City of Santa Clara

Monroe Street Bikeway Planning Study

DRAFT FINAL | May 2024

Prepared by

alta

2016 MEASURE B

City of Santa Clara
The Center of What's Possible

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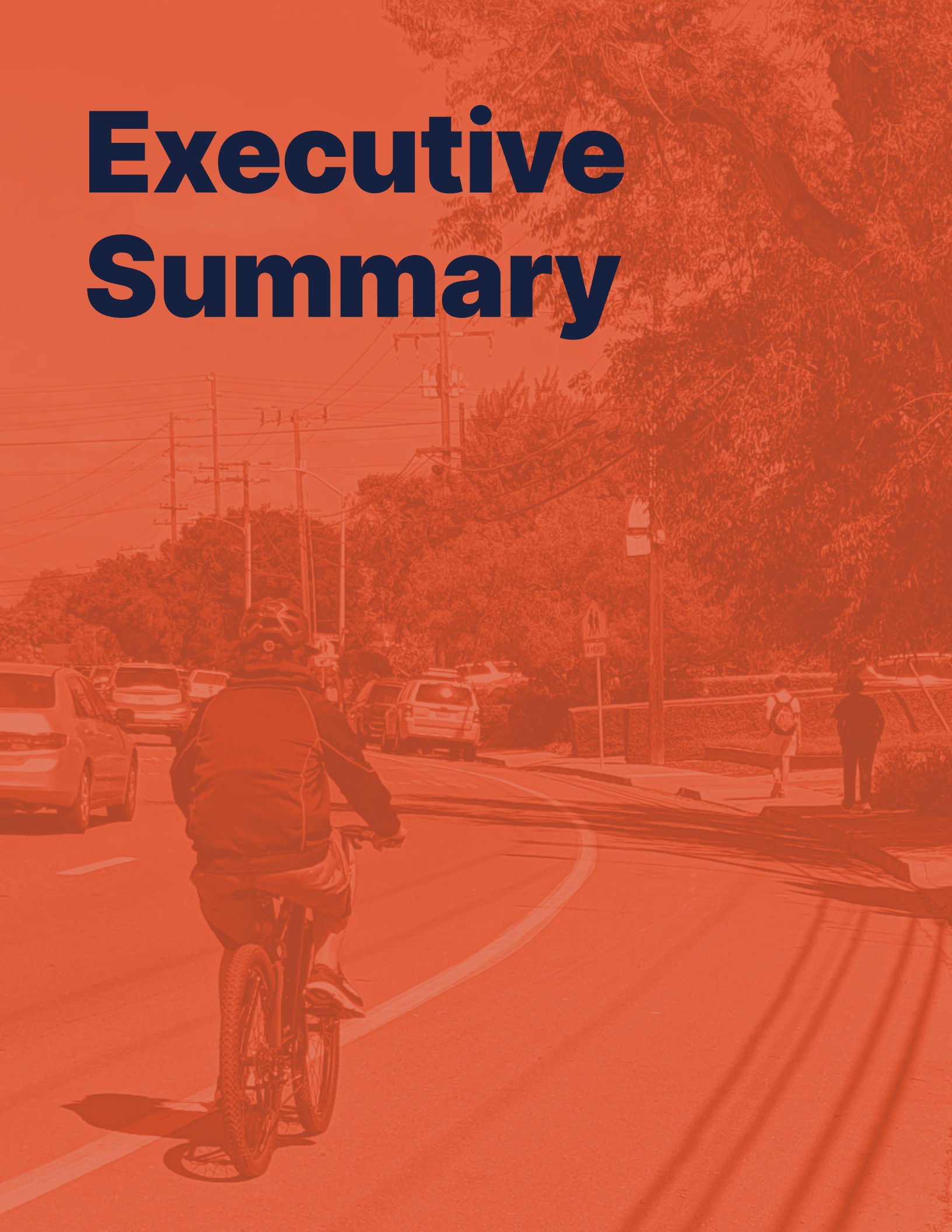
Contents

List of Figures

List of Tables

Executive Summary



Scope of Study

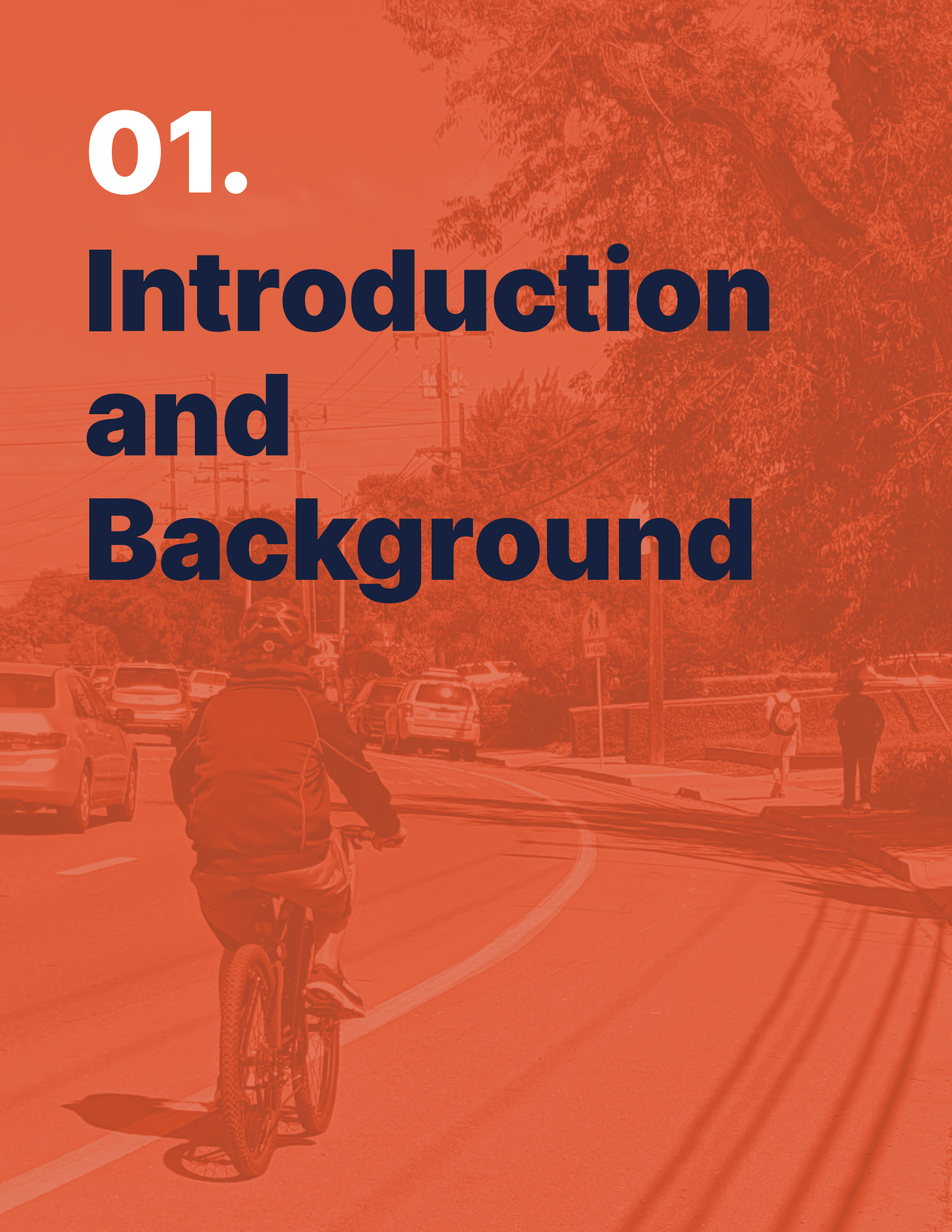
The City and project consultant, Alta Planning + Design, began working on the Monroe Street Bicycle Planning Study in January 2023 and expect it to be completed by fall 2024. The study will identify the most feasible design to reallocate roadway space to provide 1.75 miles of bike facilities along Monroe Street from San Tomas Expressway to Lawrence Expressway. The goal of the study is to identify bicycle infrastructure improvements that will close bicycle network gaps, increase mobility, and encourage the public to choose more sustainable modes of transportation. The study includes reviewing potential project options with parking or lane removal. The project team has invited nearby residents, business owners, public health professionals, school staff, commuters, and community leaders to take part in the study process. This report contains a traffic and parking analysis, street design concepts, and a discussion on opportunities and constraints of the potential design options.

It should be noted that the study is only a planning level document and does not include design, environmental review, or construction of any alternative. Additional funds would be required to design and construct the preferred alternative.

City Council Preferred Concept

To be determined

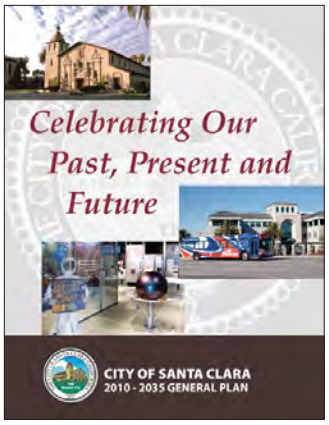
01.
Introduction and Background



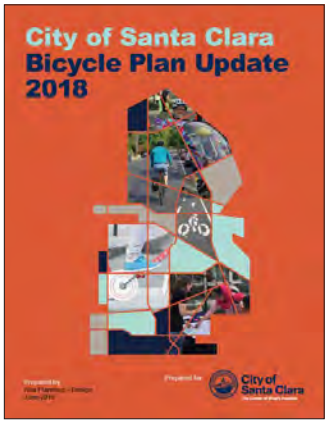
Origins of the Study

Both the City of Santa Clara and the Santa Clara Valley Transportation Authority (VTA) have adopted plans highlighting the need for bicycle facilities on Monroe Street to improve local and regional bike access. The *City of Santa Clara 2010-2035 General Plan* recommended a Class III bike route along the Monroe Street Study Corridor. The City's *Bicycle Plan Update 2018* identifies a Class IIB buffered bike lane along the study corridor and a spot improvement at the Monroe Street and San Tomas Aquino Creek Trail intersection as high-priority projects to improve connectivity in the City's bike network. The Monroe Street Study Corridor is identified as a priority "Cross County Bicycle Corridor" by VTA in the *Santa Clara Countywide Bicycle Plan Update 2018* as it connects a Class II bike lane in the City of Sunnyvale to another Class II bike lane in the City of Santa Clara. Both the City's *Bicycle Plan Update 2018* and the VTA *Countywide Bicycle Plan Update 2018* identify a high-priority spot improvement at the San Tomas Expressway and Monroe Street intersection. This Monroe Street Bikeway Study also supports the *City of Santa Clara Climate Action Plan* by identifying strategies to improve connectivity for people biking and walking and reduce their level of traffic stress to encourage mode shifts from vehicles toward more sustainable modes such as biking and walking.

In October 2021, the City received a grant award from the VTA in the 2016 Measure B Bicycle/ Pedestrian Planning Studies competitive grant program for the Monroe Street Class II Buffered Bikeway Study, a priority project in the City of Santa Clara's *Bicycle Plan Update 2018*. In January 2023, the City Council approved an agreement for a Bikeway Study for Monroe Street ("Study"). This Study identifies the feasibility of bicycle improvements along a 1.75-mile-long section of Monroe Street from Lawrence Expressway to San Tomas Expressway.



City of Santa Clara 2010-2035 General Plan



City of Santa Clara Bicycle Plan Update 2018

Santa Clara Countywide Bicycle Plan Update 2018

City of Santa Clara Climate Action Plan

Study Objectives

The Study identifies bicycle improvements necessary to expand the existing active transportation network, close network gaps, provide greater connectivity to public transportation, increase mobility, and encourage the public to choose more sustainable modes of transportation. The Study also includes a review of potential options for parking removal or lane reductions. It should be noted that this project is only a planning level effort and does not include design, environmental review, or construction of any concept.

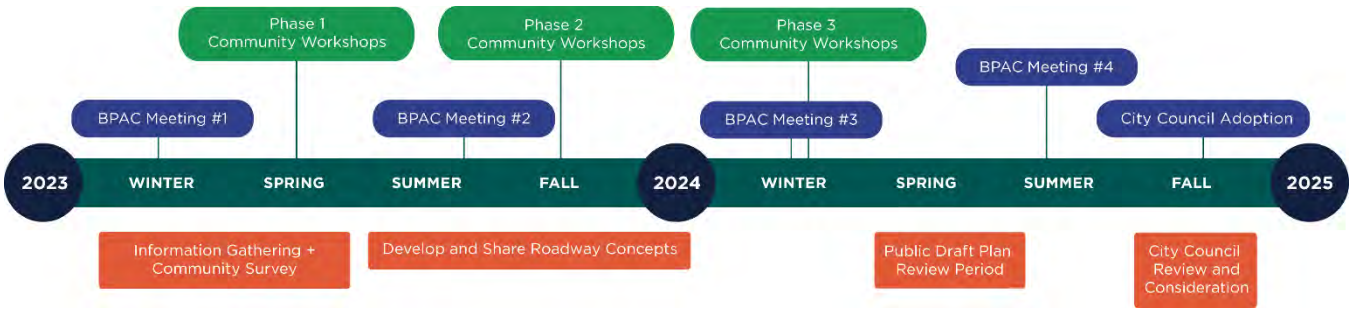
Timeline

In developing the Study, there were four main phases of planning:

- Phase 1: Information Gathering and Existing Conditions Analysis
- Phase 2: Develop and Share Roadway Concepts
- Phase 3: Review Technical Analysis and Revised Concepts
- Phase 4: City Council Review and Consideration

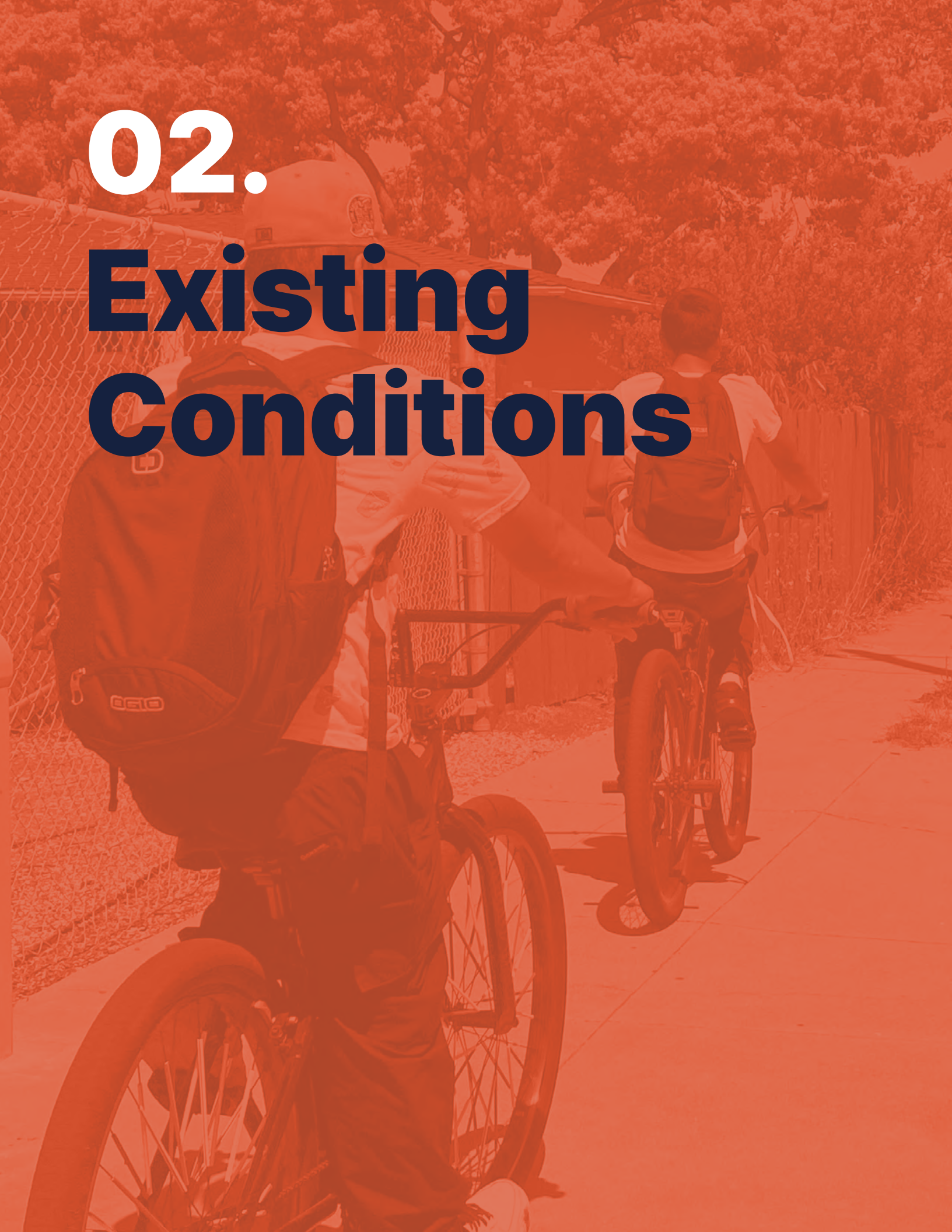
A graphic of the project timeline is shown in **Figure 1**.

Figure 1. Monroe Street Bikeway Study Schedule



Bicyclist heading westbound on Monroe Street near Marchese Way

02.
Existing Conditions

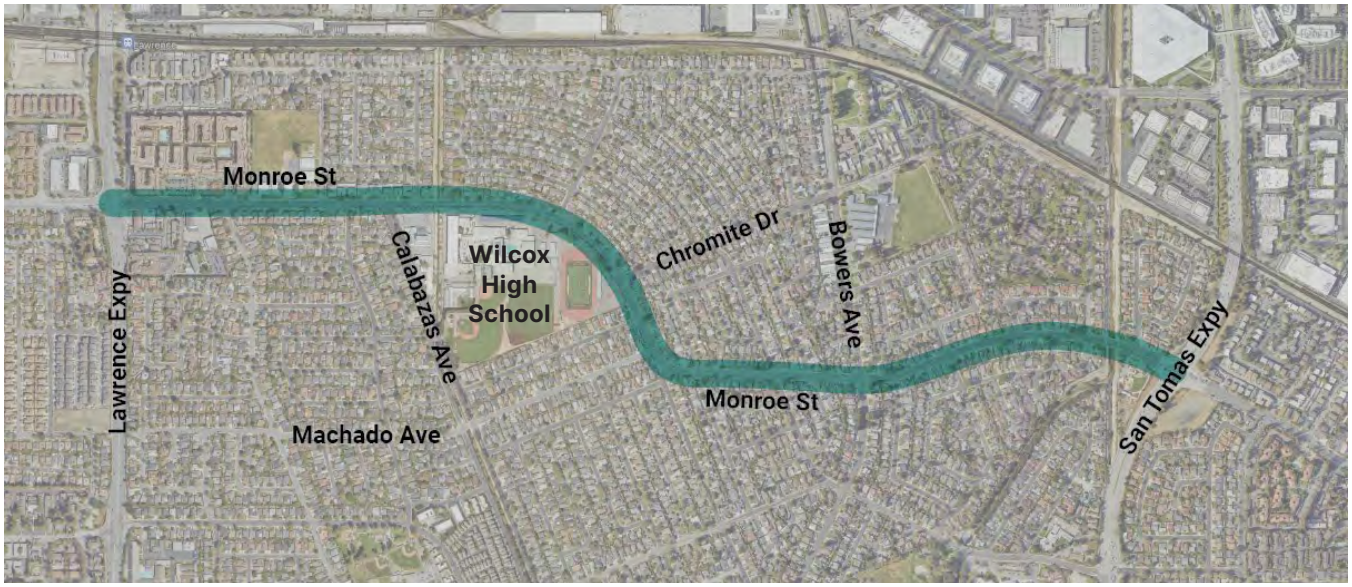


Roadway Characteristics

This Study evaluates a 1.75-mile-long section of Monroe Street from the Lawrence Expressway to the San Tomas Expressway, as shown in **Figure 2**. This east-west segment of Monroe Street has four to five lanes and a posted speed limit of 35 miles per hour (mph). There are currently no bicycle facilities within the project area, but bike lanes start on Monroe Street east of San Tomas Expressway. There are existing bicycle lanes on Monroe Street between Chromite Drive and San Tomas Expressway. The bicycle lanes end abruptly and conflict with minimum width recommendations in the City's Bicycle Master Plan.

Residential uses and schools, including Wilcox High School, make up the majority of land uses on the Monroe Street Study Corridor. A small pocket of mixed-use commercial is also located on the corridor near the Lawrence Expressway intersection. Many important community destinations along or just off the corridor include Lawrence Caltrain Station, Everett N. "Eddie" Souza Park, and the San Tomas Aquino Creek Trail. Bicycle lanes on Monroe would connect to the existing Reed Street bicycle lanes in Sunnyvale on the west side of Lawrence Expressway. This study corridor would connect to approximately three miles of existing bicycle lanes on Monroe Street from San Tomas Creek Trail to the Westfield Valley Mall. The study corridor is also an unbuilt segment of a Cross-County Bicycle Corridor recommended in the Santa Clara County Bicycle Plan.

Figure 2. Map of Monroe Street Corridor Study Area



The Monroe Street Study Corridor is generally made up of four vehicular travel lanes that transition to four lanes and a center two-way left-turn lane in front of Wilcox High School. The image above is looking east on Monroe at the Calabazas Boulevard intersection.

Study Area Observations

Observations were taken in May 2023 at multiple locations on the corridor during Wilcox High School dismissal time when there is the greatest demand for bicycling and the highest vehicle congestion.

At Calabazas Boulevard and Monroe Street

- Vehicles queue at the school loop and theater parking lot, both designated pickup locations.
- Students ride on sidewalks and the street. Sidewalk riding could be attributed to bicyclists not feeling comfortable sharing the travel lane with vehicles since there is no dedicated bicycle lane. The narrow sidewalk forces cyclists onto the road at times.

From Calabazas Creek to Glade Drive on Monroe Street

- Vehicles queue at the school loop and theater parking lot, both designated pickup locations.
- Students ride on sidewalks and the street. The narrow sidewalk forces cyclists onto the road at times. Most students ride on the sidewalk due to the high volume of cars during dismissal time.

From Glade Drive to Meadowbrook Drive on Monroe Street

- People biking utilize the road going eastbound.
- People biking utilize sidewalks going westbound.
- Vehicles make U-turns and queue up for school loop entrance.

At Meadowbrook Drive and Monroe Street

- There are high vehicle speeds on Monroe; vehicles exiting the school loop peel out to keep up.
- Some vehicles fail to yield to pedestrians at the Pedestrian Hybrid Beacon (PHB) crossing and go around stopped vehicles.
- Vehicles stopping for PHB signal slow down vehicles exiting from the school loop.

Wilcox High School students using the sidewalk following school dismissal.

A bicycle rider looking out for vehicles crossing the bicycle lane at the skewed Monroe Street, Machado Avenue, and Francis Avenue intersection.

Vehicle crossing the bicycle lane to travel eastbound from Monroe Street to Francis Avenue.

At Machado Avenue, Francis Avenue, and Monroe Street

- Vehicles traveling fast on Monroe do not slow down when transitioning to Francis Avenue.
- Francis Avenue is challenging for cyclists and pedestrians.
- There are difficult sightlines and complex vehicle movements at Machado/Monroe.
- Left-turning vehicles from Machado pull into the bike lane to see what is coming.
- Left-turning vehicles onto Machado must stop with fast-moving cars behind them.
- People biking cross to the north side of the street to avoid the Francis/Machado intersection.

At San Tomas Aquino Creek Trail and Monroe Street

- There is fast-moving traffic on Monroe, but vehicles stop for the crossing signal.
- Cyclists ride the wrong way on the south side of Monroe, both in the bike lane and on the sidewalk.
- Cyclists wait for the crossing signal to go northbound.
- Traffic for the left turn onto San Tomas Expressway backed up traffic so that cars blocked the bike lane at the intersection.

Traffic

The project team evaluated the time it currently takes to travel the entire length of the study corridor 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 an average of 10 minutes and 25 seconds to travel the entire corridor. The AM peak period includes high school traffic, whereas the PM peak period is minimally affected by high school traffic. During the busiest time of day going eastbound (PM peak period from 4:00 to 6:00 p.m.), it takes an average of 11 minutes and 19 seconds to travel the entire corridor, as shown in **Table 1: Corridor Travel Time.**

The project team also modeled the traffic delay or Level of Service (LOS) at 26 intersections along the study corridor and surrounding streets. Based on the level of delay, each intersection gets a letter grade A through F. Intersections with LOS A through D meet City standards. Intersections with LOS E meet standards for El Camino Real (a state highway) and any county expressway. Otherwise, LOS E and F are considered substandard. Four of the 26 intersections studied are currently substandard in the AM peak period, and three are substandard in the PM peak period on weekdays, as shown in **Table 2: Corridor and Surrounding Networks Level of Service**. For more details on the current and estimated LOS and anticipated traffic impacts, see **Chapter 3: Corridor Alternative Concepts and Analysis**.

Table 1. Corridor Travel Time

Time Period	Corridor Travel Time (min:sec)
Westbound	
AM Peak	10:25
PM Peak	06:45
Midday	07:00
Saturday	06:22
Eastbound	
AM Peak	07:14
PM Peak	11:19
Midday	07:23
Saturday	05:57

Table 2. Corridor and Surrounding Networks Level of Service

Time Period	Meets Standard	Substandard
AM Peak	22	4
PM Peak	23	3
Midday	26	0
Saturday	26	0

Figure 3. Map of Monroe Street Corridor Study Intersections

Table 3. Study Intersections

	Corridors (East-West)			
Cross Streets (North-South)	**Kifer Rd**	**Walsh Ave**	**Monroe St**	**Cabrillo Ave**
	1. Lawrence Expwy	5. Northwestern Pkwy	7. Lawrence Expwy	20. Lawrence Expwy
	2. La Rambla Ave	6. San Tomas Expwy	8. Nobili Ave	21. Nobili Ave
	3. Corvin Dr		9. Monticello Way	22. Fordham Dr
	4. Bowers Ave		10. Calabazas Blvd	23. Calabazas Blvd
			11. Glade Dr	24. Francis Ave
			12. Meadowbrook Dr	25. Bowers Ave
			13. Chromite Dr	26. San Tomas Expwy
			14. Bowers Ave	
			15. Quinn Ave	
			16. South Dr-Marmon Ct	
			17. San Tomas Aquino Crk	
			18. Roosevelt Cir	
			19. San Tomas Expwy	

Monroe Street sees anywhere from 6,000 to 15,000 vehicles over the course of an entire day, with higher volumes on weekdays, as shown in **Table 4**.

