APPENDIX A

Existing Conditions Report

SANTA CRUZ METRO'S

Line 71/Rapid Corridors Project

Existing Conditions Report

March 2023

SANTA CRUZ METRO

Kimley»Horn

1. INTRODUCTION

The Santa Cruz Metropolitan Transit District (METRO)'s Line 71/Rapid Corridors Project (Project) is identifying solutions to improve service efficiency, reliability, and customer access for bus routes operating in the Watsonville – Santa Cruz corridor. The Project is evaluating travel conditions along the corridor to identify opportunities to improve pedestrian and bicyclist access to bus stops, upgrade bus stop amenities, and install transit priority intersection and roadway improvements, as well as develop infrastructure and service plans focused on improving the convenience, access, and reliability of METRO's core intercity routes.

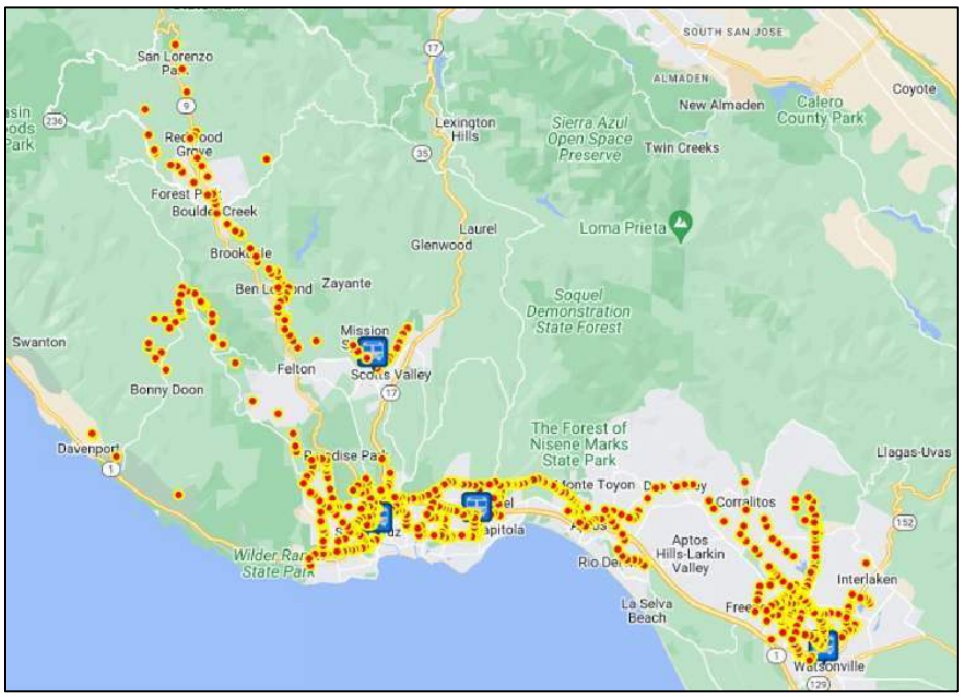
This memorandum documents the existing conditions of Lines 69A, 69W, 71, and 91X and includes the following:

- A summary of the existing transit network
- An analysis of the speed, delay, and dwell time of the existing transit service
- A review of relevant transportation plans and projects within the study corridor

2. EXISTING TRANSIT NETWORK

METRO provides bus service throughout Santa Cruz County's urban and rural communities. Service includes 24 bus routes, comprised of fixed-routes and the Highway 17 Express, and paratransit. With 135 daily bus trips, over 800 bus stops, shown in **Figure 1,** and four transit centers spread throughout the County, METRO served over 3,000,000 riders in Fiscal Year 2022[1].

Figure 1 - Santa Cruz METRO Service Area



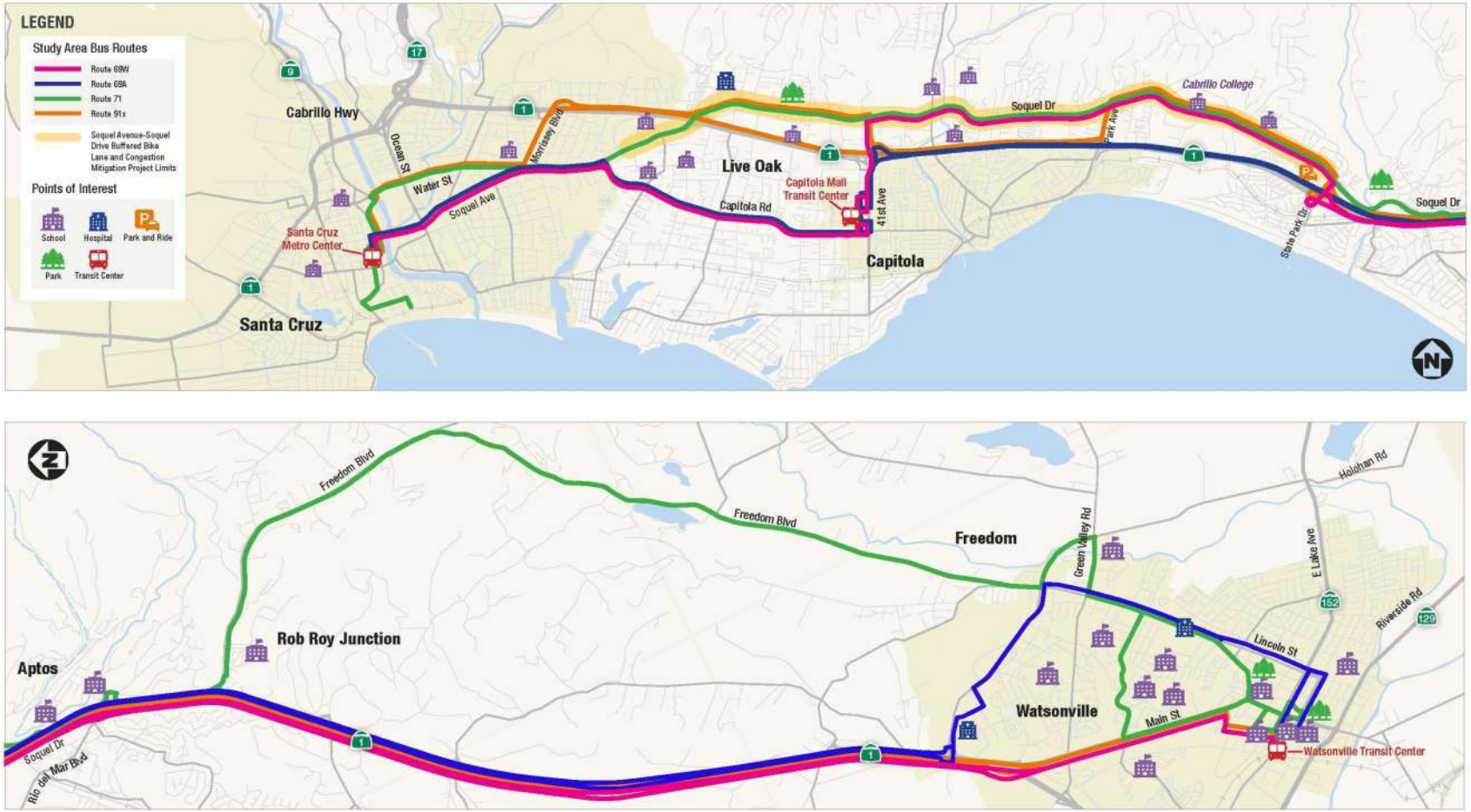
Source: Santa Cruz METRO

Project Bus Routes

The Project is evaluating four METRO routes that connect the cities of Santa Cruz and Watsonville: Lines 69A, 69W, 71, and 91X. Lines 69A and 91X were temporarily suspended December 22, 2022, due to an ongoing shortage of bus operators and will be restored as soon as the situation improves. As shown in **Figure 2**, these routes utilize surface streets, including Soquel Drive, Freedom Boulevard, Lincoln Street, 41st Avenue, Capitola Road, and Water Street, as well as Highway 1. In addition to connecting the cities of Santa Cruz, Capitola, and Watsonville, these routes also connect major destinations, such as Dominican Hospital, Santa Cruz County Health Services, Cabrillo College, Capitola Mall, and several K-12 schools. These routes also allow transit dependent riders to access jobs and key community facilities.

[1] Source: Santa Cruz METRO, http://www.scmtd.com/images/department/planning/FY19-FY22_Transit_Fact_Sheet_draft_-_added_NTD_data_11-18-2022.pdf

Figure 2 - Project Area Routes Map



Existing Bus Stop Inventory

A bus stop inventory through visual field observations was completed in December 2022 to determine the existing conditions of the 232 bus stops serving the four Project routes. The inventory included identifying bus stop amenities, configurations, and locations. The bus stops inventoried are mapped in **Figure 3A** to **Figure 3D**. The following elements were documented:

- Passenger access
- Stop Amenities
- Bus access (pull-in or in-lane)

Figure 3A – Bus Stop Locations Santa Cruz to Capitola

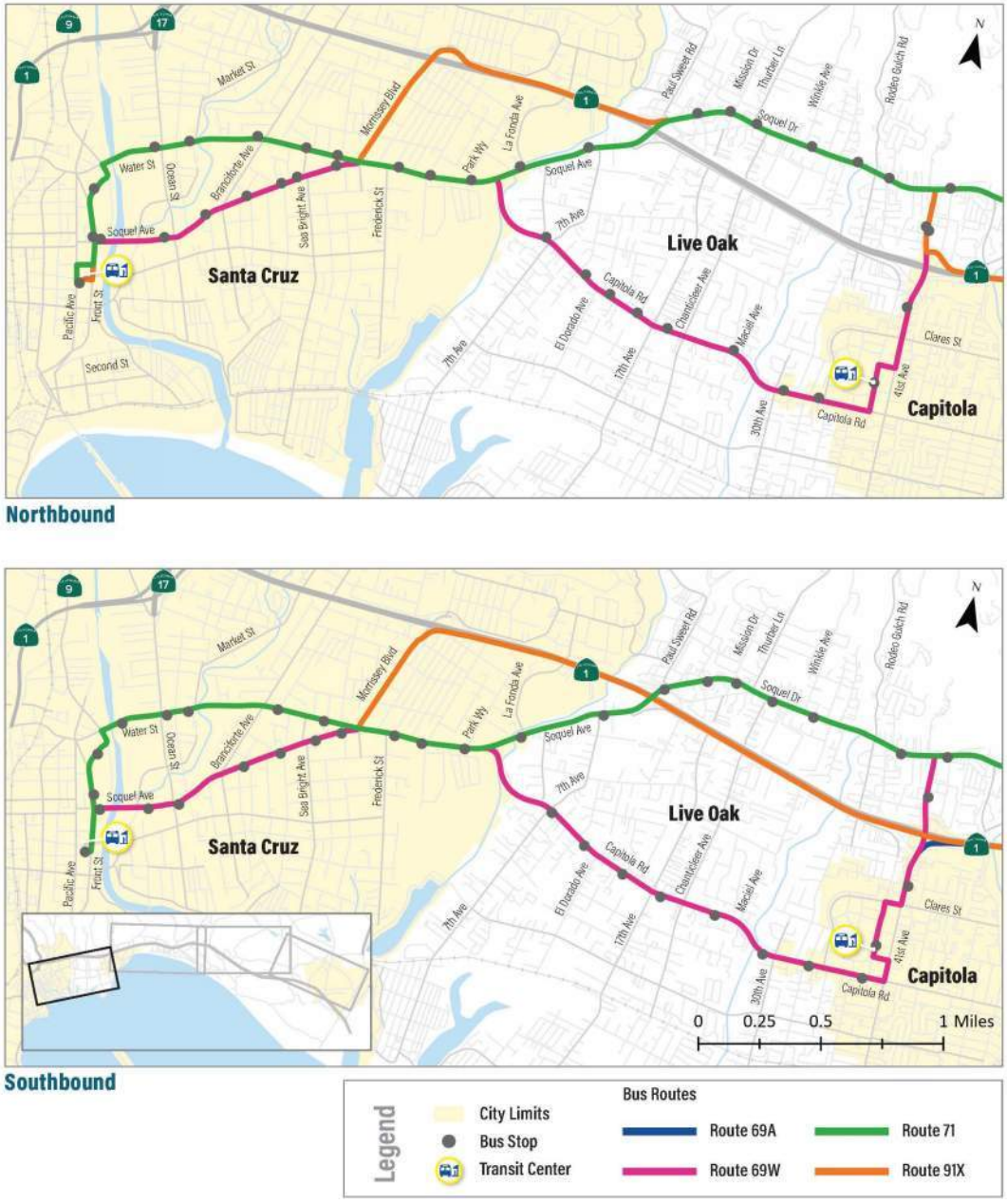


Figure 3B – Bus Stop Locations Capitola to Aptos

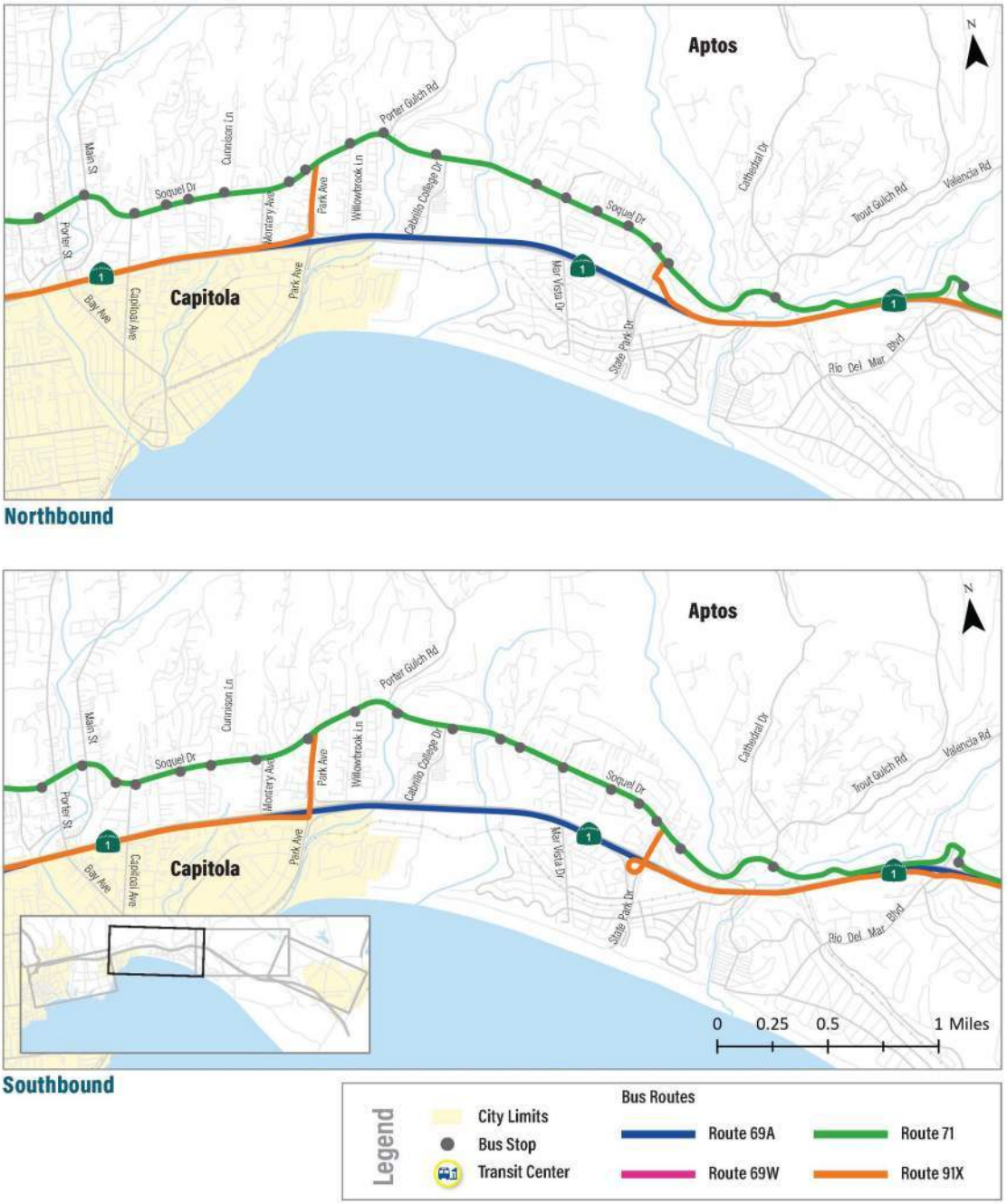


Figure 3C – Bus Stop Locations Aptos to Freedom

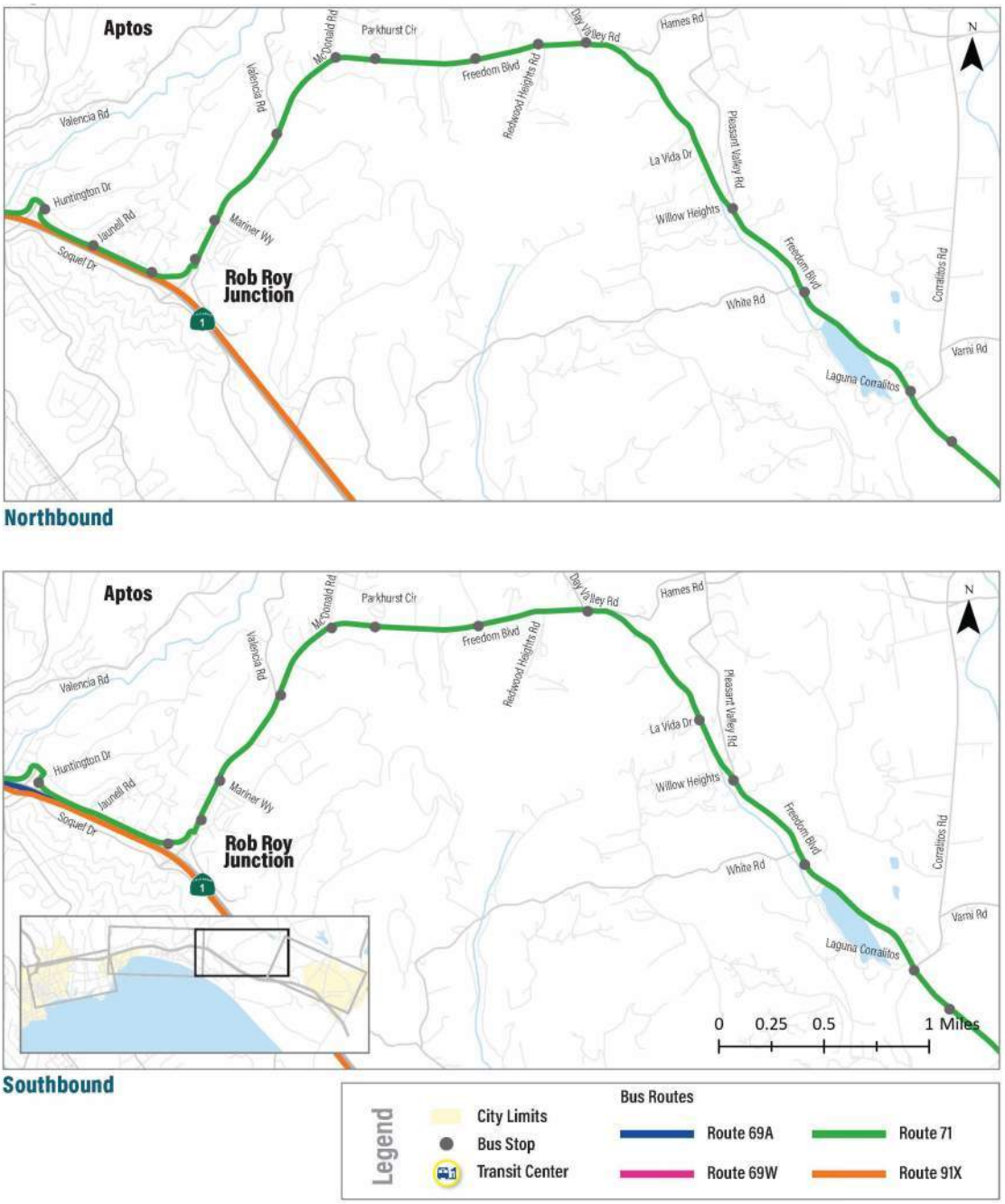
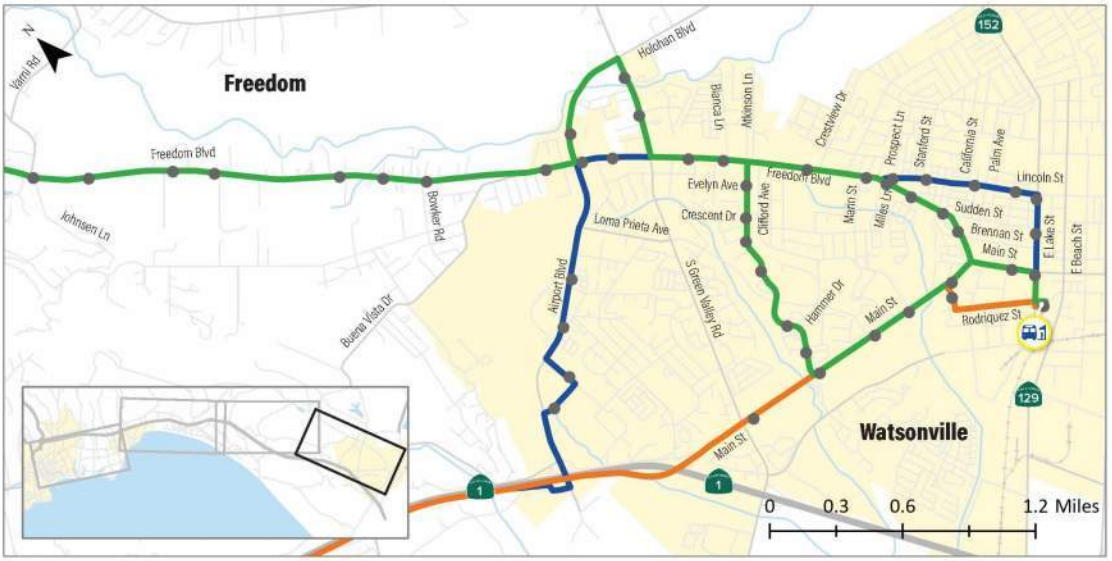
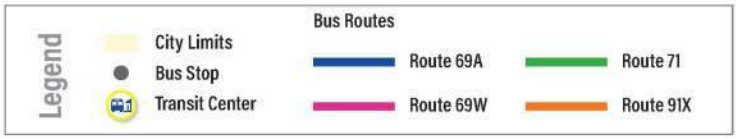


Figure 3D – Bus Stop Locations Freedom to Watsonville

Northbound



Southbound



Passenger Access

Passenger access considers how people get to and from the bus stop. Data collected includes the presence of a sidewalk near the bus stop, ADA accessibility, distance to the nearest crosswalk, and type of control present at that crosswalk. Data gathered also includes information on the location of the stop. **Appendix A** provides maps showing the locations of where these features are present or are missing.

Key findings from the passenger access review include:

- A continuous sidewalk is missing in 16 percent of locations, making it challenging for pedestrians to get to and from the bus stop, and there is also an obstructed ADA path of travel in 16 percent of locations.

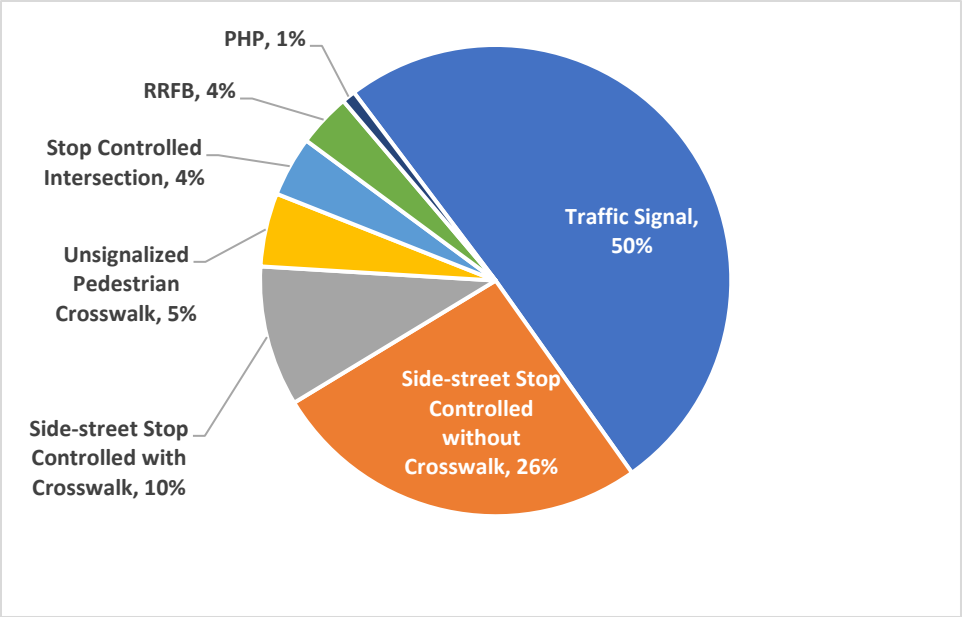
Bus stop lacking sidewalk, a concrete pedestrian waiting area, and an ADA path of travel at 2838 Freedom Boulevard, Watsonville, CA

- 42 percent of existing bus stops are not within 100 feet of a crosswalk

Bus stop located more than 100 feet from an existing crosswalk at 1115 Freedom Boulevard, Watsonville, CA

- While nearly half of all bus stops are adjacent to a traffic signal, over a quarter are near a side-street stop-controlled intersection without a crosswalk. For these stops it is difficult to travel between the stop and trip origins or destinations on the other side of the street. The type of control for the nearest intersection and pedestrian crossing is shown in **Figure 4**. Other intersection types include traffic signal, side-street stop controlled with crosswalk, unsignalized pedestrian crosswalk, stop controlled intersection, Rectangular Rapid Flashing Beacon (RRFB), and Pedestrian Hybrid Beacon (PHB). Examples of bus stop configurations with various intersection control type are shown in subsequent photos.

Figure 4 – Nearest Intersection Type



Bus Stop Adjacent to a Traffic Signal
at 3681 Capitola Road, Santa Cruz, CA

Bus Stop Adjacent to a Side-street Stop-Controlled Intersection without a Crosswalk
at 1003 Freedom Boulevard, Watsonville, CA

Bus Stop Adjacent to an Unsignalized Pedestrian Crosswalk
at 1098 Soquel Ave, Santa Cruz, CA

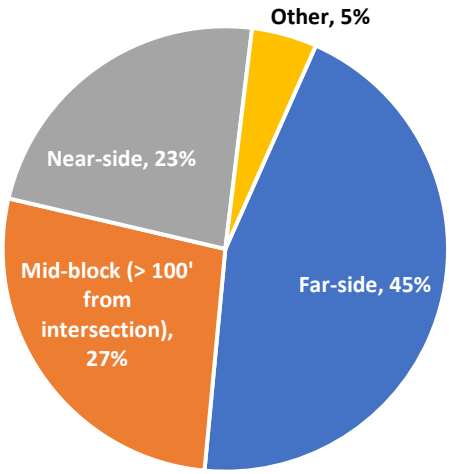
Bus Stop at a Stop Controlled Intersection
at 743 Lincoln St, Watsonville, CA

Bus Stop Near a Rectangular Rapid Flashing Beacon (RRFB)
at 5 Airport Boulevard, Watsonville, CA

Bus Stop Near a Pedestrian Hybrid Beacon (PHB)
at 7470 Soquel Dr, Aptos, CA

- Bus stop placement classification varies throughout the study area, as shown in **Figure 5**. Stops are classified as one of the following: near-side (located before an intersection), far-side (located after an intersection), or mid-block. Far-side stops are considered more beneficial for the following reasons:
  - At signalized intersections, the bus remains in the flow of traffic through the signalized intersection before making the stop, allowing it to take advantage of any signal coordination on the corridor;
  - At signalized and all-way stop-controlled intersections, near-side stops may be blocked due to vehicle queuing; this potential delay doesn't occur at far-side stops;
  - With bus stops located near-side of crosswalks, the dwelling bus blocks visibility of pedestrians in the crosswalks. This is particularly undesirable at unsignalized intersections where auto movements aren't controlled by a signal, representing a significant hazard for pedestrians;
  - At near-side stops, vehicles often try to go around the bus to make a right turn, causing a potential right-hook collision hazard when the bus departs from the stop; and
  - Far-side stops allow for buses to better take advantage of transit signal priority (TSP).

Figure 5 - Bus Stop Placement Classification



Bus Stop Located Near-side of an Intersection at 417 Second St, Santa Cruz, CA

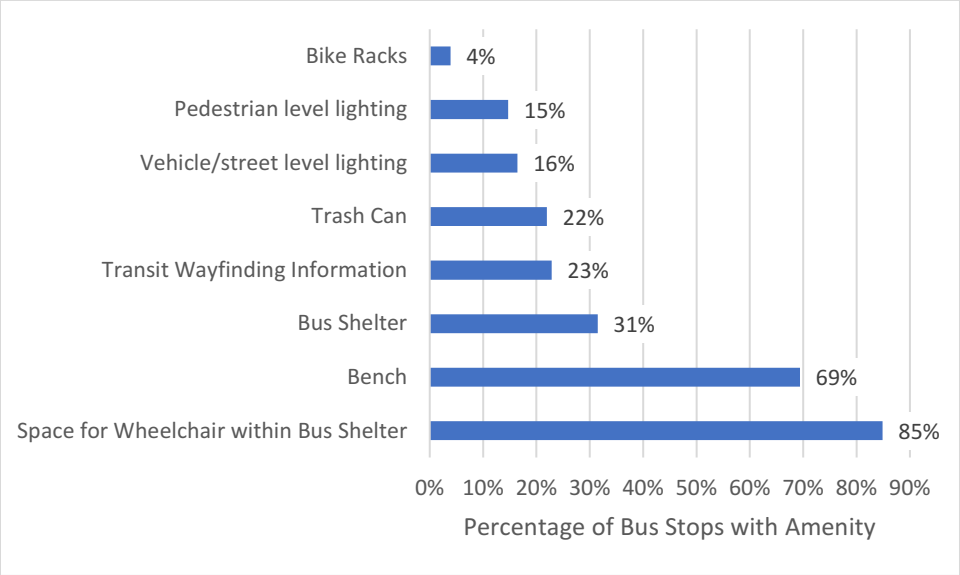
Bus Stop Located Far-side of an Intersection at 217 Green Valley Road, Watsonville, CA

Bus Stop Located Mid-block at 81 Nielson St, Watsonville, CA

Bus Stop Amenities

The project team performed field observations to identify existing bus stop amenities. Existing amenities at some stops include benches, shelters, trash cans, wayfinding information, and bike racks. The percentage of bus stops that had each of these amenities is show in **Figure 6**.

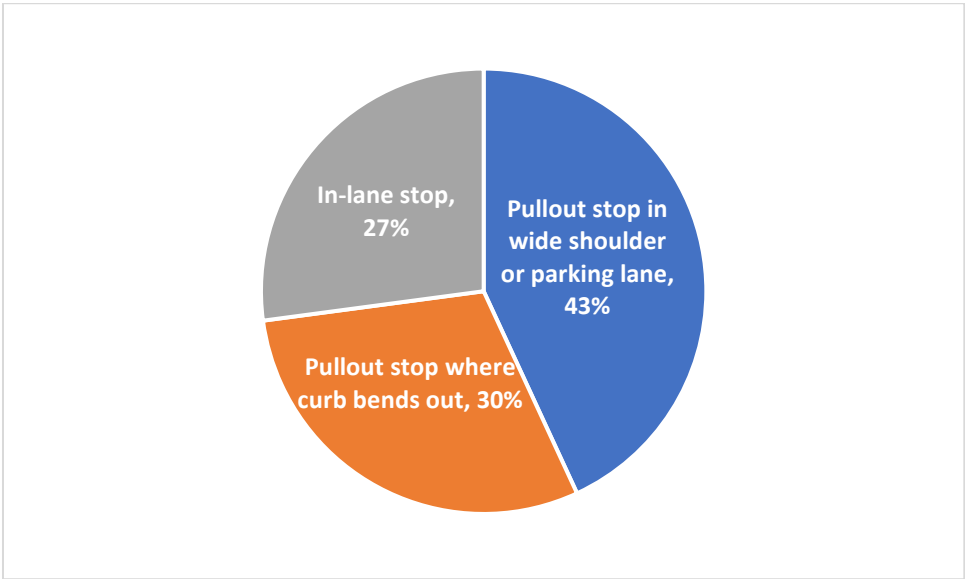
Figure 6 - Bus Stop Amenities Present at Existing Project Route Stops



Bus Stop Configuration

Bus stops along the corridor consist of transit centers (such as Santa Cruz Metro Center), stops where the bus pulls out of the traffic lane into a parking lane, stops where a bus-only pullout shifts the alignment of the sidewalk, and stops where the bus stops at least partially in the traffic lane. **Figure 7** summarizes the bus stop configurations along the corridor.

Figure 7 – Bus Stop Configuration



3. TRANSIT RIDERSHIP

Between September and December 2022, METRO collected Automatic Passenger Count (APC) data on all routes to determine the ridership activity by route and stop. METRO does not have permanent APC counters on the buses and thus this is the only period in which detailed trip- and stop-level ridership information is available. The APC data collection was intended to capture every trip, although a complete survey was not quite achieved and thus extrapolation was used by METRO for some routes to obtain daily ridership information.

Based on the collected APC data, METRO routes serve approximately 15,400 daily weekday riders, 9,400 Saturday riders, and 7,300 weekend riders. Apart from the five University of California, Santa Cruz (UCSC) bus routes (Lines 10, 15, 18, 19, and 20), which are the top five most productive routes (measured in terms of riders per revenue hour), three of the next four most productive routes are Project routes (Lines 69W, 71, and 69A). Line 71 has the third highest total weekday ridership in the system. Taken together Line 69A/W ranks fifth on weekdays and third on Saturdays. Project routes account for 22 percent of the total systemwide weekday riders and 25 percent of the weekend riders.

Table 1 summarizes the average daily boardings of the Project routes.

Table 1 – Average Daily Ridership of Project Routes

Route	Weekday	Saturday	Sunday
Line 69A*	539	620	509
Line 69W	826	726	454
Line 71	1,755	756	1,069
Line 91X*	226	-	-
Total	3,346	2,102	2,032

Source: Santa Cruz METRO, December 2022

4. TRANSIT TRAVEL SPEED AND VARIABILITY

In order to understand how the bus network in the Project area is functioning and how that translates to the user experience, the project team analyzed existing bus travel speeds and variability. Travel time and reliability are often the key factors in determining the overall use and effectiveness of the bus system. This information will be used in subsequent project phases to identify specific transit priority treatments to improve transit speed and reliability where most beneficial within the study area. This analysis was based on a detailed corridor-wide, quantitative analysis of transit travel times using Computer-Aided Dispatch / Automatic Vehicle Location (CAD/AVL) data.

Methodology

Data Source

METRO provided raw data gathered from its CAD/AVL system between June 9 to June 22, 2022, and September 24 to October 7, 2022. The dataset included records of bus stop arrival and departure times. The data was analyzed for the weekday AM and PM peak periods. The data was filtered and to remove inconsistencies.

Data Analysis

Two forms of analysis were performed with the CAD/AVL data. One analysis looks at the specific components of travel time and variability end-to-end for each route by time of day, the other looks at geographic locations of transit travel delay and variability. For the latter analysis, segments between higher activity stops were selected for the analysis in order to allow a sufficient data set. Data from Project routes were aggregated in the analysis of the segments. The analysis was performed for a total of 65 segments in the southbound direction and 65 segments in the northbound direction to allow sufficient granularity in pinpointing specific locations of delay and variability.

For some end-to-end trips, insufficient data was available, and no trip data is shown for that trip in one or both data periods.

For the segment analysis, the morning peak period was defined as 6 AM to 9 AM and the afternoon peak period was defined as 4 PM to 7 PM in the northbound direction and 3 PM to 6 PM in the southbound direction. The peak period direction in the AM period is northbound and is southbound in the PM peak period, but both directions of travel were analyzed for each peak period. The end-to-end analysis considered all the trips throughout the day where sufficient data was available.

For both the segment and end-to-end analyses, moving time is based on CAD/AVL entries for stop arrival and departure times. Dwell time was excluded from the moving time calculation. It is assumed that delays associated with the bus waiting for a gap in traffic to depart from the stop are included in the dwell times, and thus the overall effect of congestion on bus travel time is understated.

Results

Bus travel time is comprised of three main factors: 1) free flow time, which consists of the amount of time it takes for the bus to travel its route without any congestion delays and excluding time at stops; free flow time is generally a fixed time and cannot be reduced through transit priority treatments or stop optimization and thus is not a focus of this analysis; 2) moving delay, which consists of additional travel time above free flow time where the bus is being delayed by factors such as congestion or traffic signals; and 3) dwell time, the time the bus is at the stop; given the data available for this analysis, dwell time also includes time where the bus is delayed waiting for a gap in traffic to exit the stop. Moving delay is usually

the highest when congestion is the highest and can be reduced through transit priority treatments. Dwell time is often the highest when ridership is the highest and can be reduced through stop consolidation or optimization or by decreasing use of cash payment. The travel time for the Project routes was disaggregated to determine the contributors to total travel time by route.

Average Total Speed

The average overall bus speeds along the study corridor in the AM (trips departing between 7 AM to 12 PM) for Line 71 ranged between 19 and 23 miles per hour (mph) and between 17 and 21 miles per hour in the PM (trips departing between 12 PM to 6 PM), as shown in **Table 2**. There is some directionality associated with congestion, as the peak direction (northbound in AM, southbound in PM) is about two miles per hour slower than the off-peak. The average travel speeds were somewhat lower in the September/October 2022 collection period compared to the July 2022 collection period, indicating that there is less congestion in the summer months compared to the fall, when school is in session.

Table 2 – Average End-to-End Transit Speed

	July 2022		September/October 2022	
	Northbound (mph)	Southbound (mph)	Northbound (mph)	Southbound (mph)
Line 69A				
AM Period	22.6	28.0	22.3	27.0
PM Period	24.1	22.6	24.1	21.9
Line 69W				
AM Period	20.9	26.2	20.6	25.1
PM Period	23.1	21.4	23.2	20.4
Line 71				
AM Period	20.4	22.4	19.4	21.7
PM Period	20.5	18.5	19.9	17.7
Line 91X				
AM Period	30.6	35.5	27.4	35.0
PM Period	28.8	28.2	27.9	26.5

Note: AM Period defined as trips departing between 7 AM and 12 PM. PM Period defined as trips departing between 12 PM and 6 PM.
Source: Kimley-Horn, 2022.

The standard deviation of bus arrival time at its final stop (either Watsonville Transit Center or Santa Cruz Metro Center) was calculated to identify trip variability across each of the routes and by time of day. Those charts are included in **Appendix B**.

Moving Delay

Moving delay can occur from instances when a bus is in congestion or stopped by traffic signals. **Table 3** depicts the highest moving delay for one trip (averaged across the data period) for each of the routes in each direction for the September/October dataset.

Table 3 - Maximum Moving Delay per Trip (September/October)

	Northbound (minutes)	Southbound (minutes)
Line 69A	30.3	17.8
Line 69W	30.2	17.7
Line 71	16.8	17.4
Line 91X	4.9	22.7

Source: Kimley-Horn, 2022.

As shown in the table, moving delay ranges up to 30 minutes per trip. Maximum southbound delay is consistent for each of the routes, although Line 69A and Line 69W both experience higher peak delays in the northbound direction in the morning.

For Line 69A, aside from one severely impacted morning trip in the northbound direction in September, moving delay is consistently high in the afternoon in both directions, as seen in **Figure 8** and **Figure 9**.

Figure 8 - Line 69A Average Moving Delay Time - Northbound

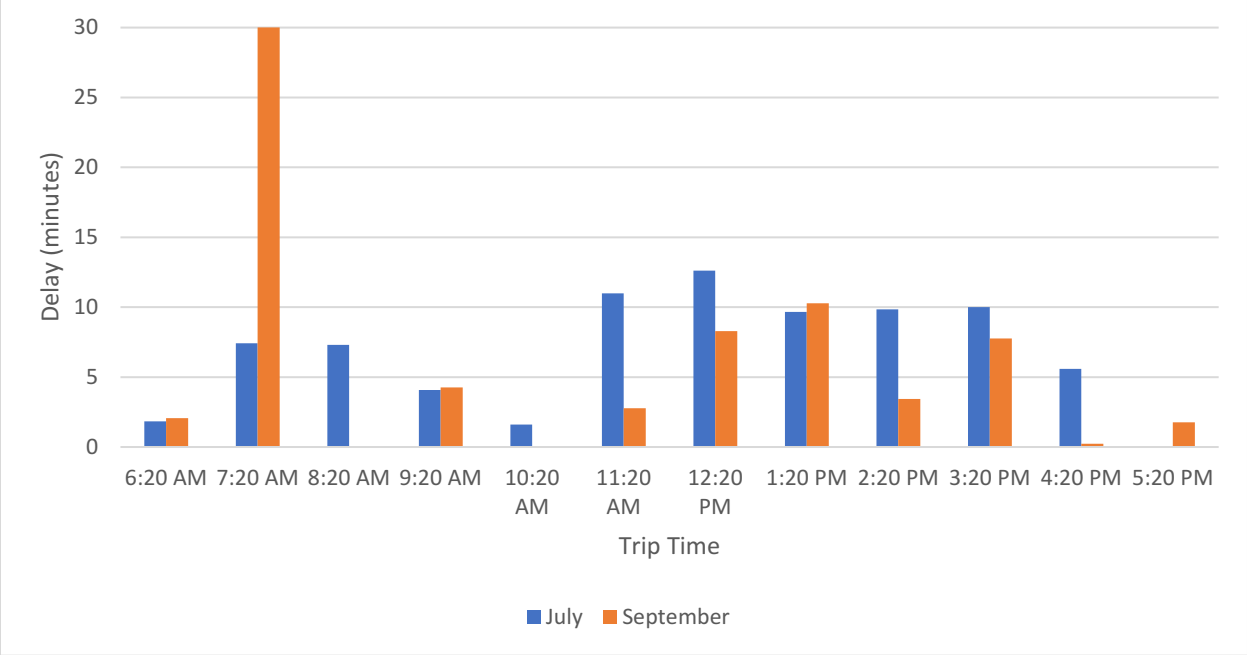
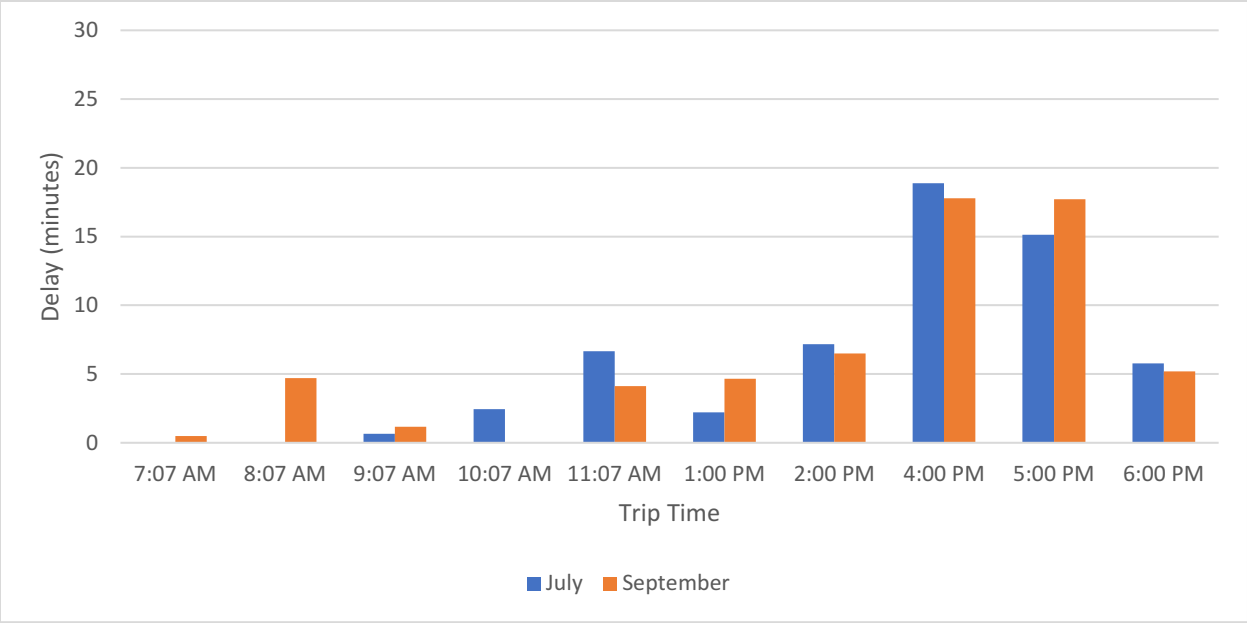


Figure 9 - Line 69A Average Moving Delay Time - Southbound



The findings for Line 69W are consistent with Line 69A, with a severely impacted morning trip, with building delay in the afternoon, particularly in the southbound direction, as seen in **Figure 10** and **Figure 11**.

Figure 10 - Line 69W Average Moving Delay Time - Northbound

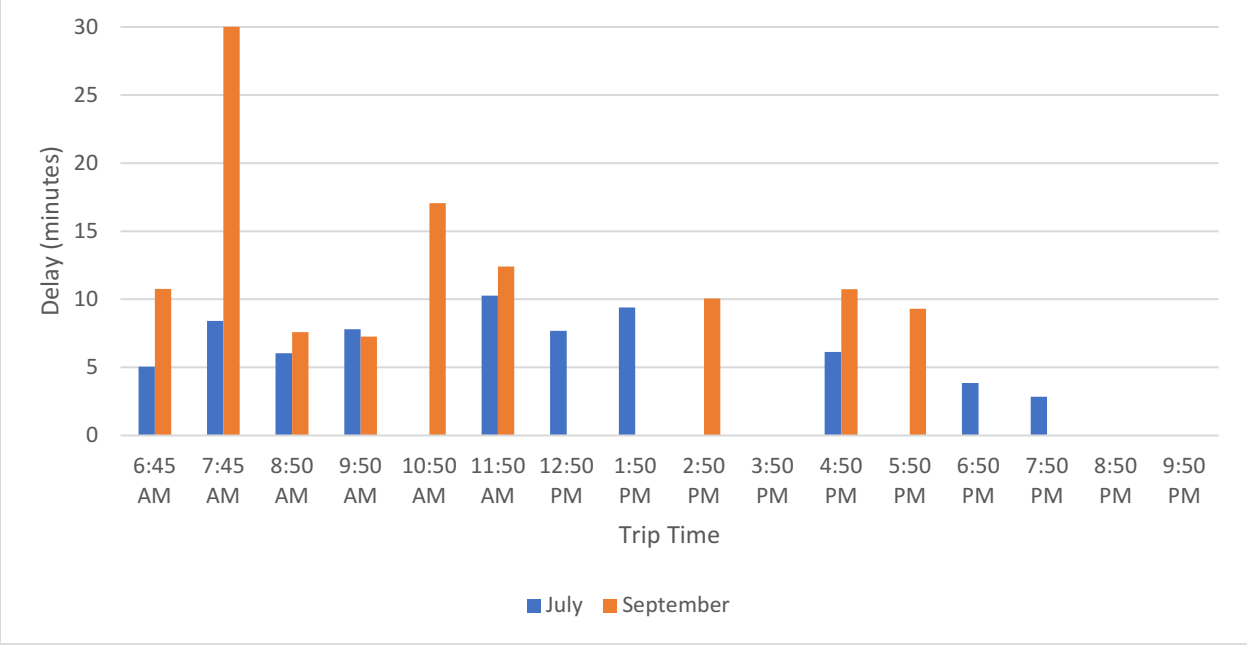
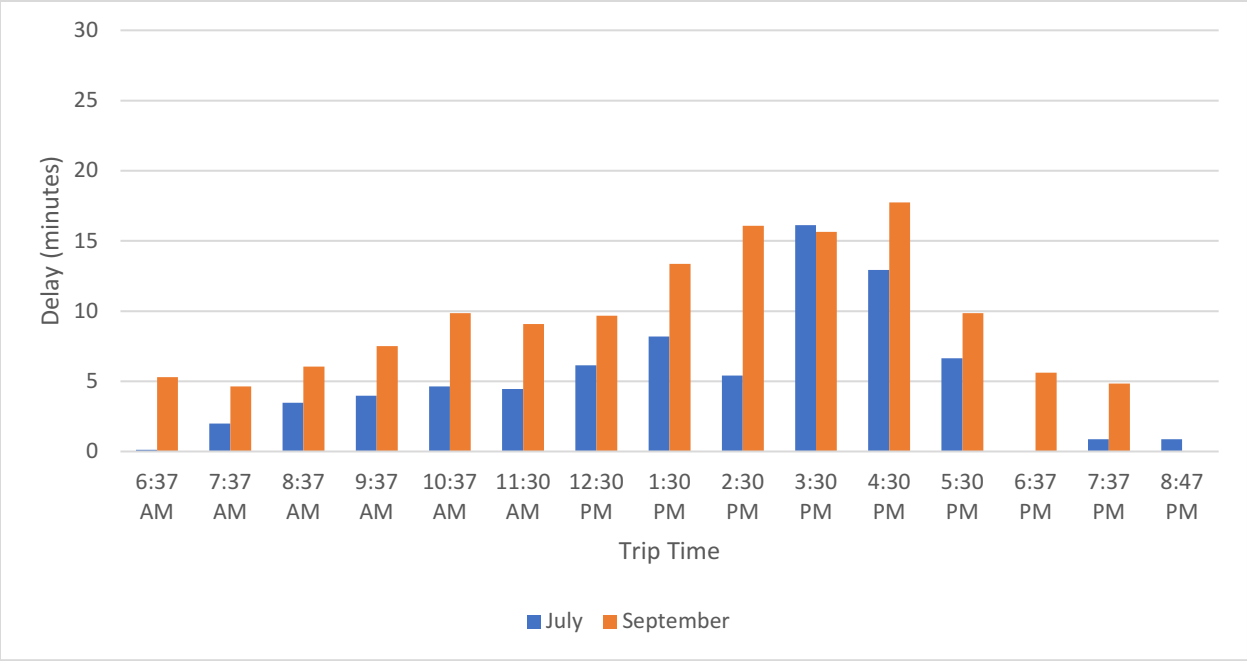


Figure 11 - Line 69W Average Moving Delay Time – Southbound



For Line 71, the average moving delay is fairly consistent throughout the day in the northbound direction, with the exception of the morning in the September data (likely impacted by school start times), and notably peaked in the afternoon in the southbound direction, as shown in **Figure 12** and **Figure 13**.

