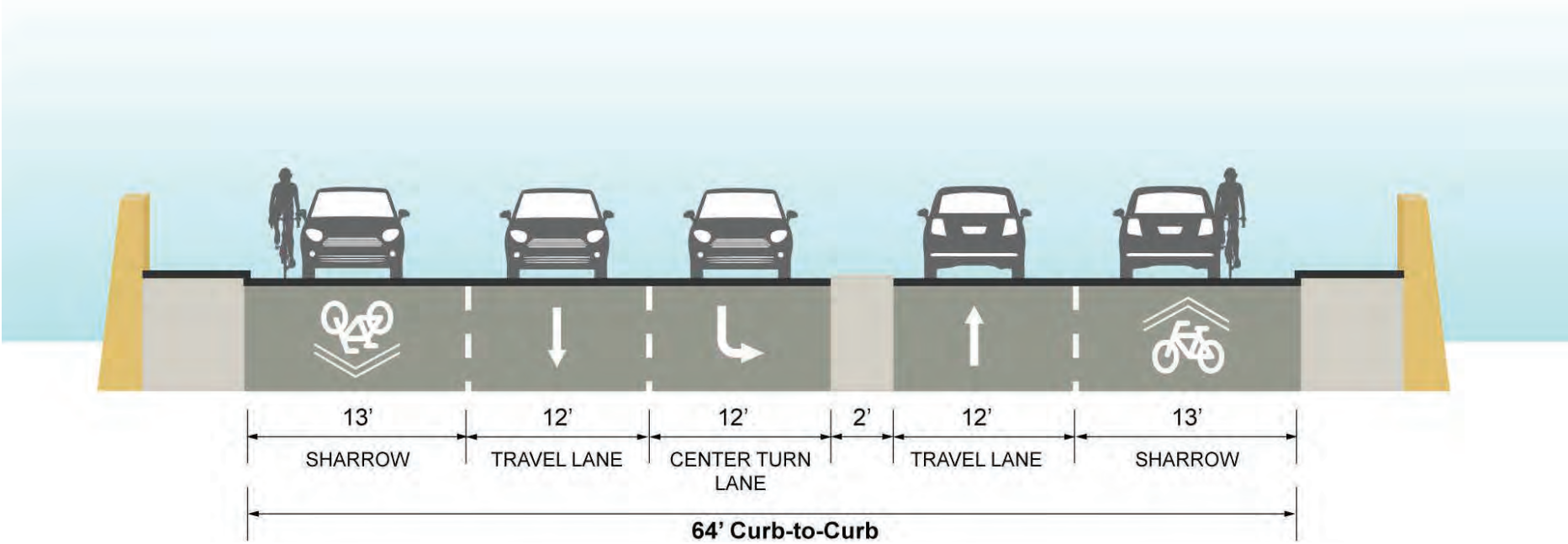


Figure 23: Existing Conditions/No Build
Section 3 - Walsh Avenue (San Tomas Aquino Creek Trail Bridge Section)



03. Corridor Alternative Concepts & Analysis

Section 4 - Walsh Avenue (Martin Avenue to Lafayette Street)

Four Travel Lanes with Parking on Both Sides

On Walsh Avenue between Martin Avenue and Lafayette Street, the curb-to-curb width is 64 feet with four travel lanes and an 8-foot wide on-street parking lane on both sides as shown in **Figure 24**.

- 12 ft. travel lanes
- 8 ft. parking lane on both sides

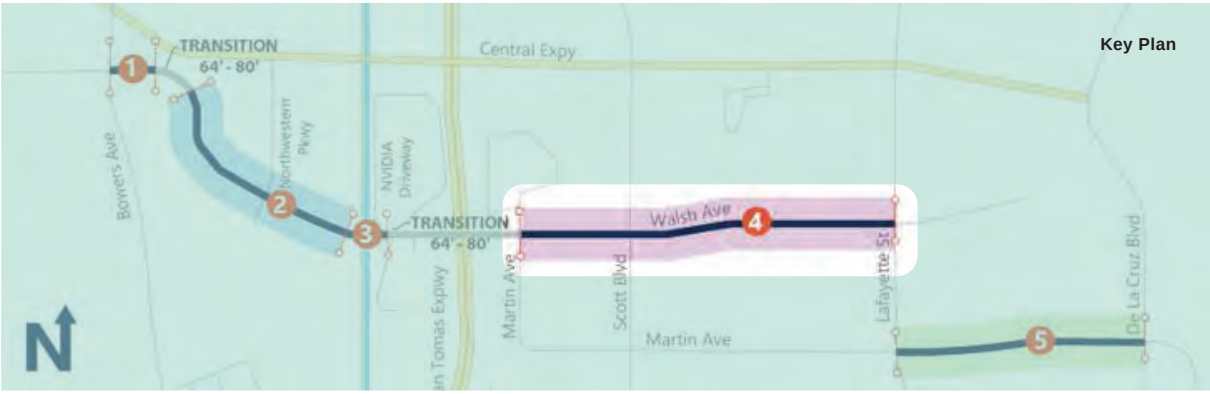
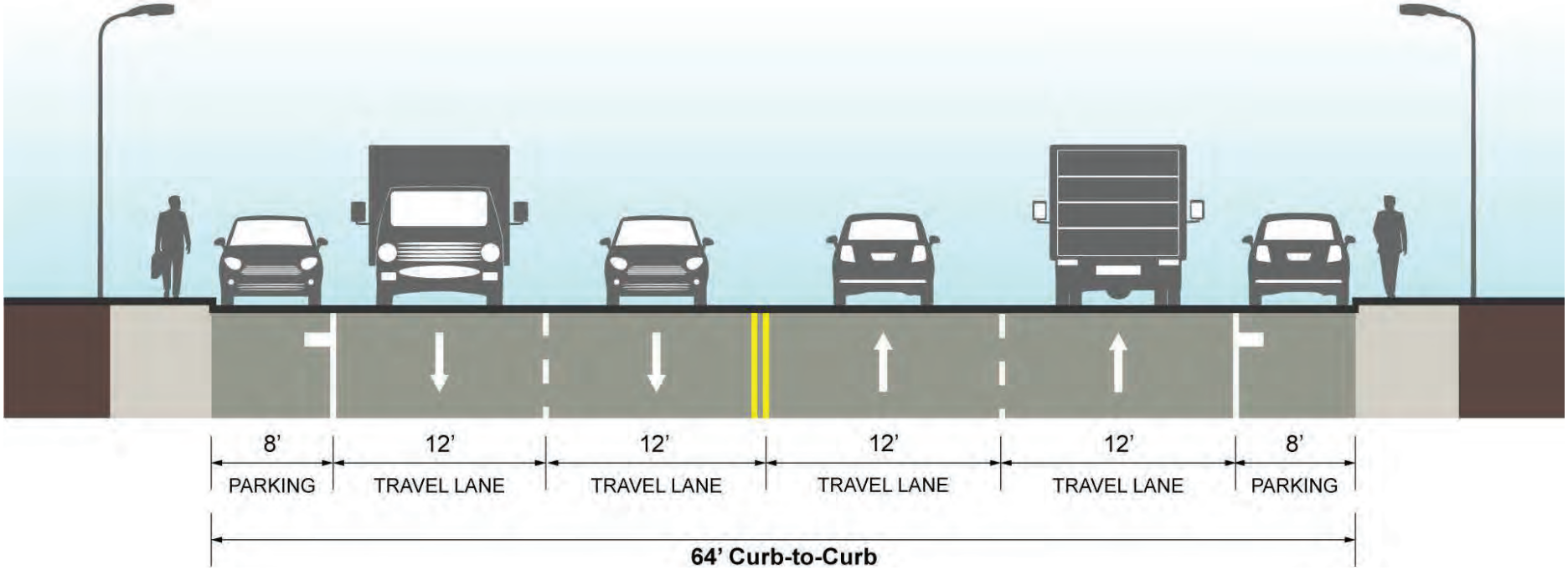


Figure 24: Existing Conditions/No Build
Section 4 - Walsh Avenue (Martin Avenue to Lafayette Street)



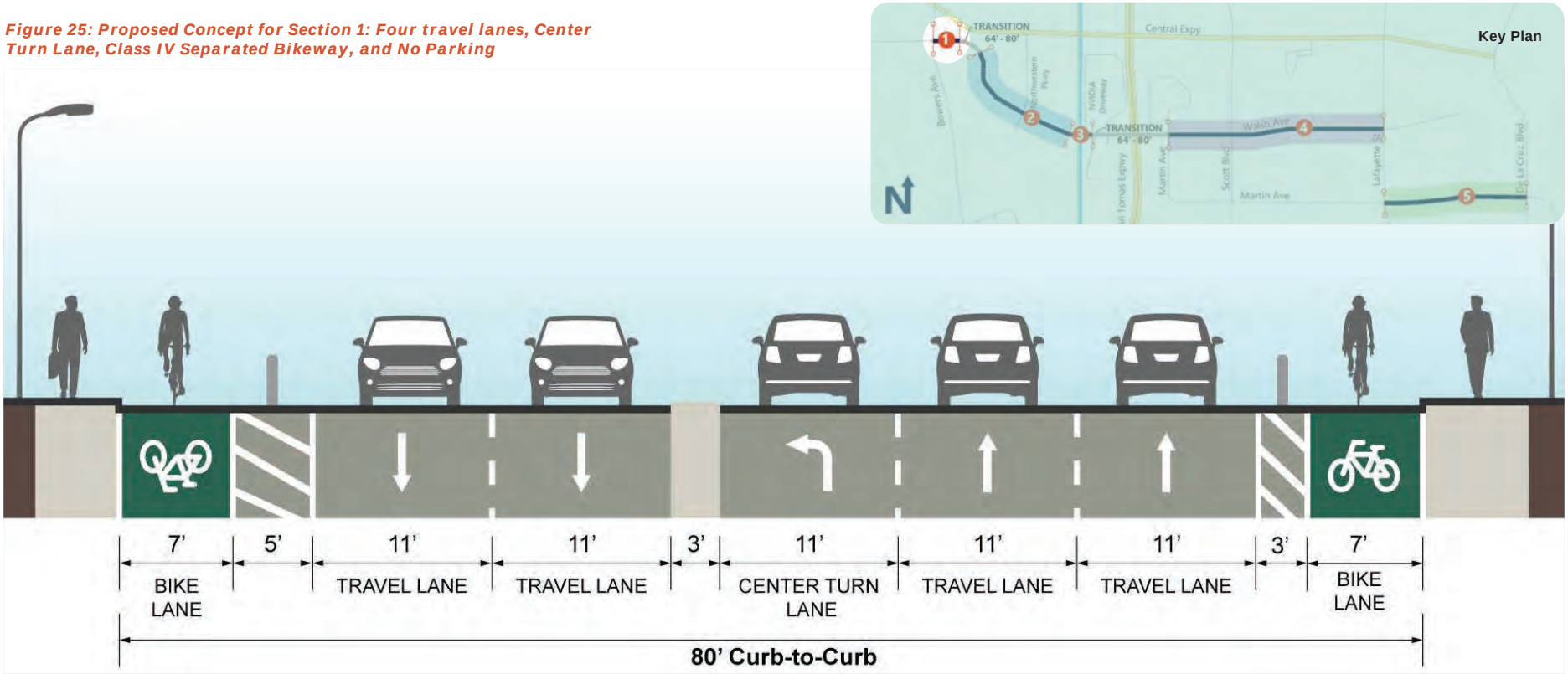
Corridor Design Concepts for Walsh Avenue — 80-foot Width

Proposed Concept for Section 1: Four travel lanes, Center Turn Lane, Class IV Separated Bikeway, and No Parking

This proposed concept maintains the four travel lanes and adds Class IV bikeway by reducing travel lane widths. The existing lane widths of 13-14 feet are narrowed to a uniform 11-foot travel lane width.

This adjustment is proposed to accommodate the installation of a Class IV separated bikeway, which will be 7 feet wide bike lane with 5 feet buffer on one side and a 3 feet wide buffer on the other side.

Figure 25: Proposed Concept for Section 1: Four travel lanes, Center Turn Lane, Class IV Separated Bikeway, and No Parking



This proposed section maintains the 11-foot -wide center turn lane and the 3-foot-wide median as shown in **Figure 25.**

- Maintains four travel lanes
- Maintains a center turn lane
- Maintains the location of existing median
- Adds Class IV separated bikeway on both sides

At full implementation, this concept may require modification of signal timings and incorporation of pedestrian and bicycle intervals and bicycle signal heads. These potential improvements are to be evaluated and designed after the preferred design alternative is determined.

Corridor Design Concepts for Walsh Avenue — 64-foot Width

The project team developed the following three corridor design concepts for 64-foot typical roadway widths in Sections 2, 3, and 4 on Walsh Avenue:

- **Concept A: Four Travel Lanes with No Parking**
- **Concept B: Four Travel Lanes – Remove Parking on One Side from Martin Avenue to Lafayette Street**
- **Concept C: Two Travel Lanes with Center Turn Lane – Parking on Both Sides from Martin Avenue to Lafayette Street**

03. Corridor Alternative Concepts & Analysis

Concept A:
Four Travel Lanes with No Parking

Concept A maintains the four travel lanes and adds Class IV separated bikeway by reducing lane widths and removing parking on both sides. The existing lane widths of 10-11 feet are transitioned to a uniform 11-foot travel lane width. The center turn lane is repurposed to accommodate the installation of a 7-foot wide Class IV separated bikeway with a 3-foot buffer separating it from the travel lanes. This concept is illustrated in **Figure 26**.

At full implementation, this concept may require modification of signal timings and incorporation of pedestrian and bicycle intervals and bicycle signal heads. These potential improvements are to be evaluated and designed after a preferred design alternative is determined.