Table 4. Monroe Street Average Daily Traffic Counts

#	Location		Eastbound	Westbound	Total
1	Pacific Dr	7-Day	7,258	7,157	14,415
		Weekday (T-Th)	7,723	7,440	15,163
		Weekend (Sat, Sun)	6,218	6,264	12,482
2	Nobili Ave	7-Day	5,640	6,278	11,918
		Weekday (T-Th)	6,160	6,559	12,719
		Weekend (Sat, Sun)	4,532	5,387	9,919
3	Fordham Dr	7-Day	5,456	6,172	11,628
		Weekday (T-Th)	5,990	6,684	12,675
		Weekend (Sat, Sun)	4,275	5,018	9,293
4	Marchese Way	7-Day	5,257	5,347	10,604
		Weekday (T-Th)	5,785	5,597	11,382
		Weekend (Sat, Sun)	4,144	4,588	8,732
5	Glade Dr	7-Day	4,693	5,105	9,798
		Weekday (T-Th)	5,151	5,399	10,550
		Weekend (Sat, Sun)	3,756	4,302	8,058
6	Meadowbrook Dr	7-Day	4,778	4,839	9,617
		Weekday (T-Th)	5,329	5,135	10,464
		Weekend (Sat, Sun)	3,622	4,049	7,671
7	Brown Ave	7-Day	4,039	4,373	8,412
		Weekday (T-Th)	4,449	4,574	9,024
		Weekend (Sat, Sun)	3,167	3,755	6,922
8	Gallup Dr	7-Day	4,868	5,189	10,057
		Weekday (T-Th)	5,383	5,427	10,810
		Weekend (Sat, Sun)	3,876	4,505	8,381
9	Roosevelt Cir	7-Day	5,716	6,058	11,774
		Weekday (T-Th)	6,219	6,309	12,528
		Weekend (Sat, Sun)	4,719	5,352	10,071

Safety

Between 2017 and 2022, there were 130 collisions along the Monroe Street Study Corridor, with five resulting in a fatality or serious injury, including a pedestrian fatality at the intersection with Augusta Place. Furthermore, of the 130 collisions, nine involved bicyclists and seven involved pedestrians. The primary crash factor was unsafe speeds (37 collisions), followed by improper turning (28 collisions). Broadside and rear-end collisions made up 60% of the total collisions. For collisions involving pedestrians, the pedestrians were in the crosswalk 64% of the time when they were struck. A total of 11 bicycle and pedestrian-involved collisions occurred on the west side of the corridor (west of Brown Avenue), primarily between Nobili Avenue and Monticello Way. Along this segment, four bicycle and pedestrian-involved collisions occurred. Additionally, most collisions occurred during morning and afternoon commute hours (6:00 to 8:00 a.m. and 5:00 to 7:00 p.m.). The results are summarized in **Figure 4** and **Figure 5**.

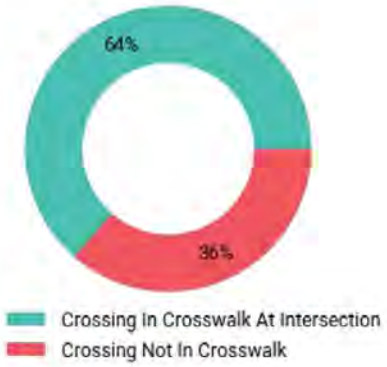
Figure 4. Monroe Street Collision Profile

COLLISION CHARACTERISTICS
ALL COLLISIONS ON MONROE STREET

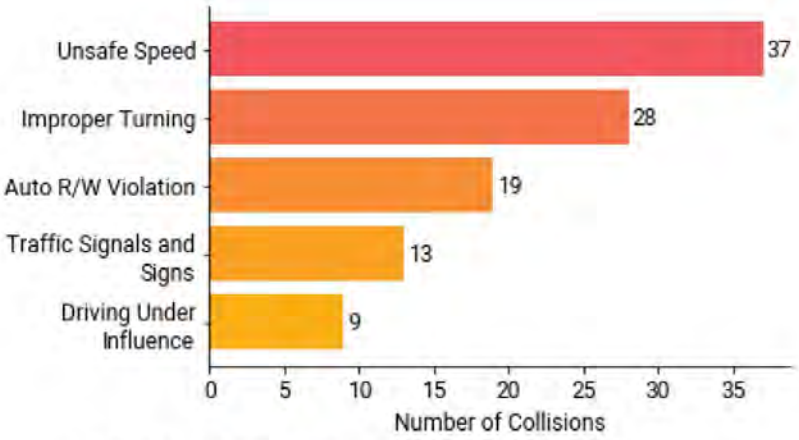
	Total	KSI	Bicycle	Pedestrian
All Collisions	130	5	9	7
Alcohol Involved	9	1	0	0
Speeding Involved	37	2	1	0
Collisions After Dark	44	3	1	3

Two of the Killed or Serious Injury (KSI) crashes on Monroe Street involved pedestrians. One occurred near Pacific Drive and one at Augusta Place. There were no bicycle KSIs.

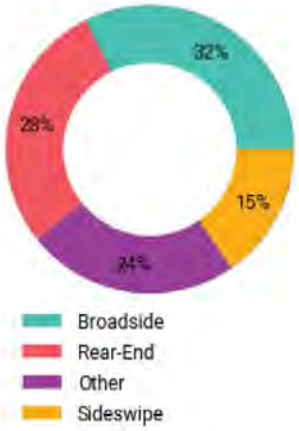
PEDESTRIAN LOCATION WHEN STRUCK



PRIMARY CRASH FACTOR



TYPE OF COLLISION



COLLISIONS BY TIME OF DAY

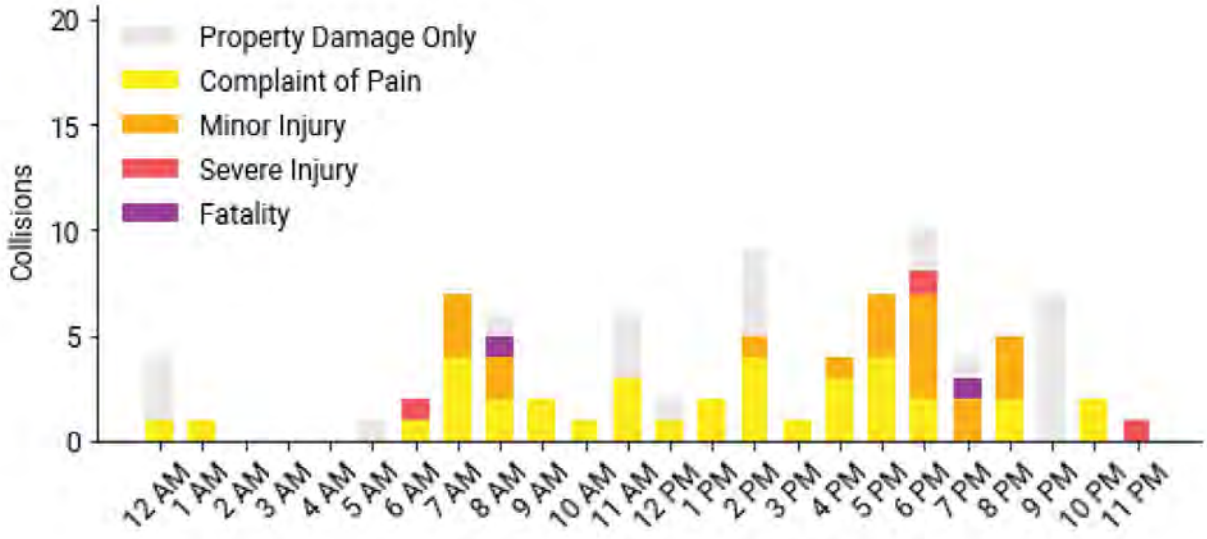
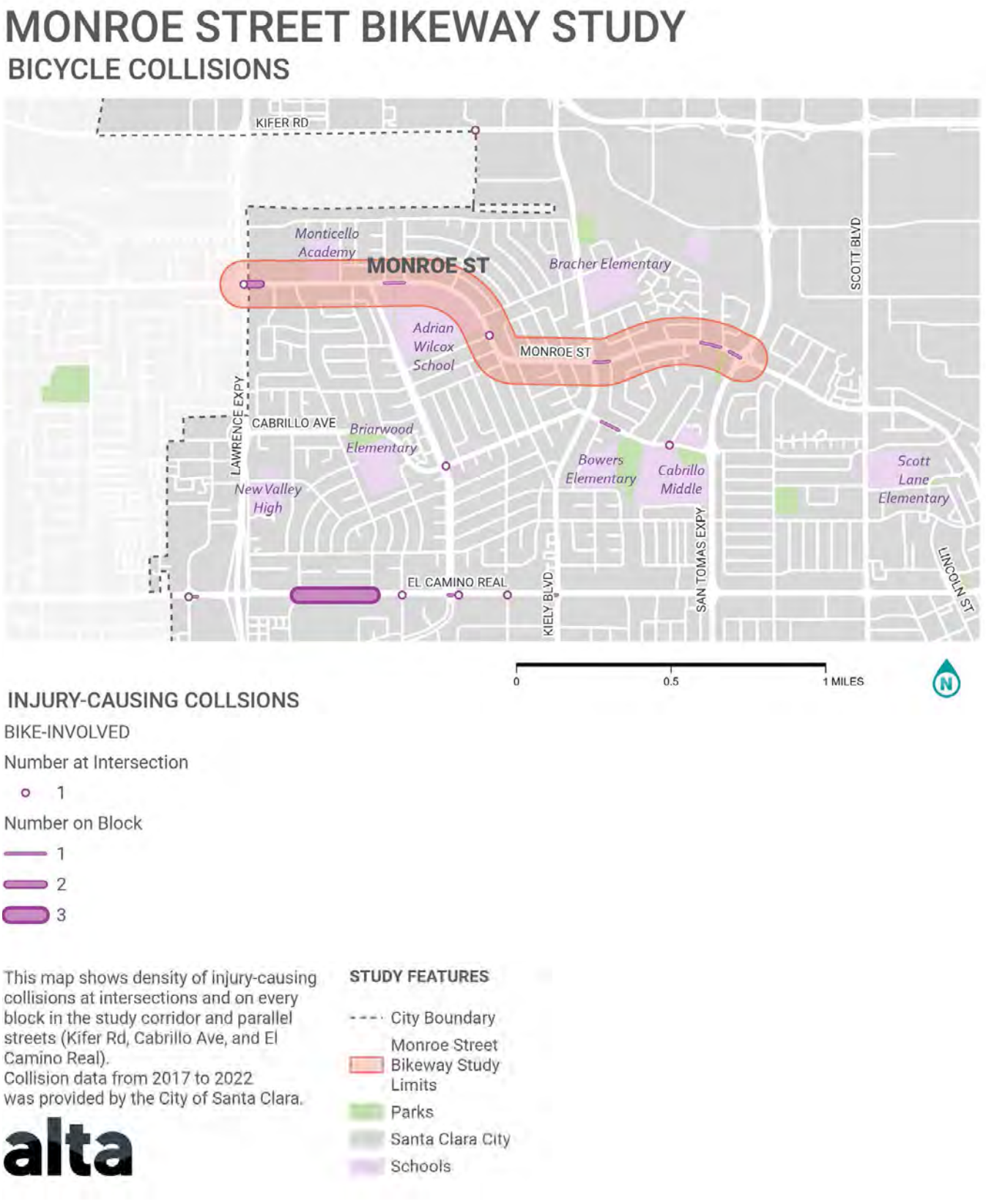


Figure 5. Map of Bicycle-Involved Collisions



SPEED DATA

The City collected vehicle speed data using pneumatic tubes at nine locations along the corridor across seven days (March 31 to April 6, 2023). Monroe Street has a posted speed limit of 35 miles per hour (mph). Over 80% of people driving vehicles in both directions at Monroe Street and Gallup Drive exceeded the 35-mph speed limit during the study period. As shown in **Table 5: Monroe Street Speed Survey Results,** the 85th percentile speeds ranged from 33 to 44 mph, averaging 38 mph. The 85th percentile speed is the speed at which 85% of the people driving on a road segment travel at or below. Based on this speed survey, the Study presents an opportunity to reduce vehicle speeds through thoughtful roadway design changes.

Table 5. Monroe Street Speed Survey Results

Speed Location (Eastbound)	85th Percentile Speed (mph)	Percentage of People Driving >35 mph
Pacific Dr	36	20.8%
Nobili Ave	33	40.3%
Fordham Dr	38	28.4%
Marchese Wy	37	23.3%
Glade Dr	39	37.6%
Meadowbrook Dr	39	47.2%
Brown Ave	41	60.1%
Gallup Dr	44	80.9%
Roosevelt Cir	33	9.3%
Eastbound Average	38	38.7%
Speed Location (Westbound)	**85th Percentile Speed (mph)**	**Percentage of People Driving >35 mph**
Pacific Dr	33	9.3%
Nobili Ave	37	25.8%
Fordham Dr	37	23.0%
Marchese Wy	37	25.1%
Glade Dr	39	37.9%
Meadowbrook Dr	39	38.8%
Brown Ave	42	64.7%
Gallup Dr	44	80.8%
Roosevelt Cir	33	6.5%
Westbound Average	38	34.7%
Corridor Average	**38**	**36.7%**

Parking Utilization

The project team conducted parking counts along both sides (westbound and eastbound) of Monroe Street from Lawrence Expressway to San Tomas Expressway on three consecutive weekdays (Tuesday through Thursday) on April 4, 5, and 6, and on Saturday, April 8, 2023. Counts were also collected on all side streets along Monroe Street (500-foot segments) within the project area (i.e., 24 side streets). Staff conducted counts during three time periods per day:

- 7:00 to 9:00 a.m. to capture **peak daytime** parking needs,
- 11:00 a.m. to 2:00 p.m. to capture **peak midday** parking needs, and;
- 2:00 to 4:00 a.m. to capture **peak overnight** parking needs.

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.

The City studied the following side streets for 500 feet from Monroe Avenue to the north and south:

- Roosevelt Circle
- South Drive
- Gallup Drive
- Quinn Avenue
- Bowers Avenue
- Augusta Place
- Amethyst Drive
- Brown Avenue
- Chromite Drive
- Meadowbrook Drive
- Glade Drive
- Marchese Way
- Monticello Way
- French Street
- Pacific Drive
- Nobili Avenue
- Fordham Drive
- Calabazas Boulevard
- San Juan Avenue
- Machado Avenue
- Francis Avenue
- Stebbins Avenue
- Elliot Street
- Marmon Court

Monroe Street accommodates 319 parking spaces along the project corridor and 884 parking spaces on side streets (extending 500 feet up each side from each Monroe Street intersection). Utilization rates are calculated by the number of parking spaces used out of the full available inventory of legal spaces. Along the north side of Monroe Street, there is a 39% parking utilization rate, meaning that out of the 201 parking spaces available, 79 are regularly used, and 61% are available. On the south side of the corridor, there is a 36% parking utilization rate, which means that out of the 118 parking spaces available, 43 are regularly used, and 64% are available. The corridor's average parking utilization rate is 38%, meaning on average, 62% of available parking is available or unused. The overnight period had the highest parking utilization rates, with 43% utilized on weeknights and weekend nights, and 57% remaining vacant. The only street segments with parking utilization rates over 85% are in the area west of Adrian Wilcox High School, where less than 15% of spaces are available. These parking utilization and availability rates are summarized in **Table 6: Availability Summary by Location** and **Table 7: Average Utilization by Day and Time** and mapped in **Figure 6.**

Table 6. Availability Summary by Location

Location	Available Parking Spaces	Average Cars Observed	Utilization Rate	Parking Availability
Monroe Overall	319	122	38%	**62%**
Monroe Street - North Side	201	79	39%	**61%**
Monroe Street - South Side	118	43	36%	**64%**
Side Streets	884	328	37%	**63%**

Table 7. Average Utilization and Availability by Day and Time

Count Period		Monroe Street Parking Utilization	Monroe Street Parking Availability	Side Street Parking Utilization	Side Street Parking Availability
Weekday Morning	7:00 - 9:00 a.m.	34%	**66%**	35%	**65%**
Weekday Midday	11:00 a.m. - 2:00 p.m.	31%	**69%**	32%	**68%**
Weekday Overnight	2:00 a.m. - 4:00 a.m.	43%	**57%**	42%	**58%**
Weekend Morning	7:00 - 9:00 a.m.	39%	**61%**	38%	**62%**
Weekend Midday	11:00 a.m. - 2:00 p.m.	40%	**60%**	36%	**64%**
Weekend Overnight	2:00 a.m. - 4:00 a.m.	43%	**57%**	41%	**59%**

Figure 6. Current Average Parking Availability Rates During Peak Periods


Bracher Park
Institute for Business & Technology Inc.
Bracher Elementary School
CHROMITE DR
AMETHYST DR
AUGUSTA PL
BOWERS AVE
GALLUP DR
SOUTH DR
ROOSEVELT CIR
ELLIOT ST
STEBBINS AVE
QUINN AVE
MARMON CT
Everett N. "Eddie" Souza Park
FRANCIS AVE
BROWN AVE
Cabrillo Montessori School of Silicon Valley
SAN TOMAS EXPWY
Bowers Elementary School
Bowers Park
Santa Clara Skate Park
Cabrillo Middle School
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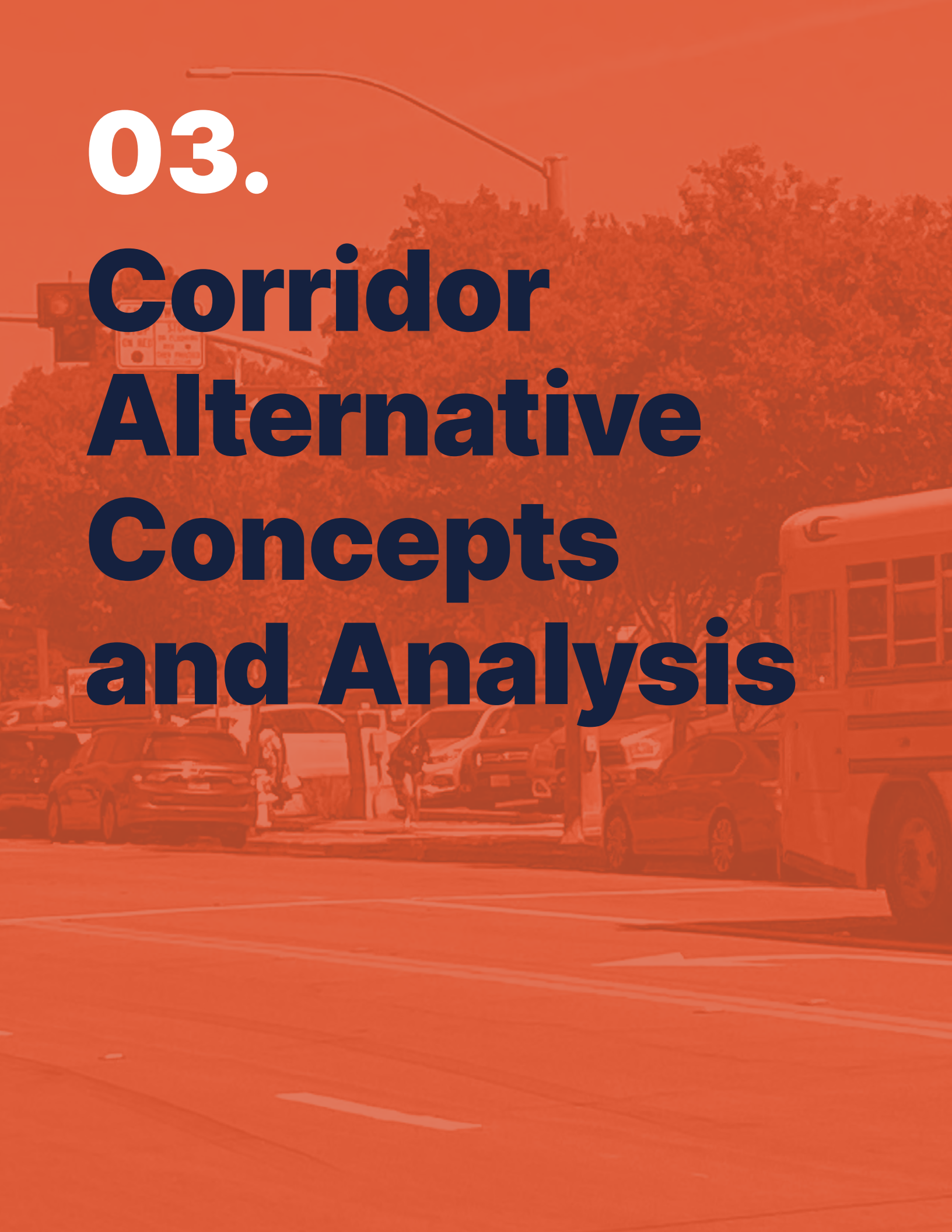


03.

Corridor Alternative Concepts and Analysis

Alternative Concepts

To meet the goals of the study, the project team developed three future visions or alternatives for the corridor. While each is technically feasible, they have unique benefits and trade-offs. The fourth alternative is to do nothing also known as the "No Build" scenario. This chapter will describe each of the alternatives.

Existing Conditions/No Build

These roadway cross-sections and the following concepts show a prototypical location on Monroe Street to demonstrate different roadway and intersection design features. The concepts are not specific to a particular location or intersection on Monroe Street. The cross-section design detail and more information on the proposed dimensions and considerations of a typical 64-foot section of Monroe Street, as well as atypical sections, can be seen in **Figure 7** and **Figure 8**. The existing conditions are summarized below and represent a "No Build" scenario.

Monroe Street from Lawrence Expressway to San Tomas Expressway generally has four traffic lanes and parking on both sides. The vehicle travel lanes are 11 to 12 feet wide; curb to curb width is 64 feet wide (including the gutter), and the public right-of-way is 74 to 90 feet, which includes the sidewalk and landscape strip between the curb and sidewalk. This condition varies from Calabazas Boulevard to Chromite Drive, where there is a two-way left-turn lane, parking only along the north side of the street, and parking is restricted along the south side of the street. This condition also varies from Chromite Drive to San Tomas Creek Trail, where the vehicle travel lanes are 10 feet wide; there is a five-foot-wide bike lane and parking on each side of the street.

Existing conditions on Monroe at Calabazas Creek (top) and Glade Drive (bottom).

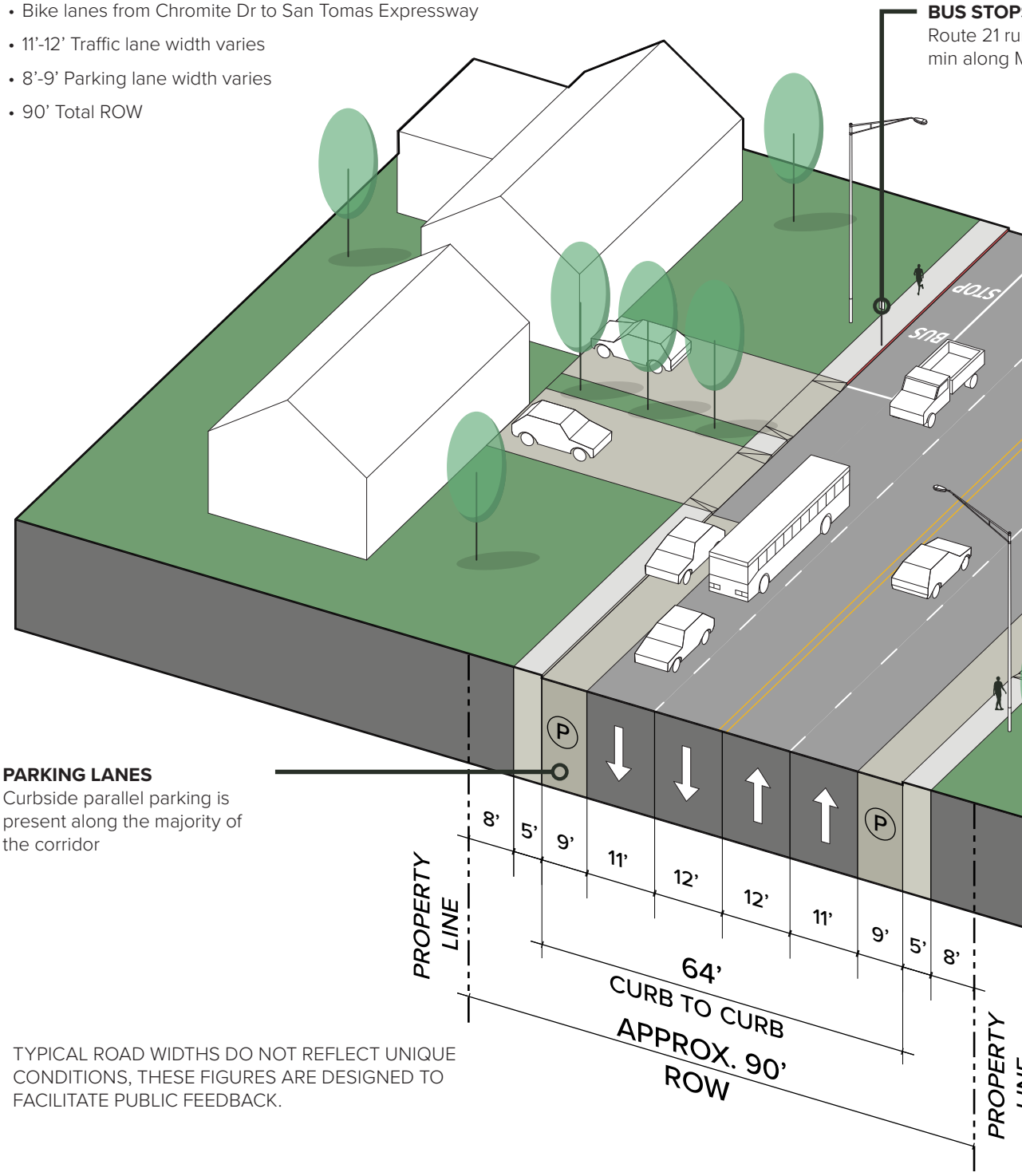
Figure 7. Existing Conditions/No Build Cross-Section

64’ WIDE TYPICAL

Existing Conditions / No Build Option

MONROE ST FROM LAWRENCE EXPWY TO CALABAZAS BLVD

- Sharrows from Nobili Ave to Chromite Dr
- Bike lanes from Chromite Dr to San Tomas Expressway
- 11’-12’ Traffic lane width varies
- 8’-9’ Parking lane width varies
- 90’ Total ROW

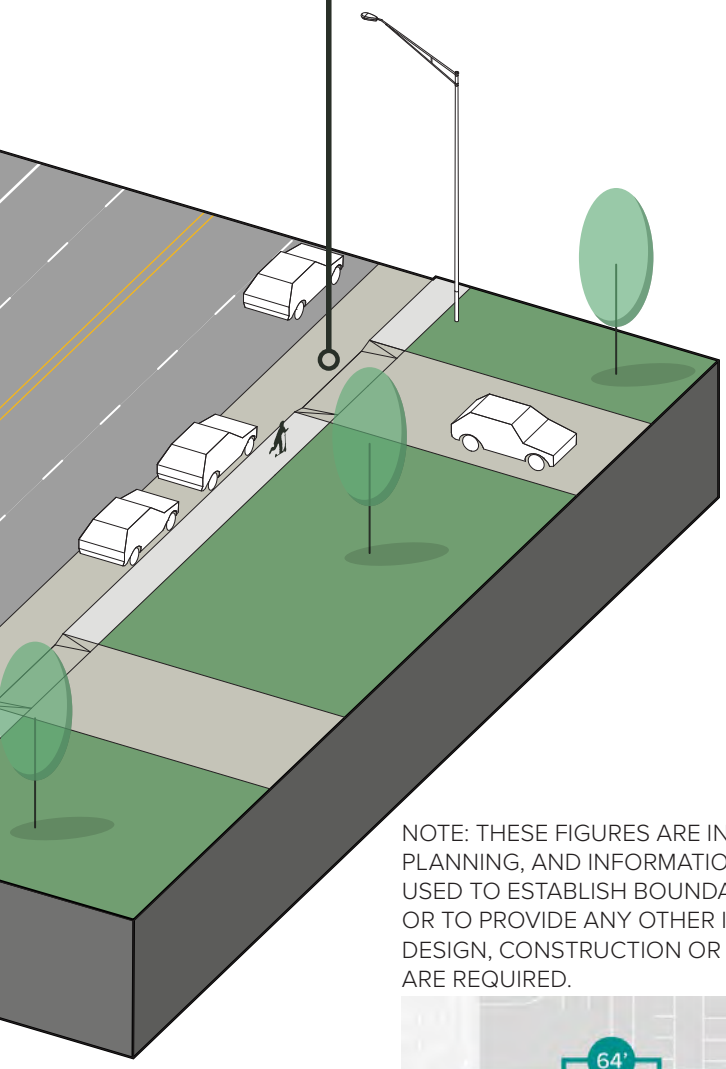


PARKING LANES
Curbside parallel parking is present along the majority of the corridor

TYPICAL ROAD WIDTHS DO NOT REFLECT UNIQUE CONDITIONS, THESE FIGURES ARE DESIGNED TO FACILITATE PUBLIC FEEDBACK.