Figure 12 - Line 71 Average Moving Delay Time - Northbound

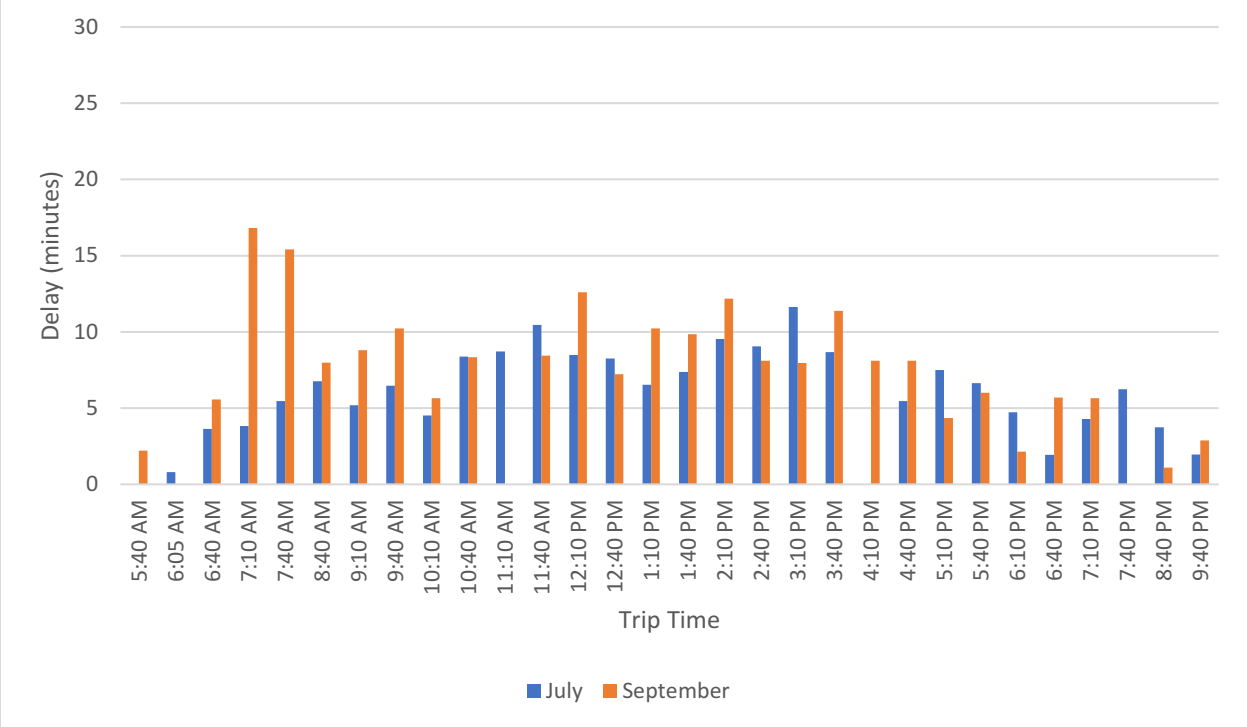
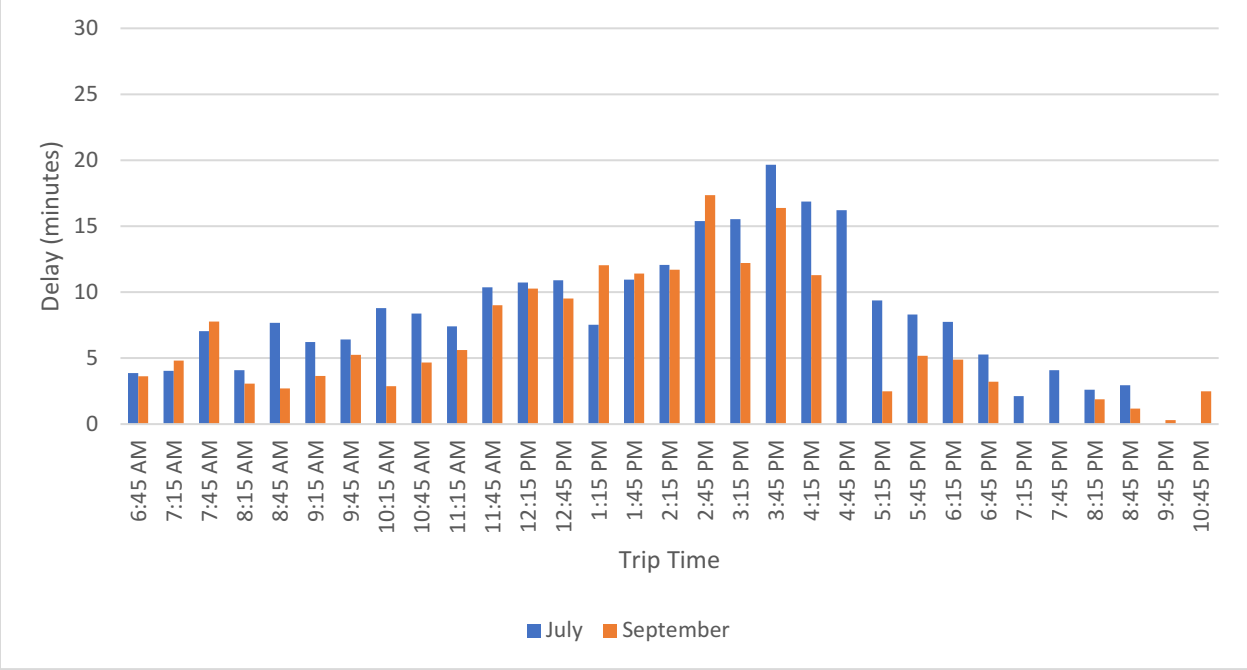


Figure 13 - Line 71 Average Moving Delay Time - Southbound



Limited data was available for Line 91X. Based on the data available, moving delays are notably less than for the other routes for most time periods. Similar to the other routes, moving delay peaks in the southbound direction in the afternoon. The moving delay in that period exceeds the delay shown for the other routes.

Figure 14 – Line 91X Average Moving Delay Time - Northbound

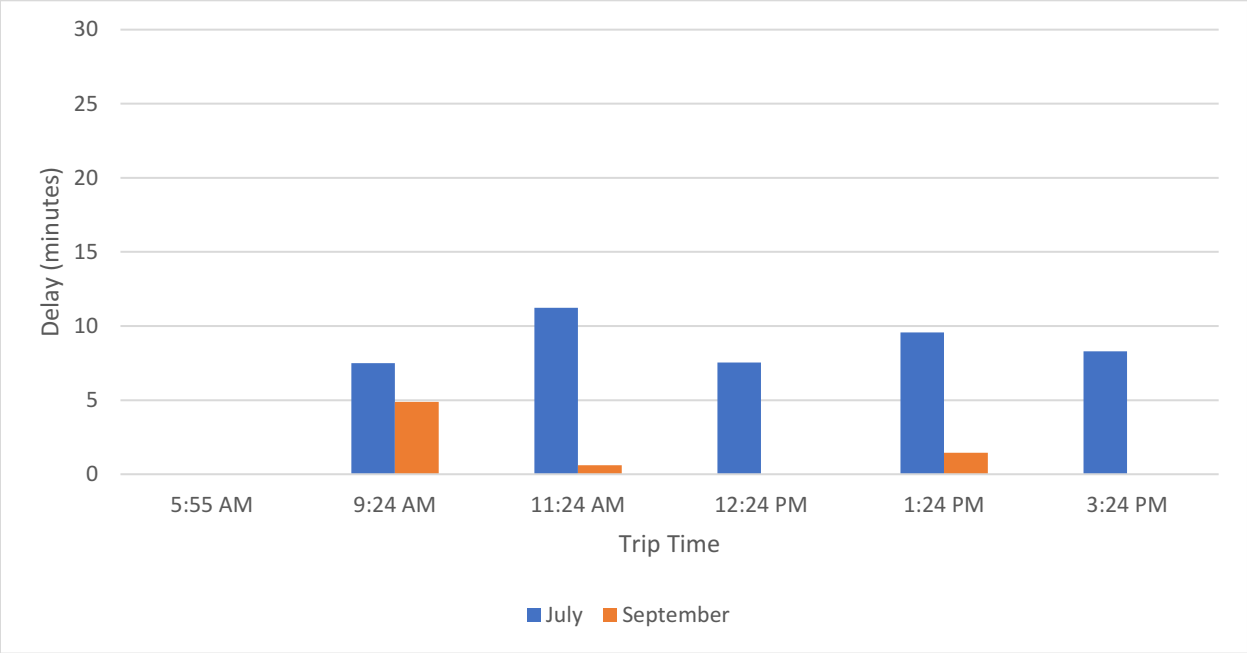
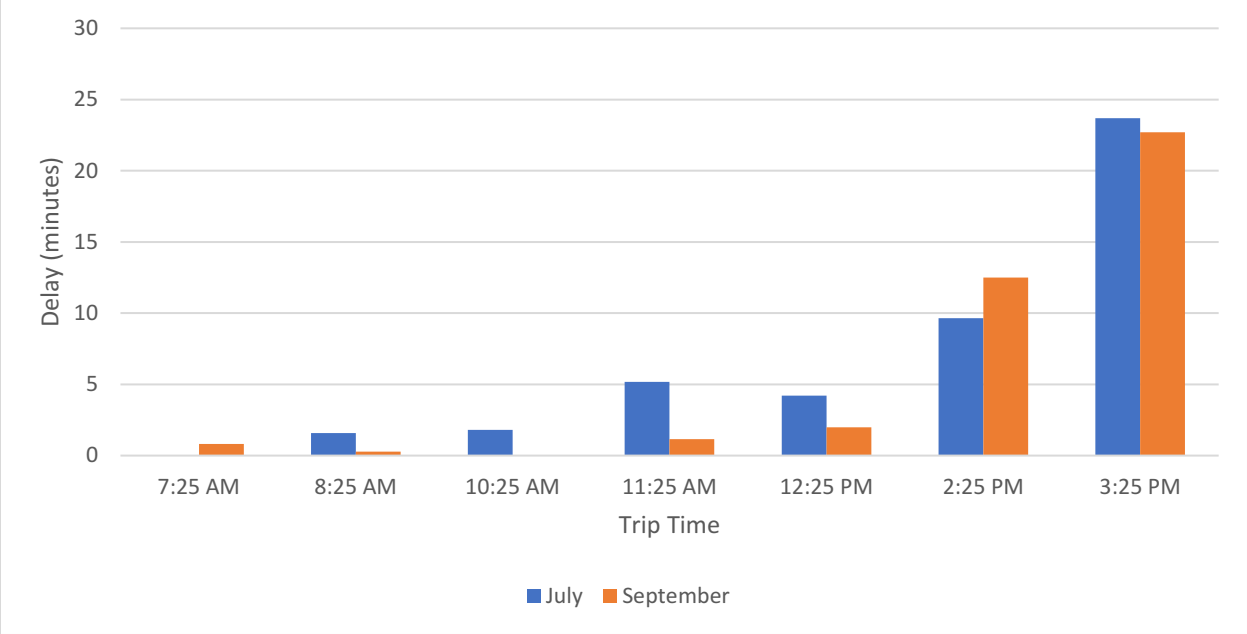


Figure 15 - Line 91X Average Moving Delay Time – Southbound



Dwell Time

Dwell time is the amount of time from when a bus arrives at a stop to when it leaves the stop. Dwell time can be comprised of passengers boarding or alighting, paying their fare, passengers mounting or unmounting their bicycle from a bike rack on the front of a bus, or a bus operator deploying a ramp for a wheelchair passenger. For purposes of this calculation, it also includes the time that the bus is waiting for a gap in traffic so it can depart the stop at pullout stops.

Across the four routes, Line 71 experienced the highest amount of average dwell time with ranges from 27 to 31 minutes, as shown in **Table 4**. This is consistent with expected findings given that Line 71 has twice as many stops as any of the other routes.

Table 4 - Average Dwell Time per Trip by Route

	July 2022		September/October 2022	
	Northbound (minutes)	Southbound (minutes)	Northbound (minutes)	Southbound (minutes)
Line 69A	22	21	20	22
Line 69W	21	20	20	21
Line 71	27	29	29	31
Line 91X	7	6	8	6

Source: Kimley-Horn, 2022.

Line 69A experienced consistent dwell times in the northbound direction, shown in **Figure 16**, and a slight increase in the afternoon in the southbound direction, seen in **Figure 17**.

Figure 16 - Line 69A Dwell Time - Northbound

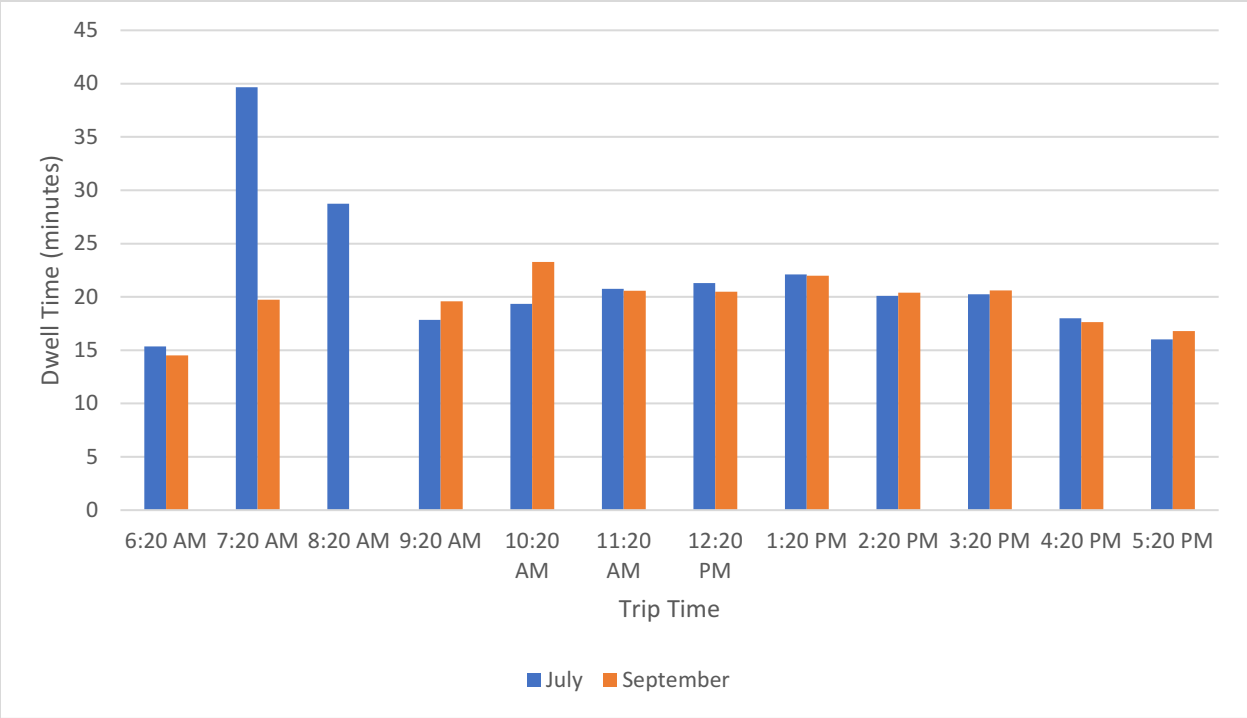
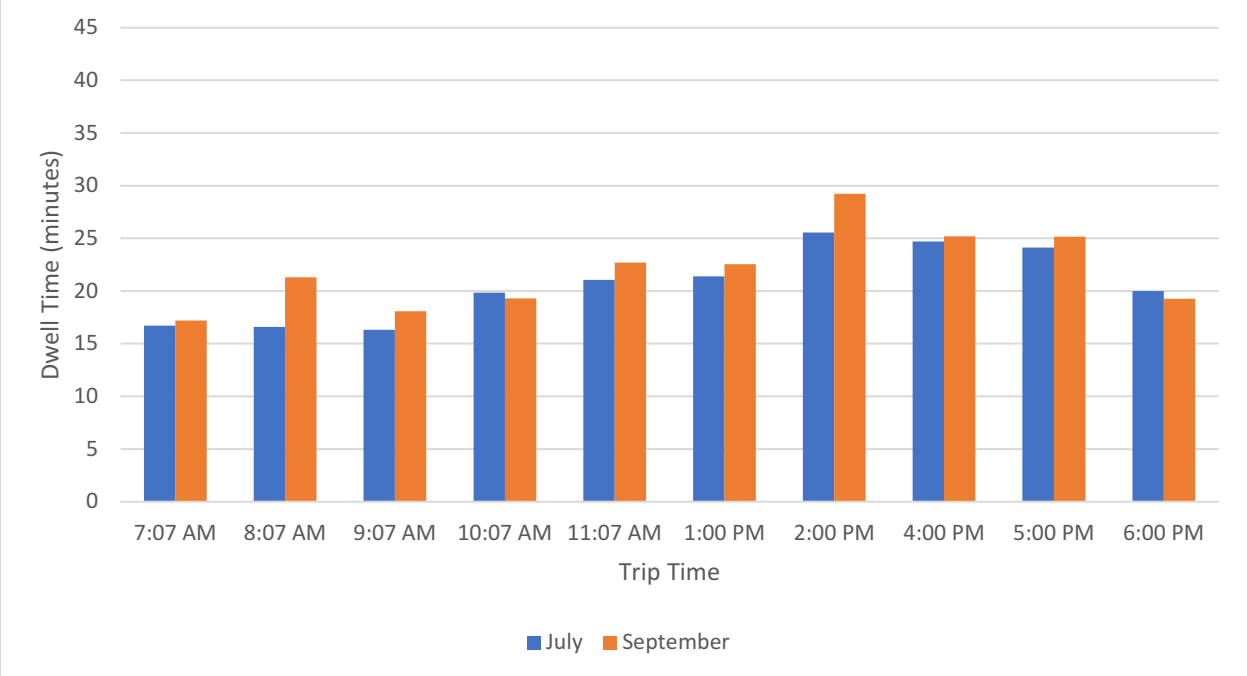


Figure 17 - Line 69A Dwell Time – Southbound



Line 69W had similar trends to 69A with consistent dwell times in the northbound direction and a slight increase in the afternoon in the southbound direction, shown in **Figure 18** and **Figure 19**.

Figure 18 - Line 69W Dwell Time - Northbound

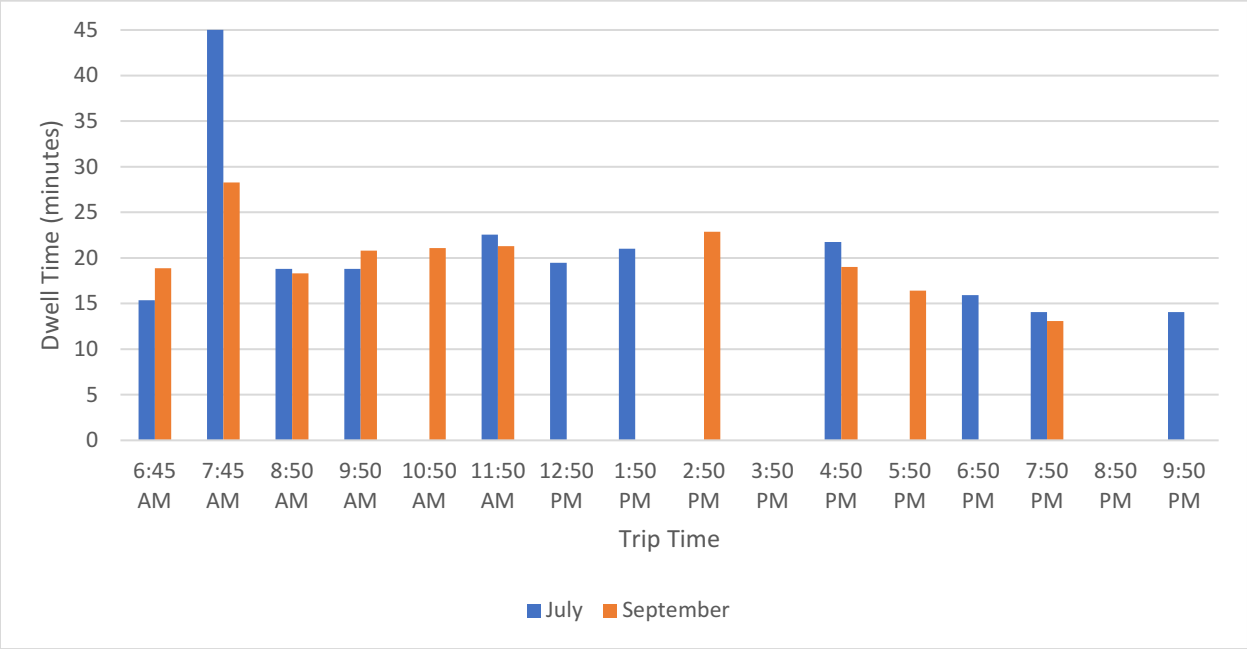
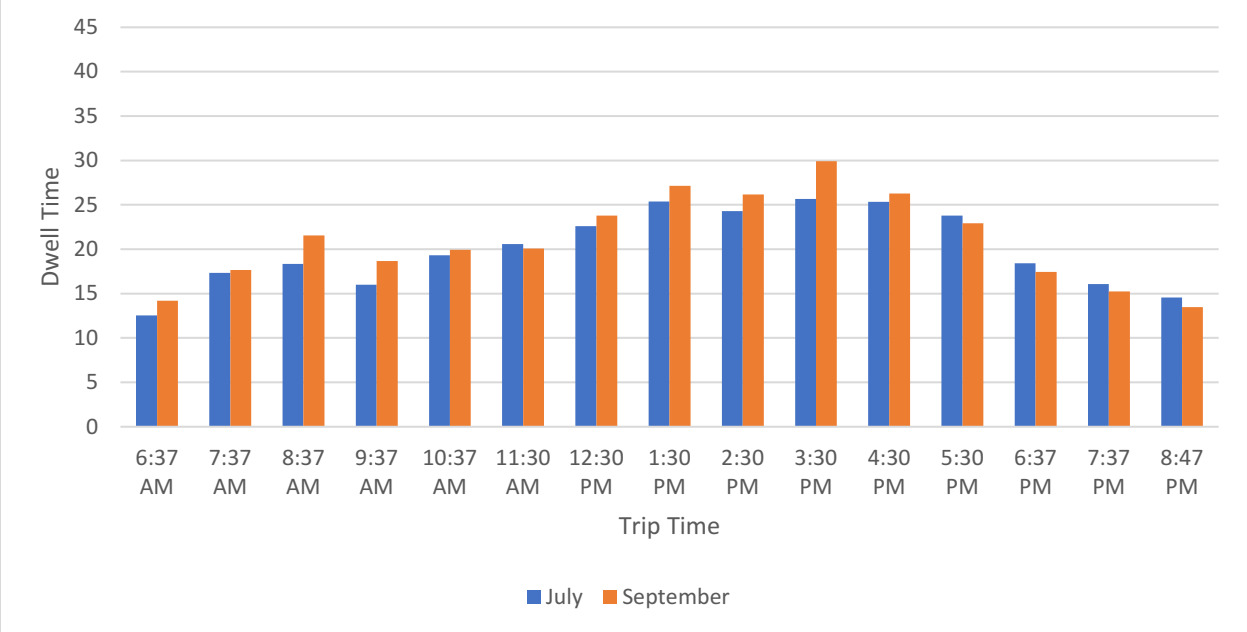


Figure 19 - Line 69W Dwell Time – Southbound



Line 71's average dwell time was generally consistent throughout the day in the northbound direction, shown in **Figure 20**. The southbound direction had an increase in dwell time in the early- and mid-afternoon time periods, particularly in the September/October dataset, shown in **Figure 21**.

Figure 20 - Line 71 Average Dwell Time - Northbound

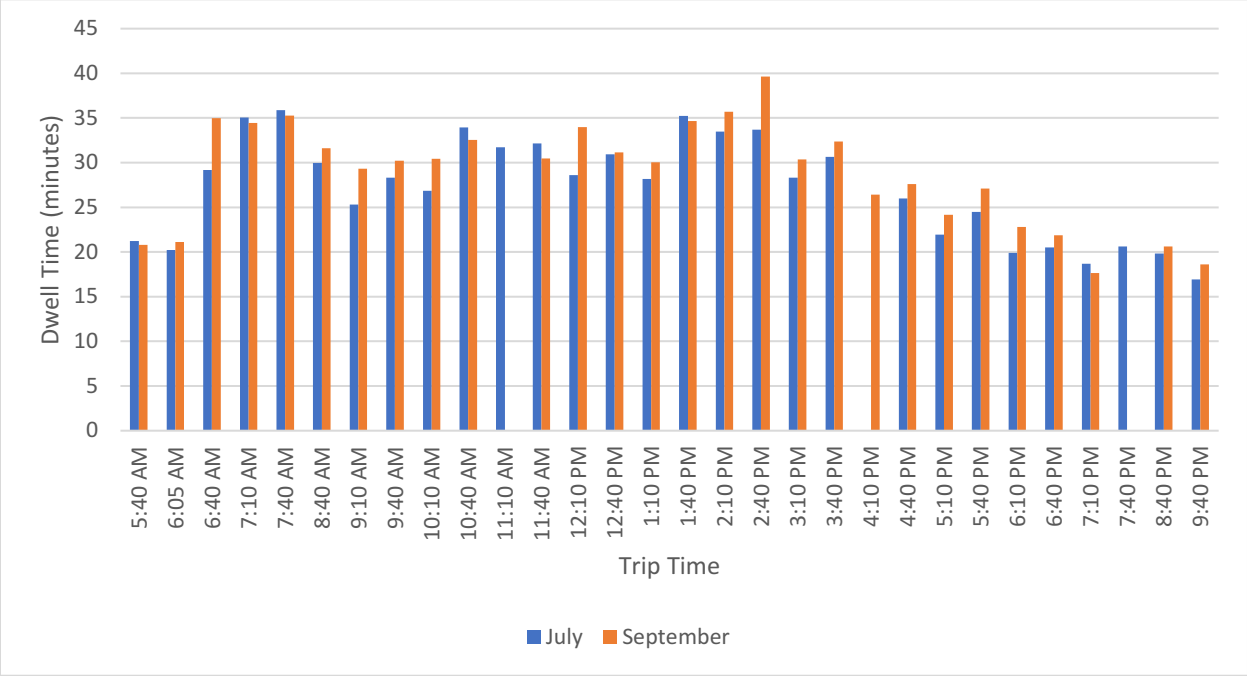


Figure 21 - Line 71 Average Dwell Time - Southbound

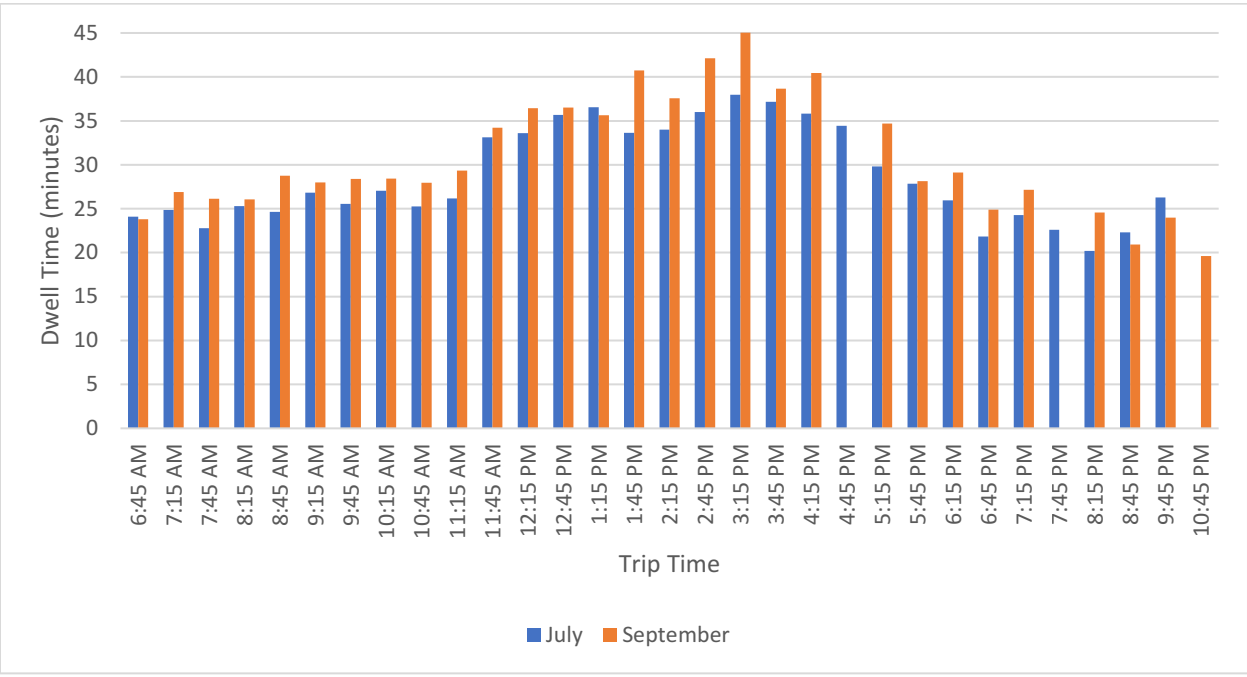


Figure 22 - Line 91X Average Dwell Time - Northbound

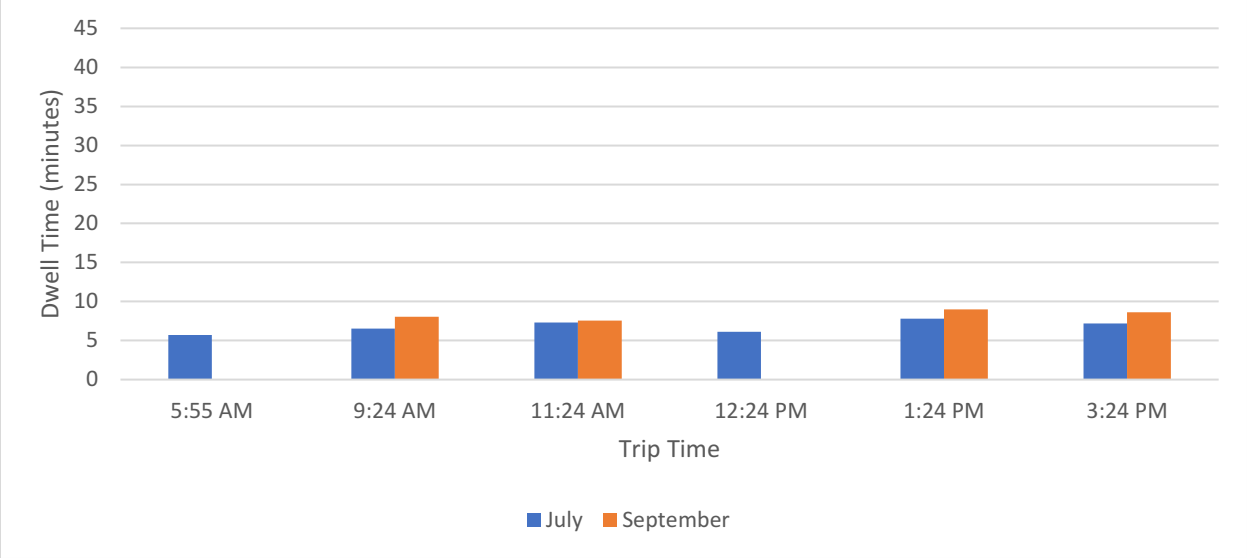
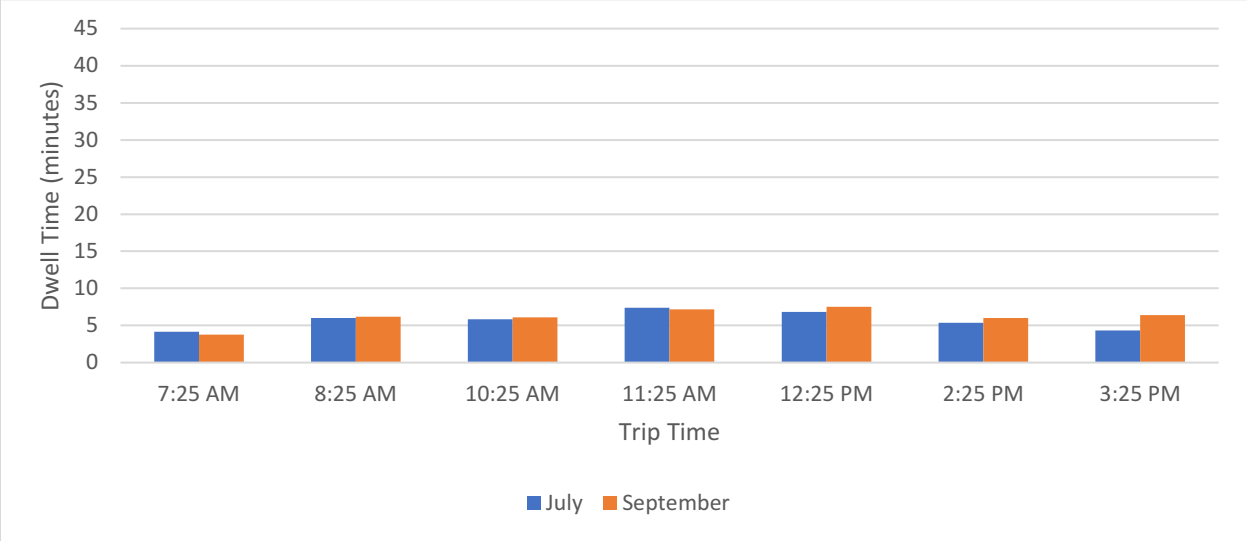


Figure 23 - Line 91X Average Dwell Time - Southbound



Travel Time Composition

The AM and PM end-to-end travel times of the project routes and a comparable auto trip were calculated for travel between the Santa Cruz and Watsonville Transit Centers. **Table 5** shows the average end-to-end travel time for each transit route. The data show that northbound trips run slightly longer in the AM peak than during the PM peak. Conversely, southbound trips run longer in the PM peak than during the AM peak. Trips during September/October 2022 were generally longer than trips during July 2022.

Table 5 – Average End-to-End Transit Travel Time (minutes)

	Jul 2022		September/October 2022	
	Northbound (minutes)	Southbound (minutes)	Northbound (minutes)	Southbound (minutes)
Line 69A				
AM Period	66	54	67	56
PM Period	62	67	62	68
Line 69W				
AM Period	66	53	67	55
PM Period	60	64	60	68
Line 71				
AM Period	74	67	77	69
PM Period	73	81	75	85
Line 91X				
AM Period	45	39	50	39
PM Period	48	49	49	52

Note: Includes trips departing between 7 AM and 12 PM (AM Period) and 12 PM and 6 PM (PM Period)
Source: Kimley-Horn, 2022.

Table 6 lists the average end-to-end travel time for a comparable auto trip. Current weekday vehicle travel times for trips departing at 8 AM and 3 PM for the AM and PM peaks, respectively, were retrieved from Google Maps. The data show that vehicle trips have a substantially shorter duration than transit trips. Note that the auto trip times were taken from the approximate peak of the peak period, whereas transit trip data reflects the entirety of the peak period. Therefore, transit trips may appear more competitive/faster relative to autos, since they include traditionally faster shoulder period trips.

Table 6 – Current Average End-to-End Vehicle Travel Time (minutes)

	Northbound (minutes)	Southbound (minutes)
AM Period	55	29
PM Period	32	43

Source: Google Maps, 2023.

As noted earlier in the section, total travel time is comprised of free-flow travel time, moving delay, and dwell time. The distribution of travel time for each route is shown in **Figure 24** through **Figure 27**. All data shown is for the PM period (trips starting between 12 PM and 6 PM) using the September/October dataset.

As shown in the figures, **Line 71** has the highest composition of travel time associated with dwell, with over 40 percent of the total travel time in both directions consisting of dwell time in the PM period. In the southbound direction, the time spent dwelling is higher than the free-flow time. While **Lines** 69A and 69W have lower dwell times, the time spent dwelling still consists of about **one-third** of the total travel time. **Lines** 69W and 91X have the highest composition of total travel time consisting of moving delay, representing over 20 percent of total travel time in the southbound direction in the PM period.

Figure 24 - Line 69A Travel Time Composition (PM Peak Period)

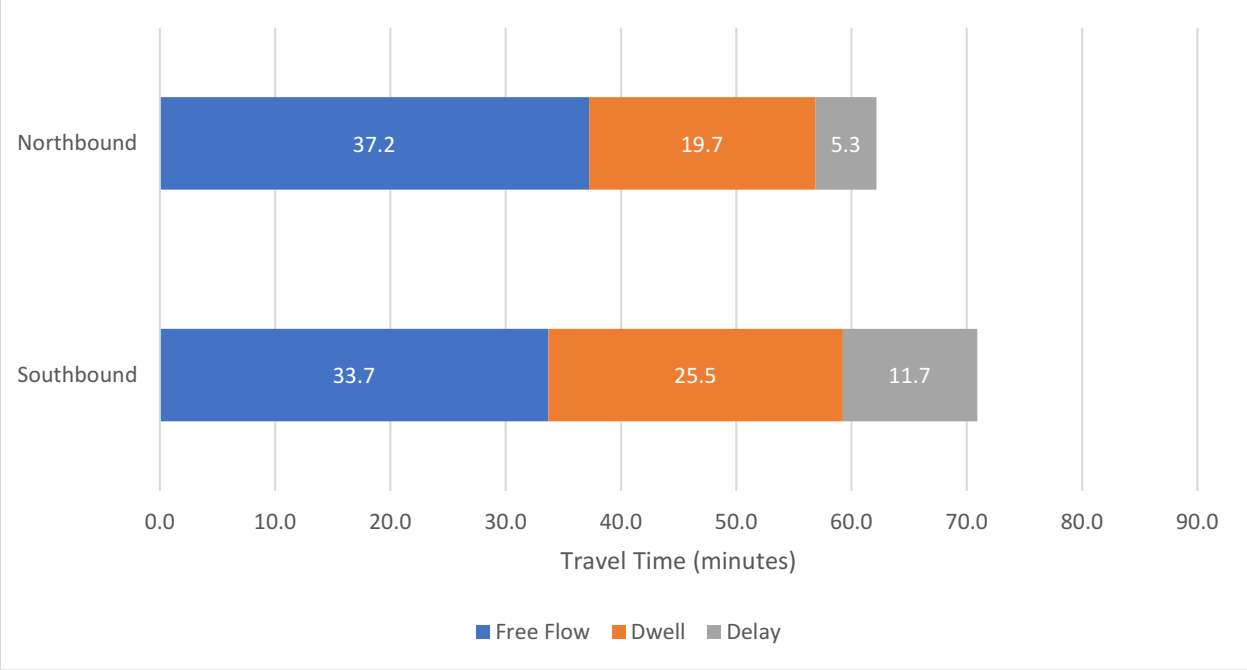


Figure 25 - Line 69W Travel Time Composition (PM Peak Period)

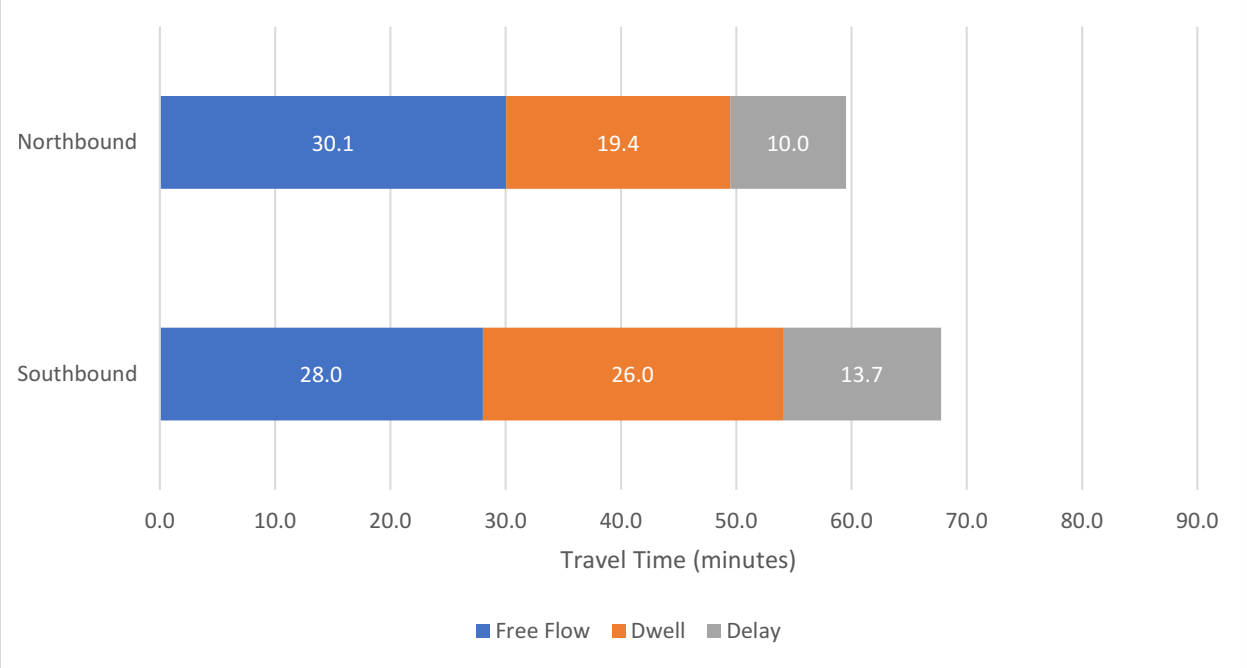


Figure 26 - Line 71 Travel Time Composition (PM Peak Period)

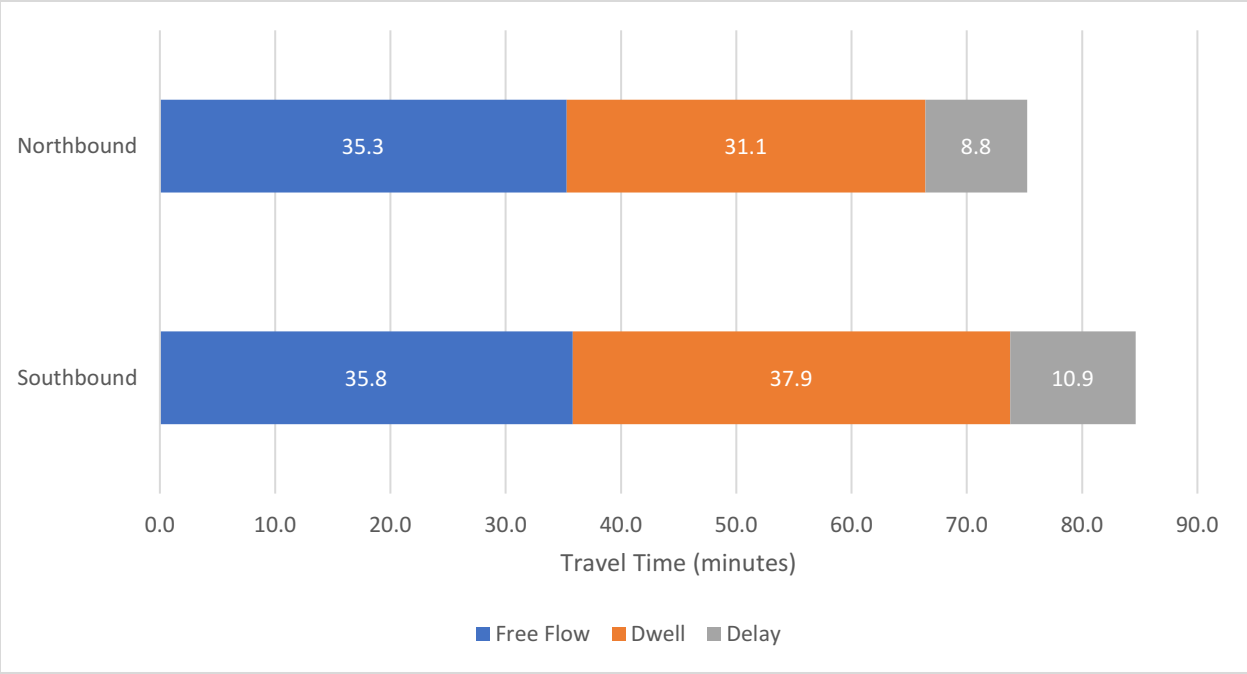
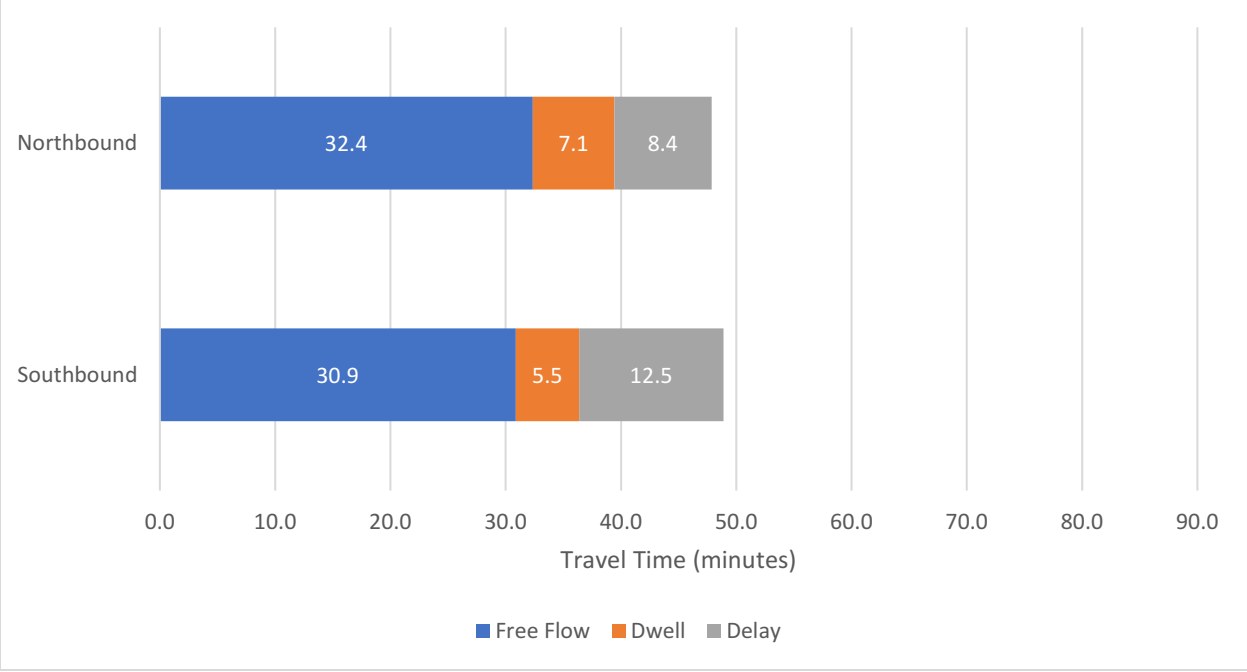


Figure 27 - Line 91X Travel Time Composition



Summary of End-to-End Travel Time Analysis

Key findings from the end-to-end travel time analysis include:

- There is a significant increase in moving delay in northbound direction between 7 and 8 AM apparent in the September/October data only, likely due to school-related congestion.
- Aside from that shorter morning congestion period, travel time and moving delay peaks in the early afternoon coinciding with school dismissal times, not traditional peak commute times.
- The routes are characterized by high moving delay in both directions in both peaks. While some directionality appears in the data, potentially related to school traffic, in general, congestion-caused delays are bi-directional. Thus, transit priority treatments may provide benefits throughout the day in both directions, not just in the peak periods.
- Many trips start up to five minutes late, likely caused by late arrivals on the preceding trip. This causes cascading delays that effect on-time performance throughout the day.
- Dwell is a very significant component of travel time, particularly for Line 71, representing nearly half of the total travel time. This presents an opportunity to greatly reduce travel time through stop consolidation.

Segment Analysis – Travel Times

Maps depicting average bus moving speed data for all collection periods and peak periods are included in **Appendix C**. The speeds shown are moving speeds and do not include dwell time. All trips made by all project routes are aggregated for this analysis.

As shown in those maps, the following areas experience notably degraded speeds in the northbound direction during the AM peak:

- Santa Cruz Transit Center
- Downtown Santa Cruz
- Capitola Transit Center
- Green Valley Road and Airport Boulevard
- Watsonville Transit Center
- Downtown Watsonville

The following areas experience notably degraded speeds in the southbound direction during the PM peak:

- Santa Cruz Transit Center
- Downtown Santa Cruz
- Highway 1 from Santa Cruz to Capitola
- Capitola Transit Center
- 41st Avenue
- Green Valley Road and Airport Boulevard
- Watsonville Transit Center
- Downtown Watsonville

Average speeds across all routes in these areas are less than ten miles per hour, and in several cases are less than five miles per hour. Many of these areas have low free flow speeds, associated with lower speed limits, and factors such as high levels of pedestrian activity and dense signal spacing contribute to slow speeds for all vehicles. It is notable that there are other areas of the bus alignments where free flow speeds are high and signal spacing is not as dense; however, bus speeds are still well below free flow vehicle speeds. These areas will also be further examined as part of the project to identify opportunities for improved bus travel times.

Segment Analysis – Speed Variability

Transit variability was also calculated to determine what segments have inconsistent travel time across days and trips. Highly variable segments cause trips to be late and create scheduling inefficiencies. The coefficient of variation is calculated as the standard deviation of travel time for a segment divided by the average travel time of that segment.

Maps of the variability data for all collection periods and peak periods are included in **Appendix D**.

For the AM peak period in the northbound direction, the segments with the highest variability were along Highway 1 and Main Street in Watsonville. For the PM peak period in the southbound direction, the segments with the highest variability were along Water Street, Soquel Avenue, Capitola Road, Soquel Drive, Main Street, Freedom Boulevard, and Airport Boulevard.

5. EXISTING CHALLENGES AS IDENTIFIED BY SANTA CRUZ METRO BUS OPERATORS

The Project team talked with METRO bus operators at the monthly Service Planning Review Committee meeting on November 15, 2022, to understand the challenges they encounter on the Project routes. The bus operators made note of specific intersections and locations where they frequently experience delays due to infrastructure (signals and turn lanes) or other vehicles turning in front of them. They shared recommendations on ways that operations could be improved, including promoting the mobile SplashPass to allow for passengers to quickly board buses, and how more signage, transit information, and translated information would benefit riders who are confused with the system. The bus operator observations included the following:

- Roadway Conditions
  - Lack of lighting at the Line 71 bus stops at Freedom Boulevard & Day Valley Road and Freedom Boulevard & McDonald Road make it challenging to access the stops at night.
- Delays
  - Longer dwell times at stations are commonly caused by passengers paying with cash.
  - It is challenging for Line 69A/W to turn from Capitola on to 41st Street because the bus needs to make an immediate left on 41st street. It is also challenging for Line 71 to turn from Freedom to Clifford Avenue.
  - The peak commute periods impact the entire corridor from SCMC to the State Park
  - At the Soquel Drive and 41st Avenue stop, vehicles turning into the shopping center cut in front of buses, which is safety hazard
  - The bus bike racks typically fill-up at SCMC and Ocean & Water
- Service Operations Challenges
  - During the earlier part of 2022, Lines 69W and 71 did not have enough time allotted for the service and holdovers. The route schedule was modified in the winter though and will be monitored
  - The fares and fare structure has not changed since 2011 for the local routes and 2015 for Highway 17.
- Passenger Comments or Observations
  - Use of the SplashPass mobile app is increasing, especially on the Highway 17 route, but Watsonville passengers still primarily use cash to pay for transit
  - Some passengers think that there are too many stops
  - Loitering and unhoused populations are typically at the following bus stops: Soquel & Frederick, Soquel & Cayuga, Soquel & 41st, and at the Watsonville Hospital
  - Passengers would like better lighting at the stops
  - Passengers rely on the driver for transfer information and there could be better communication on how to transfer in the system
  - UCSC students connecting to the rest of the service have challenges understanding where to go
- Opportunities
  - There could be better communication with the public by having signage and bus stop announcements in Spanish, bigger signage with more detail
  - More transit information could be provided at the Watsonville stops because many residents don't have smartphones and Wi-Fi is not reliable
  - Updating riders through real time app for bus locations would be helpful; the Gov Delivery Alerts are often sent out too late

- Advertise SplashPass App at High School bus stops and schools along Line 71; Soquel & La Fonda (Harbor High) is still mostly using cash

The survey questions and the responses are included in **Appendix E.**

6. RELEVANT TRANSPORTATION PLANS AND PROJECTS

There are multiple transportation planning, design, and construction projects taking place along the Project corridor with the goal of improving mobility. These other related projects will affect circulation and congestion within the corridor and thus will affect both route performance and opportunities to further enhance transit service. The projects are briefly discussed in this section.

County of Santa Cruz's Soquel Avenue-Soquel Drive Buffered Bike Lane and Congestion Mitigation Project

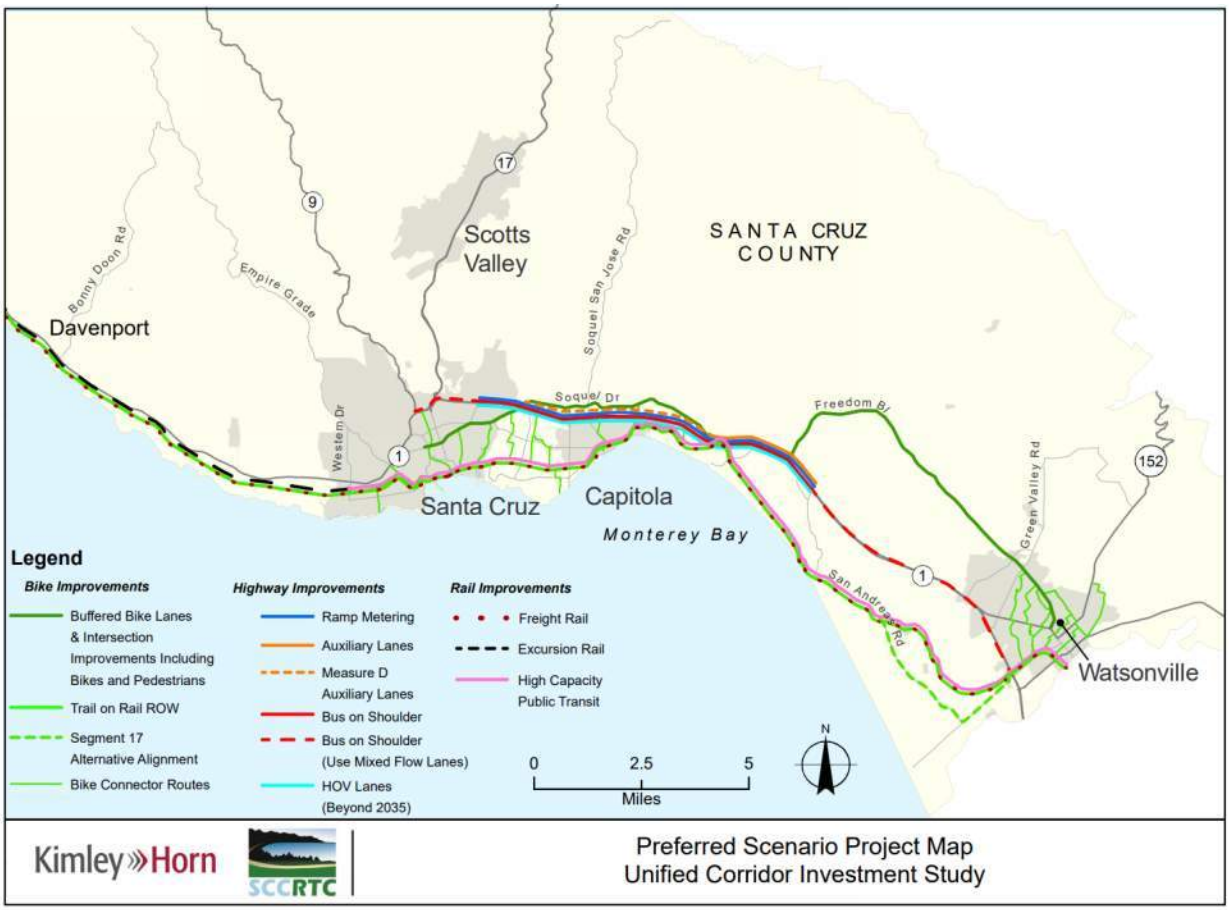
The County of Santa Cruz is currently designing bicycle, pedestrian, and transit improvements along 5.6 miles of Soquel Drive, from La Fonda Avenue to State Park Drive. The improvements include constructing 2.7 miles of buffered and 2.4 miles of protected bike lanes on each side of the street, upgrading 22 intersections with Adaptive Traffic Signals (ATS) and Transit Signal Priority (TSP), closing 2,500 feet of sidewalks gaps, enhancing 10 mid-block crossings with the installation of Rectangular Rapid Flashing Beacons (RRFB), and upgrading 100 ADA ramps to meet current standards. Construction is anticipated to begin in Summer 2023.