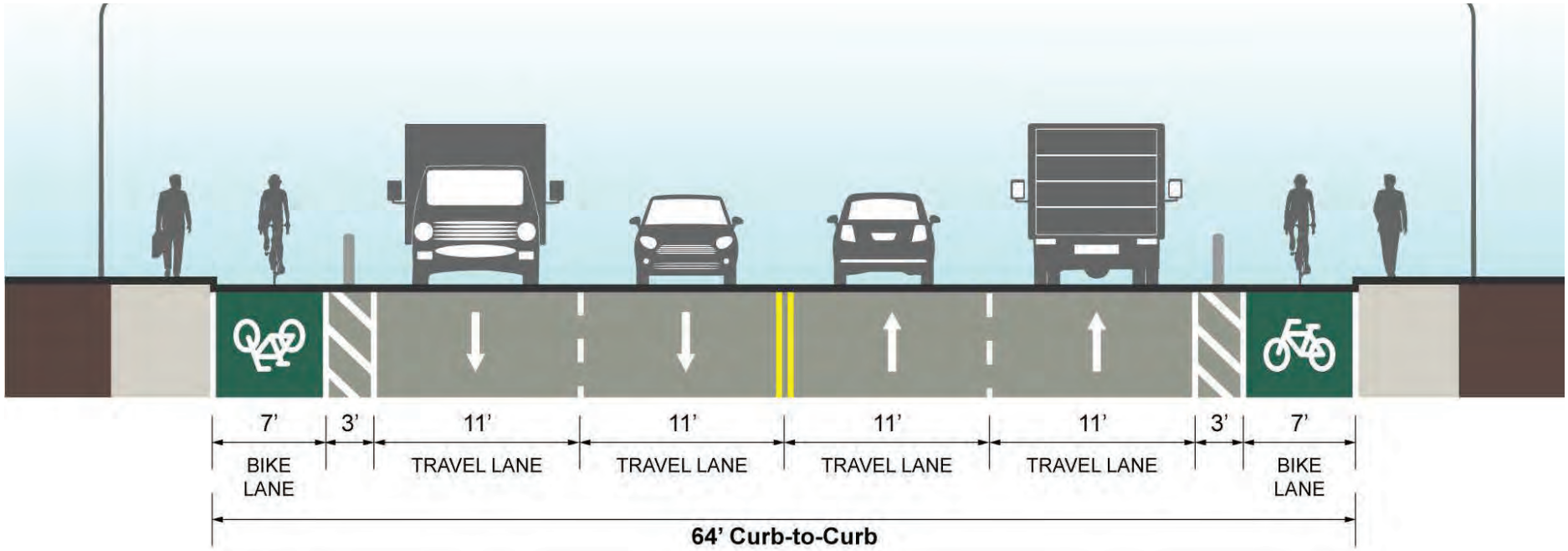
Intersection Improvement Considerations:

1. Green-backed bike symbol at intersection approach for visibility.
2. Bulb-outs, option for curb extensions or short-term quick-build painted option.
3. Parking is restricted (red curbs) at corners with bollards and bike lanes and 50 feet at the driveways along the segment to improved sight distance.
4. Leading pedestrian phase and bike phase or indication.
5. Add vertical barriers to further protect bicyclists from right turn movements. If installed, vehicles are restricted from turning right on red.
6. High-visibility crosswalks or protected intersections could be considered at selected intersections.

Segment Improvement Considerations:

1. Create separated bikeways on both sides of the corridor with skipped stripes at the driveways.
2. Add sight line buffer or restricted parking (red curb) at the driveways to increase sight distance.
3. Add “No Parking” and Speed Limit Signs.

Figure 26: Concept A: Four Travel Lanes with No Parking



Concept B: Four Travel Lanes - Remove Parking on One Side from Martin Avenue to Lafayette Street

Concept B maintains four travel lanes and adds Class IV separated bikeways by reducing travel lane widths and removing parking on one side from Martin Avenue to Lafayette Street. The elimination of the parking lane on one side accommodates the installation of a Class IV separated bikeway, which will be a 5-foot wide bike lane with a 2-foot wide buffer on one side and a 3-foot wide buffer on the other side separating it from the travel lanes. This concept is illustrated in **Figure 27**.

If Concept B is chosen, it is recommended to remove parking on the south side of Walsh Avenue between Martin Avenue and Lafayette Street, as that would have less impact on parking supply along Walsh Avenue.

For the roadway sections along Walsh Avenue that currently do not allow parking on both sides, i.e. west of Martin Avenue, Concept B will look like Concept A **in Figure 26**.

At full implementation, this concept may require modification of signal timings and incorporation of pedestrian and bicycle intervals and bicycle signal heads. These potential improvements are to be evaluated and designed after a preferred design alternative is determined.

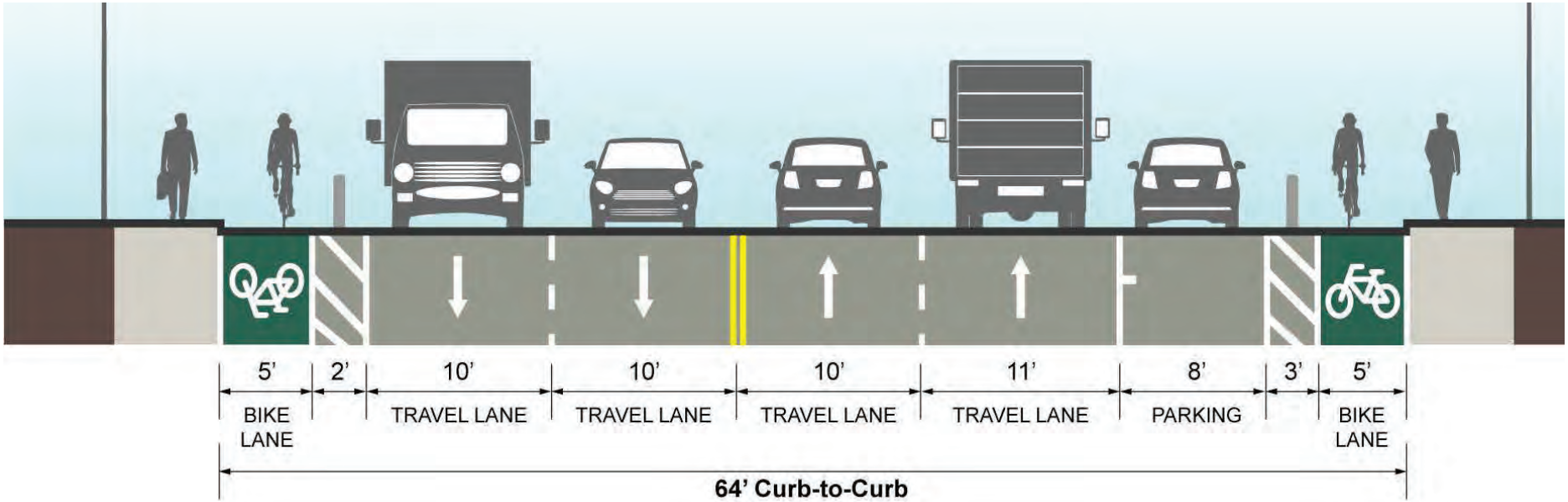
Intersection Improvement Considerations:

1. Green-backed bike symbol at intersection approach for visibility.
2. Bulb-outs, option for curb extensions or short-term quick-build painted option.
3. Parking is restricted (red curbs) at corners with bollards and bike lanes and 50 ft. at the driveways along the segment to improved sight distance.
4. Leading pedestrian phase and bike phase or indication.
5. Add vertical barriers to further protect bicyclists from right turn movements. If installed, vehicles are restricted from turning right on red.
6. High-visibility crosswalks or protected intersections could be considered at selected intersections.

Segment Improvement Considerations:

1. Create separated bikeways on both sides of the corridor with skipped stripes at the driveways.
2. Add sight line buffer or restricted parking (red curb) at the driveways to increase sight distance.
3. Add “No Parking” and Speed Limit Signs.

Figure 27: Concept B: Four Travel Lanes - Remove Parking on One Side from Martin Avenue to Lafayette Street



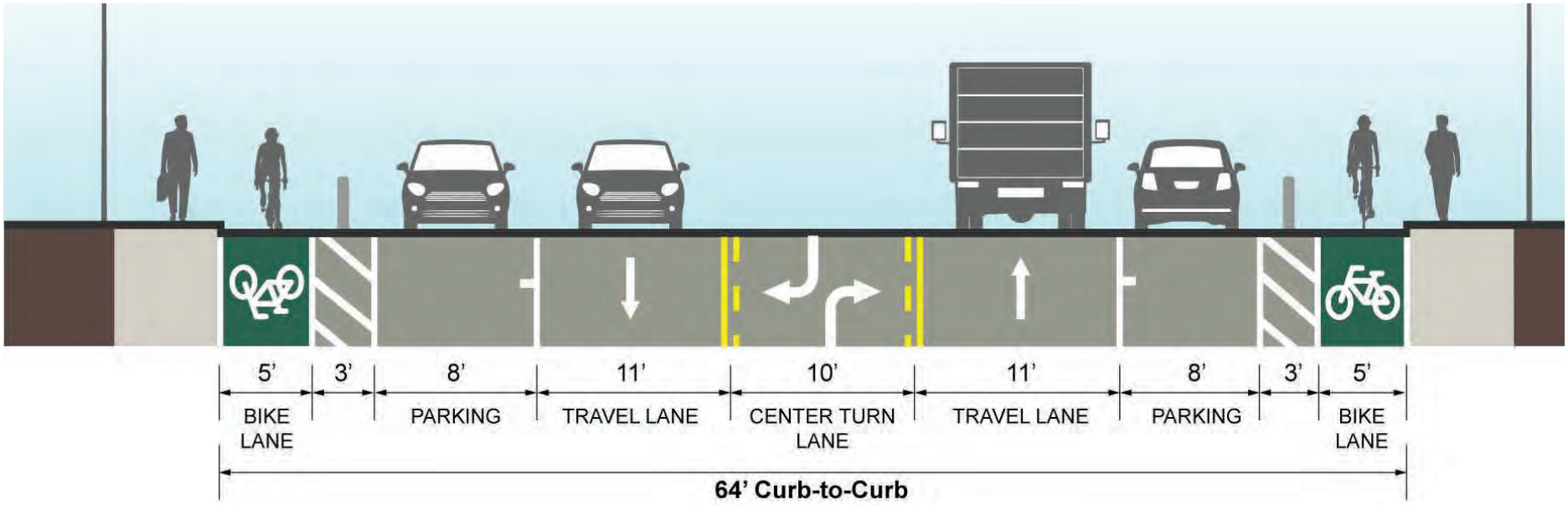
Concept C: Two Travel Lanes with Center Turn Lane, Parking on Both Sides from Martin Avenue to Lafayette Street

Concept C removes one travel lane in each direction, adds a center turn lane, maintains the existing parking on both sides from Martin Avenue to Lafayette Street, and adds a Class IV separated bikeway on both sides. The Class IV separated bikeway is 5 feet wide and includes an additional 3-foot buffer separating bicyclists from the travel lanes. This concept is illustrated in **Figure 28**.

For sections that currently do not have parking, the Class IV separated bikeway will be widened to a 9-foot bike lane with a 5-foot wide buffer and 12 feet wide travel lanes. **Figure 29** on the following page illustrates the cross section.

At full implementation, this concept may require modification of signal timings and incorporation of pedestrian and bicycle intervals and bicycle signal heads. These potential improvements are to be evaluated and designed after a preferred design alternative is determined.

Figure 28: Concept C: Two Travel Lanes with Center Turn Lane, Parking on Both Sides from Martin Avenue to Lafayette Street



Intersection Improvement Considerations:

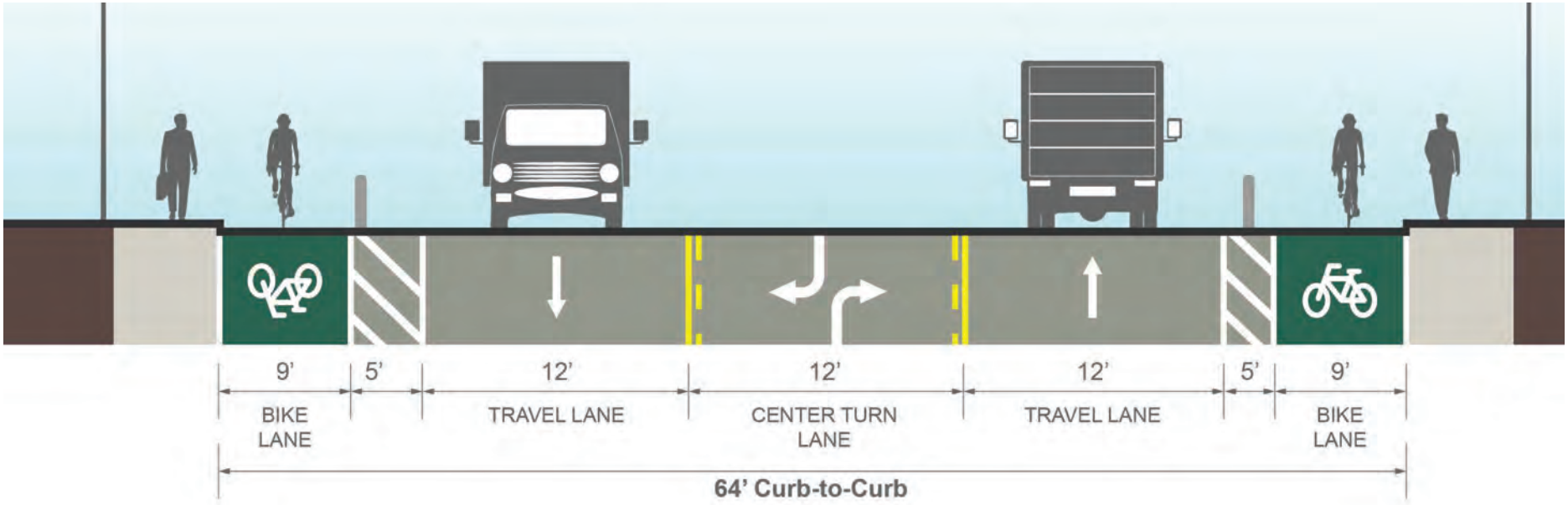
1. Green-backed bike symbol at intersection approach for visibility.
2. Bulb-outs, option for curb extensions or short-term quick-build painted option.
3. Parking is restricted (red curbs) at corners with bollards and bike lanes and 50 feet at the driveways along the segment to improved sight distance.
4. Leading pedestrian phase and bike phase or indication.
5. Add vertical barriers to further protect bicyclists from right turn movements. If installed, vehicles are restricted from turning right on red.
6. High-visibility crosswalks or protected intersections could be considered at selected intersections.