S
ns every 30
Monroe

CHALLENGING VISIBILITY
Driveway entry and exit is challenging due to fast-moving vehicles and curbside parking



LINE

PHOTO: EXISTING CONDITIONS ON MONROE

NOTE: THESE FIGURES ARE INTENDED ONLY FOR REFERENCE, CONCEPTUAL PLANNING, AND INFORMATIONAL PURPOSES. THESE FIGURES SHOULD NOT BE USED TO ESTABLISH BOUNDARIES, PROPERTY LINES, LOCATION OF OBJECTS, OR TO PROVIDE ANY OTHER INFORMATION TYPICALLY NEEDED FOR FINAL DESIGN, CONSTRUCTION OR ANY OTHER PURPOSE WHEN ENGINEERED PLANS ARE REQUIRED.

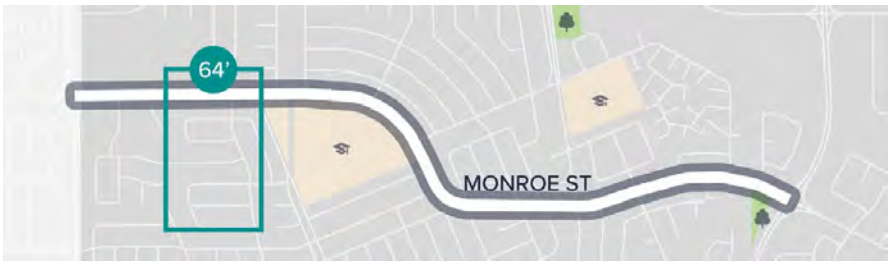


Figure 8. Existing Conditions/No Build Typical Cross-Section Alongside Wilcox High School and Variation from Typical Existing Condition

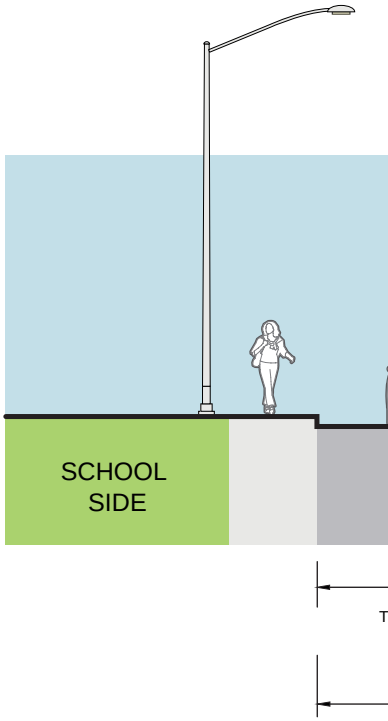
64’ WIDE

Existing Conditions / No Build

ALONGSIDE HIGH SCHOOL

MONROE ST FROM CALABAZAS BLVD TO CHROMITE DR

- One side parking + center lane



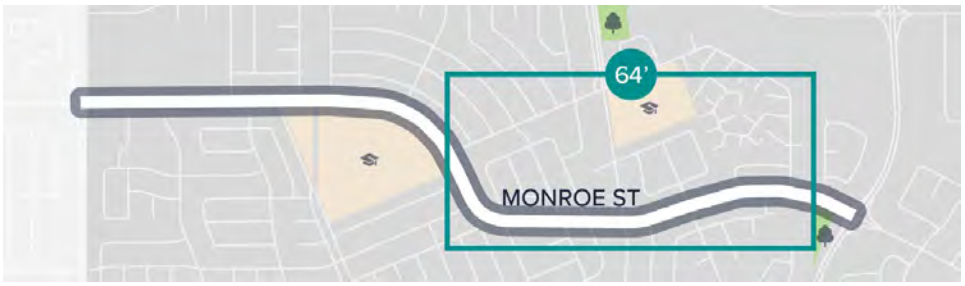
64’ WIDE

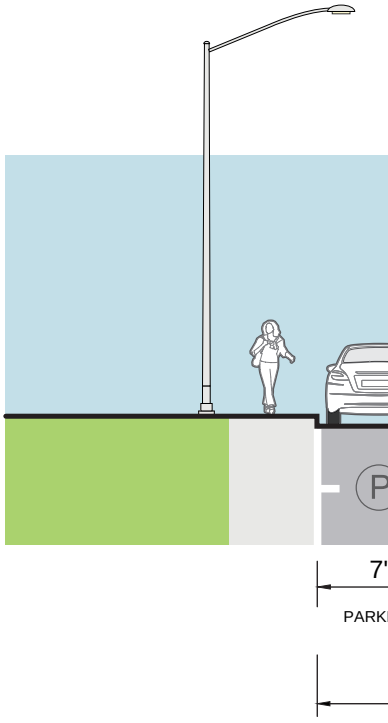
Existing Conditions / No Build

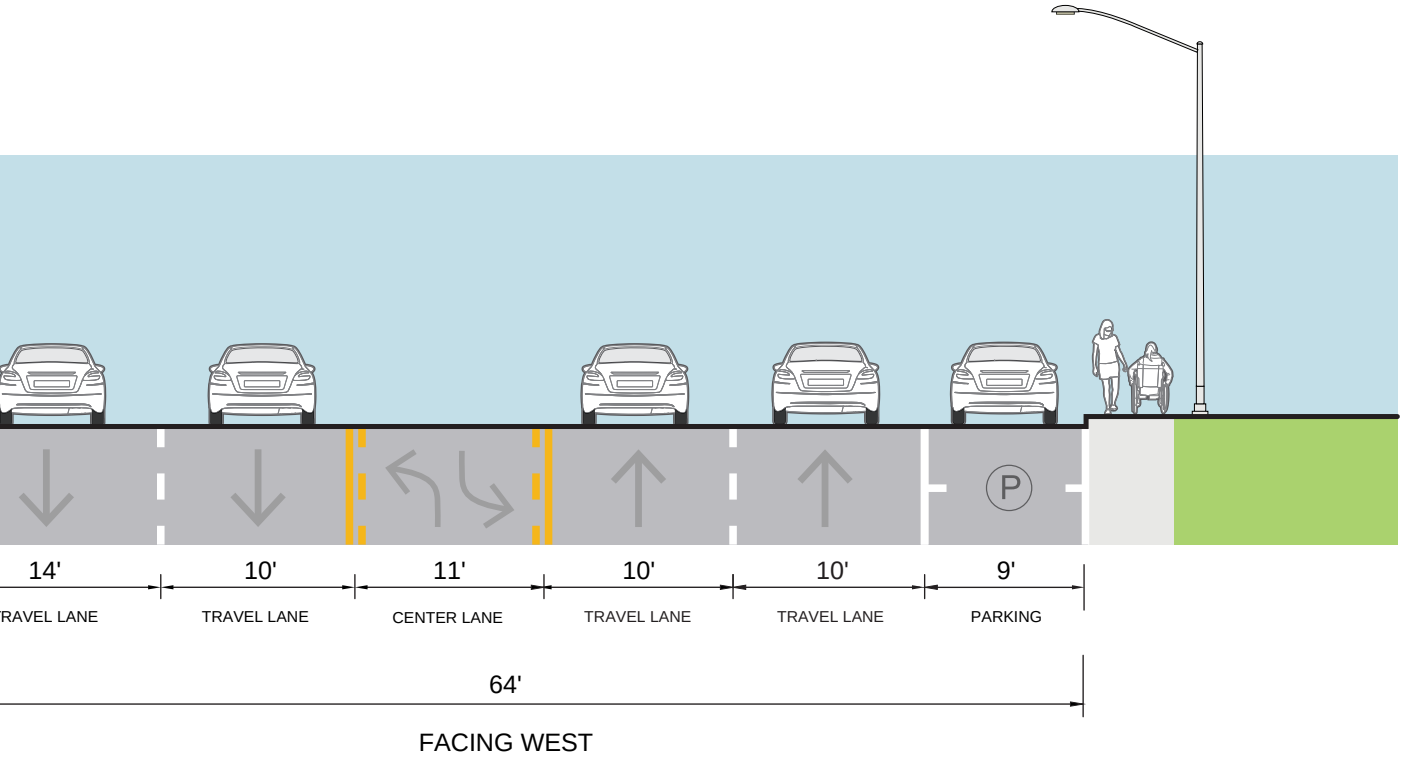
VARIATION FROM TYPICAL EXISTING CONDITION

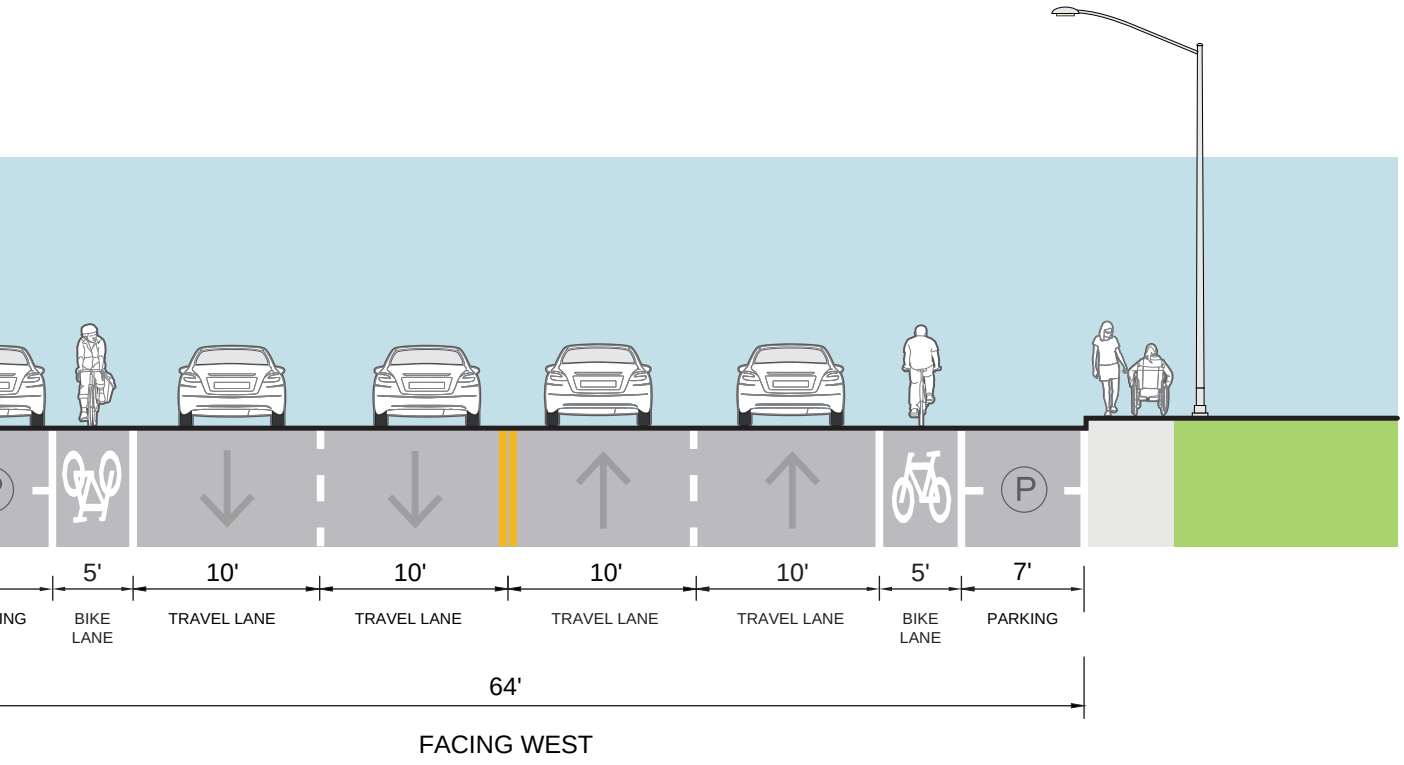
MONROE ST FROM CHROMITE DR TO SAN TOMAS EXPY

- Two sides parking + Class II bike lanes






P
14'
10'
11'
10'
10'
9'
TRAVEL LANE
TRAVEL LANE
CENTER LANE
TRAVEL LANE
TRAVEL LANE
PARKING
64'
FACING WEST


P
5'
10'
10'
10'
10'
5'
7'
BIKE LANE
TRAVEL LANE
TRAVEL LANE
TRAVEL LANE
TRAVEL LANE
BIKE LANE
PARKING
64'
FACING WEST

Corridor Design Concepts

Concept A: Two Lanes, Center Turn Lane, Buffered Bike Lanes, Parking on Both Sides

This concept removes one travel lane in each direction and adds a two-way center left-turn lane. Parking is maintained on both sides of the street. An eight-foot-wide buffered bicycle lane (Class IIB) is added to each side of the street, with five feet of bikeway and three feet of buffer. On the segment in front of Wilcox High School, because there is no parking on the south side in front of the school, the bikeways are wider, with an eleven-foot-wide separated bike lane on the south side in front of the school and a nine-foot-wide buffered bike lane on the north side in front of residences. The cross-section design detail and more information on proposed dimensions and considerations for this concept can be seen in **Figure 9** at typical locations and **Figure 10** alongside Wilcox High School.

Concept B: Two Lanes, Center Turn Lane, Parking-Protected Bike Lanes

This concept removes one travel lane in each direction and adds a two-way center left-turn lane. An eight-foot-wide separated bikeway (Class IV) is added to each side of the street in this concept, with five feet of bikeway and three feet of buffer. Parking is maintained on both sides of the street, but it is positioned outside the bikeway to act as a vertical separation between the bikeway and the vehicle travel lane. On the segment in front of Wilcox High School, because there is no parking on the south side in front of the school, the bikeways are wider, with an eleven-foot-wide separated bike lane on the south side in front of the school and a nine-foot-wide parking-protected bike lane on the north side in front of residences. The cross-section design detail and more information on proposed dimensions and considerations for this concept can be seen in **Figure 11** at typical locations and **Figure 12** alongside Wilcox High School.

Concept C: Four Lanes, Buffered Bike Lanes, Remove Parking on One Side

This concept maintains four travel lanes, but it removes one parking lane. Parking will be removed from the south side, as that would have the least impact on parking supply on the Monroe Street corridor. A seven-foot-wide buffered bicycle lane (Class IIB) is added to each side of the street, with five feet of bikeway and two feet of buffer. On the segment in front of Wilcox High School, because of the roadway space needed for five vehicle lanes, there is less space for bikeway implementation, with an eight-foot-wide separated bike lane on the south side in front of the school, and a five-foot-wide bike lane on the north side in front of residences. The cross-section design detail and more information on proposed dimensions and considerations for this concept can be seen in **Figure 13** at typical locations and **Figure 14** alongside Wilcox High School.

Lessons Learned in Trash Collection with Separated Bikeways

Separated bikeways provide a key investment in the safety and comfort of roadways for all users. With these configuration changes come layered discussions about curbside management, including trash collection, as California Vehicle Code 21211 (b) prohibits the placement of bins in travel lanes and bikeways. These concerns can be mitigated with design and programmatic solutions. Specific designs for this corridor could include regular breaks in bikeway curbs or planting strips (particularly around driveways), targeted sections of painted buffers with spaced vertical elements, such as bollards or flex posts, and mountable curbs in areas designated for bins. Programmatic solutions could include postcard mailers to residents, stickers for bins with placement instructions, and City staff presence around the first few trash days to engage residents and businesses. These solutions can allow regular weekly trash collection in the design concepts.

Additionally, the City's Annual Cleanup Campaign for bulky item pickup is a part of considerations for the design. No Build Option and Concept A allow the Annual Cleanup Campaign to operate the same as the current set-up where residents can temporarily place the bulky items next to the curb. Concept B and Concept C (south side only) would impede the pick-up of bulky items when bike lanes are next to the curb, or if no on-street parking space or shoulder is available. If Concept B or Concept C is selected, there are currently alternative programmatic options for disposal of bulk and hazardous items listed on the City's website, including on-call pickups and disposal sites.

The 2017 Fresno Class IV Bikeway Design Guide provides guidance on loading and garbage access for larger collections and dumpster pickup. The City of Los Gatos coordinated with their residential trash collection service provider to identify areas for bin placement on Winchester Boulevard, as noted in their 2021 FAQ document for the community. In 2022, the City of Petaluma implemented a demonstration project on Rainer Avenue that included a parking-protected separated bikeway

Designated trash bin locations at driveways on the Rainier Avenue Paving and Traffic Calming Upgrades Project, City of Petaluma, CA

Loading and Garbage Access at Mid-Block Locations (Source: 2017 Fresno Class IV Bikeway Design Guide)

in a single-family residential area. The project includes a combination of red curbs and painted buffers around driveways, creating a designated space for trash bins. This demonstration project used paint and flexible posts and is moving forward to become permanent. Similarly, the City of San Luis Obispo created designated trash bin space on the North Chorro Neighborhood Greenway. The Richmond Wellness Trail in the City of Richmond also left space or painted buffers to accommodate bins and large item pickup.

On the programmatic side, Napa launched a Don't Trash the Bike Lane effort to educate community members on how to place bins to keep bike lanes clear and safe for users. Los Gatos coordinated with their residential trash collection service provider and several multifamily residences with commercial garages to identify specific areas for community members to place bins on Winchester Boulevard, as noted in their 2021 FAQ document.

Figure 9. Concept A: Two Lanes, Center Turn Lane, Buffered Bike Lanes, Parking on Both Sides - Typical Condition

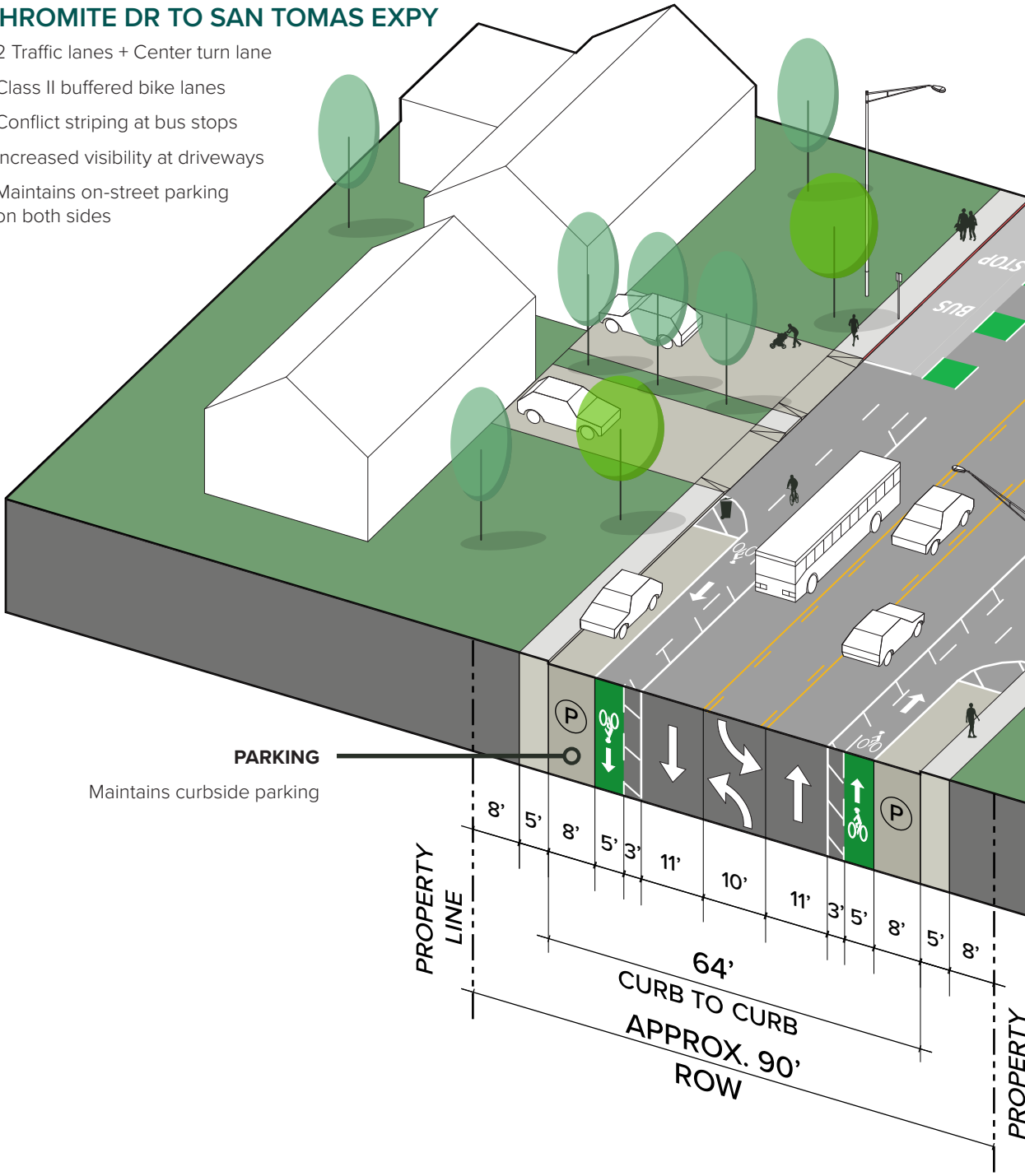
64’ WIDE TYPICAL

Concept A

TWO LANES, CENTER TURN LANE, BUFFERED BIKE LANES, PARKING ON BOTH SIDES

MONROE ST FROM LAWRENCE EXPWY TO CALABAZAS BLVD + CHROMITE DR TO SAN TOMAS EXPY

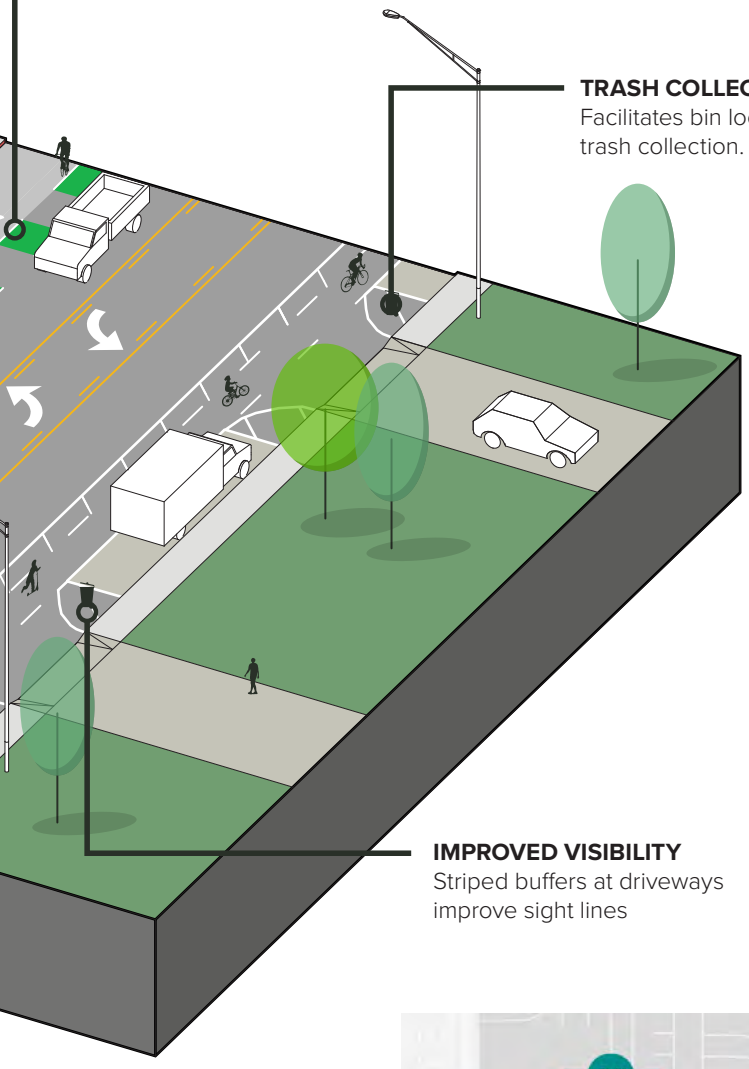
- 2 Traffic lanes + Center turn lane
- Class II buffered bike lanes
- Conflict striping at bus stops
- Increased visibility at driveways
- Maintains on-street parking on both sides



BUS MIXING ZONE
Green striping helps warn users of potential conflict between buses and cyclists.

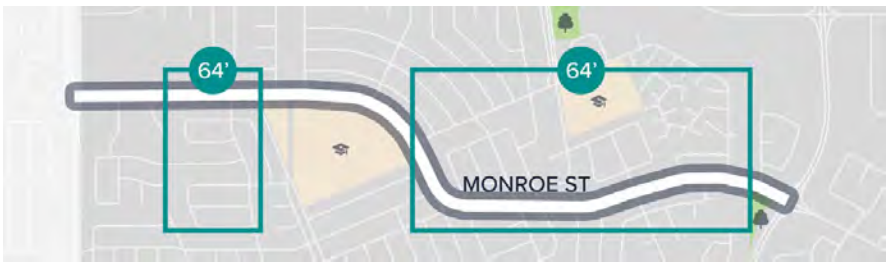
Buffer area maintains consistent vehicle lane width.

TRASH COLLECTION
Facilitates bin location for trash collection.



IMPROVED VISIBILITY
Striped buffers at driveways improve sight lines

EXAMPLE OF BUFFERED BIKE LANES
A buffer between vehicle traffic provides additional horizontal separation from vehicles.