Source: County of Santa Cruz's Soquel Avenue-Soquel Drive Buffered Bike Lane and Congestion Mitigation Project

SCCRTC's Unified Corridor Investment Study, 2019

In 2019, Santa Cruz County Regional Transportation Commission (SCCRTC) performed a Unified Corridor Study (UCS) along the three major parallel routes that link communities on the Santa Cruz County coast: Highway 1, Soquel Ave/Soquel Dr/Freedom Blvd, and Santa Cruz Branch Rail Line. The goal of the Study was to identify transportation projects that effectively used the major routes while integrating different transportation modes. The findings of the UCS led to the development of a 2035 "Preferred" scenario.

The "Preferred" scenario emphasizes regional projects that have highway improvements, bus service enhancements, and public high-capacity transit service along with significant bike and pedestrian improvements, including a multi-use pedestrian and bicycle facility within the existing Rail Right-of-Way (ROW). The existing and planned auxiliary lanes projects along Highway 1 included in the "Preferred" scenario allow for the opportunity to have bus on shoulder (BOS) operations on Highway 1 to improve transit travel times during peak congestion. The "Preferred" scenario allows flexibility for the implementation of a high-capacity public transit service project on the rail right-of-way: either passenger rail or bus rapid transit.



Source: Santa Cruz County Regional Transportation Commission, Unified Corridor Investment Study, Final January 2019

Santa Cruz METRO Onboard Transit Ridership Study, 2019

In 2019, METRO conducted an Onboard Transit Ridership Survey to understand ridership demographics, travel patterns, and rider's thoughts on the service. An analysis of the 2018 ridership numbers revealed that of the 18,000 riders per week, 60 percent used the seven weekday UCSC routes. The survey noted which stops had the highest activity for each route. For Line 69A, the highest activity was reported at the Capitola Mall, METRO Transit Center, and Watsonville Transit Center. For Line 69W, the highest activity was also noted at Capitola Mall, Santa Cruz Metro Center, Cabrillo College, and Watsonville Transit Center. Line 71 also had high activity at Cabrillo College, Santa Cruz Metro Center, and Watsonville Transit Center. Similar to Line 71, Line 91X had high activity at Cabrillo College, Santa Cruz Metro Center, and Watsonville Transit Center.

When asked about what improvements riders wanted to see on their routes, the most common answer for riders of the Project routes was "More buses/increased frequency", followed by improved on-time/reliability and later service for the 91X route. For customer satisfaction, 92.5 percent of Line 69A riders were most satisfied with safety onboard the bus and the driver's customer service and 95.0 percent of Line 69W riders, 93.1 percent of Line 71 riders, and 92.9 percent of Line 91X riders were all most satisfied with driver safety. Riders on the four Project routes were least satisfied with the holiday and weekend service levels (42.2 percent to 59.6 percent across the four routes).

The survey results showed that of the riders who take one of the intercity routes, 65 percent make less than $24,000 annually and nearly 60 percent take transit five or more days a week. These riders rely on reliable transit service and would benefit most from the improvements made by the Project.

Santa Cruz METRO's 10-Year (Fiscal Year 2020-29) Strategic Business Plan Update, 2019

In 2019, METRO approved the 10-Year Strategic Business Plan Update. The Plan Update identified METRO's plans to implement a Fare Restructure that could increase revenue by $500,000 - $1.5 million and provide improved customer fare payment amenities. METRO plans to increase service levels on existing routes including daily span of service and frequency. This includes moving more resources towards ridership generating services as opposed to coverage-oriented services. Additionally, METRO will develop Automatic Vehicle Location (AVL) that will provide data about on-time performance and average travel times on all segments of the system. Internal upgrades include replacement of the current fare collection and reporting system and Automatic Passenger Counting (APC) to have complete system-wide data.

Santa Cruz METRO COVID-19 Rider Survey, 2020

In June 2020, METRO surveyed riders to understand how the COVID-19 pandemic was affecting riders' decisions to ride METRO and the timing of when riders would return to using the service, as well as understand what strategies would be effective in getting riders to return to using the service. The survey revealed that while 75 percent of riders were likely to return to riding METRO, 25 percent indicated they were unlikely to return. A majority of riders responded that they would ride as much (66 percent) or more (17 percent) than before the pandemic. The primary reason why riders were unlikely to return was because of concerns about social distancing and cleanliness on the bus, 54 percent and 40 percent respectively. The most popular service improvements that would motivate both frequent and unlikely riders to take METRO again or more often was improving and increasing service through more frequency and faster travel times.

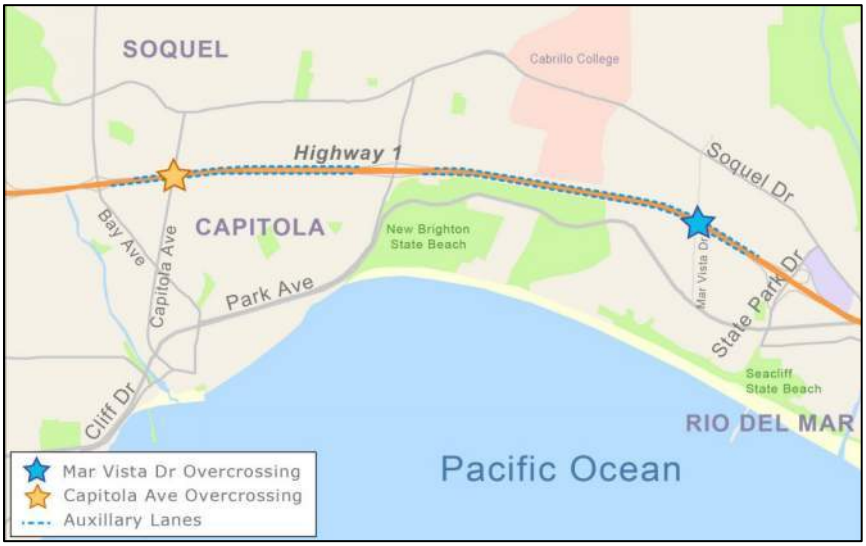
SCCRTC's Highway 1 41st Avenue to Soquel Avenue/Drive Aux Lanes, Bus-on-Shoulder & Chanticleer Bike/Pedestrian Overcrossing

This project will construct northbound and southbound auxiliary lanes and bus-on-shoulder improvements between 41st Avenue and Soquel Avenue/Drive interchanges. A bicycle/pedestrian overcrossing at Chanticleer Avenue will provide an alternative route for bicyclists and pedestrians using Soquel or 41st interchanges to cross over Highway 1. This overcrossing will be lighted and 12- to 14-feet wide. Construction for the project is expected to begin in 2022 and be completed in 2024.

Source: Santa Cruz County Regional Transportation Commission, Highway Corridor: Highway 1 Aux Lanes, BOS (41st Avenue to Soquel Drive), and Chanticleer Bicycle/Pedestrian Overcrossing Fact Sheet

SCCRTC's Highway 1 41st Aux Lanes, BOS (Bay Avenue/Porter Street to State Park Drive), and Mar Vista Bicycle/Pedestrian Overcrossing

The project will construct northbound and southbound auxiliary lanes and bus-on-shoulder improvements between Bay Ave/Porter St and State Park Drive interchanges and replace the existing Capitola Ave local roadway overcrossing. The auxiliary lanes will connect the on-ramp with the next off-ramp and extend the weaving and merging distance between ramps. The project will also construct a new Capitola Ave bicycle/pedestrian overcrossing that will include enhanced bicycle and pedestrian facilities to improve connectivity between Soquel Dr to the north and the future coastal rail trail to the south. New bicycle/pedestrian overcrossing at Mar Vista will provide a link between schools, the beach, residential neighborhoods, and retail centers. Construction is scheduled to begin in Spring of 2023 and be completed in 2025.



Source: Santa Cruz County Regional Transportation Commission, Highway Corridor: Highway 1 Aux Lanes, BOS (Bay Avenue/Porter Street to State Park Drive), and Mar Vista Bicycle/Pedestrian Overcrossing Fact Sheet

City of Watsonville's Downtown Watsonville Complete Streets Plan, 2019

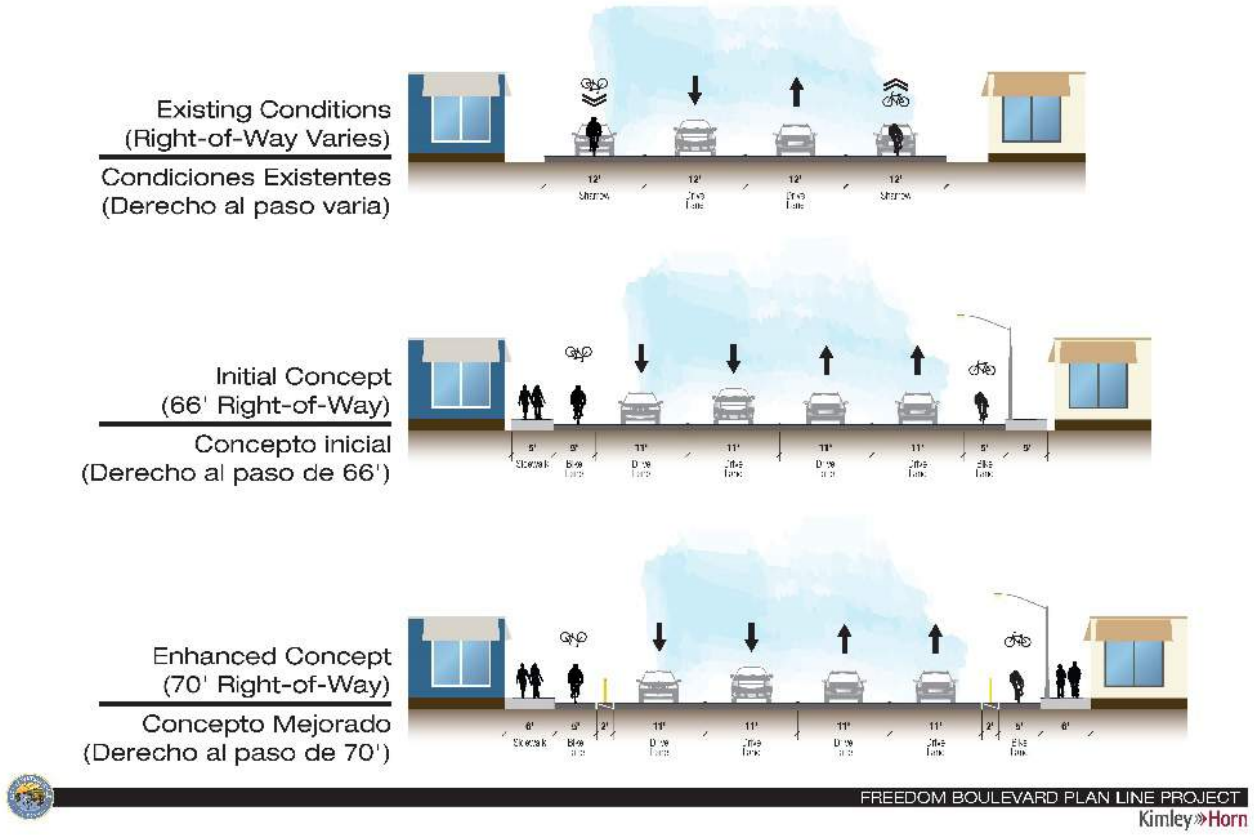
The Downtown Watsonville Complete Streets Plan calls for a preferred plan design of a road diet on Main Street and Rodriguez Street, along with some parking removal. This preferred Main Street design calls for a reduction from four travel lanes to two, a center left-turn lane or landscaped median, and buffered bike lanes. The Plan calls for sidewalks to have a consistent width of 10 feet, where space is available. The Plan will provide general circulation improvements that include new sidewalk near the intersection of Main Street and Rodriguez Street, upgrading crosswalks to high visibility crosswalks, and adding bulb outs at most intersection corners where there is existing or proposed on-street parking. The Plan recommends bike storage at several locations downtown (e.g., library, post office) that includes a combination of bike racks and high security lockers. The city implemented the traffic markings, including high visibility crosswalks, and signage improvements on Rodriguez Street, Union Street, and Brenna Street.

Figure 35 | Amenities Plan
*All improvements shown are conceptual and subject to further study and refinement.

Source: City of Watsonville's Downtown Watsonville Complete Streets Plan, 2019

City of Watsonville's Freedom Boulevard Plan Line, 2018

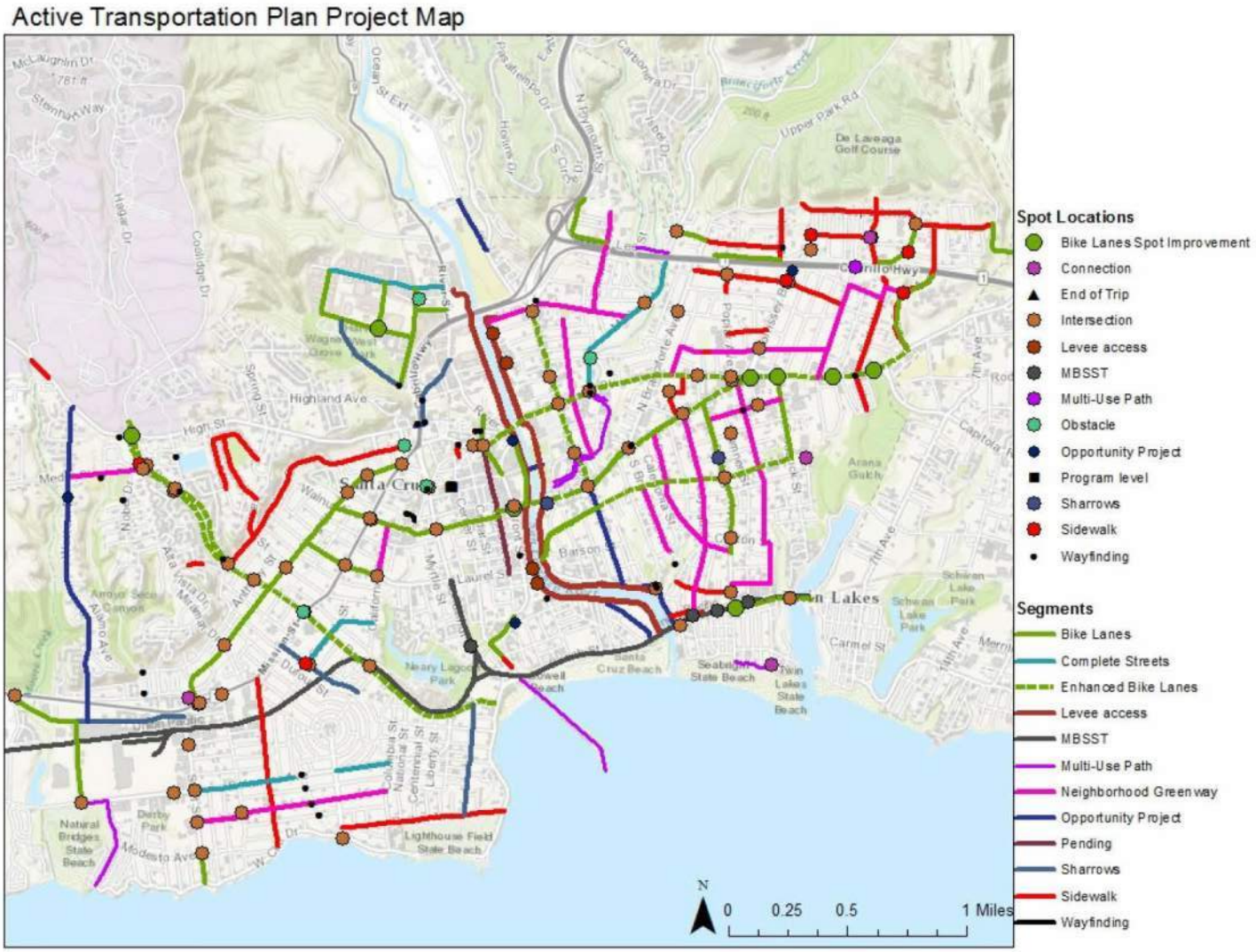
In 2018, the City of Watsonville identified that improvements for pedestrians and bicyclists along Freedom Boulevard were a high priority. They evaluated the existing roadway conditions and proposed ways to reallocate the roadway right-of-way to provide space for non-auto modes. The city is still deciding on how to move forward with implementing improvements.



Source: City of Watsonville's Freedom Boulevard Plan Line, 2018

City of Santa Cruz Active Transportation Plan, 2017

The 2017 City of Santa Cruz Active Transportation Plan includes comprehensive pedestrian facilities in unincorporated Santa Cruz County. The Plan outlines several upgrades to bike facilities that affect the project corridor. These include recommendations for Class II Buffered or Enhanced, and Class IV bike lanes in unincorporated Santa Cruz County (such as Live Oak, Aptos). Several rural roads throughout unincorporated Santa Cruz County are planned to be upgraded to Class III bike lanes. Extensions to and improvements upon existing sidewalks in unincorporated Santa Cruz County are also recommended as part of the plan. The plan provides recommendations for several pedestrian infrastructure improvements which include curb extensions, high visibility pedestrian crossings, leading pedestrian interval, median refuge islands, no right on red signage, and pedestrian hybrid beacons, among others.



Source: City of Santa Cruz Active Transportation Plan, 2017

City of Capitola Bicycle Transportation Plan, 2011

The 2011 Capitola Bicycle Transportation Plan identifies the need for bicycle parking at popular destinations throughout Capitola. For instance, the Capitola Mall, which has a METRO Transit Center

located in front, offers uncovered bicycle parking but no bicycle lockers. The location of the Transit Center is not easily or safely accessible, as pedestrians and bicyclists must travel through a large parking lot with no bicycle or pedestrian facilities to get there.

SCCRTC's 2045 Regional Transportation Plan for Santa Cruz County, 2022

The 2045 Regional Transportation Plan (RTP) is a comprehensive document for short- and long-range transportation planning for Santa Cruz County between 2020 and 2045 and was approved in 2022. The plan outlines steps to maintain the existing transportation network, which has a backlog of maintenance projects. The RTP identifies several transportation projects, including passenger rail, which is the locally preferred alternative for the Santa Cruz Branch Rail Line. A network of multi-use trails that spine along the rail line have already been completed. Transportation System Management projects include signal synchronization, new turning lanes, striping, and auxiliary lanes. The RTP identifies improvements to the METRO system that include reduced travel times, increased level of service, passenger amenities (e.g., shelters, benches, and lighting), bus and paratransit vehicle replacement, investments in new sidewalks and curb ramps, and traveler information via mobile applications and at bus stops.

7. SUMMARY & CONCLUSIONS

The four Project routes, Lines 69A, 69W, 71, and 91X, serve an essential service to the communities of Santa Cruz, Capitola, Watsonville, and unincorporated Santa Cruz County. Travel time on these routes is currently not competitive with auto travel time due to long dwell times and the lack of any transit priority treatments. Thus, transit currently cannot effectively appeal to choice riders and provides a less than desirable quality of service to transit-dependent populations.

With ridership on these routes accounts for half of all non-UCSC ridership in the system, investments made to these routes and the corridor will benefit a substantial amount of transit riders. In addition, a prior METRO survey of riders found that these routes serve primarily transit-dependent riders, with 65% making less than $24,000 per year. Thus, transit improvements along these routes will benefit economically disadvantaged populations most in need of improved mobility.

Existing challenges for transit riders in this corridor, as identified by this analysis, include:

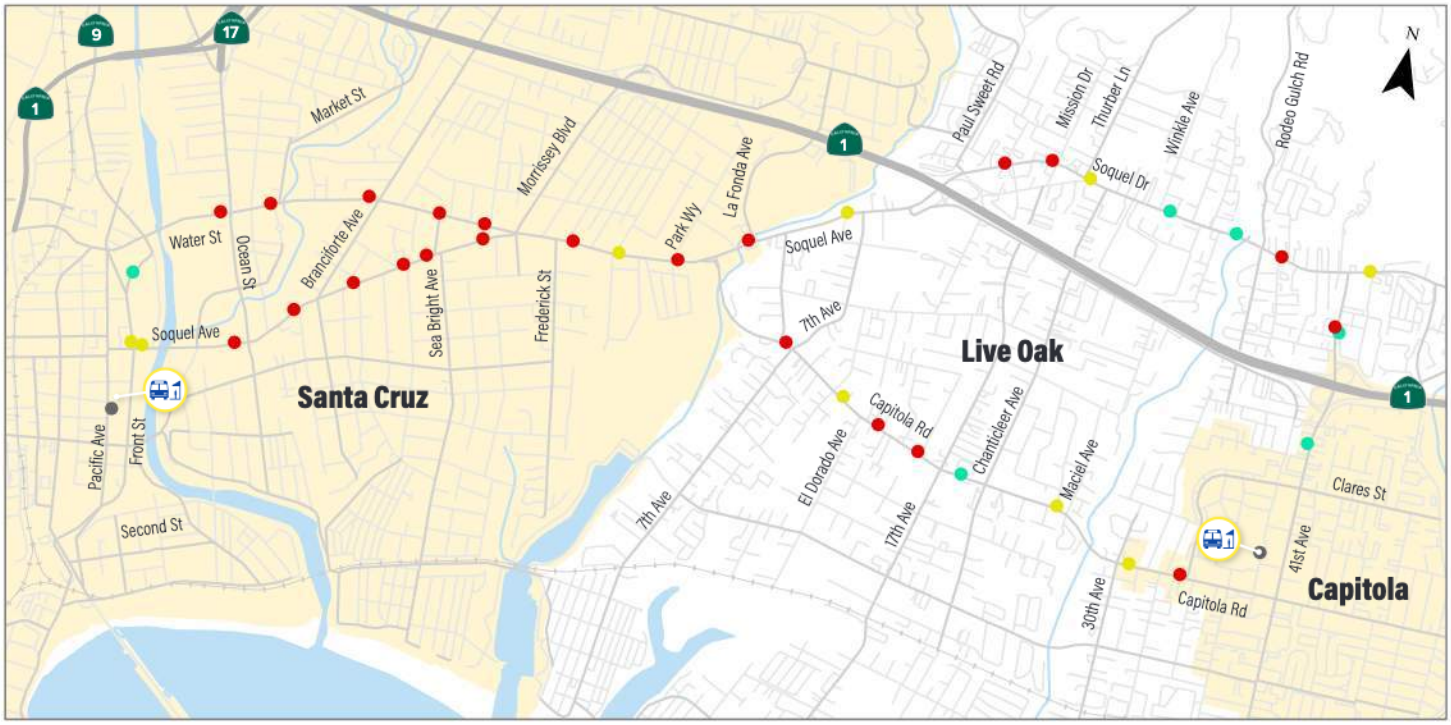
- **The existing bus stops on the Project routes lack safe nearby crossings and amenities.** 42 percent of bus stops are not within 100 feet of a crosswalk. About half of the bus stops are either located mid-block or near-side of an intersection, resulting in a less than optimal configuration for access and safety. Less than a third of bus stops have a bus shelter, wayfinding information, trash can, pedestrian level lighting, pedestrian lighting, or bike racks.
- **Travel delays due to congestion on the corridor are high.** Average moving delay exceeds 15 minutes for all routes for at least one trip. There are several segments with degraded bus speeds, most notably around the Santa Cruz Transit Center, Capitola Mall, and Watsonville Transit Center.
- **Bus travel delays occur in both directions throughout the day.** While moving delays peak in the morning in the northbound direction during school start times, they are present in both directions from the morning peak through the afternoon peak. This means that buses that fall behind schedule often can't ever catch back up on schedule throughout the day.
- D**well times comprise a significant portion of total bus travel times.** Average dwell time, or time from when a bus arrives at a stop to when it leaves the stop, represents over 40 percent of the total travel time in both directions in the PM period on Line 71. While Lines 69A and 69W have lower dwell times, the time spent dwelling still consists of about one-third of the total travel time.
- **METRO bus operators who operate on the Project routes identified specific locations where they frequently experience delays due to infrastructure (signals and turn lanes) or other vehicles performing unsafe maneuvers.** They shared recommendations on ways that operations could be improved, including promoting the mobile SplashPass to allow for passengers to quickly board buses, and how more signage, transit information, and translated information would benefit riders who are confused with the system.

There are multiple transportation planning, design, and construction projects taking place along the Project corridor with the goal of improving mobility. These other related projects will affect circulation and congestion within the corridor and thus will affect both route performance and opportunities to further enhance transit service.

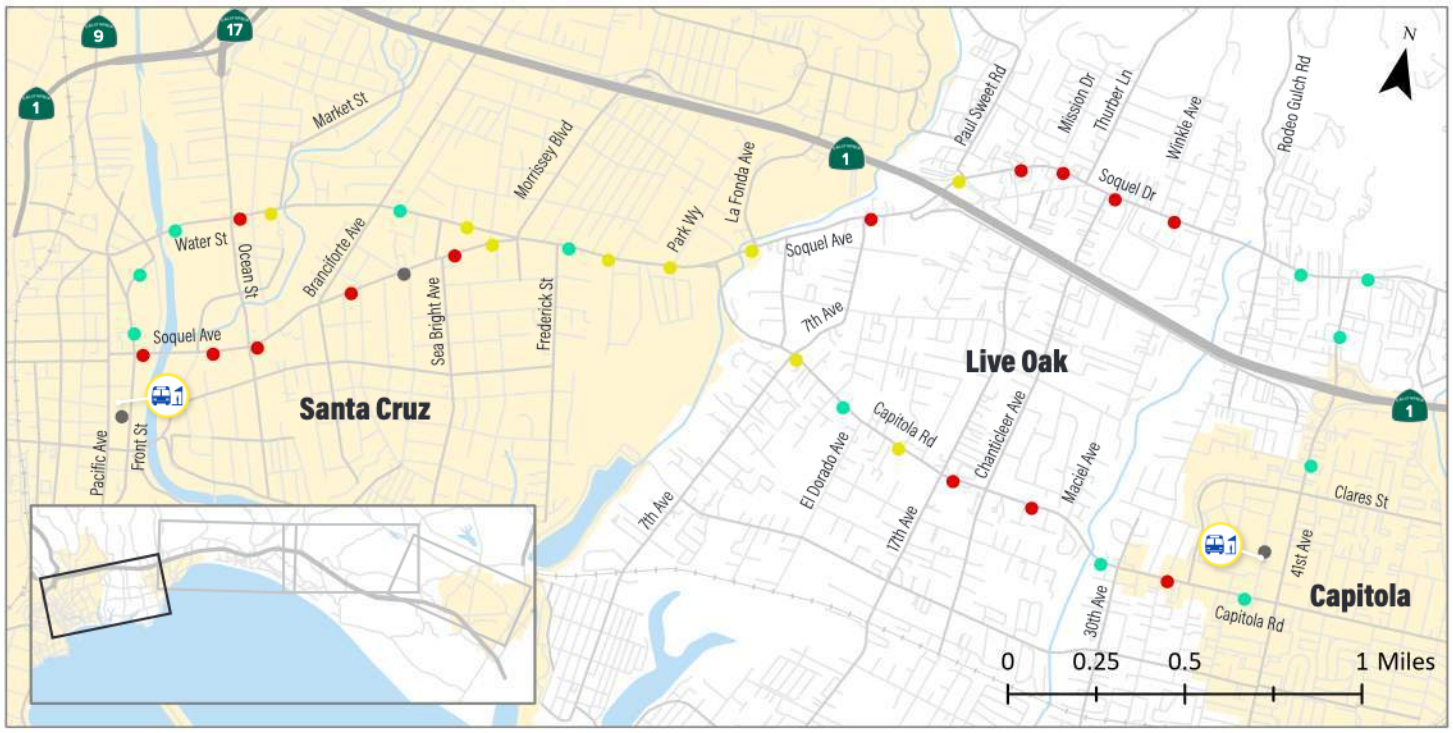
A range of both physical improvements and operational improvements can provide benefits to make transit more desirable for riders. The next phase of work will propose strategies to improve transit performance on the corridor.