Segment Improvement Considerations:

1. Create separated bikeways on both sides of the corridor with skipped stripes at the driveways.
2. Add sight line buffer or restricted parking (red curb) at the driveways to increase sight distance.
3. Add "No Parking" and Speed Limit Signs.

03. Corridor Alternative Concepts & Analysis

Figure 29: Concept C with No Parking: Two Travel Lanes, Center Turn Lane, No Parking on Both Sides



03. Corridor Alternative Concepts & Analysis

Martin Avenue - Existing Conditions/No Build

Section 5 - Martin Avenue (Lafayette Street to De La Cruz Boulevard)

Four Lanes with Parking on Both Sides

On Martin Avenue between Lafayette Street and De La Cruz Boulevard, the curb-to-curb width is 64 feet, with four travel lanes and 8-foot wide on-street parking facility on both sides as shown in **Figure 30**.

- 12 ft. travel lanes
- 8 ft. on-street parking lanes on both sides

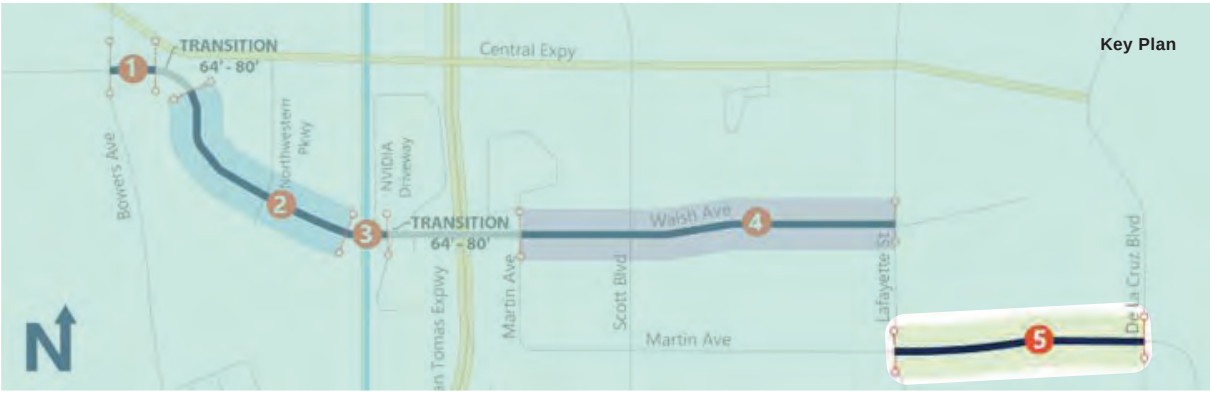
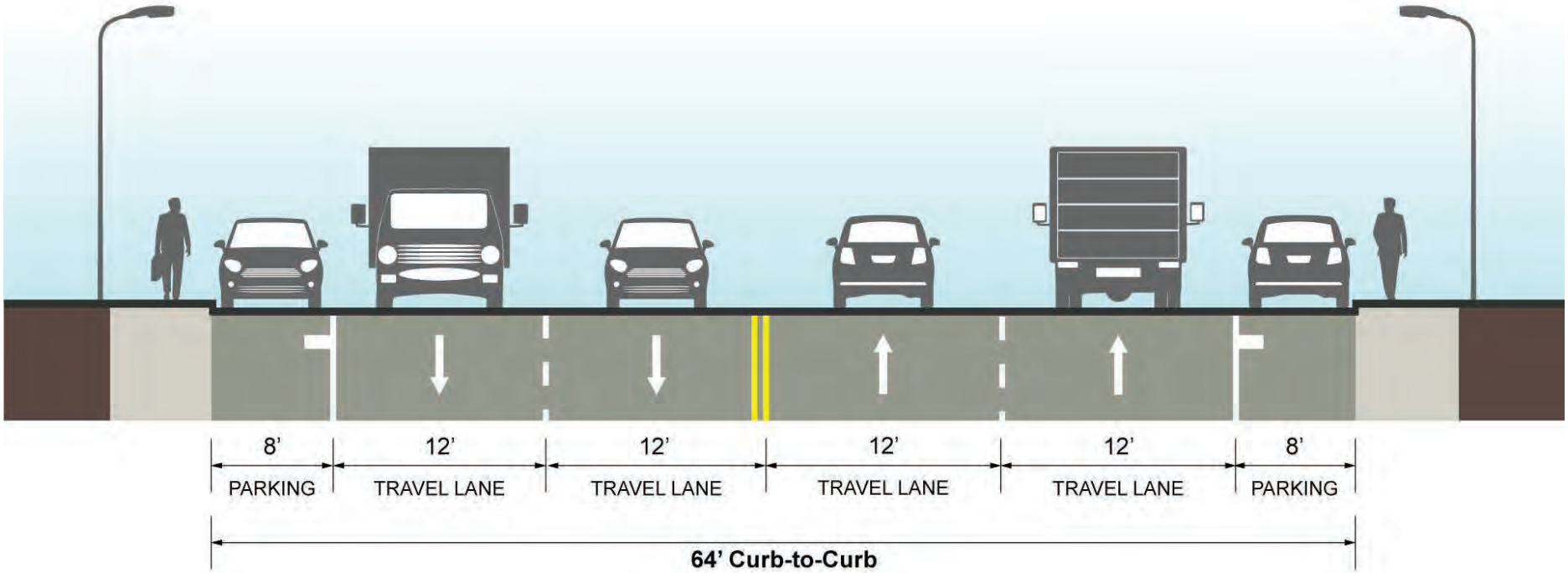


Figure 30: Existing Conditions/No Build
Section 5 - Martin Avenue (Lafayette Street to De La Cruz Boulevard)



03. Corridor Alternative Concepts & Analysis

Corridor Design Concepts for Martin Avenue — 64-foot Width

Concept D: Four Travel Lanes, No Parking

Concept D maintains the four travel lanes and adds Class IV separated bikeways by reducing lane widths and removing parking on both sides.The existing lane widths of 10-11 feet are transitioned to a uniform 11-foot travel lane width to accommodate the installation of a 7-foot wide Class IV separated bikeway with a 3-foot buffer separating it from the travel lanes. This concept is illustrated in **Figure 31**. At full implementation, this concept may require modification of signal timings and incorporation of pedestrian and bicycle intervals and bicycle signal heads. These potential improvements are to be evaluated and designed after a preferred design alternative is determined.

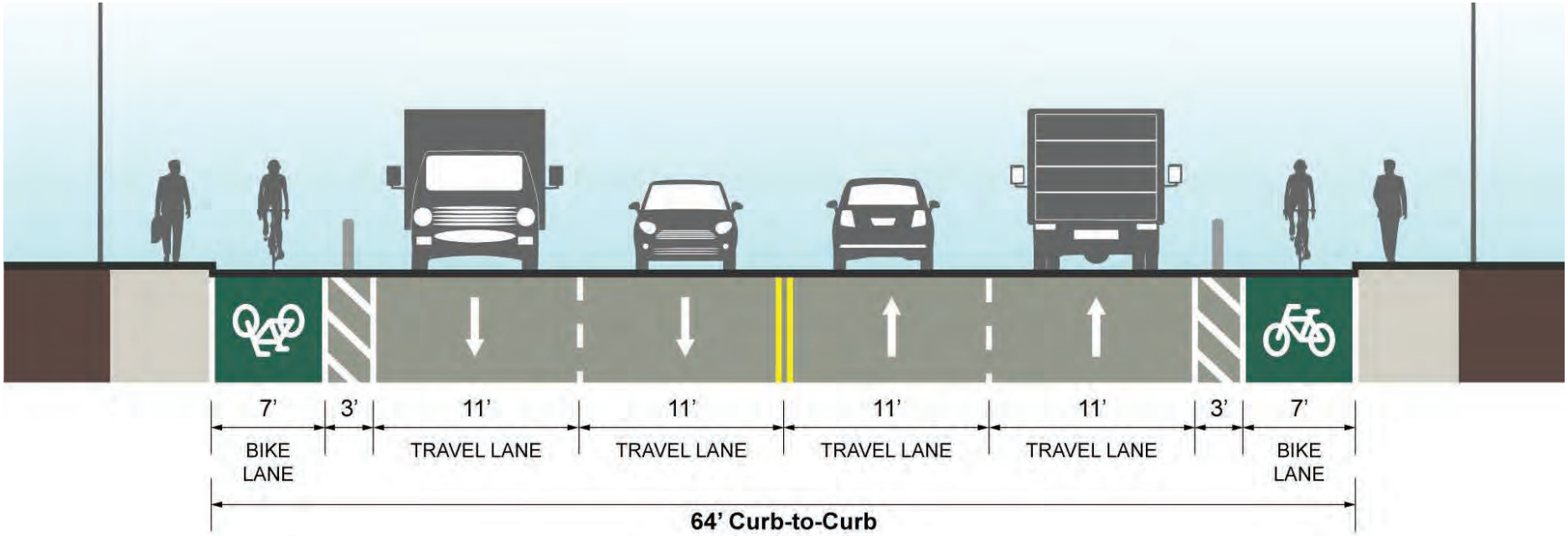
Intersection Improvement Considerations:

1. Green-backed bike symbol at intersection approach for visibility.
2. Bulb-outs, option for curb extensions or short-term quick-build painted option.
3. Parking is restricted (red curbs) at corners with bollards and bike lanes and 50 feet at the driveways along the segment to improved sight distance.
4. Leading pedestrian phase and bike phase or indication.
5. Add vertical barriers to further protect bicyclists from right turn movements. If installed, vehicles are restricted from turning right on red.
6. High-visibility crosswalks or protected intersections could be considered at selected intersections.

Segment Improvement Considerations:

1. Create separated bikeways on both sides of the corridor with skipped stripes at the driveways.
2. Add sight line buffer or restricted parking (red curb) at the driveways to increase sight distance.
3. Add “No Parking” and Speed Limit Signs.

Figure 31: Concept D: Four Travel Lanes, No Parking



Concept E: Four Travel Lanes, Remove Parking on One Side

Concept E maintains four travel lanes and adds Class IV separated bikeways by reducing travel lane widths and removing parking on one side. The elimination of the parking lane on one side accommodates the installation of a Class IV separated bikeway, which will be a 5-foot wide bike lane with a 2-foot wide buffer on one side and a 3-foot wide buffer on the other side separating it from the travel lanes. This concept is illustrated in **Figure 32**.

If Concept E is chosen, it is recommended to remove parking on the south side of Martin Avenue between Lafayette Street and De La Cruz Boulevard, as that would have less impact on the parking supply on Martin Avenue.

At full implementation, this concept may require modification of signal timings and incorporation of pedestrian and bicycle intervals and bicycle signal heads. These potential improvements are to be evaluated and designed after a preferred design alternative is determined.

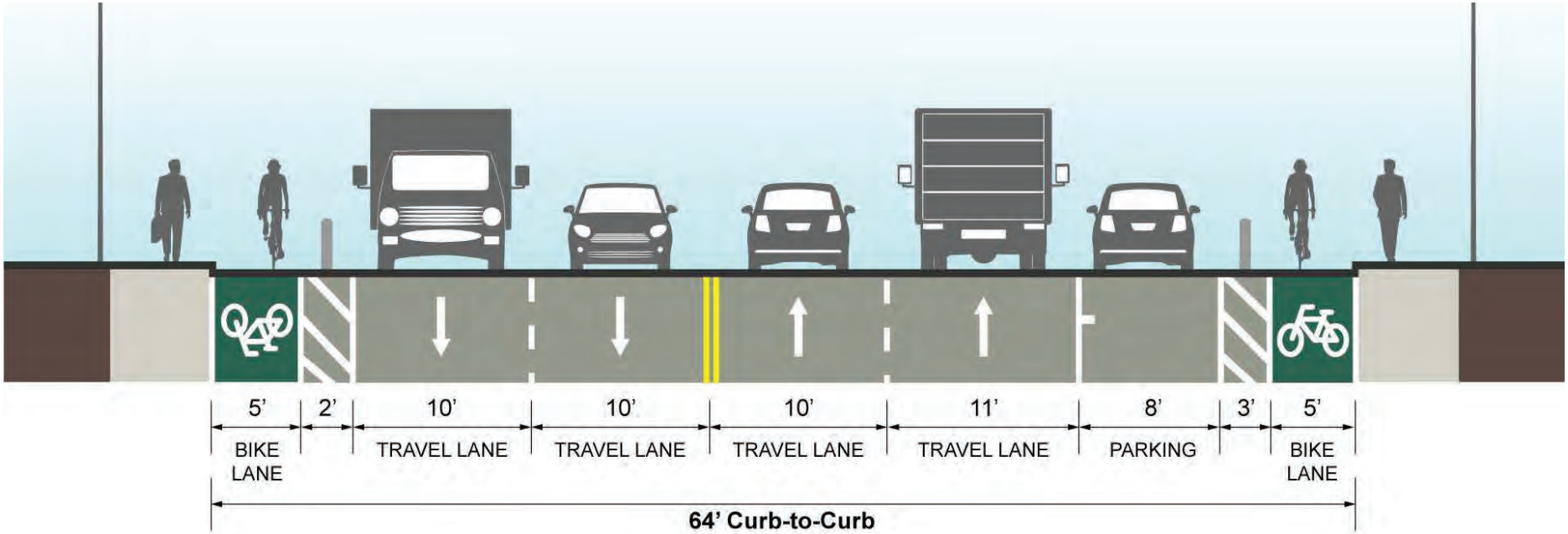
Intersection Improvement Considerations:

1. Green-backed bike symbol at intersection approach for visibility.
2. Bulb-outs, option for curb extensions or short-term quick-build painted option.
3. Parking is restricted (red curbs) at corners with bollards and bike lanes and 50 feet at the driveways along the segment to improved sight distance.
4. Leading pedestrian phase and bike phase or indication.
5. Add vertical barriers to further protect bicyclists from right turn movements. If installed, vehicles are restricted from turning right on red.
6. High-visibility crosswalks or protected intersections could be considered at selected intersections.

Segment Improvement Considerations:

1. Create separated bikeways on both sides of the corridor with skipped stripes at the driveways.
2. Add sight line buffer or restricted parking (red curb) at the driveways to increase sight distance.
3. Add “No Parking” and Speed Limit Signs.