LINE

Figure 10. Concept A: Two Lanes, Center Turn Lane, Buffered Bike Lanes, Parking on Both Sides - Alongside Wilcox High School

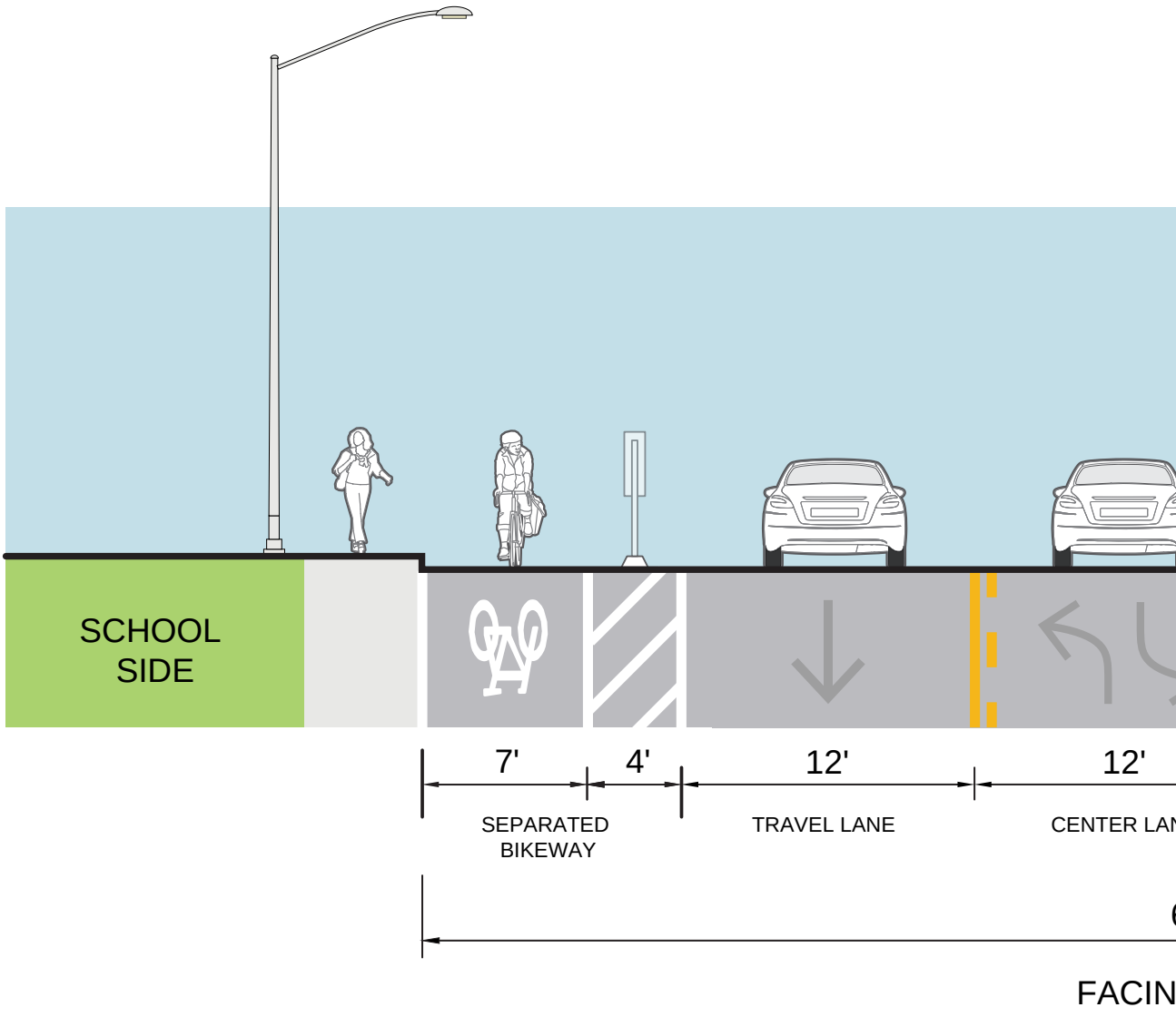
64’ WIDE

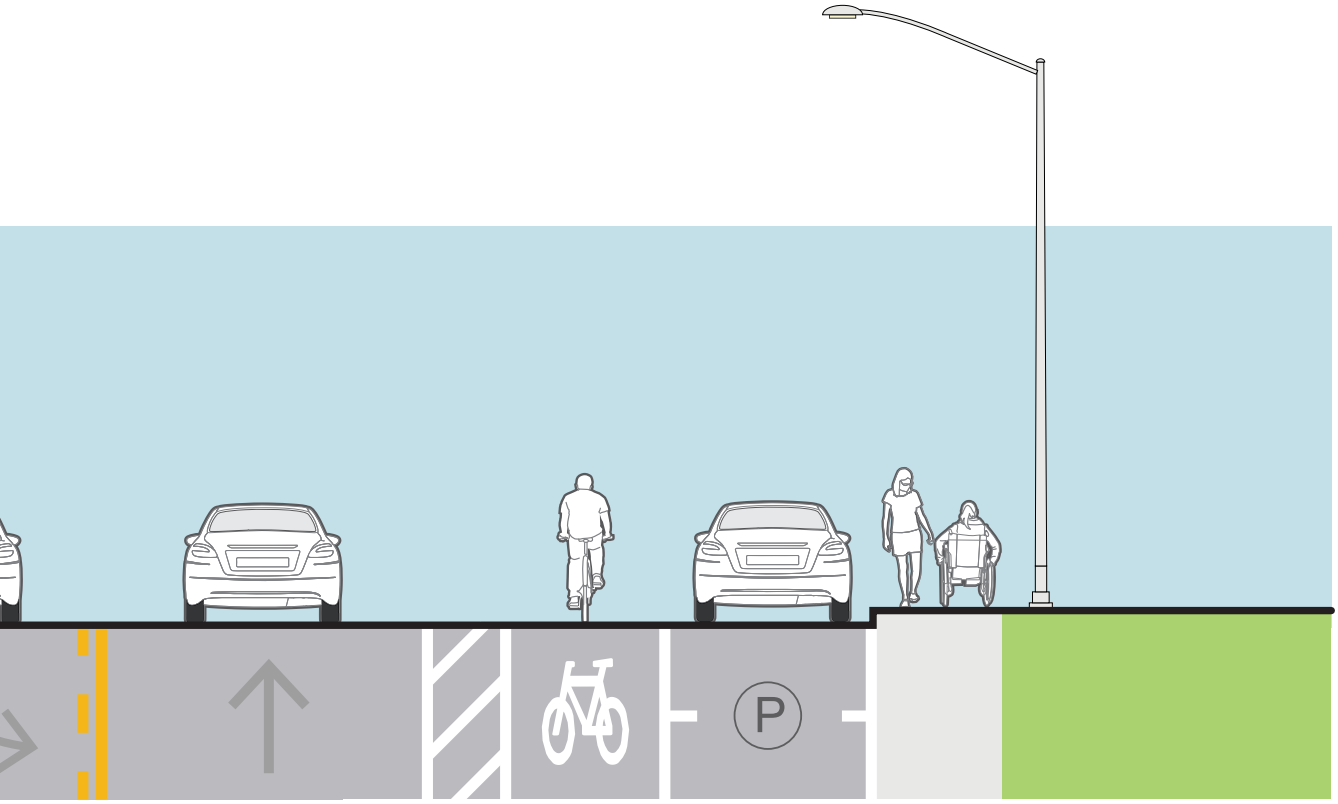
Concept A

ALONGSIDE HIGH SCHOOL

MONROE ST FROM CALABAZAS BLVD TO CHROMITE DR

- South side protected bike lane - in front of high school
- North side buffered bike lane - in front of residences




P
12'
3'
6'
8'
TRAVEL LANE
BUFFERED
BIKE LANE
PARKING
64'

G WEST


MONROE ST
64'

Figure 11. Concept B: Two Lanes, Center Turn Lane, Parking-Protected Bike Lanes - Typical Condition

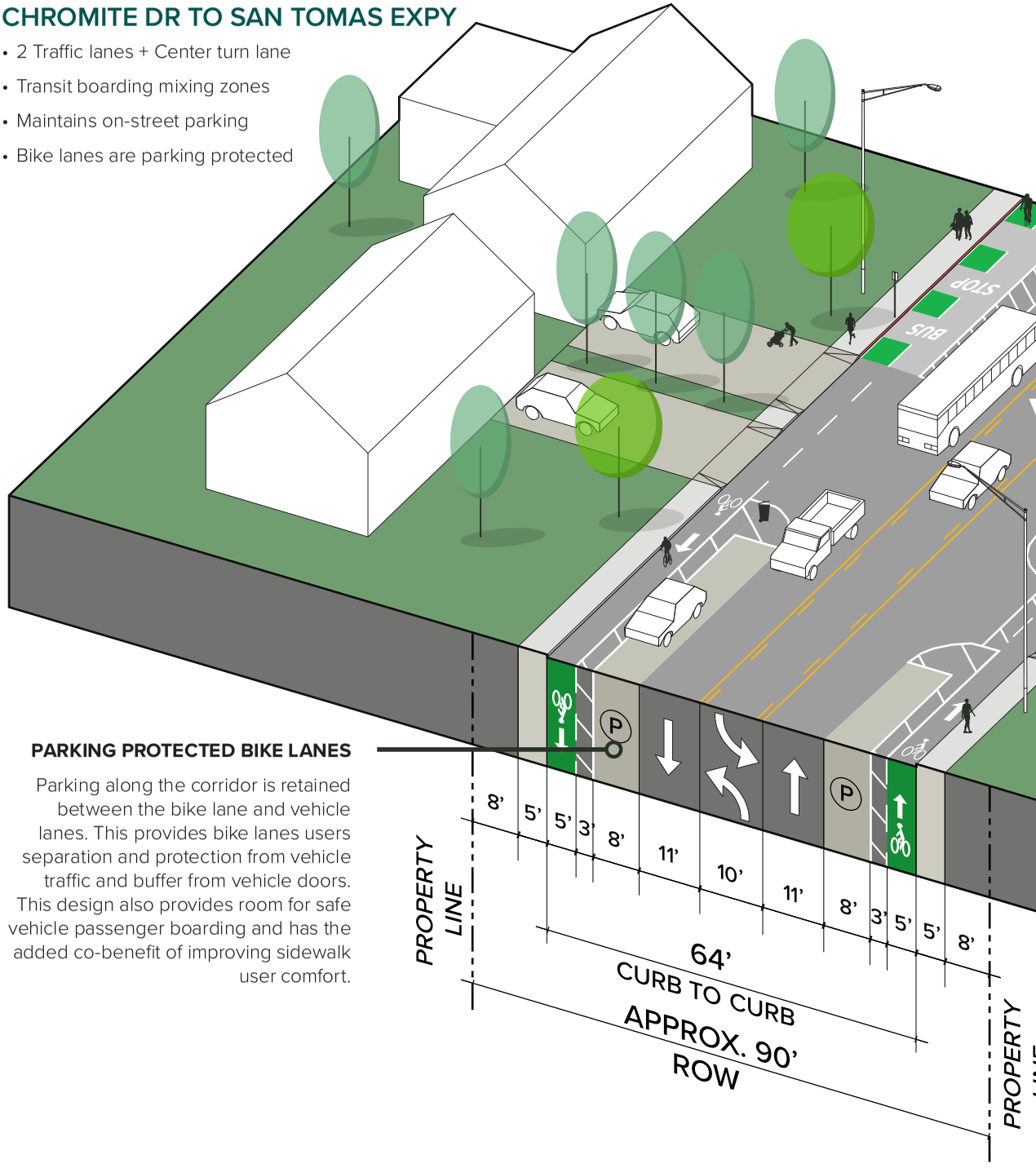
64’ WIDE TYPICAL

Concept B

TWO LANES, CENTER TURN LANE, PARKING-PROTECTED BIKE LANES

MONROE ST FROM LAWRENCE EXPWY TO CALABAZAS BLVD + CHROMITE DR TO SAN TOMAS EXPY

- 2 Traffic lanes + Center turn lane
- Transit boarding mixing zones
- Maintains on-street parking
- Bike lanes are parking protected



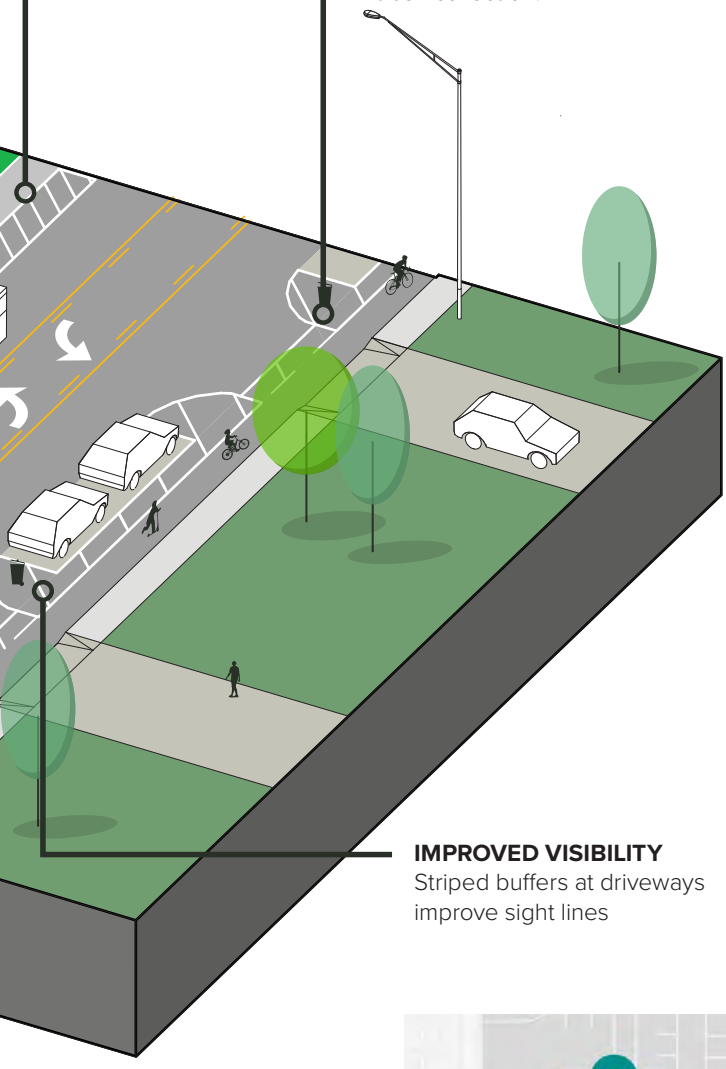
PARKING PROTECTED BIKE LANES

Parking along the corridor is retained between the bike lane and vehicle lanes. This provides bike lanes users separation and protection from vehicle traffic and buffer from vehicle doors. This design also provides room for safe vehicle passenger boarding and has the added co-benefit of improving sidewalk user comfort.

BUS MIXING ZONE
Green striping helps warn users of potential conflict between buses and cyclists.

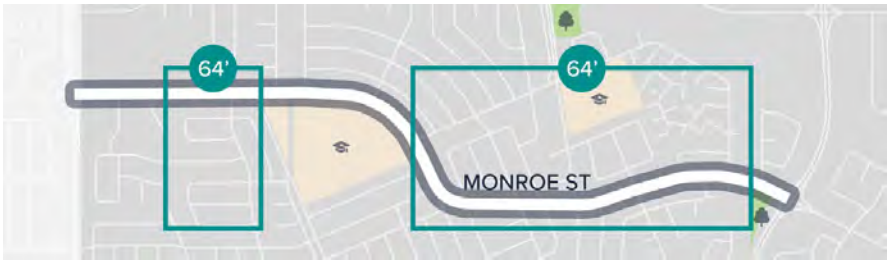
Buffer area maintains consistent vehicle lane width.

TRASH COLLECTION
Facilitates bin location for trash collection.



IMPROVED VISIBILITY
Striped buffers at driveways improve sight lines

EXAMPLE OF PARKING PROTECTED BIKE LANES



LINE

Figure 12. Concept B: Two Lanes, Center Turn Lane, Parking-Protected Bike Lanes – Alongside Wilcox High School

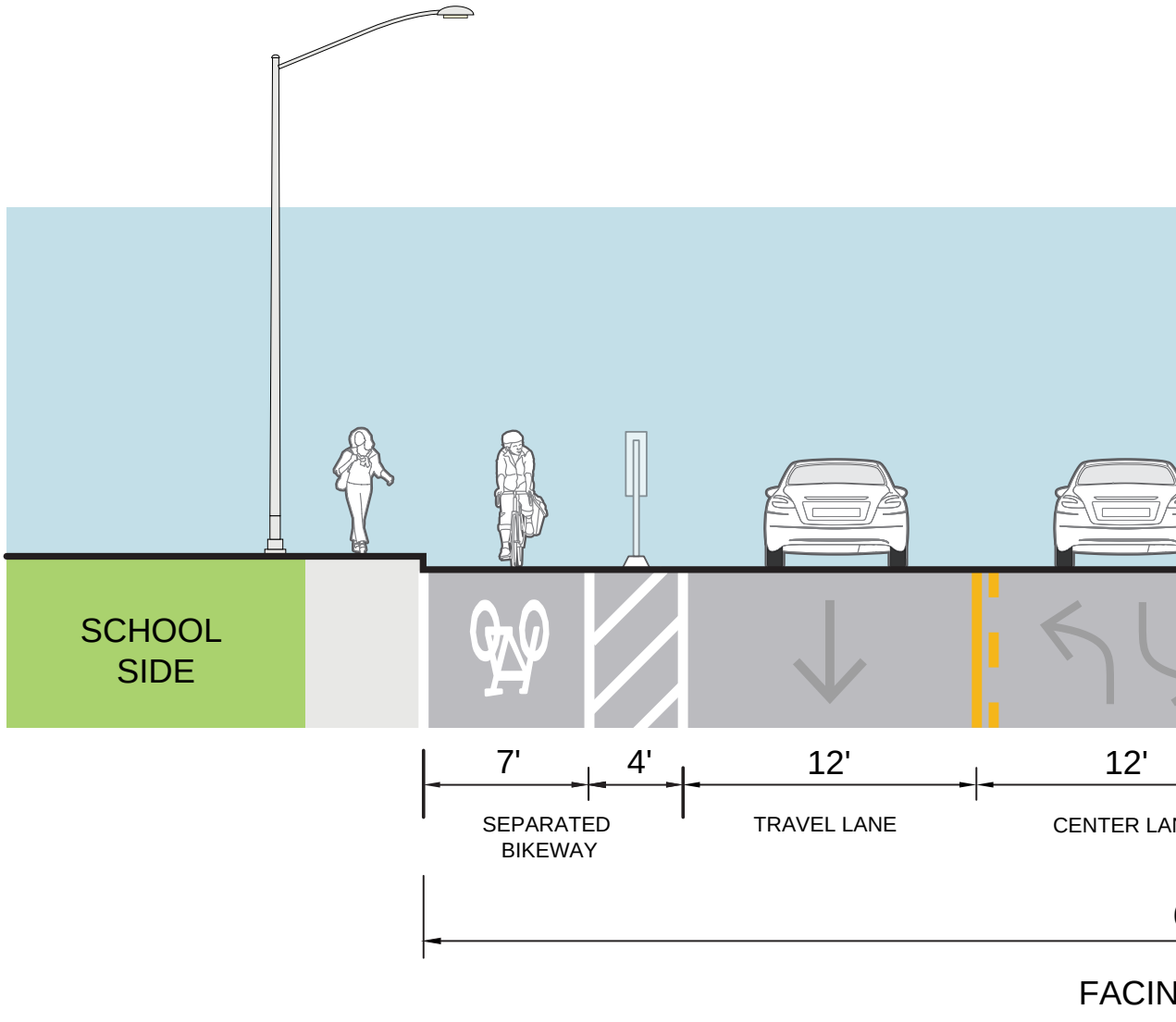
64’ WIDE

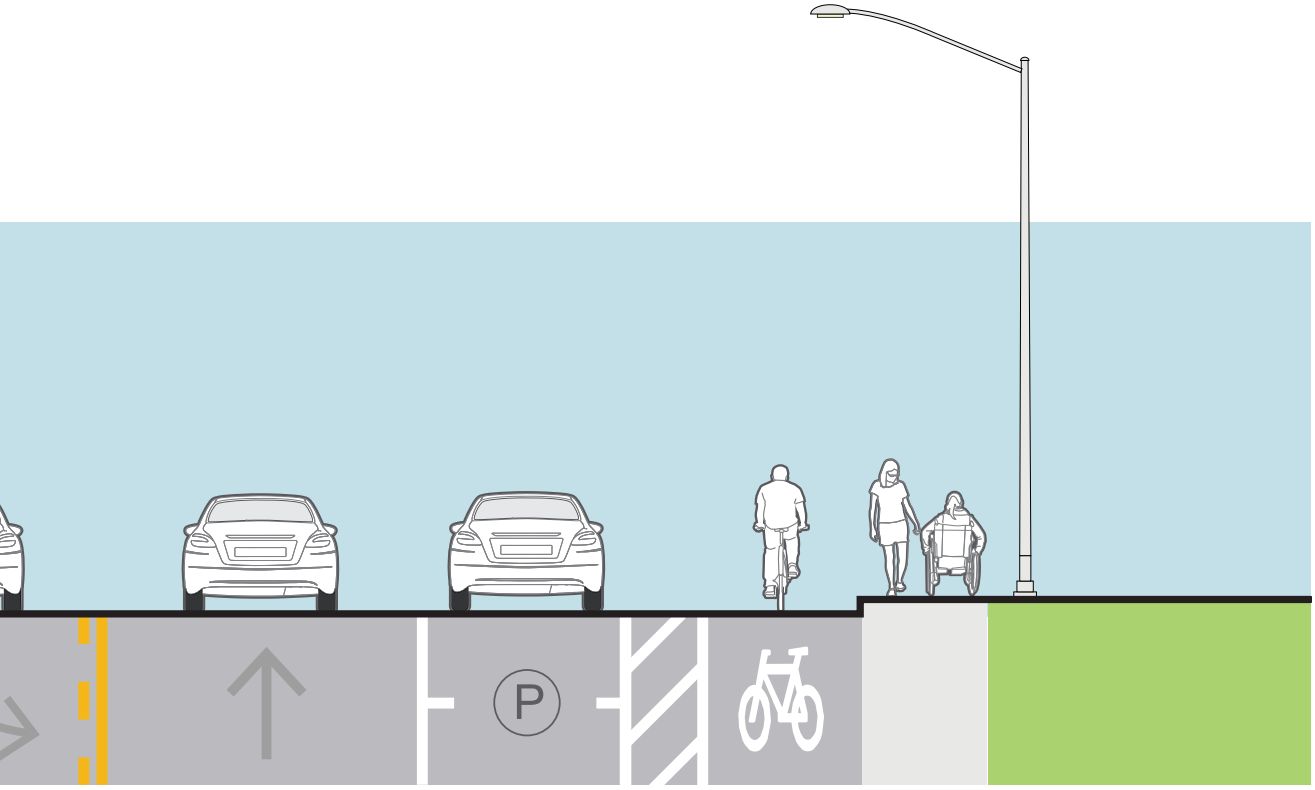
Concept B

ALONGSIDE HIGH SCHOOL

MONROE ST FROM CALABAZAS BLVD TO CHROMITE DR

- South side protected bike lane - in front of high school
- North side parking-protected bike lane - in front of residences




P
12'
8'
3'
6'
NE
TRAVEL LANE
PARKING
SEPARATED
BIKEWAY
64'

NG WEST


MONROE ST
64'

Figure 13. Concept C: Four Lanes, Buffered Bike Lanes, Remove Parking on One Side - Typical Condition

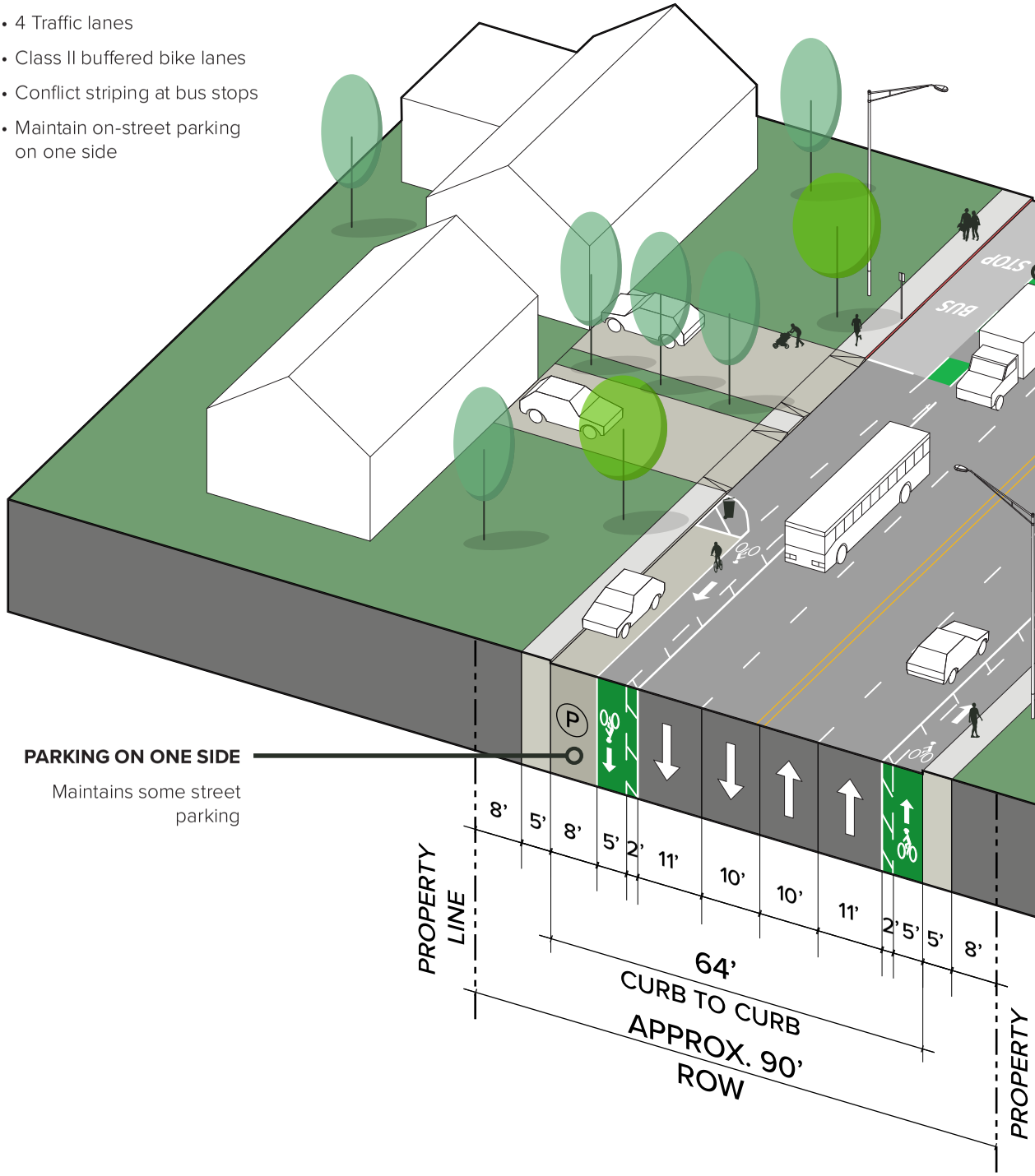
64’ WIDE TYPICAL

Concept C

FOUR LANES, BUFFERED BIKE LANES, REMOVE PARKING ON ONE SIDE

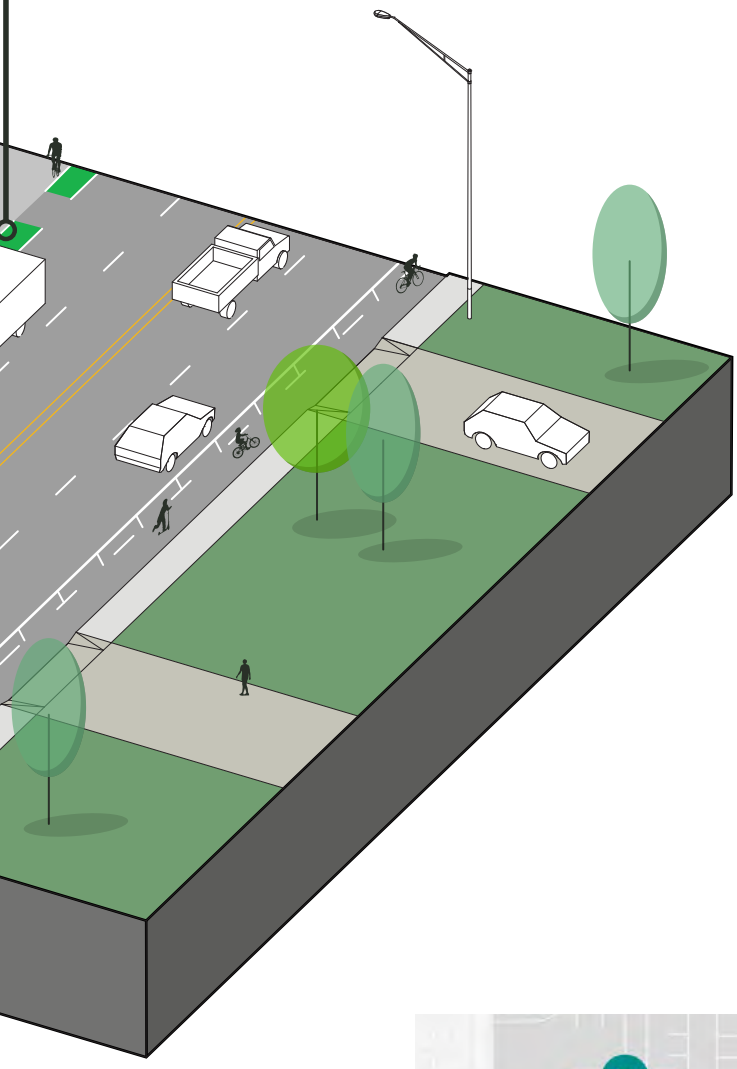
MONROE ST FROM LAWRENCE EXPWY TO CALABAZAS BLVD + CHROMITE DR TO SAN TOMAS EXPY

- 4 Traffic lanes
- Class II buffered bike lanes
- Conflict striping at bus stops
- Maintain on-street parking on one side

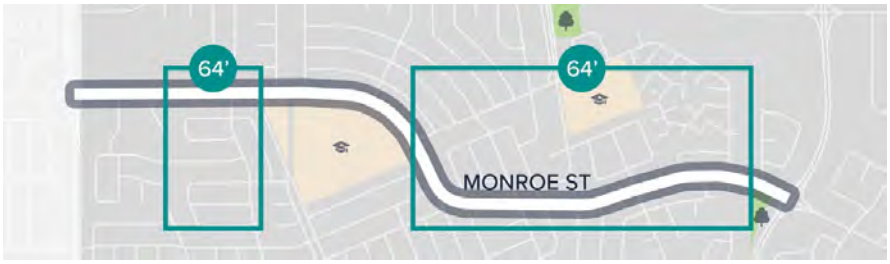


BUS MIXING ZONE
Green striping helps warn users of potential conflict between buses and cyclists.