APPENDIX A: BUS STOP MAPS

Figure 1A: Bus Stop Location - Santa Cruz to Capitola



Northbound



Southbound

Legend

City Limits

Transit Center

Bus Stop Location

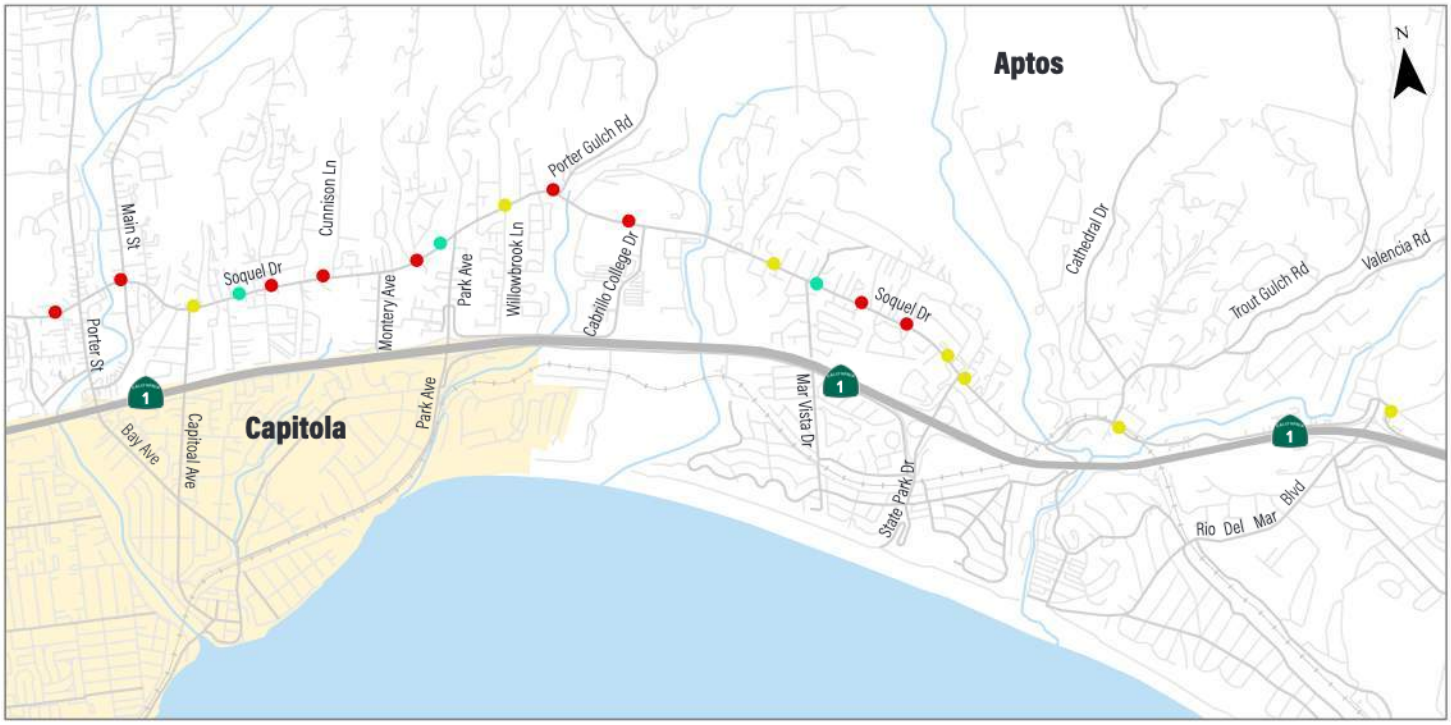
Far Side

Near Side

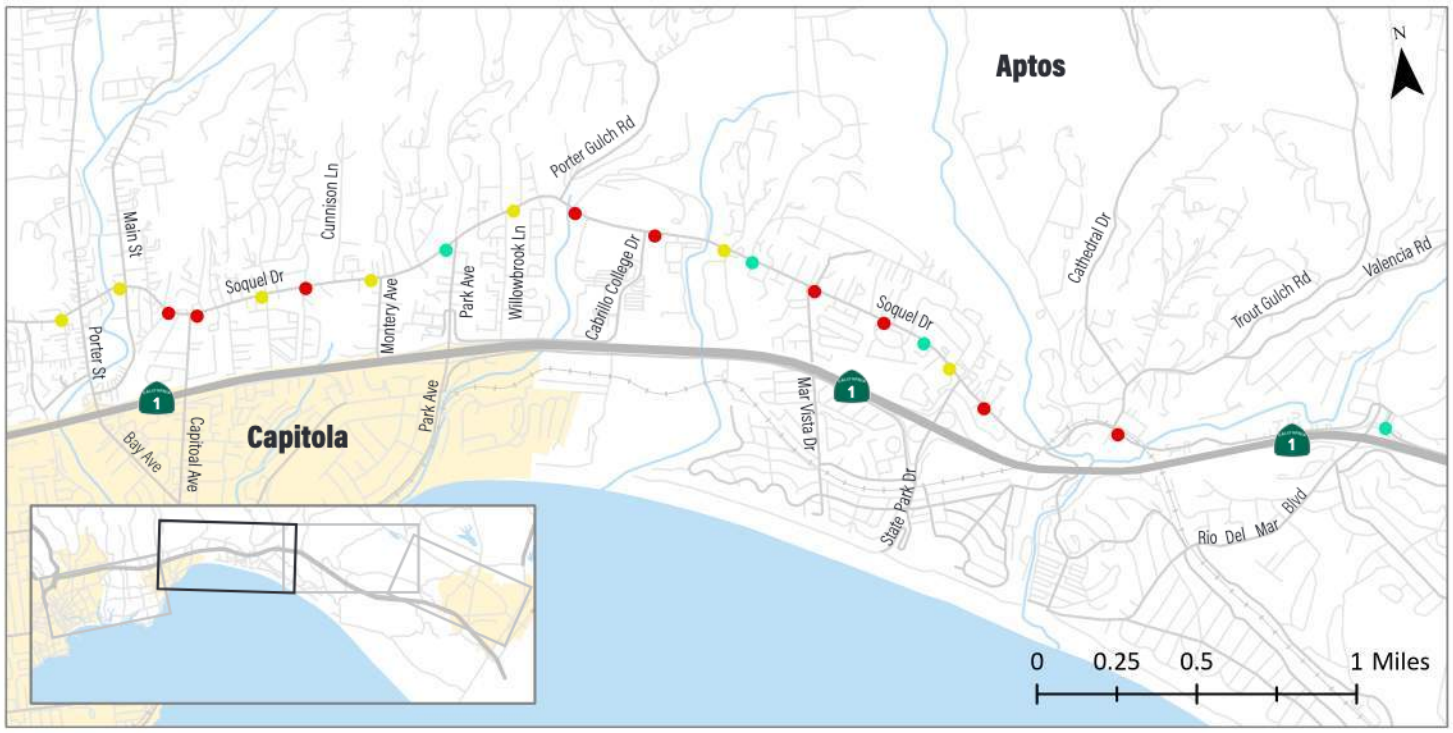
Mid-block

Other

Figure 1B: Bus Stop Location - Capitola to Aptos

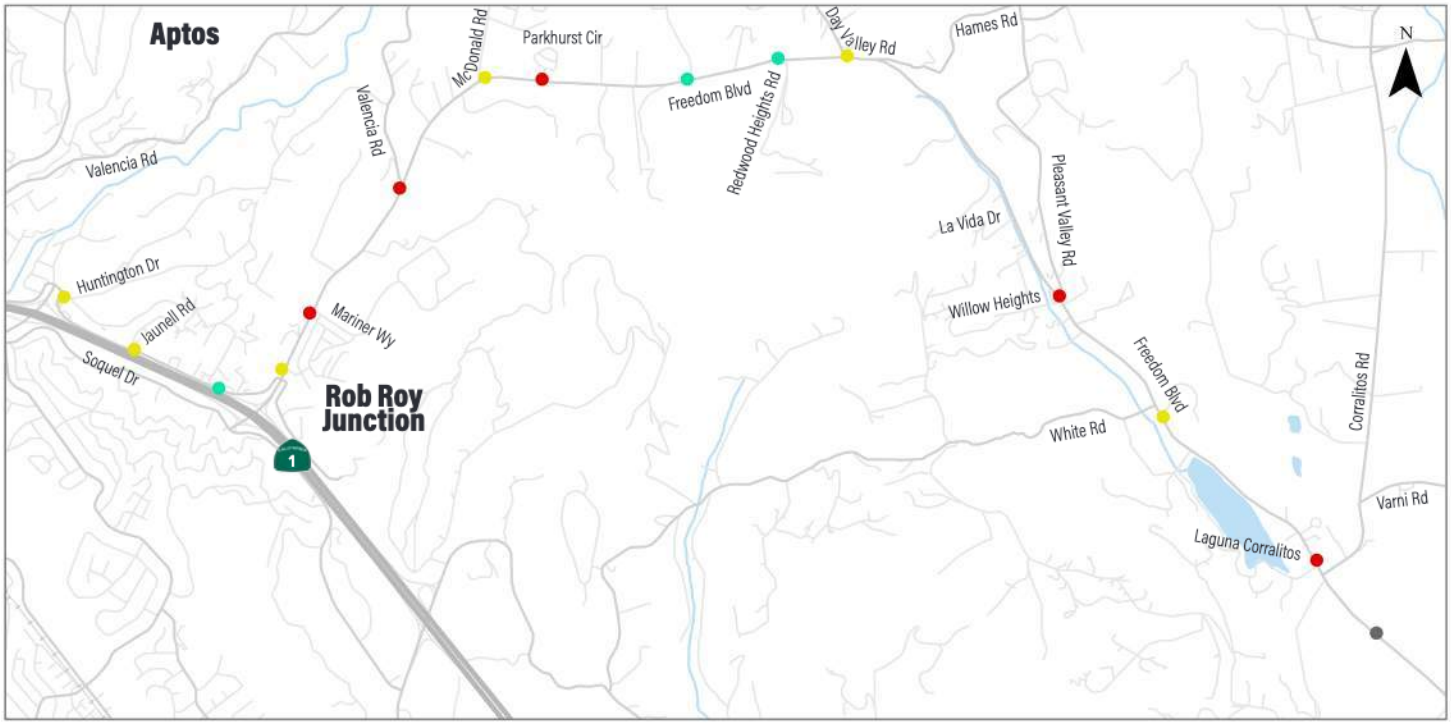


Northbound

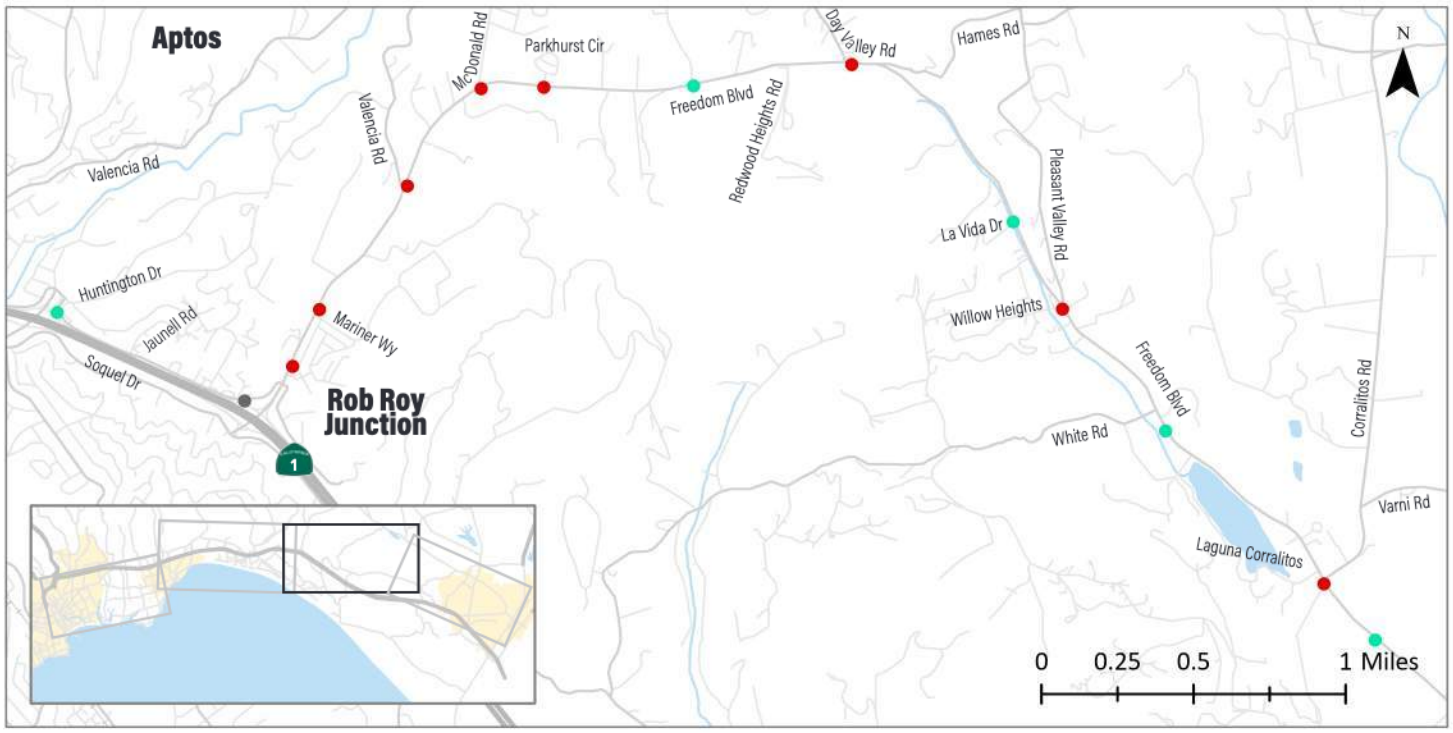


Southbound

Figure 1C: Bus Stop Location - Aptos to Freedom



Northbound



Southbound

Legend

City Limits

Transit Center

Bus Stop Location

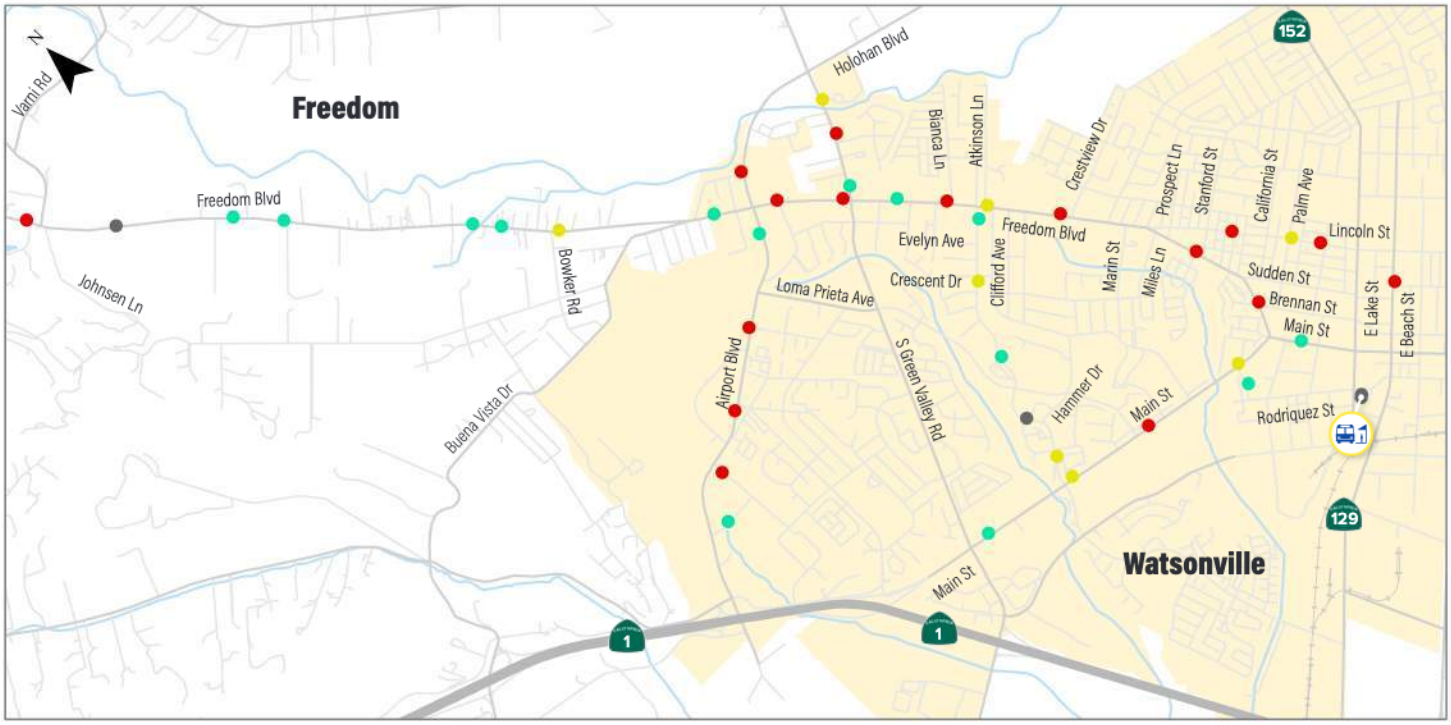
Far Side

Near Side

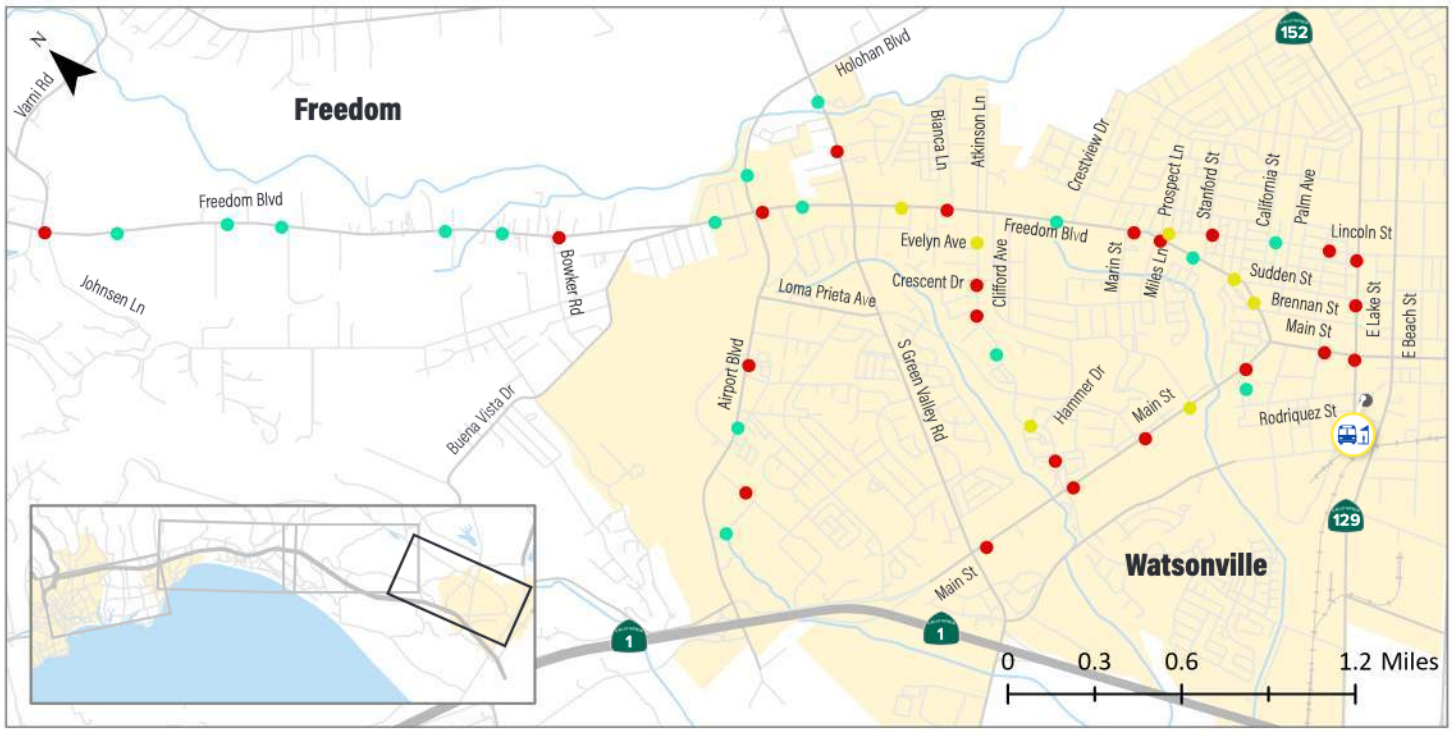
Mid-block

Other

Figure 1D: Bus Stop Location - Freedom to Watsonville



Northbound



Southbound

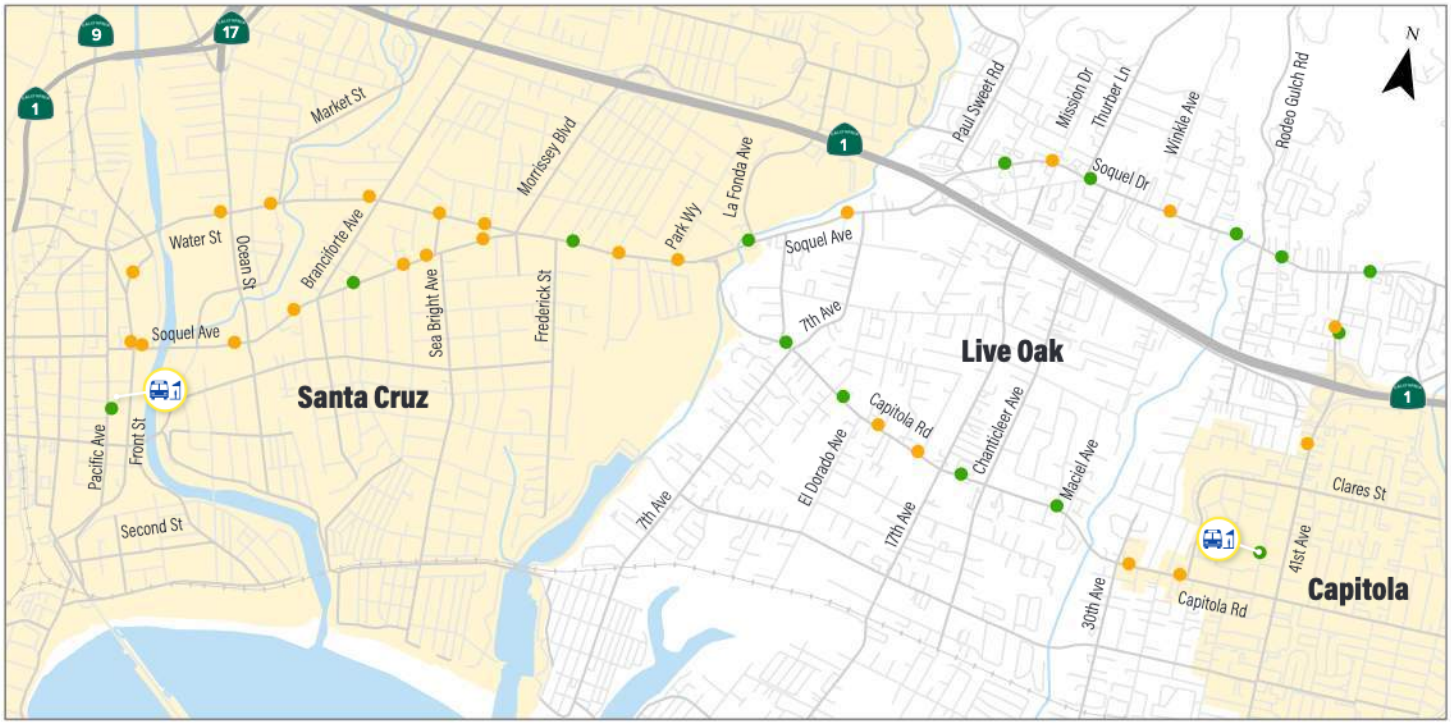
Legend

- City Limits
- Transit Center

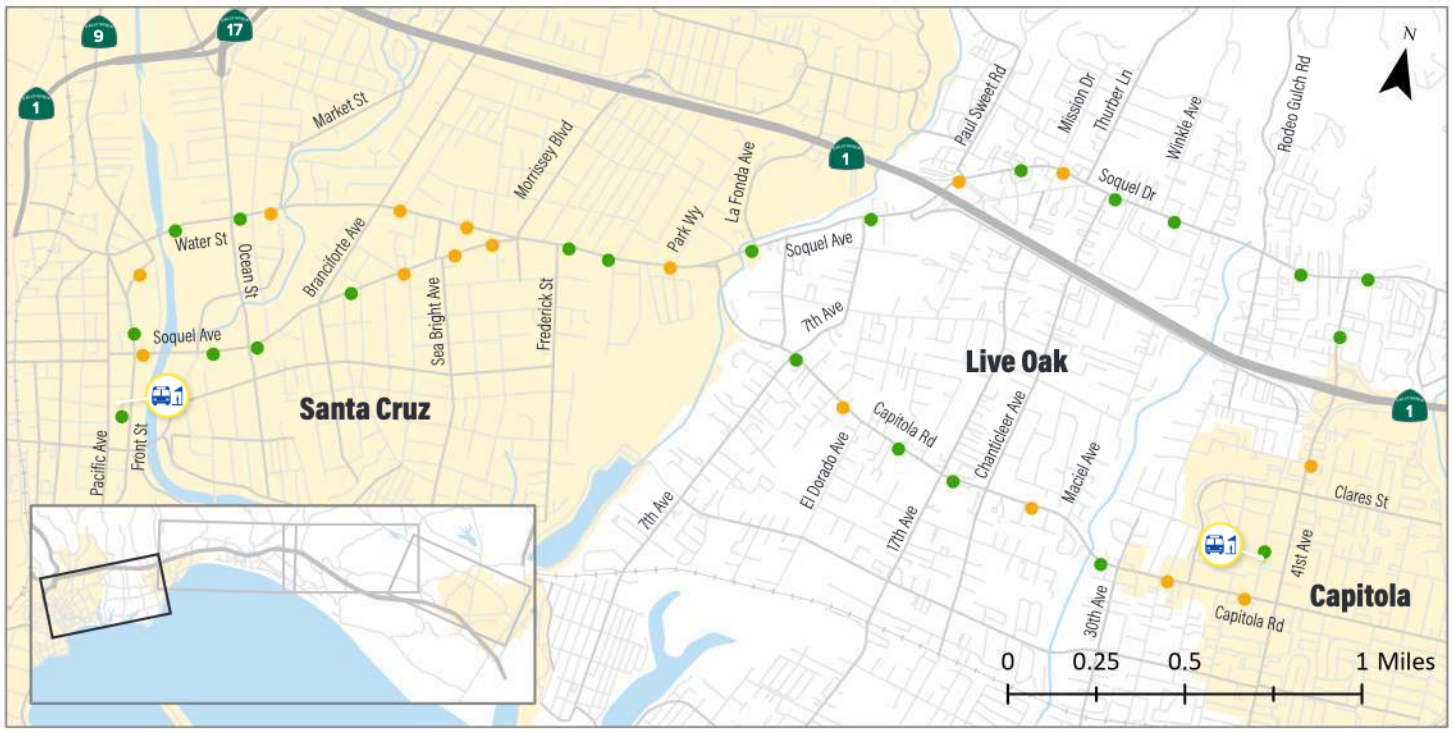
Bus Stop Location

- Far Side
- Near Side
- Mid-block
- Other

Figure 1A: Bus Stop Shelters - Santa Cruz to Capitola



Northbound

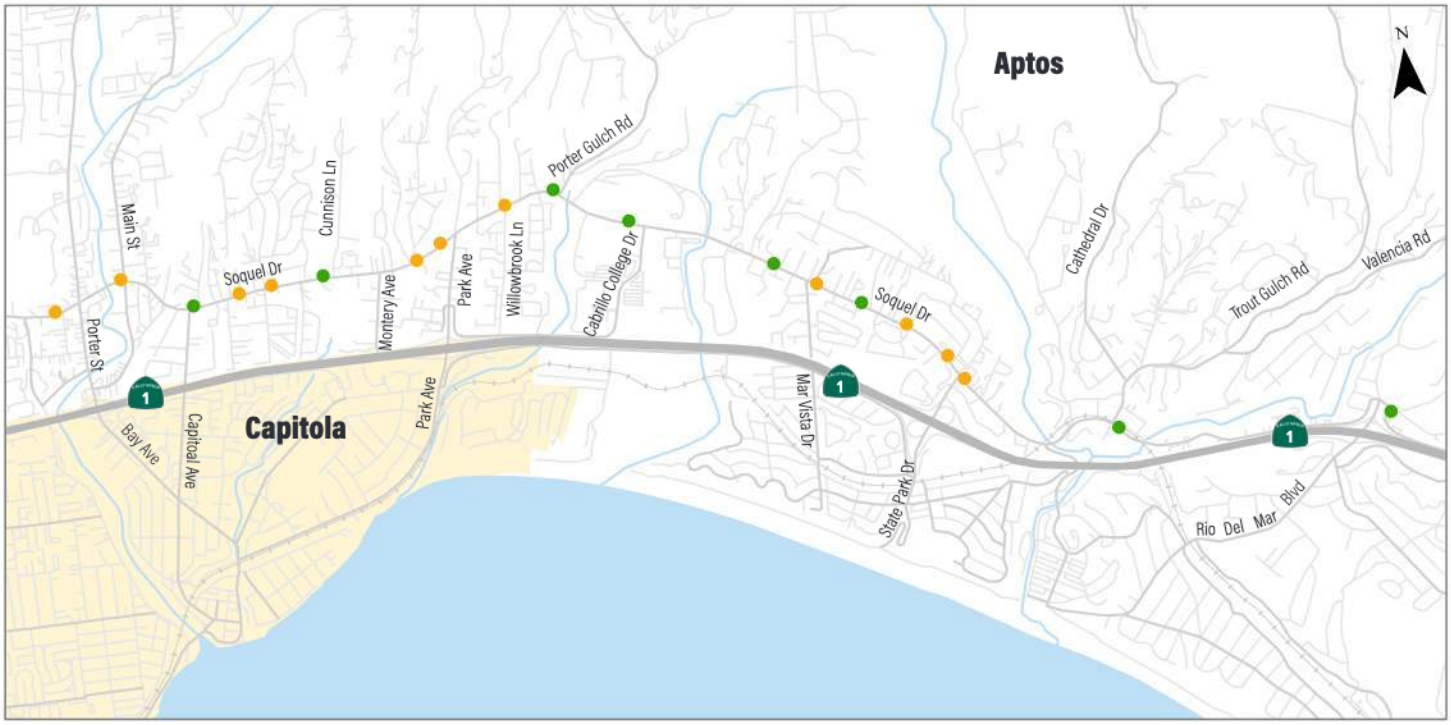


Southbound

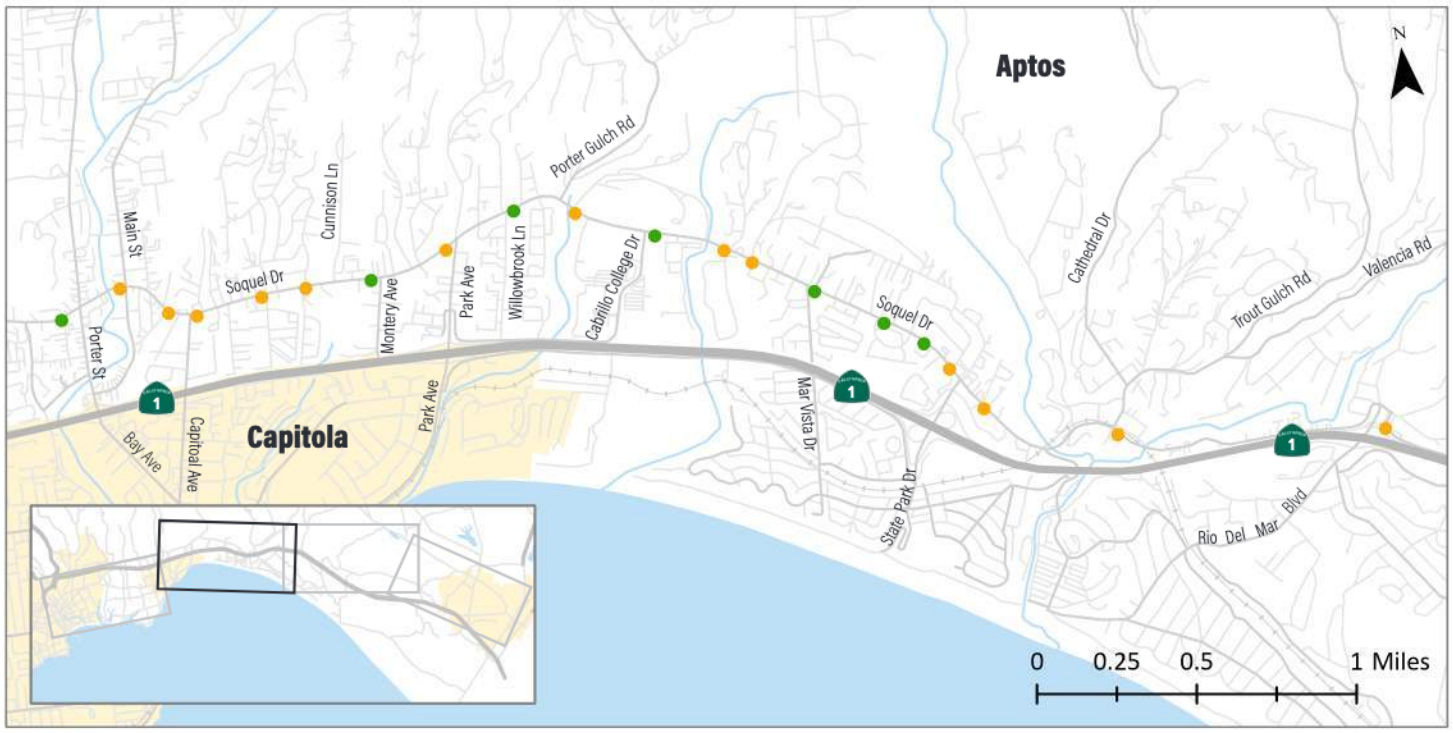
Legend

- City Limits
- Transit Center
- Sheltered Stops
- Stops without Shelters

Figure 1B: Bus Stop Shelters - Capitola to Aptos

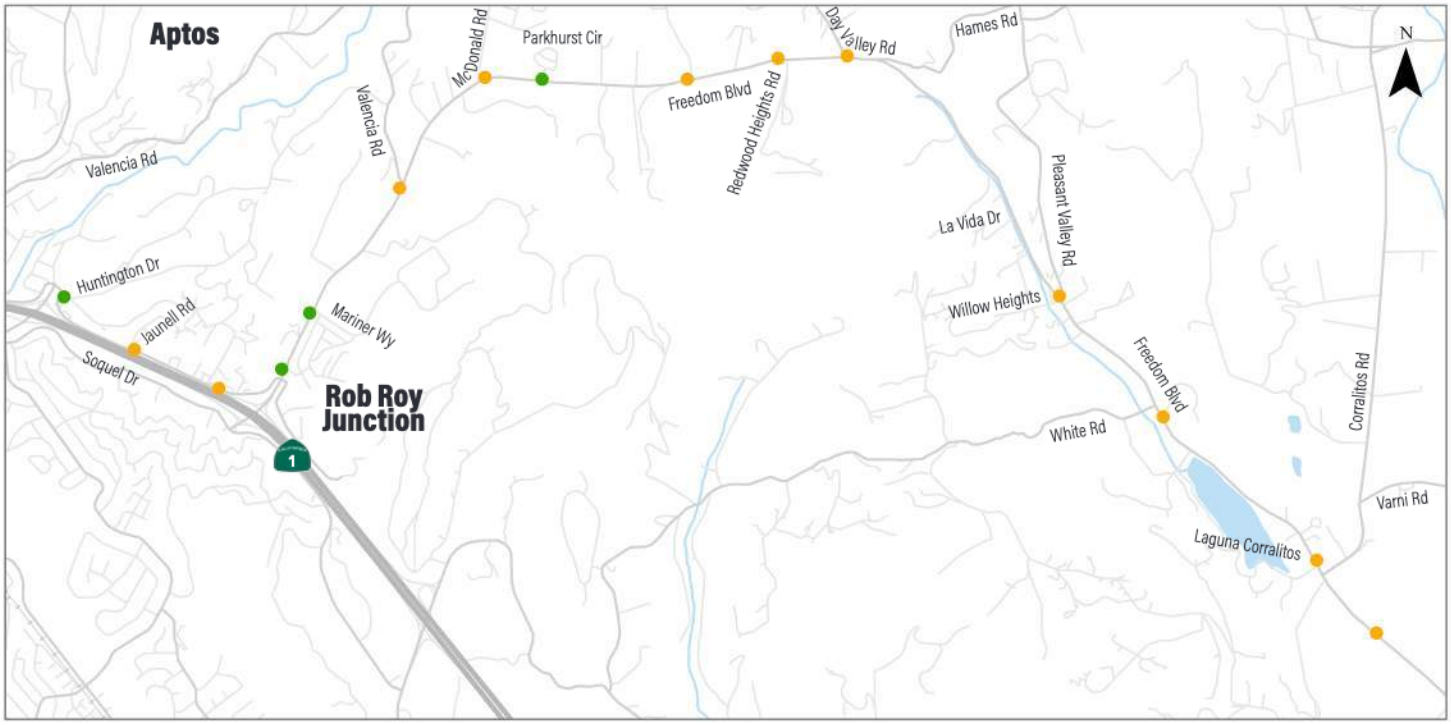


Northbound

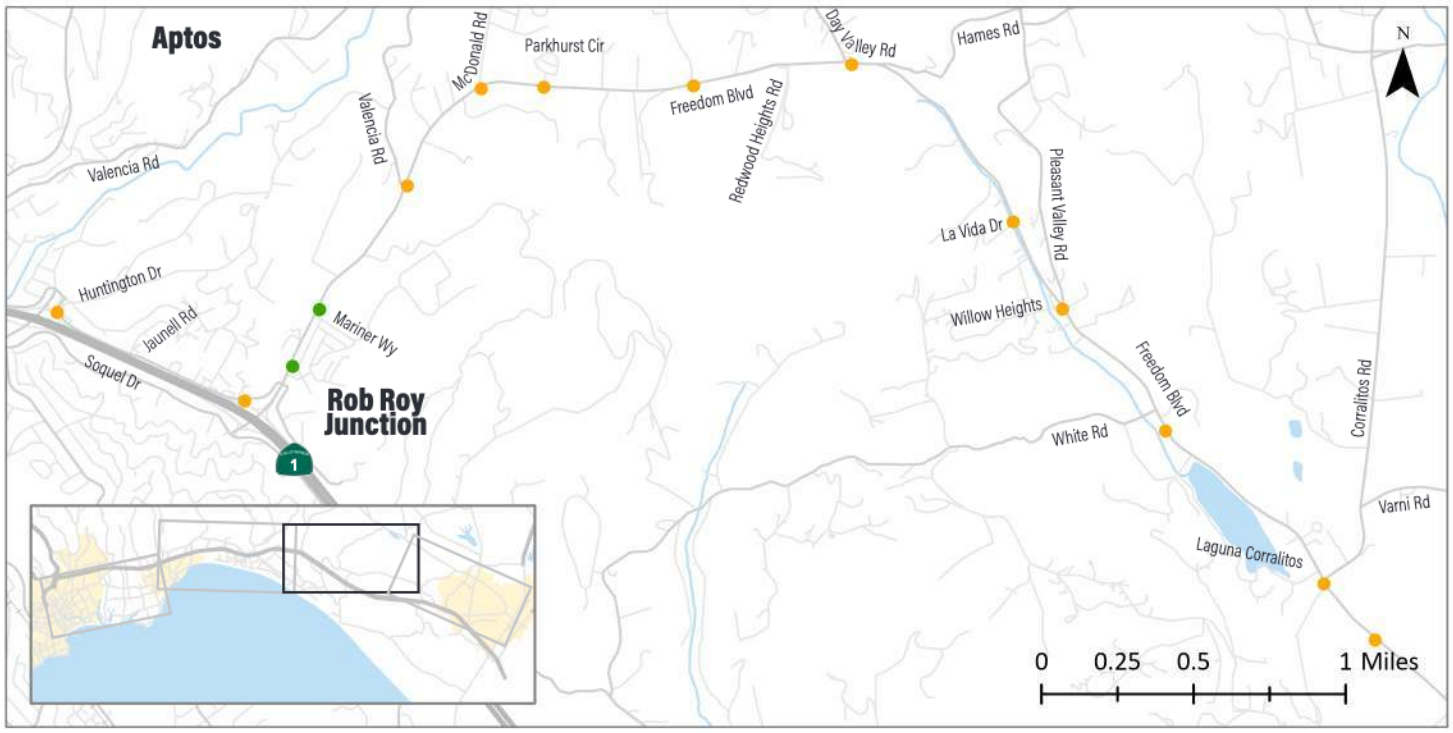


Southbound

Figure 1C: Bus Stop Shelters - Aptos to Freedom

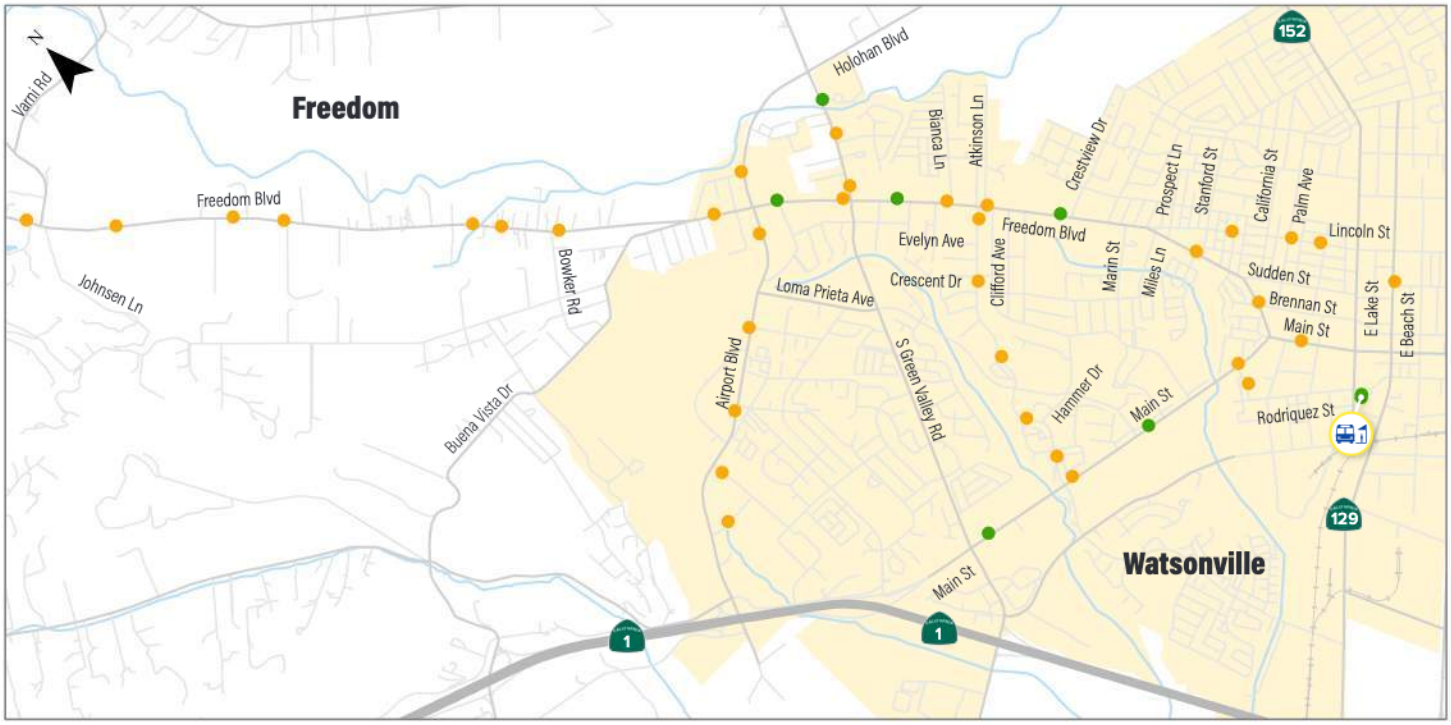


Northbound

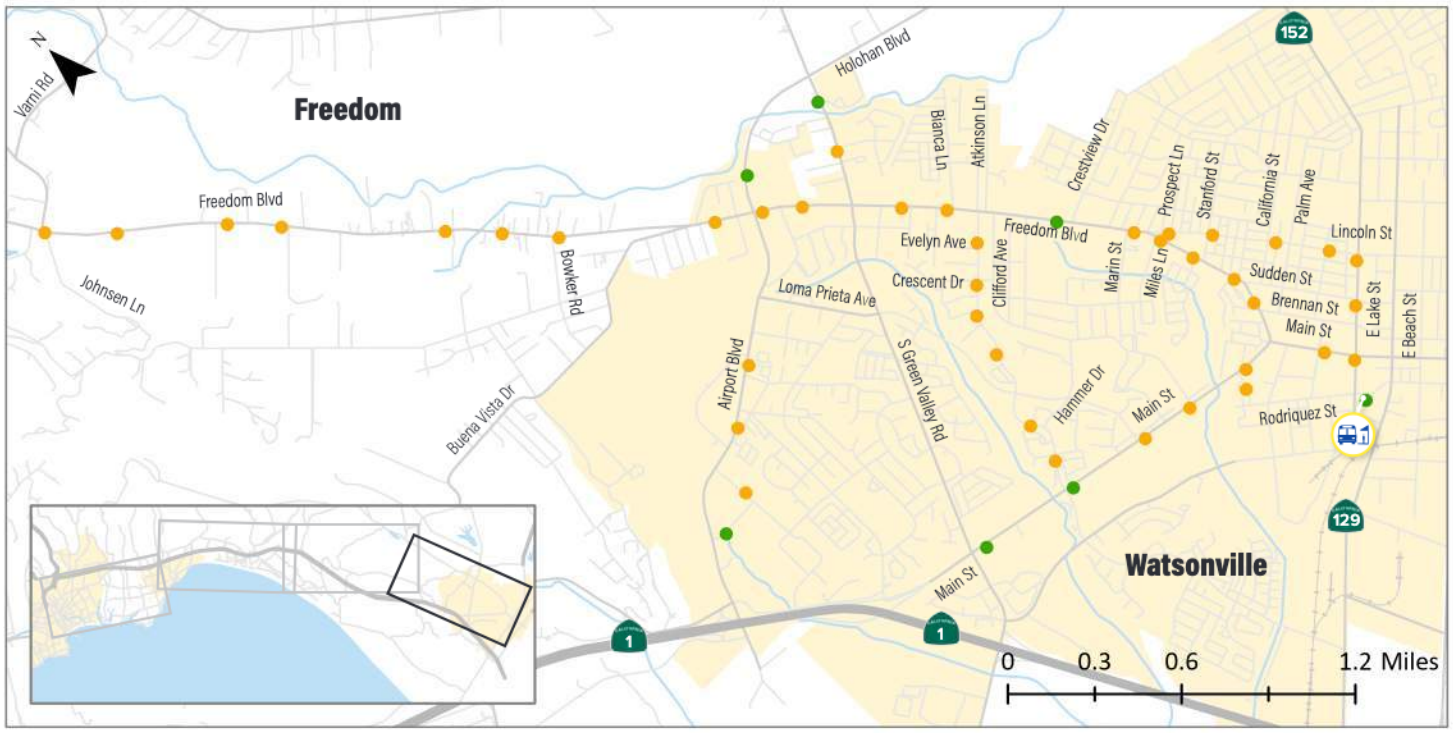


Southbound

Figure 1D: Bus Stop Shelters - Freedom to Watsonville



Northbound

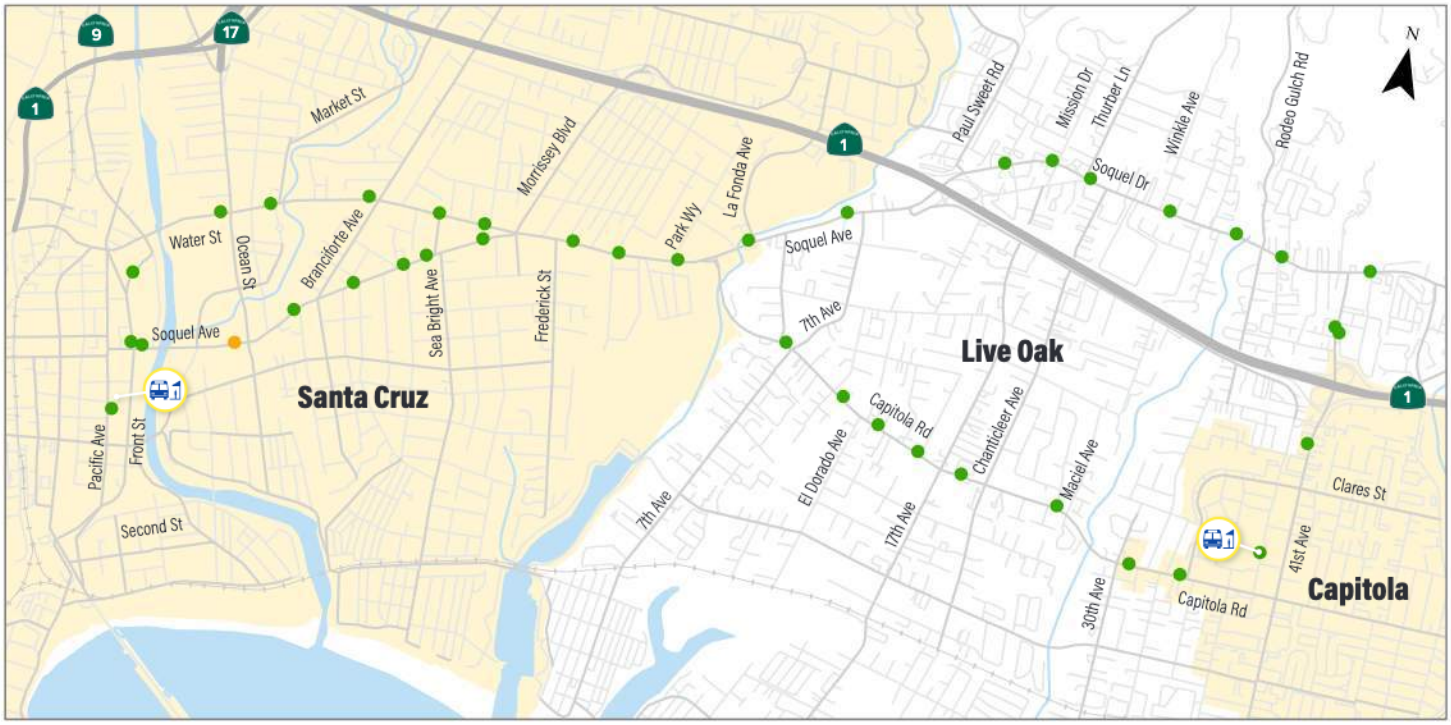


Southbound

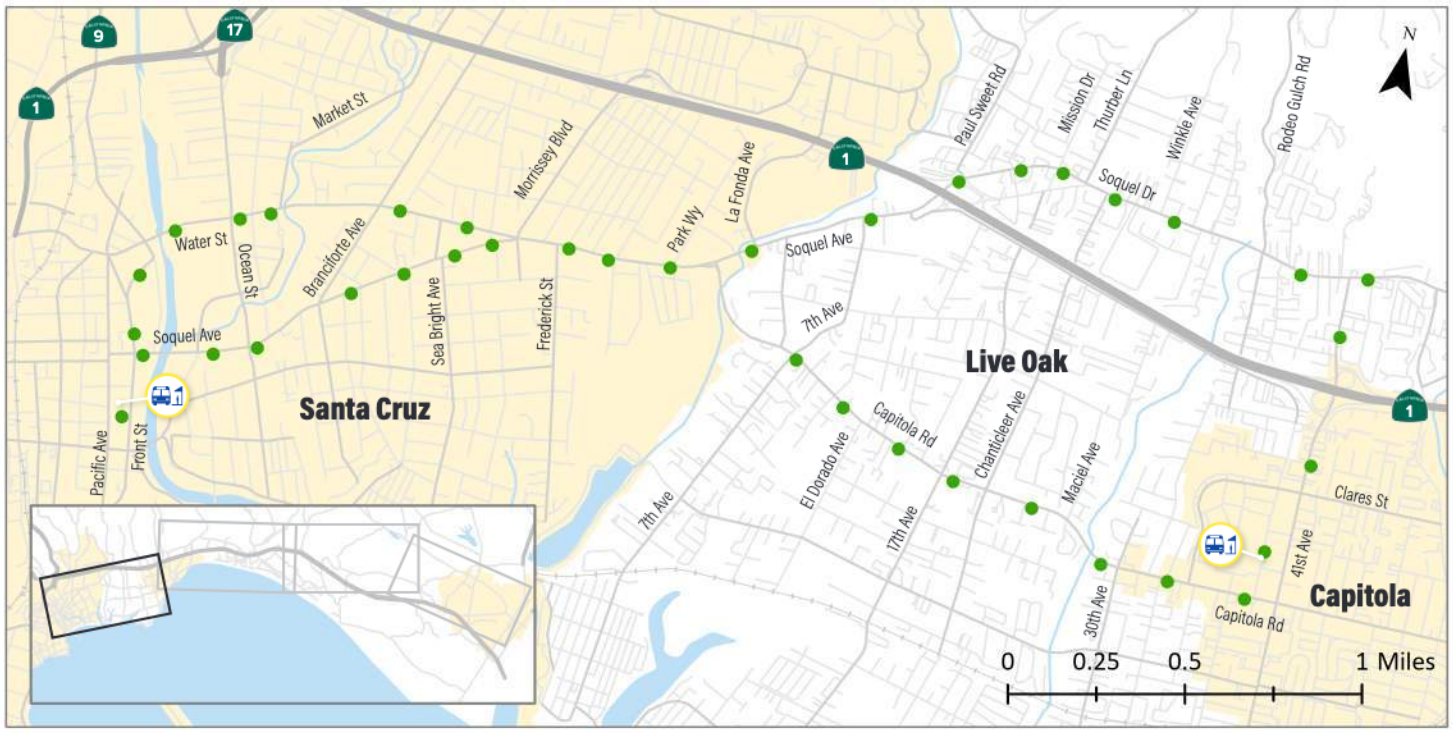
Legend

- City Limits
- Transit Center
- Sheltered Stops
- Stops without Shelters

Figure 1A: Continuous Sidewalk Near Bus Stop - Santa Cruz to Capitola



Northbound

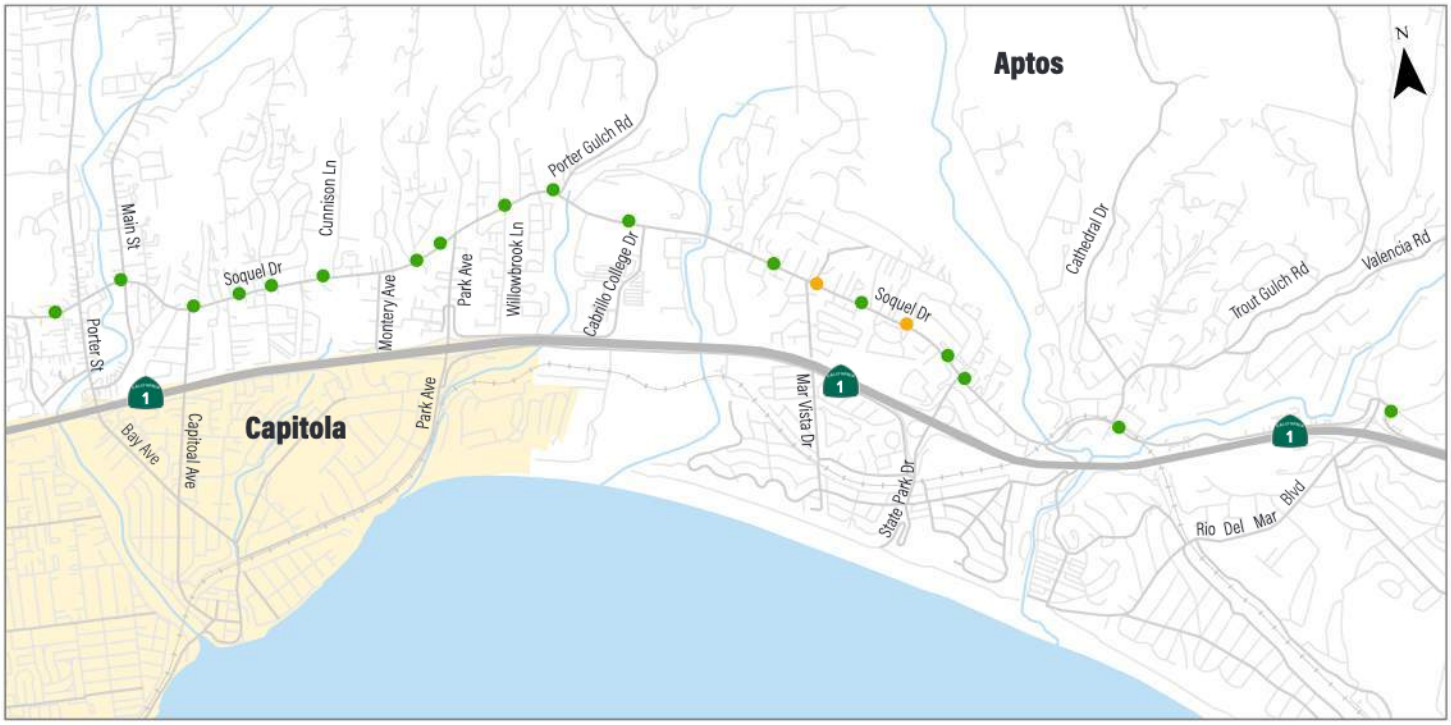


Southbound

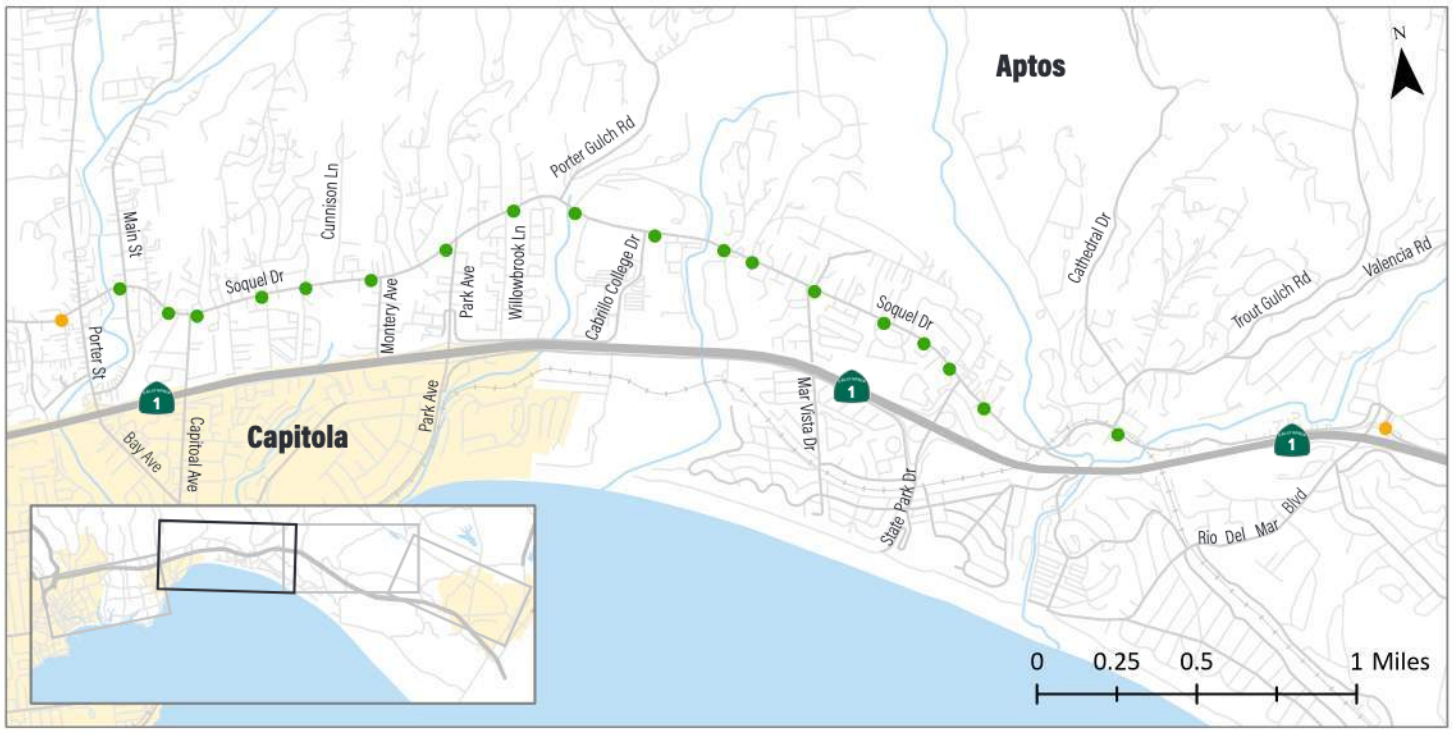
Legend

- City Limits
- Transit Center
- Continuous Sidewalk Between Bus Stop and Nearest Crosswalk
- Noncontinuous Sidewalk Between Bus Stop and Nearest Crosswalk

Figure 1B: Continuous Sidewalk Near Bus Stop - Capitola to Aptos



Northbound

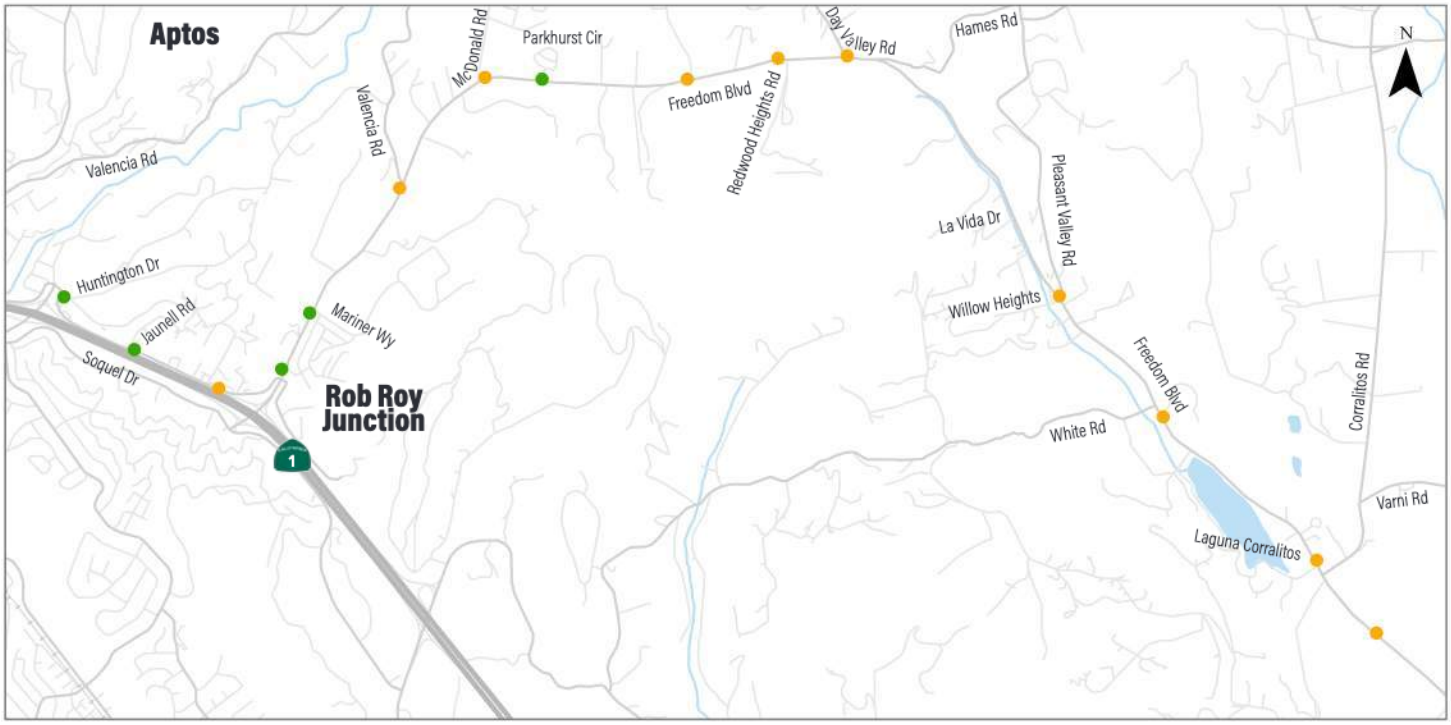


Southbound

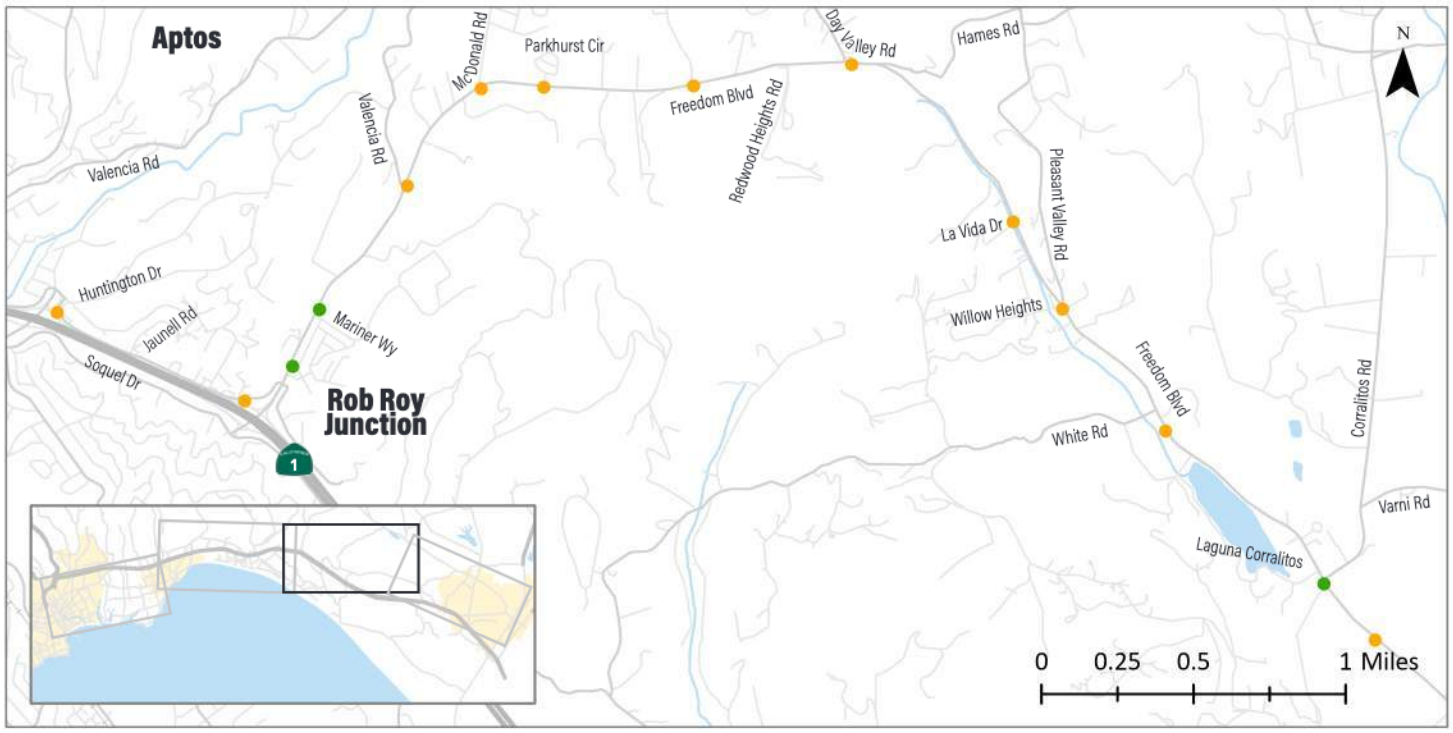
Legend

- City Limits
- Transit Center
- Continuous Sidewalk Between Bus Stop and Nearest Crosswalk
- Noncontinuous Sidewalk Between Bus Stop and Nearest Crosswalk

Figure 1C: Continuous Sidewalk Near Bus Stop - Aptos to Freedom



Northbound

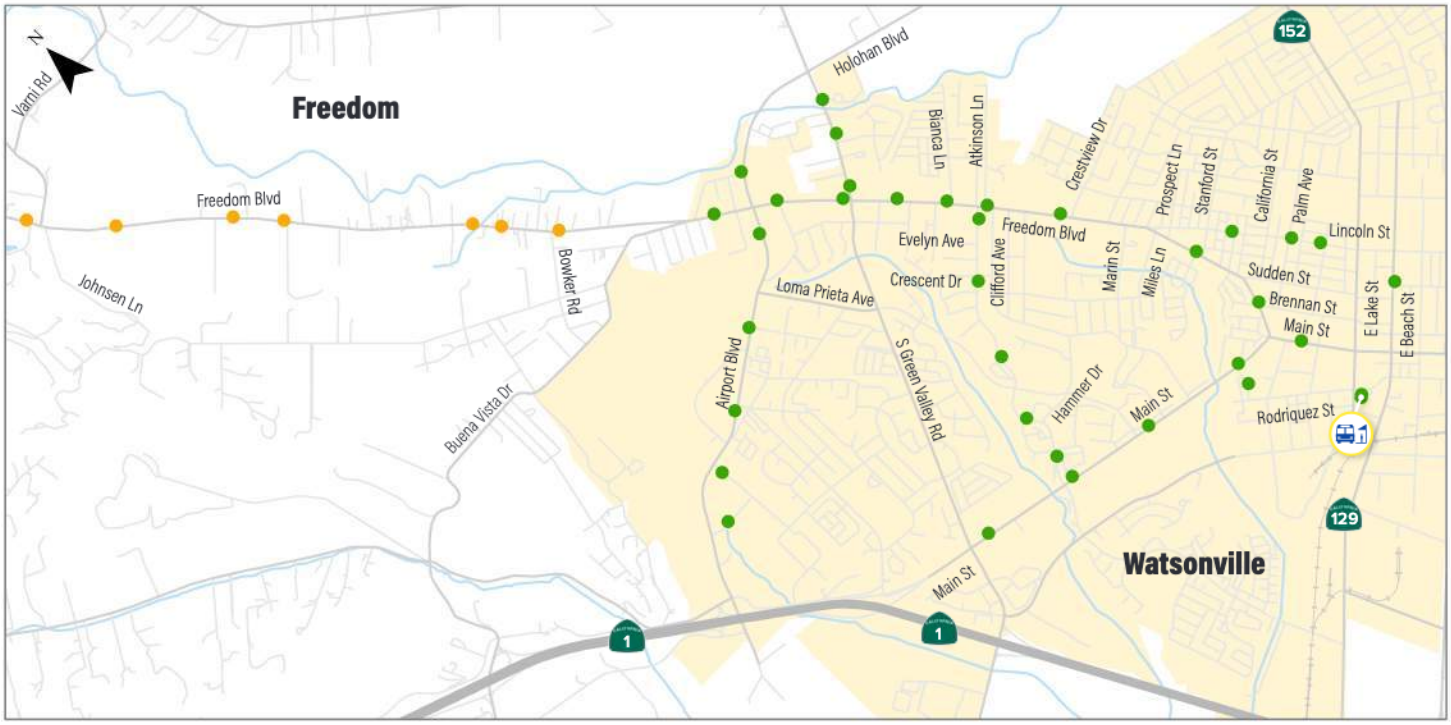


Southbound

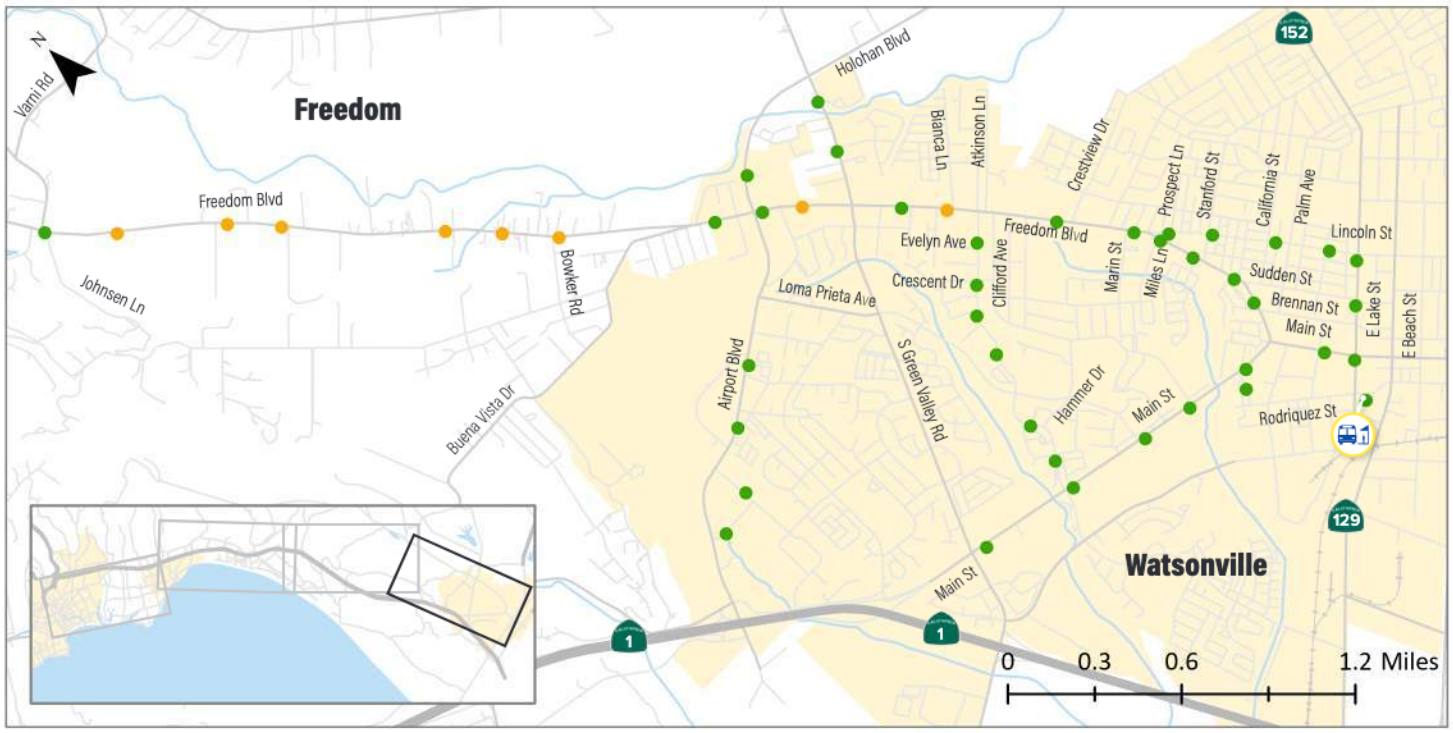
Legend

- City Limits
- Transit Center
- Continuous Sidewalk Between Bus Stop and Nearest Crosswalk
- Noncontinuous Sidewalk Between Bus Stop and Nearest Crosswalk