Figure 32: Concept E: Four Travel Lanes, Remove Parking on One Side



Concept F: Two Travel lanes with Center Turn Lane, Parking on Both Sides

Concept F removes one travel lane in each direction, adds a center turn lane, maintains the existing parking on both sides, and adds a Class IV separated bikeway on both sides. The Class IV separated bikeway is 5 feet wide with a 3-foot wide buffer separating cyclists from the travel lanes. This concept is illustrated in **Figure 33**.

At full implementation, this concept may require modification of signal timings and incorporation of pedestrian and bicycle intervals and bicycle signal heads. These potential improvements are to be evaluated and designed after a preferred design alternative is determined.

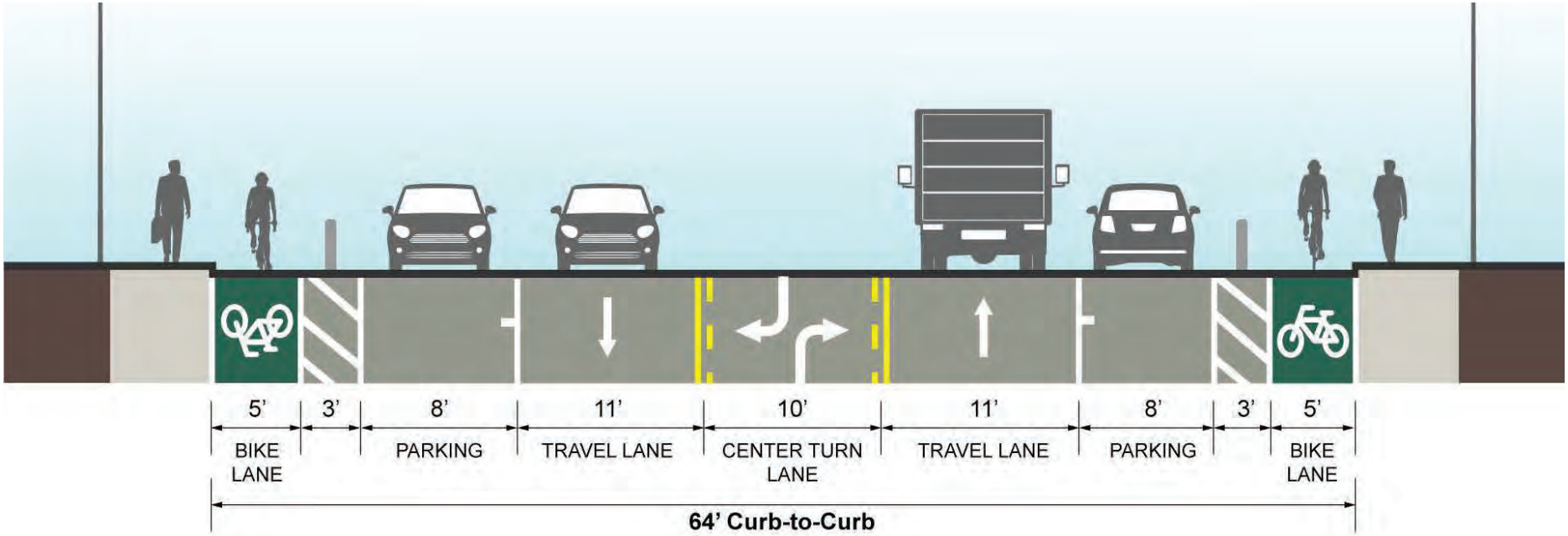
Intersection Improvement Considerations:

1. Green-backed bike symbol at intersection approach for visibility.
2. Bulb-outs, option for curb extensions or short-term quick-build painted option.
3. Parking is restricted (red curbs) at corners with bollards and bike lanes and 50 feet at the driveways along the segment to improved sight distance.
4. Leading pedestrian phase and bike phase or indication.
5. Add vertical barriers to further protect bicyclists from right turn movements. If installed, vehicles are restricted from turning right on red.
6. High-visibility crosswalks or protected intersections could be considered at selected intersections.

Segment Improvement Considerations:

1. Create separated bikeways on both sides of the corridor with skipped stripes at the driveways.
2. Add sight line buffer or restricted parking (red curb) at the driveways to increase sight distance.
3. Add “No Parking” and Speed Limit Signs.

Figure 33: Concept F: Two Travel lanes, Center Turn Lane, and Parking on Both Sides



03. Corridor Alternative Concepts & Analysis

Traffic Analysis

Safety

Collision Reduction Estimate

The Crash Modification Factor (CMF) is a multiplicative factor used to compute the expected number of crashes after implementing a given countermeasure at a specific site. Introducing a Class IV separated bikeway is projected to reduce bicycle-related collisions by 45%. Moreover, the project team applied the CMF of the safety countermeasure of "Road Diet" (reducing travel lanes from four to three and adding a two-way center left-turn and bike lanes) for collisions in Concept C and F.

The Road Diet measure is anticipated to reduce vehicular collisions by 35%. These estimates are based on the Crash Modification Factor from the California Local Roadway Safety Manual and Federal Highway Administration (FHWA) guidelines.

Table 9 illustrates the overall estimated collision reduction along the Walsh Avenue corridor. Concept C with Road Diet is anticipated to result in a reduction of 28 vehicular collisions respectively.

Table 10 illustrates the overall collision reduction along the Martin Avenue corridor. Concept F is anticipated to result in a total reduction of 14 vehicular collisions. No bike collisions were reported on this corridor between 2018 and 2022, and hence there will be no change anticipated in bike collisions.

Table 9: Estimated Collision Reduction on Walsh Avenue (2017-2022)

Concept	Road Diet	Bike Lane Type	Estimated Vehicle Collision Total	Vehicle Collisions Reduced	Bike Collisions Total	Estimated Bike Collisions Reduced	Total Collisions	Estimated Total Reduced Collisions
Existing Conditions/ No Build (64')	-	-	51	-	1	-	52	-
Concept A (64')	No	Separated Bike Lane	51	0	1	0.5	52	0.5
Concept B (64')	No	Separated Bike Lane	51	0	1	0.5	52	0
Concept C (64')	Yes	Parking Protected Separated Bike Lane	51	33	1	0.5	52	34
Concept C (64') with no parking	Yes	Separated Bike Lane	51	26	1	0.5	52	27

Table 10: Estimated Collision Reduction on Martin Avenue (2017-2022)

Concept	Road Diet	Bike Lane Type	Estimated Vehicle Collision Total	Vehicle Collisions Reduced	Bike Collisions Total	Estimated Bike Collisions Reduced	Total Collisions	Estimated Total Reduced Collisions
Existing Conditions/ No Build (64')	-	-	23	0	0	0	23	0
Concept D (64')	No	Separated Bike Lane	23	0	0	0	23	0
Concept E (64')	No	Separated Bike Lane	23	0	0	0	23	0
Concept F (64')	Yes	Parking Protected Separated Bike Lane	23	14	0	0	23	14

03. Corridor Alternative Concepts & Analysis

Parking

In addition to measuring current parking demand, the project team evaluated future demand for parking. The project team collected existing on-street parking inventory and occupancy along Walsh Avenue (between Bowers Avenue and Lafayette Street) and along Martin Avenue (between Lafayette Street and De La Cruz Boulevard) and 500 feet of the surrounding side streets. There are a total of 150 spaces on Walsh Avenue,124 spaces on Martin Avenue and 58 spaces on side streets.

Analysis showed that there is adequate parking available along the corridor. If parking were consolidated on one side of the street under the Four Travel Lanes with No Parking on One Side concept, on-street parking would be available to meet the demand. Parking availability would be 16% – 33% on Walsh Avenue, should parking be removed on the north or the south side respectively as shown in **Table 11**. **Figure 34** and **Figure 35** respectively show the average parking occupancy anticipated if parking on the north or south side are removed.

Parking was studied along Martin Avenue (between Lafayette Street and De La Cruz Boulevard) and 500 feet of the surrounding side streets. There are a total of 124 spaces between Lafayette Street and De La Cruz Boulevard.

Analysis showed that there is adequate parking available along the corridor. If parking were consolidated on one side of the street under the Four Travel Lanes with No Parking on One Side concept, on-street parking would be available to meet the demand. Parking availability would be 47%– 55% on Martin Avenue, should parking be removed on the north or the south side respectively as shown in **Table 12**.

Additionally, the existing land use along the study corridor is primarily industrial and office/research and development. The City of Santa Clara requires proposed developments to meet or exceed parking regulations defined in its Zoning Code. Since the existing developments were required to comply with the City of Santa Clara's parking regulations at the time of their approval, the number of off-street parking spaces should be sufficient for the existing land uses. Thus, the removal of existing on-street parking spaces should not cause adverse impacts.

Table 11: Estimated Parking Availability on Walsh Avenue with Parking Removal Scenarios

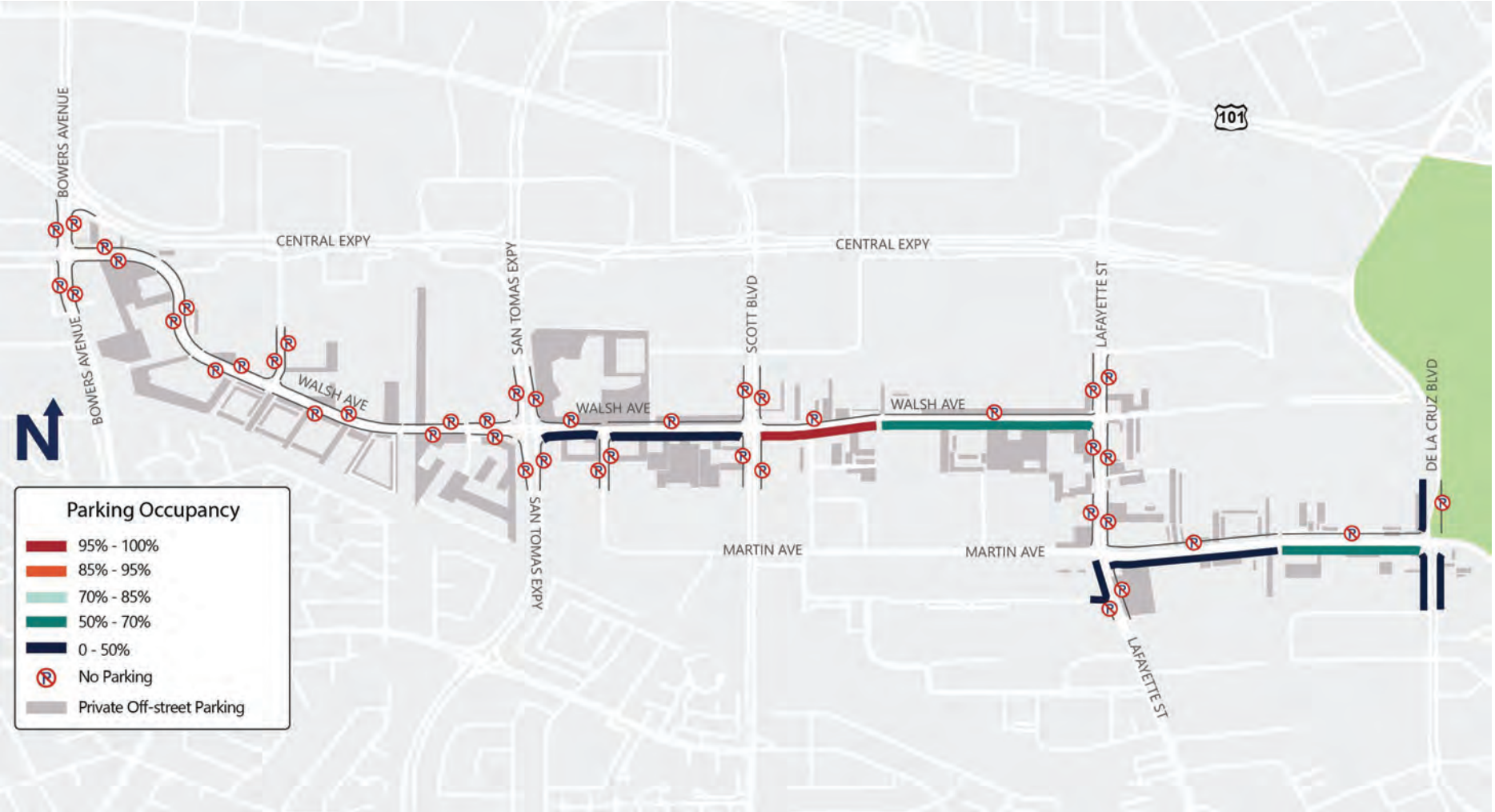
			Scenarios		
Location	**Available Parking Spaces**	**Observed Parked Vehicles**	**Current Parking Availability (No Build, Concept C)**	**Walsh Ave North Side Parking Removed**	**Walsh Ave South Side Parking Removed**
Walsh Ave – North Side	83	39	53%	N/A	33%
Walsh Ave – South Side	67	17	75%	26%	N/A
Side Streets (East Side Removed)	*No parking available*				
Side Streets (West Side Removed)	*No parking available*				

Table 12: Estimated Parking Availability on Martin Avenue with Parking Removal Scenarios

Location	Available Parking Spaces	Observed Parked Vehicles	Current Parking Utilization (No Build, Concept F)	Utilization – Martin Ave North Side Parking Removed	Utilization – Martin Ave South Side Parking Removed
Martin Avenue – North Side	67	11	16%	N/A	45%
Martin Avenue – South Side	57	19	33%	53%	N/A
Side Streets (East Side Removed)	15	2	13%	No parking removed	No parking removed
Side Streets (West Side Removed)	43	4	9%	No parking removed	No parking removed

03. Corridor Alternative Concepts & Analysis

Figure 34: Average Parking Occupancy Anticipated - Walsh Avenue and Martin Avenue North Side Parking Removed



03. Corridor Alternative Concepts & Analysis

Figure 35: Average Parking Occupancy Anticipated - Walsh Avenue and Martin Avenue South Side Parking Removed

Traffic Operations

Traffic Diversion

The project team used the City of Santa Clara Travel Demand Model to derive growth rates and volume deviations for the Road Diet conditions. In the Road Diet scenarios: Concept C and Concept F, Walsh Avenue and Martin Avenue was reduced to one lane in each direction. The assignment step of the travel demand model was re-run with the Road Diet and intersection turning movement volumes and segment volumes were extracted. The difference between the No Build and Road Diet volumes was calculated and the percentage change in the volumes were applied back onto the baseline volumes. The updated intersection turning movement volumes, after applying the changes from the model due to the Road Diet, was then balanced to get to the final volumes.