Buffer area maintains consistent vehicle lane width.



EXAMPLE OF BUFFERED BIKE LANES
A buffer between vehicle traffic provides additional comfort for cyclists.



LINE

Figure 14. Concept C: Four Lanes, Buffered Bike Lanes, Remove Parking on One Side – Alongside Wilcox High School

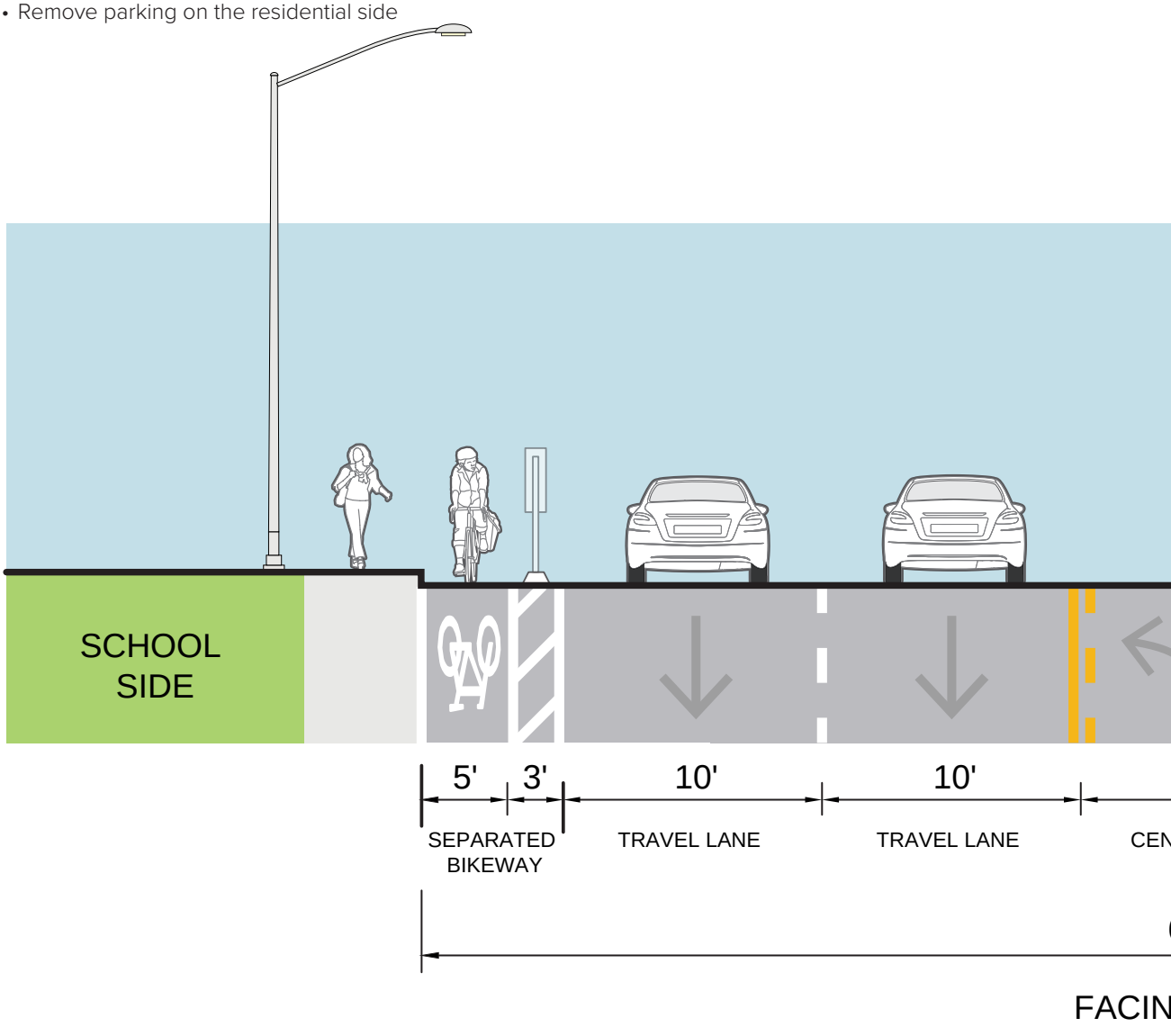
64’ WIDE

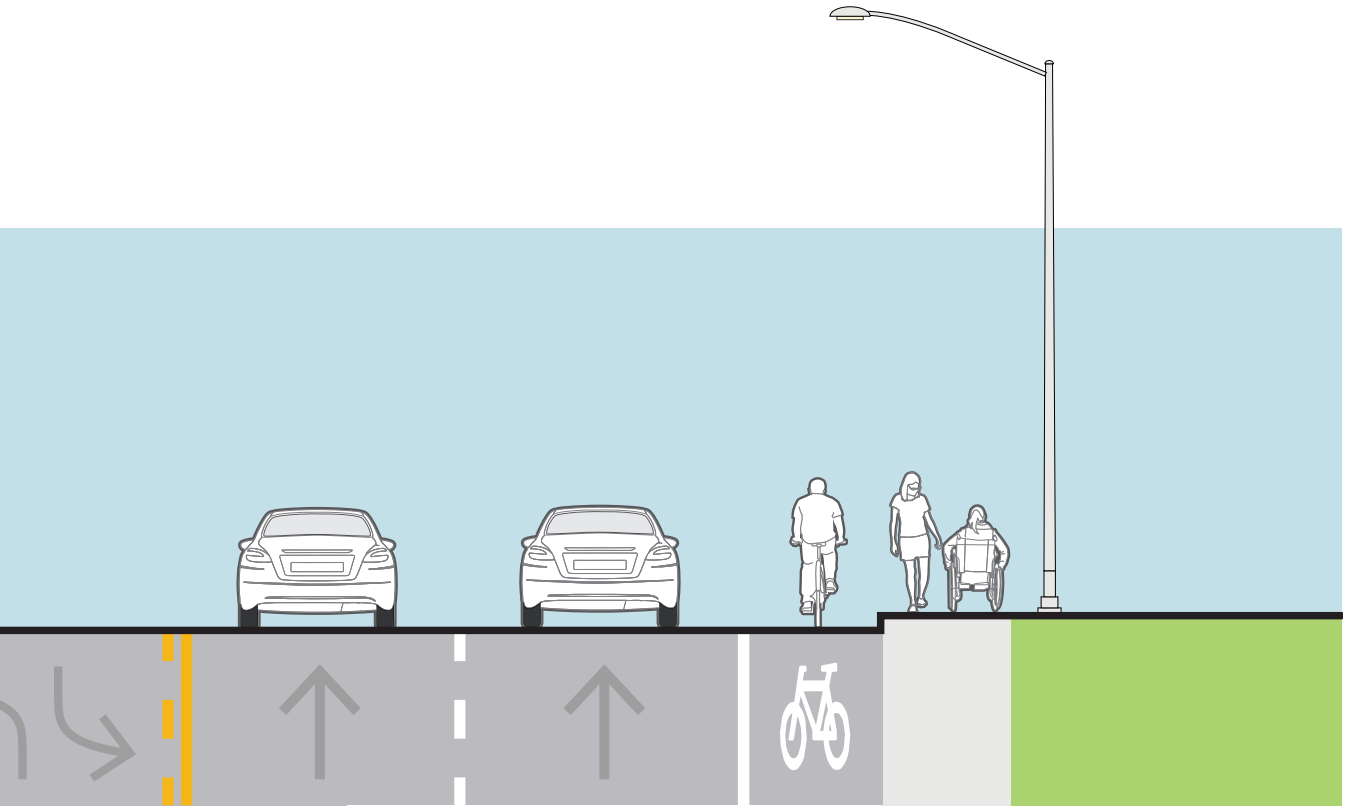
Concept C

ALONGSIDE HIGH SCHOOL

MONROE ST FROM CALABAZAS BLVD TO CHROMITE DR

- South side protected bike lane - in front of high school
- North side bike lane - in front of residences
- Remove parking on the residential side




11'
10'
10'
5'
ITER LANE
TRAVEL LANE
TRAVEL LANE
BIKE LANE
64'

IG WEST


MONROE ST
64'

Traffic Analysis

Safety

COLLISION REDUCTION ESTIMATE

Using the latest data from the Caltrans Local Roadway Safety manual and the Federal Highway Administration Crash Modification Factors (CMFs) for roadway changes, the project team conducted a collision analysis for Monroe Street[1]. A CMF is a multiplicative factor used to compute the expected number of crashes after implementing a given countermeasure at a specific site. The project team used a CMF of 0.65 associated with the safety countermeasure of "road diet" (reducing travel lanes and adding a two-way center left-turn lane and bike lanes) for collisions in Concepts A and B. The team then applied a CMF of 0.75 with the countermeasure of "install bike lanes" to bicycle collisions only in Concepts A, B, and C. Finally, the team used a CMF of 0.55 for the conversion of a standard bicycle lane to a separated bikeway, resulting in increased safety benefits for people riding bicycles.

1 Estimate based on formula from California Department of Transportation (Caltrans), Local Roadway Safety: A Plan for California's Local Road Owners, 2022. https://dot.ca.gov/-/media/dot-media/programs/local-assistance/documents/hsip/2022/lrsm2022.pdf.

From 2017 to 2022, there were 130 vehicle-to-vehicle collisions and nine collisions involving a bicyclist. These numbers serve as the baseline for the No Build or Existing Conditions concept. The analysis estimates how many collisions would have been avoided during the same time period if each concept had been built. In Concept A: Two Travel Lanes, Center Turn Lane, Buffered Bike Lanes, Parking on Both Sides, it is anticipated that there would have been 45 fewer vehicle collisions and two fewer bicycle collisions. In Concept B: Two Travel Lanes, Center Turn Lane, Parking-Protected Bike Lanes, it is anticipated there would have been 45 fewer vehicle collisions and five fewer bicycle collisions. This concept would have resulted in the highest estimated safety benefits for drivers and people riding bicycles. In Concept C: Four Travel Lanes, Buffered Bike Lanes, Remove Parking on One Side, it is anticipated there would have been no reduction in vehicle collisions and two fewer bicycle collisions. The results of the collision analysis are included in **Table 8: Estimated Collision Reductions with Crash Modification Factors (2017–2022).**

Table 8. Estimated Collision Reductions with Crash Modification Factors (2017–2022)

Concept	Road Diet	Bike Lane Type	Vehicle Collisions Total	Vehicle Collisions Reduced	Bike Collisions Total	Bike Collisions Reduced	Total Collisions	Total Collisions Reduced
Existing Conditions/ No Build	–	–	130	–	9	–	139	–
Concept A (estimated)	Yes	Buffered	85	45	7	2	92	47
Concept B (estimated)	Yes	Parking-Protected	85	45	4	5	89	50
Concept C (estimated)	No	Buffered	130	0	7	2	137	2

Traffic Diversion

To determine the traffic that would be diverted from Monroe Street to Kifer Road and Cabrillo Avenue as a result of the road diet, the City's travel demand model was utilized. Existing and Existing Plus Road Diet travel demand models were run to determine volumes along the corridors for each scenario. The Existing travel demand model provides a baseline condition where Monroe Street is two lanes in each direction. The Existing Plus Road Diet travel demand model was created by adjusting the model's network and reducing the travel lanes from two lanes to one lane in each direction along the study corridor. The volume difference between the two scenarios represents the traffic diversion as a result of the road diet. On Monroe Street, there would be an average of 26% reduction in traffic for the westbound direction and a 12% reduction for the eastbound direction for the entire segment during the weekday AM peak hour. There would be an average 12% reduction in traffic for the westbound direction and 18% reduction for the eastbound direction for the entire segment during the weekday PM peak hour. It should be noted that traffic diversion is not assumed during the Saturday and weekday midday peak hours as there is sufficient capacity along Monroe Street to accommodate existing traffic with the road diet. **Appendix A-2: Traffic Analysis Memo** diagrams the modeled changes in traffic diversion in **Figures 6-9** of that memo.

Traffic Operations

TRAVEL TIME

The project team evaluated the time it takes to travel the entire length of the study corridor in a car at 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 11:30 a.m. and 1:30 p.m.). The project team then modeled the estimated time it would take to travel the length of the study corridor under Concepts A and B, which both involve the reduction of one travel lane in each direction.

During the busiest time of day going westbound (AM peak period between 7:00 and 9:00 a.m.), it takes an average of 10 minutes and 25 seconds to travel the entire corridor. That time would increase by 76% to 18 minutes and 18 seconds under Concepts A and B. The AM peak period includes high school traffic, whereas PM peak period would be minimally affected by high school traffic.

During the busiest time of day going eastbound (PM peak period between 4:00 and 6:00 p.m.), it takes an average of 11 minutes and 19 seconds to travel the entire corridor. That would increase 20% to 13 minutes and 35 seconds under concepts A and B. The full results of the travel time analysis are in **Table 9: Modeled Travel Time Changes (in minutes).**

Table 9. Modeled Travel Time Changes (in minutes)

Time Period	No Build and Concept C (min:sec)	Lane Removal Concepts A & B (min:sec)	Travel Time Increase (min:sec and %)	
Westbound				
AM Peak	10:25	18:18	07:53	76%
PM Peak	06:45	08:52	02:07	31%
Midday	07:00	08:34	01:34	22%
Saturday	06:22	06:27	00:05	1%
Eastbound				
AM Peak	07:14	07:55	00:41	9%
PM Peak	11:19	13:35	02:16	20%
Midday	07:23	09:09	01:46	24%
Saturday	05:57	06:23	00:26	7%

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

LEVEL OF SERVICE

The project team also modeled the traffic delay or Level of Service (LOS) at 26 intersections along the study corridor and surrounding streets. Based on the level of delay, each intersection gets a letter grade A through F. Intersections with LOS A through D meet City standards. Intersections with LOS E meet standards for El Camino Real (a state highway) and any county expressway. Otherwise, LOS E and F are considered substandard.

Four of the 26 intersections studied are currently substandard in the AM peak period, and three are substandard in the PM peak period on weekdays. Under Concepts A and B, which involve the reduction of one travel lane in each direction (road diet), the number of substandard intersections remains at four in the AM peak period and increases from three to four in the PM peak period. The results are summarized in **Table 10: Level of Service Analysis Results** and **Figure 15** through **Figure 20**.

Concepts A and B would impact the following intersections:

- Monroe Street and Bowers Avenue would change to substandard during AM and PM peak
- Monroe Street and San Tomas Expressway would improve to meet City standards during AM peak, due to likely traffic diversion

The project team also conducted a queuing analysis to evaluate how each concept would affect the distance in which vehicles would queue to turn at intersections. Long queues require drivers to wait through multiple signal cycles to turn and could impact overall traffic delay. Under the lane removal scenario, Concepts A and B, the analysis did not show significant increases in queue lengths at Monroe Street intersections except at Monroe Street and San Tomas Expressway:

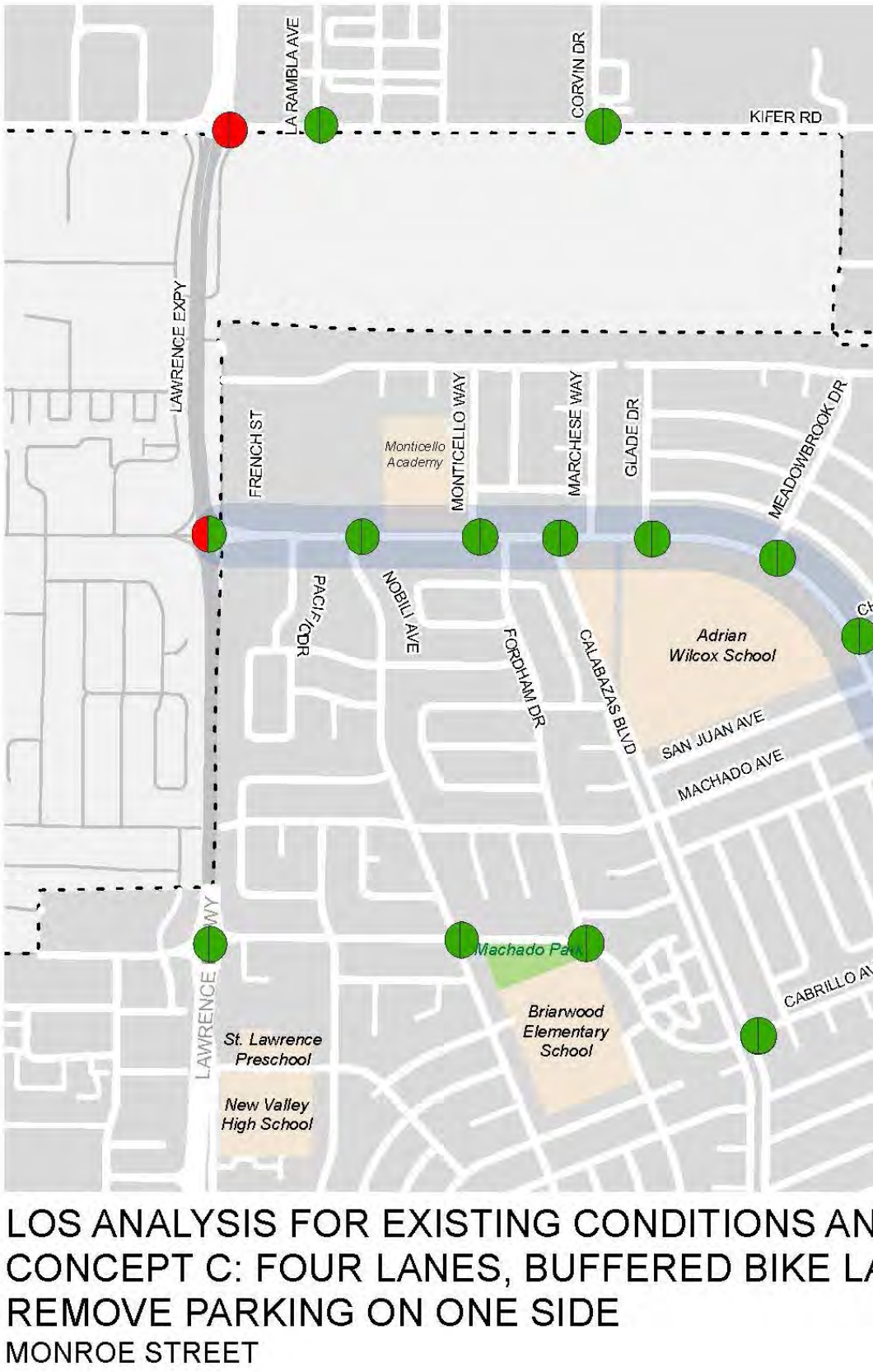
- Westbound right-turn queue is anticipated to increase by approximately four vehicles during the AM peak.
- Southbound left-turn queue is anticipated to increase by approximately one vehicle during the PM peak.

The westbound right-turn queue backs up because there is an increase in volume at this movement with the road diet. People driving vehicles will likely reroute to avoid staying on Monroe Street, and they will instead use the parallel routes. At Monroe Street and San Tomas Expressway, westbound through traffic may shift and make a right turn with the road diet to get onto Kifer Road and avoid Monroe Street. The right-turn lane configuration (or overall intersection configuration in general) does not change at this intersection since modifications to expressways are not part of the project. To mitigate the LOS impacts of Concepts A & B, the City could explore signal timing adjustments, optimizing other routes, or promoting transportation demand management strategies such as encouraging carpooling/vanpooling, public transit, and walking and bicycling.

Table 10. Level of Service Analysis Results

Time Period	No Build and Concept C		Lane Removal – Concepts A & B	
	Meets Standard	Substandard	Meets Standard	Substandard
AM Peak	22	4	22	4
PM Peak	23	3	22	4
Midday	26	0	26	0
Saturday	26	0	26	0

Figure 15. Level of Service Analysis for Existing Conditions and Concept C – Weekday AM and PM Peak Hours



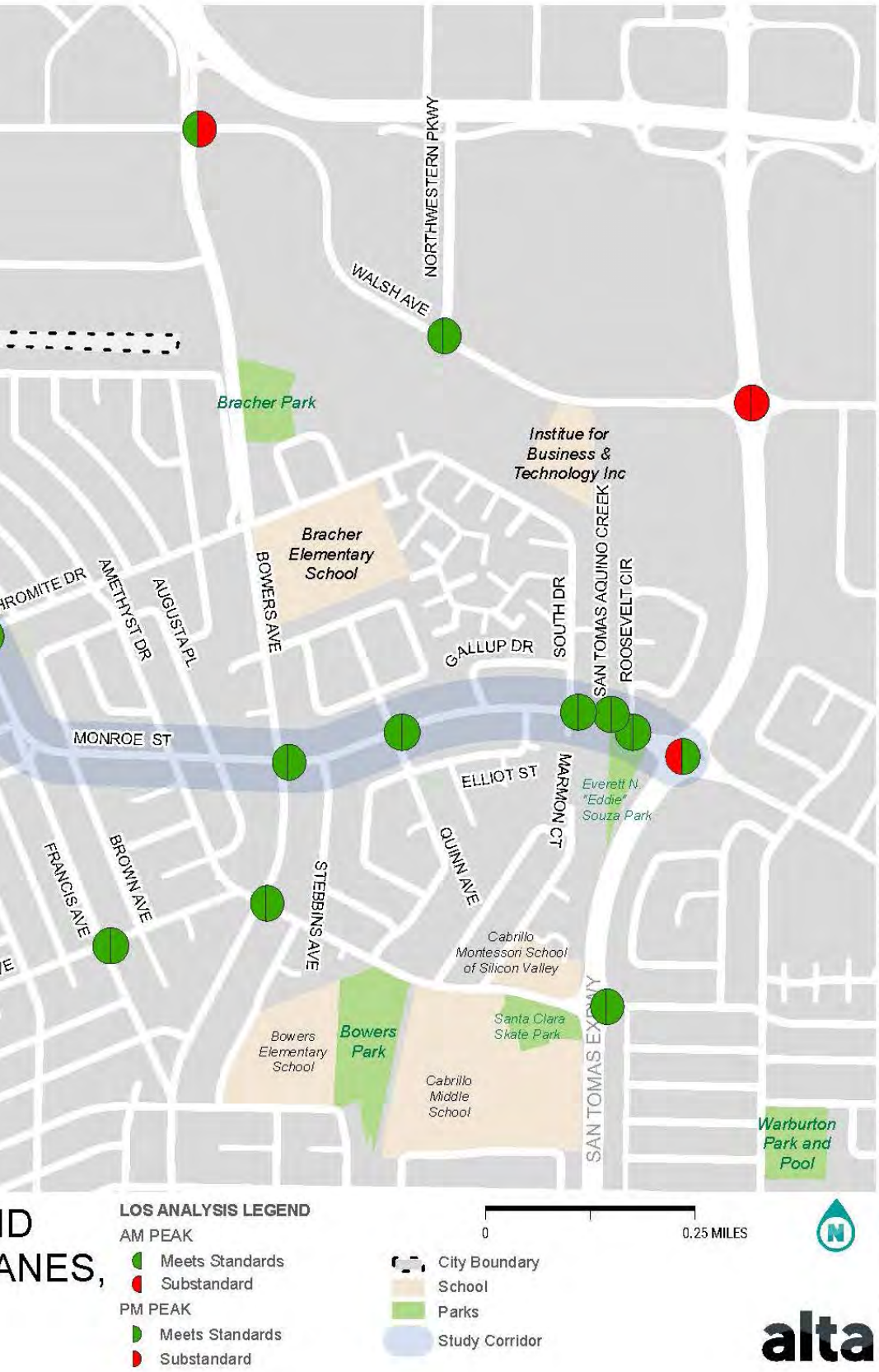

NORTHWESTERN PKWY
WALSH AVE
Bracher Park
Institue for Business & Technology Inc
Bracher Elementary School
BOWERS AVE
AUGUSTA PL
AMETHYST DR
HROMITE DR
GALLUP DR
SOUTH DR
SAN TOMAS AQUINO CREEK
ROOSEVELT CIR
MONROE ST
ELLIOT ST
MARMON CT
Everett N. "Eddie" Souza Park
QUINN AVE
STEBBINS AVE
BROWN AVE
FRANCIS AVE
Cabrillo Montessori School of Silicon Valley
Santa Clara Skate Park
Bowers Elementary School
Bowers Park
Cabrillo Middle School
SAN TOMAS EXPWY
Warburton Park and Pool
ID
ANES,
LOS ANALYSIS LEGEND
AM PEAK
Meets Standards
Substandard
PM PEAK
Meets Standards
Substandard
City Boundary
School
Parks
Study Corridor
0
0.25 MILES
N
alta