Figure 1D: Continuous Sidewalk Near Bus Stop - Freedom to Watsonville



Northbound

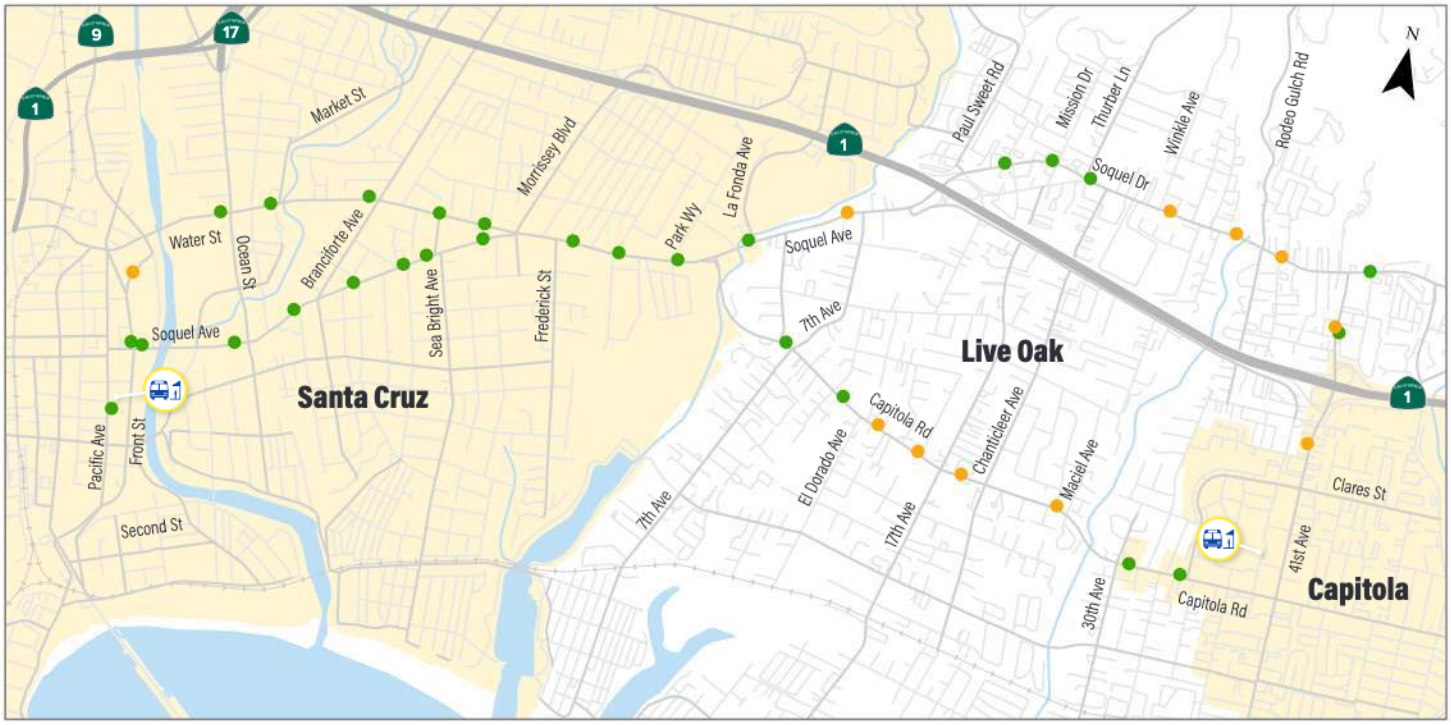


Southbound

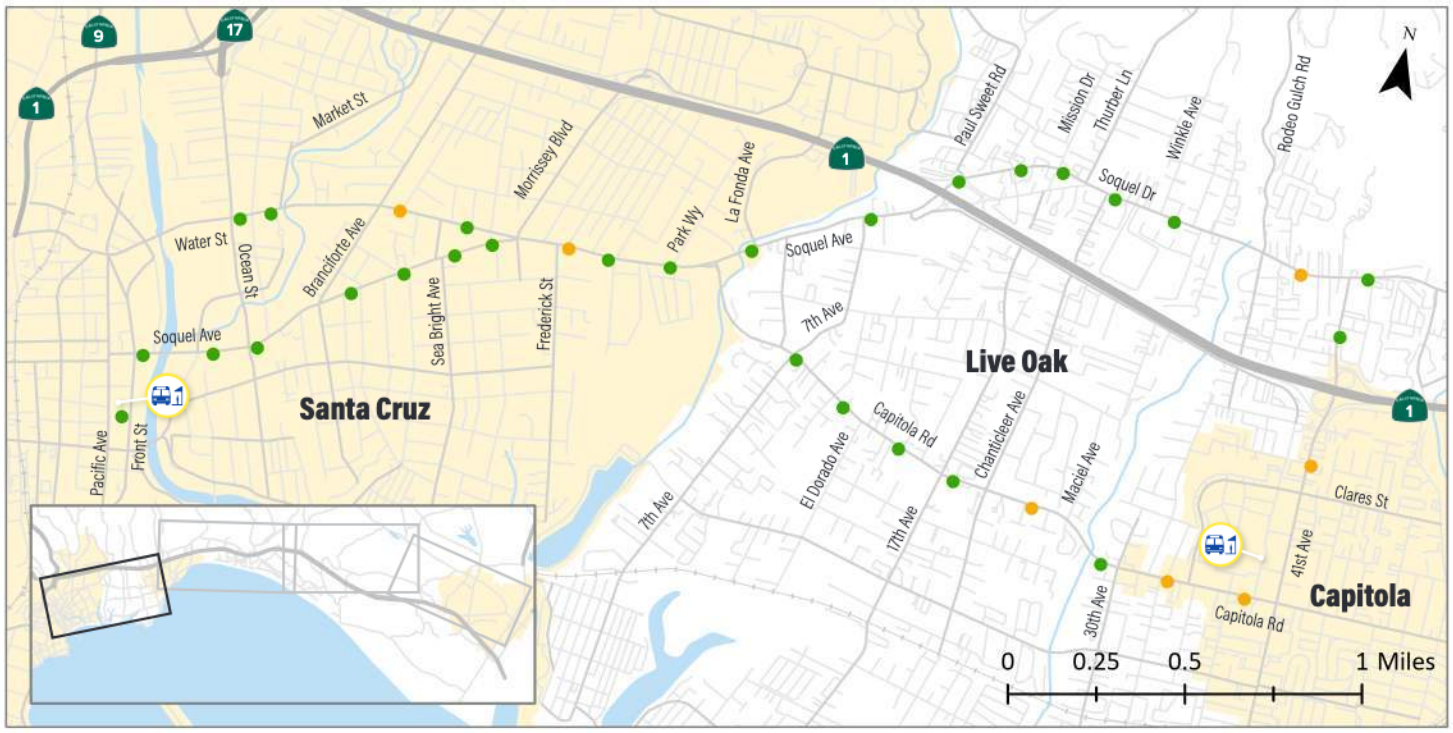
Legend

- City Limits
- Transit Center
- Continuous Sidewalk Between Bus Stop and Nearest Crosswalk
- Noncontinuous Sidewalk Between Bus Stop and Nearest Crosswalk

Figure 1A: Bus Stop Near Crosswalk - Santa Cruz to Capitola



Northbound

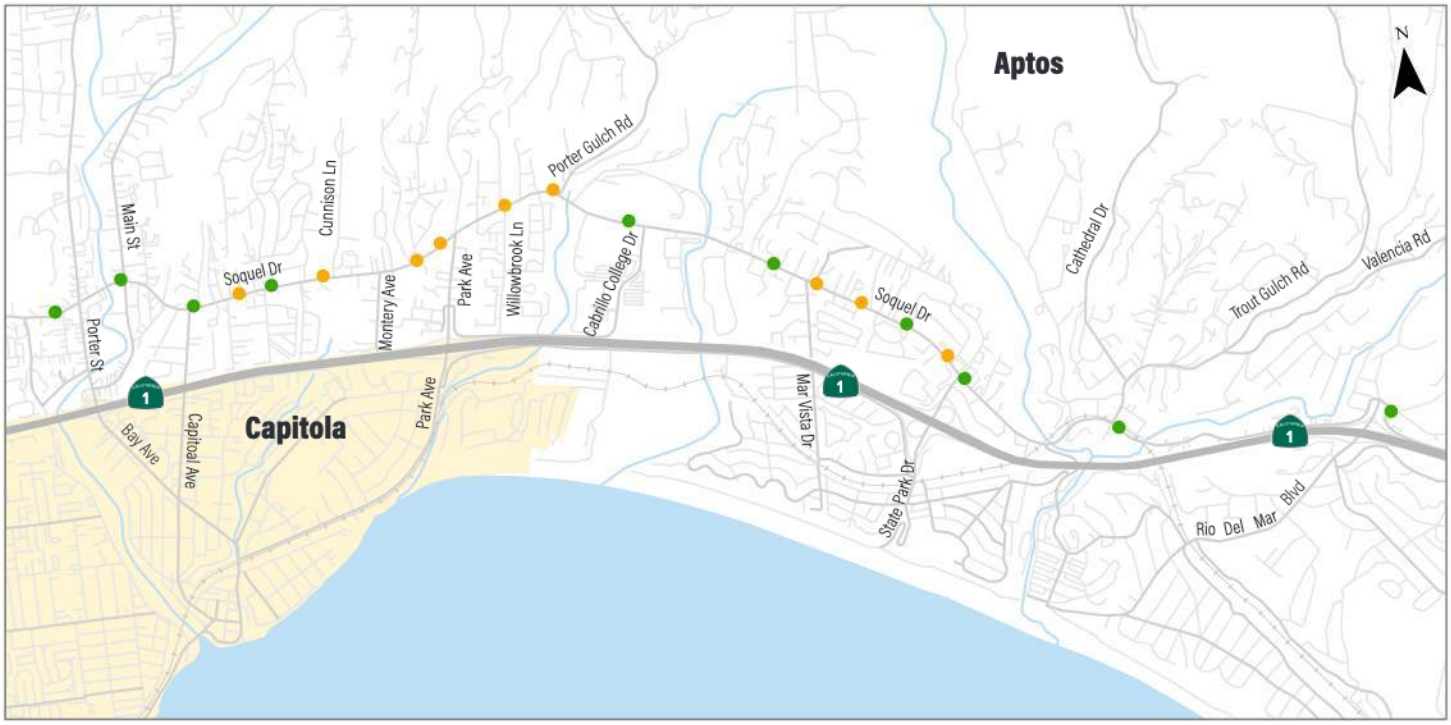


Southbound

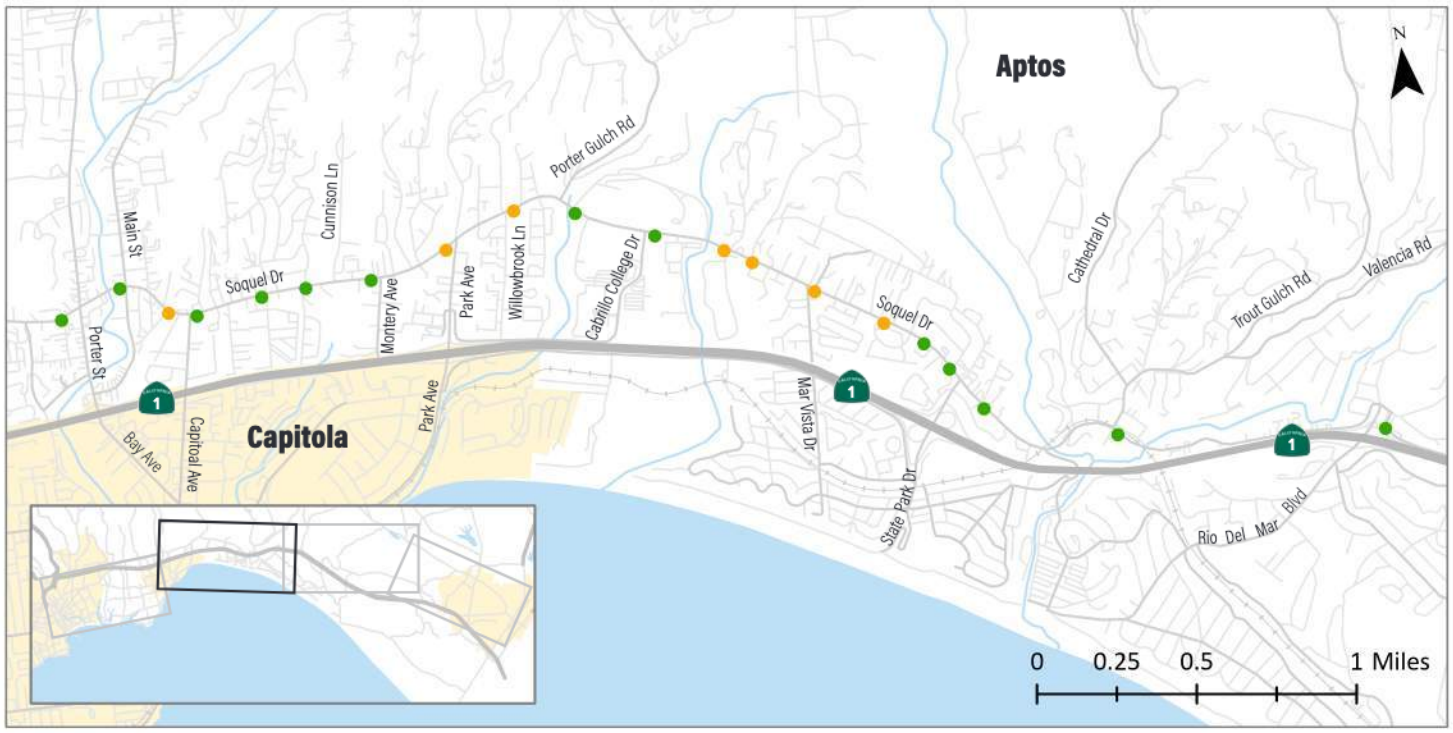
Legend

- City Limits
- Transit Center
- Stop is Within 100' of an Existing Crosswalk
- Stop is Not Within 100' of an Existing Crosswalk

Figure 1B: Bus Stop Near Crosswalk - Capitola to Aptos

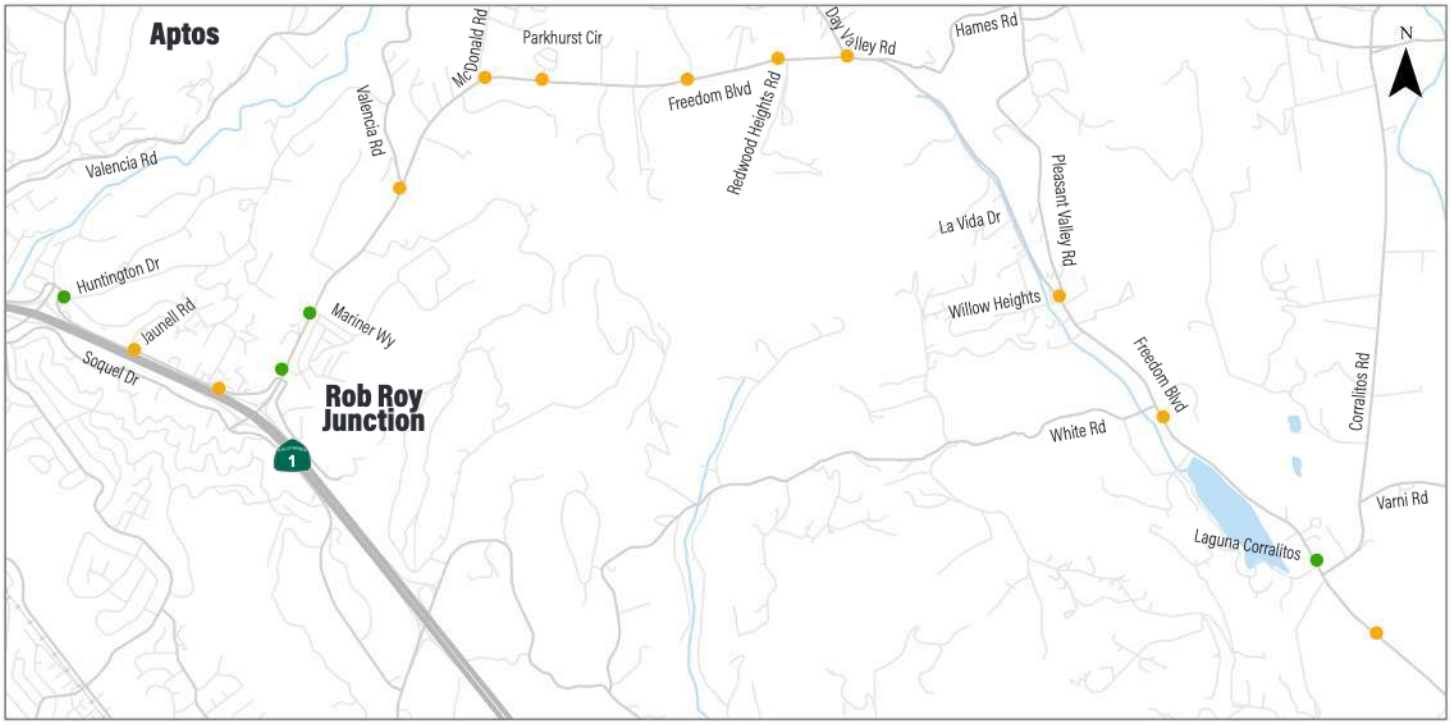


Northbound

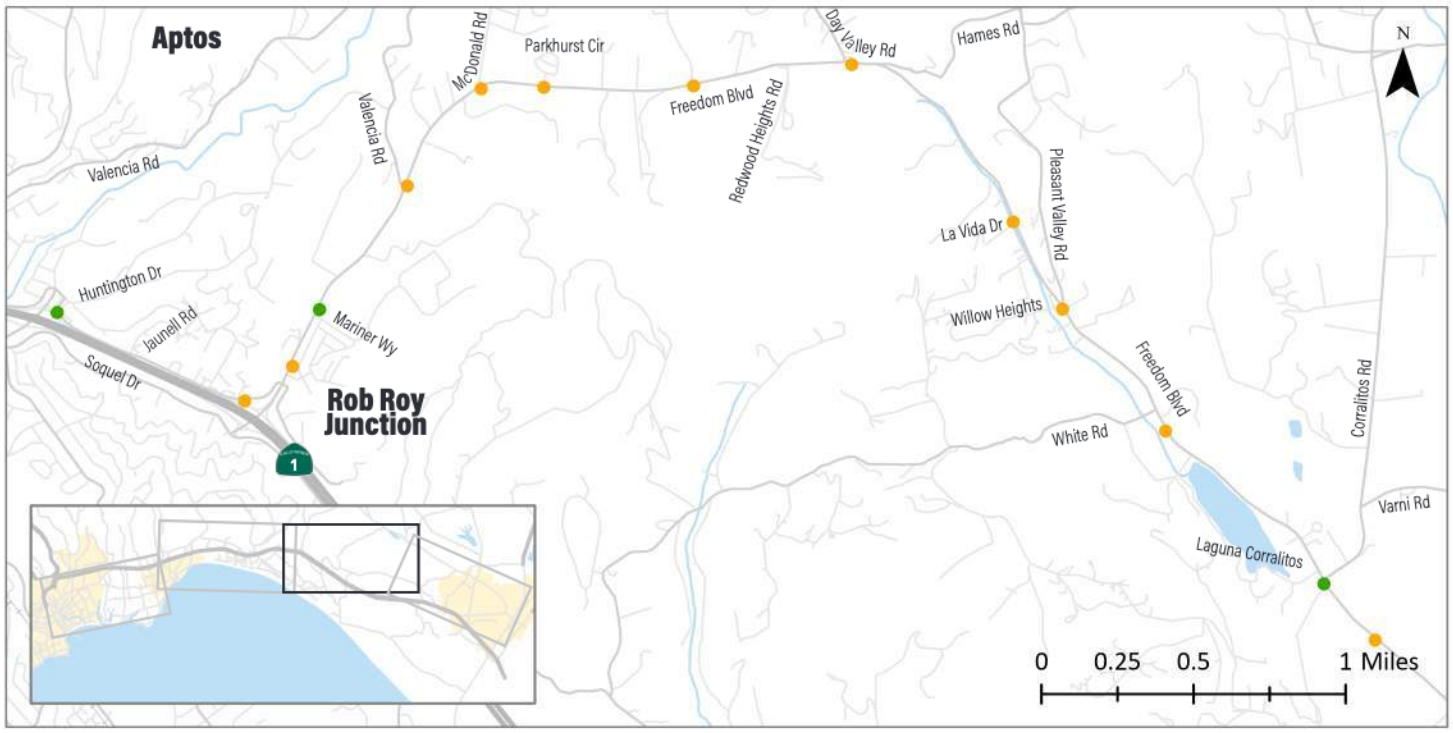


Southbound

Figure 1C: Bus Stop Near Crosswalk - Aptos to Freedom



Northbound

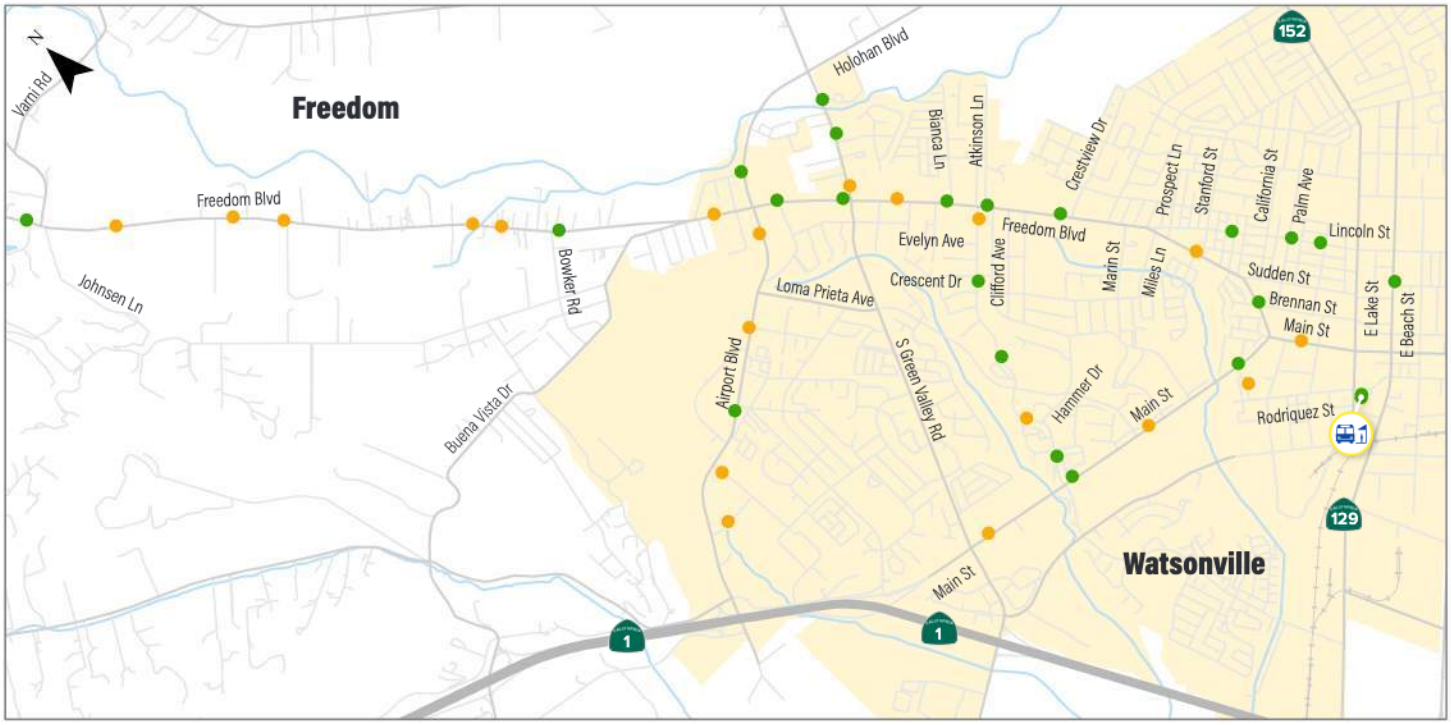


Southbound

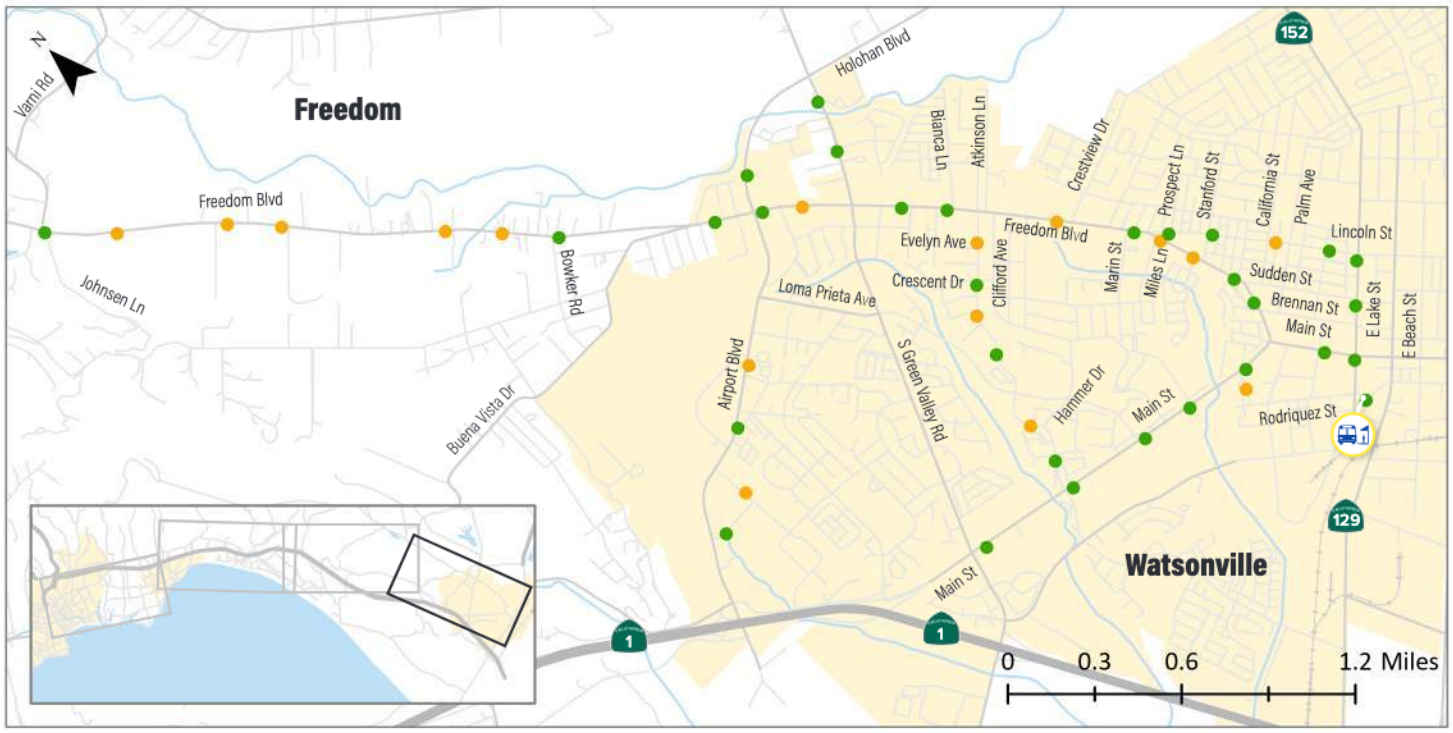
Legend

- City Limits
- Transit Center
- Stop is Within 100' of an Existing Crosswalk
- Stop is Not Within 100' of an Existing Crosswalk

Figure 1D: Bus Stop Near Crosswalk - Freedom to Watsonville



Northbound



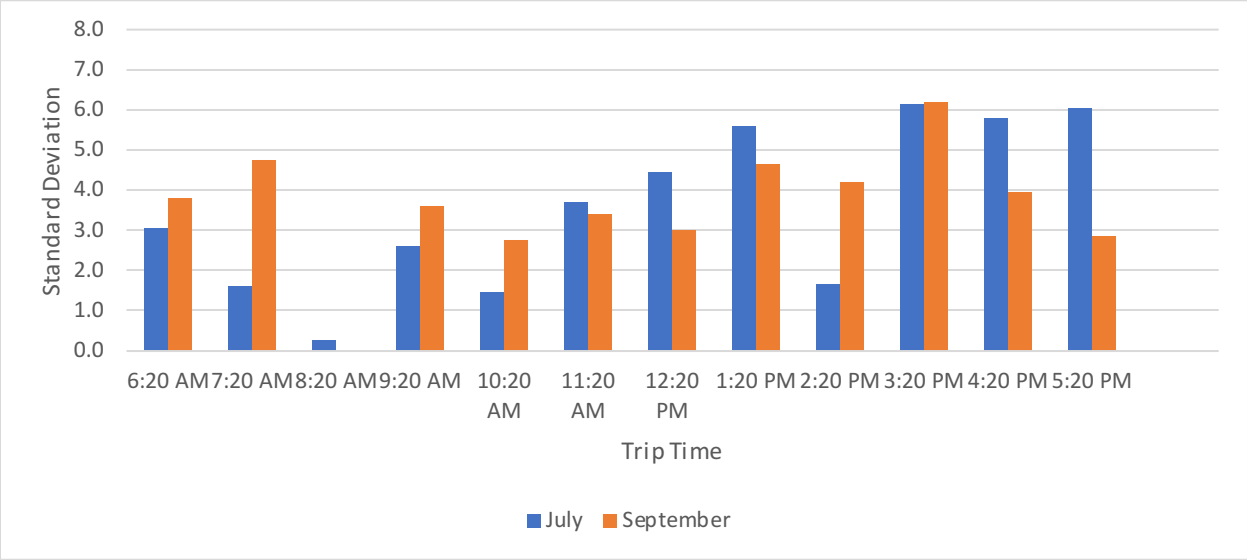
Southbound

Legend

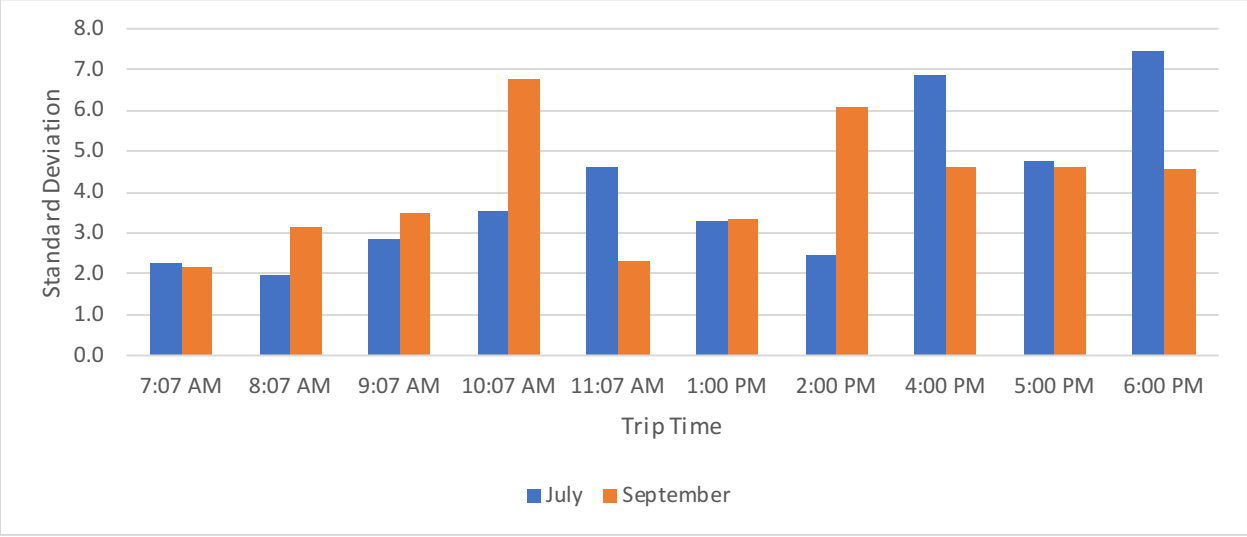
- City Limits
- Transit Center
- Stop is Within 100' of an Existing Crosswalk
- Stop is Not Within 100' of an Existing Crosswalk

APPENDIX B: TRAVEL TIME STANDARD DEVIATION CHARTS

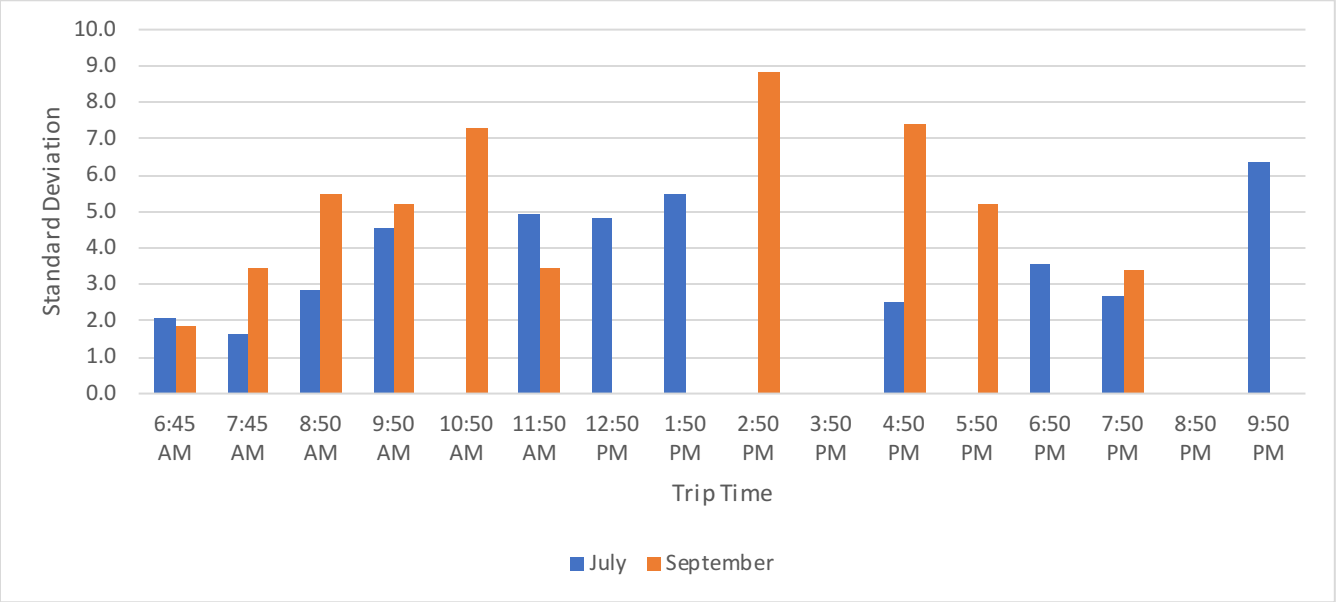
Line 69A Travel Time Standard Deviation - Northbound



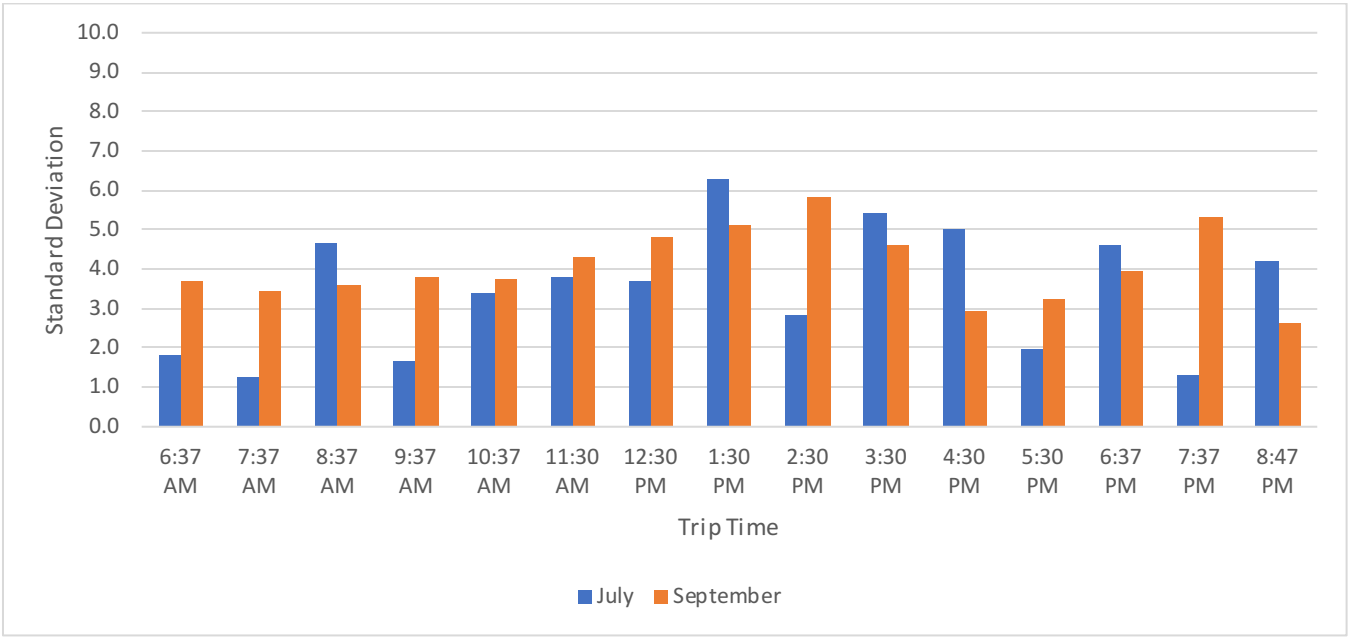
Line 69A Travel Time Standard Deviation – Southbound



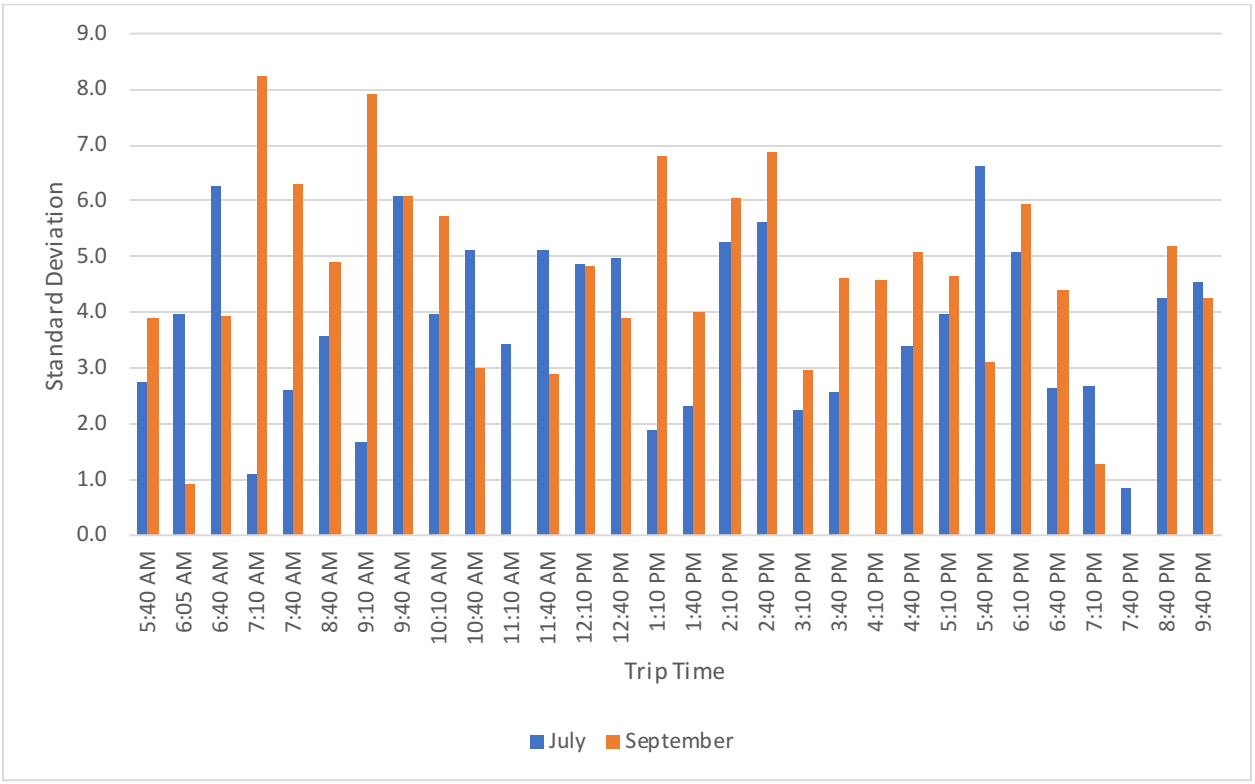
Line 69W Travel Time Standard Deviation - Northbound



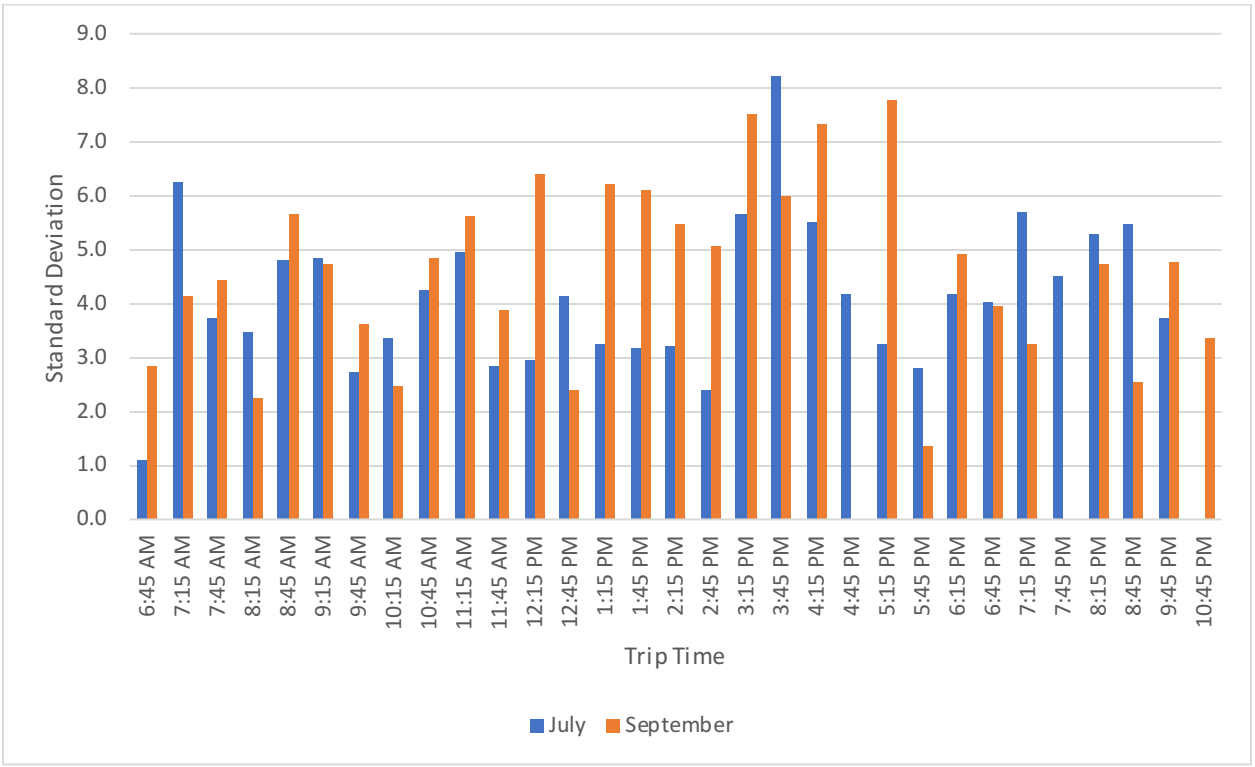
Line 69W Travel Time Standard Deviation - Southbound



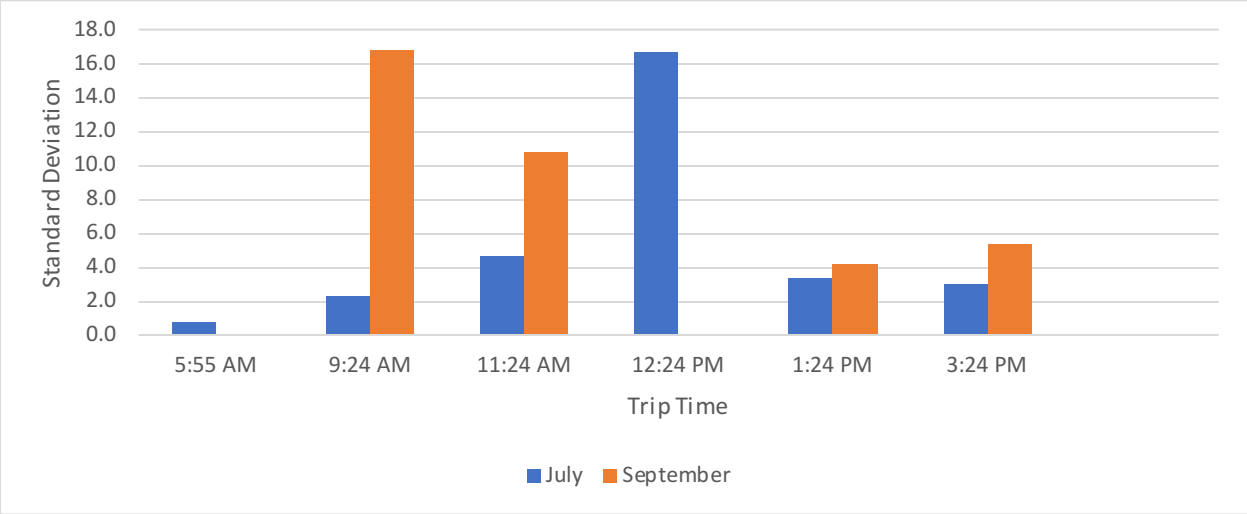
Line 71 Travel Time Standard Deviation - Northbound



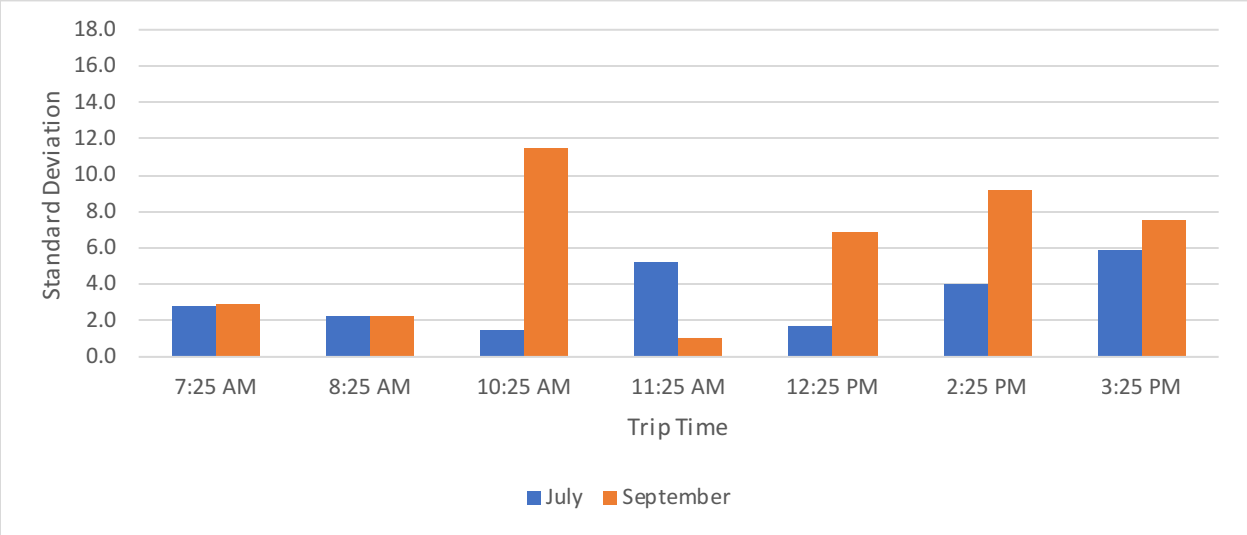
Line 71 Travel Time Standard Deviation - Southbound



Line 91X Travel Time Standard Deviation - Northbound

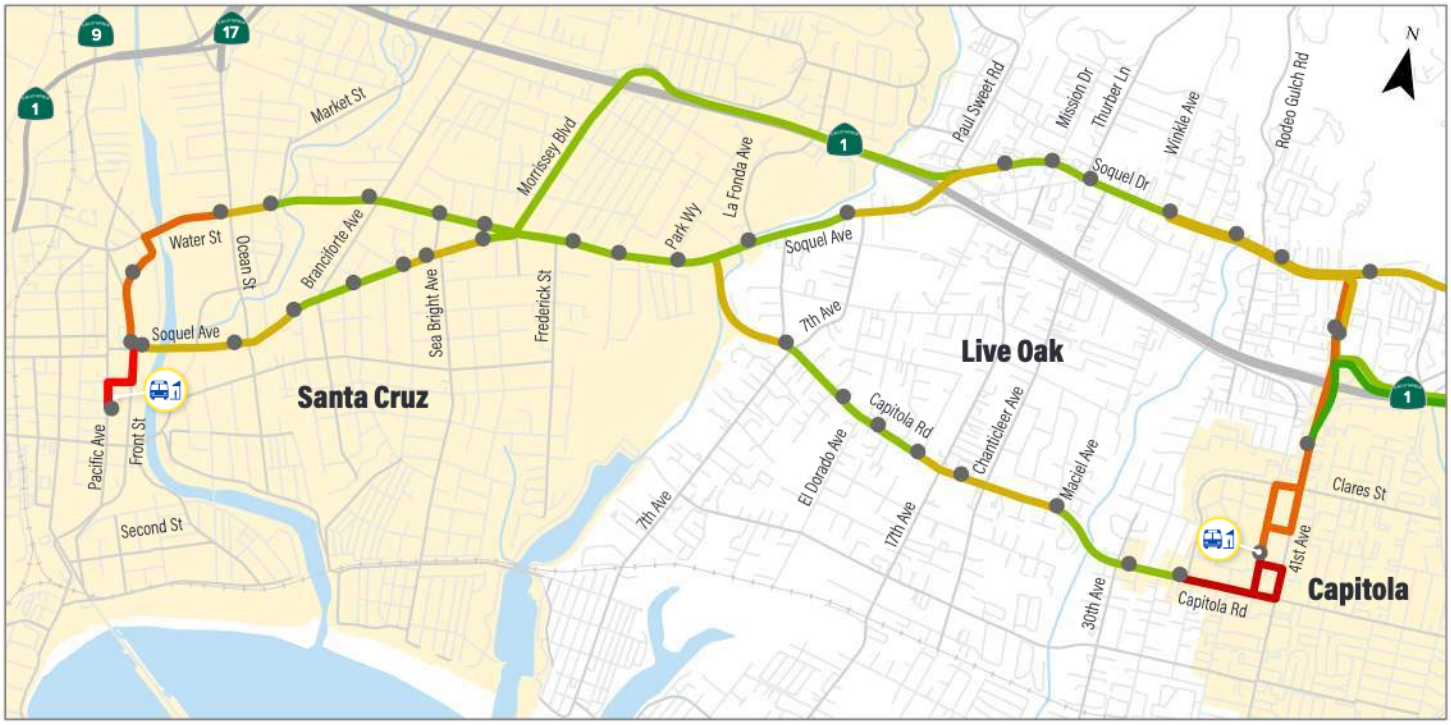


Line 91X Travel Time Standard Deviation - Southbound



APPENDIX C: AVERAGE SPEED MAPS

Figure 1A: July AM Peak Period Average Speed - Santa Cruz to Capitola



Northbound

Southbound

Legend

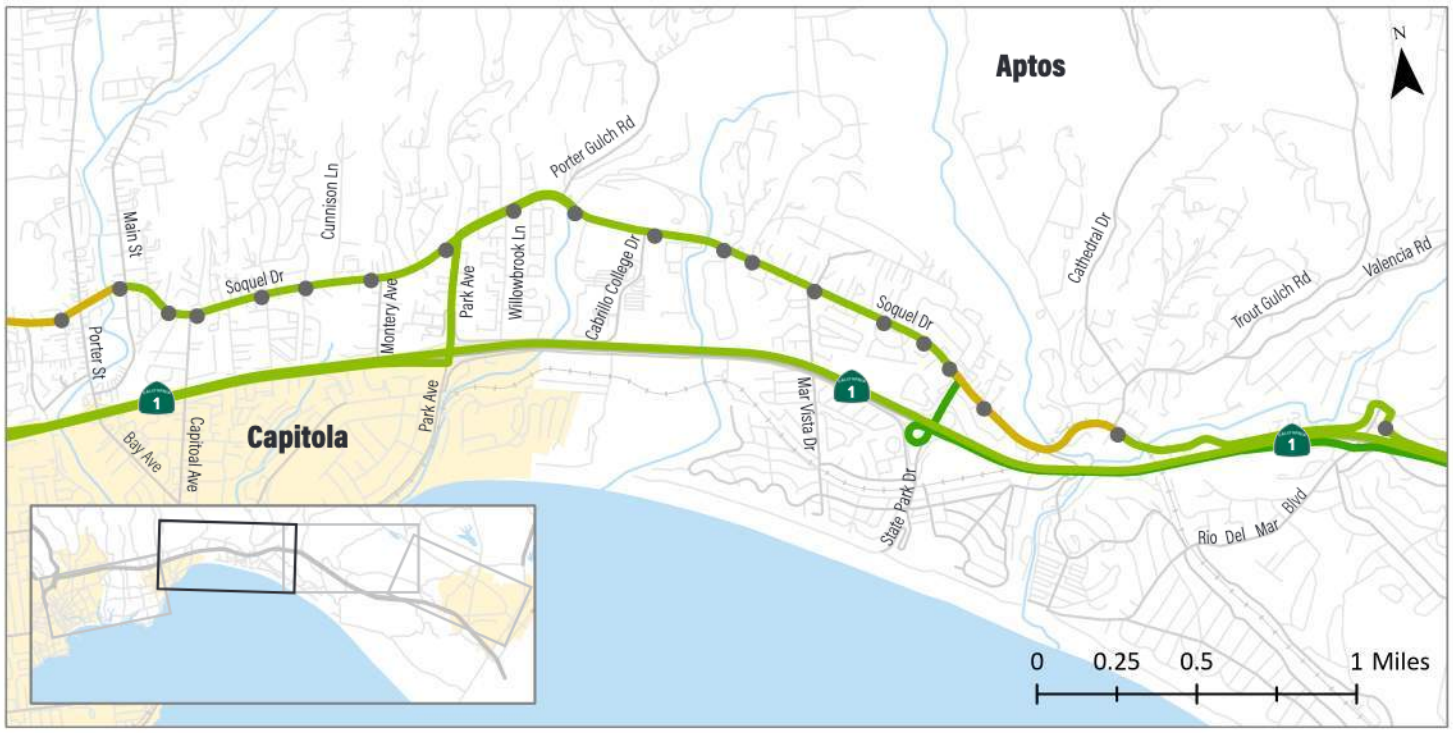
- City Limits
- Bus Stop
- Transit Center

Bus Speed (miles per hour)