The model shows that with the proposed Road Diet, there would be a significant reduction in volume through the study corridors. A comparison of these volumes shows that in general there is a higher percentage reduction in the peak directions, westbound during the weekday AM peak hour and eastbound during the weekday PM peak hour.

On Walsh Avenue, there would be an average of 34% reduction in traffic during the weekday AM peak hour for the westbound direction and 38% reduction in traffic during the weekday PM peak hour for the eastbound direction for the entire segment. Traffic would likely divert to Scott Boulevard, Central Expressway, Monroe Street, and Bowers Avenue to reach their destinations.

On Martin Avenue, there would be an average of 14% reduction in traffic during the weekday AM peak hour for the westbound direction and 18% reduction in traffic during the weekday PM peak hour for the eastbound direction. Traffic would likely divert to Scott Boulevard, Monroe Street, De La Cruz Boulevard, and Central Expressway.

Travel Time – Walsh Avenue

The project team analyzed the impact on vehicle travel times along Walsh Avenue corridor under baseline conditions using simulation modeling. Travel time is the time it would take to travel the Walsh Avenue from Bowers Avenue to Lafayette Street. Travel time was studied for multiple periods (weekday morning between 7:00 and 9:00 a.m., midday between 1:30 and 3:30 p.m., evening between 4:00 and 6:00 p.m., and on Saturday between 12:00 p.m. and 2:00 p.m.). As shown in the **Table 13**, Concept C (Road Diet) will result in an increase of travel time in all the peak periods.

For Walsh Avenue, during the busiest time of day going westbound (AM peak period from 7:00 and 9:00 a.m.), it takes 5 minutes and 51 seconds to travel the study corridor. That would increase by 35% to 7 minutes and 53 seconds under Concept C. During the busiest time of day going eastbound (PM peak period from 4:00 and 6:00 p.m.), it takes 7 minutes and 49 seconds to travel through the study corridor. That would increase by 26% to 9 minutes and 49 seconds under Concept C. The full results of the travel time analysis are shown in **Table 13.**

Table 13: Walsh Avenue - Modeled Travel Time Changes (in minutes)

Time Period	No Build and Concepts A & B (min:sec)	Road Diet Concept C (min:sec)	Travel Time Increase ((min:sec) and %)	
Walsh Avenue - Westbound				
AM Peak	05:51	07:53	02:02	35%
PM Peak	05:23	06:19	00:56	17%
Midday	05:21	05:29	00:08	3%
Saturday	04:58	05:10	00:12	4%
Walsh Avenue - Eastbound				
AM Peak	05:01	05:30	00:29	10%
PM Peak	07:49	09:49	02:00	26%
Midday	05:05	05:17	00:12	4%
Saturday	04:44	04:44	00:00	0%

** Travel times represent modeled times and are above the average time recorded with field data during peak travel periods.*

Travel Time – Martin Avenue

The project analyzed the impact on vehicle travel times along Martin Avenue corridor under baseline conditions using simulation modeling. Travel time is the time it would take to travel the Martin Avenue from Lafayette Street to De La Cruz Boulevard. Travel time was studied for multiple periods (weekday morning between 7:00 and 9:00 a.m., midday between 1:30 and 3:30 p.m., evening between 4:00 and 6:00 p.m., and on Saturday between 12:00 p.m. and 2:00 p.m.). As shown in the **Table 14**, Concept F (Road Diet) result in an increase of travel time in all the peak periods.

For Martin Avenue, during the busiest time of day going westbound (AM peak period from 7:00 and 9:00 a.m.), it takes 2 minutes and 35 seconds to travel the study corridor. That would increase slightly by 9% to 2 minutes and 49 seconds under Concept F. During the busiest time of day going eastbound (PM peak period from 4:00 and 6:00 p.m.), it takes 2 minutes and 20 seconds to travel the entire corridor. That would increase 6% to 2 minutes and 29 seconds under Concept F. The full results of the travel time analysis are shown in **Table 14.**

Table 14: Martin Avenue - Modeled Travel Time Changes (in minutes)

Time Period	No Build and Concepts D & E (min:sec)	Road Diet Concept F (min:sec)	Travel Time Increase ((min:sec) and %)	
Martin Avenue - Westbound				
AM Peak	02:35	02:49	00:14	9%
PM Peak	02:33	02:43	00:10	6%
Midday	01:33	02:25	00:52	56%
Saturday	01:37	02:33	00:56	57%
Martin Avenue - Eastbound				
AM Peak	02:11	02:21	00:10	7%
PM Peak	02:20	02:29	00:09	6%
Midday	01:44	02:21	00:37	35%
Saturday	01:20	2 02:11	00:51	63%

** Travel times represent modeled times and are above the average time recorded with field data during peak travel periods.*

Level of Service

No Build
Under the No Build Option, No improvements are proposed on Walsh Avenue and Martin Avenue corridors. All 23 study intersections would continue to operate the same LOS as in existing conditions.

Walsh Avenue: Concept A & Concept B (Four Travel Lanes)
Both Concept A and Concept B maintain the existing number of travel lanes on Walsh Avenue and thus operate with the same level of capacity and LOS. Both concepts were evaluated using baseline traffic volumes. The intersection LOS is expected to be similar to "No Build" conditions as the existing lane geometries would be retained at the intersections.

Walsh Avenue: Concept C - Road Diet (Two Travel Lanes and Center Turn Lane)
Under Concept C, Walsh Avenue would be converted from four lanes to two lanes (one lane in each direction) with a center turn lane to accommodate Class IV separated bike lane on both sides of corridor. Concept C would also provide two eastbound receiving lanes (approximately 400 feet length) at the Bowers Avenue intersection and also at the San Tomas Expressway intersection (approximately 650 feet length).

Martin Avenue: Concept D & Concept E – (Four Travel Lanes)
Both Concept D and Concept E maintain the existing number of travel lanes on Martin Avenue and thus operate with the same level of capacity and LOS. Both concepts were evaluated using baseline traffic volumes. The intersection LOS is expected to be similar to "No Build" conditions as the existing lane geometries would be retained at the intersections.

Martin Avenue: Concept F – Road Diet (Two Travel Lanes and Center Turn Lane)
Under Concept F, Martin Avenue would be converted from four lanes to two lanes (one lane in each direction) to accommodate Class IV separated bikeway on both sides of corridor. Concept F would provide two eastbound receiving lanes (approximately 70 feet length) at the Lafayette Street intersection.

Of the 23 intersections studied, two are currently substandard in the AM peak period and three are substandard in the PM peak period on weekdays. Under Concepts C and F, which involve the reduction of one travel lane per direction,four are substandard in the AM peak period and two are substandard in PM peak period on weekdays. Walsh Avenue and Martin Avenue stop controlled intersection improved from substandard to meets the standard under Concept C. This is due to the delay has been reduced for critical movement. The results are summarized in **Table 15**.

The Road Diet (Concept C and Concept F) conditions of LOS are shown in **Figure 36** to **Figure 38.** Traffic analysis results indicated that the following intersections would operate substandard in the Road Diet conditions. A full breakdown of traffic operations analysis results are included in **Appendix A - Working Paper 3.**

- Walsh Avenue/Bowers Avenue – PM
- Walsh Avenue/Northwestern Parkway – PM
- Central Expressway/ De La Cruz Boulevard – AM
- Monroe Street/Scott Boulevard – AM
- Monroe Street/Quinn Avenue – AM
- Monroe Street/Bowers Avenue – AM

Table 15: Level of Service Analysis Results

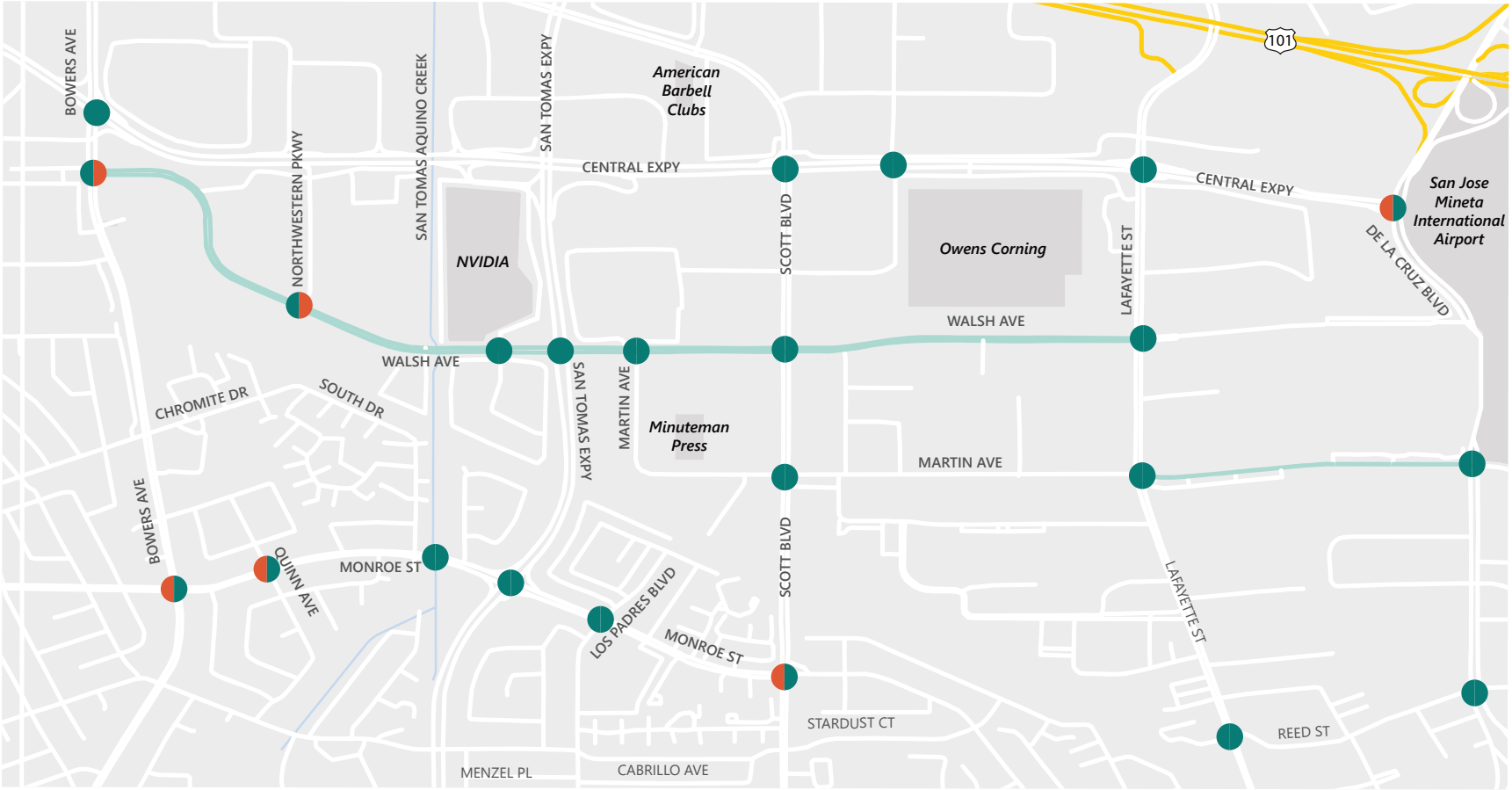
Time Period	No Build, Walsh Avenue: Concepts A & B, Martin Avenue: Concepts D & E		Road Diet - Concepts C & F	
	Meets Standard	Substandard	Meets Standard	Substandard
AM Peak	21	2	19	4
PM Peak	20	3	21	2*
Midday	23	0	23	0
Saturday	23	0	23	0

Note: Walsh Avenue and Martin Avenue stop-controlled intersection improved from sub-standard to meets the standard under Concept C. This is due to the delay has been reduced for critical movement of northbound left turn from Martin Avenue to Walsh Avenue.*

The project team also conducted a queuing analysis to evaluate the distance in which cars would queue to turn at intersections to see how each concept might impact the distance. Long queues may require motorists to wait through multiple signal cycles to turn and could impact overall traffic delay. Under the Road Diet scenario, Concepts C and F, the analysis did not show significant increases in queue lengths at all study intersections.