Figure 16. Level of Service Analysis for Concepts A and B (Lane Removal) – Weekday AM and PM Peak Hours

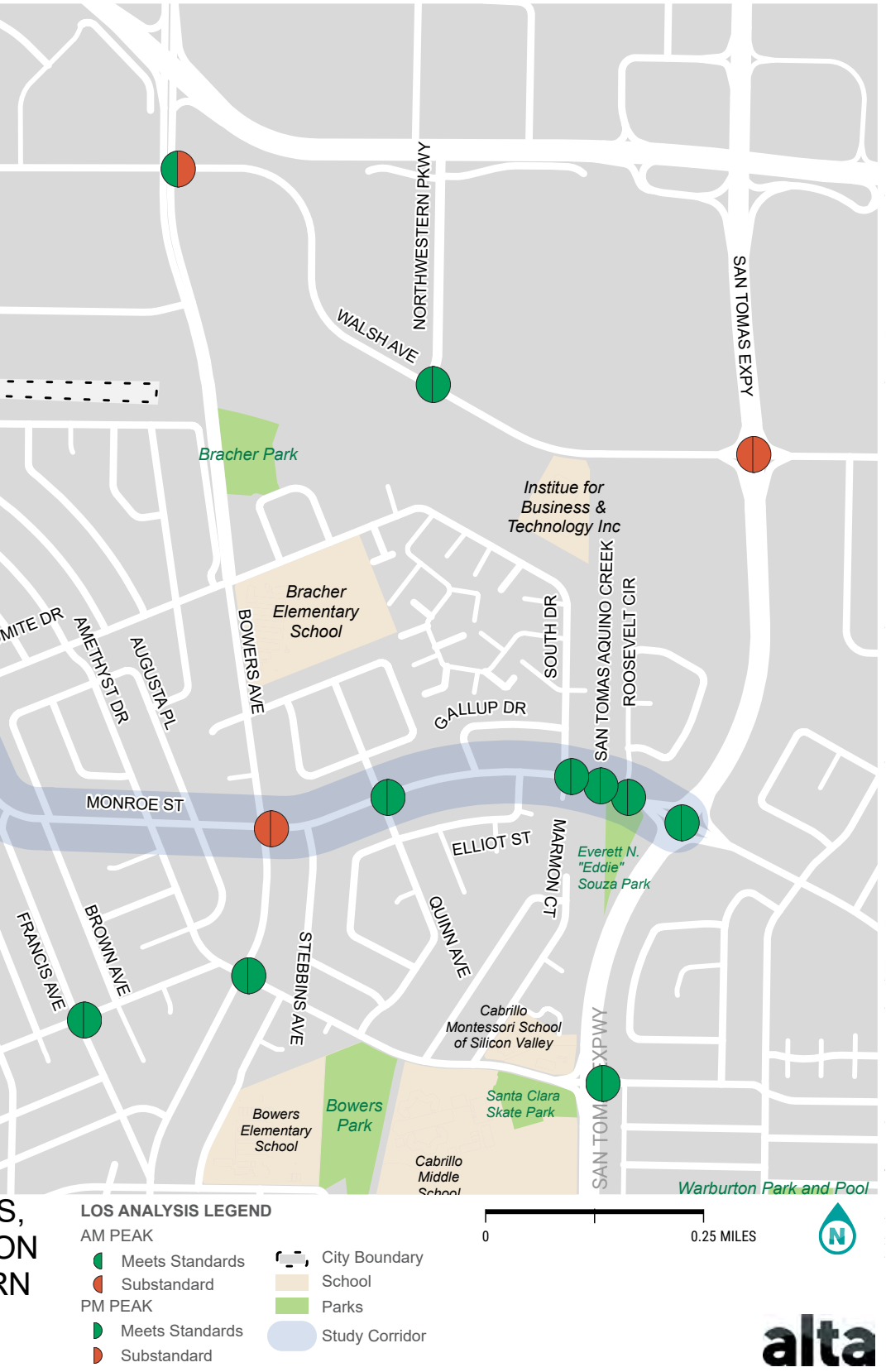
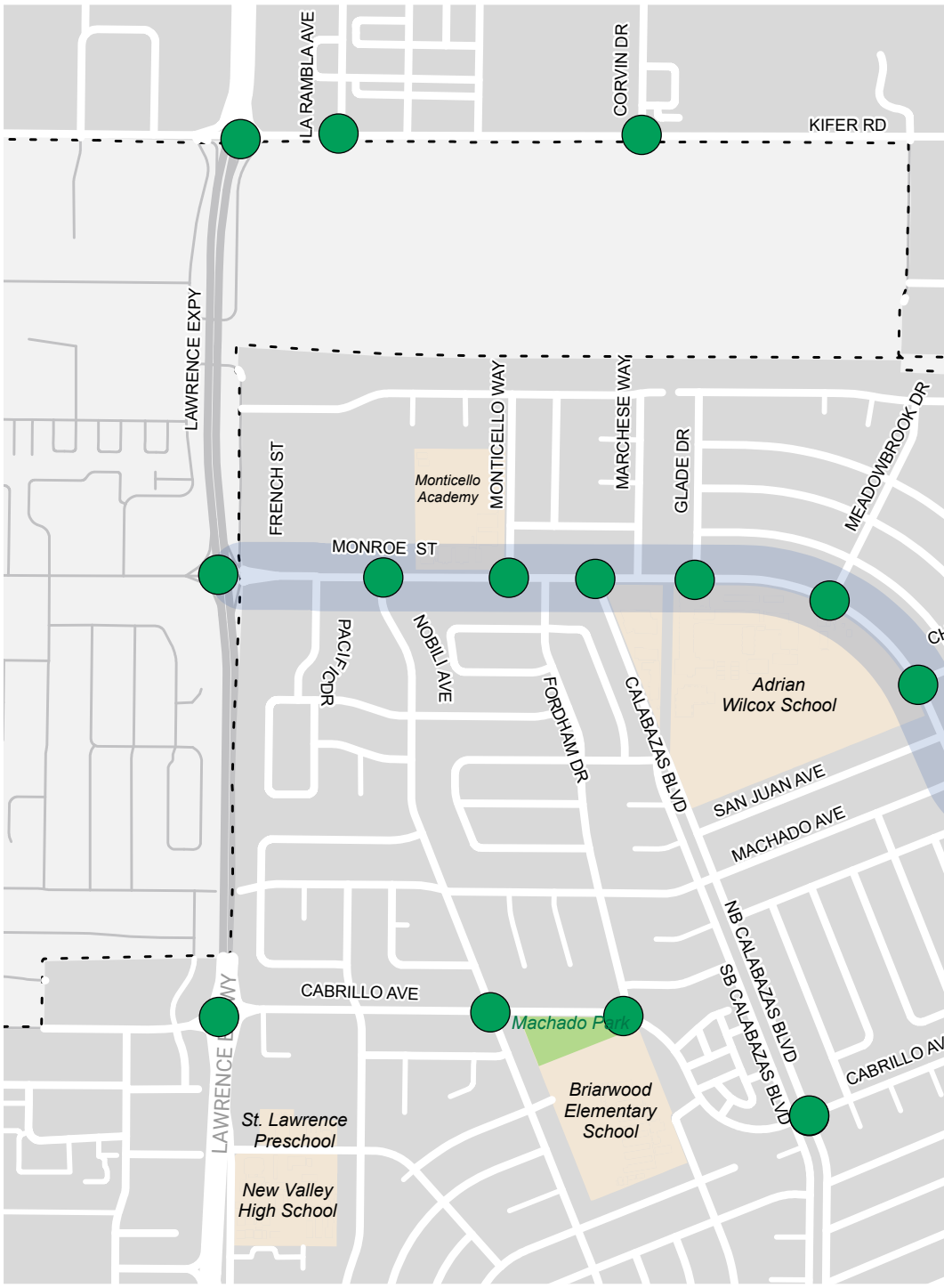
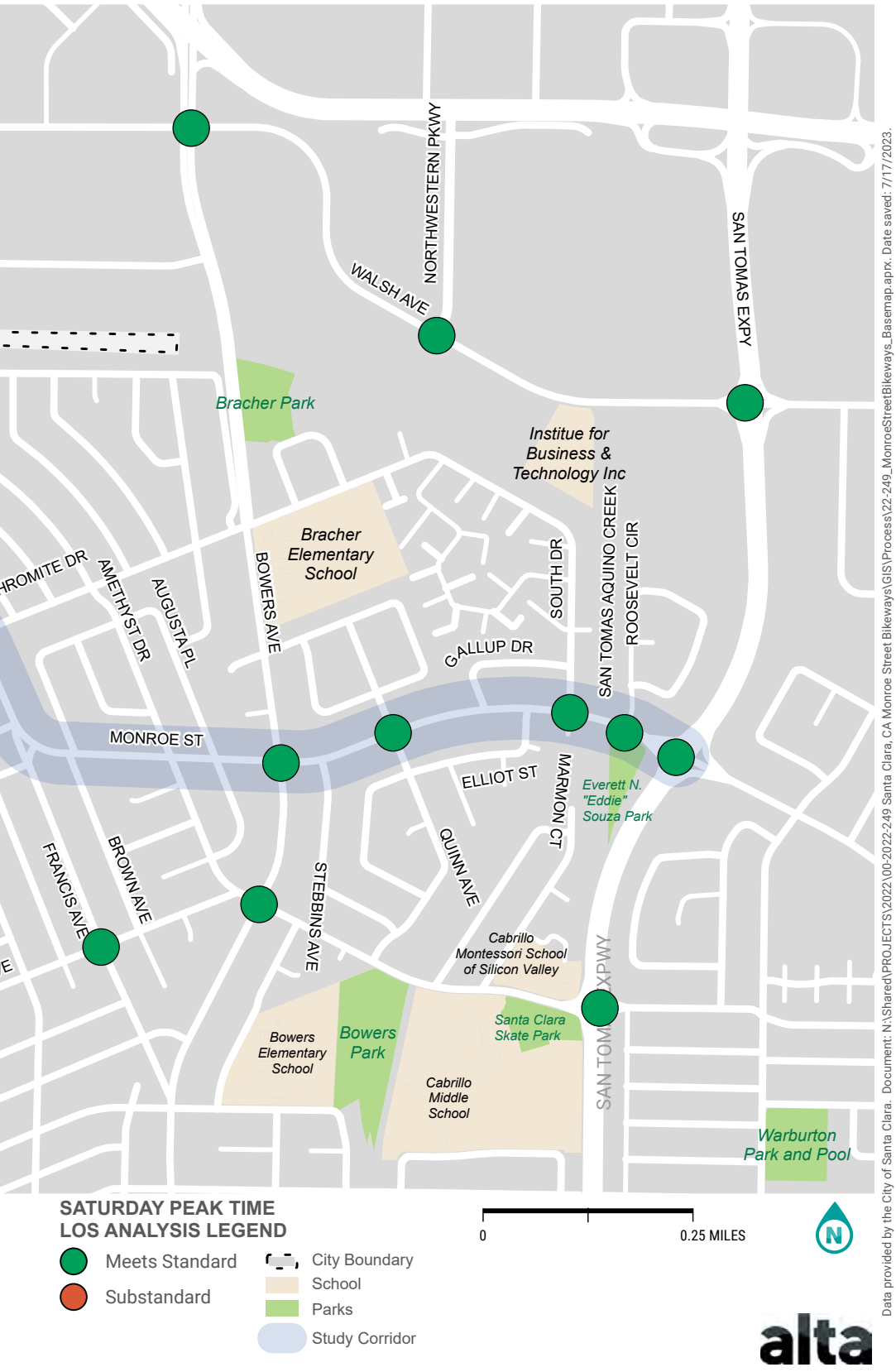

NORTHWESTERN PKWY
WALSH AVE
SAN TOMAS EXPY
Bracher Park
Institue for Business & Technology Inc
Bracher Elementary School
BOWERS AVE
SOUTH DR
SAN TOMAS AQUINO CREEK
ROOSEVELT CIR
GALLUP DR
MONROE ST
ELLIOT ST
MARMON CT
Everett N. "Eddie" Souza Park
QUINN AVE
STEBBINS AVE
BROWN AVE
FRANCIS AVE
Cabrillo Montessori School of Silicon Valley
Bowers Elementary School
Bowers Park
Santa Clara Skate Park
Cabrillo Middle School
SAN TOMAS EXPWY
Warburton Park and Pool
LOS ANALYSIS LEGEND
AM PEAK
Meets Standards
Substandard
PM PEAK
Meets Standards
Substandard
City Boundary
School
Parks
Study Corridor
0
0.25 MILES
N

Figure 17. Level of Service Analysis for Existing Conditions and Concept C – Saturday



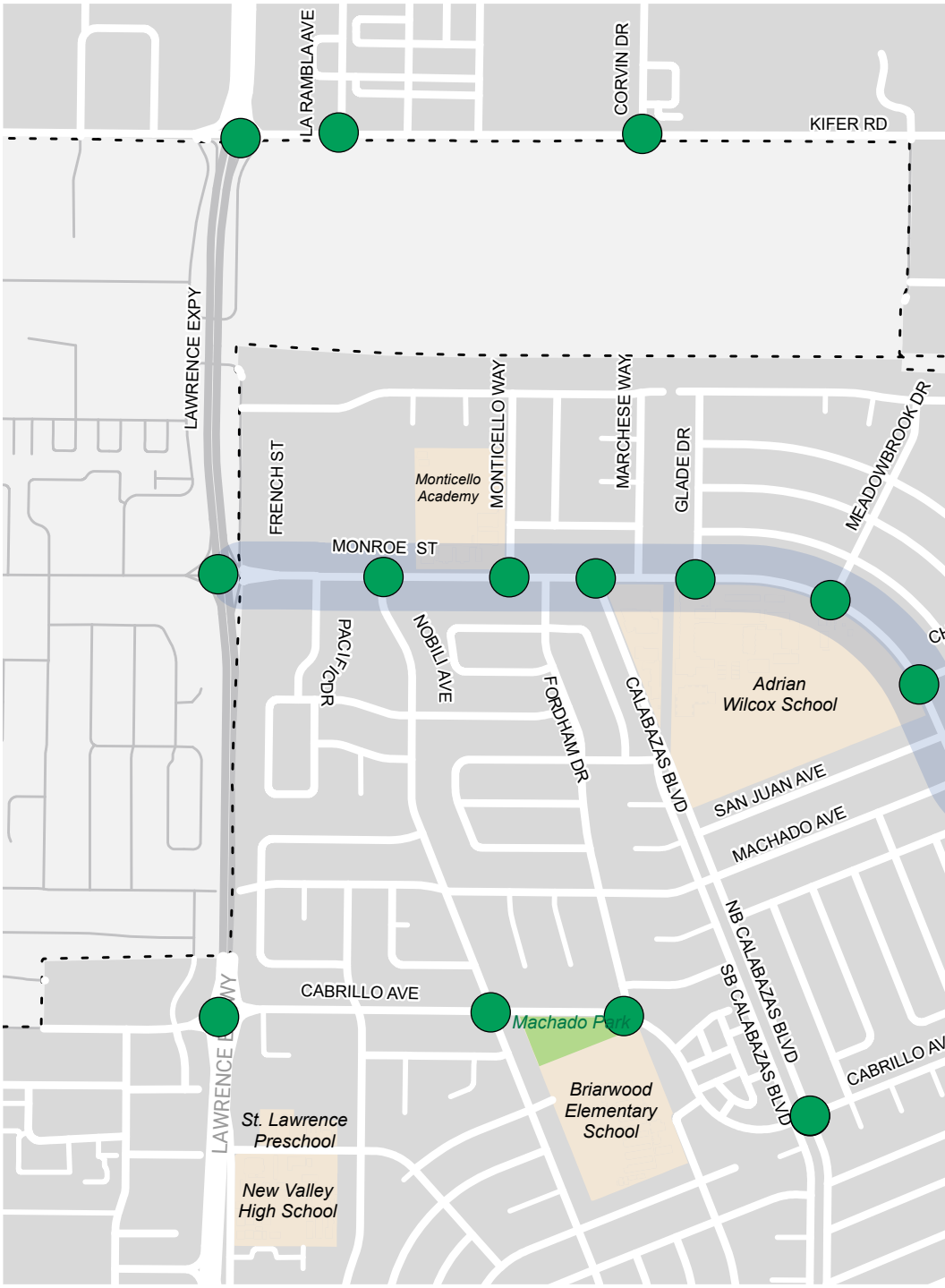
SATURDAY PEAK LOS ANALYSIS FOR EXISTING CONDITIONS AND CONCEPT C: FOUR LANES, BUFFERED BIKE LANES, REMOVE PARKING ON ONE SIDE

MONROE STREET



Data provided by the City of Santa Clara. Document: N:\Shared\PROJECTS\2022\00-2022-249 Santa Clara, CA Monroe Street Bikeways\GIS\Process\22-249_MonroeStreetBikeways_Basemap.aprx. Date saved: 7/17/2023.

Figure 18. Level of Service Analysis for Concepts A and B (Lane Removal) – Saturday



SATURDAY PEAK TIME LOS ANALYSIS FOR CONCEPT A: TWO LANES, CENTER TURN LANE, BUFFERED BIKE LANES, PARKING ON BOTH SIDES AND CONCEPT B: TWO LANES, CENTER TURN LANE, PARKING-PROTECTED BIKE LANE

MONROE STREET

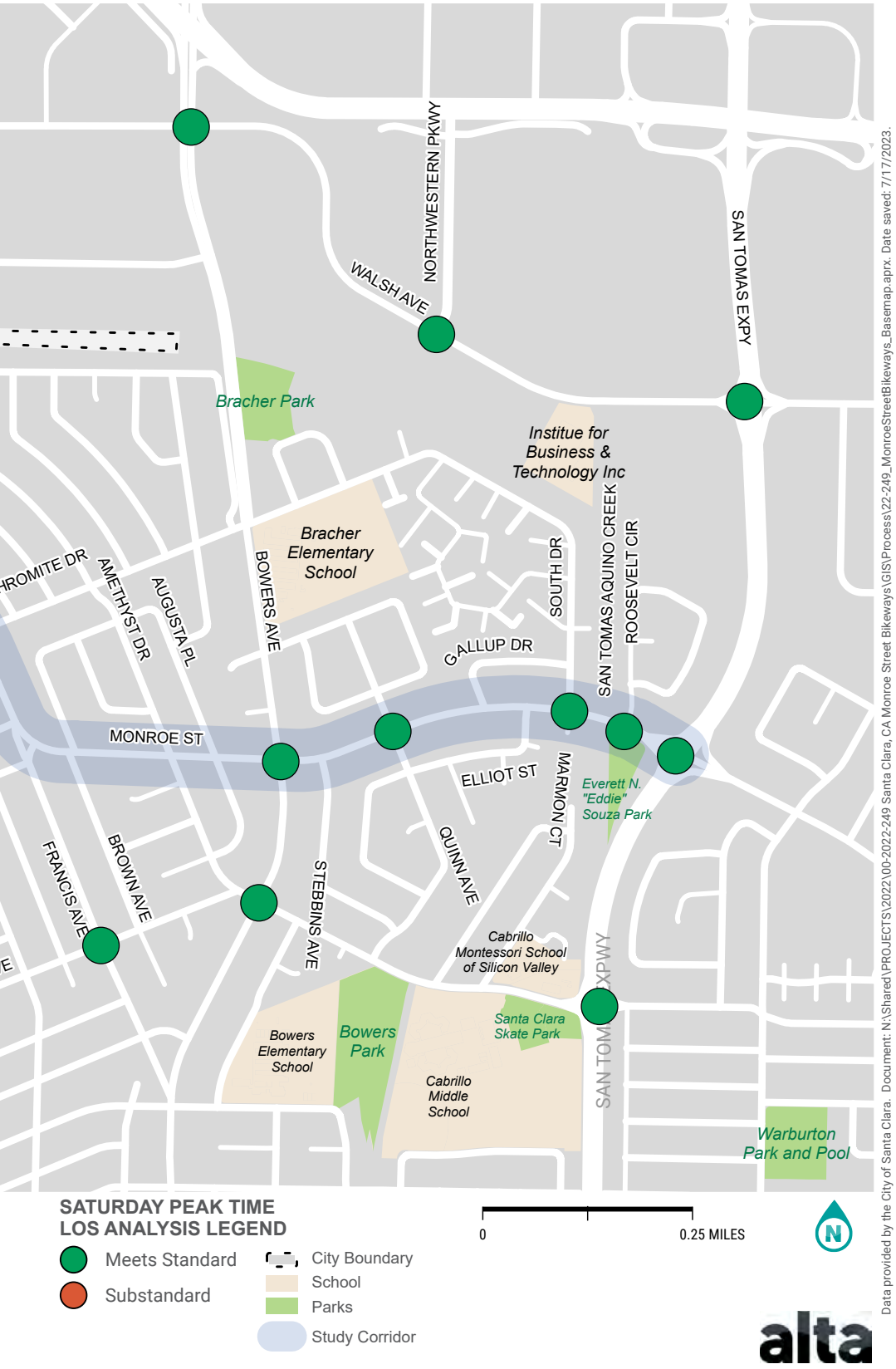

NORTHWESTERN PKWY
WALSH AVE
SAN TOMAS EXPY
Bracher Park
Institue for Business & Technology Inc
Bracher Elementary School
BOWERS AVE
SOUTH DR
SAN TOMAS AQUINO CREEK
ROOSEVELT CIR
GALLUP DR
AUGUSTA PL
AMETHYST DR
MONROE ST
ELLIOT ST
MARMON CT
Everett N. "Eddie" Souza Park
QUINN AVE
STEBBINS AVE
BROWN AVE
FRANCIS AVE
Cabrillo Montessori School of Silicon Valley
Santa Clara Skate Park
Bowers Elementary School
Bowers Park
Cabrillo Middle School
Warburton Park and Pool
0
0.25 MILES
SATURDAY PEAK TIME LOS ANALYSIS LEGEND
Meets Standard
Substandard
City Boundary
School
Parks
Study Corridor
Data provided by the City of Santa Clara. Document: N:\Shared\PROJECTS\2022\00-2022-249 Santa Clara, CA Monroe Street Bikeways\GIS\Process\22-249_MonroeStreetBikeways_Basemap.aprx. Date saved: 7/17/2023.
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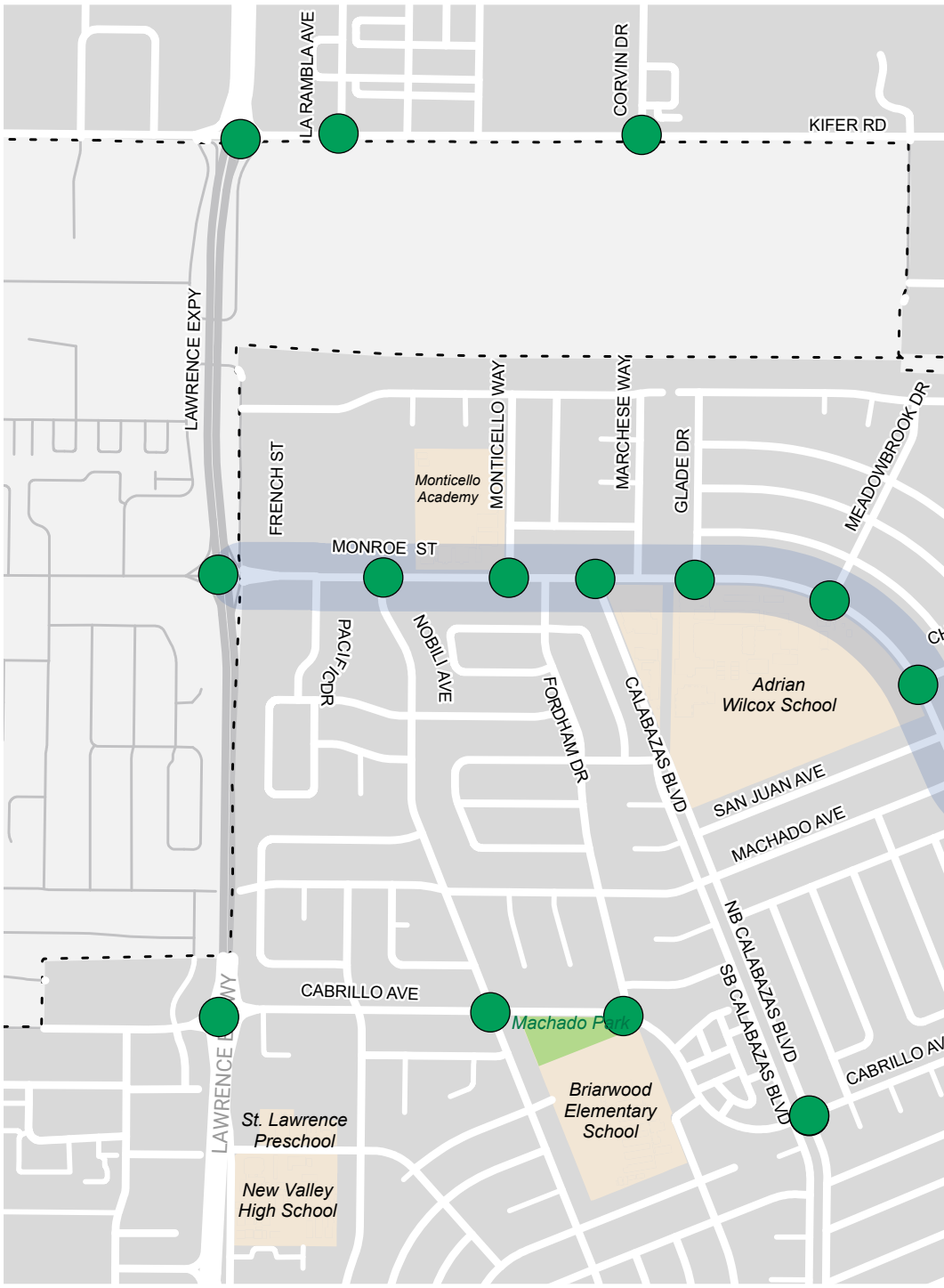
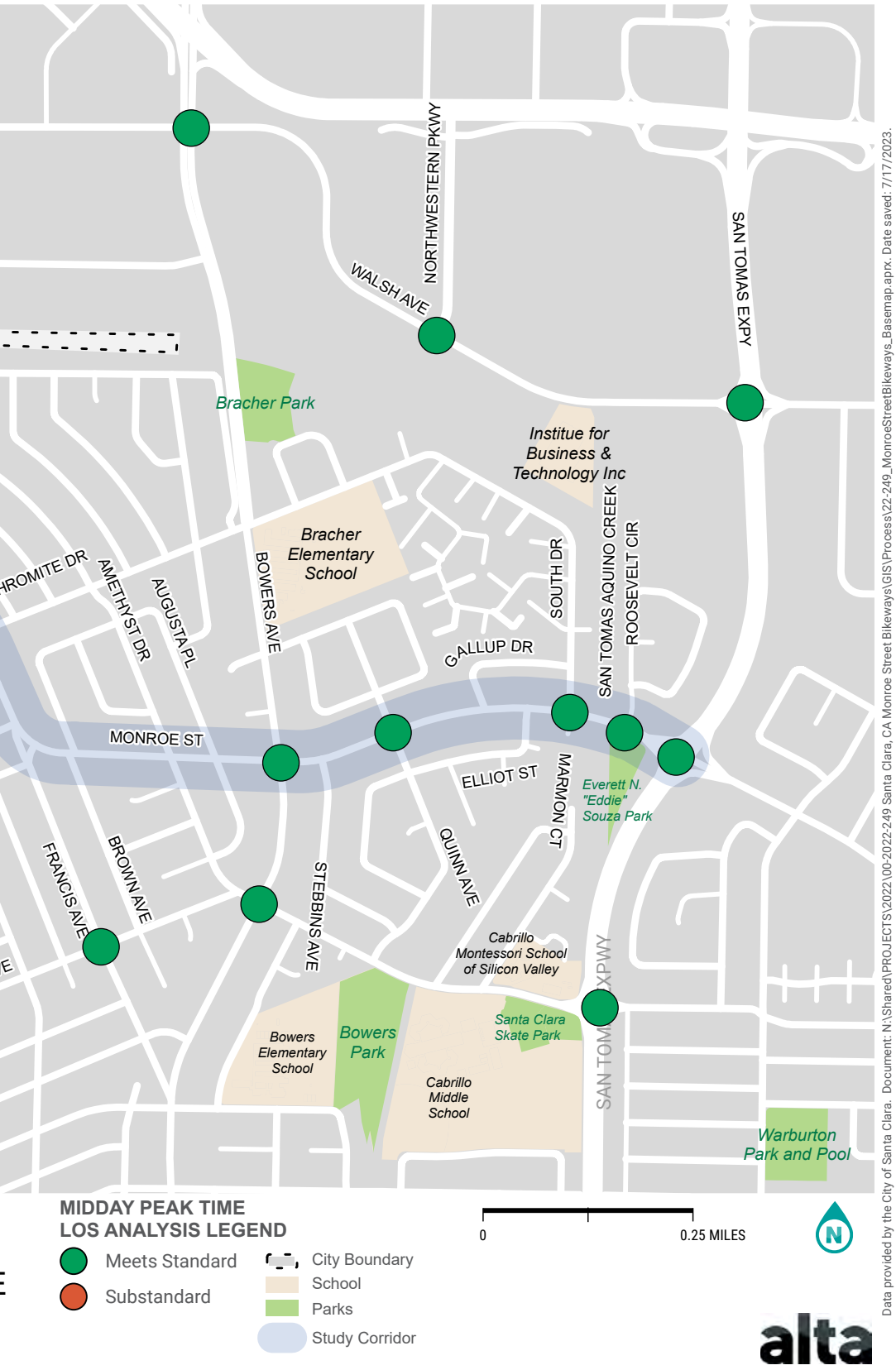
Figure 19. Level of Service Analysis for Existing Conditions and Concept C – Midday