- < 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 40
- > 40

Figure 1B: July AM Peak Period Average Speed - Capitola to Aptos

Northbound



Southbound

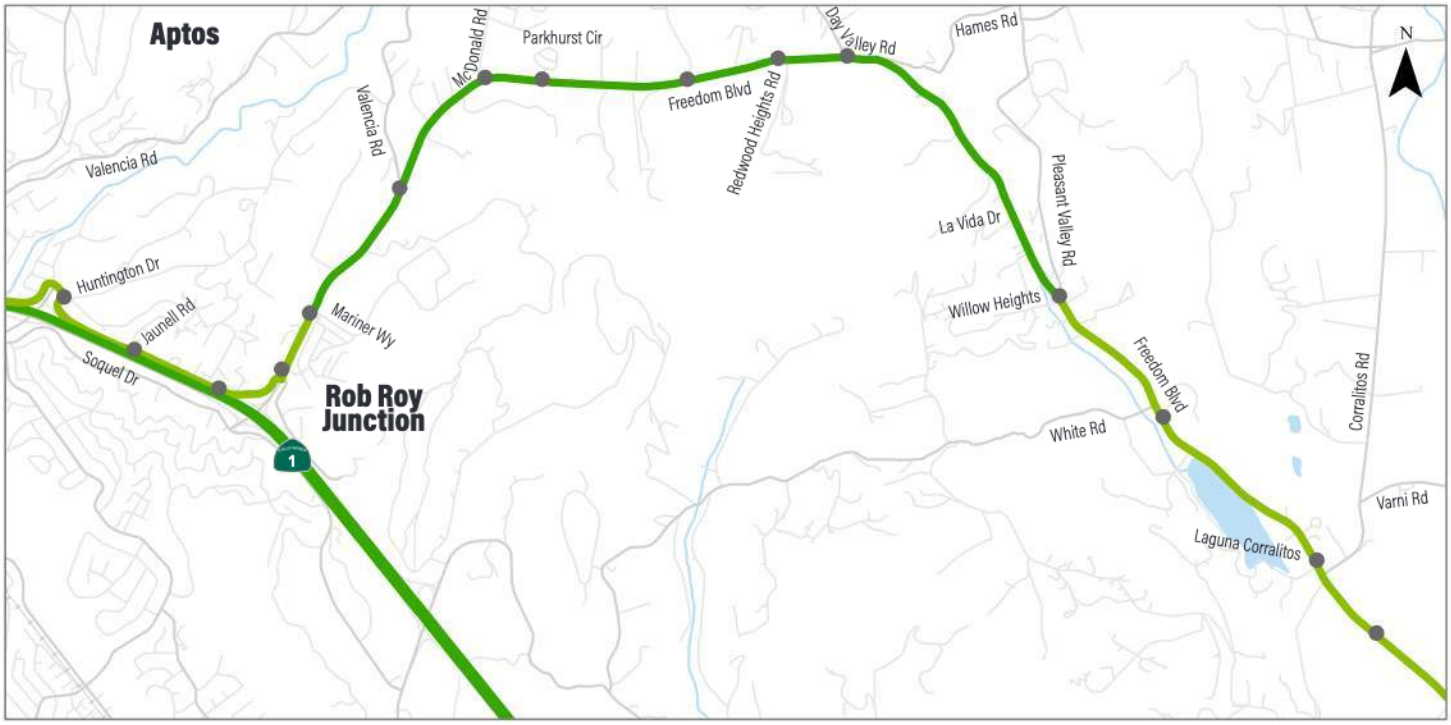
Legend

- City Limits
- Bus Stop
- Transit Center

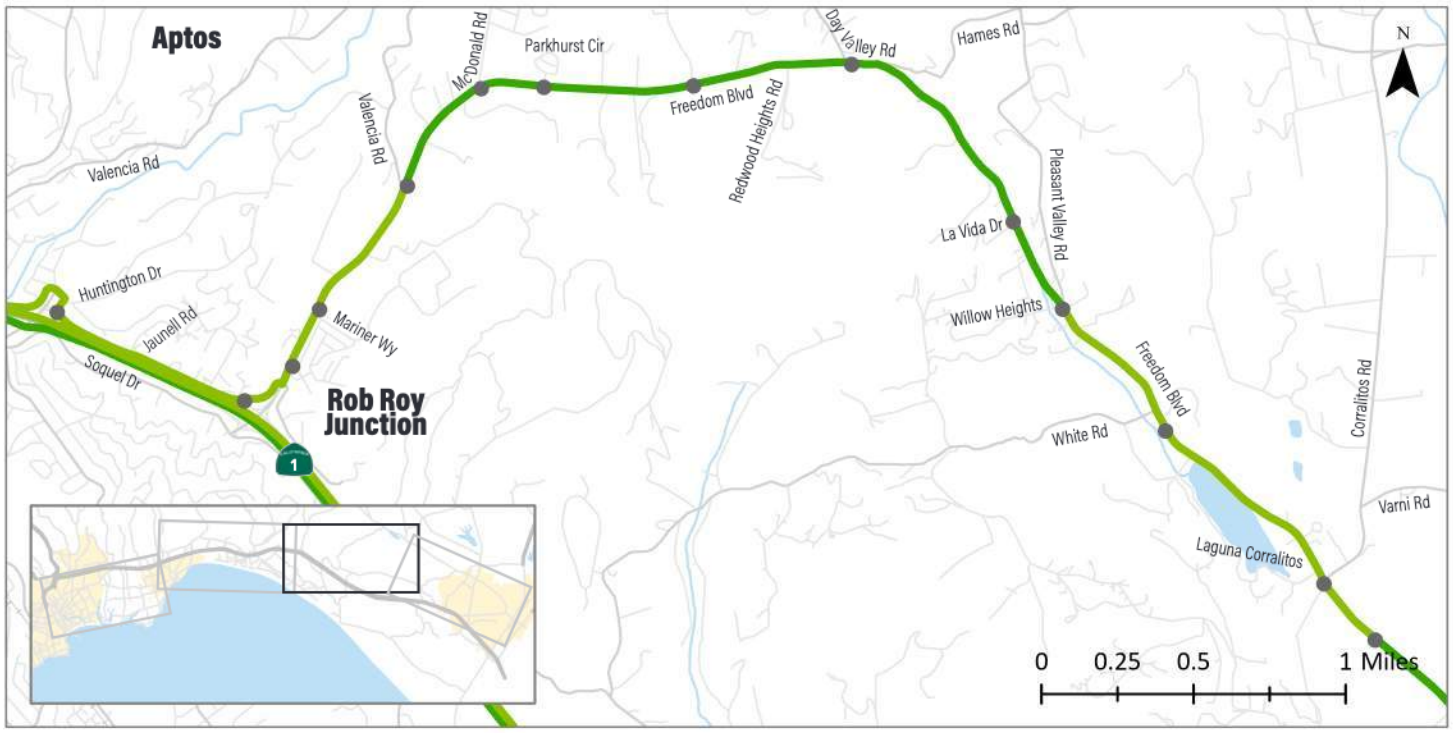
Bus Speed (miles per hour)

- < 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 40
- > 40

Figure 1C: July AM Peak Period Average Speed - Aptos to Freedom



Northbound



Southbound

Legend

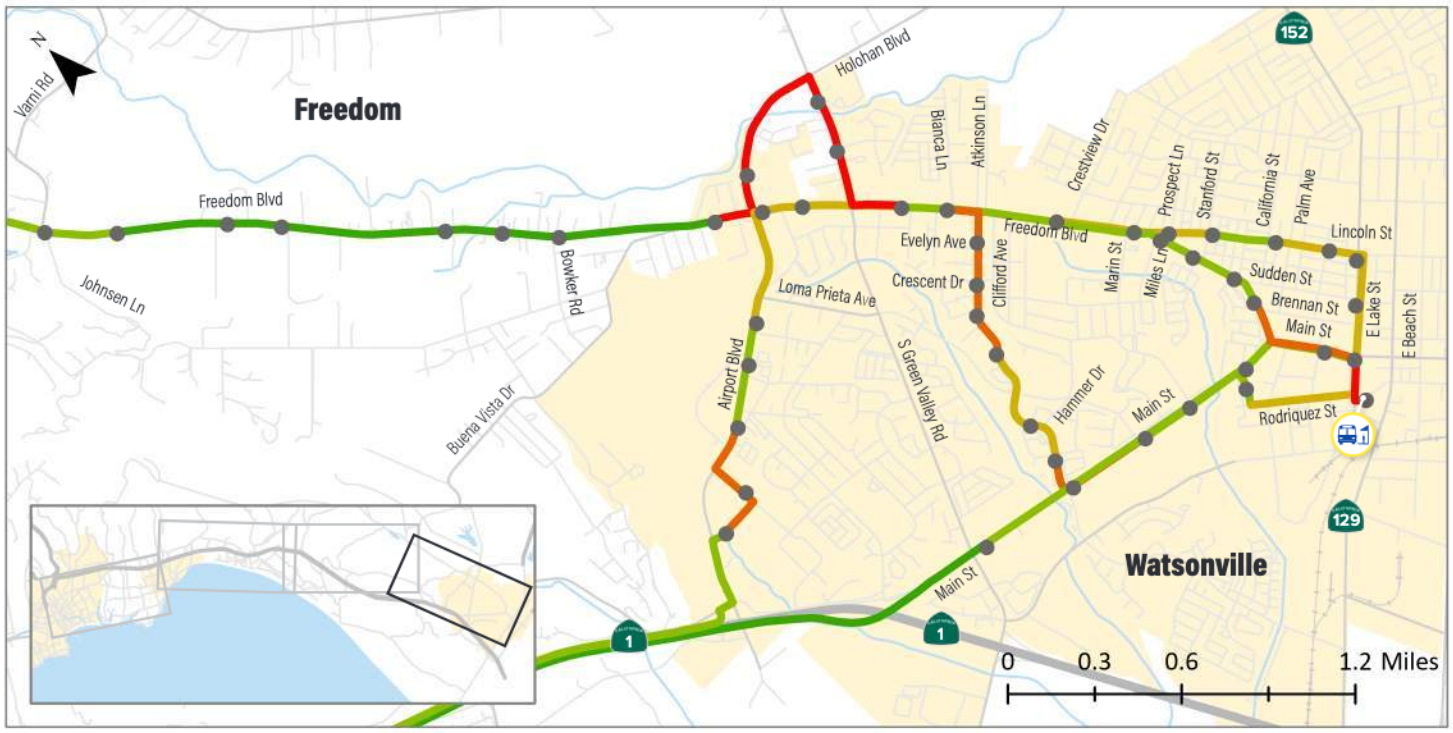
- City Limits
- Bus Stop
- Transit Center

Bus Speed (miles per hour)

- < 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 40
- > 40

Figure 1D: July AM Peak Period Average Speed - Freedom to Watsonville

Northbound



Southbound

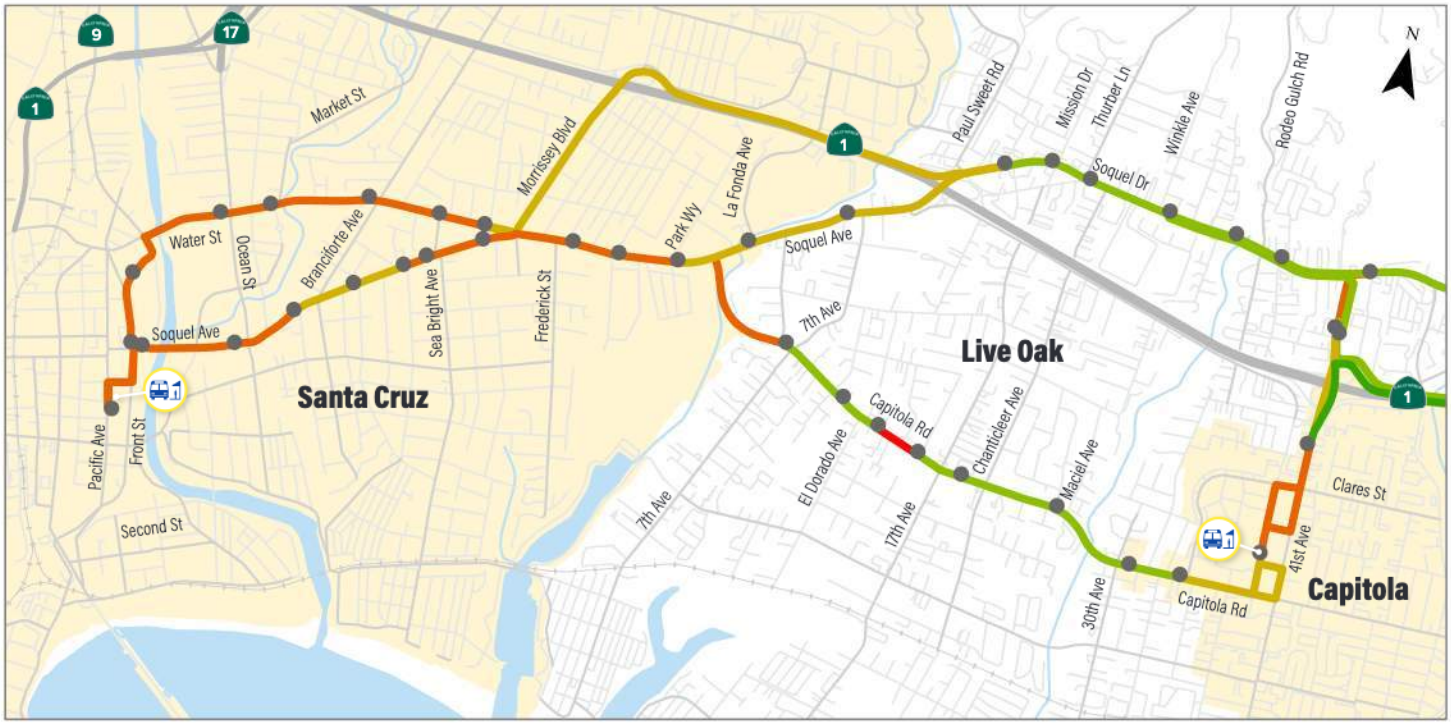
Legend

- City Limits
- Bus Stop
- Transit Center

Bus Speed (miles per hour)

- < 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 40
- > 40

Figure 1A: July PM Peak Period Average Speed - Santa Cruz to Capitola



Northbound

Southbound

Legend

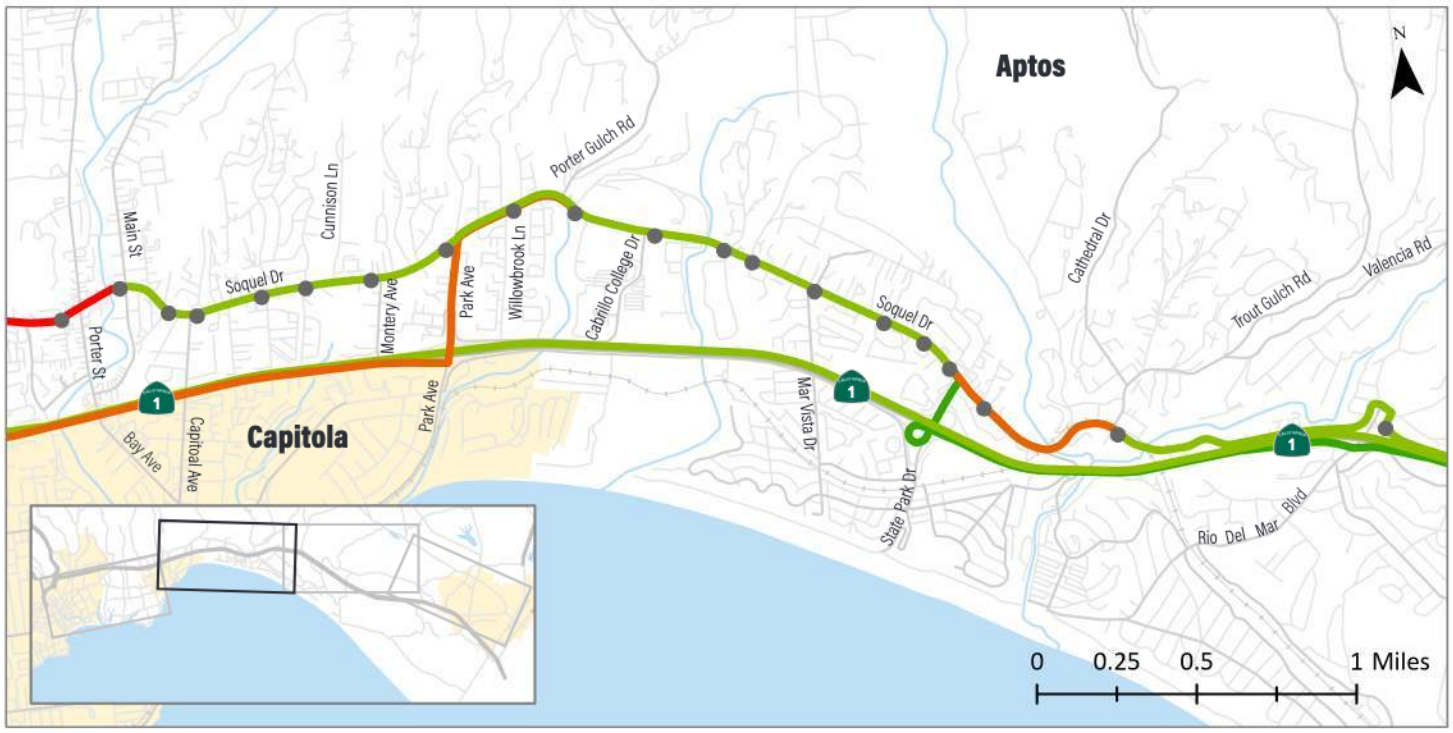
City Limits
Bus Stop
Transit Center

Bus Speed (miles per hour)

< 5
5 - 10
10 - 15
15 - 20
20 - 40
> 40

Figure 1B: July PM Peak Period Average Speed - Capitola to Aptos

Northbound



Southbound

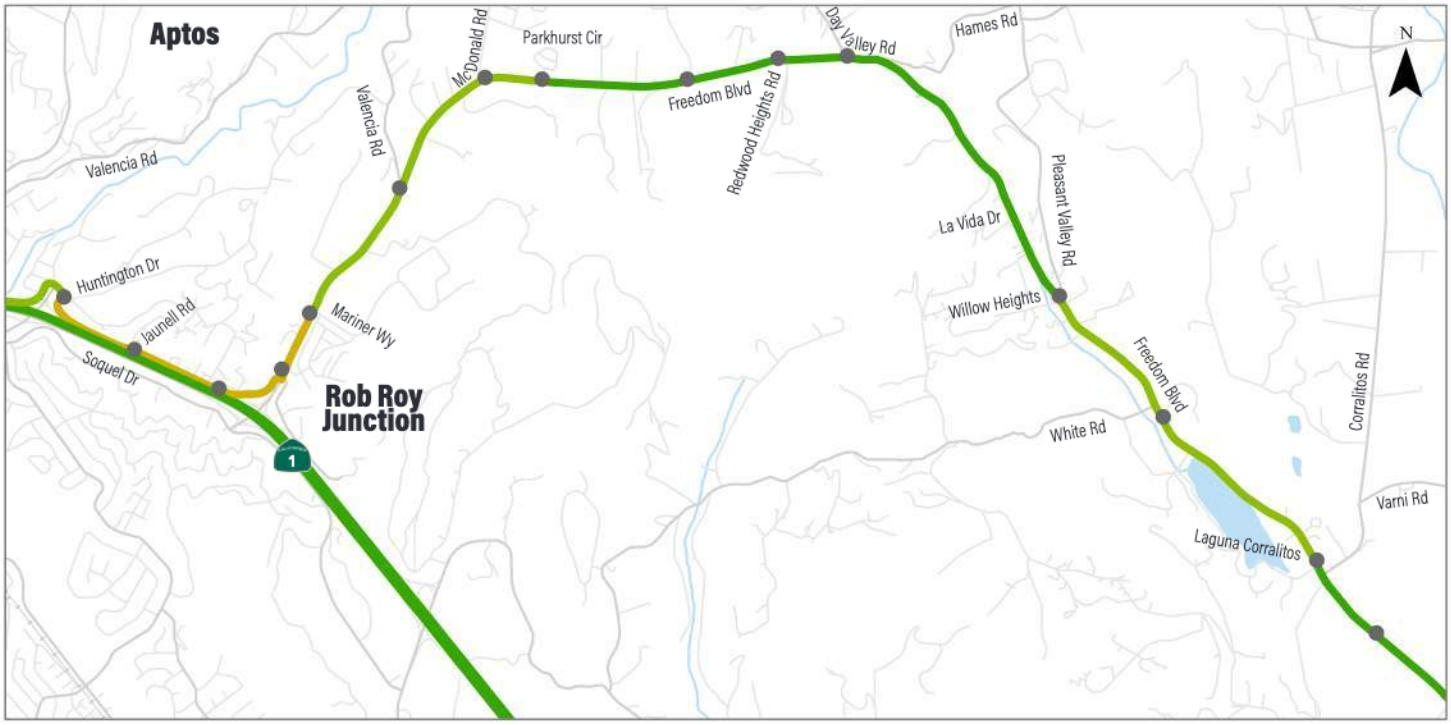
Legend

- City Limits
- Bus Stop
- Transit Center

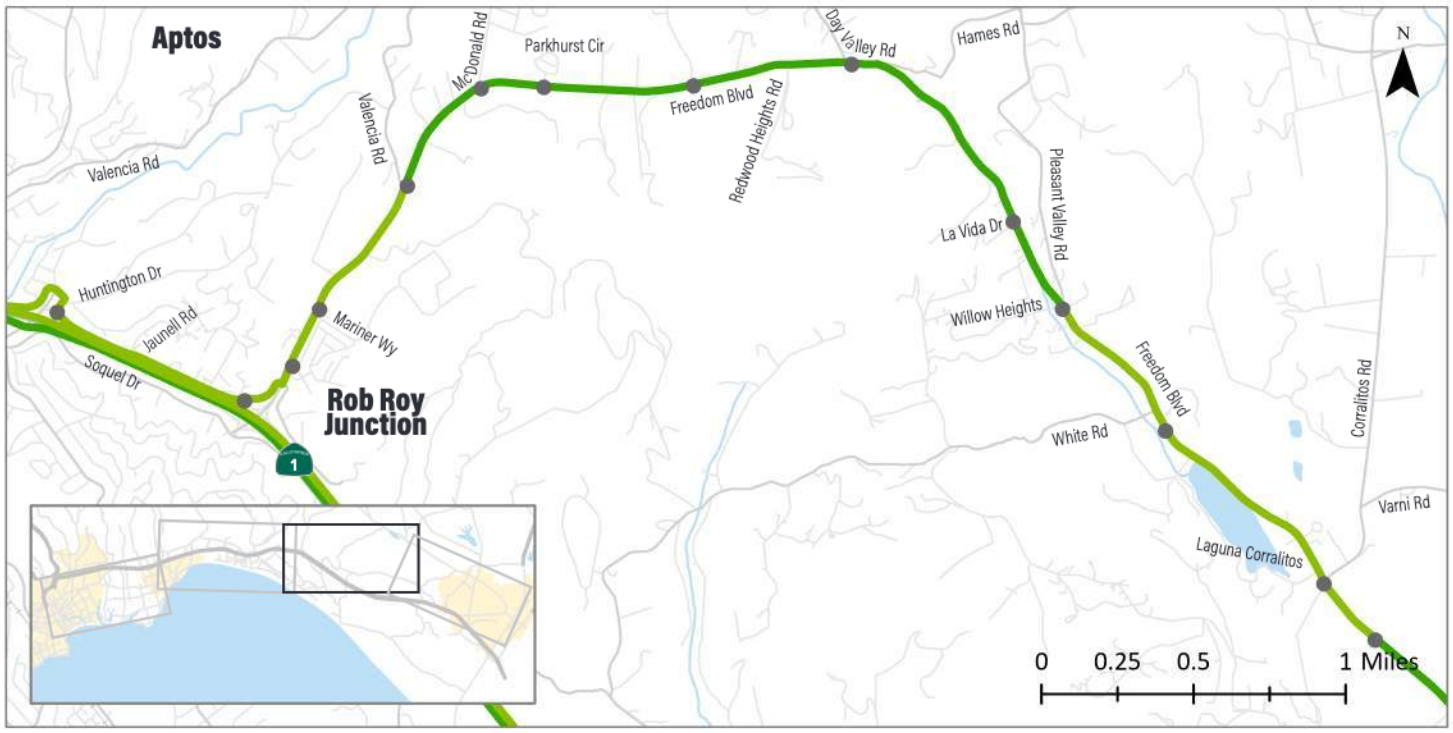
Bus Speed (miles per hour)

- < 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 40
- > 40

Figure 1C: July PM Peak Period Average Speed - Aptos to Freedom



Northbound



Southbound

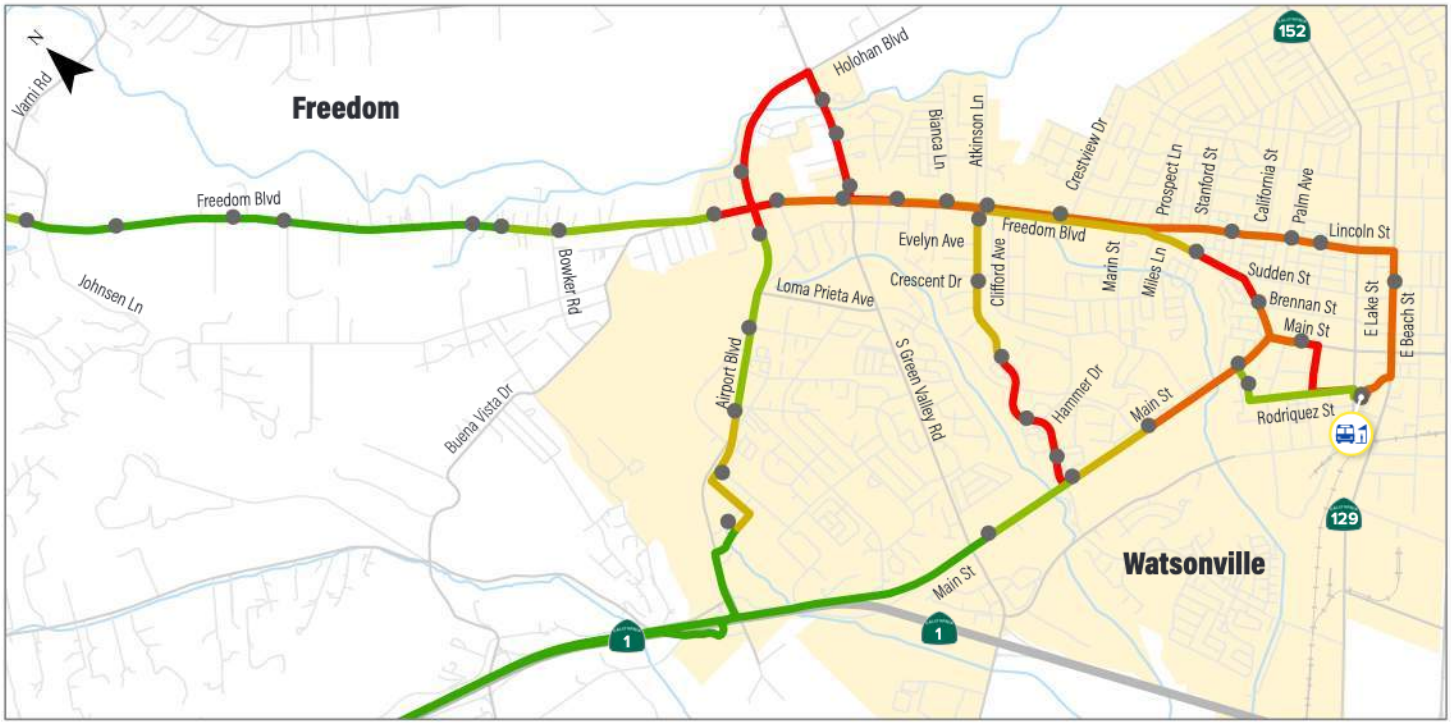
Legend

- City Limits
- Bus Stop
- Transit Center

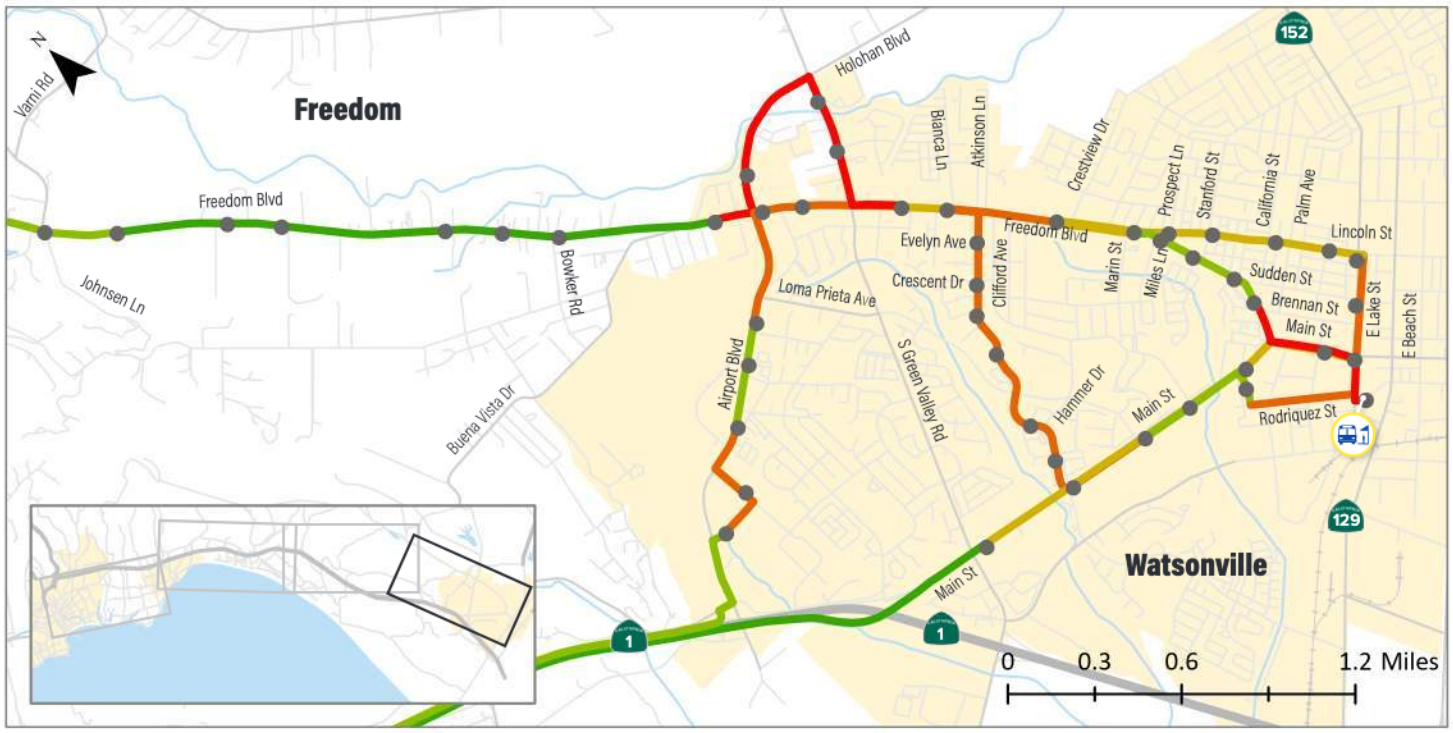
Bus Speed (miles per hour)

- < 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 40
- > 40

Figure 1D: July PM Peak Period Average Speed - Freedom to Watsonville



Northbound



Southbound

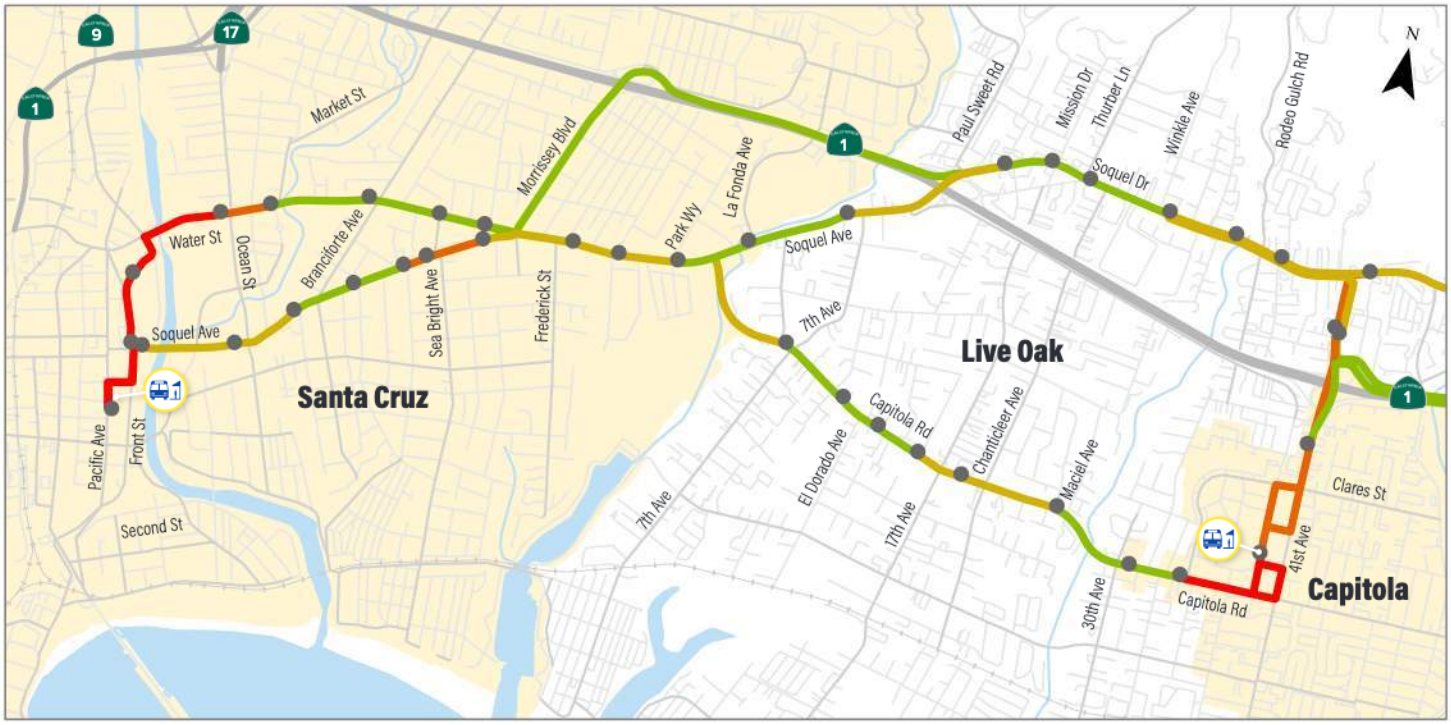
Legend

- City Limits
- Bus Stop
- Transit Center

Bus Speed (miles per hour)

- < 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 40
- > 40

Figure 1A: September AM Peak Period Average Speed - Santa Cruz to Capitola



Northbound

Southbound

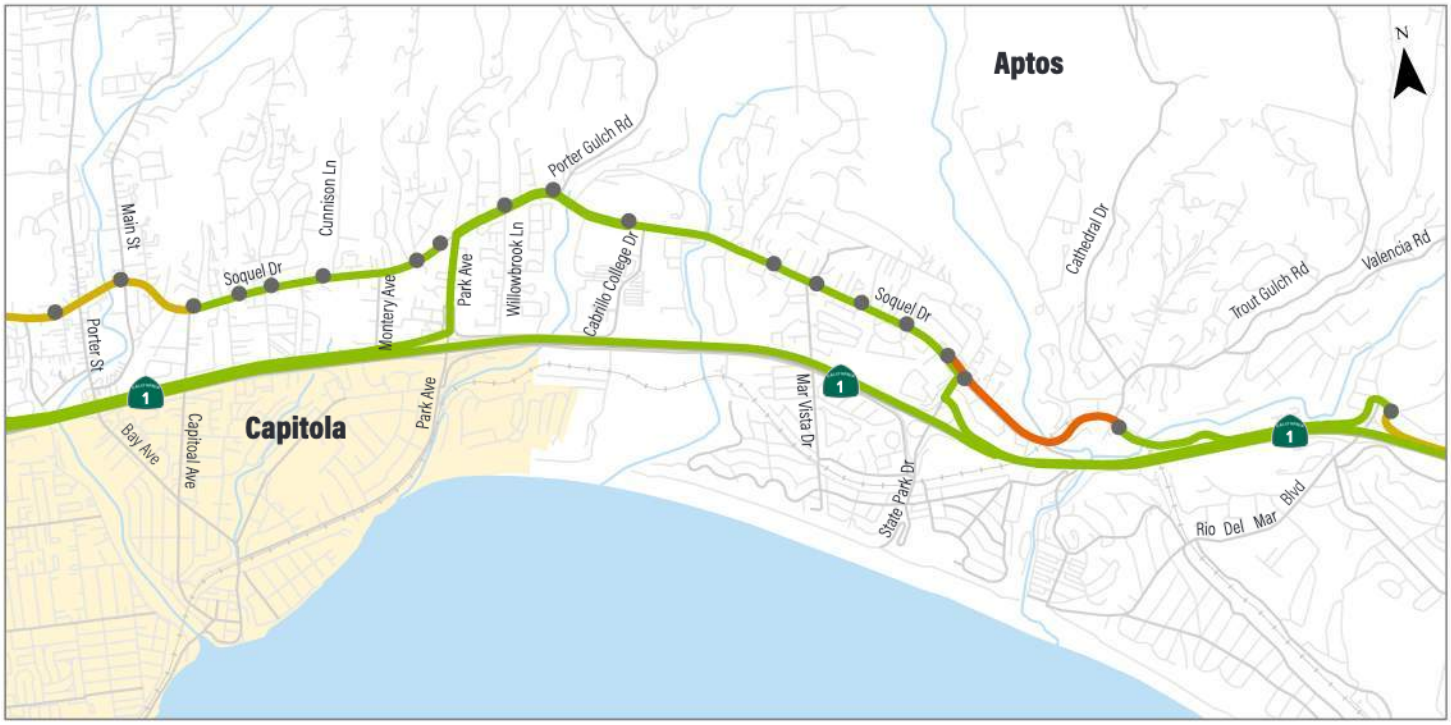
Legend

- City Limits
- Bus Stop
- Transit Center

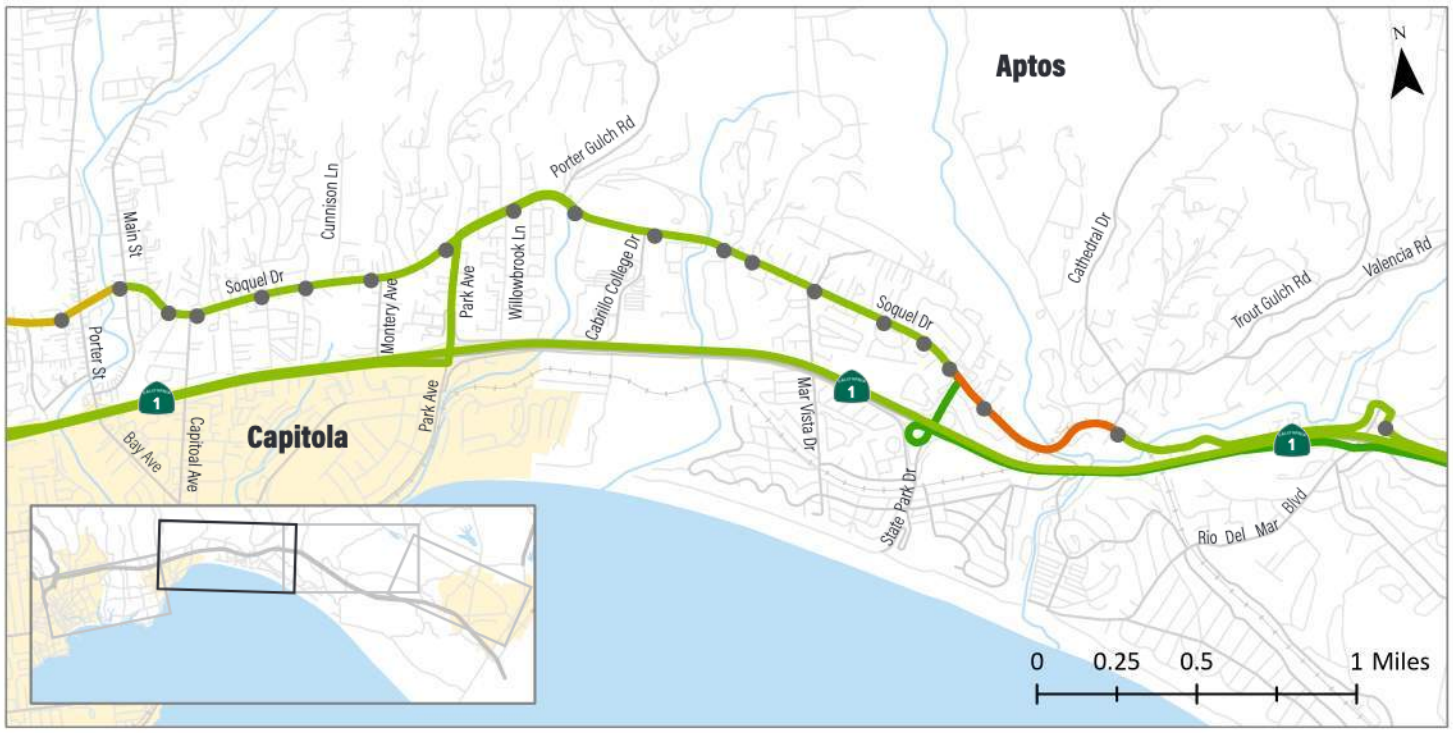
Bus Speed (miles per hour)

- < 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 40
- > 40

Figure 1B: September AM Peak Period Average Speed - Capitola to Aptos



Northbound



Southbound

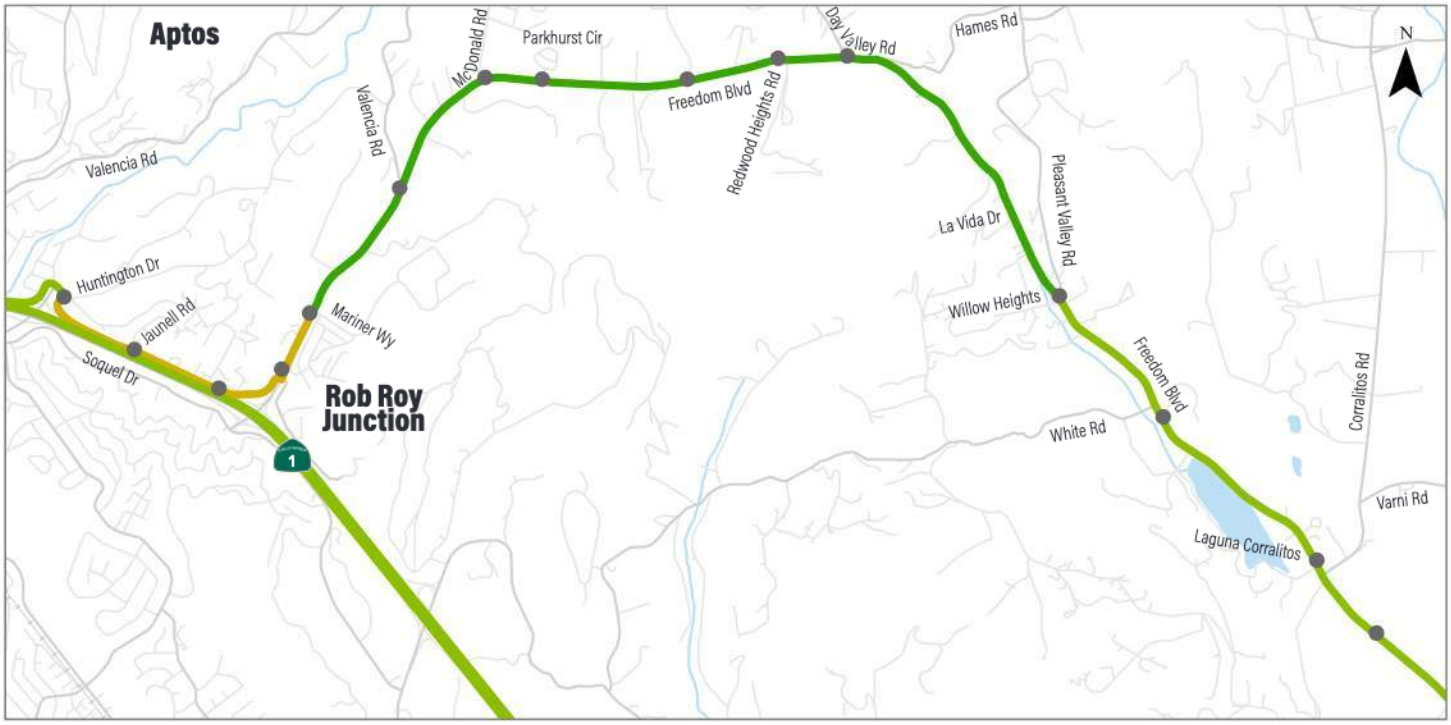
Legend

- City Limits
- Bus Stop
- Transit Center

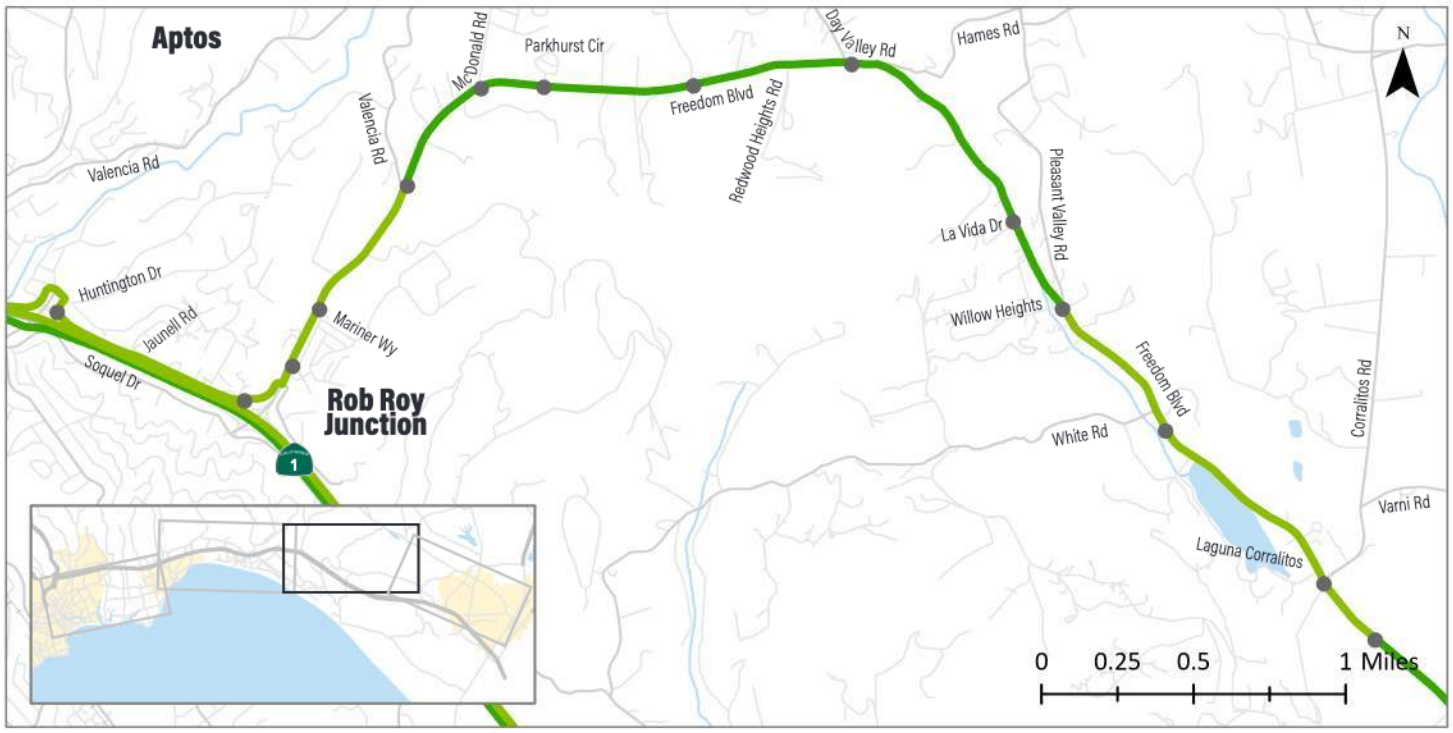
Bus Speed (miles per hour)

- < 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 40
- > 40

Figure 1C: September AM Peak Period Average Speed - Aptos to Freedom



Northbound



Southbound

Legend

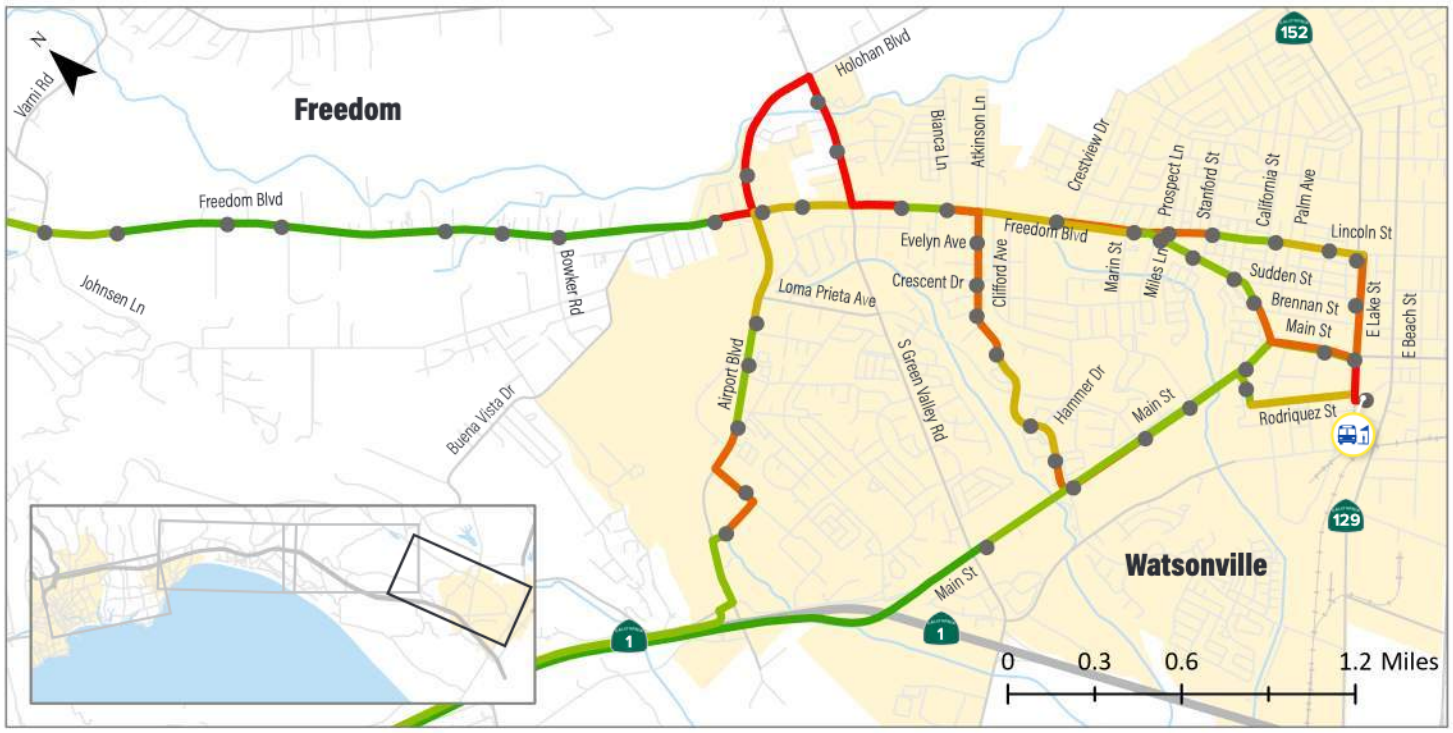
- City Limits
- Bus Stop
- Transit Center

Bus Speed (miles per hour)