03. Corridor Alternative Concepts & Analysis

Figure 36: Baseline Conditions - Road Diet LOS (Weekday AM and PM) - Concept C and Concept F



LEGEND

Project Street

Baseline (Existing) AM PM

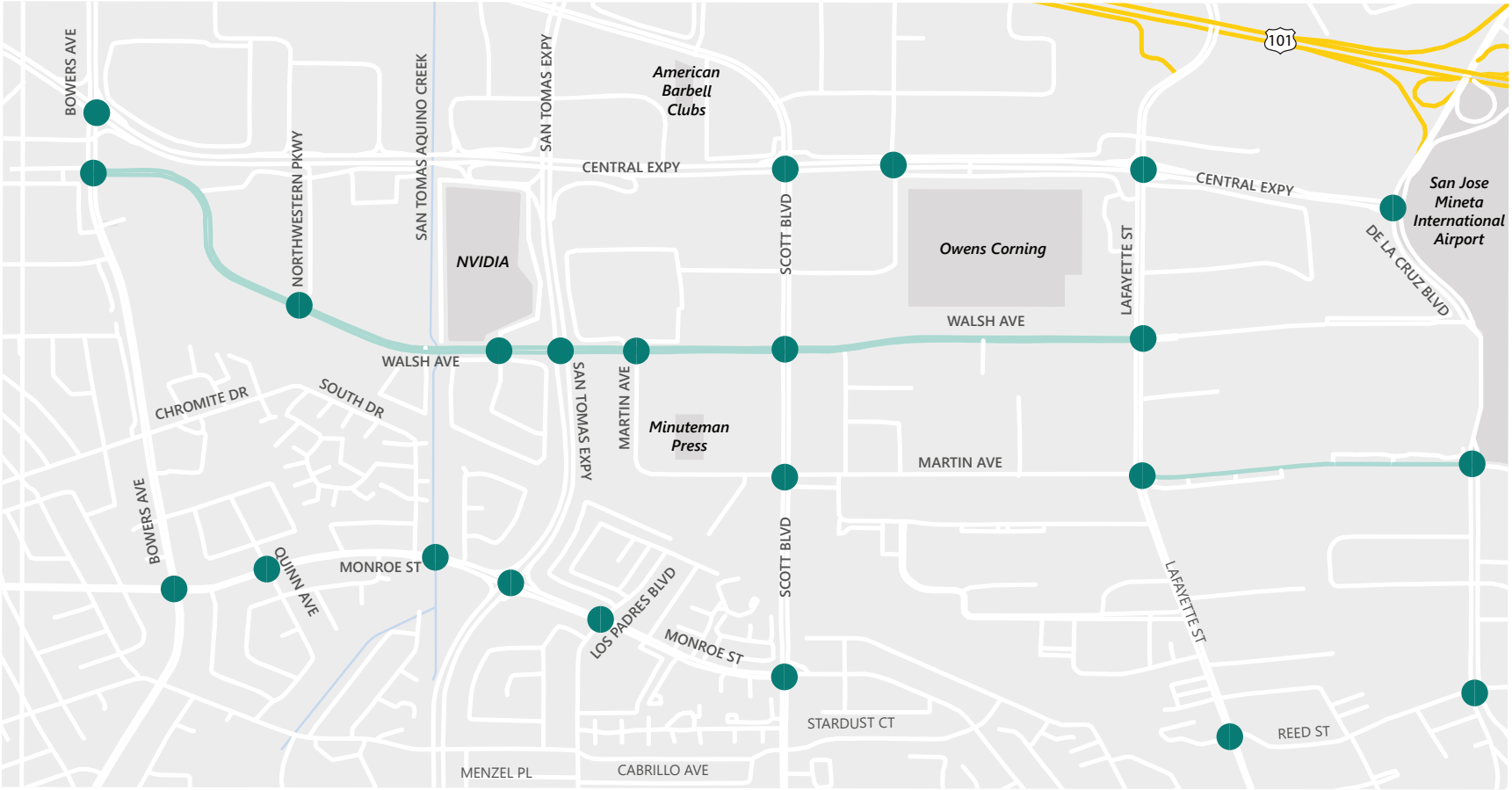
Meets Standard*

Substandard

**LOS D or better is considered acceptable for City intersections.*
LOS E or better is considered acceptable for County, CMP, and non-CMP intersections.

03. Corridor Alternative Concepts & Analysis

Figure 37: Baseline Conditions - Road Diet LOS (Weekday Midday) - Concept C and Concept F



LEGEND

Project Street

Baseline (Existing)

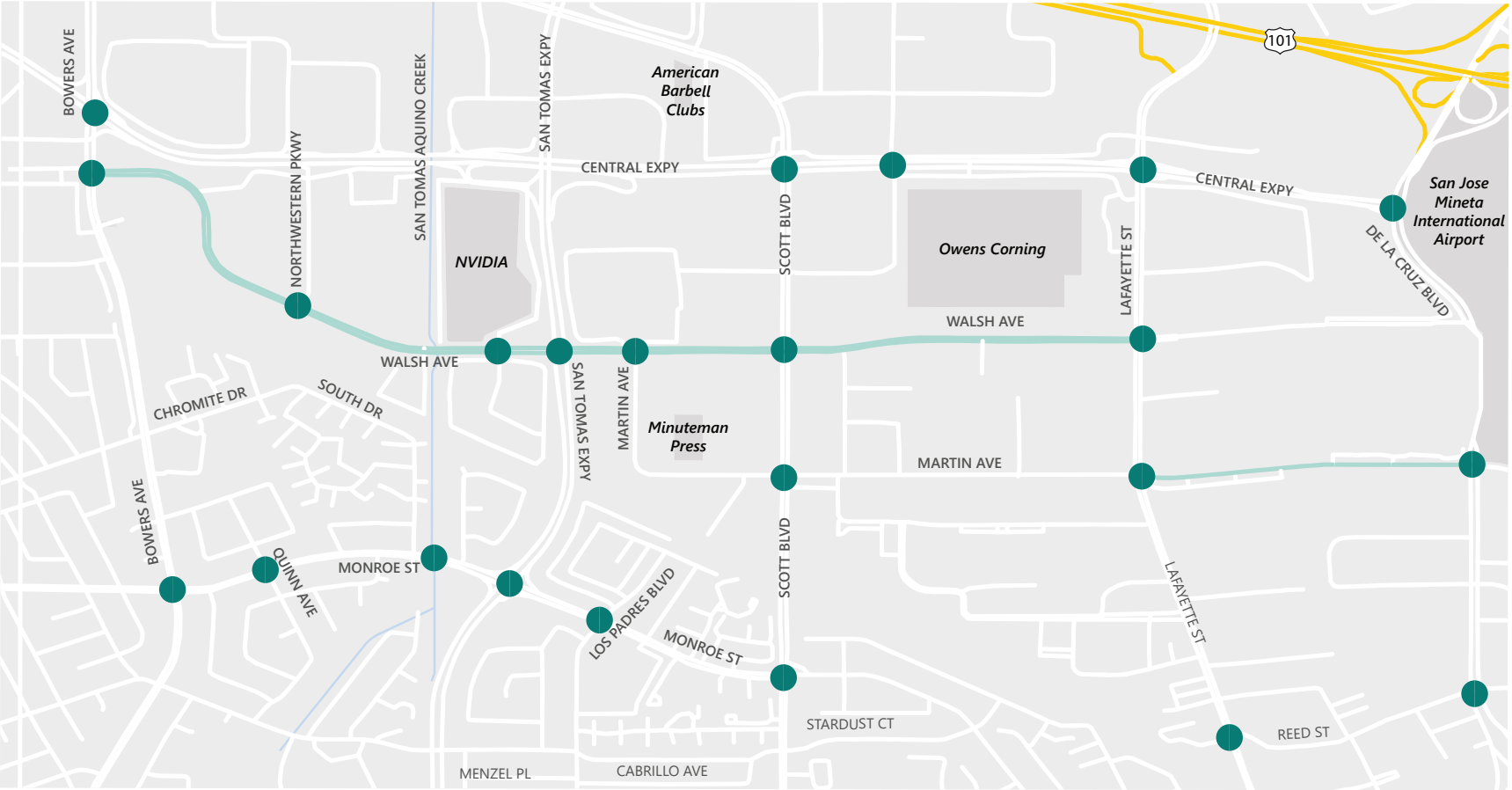
Meets Standard*

Substandard

**LOS D or better is considered acceptable for City intersections.*
LOS E or better is considered acceptable for County, CMP, and non-CMP intersections.

03. Corridor Alternative Concepts & Analysis

Figure 38: Baseline Conditions - Road Diet LOS (Saturday) (Concept C & Concept F)



LEGEND

Project Street

Baseline (Existing)

Meets Standard*

Substandard

**LOS D or better is considered acceptable for City intersections.*
LOS E or better is considered acceptable for County, CMP, and non-CMP intersections.

Vehicles Miles Traveled

The project team also modeled changes to Vehicle-miles Traveled (VMT) if a bikeway were to be installed. Depending on how available and inviting alternatives to driving a personal vehicle are, people will change their behavior, shifting certain trips from driving to walking, biking, or transit. The project team used the VMT Reduction Estimation methodology developed by the California Air Resources Board.

The method estimates the annual VMT reduction based on anticipated bicycle ridership change and bike trip length. The proposed bike lane length and type (Class IV separated bikeway) are all the same in proposed design concepts for each of the study corridors, so the bicycle ridership change is anticipated the same among the corridor concepts.

The project team estimated that a continuous bicycle lane on the Walsh Avenue corridor will reduce VMT by 1,822 miles per year between Lafayette Street and De La Cruz Boulevard. The project team estimated that a continuous bicycle facility on the Martin Avenue corridor will reduce VMT by 447 miles per year.

03. Corridor Alternative Concepts & Analysis

Summary

The comparison of analysis results between the proposed concepts are summarized in **Table 16** through **Table 17**. The benefits are summarized in **Table 18**.

Table 16: Analysis Summary - Walsh Avenue Corridor

Concept	Walsh Avenue Corridor					Entire Study Area
	Speed Reduction	Collision Reduction Potential	Parking Available on Walsh Ave	Travel Time (min:sec)	Annual VMT Reduction	Substandard Level of Service
Current Conditions / No Build Option	None	None	N: 53% S: 75%	AM: 5:51 PM: 5:23	N/A	AM: 2 PM: 3
Concept A: 4 Lanes; No Parking, Protected Bike Lanes	1-6 mph slower	Negligible	No parking on both sides	AM: 5:51 PM: 5:23	1,822	AM: 2 PM: 3
Concept B: 4 Lanes; Protected and Parking Protected Bike Lanes	1-6 mph slower	Negligible	16–33% depending on side	AM: 5:51 PM: 5:23	1,822	AM: 2 PM: 3
Concept C: 2 Lanes; Parking Protected Bike Lanes, Center Turn Lane	3-6 mph slower	Yes	Same as No Build	AM: 7:53 PM: 6:19	1,822	AM: 4 (+2) PM: 2 (-1)*

If Concept B is chosen, it is recommended to remove parking on the south side of Walsh Avenue between Martin Avenue and Lafayette Street, as that would have less impact on parking supply along Walsh Avenue.

Table 17: Analysis Summary - Martin Avenue Corridor

Concept	Martin Avenue Corridor					Entire Study Area
	Speed Reduction	Collision Reduction Potential	Parking Available on Walsh Ave	Travel Time (min:sec)	Annual VMT Reduction	Substandard Level of Service
Current Conditions / No Build Option	None	None	N: 84% S: 67%	AM: 2:35 PM: 2:33	N/A	AM: 2 PM: 3
Concept D: 4 Lanes; No Parking, Protected Bike Lanes	1-6 mph slower	Negligible	No parking on both sides	AM: 2:35 PM: 2:33	447	AM: 2 PM: 3
Concept E: 4 Lanes; Protected and Parking Protected Bike Lanes	1-6 mph slower	Negligible	47–55% depending on side	AM: 2:35 PM: 2:33	447	AM: 2 PM: 3
Concept F: 2 Lanes; Parking Protected Bike Lanes, Center Turn Lane	3-6 mph slower	Yes	N: 84% S: 67%	AM: 2:49 PM: 2:43	447	AM: 4 (+2) PM: 2 (-1)*

If Concept E is chosen, it is recommended to remove parking on the south side of Martin Avenue between Lafayette Street and De La Cruz Boulevard, as that would have less impact on the parking supply on Martin Avenue.

The annual VMT reduction estimate is based on formula from California Air Resources Board, Quantifying Reductions in Vehicle Miles Traveled from New Bike Paths, Lanes, and Cycle Tracks
https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/bicycle_facilities_technical_041519.pdf

03. Corridor Alternative Concepts & Analysis

Benefits Summary

Table 18: Benefit Summary - Walsh Avenue and Martin Avenue Corridor

Walsh Avenue and Martin Avenue Corridors	No Build		Concept A & D - Four Lanes; No Parking		Concept B & E - Four Lanes; Remove Parking on One Side		Concept C & F - Two Lanes; Center Turn Lane Parking on Both Sides	
	Yes	No	Yes	No	Yes	No	Yes	No
Benefits for Bicyclists								
Adds a bicycle facility		●	●		●		●	
Provides physical separation between traffic and bicyclists		●	●		●		●	
Encourages bicyclists to not ride on sidewalks		●	●		●		●	
Provides consistent clear visibility of bicyclists		●	●		●		●	
Allows bicyclists to maneuver around debris		●	●		●		●	
Allows bicyclists to maneuver around debris		●	●		●		●	
Benefits for Drivers								
Maximizes roadway and intersection capacity	●		●		●			●
Potential to significantly reduce vehicle collisions		●		●	●		●	
Adds a turn lane for safer turning maneuvers		●		●		●	●	
Benefits for Community and Businesses								
Reduces VMT		●	●		●		●	
Maintains exsiting on-street parking capacity	●			●		●	●	
Encourages slower automobile speeds		●		●	●		●	
Does not increase pedestrian midblock crossing demand	●			●		●	●	
Maintains existing trash collection plan	●			●		●		●
Does not require construction funding	●			●		●		●

04. Community Engagement

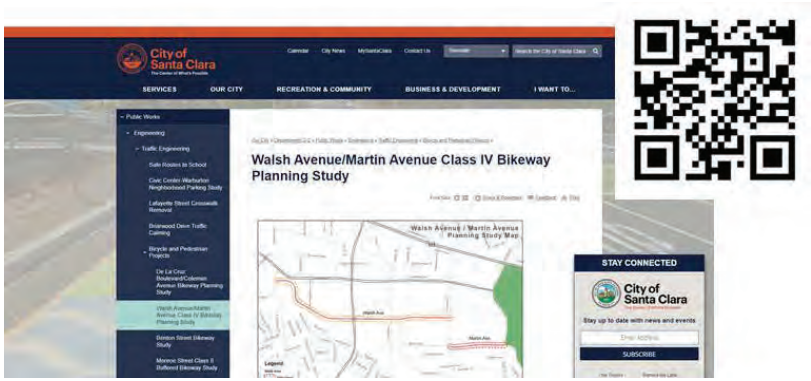
04. Community Engagement

Engagement Strategies

Project Website, Hotline, and Email

The City of Santa Clara hosted and maintained a dedicated project website and provided information about the Walsh Avenue/Martin Avenue Class IV Bikeway Planning Study. This website, launched in January 2023, was a key landing page for the public to receive project updates and information, including project documents, public event details, online surveys, and recordings for public workshops.

The project team also provided a dedicated phone number as an accessible alternative for community members to leave project feedback, as well as an email address for the project to message with comments. The project email account regularly sent updates to everyone who had signed up for project notifications whenever new information or materials were added to the project website, including meeting and survey details.