WEEKDAY MIDDAY PEAK TIME LOS ANALYSIS FOR EXISTING CONDITIONS AND CONCEPT C: FOUR LANES, BUFFERED BIKE LANES, REMOVE PARKING ON ONE SIDE

MONROE STREET


NORTHWESTERN PKWY
WALSH AVE
SAN TOMAS EXPY
Bracher Park
Institue for Business & Technology Inc
Bracher Elementary School
BOWERS AVE
SOUTH DR
SAN TOMAS AQUINO CREEK
ROOSEVELT CIR
AUGUSTA PL
AMETHYST DR
HROMITE DR
GALLUP DR
MONROE ST
ELLIOT ST
MARMION CT
Everett N. "Eddie" Souza Park
QUINN AVE
STEBBINS AVE
BROWN AVE
FRANCIS AVE
Cabrillo Montessori School of Silicon Valley
SAN TOMAS EXPWY
Santa Clara Skate Park
Bowers Elementary School
Bowers Park
Cabrillo Middle School
Warburton Park and Pool
MIDDAY PEAK TIME
LOS ANALYSIS LEGEND
Meets Standard
Substandard
City Boundary
School
Parks
Study Corridor
0
0.25 MILES
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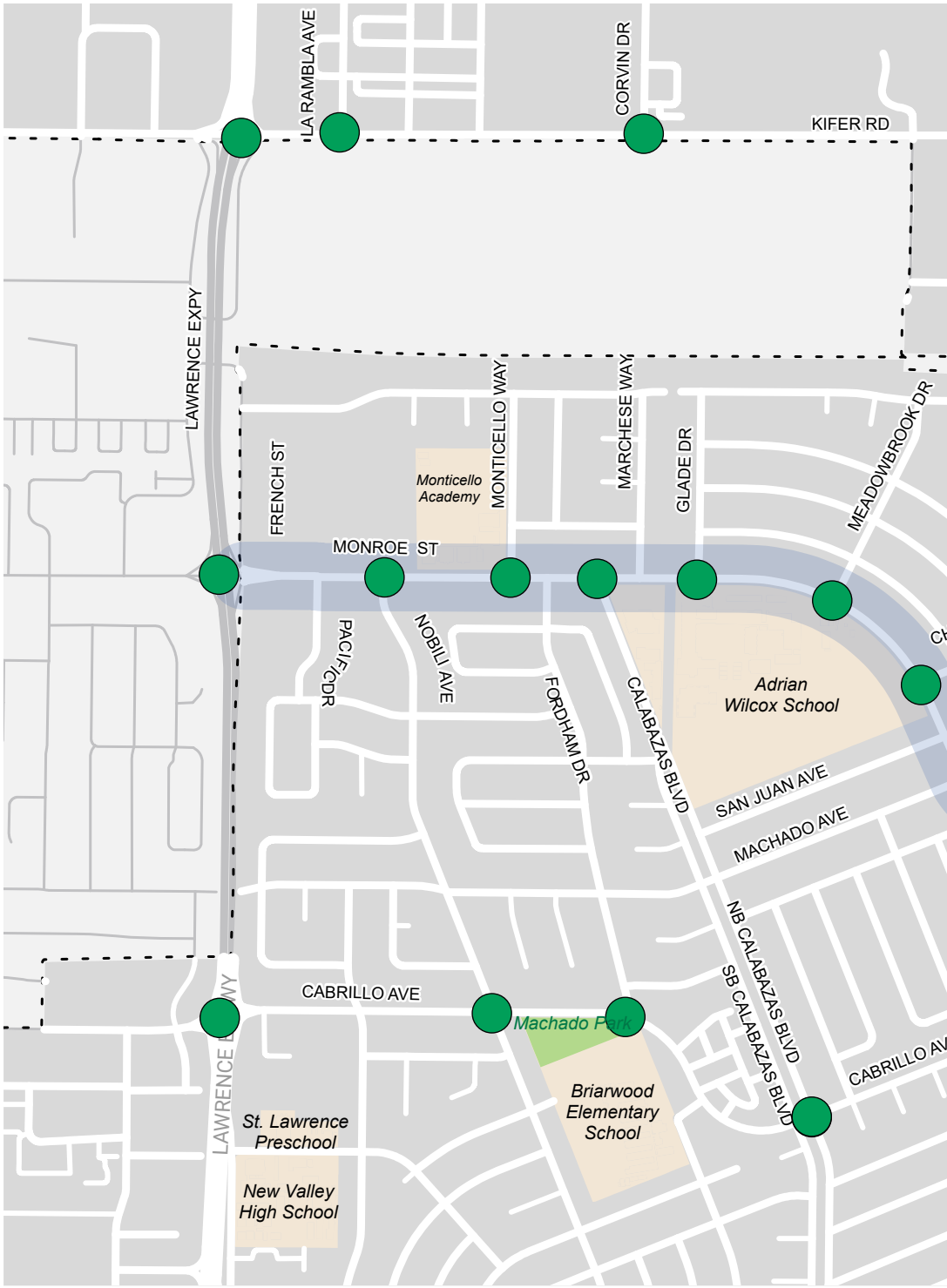
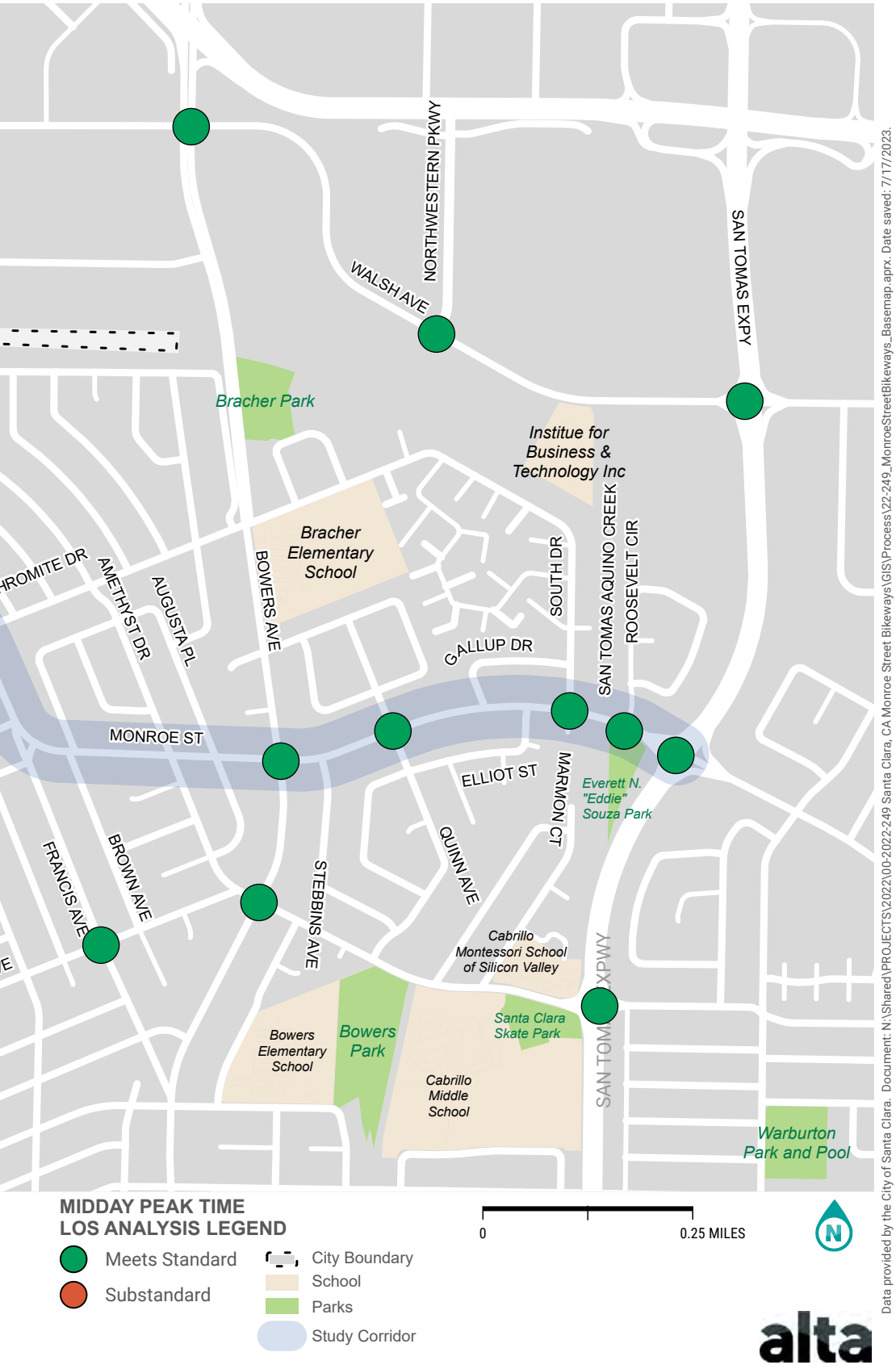
Data provided by the City of Santa Clara. Document: N:\Shared\PROJECTS\2022\00-2022-249 Santa Clara, CA Monroe Street Bikeways\GIS\Process\22-249_MonroeStreetBikeways_Basemap.aprx. Date saved: 7/17/2023.

Figure 20. Level of Service Analysis for Concepts A and B (Lane Removal) – Midday



WEEKDAY MIDDAY PEAK TIME LOS ANALYSIS FOR CONCEPT A: TWO LANES, CENTER TURN LANE, BUFFERED BIKE LANES, PARKING ON BOTH SIDES AND CONCEPT B: TWO LANES, CENTER TURN LANE, PARKING-PROTECTED BIKE LANE

MONROE STREET


NORTHWESTERN PKWY
WALSH AVE
SAN TOMAS EXPY
Bracher Park
Institue for Business & Technology Inc
Bracher Elementary School
BOWERS AVE
SOUTH DR
SAN TOMAS AQUINO CREEK
ROOSEVELT CIR
AUGUSTA PL
AMETHYST DR
GALLUP DR
MONROE ST
ELLIOT ST
MARMON CT
Everett N. "Eddie" Souza Park
QUINN AVE
STEBBINS AVE
BROWN AVE
FRANCIS AVE
Cabrillo Montessori School of Silicon Valley
Santa Clara Skate Park
Bowers Elementary School
Bowers Park
Cabrillo Middle School
Warburton Park and Pool
MIDDAY PEAK TIME
LOS ANALYSIS LEGEND
Meets Standard
Substandard
City Boundary
School
Parks
Study Corridor
0
0.25 MILES
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Data provided by the City of Santa Clara. Document: N:\Shared\PROJECTS\2022\00-2022-249 Santa Clara, CA Monroe Street Bikeways\GIS\Process\22-249_MonroeStreetBikeways_Basemap.aprx. Date saved: 7/17/2023.
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VEHICLE MILES TRAVELED

The project team also calculated 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 City used the VMT Reduction Estimation methodology developed by the California Air Resources Board[2]. The City estimated that a continuous bicycle facility on the corridor will reduce VMT by 11,991 miles per year.

2 For the methodology used to calculate VMT, see California Air Resources Board, Quantifying Reductions in Vehicle Miles Traveled from New Bike Paths, Lanes, and Cycle Tracks, 2019. https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/bicycle_facilities_technical_041519.pdf. Seasonal adjustment factors followed the methodology in the National Bicycle and Pedestrian Documentation Project Count Adjustment Factors, 2009. https://bikepeddocumentation.org/application/files/6114/6671/7593/NBPD_Adjustment_Factors.pdf

Parking

In addition to measuring current parking demand, the project team evaluated the effect each concept would have on parking. The Existing Conditions/No Build Concept and Concepts A and B maintain the parking on Monroe Street. However, given recent daylighting laws around intersections and designs to increase visibility around driveways, there may be some small reduction of parking and change in the parking utilization rate. Concept C removes parking on one side to accommodate the other design features. While Concept C does not indicate if parking should be removed on the north or south side, the project team analyzed the results for each. Under this analysis, the project team evaluated two scenarios.

- Scenario 1: All parking on the north side of Monroe Street is removed
- Scenario 2: All parking on the south side of Monroe Street is removed

Note that on-street parking would need to be removed on both sides of the street in front of Wilcox High School in Concept C in order to preserve the center turn lane to accommodate traffic entering and exiting the parking lot.

Under each scenario, the project team assumed that people typically parked vehicles on the north or south side of Monroe would be parked across the street and occupy up to 100% of typically available spaces. If there are not enough spaces available to meet the parking demand, the analysis assumes the remaining demand for parking would be met by distributing parked vehicles evenly between the two closest side streets.

Under existing conditions, 61% of parking is available on the north side of Monroe Street, and 64% is available on the south side of Monroe Street. If parking were removed on the north side under Concept C, the parking demand would increase on the south side, and parking availability would drop from 64% to 44%. If parking were removed on the south side under Concept C, the parking demand would increase on the north side, and parking availability would decrease from 61% to 51%.

Table 11: Estimated Parking Availability on Monroe Street with Parking Removal Scenarios shows the average percentage of unused parking spots available on Monroe Street currently, which apply to Concepts A and B, where no parking is removed. The table also shows anticipated changes to average parking availability under Concept C. Parking is removed on the north side of Monroe Street in front of Wilcox High School in one scenario, and on the south side of the street in the other. Maps showing those anticipated changes to parking availability are shown in **Figure 21** through **Figure 23**.

Table 11. Estimated Parking Availability on Monroe Street with Parking Removal Scenarios

Location	Existing/No Build and Concepts A & B	Concept C Anticipated: North Side Parking Removed	Concept C Anticipated: South Side Parking Removed
Monroe Street North Side	61%	N/A	51%
Monroe Street South Side	64%	44%	N/A
Side Streets Overall	63%	57%	57%

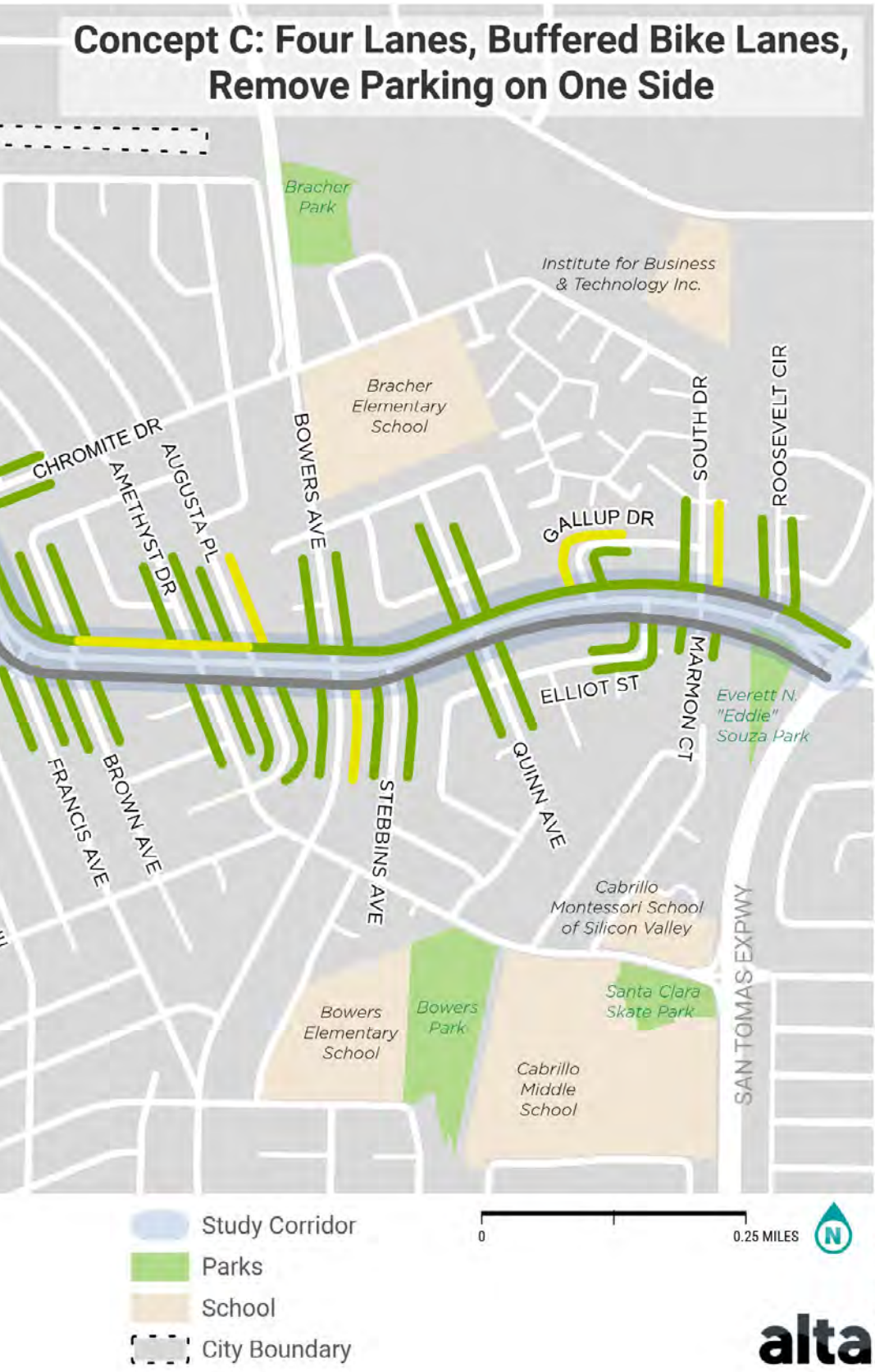
Figure 21. Average Parking Occupancy During Peak Periods


Bracher Park
Institute for Business & Technology Inc.
Bracher Elementary School
CHROMITE DR
AMETHYST DR
AUGUSTA PL
BOWERS AVE
GALLUP DR
SOUTH DR
ROOSEVELT CIR
ELLIOT ST
QUINN AVE
STEBBINS AVE
MARMON CT
Everett N. "Eddie" Souza Park
FRANCIS AVE
BROWN AVE
Cabrillo Montessori School of Silicon Valley
SAN TOMAS EXPWY
Bowers Elementary School
Bowers Park
Santa Clara Skate Park
Cabrillo Middle School
Study Corridor
Parks
School
City Boundary
0
0.25 MILES
N
alta

Figure 22. Average Parking Occupancy Anticipated – Monroe Street North Side Parking Removed


Concept C: Four Lanes, Buffered Bike Lanes, Remove Parking on One Side
Bracher Park
Institue for Business & Technology Inc
Bracher Elementary School
ROMITE DR
AMETHYST DR
AUGUSTA PL
BOWERS AVE
SOUTH DR
ROOSEVELT CIR
GALLUP DR
ELLIOT ST
MARMON CT
Everett N. "Eddie" Souza Park
FRANCIS AVE
BROWN AVE
STEBBINS AVE
QUINN AVE
Cabrillo Montessori School of Silicon Valley
SAN TOMAS EXPWY
Bowers Elementary School
Bowers Park
Santa Clara Skate Park
Cabrillo Middle School
Study Corridor
Parks
School
City Boundary
0
0.25 MILES
N
alta

Figure 23. Average Parking Occupancy Anticipated – Monroe Street South Side Parking Removed


Concept C: Four Lanes, Buffered Bike Lanes, Remove Parking on One Side
Bracher Park
Institute for Business & Technology Inc.
Bracher Elementary School
CHROMITE DR
AMETHYST DR
AUGUSTA PL
BOWERS AVE
GALLUP DR
SOUTH DR
ROOSEVELT CIR
ELLIOT ST
MARMON CT
Everett N. "Eddie" Souza Park
FRANCIS AVE
BROWN AVE
STEBBINS AVE
QUINN AVE
Cabrillo Montessori School of Silicon Valley
SAN TOMAS EXPWY
Bowers Elementary School
Bowers Park
Santa Clara Skate Park
Cabrillo Middle School
Study Corridor
Parks
School
City Boundary
0
0.25 MILES
N
alta

Summary

Analyses of the alternatives are summarized in **Table 12** and **Table 13**.

Table 12. Analysis Summary

Concept	Speed Reduction	Collision Reduction Potential	Par
Current Conditions / No Build	37% of drivers exceeded 35 mph limit	None	
Concept A - Two Lanes, Turn Lane, Buffered Bike Lanes	3-6 mph slower	Yes	
Concept B - Two Lanes, Turn Lane, Parking-Protected Bike Lanes	3-6 mph slower	Yes	
Concept C - Four Lanes, No Parking on One Side, Buffered Bike Lanes	1-6 mph slower	Negligible	

*Peak travel times in the AM are westbound on Monroe St, and eastbound in the PM.

**For Concept C, parking would be removed from the south side, as that would have the least impact on parking supp

SOURCES: 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

rking Available	Peak Travel Time* (min:sec)	Substandard Level of Service	Annual VMT Reduction Estimate
N: 61% S: 64%	AM: 10:25 PM: 11:19	AM: 4 PM: 3	None
N: 61% S: 64%	AM: 18:18 PM: 13:35	AM: 4 PM: 4 (+1)	11,911
N: 61% S: 64%	AM: 18:18 PM: 13:35	AM: 4 PM: 4 (+1)	11,911
N: 51%**	AM: 10:25 PM: 11:19	AM: 4 PM: 3	11,911

bly.