- < 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 40
- > 40

Figure 1D: September AM Peak Period Average Speed - Freedom to Watsonville

Northbound



Southbound

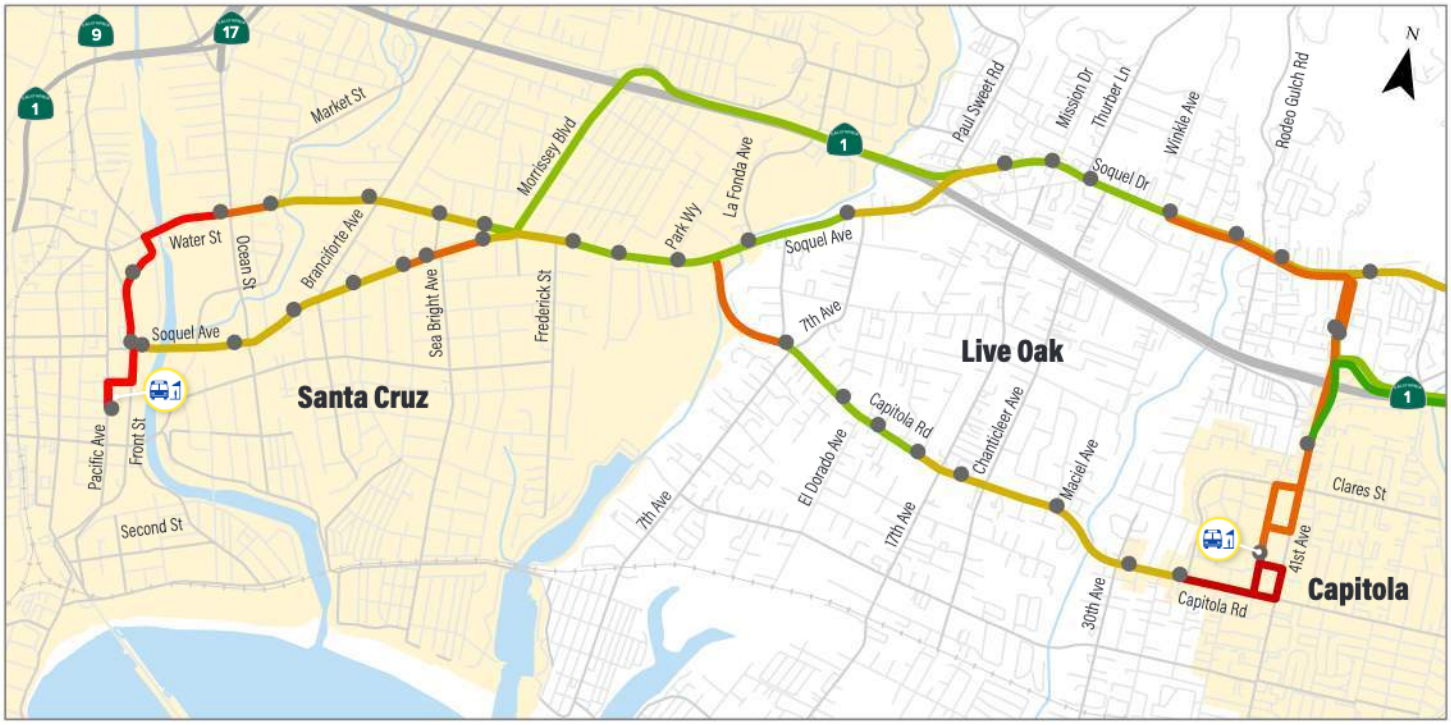
Legend

- City Limits
- Bus Stop
- Transit Center

Bus Speed (miles per hour)

- < 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 40
- > 40

Figure 1A: September PM Peak Period Average Speed - Santa Cruz to Capitola



Northbound

Southbound

Legend

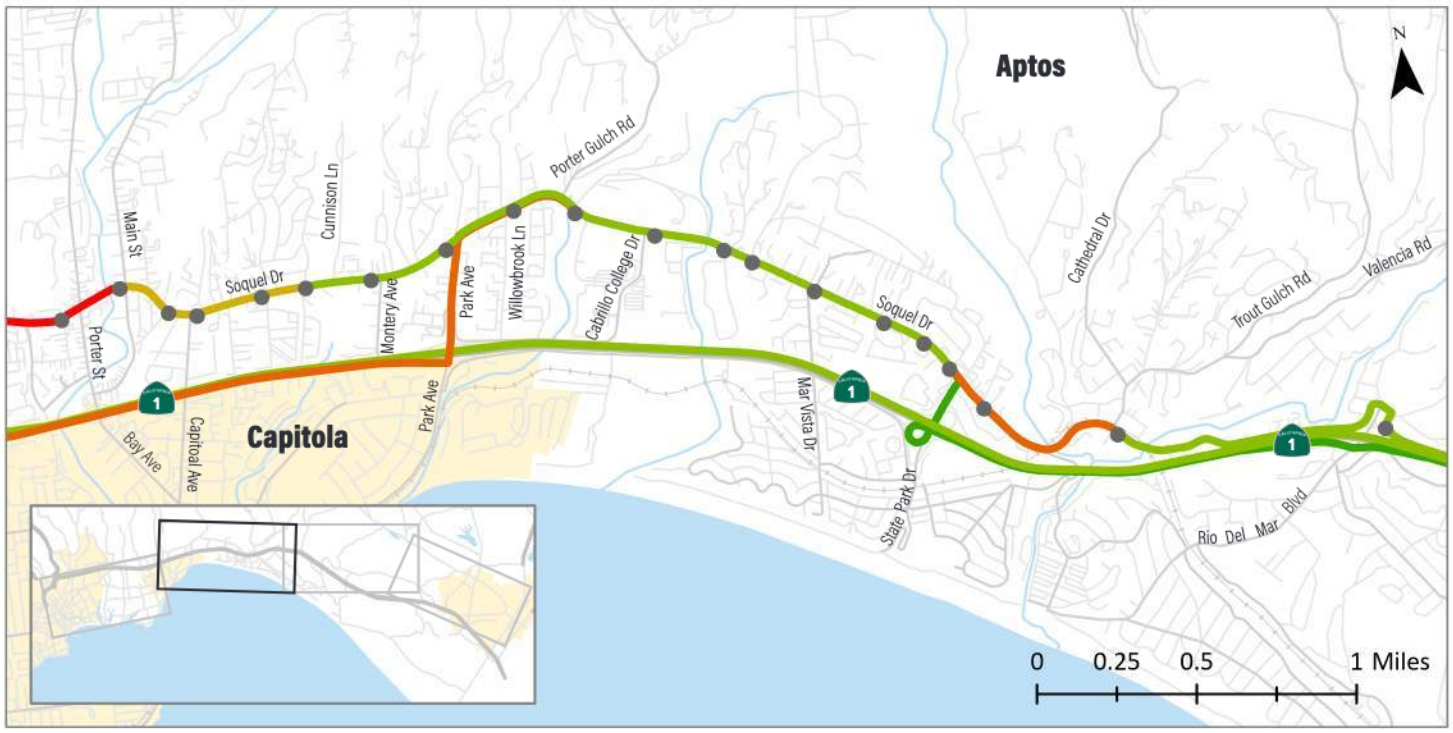
City Limits
Bus Stop
Transit Center

Bus Speed (miles per hour)

< 5
5 - 10
10 - 15
15 - 20
20 - 40
> 40

Figure 1B: September PM Peak Period Average Speed - Capitola to Aptos

Northbound



Southbound

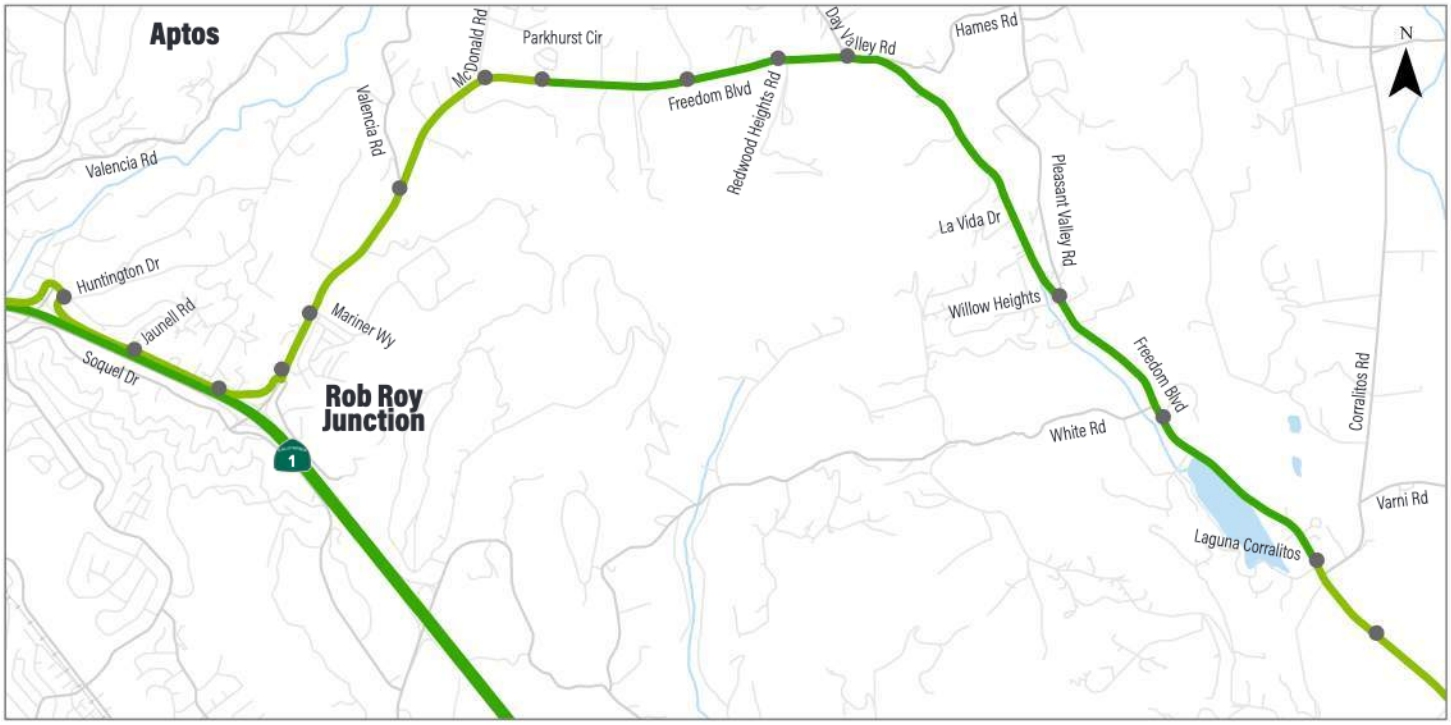
Legend

- City Limits
- Bus Stop
- Transit Center

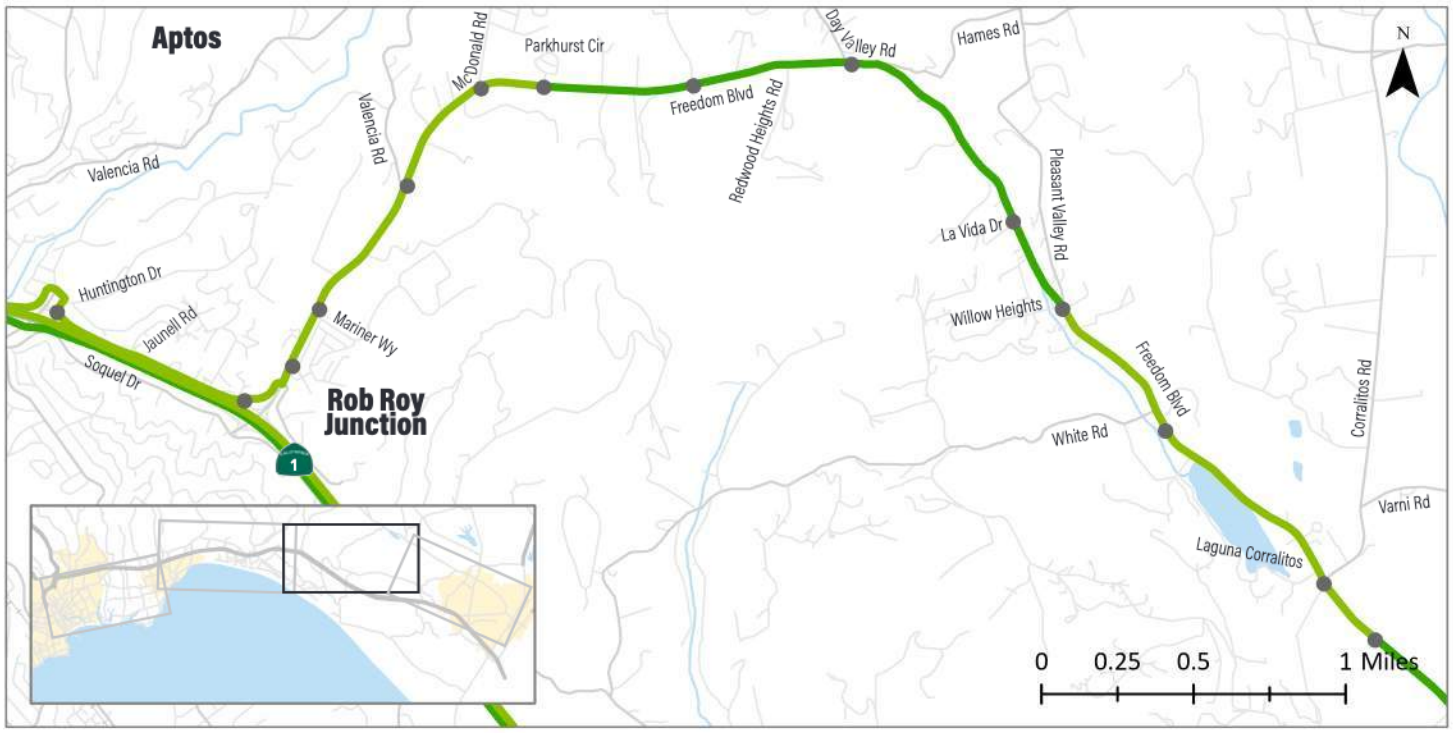
Bus Speed (miles per hour)

- < 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 40
- > 40

Figure 1C: September PM Peak Period Average Speed - Aptos to Freedom



Northbound



Southbound

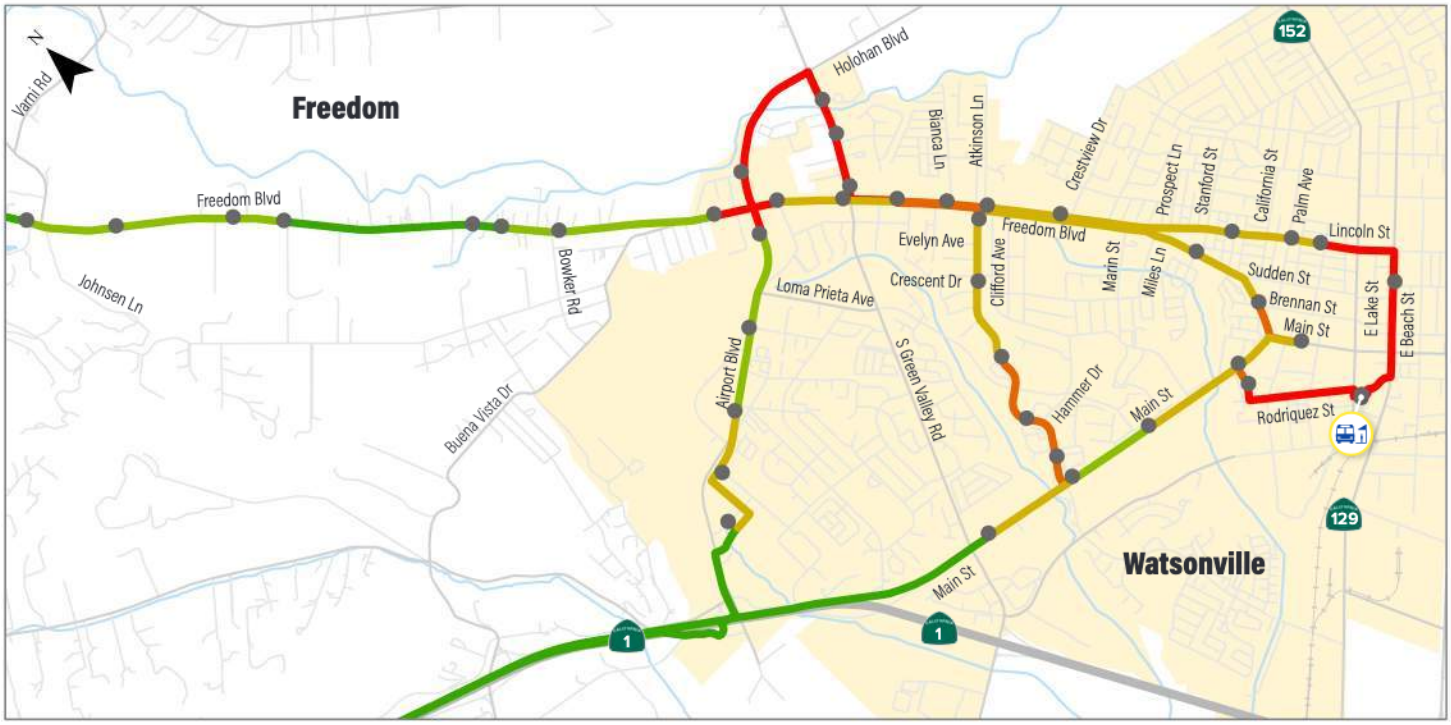
Legend

- City Limits
- Bus Stop
- Transit Center

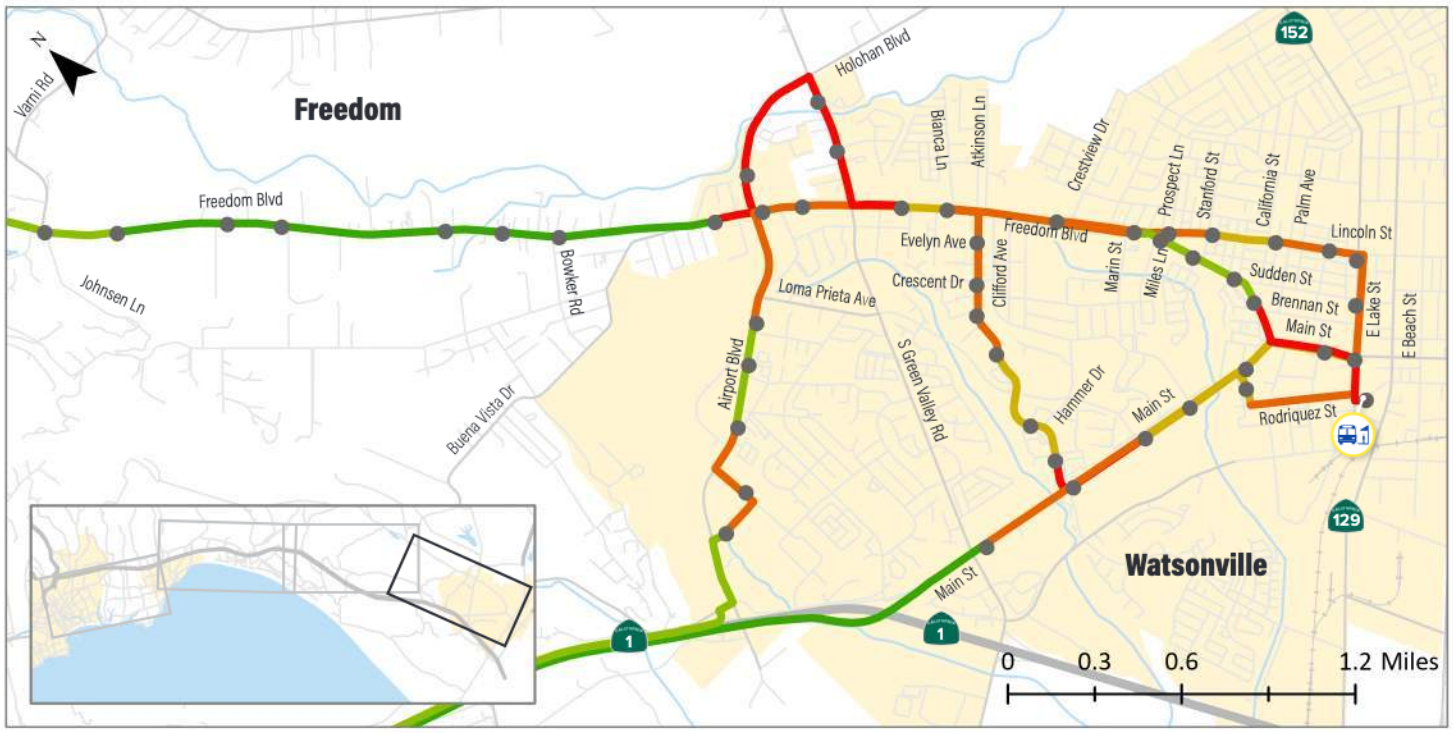
Bus Speed (miles per hour)

- < 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 40
- > 40

Figure 1D: September PM Peak Period Average Speed - Freedom to Watsonville



Northbound



Southbound

Legend

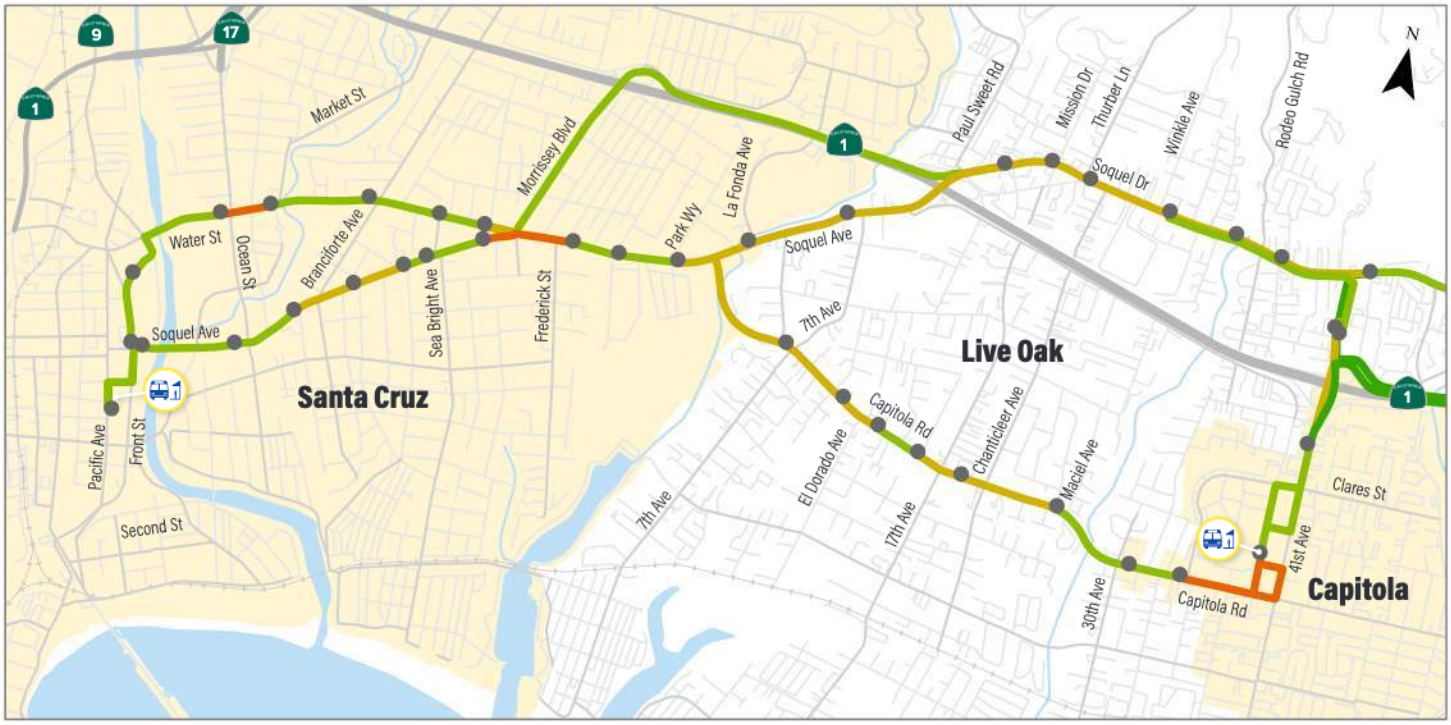
- City Limits
- Bus Stop
- Transit Center

Bus Speed (miles per hour)

- < 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 40
- > 40

APPENDIX D: SPEED VARIABILITY MAPS

Figure 1A: July AM Peak Period Speed Variability - Santa Cruz to Capitola



Northbound

Southbound

Legend

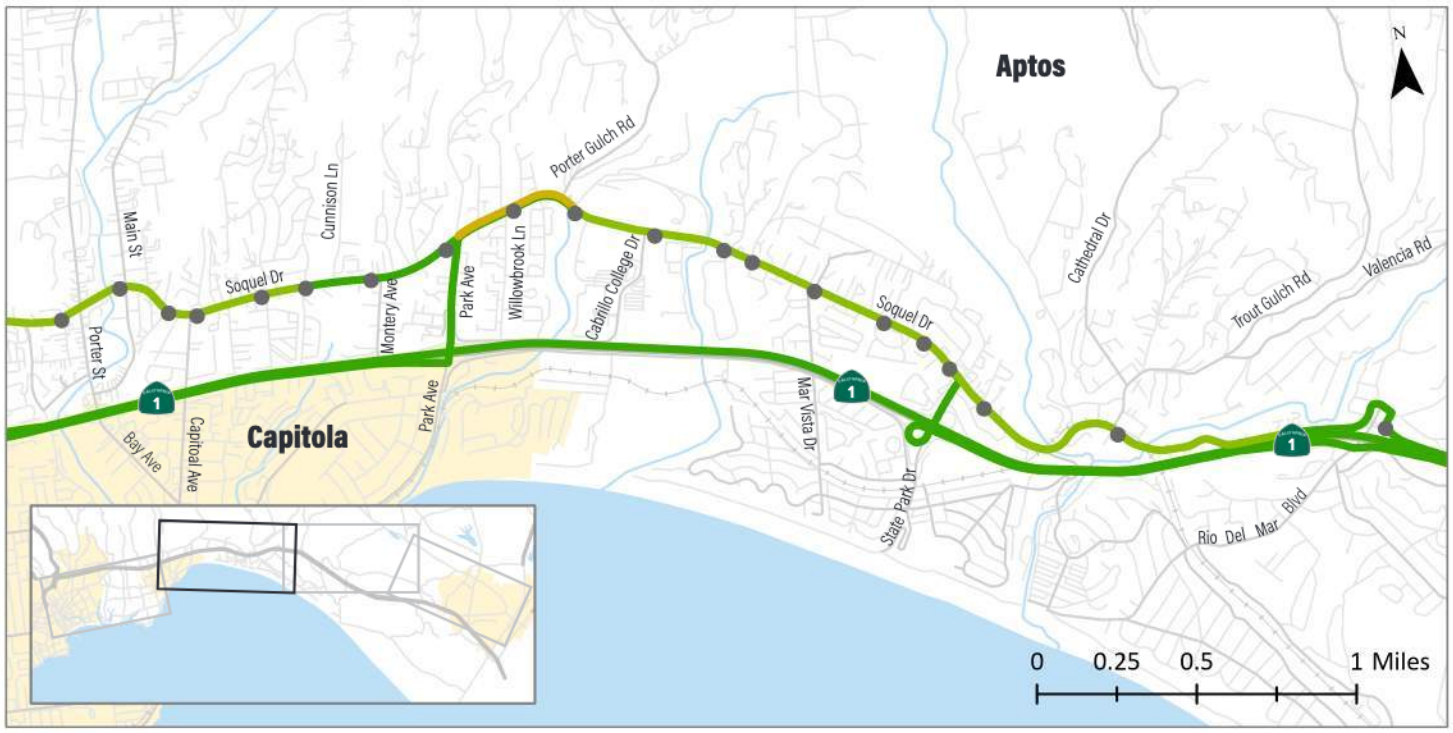
City Limits
Bus Stop
Transit Center

Bus Speed Variability (coefficient of variation)

< 0.1
0.1 - 0.2
0.2 - 0.3
0.3 - 0.5
0.5 - 0.8
> 0.8

Figure 1B: July AM Peak Period Speed Variability - Capitola to Aptos

Northbound



Southbound

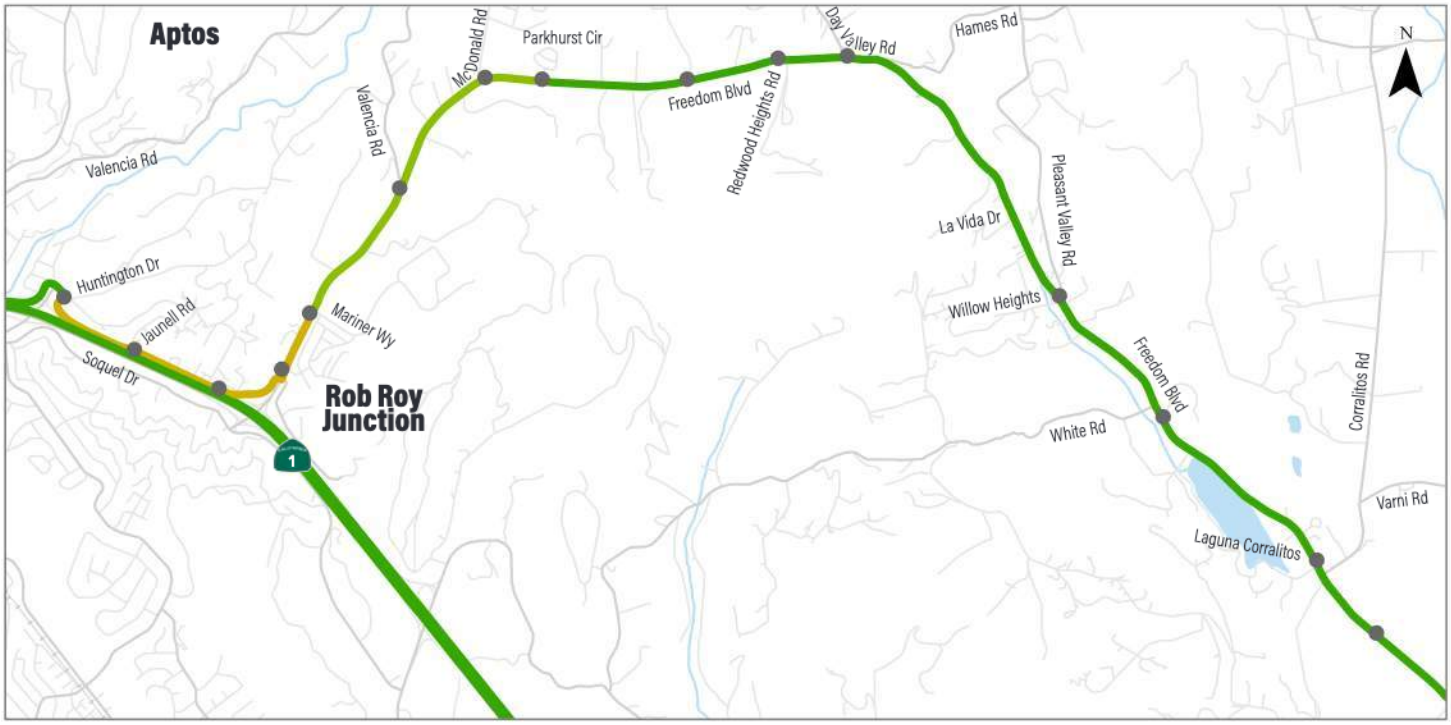
Legend

- City Limits
- Bus Stop
- Transit Center

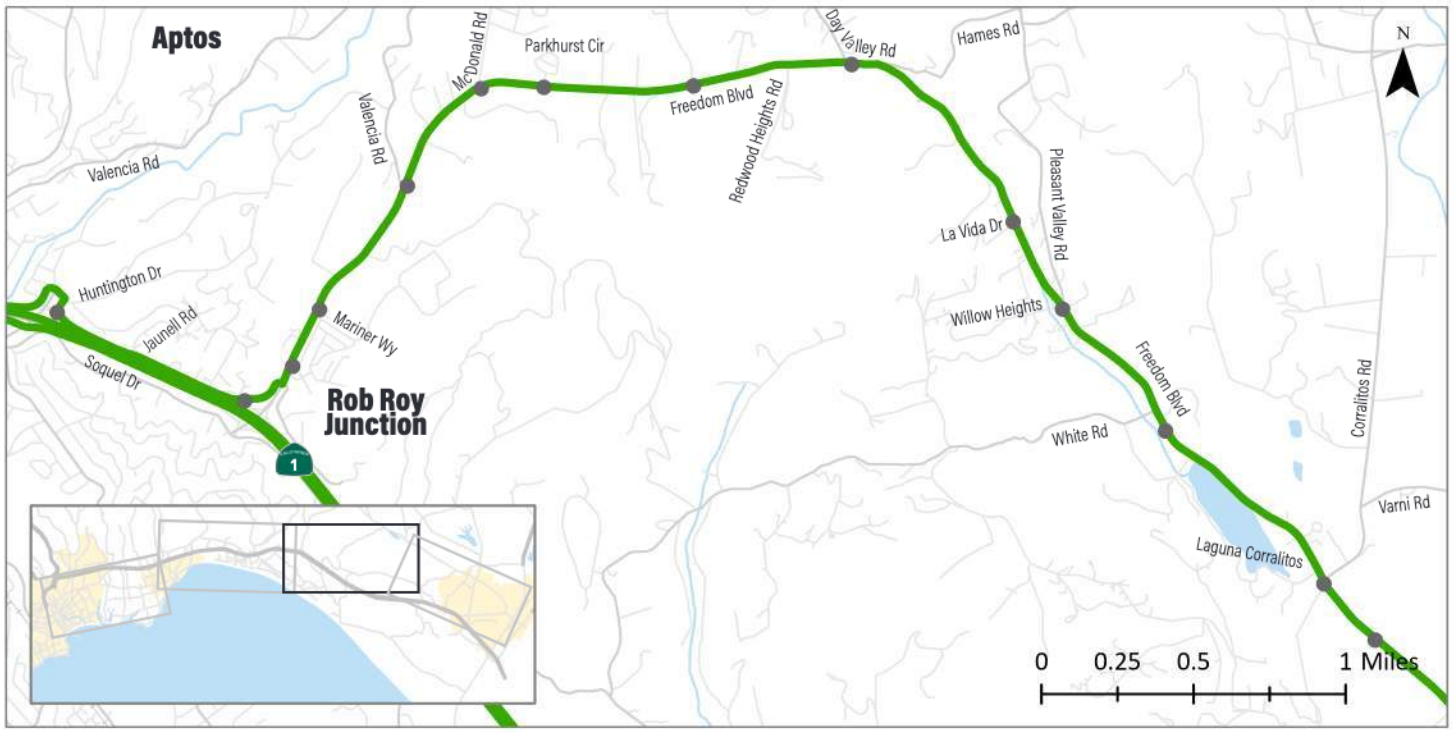
Bus Speed Variability (coefficient of variation)

- < 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.5
- 0.5 - 0.8
- > 0.8

Figure 1C: July AM Peak Period Speed Variability - Aptos to Freedom



Northbound



Southbound

Legend

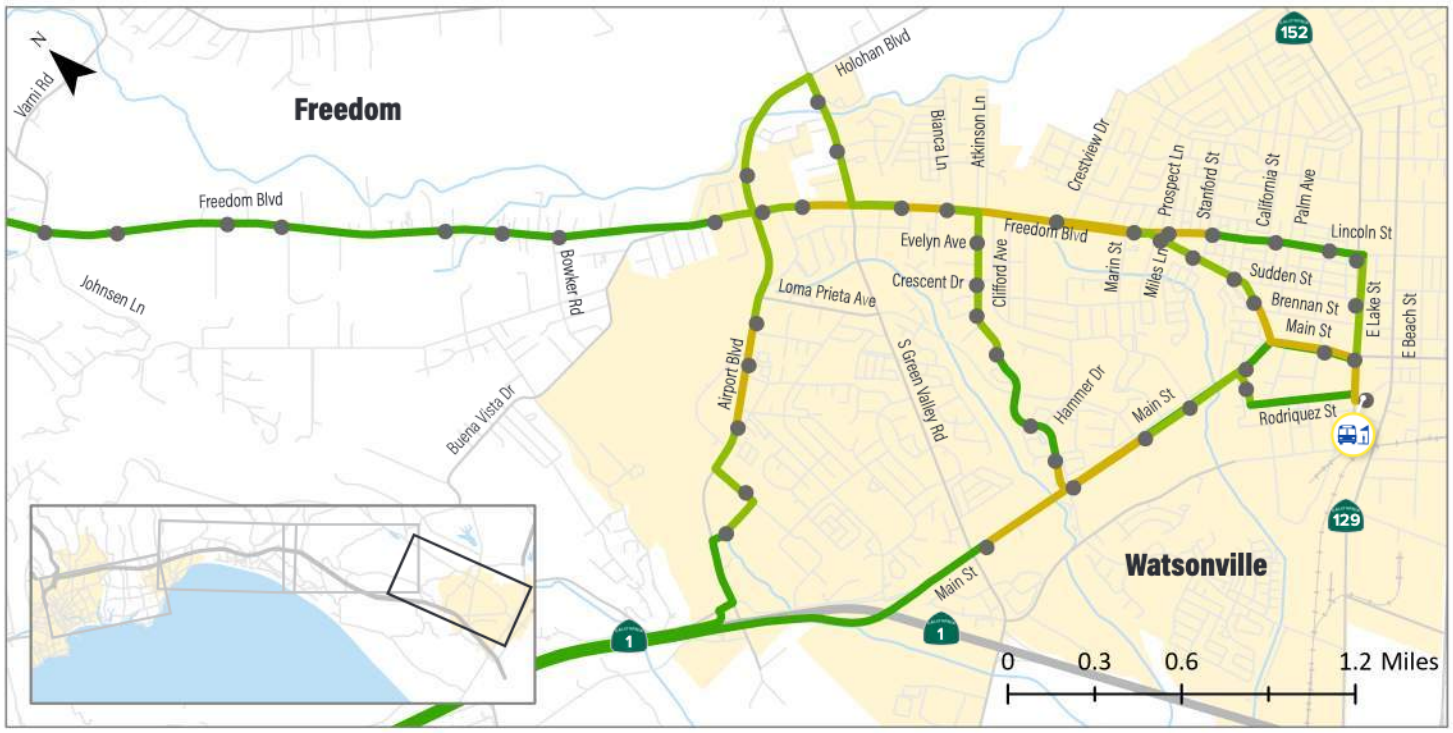
City Limits
Bus Stop
Transit Center

Bus Speed Variability (coefficient of variation)

< 0.1
0.1 - 0.2
0.2 - 0.3
0.3 - 0.5
0.5 - 0.8
> 0.8

Figure 1D: July AM Peak Period Speed Variability - Freedom to Watsonville

Northbound



Southbound

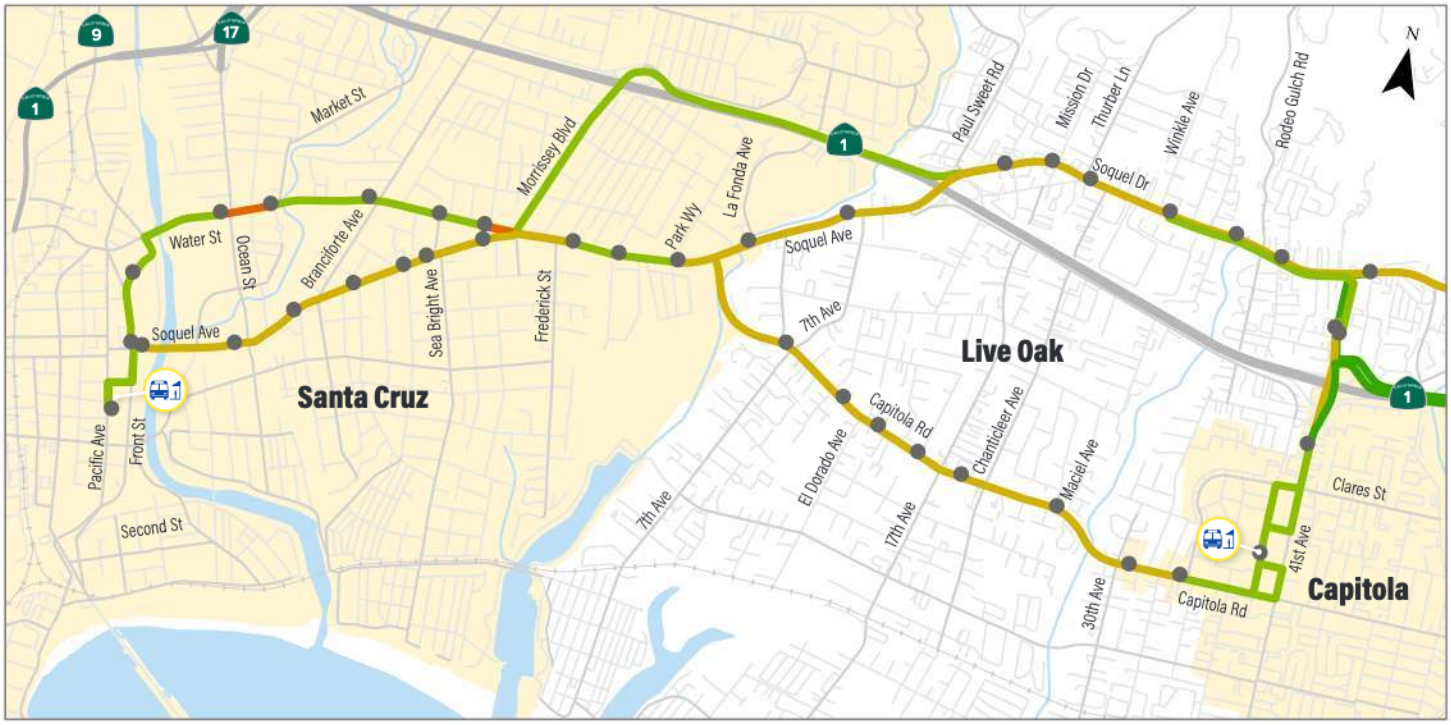
Legend

City Limits
Bus Stop
Transit Center

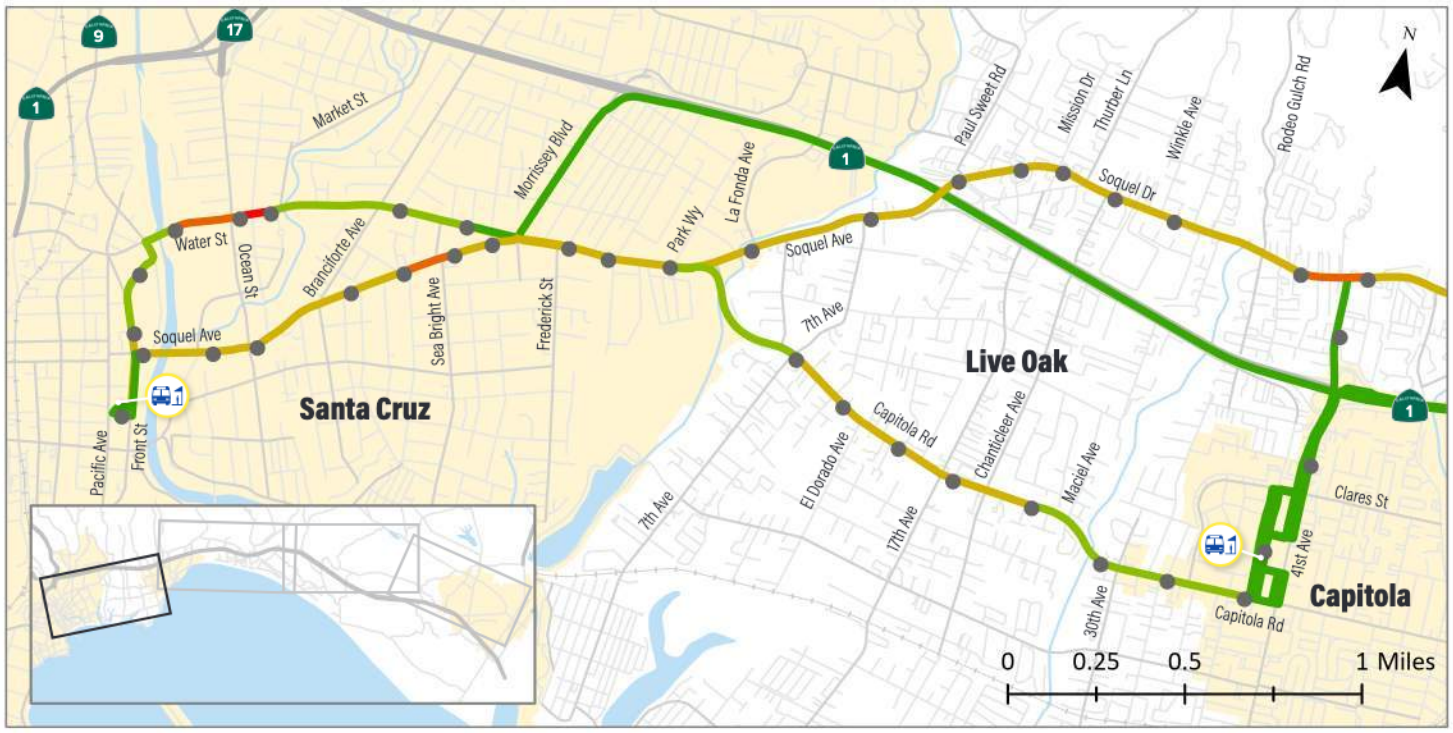
Bus Speed Variability (coefficient of variation)

< 0.1
0.1 - 0.2
0.2 - 0.3
0.3 - 0.5
0.5 - 0.8
> 0.8

Figure 1A: July PM Peak Period Speed Variability - Santa Cruz to Capitola



Northbound



Southbound

Legend

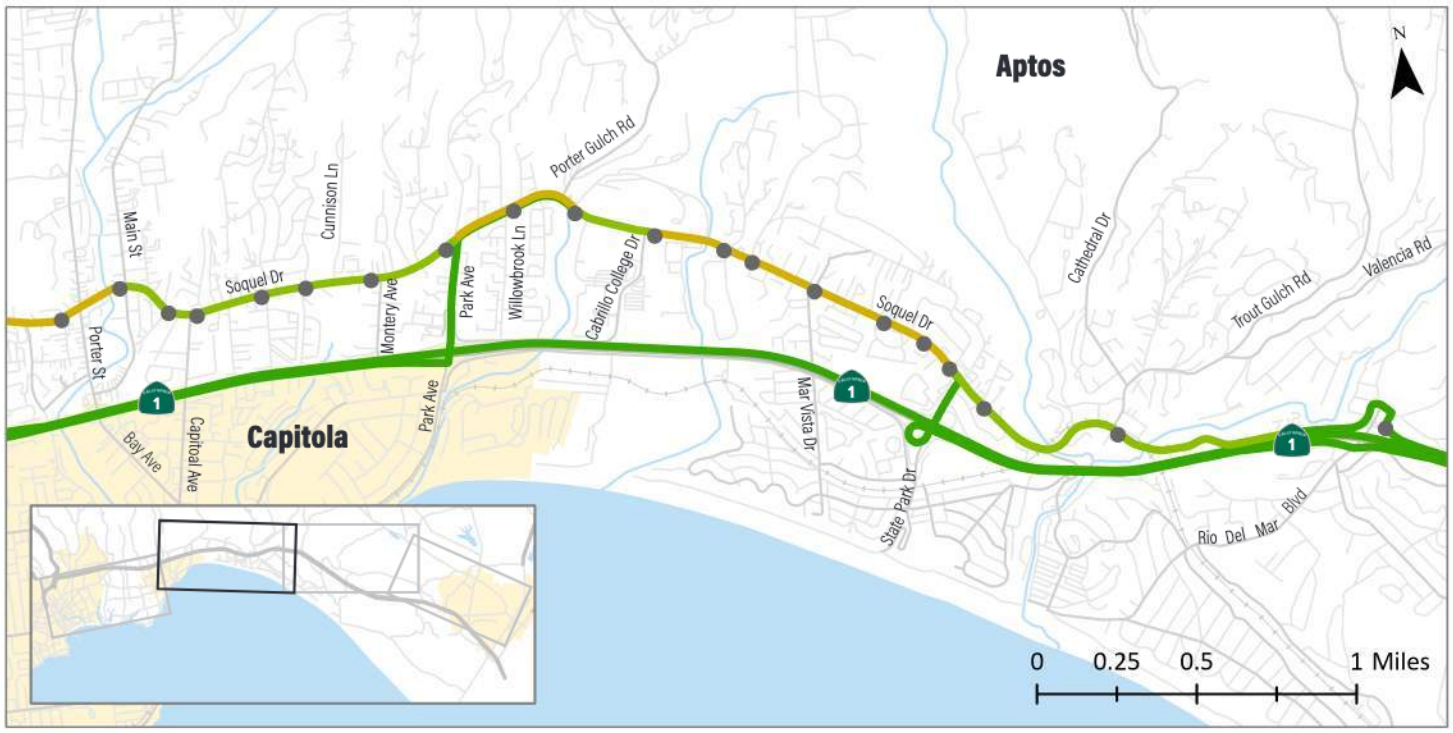
- City Limits
- Bus Stop
- Transit Center

Bus Speed Variability (coefficient of variation)

- < 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.5
- 0.5 - 0.8
- > 0.8

Figure 1B: July PM Peak Period Speed Variability - Capitola to Aptos

Northbound



Southbound

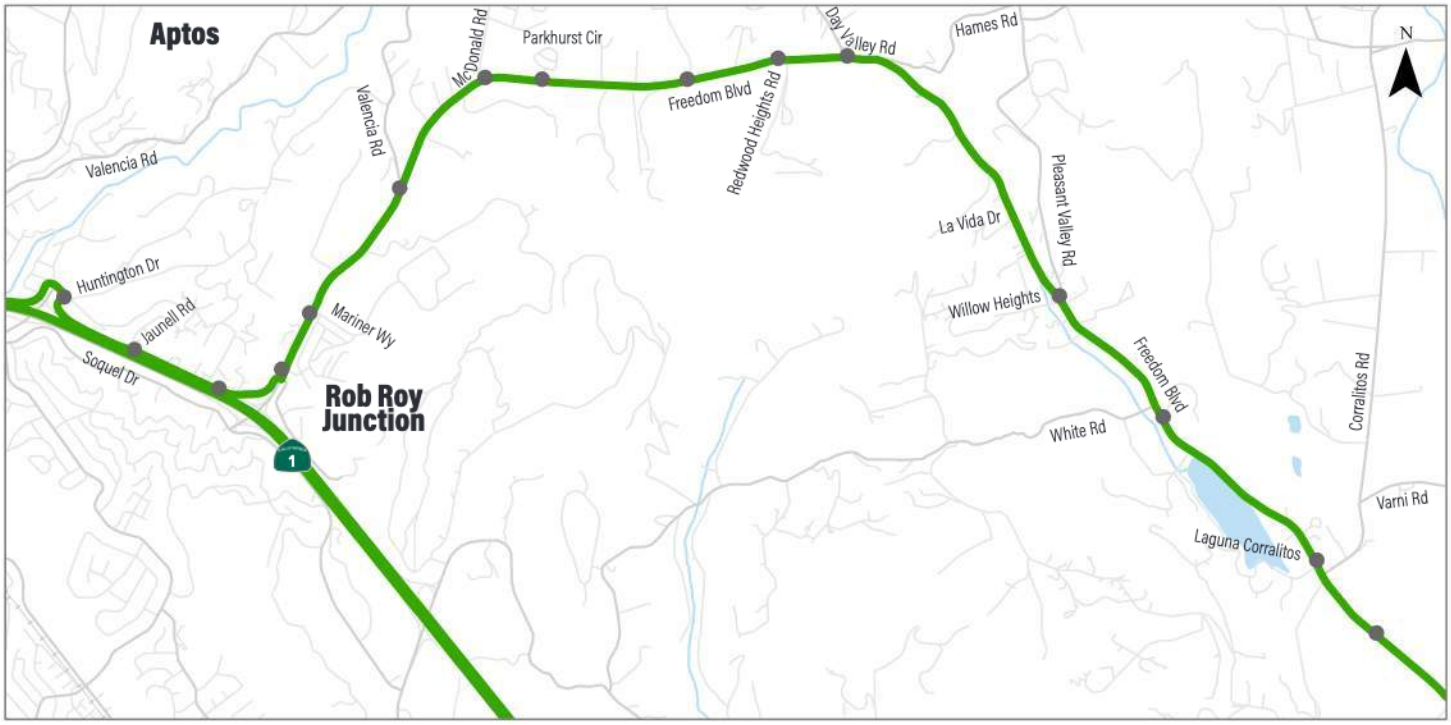
Legend

- City Limits
- Bus Stop
- Transit Center

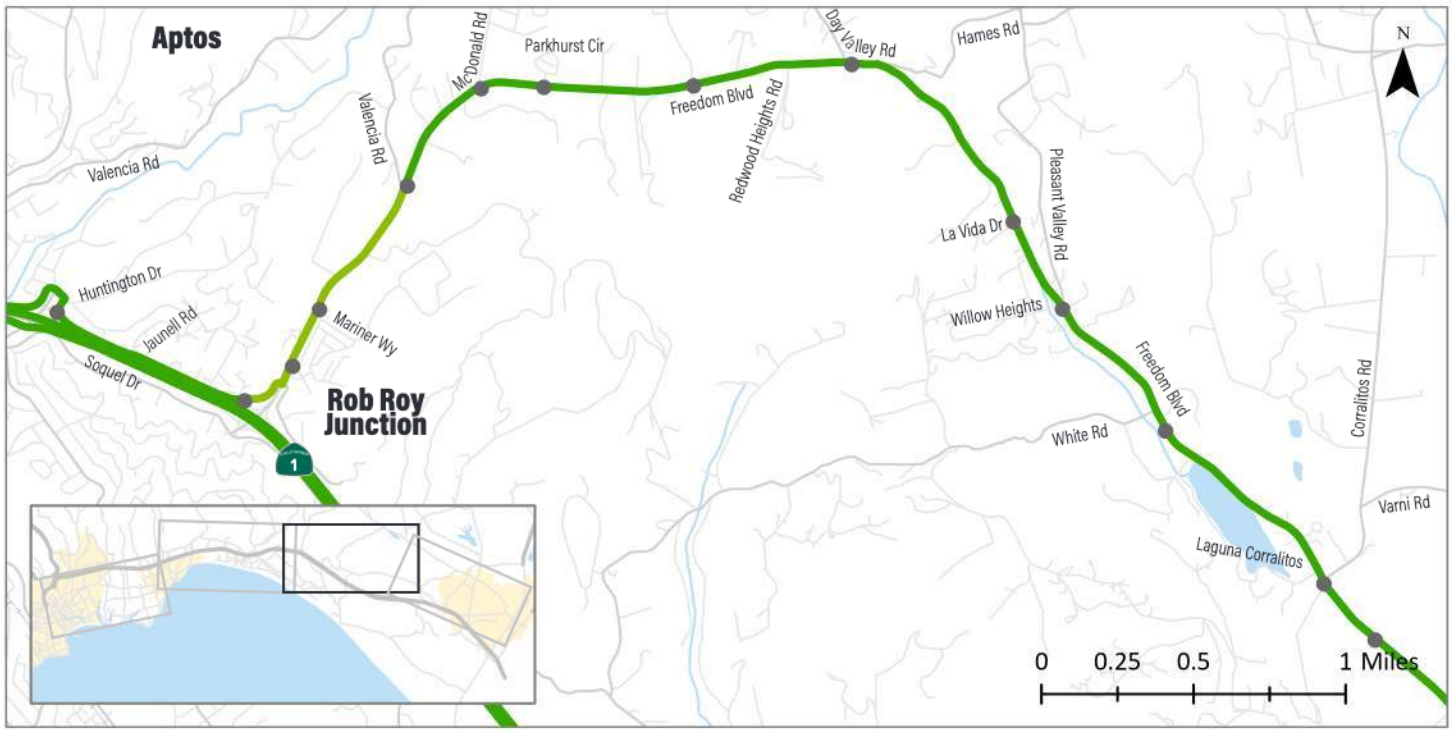
Bus Speed Variability (coefficient of variation)