Project Website

Site Visit

Participants from the City of Santa Clara Bicycle and Pedestrian Advisory Committee (BPAC), City of Santa Clara staff, and the project consultants conducted a site visit on March 24, 2023. During this visit, the team studied the Walsh and Martin Avenue corridors, carefully observing field conditions such as sight distances, conflict zones, existing facilities, and specific pinch points. These observations were pivotal in tackling potential challenges and directing concentrated efforts during the analysis and design phase.

BPAC members observing Martin Avenue during the site visit.

Barriers along the sidewalk.

Truck parking along Martin Avenue.

BPAC members observing Walsh Avenue during the site visit.

San Tomas Aquino Creek Trail Crossing.

San Tomas Aquino Creek Trail Bridge von Walsh Avenue.

Committee/Commission Meetings

The project team met with the following Committees/Commissions and the City Council to provide project updates, gather input, and receive guidance.

Bicycle and Pedestrian Advisory Committee (BPAC)

Meeting 1: Plan overview, schedule, and BPAC priorities (March 27, 2023)
The primary objective of this meeting was to outline the project's goals and methodology, as well as to collect input regarding the current conditions and identified problems along the corridor.

Meeting 2: Review and collect feedback on draft corridor concepts (August 28, 2023)
This presentation included an analysis of the corridor, covering aspects such as parking and collision data, and introduced initial draft corridor concepts. BPAC had a robust discussion and provided feedback on the roadway concepts.

Meeting 3: Review analysis results and provide feedback on draft concepts (January 22, 2024)
The project team introduced four design alternatives for both study corridors, and presented community feedback from the second online survey. The presentation included an analysis including collision reduction estimates, scenarios involving parking removal, and a comprehensive traffic analysis that considered factors such as LOS and alterations to travel time.

Meeting 4: Approve the final report and recommend the preferred design concept to the City Council (June 24, 2024)
Project team presented the summary of the final survey conducted to choose the preferred design concept. BPAC members voted on updated design concepts and provided general comments.

Senior Advisory Commission

The project team met with the Parks and Recreation Commission on September 19, 2023 during Phase 2 of the project to inform commissioners and members of the public about the project and collect feedback on the proposed bikeways and general project input. The project team also provided project timelines and ways commissioners can stay involved with the project.

Parks and Recreation Commission

The project team met with the Parks and Recreation Commission on September 19, 2023 during Phase 2 of the project to inform commissioners and members of the public about the project and collect feedback on the proposed bikeways and general project input. The project team also provided project timelines and ways commissioners can stay involved with the project.

Youth Commission

The project team met with the Youth Commission on September 12, 2023 during Phase 2 of the project to inform commissioners about the project and collect feedback on the proposed bikeways and general project input. The project team also provided project timelines and ways commissioners can stay involved with the project.

Community Workshops

Community workshops offer a direct avenue to engage with the public, providing project information, pinpointing existing concerns, and collecting feedback on project ideas. The project encompassed three distinct phases of workshops, and the promotion of these community workshops was extensive. Workshop recordings are available on the project website for review. Each phase of community engagement included postcard notifications to 1,019 mailing addresses located within a half-mile radius of the corridor for each of the three rounds (totaling 3,057 notices sent). Each postcard indicated the project includes the potential to add bicycle lanes with the removal of on-street parking or travel lanes. The team created and produced 10 roadway signs with project information and placed them along the corridor early during Phase 1 engagement. Signs remained along the corridor for the duration of the project.

Additionally, project promotions were carried out through social media posts from the City, stakeholders, and community partners, as well as via the City Manager's Blog, Inside Santa Clara newsletter, and the project website. Details regarding meeting dates, times, and general themes for each round can be found below, and for more information, you can refer to **Appendix 3 - Community Engagement Materials**, which contains postcard notifications, and materials provided.

- Phase 1 (Project Introduction):
  Community Workshop #1:
  May 25, 2023

- Phase 2 (Roadway Concepts):
  Community Workshop #2:
  September 20, 2023

- Phase 3 (Preferred Roadway Concepts):
  Community Workshop #3:
  January 25, 2024

Phase 1 – Project Introduction

During the Phase 1 workshop, the project team introduced the project and asked the community members about their travel experiences and vision of the study corridors. This virtual session took place on May 25th, 2023, at 5:30 p.m., conducted via Zoom, and had a total of 7 attendees. During the meeting, a combined total of 10 comments were submitted, either through chat or video conference. Notably, 86% of the participants were residents residing in the area. Half of the attendees (50%) mentioned using Walsh Avenue and Martin Avenue for recreational purposes. The majority of the participants, constituting 71%, expressed their belief that Class IV separated bikeways would promote cycling along the corridor.

Snapshot of Phase 1 Community Workshop

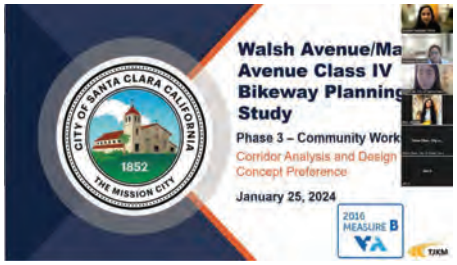
Snapshot of Phase 2 Community Workshop

Phase 2 – Roadway Concepts

In the Phase 2 workshop, the project team presented the findings of the corridor analysis, which included parking demand analysis and collision analysis along the study corridor. The results of the first community survey were also shared. The primary objective of this meeting, conducted virtually on September 20th, 2023, at 5:30 p.m. via Zoom, was to introduce the community to the draft design concepts. Additionally, in this round of community meetings, the link and QR code for the second community survey were presented and promoted.

Phase 3 – Preferred Roadway Concepts

Phase 3 workshops focused on refining the conceptual designs by gathering feedback from the community. This workshop was conducted on January 25th, 2024, and provided participants with final design concepts and the technical analysis related to Concepts A, B, and C on Walsh Avenue and Concepts D, E, and F on Martin Avenue. Additionally, in this round of community meeting, the link and QR code for the third and final community survey were presented and promoted.



Snapshot of Phase 3 Community Workshop

Pop-up Events

The project team organized several pop-up-style events to engage with the community members, gather additional input, and raise awareness of the project. The four pop-up events featured information kiosks equipped with poster boards presenting an overview of the project and QR codes linked to the project website.

Each of the pop-up events included three other separate bikeway studies on Monroe Street, Benton Street, and Coleman Avenue/De La Cruz Boulevard.

Each of the corridor options, including the existing one, were displayed. Community members can put down their vote for the alternative they preferred. Comment cards were also provided to community members for written feedback, and QR codes and survey links were made accessible for community members to participate in the online survey.

Earth Day/Arbor Day

At the Earth Day / Arbor Day event held at Central Park on April 27, 2023, from 10:00 a.m. to 2:00 p.m., the project team introduced the four corridor studies, including the Walsh Avenue/Martin Avenue Bikeway Planning Study, to the public. A map of the study corridors with a QR code that linked to the project webpages was displayed. Overall, four members of the public signed up for project updates through email contact.

Bike to Work Day

Bay Area Bike to Work Day, an annual event in the San Francisco Bay Area that promotes bicycle commuting, featured a booth hosted by the City's Public Works Department dedicated to the Walsh Avenue/Martin Avenue Bikeway Planning Study. The project team had the opportunity to interact with over 50 community members from 6:30 a.m. to 10:00 a.m. at the San Tomas Aquino Creek Trail and Agnew Road during this pop-up event. The main objective of this event was to introduce residents and regular commuters to the project and gather their feedback on safety concerns and their perceptions of the study corridor.

Community members stop to discuss bikeway concepts on Bike to Work Day

Community members stop by to discuss concepts and vote for their most preferred choices at the Art & Wine Festival

Santa Clara Art & Wine Festival

During the 41st Annual Santa Clara Art and Wine Festival at Central Park on September 16, 2023, and September 17, 2023, the project team had a booth to showcase the Walsh Avenue and Martin Avenue Bikeway Planning Study. The booth operated from 10:00 a.m. to 6:00 p.m. and featured two poster boards, a sign-in sheet, comment cards, and project information available in both digital and paper formats. Approximately 60 community members engaged with the project team on the project.

Holiday Tree Lighting Ceremony

The project team also attended the Holiday Tree Lighting at Central Park on December 1, 2023, where a similar booth was set up for broader community members to learn about the project. The booth operated from 5:30 p.m. to 8:30 p.m. and featured two poster boards, a sign-in sheet, comment cards, and project information available in both digital and paper formats. Approximately 20 community members engaged with the project team at the booth during the event.

Community members stop by to discuss concepts and vote for their most preferred choices at the Holiday Tree Lighting Event

Community members stop by to discuss concepts and vote for their most preferred choices at the pop-up at Caltrain Station

Caltrain Commuter Outreach

On February 15, 2024, the project team set up a pop-up event at the Santa Clara Caltrain station to showcase the Walsh Avenue and Martin Avenue Bikeway Planning Study and promote the final project survey. The booth operated from 4:00 p.m. to 6:00 p.m. and featured one poster board, comment cards, and project information available in both digital and paper formats. Approximately 15 residents/commuters engaged with the project team at the booth during the event. The residents/commuters were handed out flyers with the QR code for the final survey.

Online Surveys

The project team conducted three public surveys throughout the project period, and posted all three to the project website. The first was a brief survey that included questions on transportation preferences and behaviors, specific questions about how attendees use Walsh Avenue or Martin Avenue, and demographic questions. The second survey gathered feedback and preferences on draft corridor concepts, while the third survey asked for ranked preferences on corridor concepts after revision.

Survey 1: Maptionnaire Platform

The first round of community outreach and survey was supplemented with an interactive map platform. The interactive map was used to solicit the safety concerns of the community and stakeholders. This survey helped us identify the concern areas and helped us pinpoint and locate them on a map. In total, we received a total of 56 comments. 39 of them were along Walsh Avenue and 15 comments were received along Martin Avenue. The platform received two additional comments that were applicable to both corridors.

Survey 2: Draft Design Concepts Survey

The second round of surveys was created to gather community feedback specifically on the draft corridor concepts. The second online survey sought feedback on the draft corridor concepts. The second survey was available between September 2023 and October 2023. The survey received 63 responses.

Survey 3: Preferred Design Concept Survey

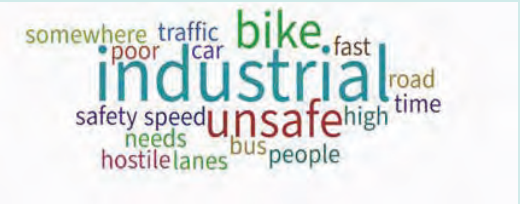
The third and final round of survey was created to gather community feedback on their preferred alternative. This survey was available between January 2024 and February 2024. The survey received 45 responses.

Maptionnaire Map input platform used to conduct the first community survey

Phase 1 Engagement Summary Findings

Travel Trends/Preferences Summary
At the first community workshop, the project team inquired about the usual places people visit when traveling through the Walsh and Martin Avenue corridor. The respondents' word frequency illustrated the prevalence of certain destinations, with "Home Depot," "gym," and "office" being the most frequently mentioned.

Usual places that participants visit while travelling through the Walsh & Martin Avenue Corridor



Perception of travelling along the Walsh & Martin Avenue Corridors

To gain insight into the perceptions of traveling along this corridor, the team also asked participants about the associations that come to mind when thinking of Walsh and Martin Avenues. Some of the commonly provided responses included "industrial" and "unsafe."

To gain a better understanding of the long-term community vision for the corridor, the project team asked respondents to identify one to three words that come to mind when thinking of the future of Walsh/Martin Avenue. Some of the most common phrases identified for the future of Walsh/Martin Avenue include 'safe', 'bike lanes', and 'connection' as shown in the word clouds to the right.

Community's long term vision for the Walsh & Martin Avenue Corridors

Community Survey 1 Findings
An interactive map platform was used to solicit the safety concerns of the community and stakeholders. This survey helped us identify the concern areas and helped pinpoint and locate them on a map. In total, we received a total of 56 comments. 39 of them were along Walsh Avenue and 15 comments were received along Martin Avenue. The platform received two other comments that applied to both corridors. **Figure 39** illustrates the location and type of concern:

The top concerns included:

1. Intersection improvements for bicycle safety and continuity along several intersections. Some of the major intersections of concern include:
    a. Walsh Avenue and San Tomas Expressway
    b. Walsh Avenue and Bowers Avenue
    c. Martin Avenue and De La Cruz Boulevard
    d. Walsh Avenue and Scott Boulevard
    e. Walsh Avenue and Lafayette Street
    f. Walsh Avenue and Northwestern Parkway
2. Need for a bicycle facility along the entire study corridor
3. Speeding related concerns along Martin Avenue
4. Need for a center turn lane along Walsh Avenue between San Tomas Expressway and Lafayette Street and the entire study length of Martin Avenue

Figure 39: Maptionnaire - Community Concerns (56 Responses)

Phase 2 Engagement Summary Findings

Community Survey 2 Findings

This segment of the public engagement survey featured preliminary design concepts for new bicycle facilities on Walsh Avenue and Martin Avenue, presented to the City in September 2023. The community expressed support for each alternative and offered constructive feedback on the positive aspects of each concept as well as areas for potential improvement. The summary of the findings of the survey is listed below:

Summary and Learnings

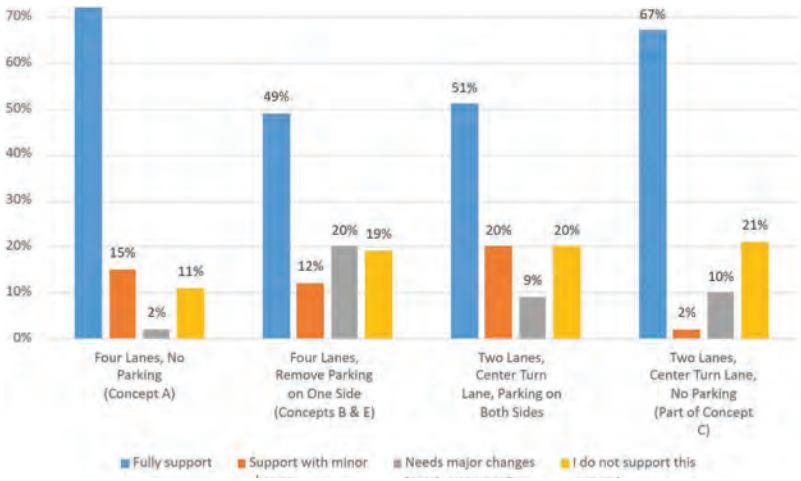
- A total of 63 respondents took the second survey
- The highest proportion of respondents (57%) either reside or have their workplace situated on Walsh Avenue, or they regularly commute through this corridor (52%).
- More than a third of those surveyed (38%) either reside or have their workplace situated within a short distance of Martin Avenue. An additional 30% occasionally traverse this route, while 28% do so regularly.
- Most of the respondents are aware of the project from the City of Santa Clara Website or through other sources involving biking, work-related updates, and NVIDIA communication.
- Proposed Section A received 73% support. Of this, 17% were amenable to supporting it with minor adjustments, while 2% stipulated substantial modifications as a prerequisite for their support. Additionally, 8% expressed outright non-support for the proposed concept.
- Concept A, featuring "Four Lanes, No Parking," garnered strong support, with 87% of respondents expressing favor or indicating support with minor changes. The appeal lies in the preference for protected facilities, buffer space, and wider bike lane. Respondents expressed interest in learning more about the specific types of barriers proposed.
- Concepts C and F, presenting "Two Lanes, Center Turn Lane, Parking on Both Sides," received the backing of 71% of respondents, either outright or with minor suggested modifications. The benefit of protected facilities, the retention of parking, and the utilization of parked cars as a physical barrier were key factors. Respondents indicated a desire for more information regarding traffic impacts associated with lane removal and intersection treatments.
- Concepts B and E, presenting "Four Lanes, Remove Parking on One Side," secured the support of 61% of respondents, either outright or with minor suggested modifications. Respondents appreciated the presence of protected facilities and some on-street parking. However, concerns were raised about parking obstructing visibility, leading to a request for the removal of parking on the north side of the corridor.
- The results of the survey are tabulated in **Table 19** and illustrated in **Figure 40.**

Appendix 2 of this report provides full survey results.