Table 13. Benefits Summary

	Current Conditions / No Build		Concept B
	Yes	No	Yes
Benefits for People Riding Bicycles			
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 make mid-block turns	●		●
Benefits for People Driving Vehicles			
Maximizes roadway and intersection capacity	●		
Potential to significantly reduce vehicle collisions		●	●
Adds a turn lane for safer turning maneuvers		●	●
Benefits for Community & Residents			
Reduces VMT		●	●
Maintains existing on-street parking capacity	●		●
Encourages slower automobile speeds		●	●
Incorporates traffic calming measures		●	●
Does not increase pedestrian mid-block crossing demand	●		●
Maintains existing residential trash collection plan*	●		●
Allows residents to participate in Annual Cleanup Campaign	●		●
Does not require construction funding	●		

**For detailed discussion of trash collection, see page 35*

t A - Two Lanes, Turn Lane, Buffered Bike Lanes		Concept B - Two Lanes, Turn Lane, Parking-Protected Bike Lanes		Concept C - Four Lanes, No Parking on One Side, Buffered Bike Lanes	
s	No	Yes	No	Yes	No
		●		●	
	●	●			●
		●		●	
			●	●	
			●	●	
			●	●	
	●		●	●	
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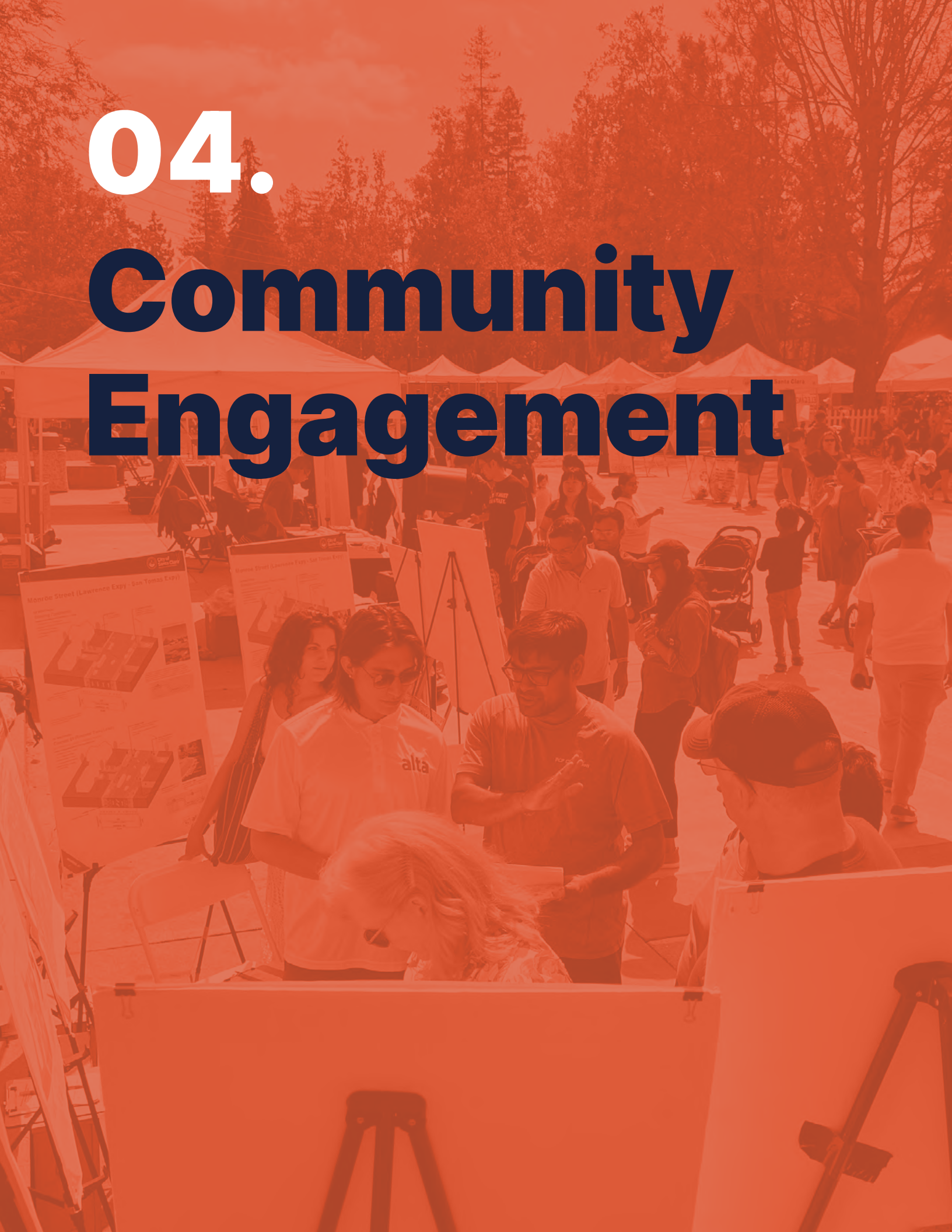
04.
Community Engagement



Engagement Strategies

Project Website, Hotline, and Email

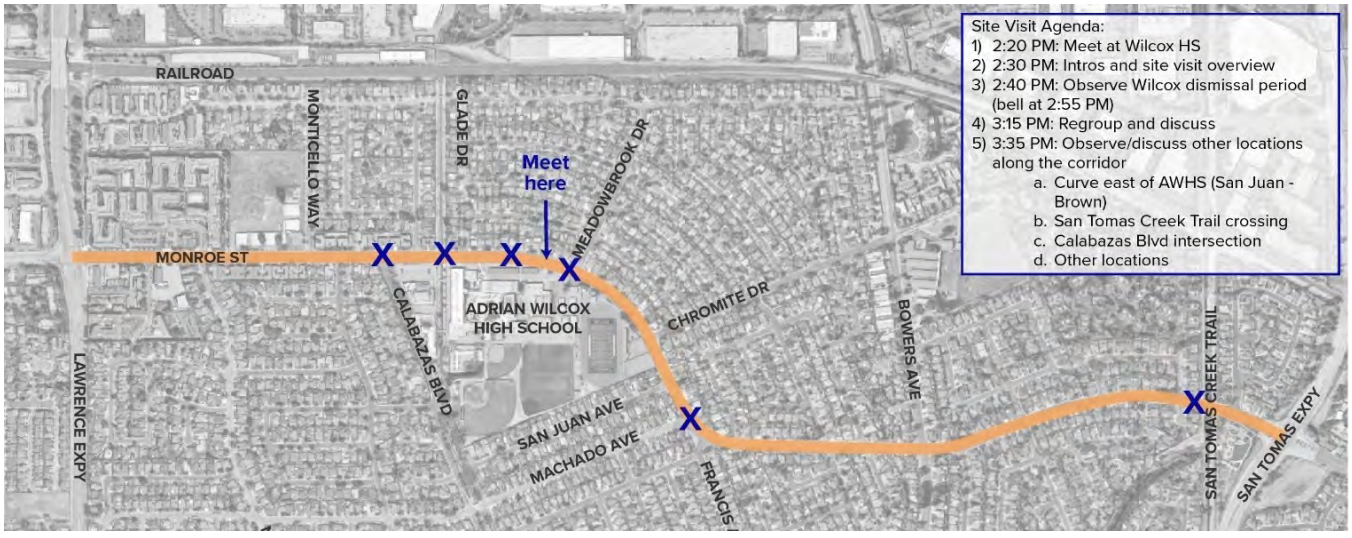
City staff hosted and maintained a website on the Public Works Department page to promote engagement events, provide educational materials, document meetings, and provide a forum for the community to submit comments. The project email account regularly sent updates to everyone who had signed up for project notifications whenever new information or materials were added to the project website, including meeting and survey details. Project staff also provided a phone number hotline as an accessible alternative for community members to leave project feedback, as well as an email address to submit comments.

Site Visit

Participants from the City of Santa Clara Bicycle and Pedestrian Advisory Committee, City of Santa Clara staff, and the project team made a site visit on May 17, 2023, to observe conditions and behaviors, particularly around the afternoon release at Wilcox High School. A map and schedule for observations is shown in **Figure 24**.

Students commuting independently to Wilcox High School.

Figure 24. Agenda and Observation Locations (X indicates locations)



Committee/Commission Meetings

BICYCLE AND PEDESTRIAN ADVISORY COMMITTEE (BPAC)

City staff met with the BPAC on four different occasions to provide updates and solicit input at major milestones:

Meeting 1: Plan overview, schedule, and BPAC priorities (March 27, 2023)

Meeting 2: Review and collect feedback on draft corridor concepts (August 28, 2023)

Meeting 3: Review analysis results and provide feedback on draft concepts (January 22, 2024)

Meeting 4: Approve final report and recommend preferred design concept to the City Council (June 2024 - Anticipated)

SENIOR ADVISORY COMMISSION

The project team met with the Senior Advisory Commission on September 25, 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. Staff 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. Staff 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. Staff also provided project timelines and ways commissioners can stay involved with the project.

Community Workshops

The City hosted five community workshops online for the public to learn more about the project and provide feedback. The City advertised the workshops on its website and social media channels, and mailed postcards to all addresses within a half-mile of the Monroe Street project corridor (1,000 postcards). Each postcard indicated the project includes the potential to add bicycle lanes with the removal of on-street parking or travel lanes. Additionally, the project 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.

Phase 1:

- Community Workshop #1: May 17, 2023
- Community Workshop #2: May 20, 2023

Phase 2:

- Community Workshop #3: September 14, 2023
- Community Workshop #4: September 23, 2023

Phase 3:

- Community Workshop #5: January 17, 2024

Pop-Up Events

The City held pop-up events at six locations to meet residents, students, and community members and engage them on the project. These events are described in the sections that follow. Each of the pop-up events, except for the Wilcox High School Outreach event, included three other separate bikeway studies on Benton Street, Walsh Avenue/Martin Avenue, and Coleman Avenue/De La Cruz Boulevard.

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 Monroe project, 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

The City partnered with Silicon Valley Power to co-host an energizer station and pop-up event along the San Tomas Aquino Creek Trail on Bike to Work Day, Thursday, May 18, 2023, between 7:00 and 10:00 a.m. The pop-up was at a trail-head near the Agnew Road intersection. This event featured representation from all four of the City's corridor planning projects. Overall, the staff gathered feedback from over 30 community members.

SANTA CLARA ART AND WINE FESTIVAL

On September 16 and 17, 2023, at Central Park, the project team had a booth set up with concept display boards, paper surveys, and QR codes for the project website and survey. Over 400 community members engaged with staff on the project.

WILCOX HIGH SCHOOL OUTREACH

The project team set up a booth outside the front office at Wilcox High School during afternoon dismissal on October 23, 2023, with concept display boards, paper surveys, and QR codes for the project website and survey. Approximately 30 students provided comments, and 18 people from the Wilcox High School community completed a survey.

HOLIDAY TREE LIGHTING CEREMONY

The project team also attended the Holiday Tree Lighting Ceremony on December 1, 2023, where a similar booth was set up for broader community members to engage with staff on the project, with concept display boards, comment cards, and QR codes for the project website and survey. Staff collected 20 comment cards.

CALTRAIN COMMUTER OUTREACH

On Thursday, February 15, 2024, from 4:00 to 6:00 p.m., the project team set up a pop-up event at the Santa Clara Caltrain station, with concept display boards, maps, and QR codes for the project website and survey. Around a dozen community members engaged with staff directly.

Online Surveys

The project team conducted three public surveys throughout the project period, and all were posted to the project website. The first was a brief survey that included questions on transportation preferences and behaviors, specific questions about how attendees use Monroe Street, 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 revisions.

Community members participate in events at Santa Clara Art and Wine Festival (top), Bike to Work Day (lower left), and Wilcox High School (lower right).

Community members participate in events at Holiday Tree Lighting Ceremony (above) and Caltrain Commuter outreach (left).

Phase 1 Engagement Summary Findings

The Monroe Street Bikeway Study offered multiple community engagement opportunities during its first phase, including two virtual community workshops, pop-up events on Bike to Work Day and Earth Day/Arbor Day, online community survey, project email address and voicemail number, and one BPAC meeting.

At the virtual community workshops, participants described their current experiences traveling on Monroe Street. Sample comments included that biking doesn't feel safe and cars pass too close, traffic backups can sometimes be an issue, when the street is not congested speeding can be an issue, making left turns without a center turn lane feels risky, and the San Tomas Aquino Creek Trail crossing is confusing for many people. Community members shared that their goals for Monroe Street centered around improving safety for all roadway users and improving biking connectivity and comfort. Attendees ranked five priorities for the corridor and stated that addressing safety and traffic calming was their top concern, followed by managing traffic congestion. Attendees also shared that safe bike facilities accompanied by traffic calming to slow cars down would encourage them to bike more. Workshop recordings were posted to the project webpage.

At the Bike to Work Day event, staff gathered feedback from over 30 community members and engaged many more on the project. Several common comment themes emerged. Multiple people stated that they intentionally do not ride on Monroe Street but instead ride on more comfortable parallel streets like Aster Avenue/ Agate Drive. They indicated that improvements to the San Tomas Aquino Creek Trail crossing would be appreciated. Finally, many residents appreciated the intent to add buffered bike lanes, especially seeing the benefit it would have for high school students and staff.

The first Monroe Street survey received 67 responses. The survey asked about community members' travel preferences, current thoughts on the state of the corridor, and their ideas for the future. Roughly 37% of survey respondents reported walking along the corridor at least once a week, and 56% indicated that they bike along the corridor at least once per week. And 60% of respondents indicated that they also drive the corridor at least once a week. While 44% of respondents indicated that they either agree or strongly agree that they can usually find parking near their destination; over 43% gave a neutral response. Regarding traffic, 61% of respondents agreed or strongly agreed that traffic generally flows well on Monroe Street; less than 9% of respondents disagreed or strongly disagreed.

The survey asked respondents about what factors influence their transportation decision-making. Around 77% of respondents indicated that "riding a bicycle or other rolling device does not feel safe" as a factor in their decision-making. This was one of two reasons selected by over half of the respondents. The second-highest impactful factor was "crossing the street is uncomfortable or doesn't feel safe," with 51% of respondents selecting that option. No other option was chosen by more than 15% of respondents. When asked which biking and walking improvements would improve their overall experience on Monroe, the top three responses were to add/enhance bicycle lanes along the

Community member stops to engage with bikeway concepts during Bike to Work Day.

roadway, improve bicyclists' safety at intersections along Monroe Street, and add traffic calming features. A full summary of responses is shown in **Appendix B**.

Finally, the Monroe Street email and voicemail accounts received six comments during this first phase. Community member feedback centered around concerns about existing crossings (bicycle and pedestrian) for students at the high school, safety improvements for people riding bicycles, and safety improvements for people walking.

Across all Phase 1 engagement events, three common themes emerged:

- Bicycle facilities should feel safe and comfortable, especially for high school students.
- Crossing Monroe Street is uncomfortable on a bicycle or as a pedestrian.
- Improved connections to and crossings of the San Tomas Aquino Creek Trail can enhance connections to multiple destinations. The Monroe Street crossing specifically was raised by multiple community members.

Phase 2 Engagement Summary Findings

The second phase of engagement included two virtual community workshops; two pop-up events at the Art and Wine Festival and at Wilcox High School; and meetings with the Youth Commission, Senior Advisory Commission, Parks and Recreation Commission, and BPAC. This is all in addition to a second online design alternatives survey and continued use of the project email address and voicemail number.

The City hosted two virtual community workshops for the project on the evening of Thursday, September 14, 2023, at 6:00 p.m., and the afternoon of Saturday, September 23, 2023, at 1:00 p.m. The City advertised the workshops on its website and mailed postcards to all addresses within a half-mile of the Monroe Street project corridor (1,000 postcards). Both workshops covered the same content. Thursday's workshop had eight attendees, and Saturday's had two. The presentations included interactive polling from Mentimeter and a question-and-answer session at the end of the formal presentation. Project staff presented a project overview, corridor parking and collision analysis, and alternative concept designs. Workshop recordings were posted to the project webpage.

When asked about design alternatives presented, participants expressed concerns about high-speed traffic and getting doored by people exiting parked vehicles. Participants described a desire to balance bicycle safety with neighborhood needs. Attendees also shared that safe bike facilities accompanied by traffic calming to slow cars down would encourage them to bike more.

The second online survey was posted on August 28, 2023, and ran until October 31, 2023, and received 118 public responses, of which 15% were affiliated with Wilcox High School. At least 54% travel along or cross the corridor regularly, and at least 43% live on or near it. Respondents were asked to review each concept and indicate if they fully supported, supported with minor modifications, needed major changes to get support, or did not support the concept. Results of the survey are shown in **Table 14: Online Survey #2 Results – All Responses**. Responses from people affiliated with Wilcox High School are shown in **Table 15: Online Survey #2 Results – Wilcox High School**. In their reactions, Wilcox High School respondents wrote that they needed "dedicated bike lanes" and "protected biking" represented by Concepts B and C.

Community members discussing bikeway concepts with the project team during the Art & Wine Festival.

Among all respondents, 63.1% fully supported or supported with minor changes Concept A: Two Lanes, Center Turn Lane, Buffered Bike Lanes, Parking on Both Sides. Among respondents affiliated with Wilcox High School, no one indicated full support, and 66.7% would support Concept A with minor changes. For those who indicated "support with minor changes" in Concept A, common comments include adding physical separation of bike lanes from traffic and moving the bikeway to the other side of parked cars.

Among all respondents, 70.2% fully supported or supported with minor changes Concept B: Two Lanes, Center Turn Lane, Parking-Protected Bike Lanes. Among respondents affiliated with Wilcox High School, 33.3% indicated full support, and 16.7% would support Concept B with minor changes. For those who indicated "support with

minor changes" in Concept B, common comments include adding raised curb between parking and bikeway, and visibility concerns around driveways.

Among all respondents, 44.5% fully supported or supported with minor changes Concept C: Four Lanes, Buffered Bike Lanes, Remove Parking on One Side; 39.5% of respondents said that they did not support Concept C, the highest level of opposition among the three concepts. Among respondents affiliated with Wilcox High School, 60% indicated full support, and 20% would support Concept C with minor changes. For those who indicated "support with minor changes" in Concept C, common comments include adding physical separation of bike lanes from traffic, need for reducing vehicle speeds (traffic calming), and need for increased parking enforcement.

Table 14. Online Survey #2 Results – All Responses (118 responses)

Response	Concept A	Concept B	Concept C
	Two Lanes, Center Turn Lane, Buffered Bike Lanes, Parking on Both Sides	Two Lanes, Center Turn Lane, Parking-Protected Bike Lanes	Four Lanes, Buffered Bike Lanes, Remove Parking on One Side
Fully support	28.6%	51.2%	27.2%
Support with minor changes	34.5%	19.0%	17.3%
Needs major changes to get my support	16.7%	11.9%	17.3%
I do not support this concept	21.4%	21.4%	39.5%

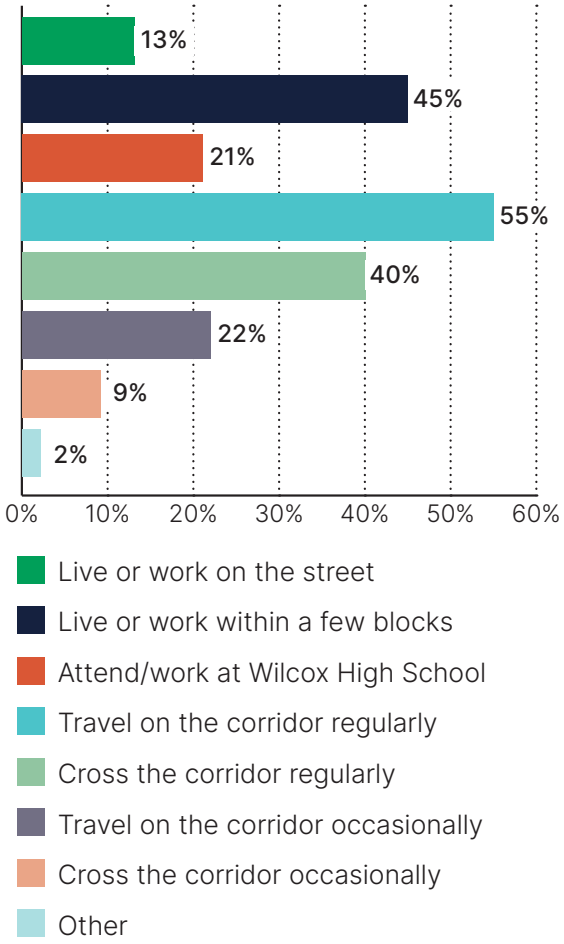
Table 15. Online Survey #2 Results – Wilcox High School (18 responses)

Response	Concept A	Concept B	Concept C
	Two Lanes, Center Turn Lane, Buffered Bike Lanes, Parking on Both Sides	Two Lanes, Center Turn Lane, Parking-Protected Bike Lanes	Four Lanes, Buffered Bike Lanes, Remove Parking on One Side
Fully support	0.0%	33.3%	60.0%
Support with minor changes	66.7%	16.7%	20.0%
Needs major changes to get my support	16.7%	33.3%	0.0%
I do not support this concept	16.7%	16.7%	20.0%

Phase 3 Engagement Summary Findings

The third and final phase of engagement for this project included one virtual community workshop, two pop-up events with the Santa Clara Tree Lighting Ceremony and at the Caltrain station; and a meeting with BPAC. This was all augmented with a third ranked choice survey and continued use of the project email address and voicemail number.

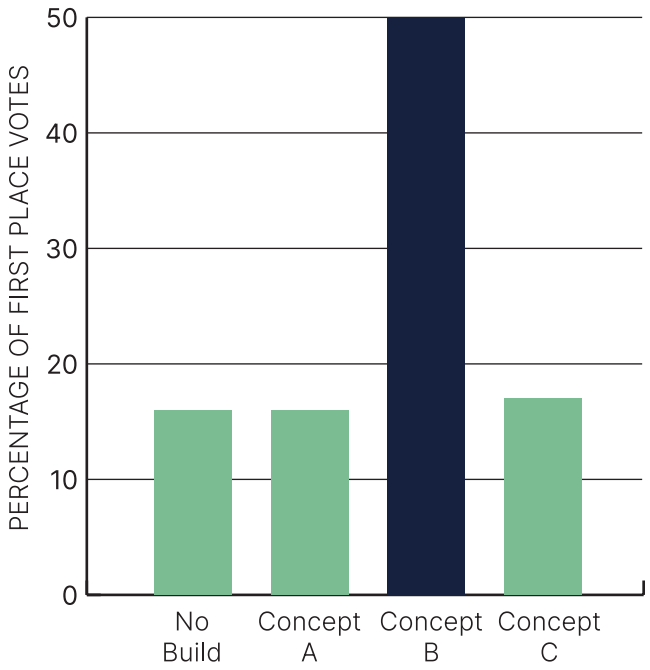
Figure 25. Survey Results - Relation to Monroe Street



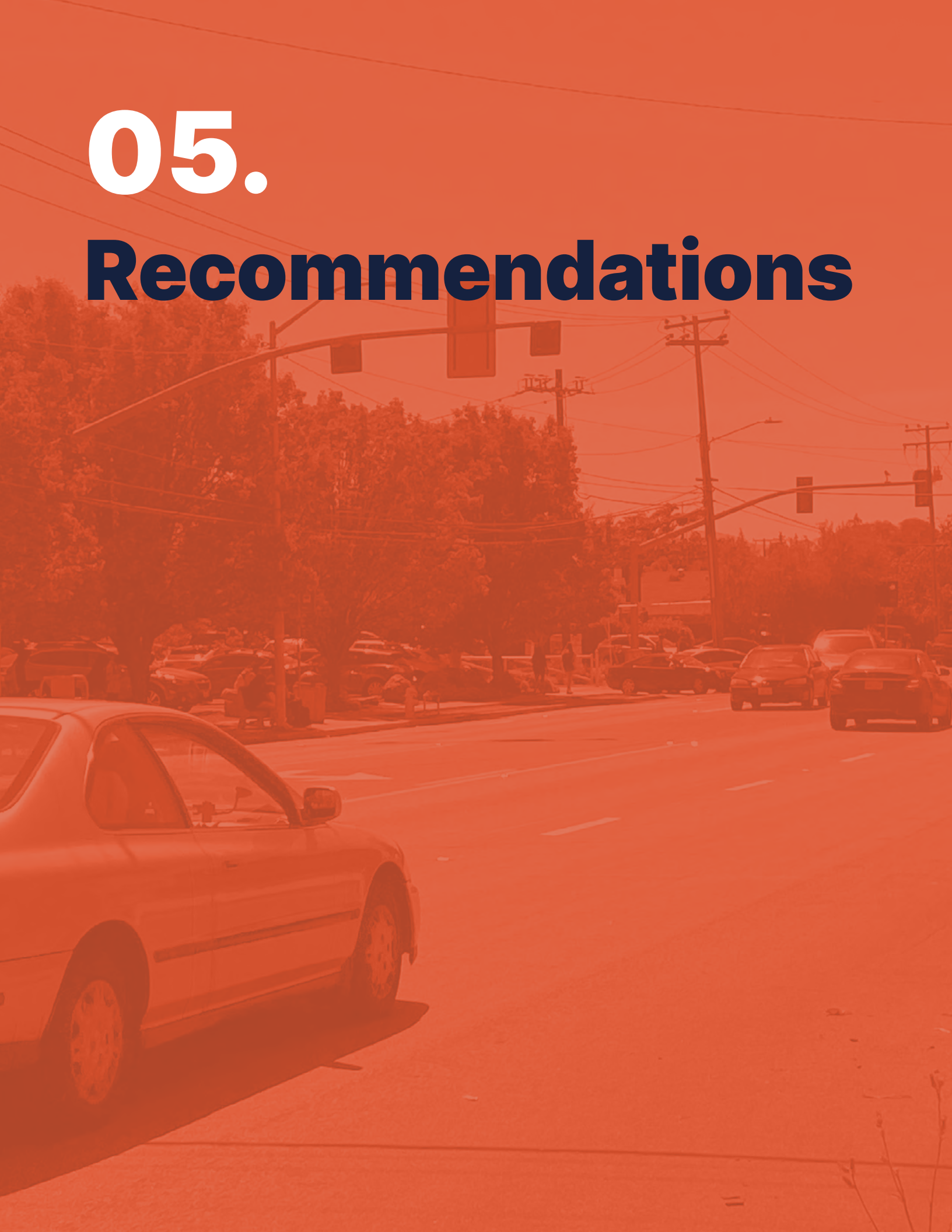
The project team hosted one virtual community workshop for the project on the evening of Wednesday, January 17, 2024. The team advertised the workshop on the City's website and mailed postcards to all addresses within a half-mile of the Monroe Street project corridor (1,000 postcards). Twelve people attended the workshop. The presentation included a project overview, corridor parking and collision analysis, alternative concept designs, and a question-and-answer session at the end. Key comments were around concerns about people speeding in vehicles on the corridor, and design accommodations for the specific needs of people riding bicycles, such as signal detection and turning radii.

The project team ran the third and final online survey from January 16, 2024, until February 25, 2024. The survey received 124 public responses, and a decision on the preferred alternative will include input from all members of the community. Approximately 13% of respondents live or work on Monroe Street, and the majority travel or cross the corridor regularly (see **Figure 25**). The project team used ranked choice voting to determine which alternative had majority support from the public. If no candidate had an outright majority, the team eliminated the recipient with the fewest first-choice votes. Those who voted for the eliminated candidate had their votes redistributed to their next highest ranked choice in the following round. Concept B won with an outright majority (50%) of all 1st choice votes, as shown in **Figure 26**. Some respondents indicated they would rather have a protected bikeway for their own safety and comfort, rather than one only separated from traffic by paint.

Figure 26. Ranked Choice Voting Results



05.
Recommendations



Final Recommendation

City Council will review the results of the study and make a recommendation. This chapter is a placeholder until the final draft report is published.

Next Steps and Funding

If City Council chooses a preferred design concept, the City will need to acquire funding for design and construction. Typical construction costs are shown below and will be refined based on the preferred design concept and the final corridor design. This chapter also includes potential federal, state, regional, and local grant sources to fund the design and construction.

High Level Cost Estimates

The estimated costs in **Table 16: Generalized Planning Level Costs – Bikeways** are planning level costs that help the public understand at a high level what investments are required for various infrastructure improvements. Costs are in 2024 dollars.

Table 16. Generalized Planning Level Costs – Bikeways

Bikeway Classification	Cost Per Mile
Class II – Bicycle Lane	$118,000-$619,000
Class IIB – Buffered Bicycle Lane	$195,000 - $619,000
Class IV – Separated Bikeway	$366,000 - $1,134,000

There are also additional cost considerations when installing these bikeways, particularly around crossings or intersections. Complementary pedestrian improvements could also be considered in future design phases. Some of these infrastructure cost considerations are included in **Table 17: Generalized Planning Level Costs – Spot Improvements**.

Table 17. Generalized Planning Level Costs – Spot Improvements

Proposed Improvement	Cost of Each
Construct Median Refuge	$1,500 - $2,900
Install New Sidewalk (per mile)	$987,000 - $1,536,000
Install/Upgrade Crosswalks (per LF)	$22 - $37
Install/Upgrade Curb Ramps	$7,300 - $14,600
Reconfigure Slip Lane	$585,200 - $877,700
Reduce Turning Radius	$146,300 - $1,097,200

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 congestion 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 encouragement 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 countywide 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 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. Two percent 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 transportation across the state. The Active Transportation Program is intended to increase the use of active transportation, enhance safety for non-motorized 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 thresholds are met.

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

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