Table 19: Online Survey #02 Results - All Responses (63 Responses)

Response	Four Lanes, No Parking (Concept A)	Four Lanes, Remove Parking on One Side (Concepts B & E)	Two Lanes, Center Turn Lane, Parking on Both Sides (Concepts C & F)	Two Lanes, Center Turn Lane, No Parking (Part of Concept C)
Fully support	72%	49%	51%	67%
Support with minor changes	15%	12%	20%	2%
Needs major changes to get my support	2%	20%	9%	10%
I do not support this concept	11%	19%	20%	21%

Figure 40: Survey #02 Results



Phase 3 Engagement Summary Findings

Community Survey 3 Findings

In this section of the public engagement survey, we presented the No Build and three proposed design concepts for each of the two corridors on Walsh Avenue and Martin Avenue. Participants were tasked with selecting their preferred alternative by ranking the concepts from best to worst. While the community was required to designate their top choice, they had the option to refrain from voting on the other alternatives. The survey findings are succinctly outlined below:

Summary and Learnings

- A total of 45 respondents took the survey
- The majority of respondents (56%) commute regularly along the Walsh Avenue corridor, with 31% living or working directly on the corridor, and 40% crossing it regularly.
- The majority of respondents (36%) commute regularly along the Martin Avenue corridor, with 22% crossing it regularly and 29% living or working within a few blocks of the Martin Avenue corridor.
- Most of the respondents are aware of the project from the City of Santa Clara email and the website or through other sources involving work/local biking groups, work-related updates, yard signs along the corridor, BPAC, and the Silicon Valley Bicycle Coalition.
- Proposed Section 1 concept for Walsh Avenue at Bowers Avenue received 74% support and 26% of participants supported the current or no-build condition for the stretch of Walsh Avenue between Bowers Avenue and the transition.
- Among the alternatives considered for the Walsh Avenue corridor, Concept C, featuring two lanes, a center turn lane, and parking on both sides, emerged as the most favored choice. Concept C secured the majority with 58% of the votes, surpassing other alternatives. The second most preferred alternative was Concept A, featuring four lanes and no parking alternative which garnered 40% of the votes
- For the alternatives considered for the Martin Avenue corridor, Concept F, featuring two lanes, a center turn lane, and parking on both sides, emerged as the most favored choice. Concept F secured the majority with 56% of the votes, surpassing other alternatives.
  The second most preferred alternative was Concept D, featuring four lanes and no parking alternative which garnered 40% of the votes
- The survey participants were also asked to provide reasons for supporting their preference or leave a general comment. The general themes were:
  - Traffic Safety:
    - Support for reduced lanes to calm traffic.
  - Bike Infrastructure:
    - Strong backing for separated, protected bike lanes.
    - Desire for grade-separated or overpass options.
  - Parking Considerations:
    - Mixed views on-street parking, with some supporting removal.
  - Public Acceptance:
    - Concerns about businesses with reduced parking.
  - Intersection and Connectivity:
    - Requests for intersection and connectivity considerations.
  - General Support for Cycling:
    - Recognition of the need for safe cycling routes.
    - Desire to promote cycling for congestion reduction.
  - Infrastructure Improvements:
    - Support for narrower car lanes, wider bike lanes, and center turn lanes.
  - Concerns about Impact on Commute and Businesses:
  - Opposition to parking removal and lane width reduction due to commute impact.
  - The results for survey 3 are respectively shown in **Figure 41** and **Figure 42** for the preferred alternatives for Walsh Avenue and Martin Avenue.

Figure 41: Ranked Choice Vote for Walsh Avenue Concepts

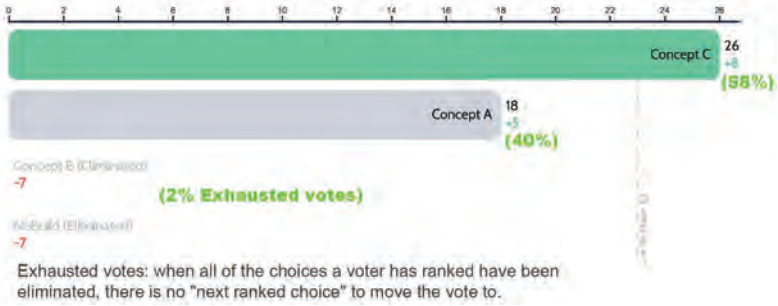
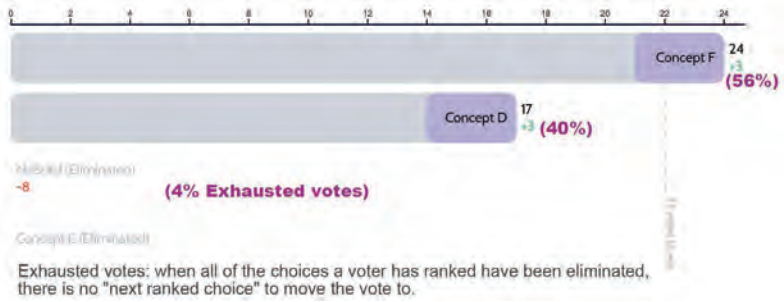


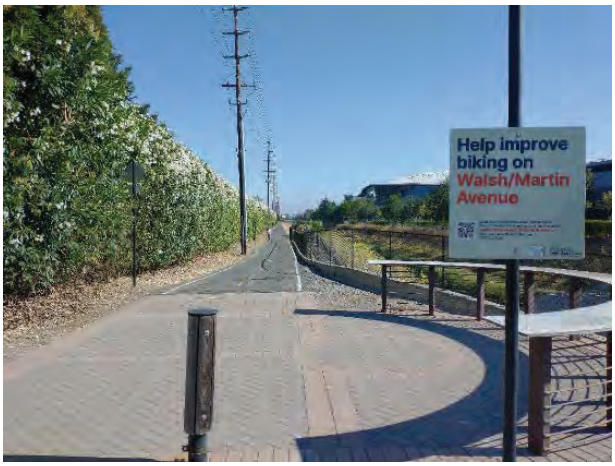
Figure 42: Ranked Choice Vote for Martin Avenue Concepts



Additional Engagement

To boost awareness and public participation, the project team used additional outreach strategies including communication through the City Manager's Blog, "Inside Santa Clara" articles, and various social media platforms such as Facebook, Nextdoor, and Twitter to promote events, surveys, and other materials.

Additionally, the project team distributed more than 1100 postcards before each round of community meetings to inform residents and businesses located within a half-mile radius of the study corridor. Furthermore, the City placed 10 street signs along the corridor to guide people to the project website.



Project signs posted along the San Tomas Aquino Creek trail

10 signs posted along the project corridor

Postcards sent out for all rounds of community workshops

Comment cards handed out to community at pop-up events

05. Recommendations

05. Recommendations

Final Recommendation

[PLACEHOLDER] CITY COUNCIL WILL REVIEW RESULTS OF THE STUDY AND MAKE A RECOMMENDATION TO BE INCLUDED IN THE FINAL COPY

High-Level Cost Estimates

The estimated costs in **Table 20** are planning-level costs that help the public understand at a high level what investments are required for various infrastructure improvements. This cost estimate includes the cost of striping installation and removal, pavement markings, green pavement markings, delineator posts, slurry seal, sign installation and removal, traffic control, and mobilization.

Table 20: Generalized Planning Level Costs

Bikeway Classification	Cost Per Mile (Approx.)
Class IV – Separated Bikeway	$366,000 - $1,134,000
Class II Buffered Bicycle Lanes	$195,000 - $619,000

Local and Regional Grant Programs

2016 Measure B

Santa Clara voters approved a half-cent sales tax in 2016 to fund transportation infrastructure investments. Measure B is expected to raise $6.3 billion (2017 dollars) over 30 years to fund nine program categories. The Local Streets and Roads Program returns funds to the cities and the County on a formula basis to be used to repair and maintain the street system. The allocation is based on the population of the cities and the County of Santa Clara's road and expressway lane mileage. Cities and the County will be required to demonstrate that these funds would be used to enhance and not replace their current investments for road system maintenance and repair. The program would also require that cities and the County apply Compete Streets best practices to improve bicycle and pedestrian elements of the street system. If a city or the County has a Pavement Condition Index score of at least 70, it may use the funds for other conges-tion relief projects. Two hundred fifty million dollars has been allocated toward the Bicycle and Pedestrian Program. Within the Bicycle and Pedestrian Program, funds are divided between capital projects (80%), education and encour-agement programs (15%) and planning studies (5%). The education and encouragement funds will be allocated to cities based on a population formula with a $10,000 annual minimum allocation per city; $250,000 will be reserved for county-wide programs. Funds for bicycle and pedestrian projects are applied to a select list of projects approved by the VTA Board.

Funds are programmed by VTA.

Transportation Fund for Clean Air County Program Manager Fund

The Bay Area Air Quality Management District (BAAQMD) administers funds to the VTA for projects that reduce vehicle emissions including bicycle projects. These funds come from a $4.00 vehicle registration surcharge in Bay Area counties and can be used as a match for competitive state or federal programs.

Funds are programmed by VTA.

One Bay Area Grant

The One Bay Area grant program (OBAG) emphasizes funding for projects within Priority Development Areas in the region that are in-line with housing and land use goals. Projects that are within or provide access to these Priority Development Areas could qualify for these grants.

Funds are programmed by the Metropolitan Transportation Commission (MTC) and the VTA.

Transportation Development Act Article 3

Transportation Development Act Article 3 (TDA 3) provides funding annually for bicycle and pedestrian projects. 2% of TDA funds collected within the county are used for TDA 3 projects. Metropolitan Transportation Commission policies require that all projects be reviewed by a Bicycle and Pedestrian Advisory Committee or similar body before approval.

Funds are programmed by VTA.

State and Federal Grant Programs

California Active Transportation Program (ATP)

Governor Edmund G. "Jerry" Brown signed legislation in 2013 that consolidates existing federal and state transportation programs including the Transportation Alternatives program, Bicycle Transportation Account, and State Safe Routes to School, into a single program focused on expanding and enhancing active transporta-tion across the state. The Active Transportation Program is intended to increase the use of active transportation, enhance safety for non-motor-ized users, improve public health, and advance regional greenhouse gas reduction goals pursuant to Senate Bill 375 (of 2008) and Senate Bill 341 (of 2009). This grant program funds a wide variety of activities and projects that further the goals of the program including infrastructure, non-infrastructure, and planning studies.

Funds are programmed by Caltrans with guidance from the California Transportation Commission (CTC).

Highway Safety Improvement Program

Caltrans offers Highway Safety Improvement Program grants every one to two years. Projects on any publicly owned road or active transportation facility are eligible, including bicycle and pedestrian improvements. This program focuses on projects that explicitly address documented safety challenges through proven countermeasures, are implementation ready, and demonstrate cost-effectiveness.

Funds are programmed by Caltrans.

Office of Traffic Safety Grant

The Caltrans Office of Traffic Safety makes grants available to local and state public agencies for programs that help them enforce traffic laws, educate the public in traffic safety, and provide varied and effective means of reducing fatalities, injuries, and economic losses from collisions. Funding can be used for safety trainings, bike helmets, and traffic safety campaigns, among other activities.

Funds are programmed by the Office of Traffic Safety.

Safe Streets and Roads for All (SS4A)

Established under the Bipartisan Infrastructure Law, this discretionary program funds regional, local, and tribal initiatives to prevent roadway deaths and serious injuries. Grant types include Planning and Demonstration Grants as well as Implementation Grants. Eligible activities include pilot and demonstration projects, data analytics, creating safe routes to schools, promotional and education materials, and expanding bicycle networks. An eligible Safety Action Plan must be developed prior to applying for Implementation Grants under this program.

Funds are awarded by the US Department of Transportation.

Road Maintenance and Rehabilitation Program

Senate Bill 1 created the Road Maintenance and Rehabilitation Program to address deferred maintenance on state highways and local road systems. Program funds can be spent on both design and construction efforts. On-street active transportation-related maintenance projects are eligible if program maintenance and other thresh-olds are met.

Funds are programmed by the State Controller's Office with guidance from the CTC.

Appendices

Appendix A. Technical Memorandums

1. Existing Conditions Memo
2. Parking Utilization Memo
3. Traffic Analysis Memo

Appendix B.
Survey Results

Appendix C. Community Engagement Materials