- < 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.5
- 0.5 - 0.8
- > 0.8

Figure 1C: July PM Peak Period Speed Variability - Aptos to Freedom



Northbound



Southbound

Legend

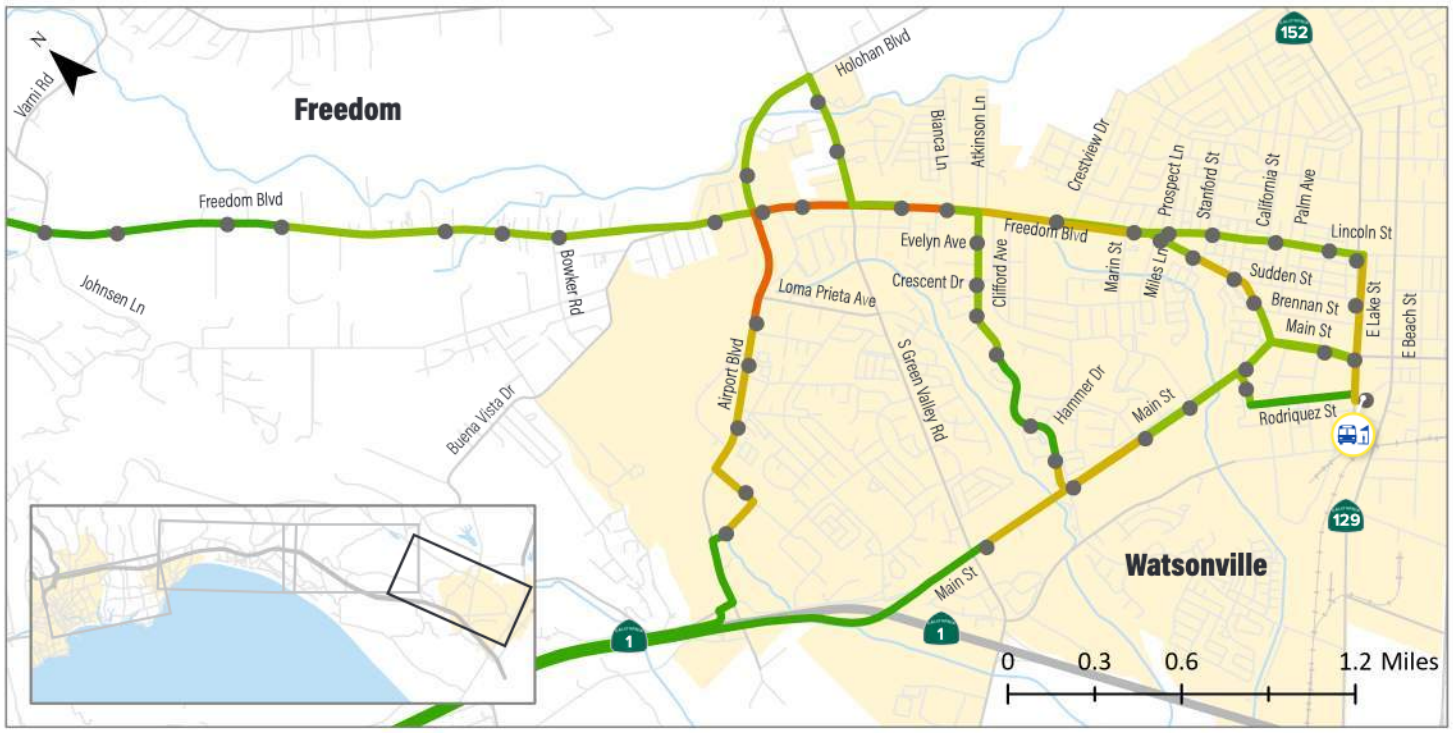
- City Limits
- Bus Stop
- Transit Center

Bus Speed Variability (coefficient of variation)

- < 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.5
- 0.5 - 0.8
- > 0.8

Figure 1D: July PM Peak Period Speed Variability - Freedom to Watsonville

Northbound



Southbound

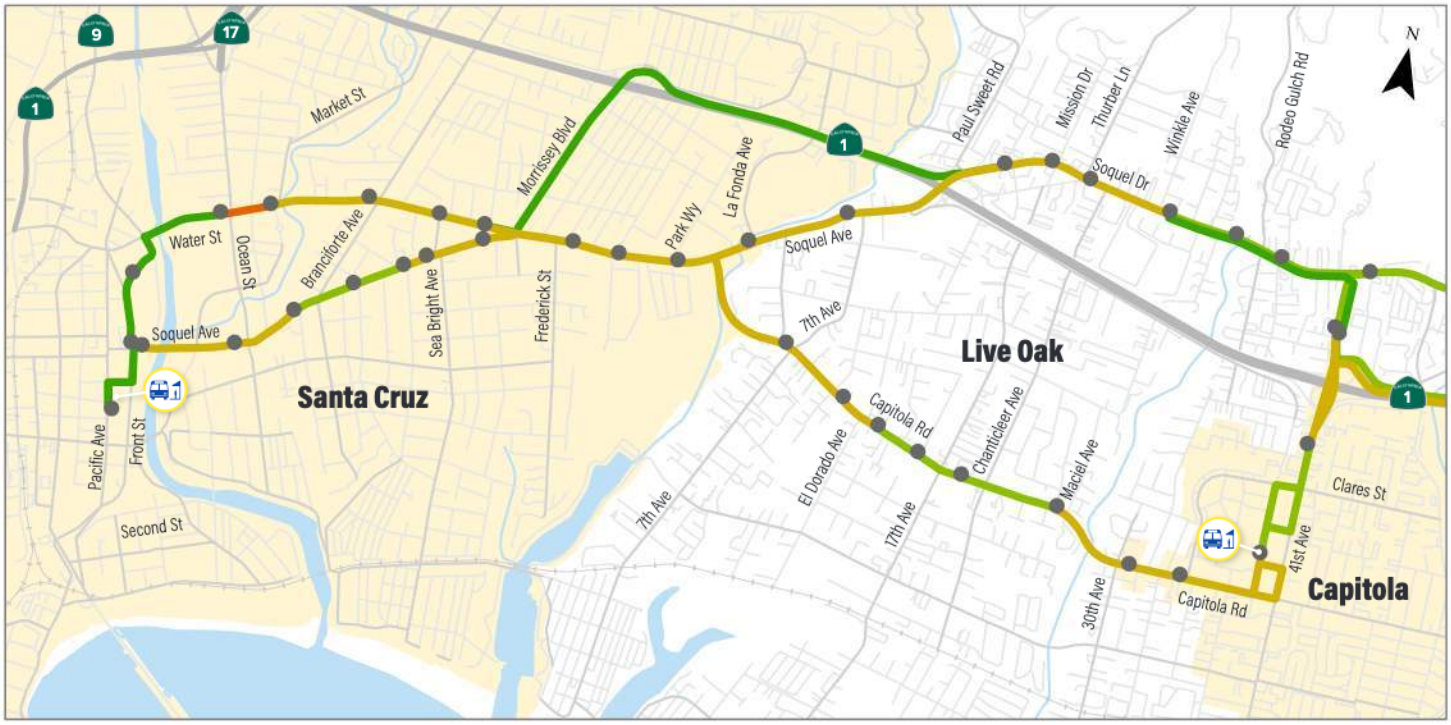
Legend

City Limits
Bus Stop
Transit Center

Bus Speed Variability (coefficient of variation)

< 0.1	0.2 - 0.3	0.5 - 0.8
0.1 - 0.2	0.3 - 0.5	> 0.8

Figure 1A: September AM Peak Period Speed Variability - Santa Cruz to Capitola



Northbound

Southbound

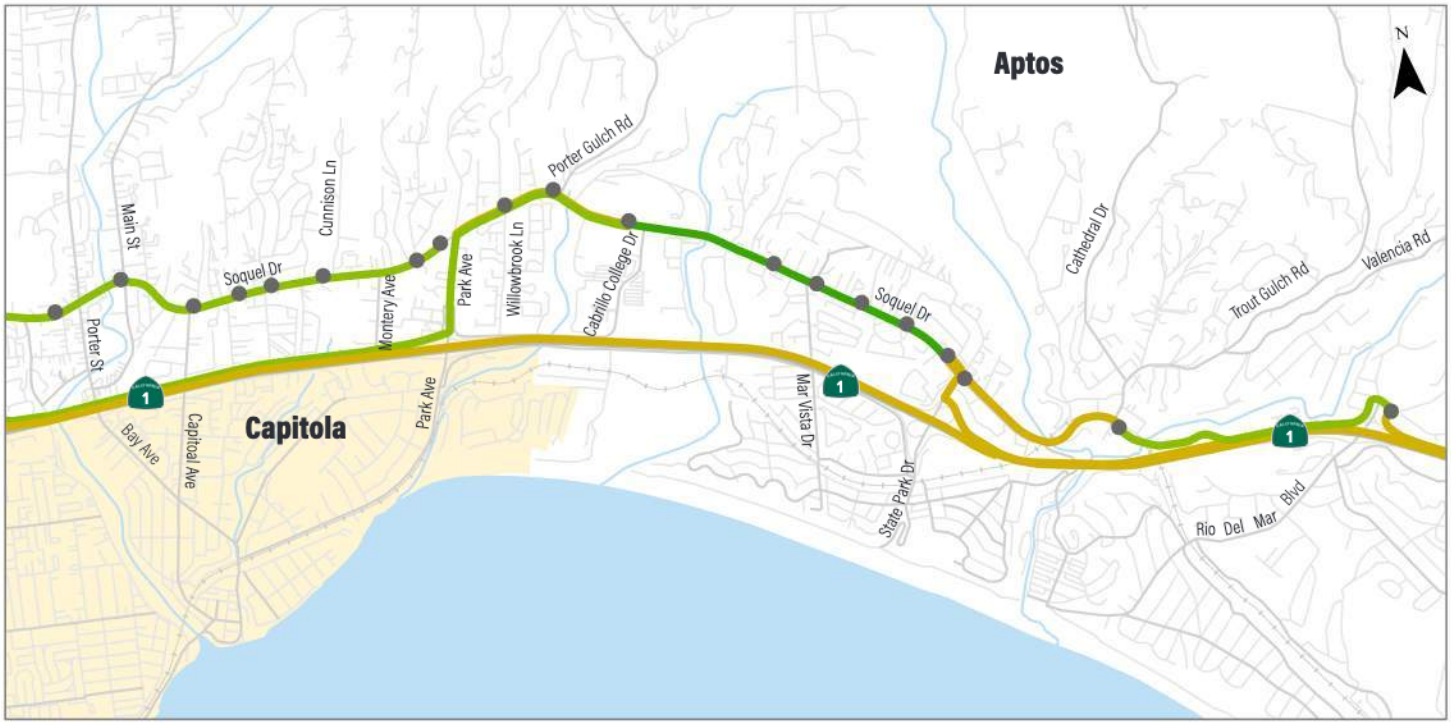
Legend

- City Limits
- Bus Stop
- Transit Center

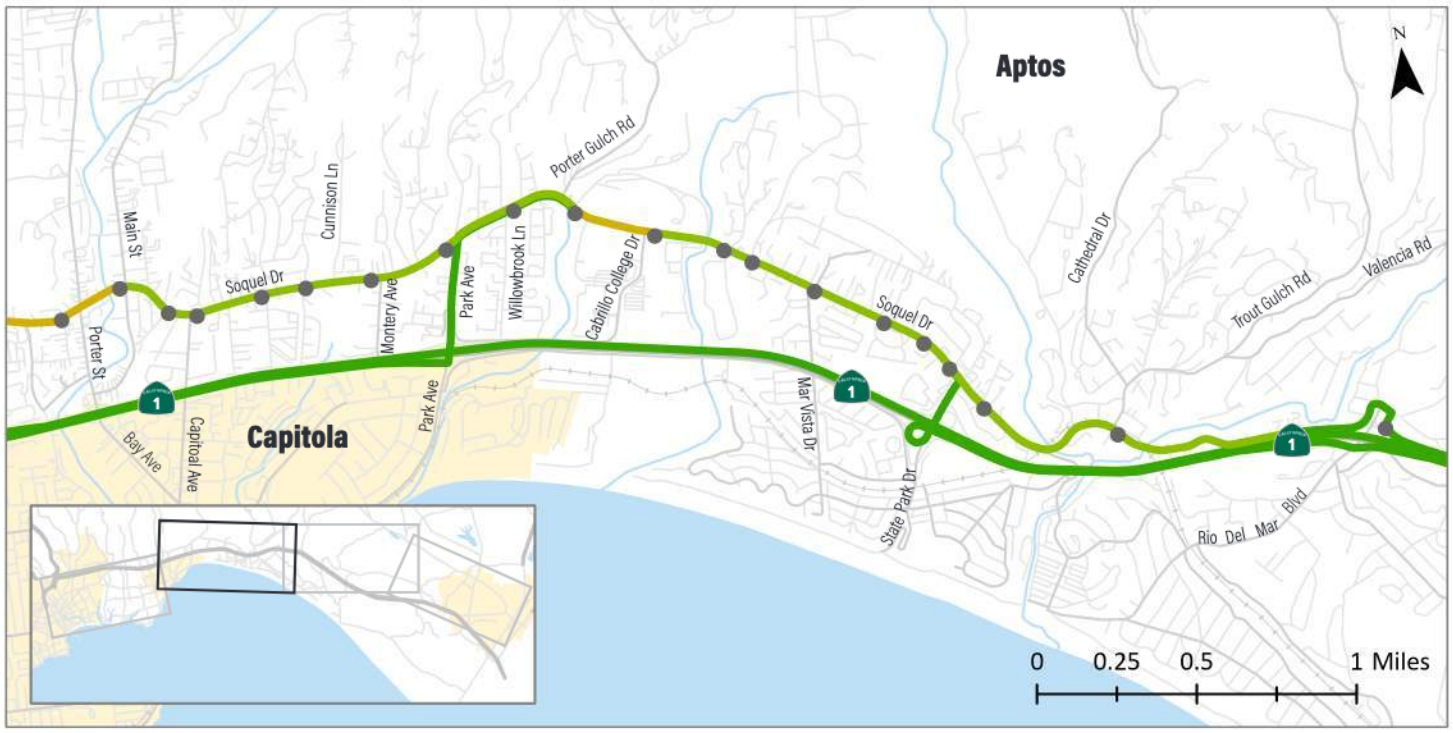
Bus Speed Variability (coefficient of variation)

- < 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.5
- 0.5 - 0.8
- > 0.8

Figure 1B: September AM Peak Period Speed Variability - Capitola to Aptos



Northbound



Southbound

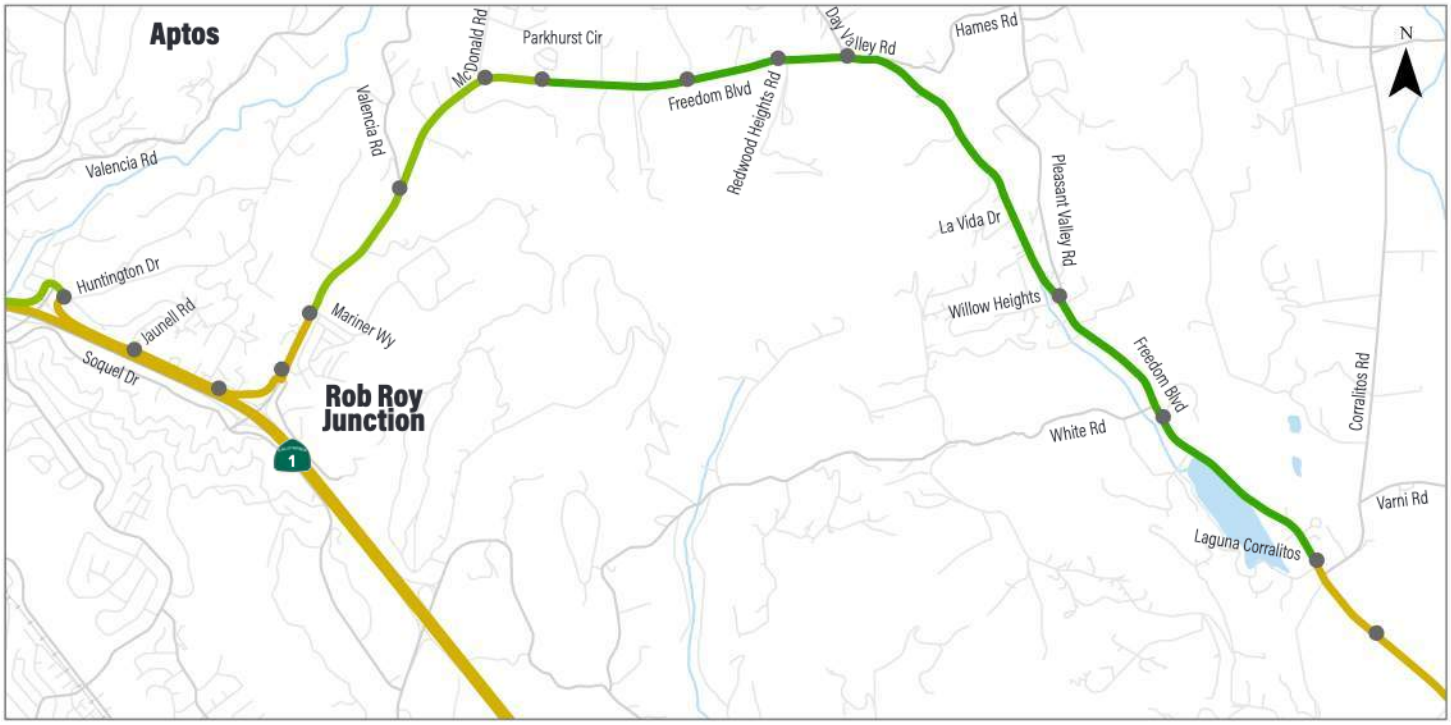
Legend

- City Limits
- Bus Stop
- Transit Center

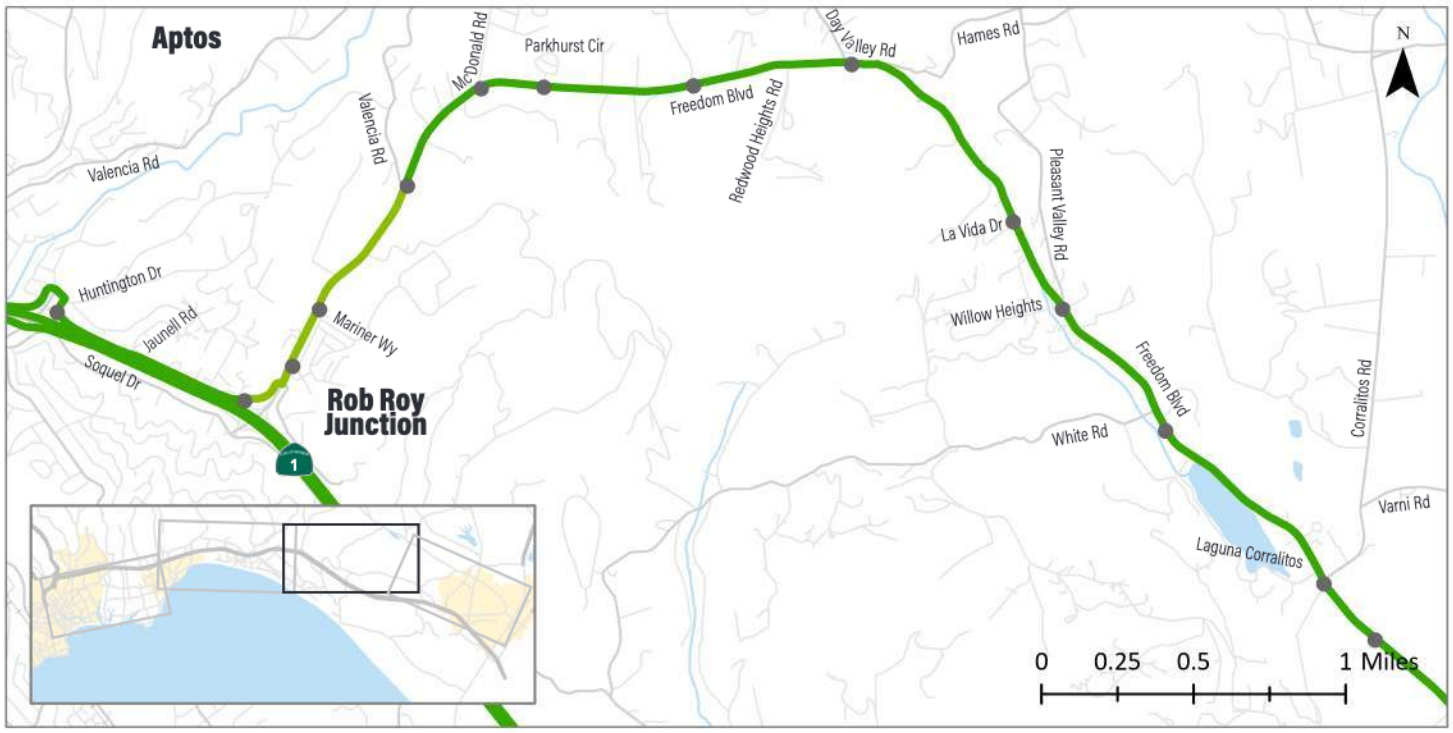
Bus Speed Variability (coefficient of variation)

- < 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.5
- 0.5 - 0.8
- > 0.8

Figure 1C: September AM Peak Period Speed Variability - Aptos to Freedom



Northbound



Southbound

Legend

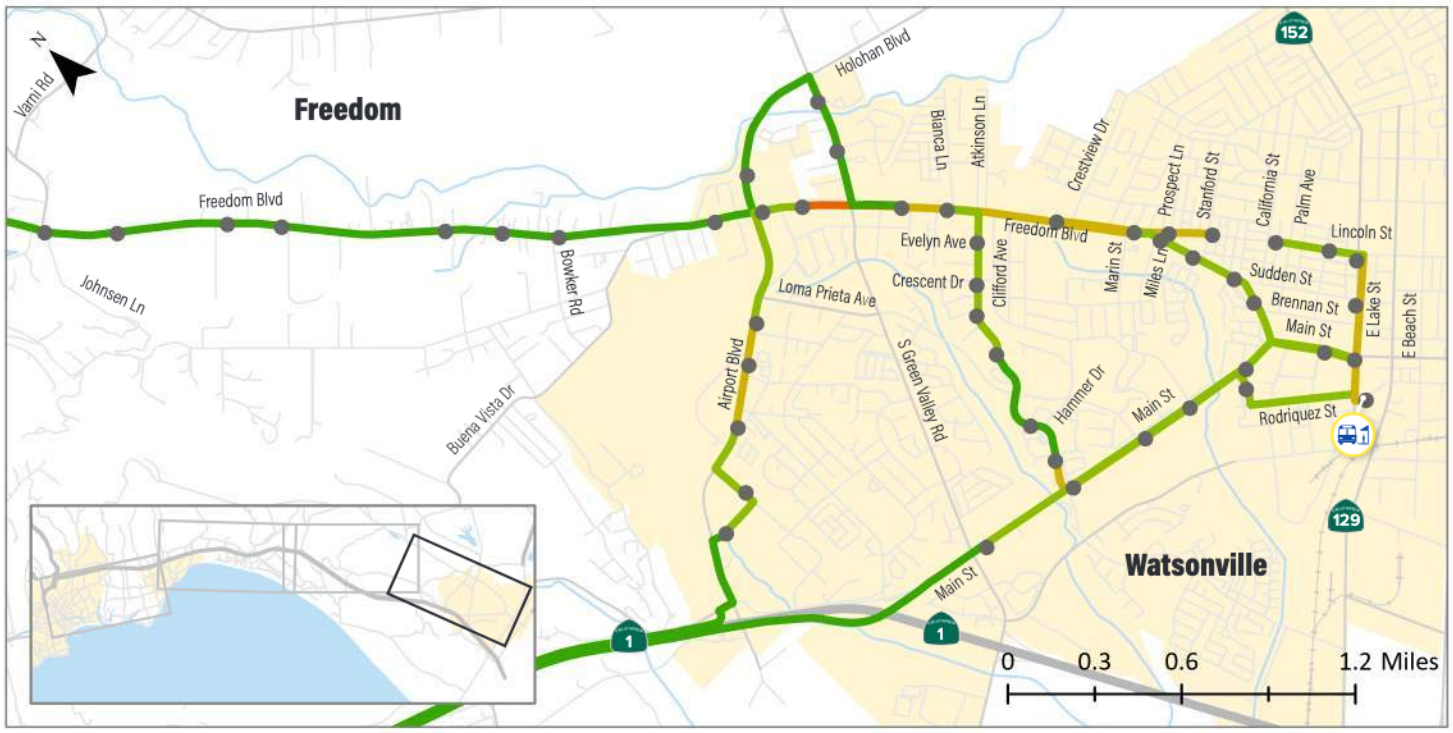
City Limits
Bus Stop
Transit Center

Bus Speed Variability (coefficient of variation)

< 0.1
0.1 - 0.2
0.2 - 0.3
0.3 - 0.5
0.5 - 0.8
> 0.8

Figure 1D: September AM Peak Period Speed Variability - Freedom to Watsonville

Northbound



Southbound

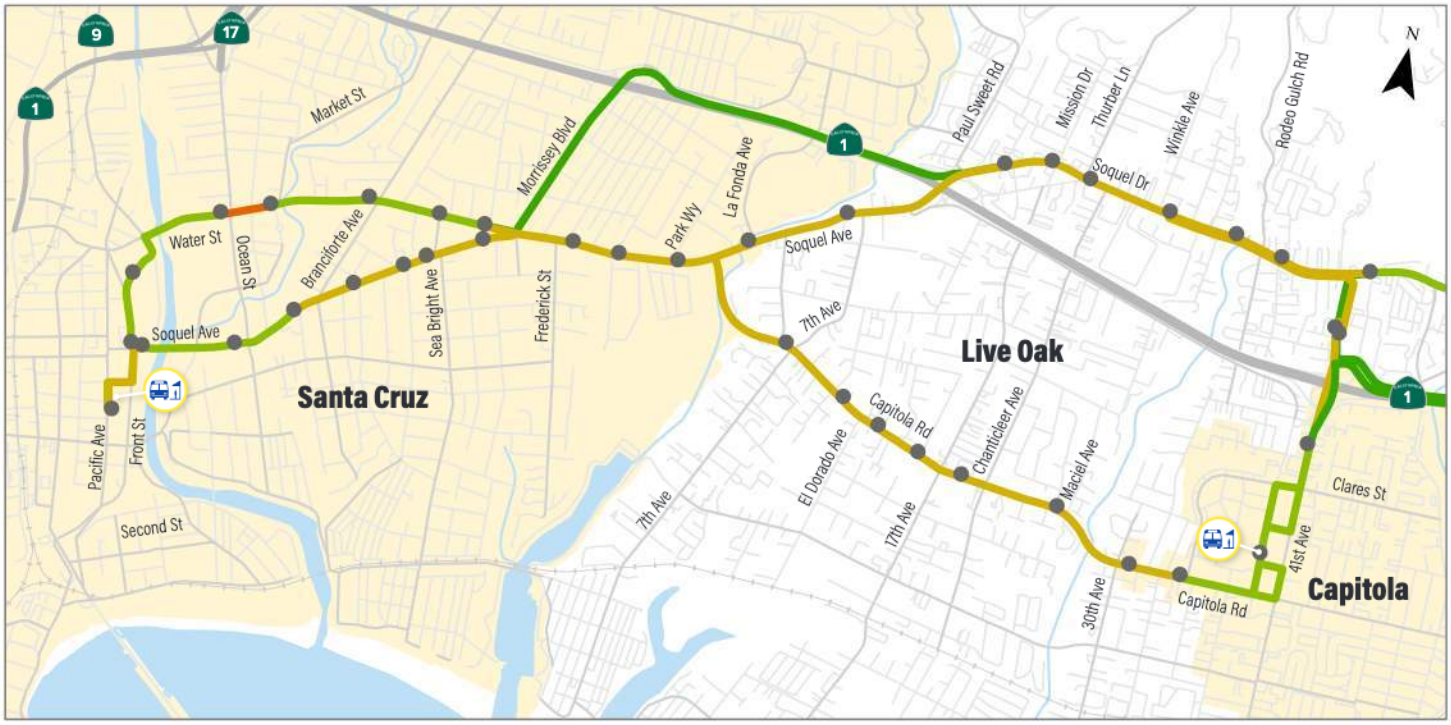
Legend

- City Limits
- Bus Stop
- Transit Center

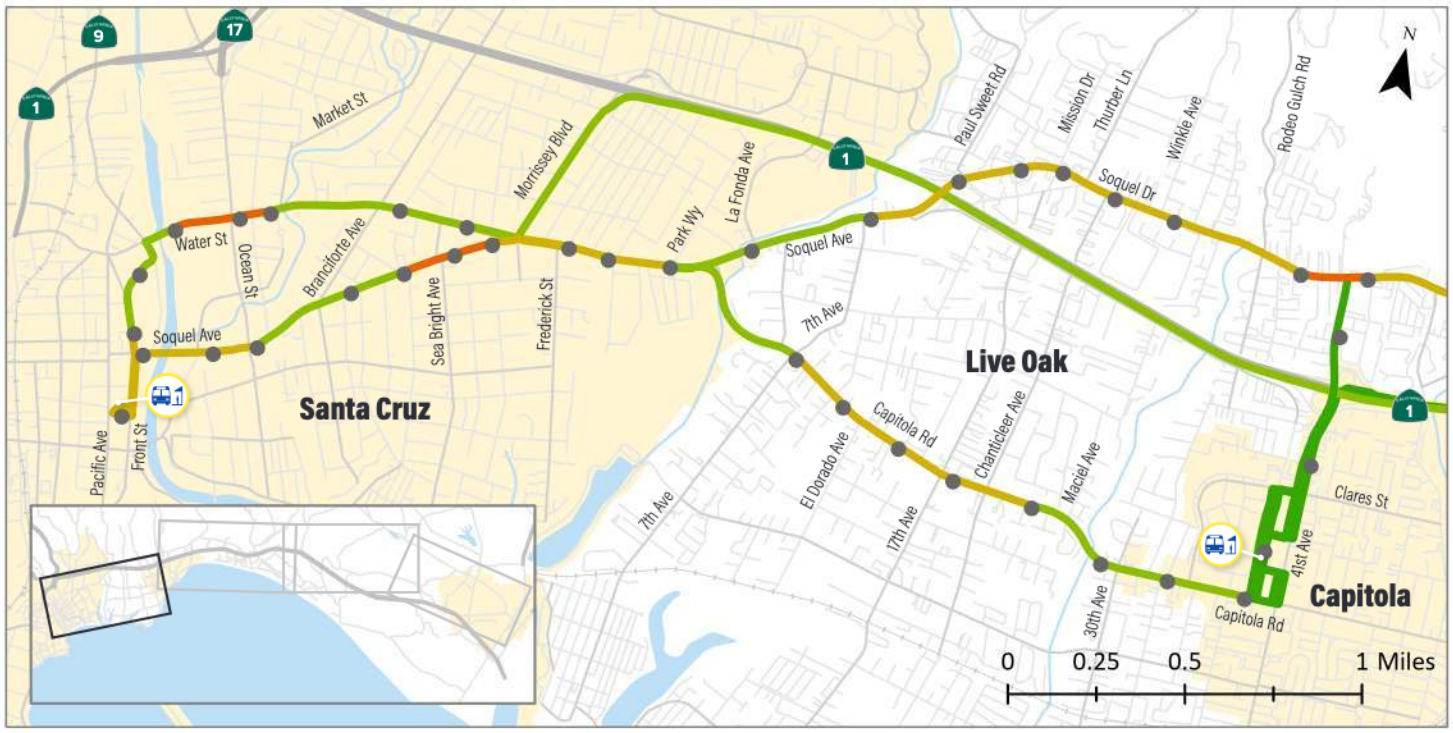
Bus Speed Variability (coefficient of variation)

- < 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.5
- 0.5 - 0.8
- > 0.8

Figure 1A: September PM Peak Period Speed Variability - Santa Cruz to Capitola



Northbound



Southbound

Legend

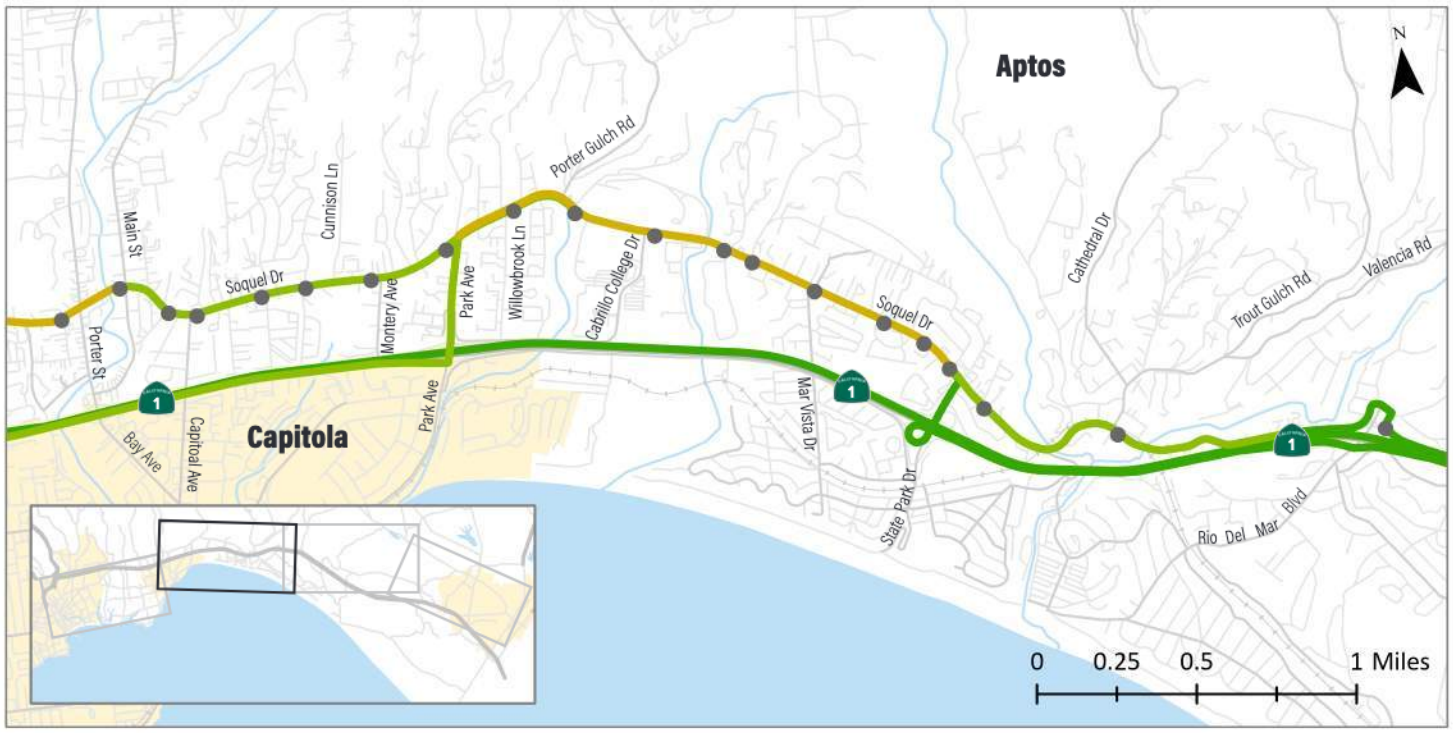
- City Limits
- Bus Stop
- Transit Center

Bus Speed Variability (coefficient of variation)

- < 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.5
- 0.5 - 0.8
- > 0.8

Figure 1B: September PM Peak Period Speed Variability - Capitola to Aptos

Northbound



Southbound

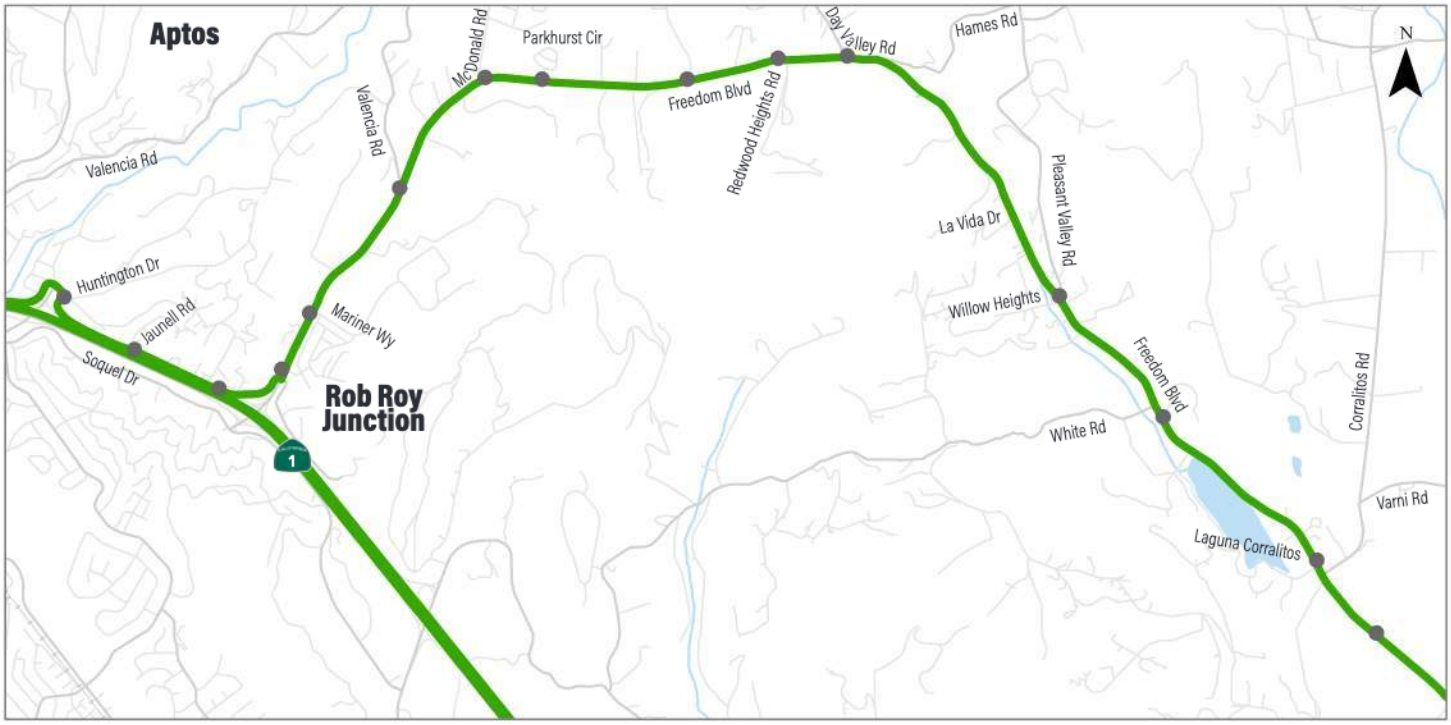
Legend

- City Limits
- Bus Stop
- Transit Center

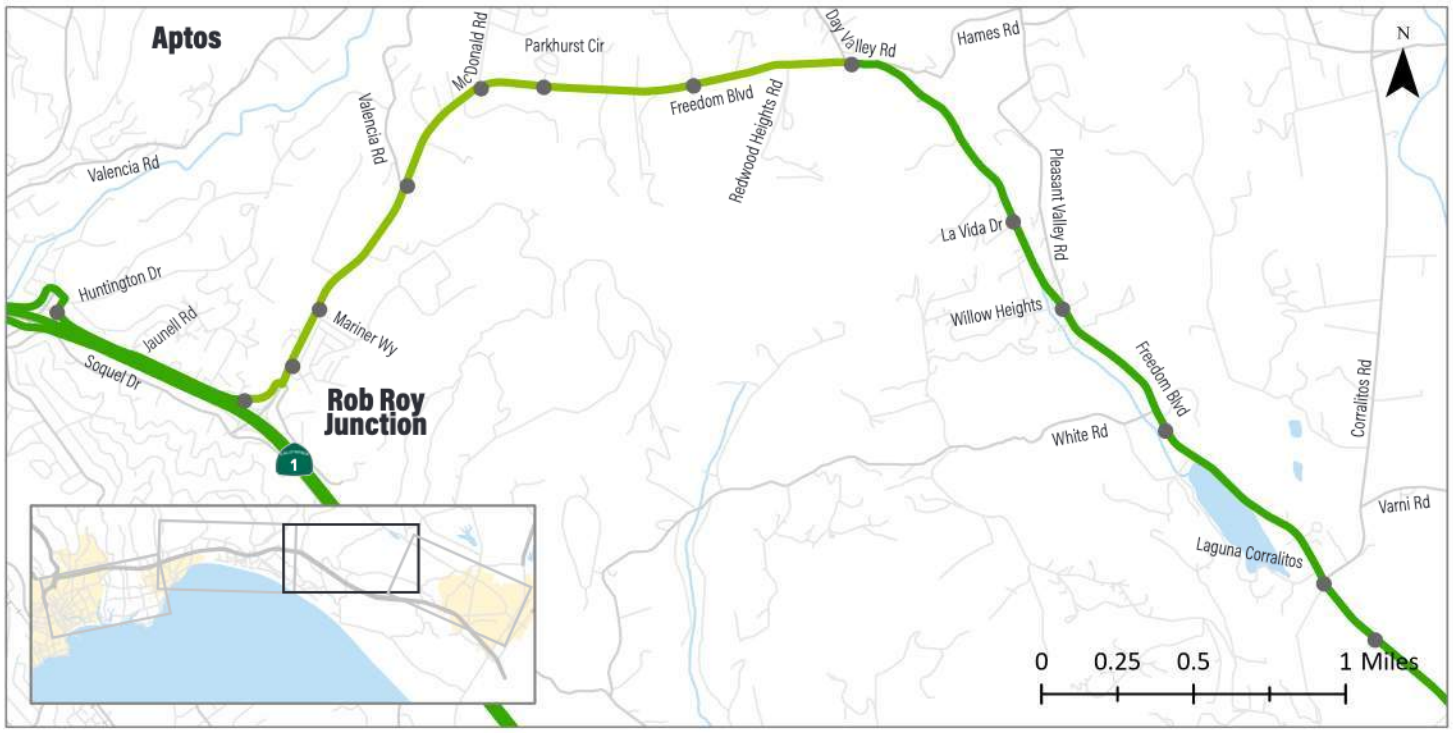
Bus Speed Variability (coefficient of variation)

- < 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.5
- 0.5 - 0.8
- > 0.8

Figure 1C: September PM Peak Period Speed Variability - Aptos to Freedom



Northbound



Southbound

Legend

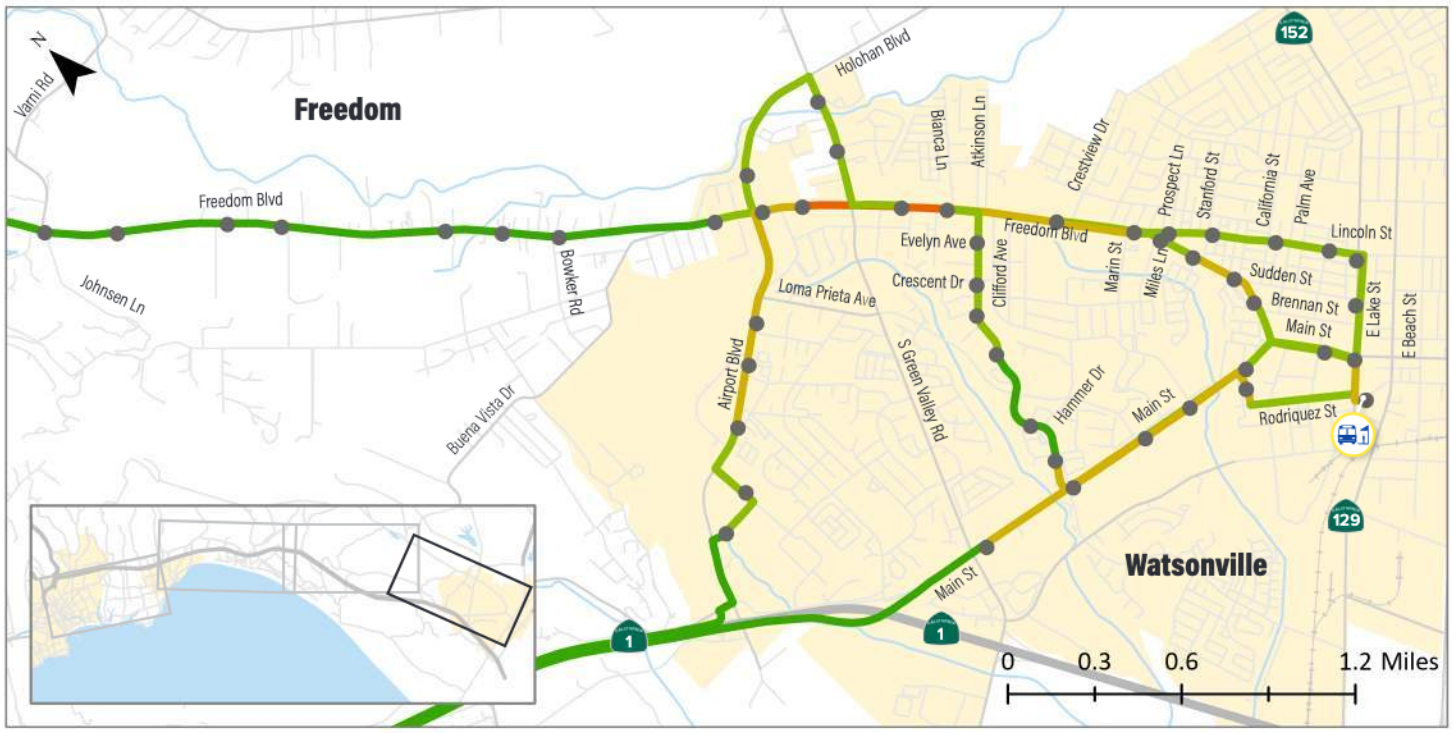
- City Limits
- Bus Stop
- Transit Center

Bus Speed Variability (coefficient of variation)

- < 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.5
- 0.5 - 0.8
- > 0.8

Figure 1D: September PM Peak Period Speed Variability - Freedom to Watsonville

Northbound



Southbound

Legend

- City Limits
- Bus Stop
- Transit Center

Bus Speed Variability (coefficient of variation)

- < 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.5
- 0.5 - 0.8
- > 0.8

APPENDIX E: OPERATOR INTERVIEW QUESTIONS AND ANSWERS

Operations Interview Questions

Santa Cruz METRO is evaluating Routes 69W, 69A, 71, and 91X to better understand the factors that are causing bus delays and then identify improvements to improve bus reliability. We are interested in hearing personal experience from operations staff about the factors that are causing delays. Examples of items to note could include challenges pulling into or out of specific stops, specific stops with long dwell times, bus turning movements or signal delays at certain intersections, or schedule/layover challenges. The information gathered through these questions will be used to identify specific areas where improvements are needed.

We are providing the questions in advance of the meeting to allow you to start thinking about the topic and examples that you can share in the meeting or gather feedback from peers. The feedback shared during the November 15th meeting will be aggregated and specific responses will not be attributed to any individual person.

1. Are there any stops on these routes that are difficult to pull into or out of, due to stop configuration, congestion around the stop, high vehicle speeds, difficult sight distance, etc?
    a. 71 OB: bad visibility (unlit at night)
        i. 1440 – Freedom Blvd & Day Valley Rd
        ii. 1432 - Freedom Blvd & McDonald Rd
            1. Spoke with Wondimu about utilizing existing 5339 funding to install better lighting for these stops. To discuss with Freddie (will follow up)
2. Are there any stops on these routes that commonly experience a larger than typical dwell time due to slower passenger boarding or alighting rates? Could be due to factors such as stop design or user demographics (not familiar with the system, higher dependency on cash, frequent wheelchair deployment)
    a. Longer dwell time due to cash paying customers
3. Are there any turns on these routes that are more difficult to make due to bus stop spacing near the turning maneuver, a tight turning radius, or experience heavier delays due to traffic congestion and queues?
    a. Route 69A/W
        i. Capitola Rd & 41st Ave (Stop ID 1302)
            1. Turning from Capitola onto 41st is difficult, as the bus needs to make an immediate left onto 41st after pulling back into traffic on Capitola.
    b. Route 71
        i. Freedom & Clifford (Closest Stop: 2211 @ Clifford Ave & Evelyn Ave)
            1. Turning from freedom onto Clifford
4. While we are aware of underlying traffic congestion in the corridor that affects transit speeds, are there any particularly congested intersections that seem to cause outsized impacts to delay or reliability?
    a. Peak commute periods impact entire corridor from SCMC to State Park
5. Are there any locations on these corridors where unsafe auto driving maneuvers are common and represent a safety hazard to yourself or METRO customers or cause additional bus delay?
    a. Route 69W/71
        i. Soquel Dr & 41st Ave (Stop ID 1818)
            1. People turning into the shopping center cut in front of the bus

6. Are there certain timepoints on these routes where scheduled times are particularly hard to meet? What are the factors contributing to that? Is the allocated layover time adequate to start trips on time?
    a. All day on the 69W the run times are too short but more time was allotted for the winter. Will monitor. The 71 during peak commute does not have enough scheduled time/holdover but more time was allotted for the winter. Will monitor.
7. Are there ever times when the bus bike rack is full? If that occurs, what does the customer usually do?
    a. Route 69W and 71
        i. SCMC
        ii. Ocean & Water
8. How well utilized are mobile technology features on these routes? Examples include: use of Transit App for trip-planning, real-time bus arrival information, METRO Splash pass. What feedback have you received from riders about their awareness of, ease of use, accuracy, or effectiveness of those services.
    a. Use of the mobile app (SplashPass) is increasing, especially on the Hw17. Watsonville is still primarily cash
9. Do you hear consistent comments/complaints from customers revolving around the following topics:
    a. Access to specific stops (sidewalks, bike lanes, etc)
        i. N/A
    b. Locations for new/additional stops
        i. Might have too many stops
    c. Condition of or amenities at specific stops
        i. Due to loitering and unhoused persons using bus stops as dwellings, amenities like full benches get replaced with Simmi-Seats
            1. Routes 69W/71
                a. 1795 – Soquel & Frederick
                b. 1791 – Soquel & Cayuga
                c. 1817/1818 – Soquel & 41st
                d. 2480/2623 – Watsonville Hospital
        ii. Need better lighting at stops
    d. Reliability of service or connections (transfers) to other routes
        i. Usually ask drivers on how to make connections. Could better communicate how to use transfers in the system,
    e. Understanding legibility of the service (what bus routes to take where)
        i. UCSC students attempting to connect on non-UCSC routes don't seem to understand how to transfer to get to where they need to go
    f. Fares and fare structures
        i. Hasn't changed since 2011/2015 (Local/Highway 17)
    g. Safety and security at bus stops
        i. See answers to 9c
10. Is there anything else you would like to note for the project team to consider for existing challenges/opportunities in the corridor?
    a. Better communication with the public
        i. Spanish signage/Bus Stop Announcements (in South County)
        ii. Bigger Signage/More Detailed

1. Many Watsonville residents do not have smartphone and Wi-Fi is spotty. Maybe more details information at these stops

iii. More rider alerts/better means of communicating rider alerts
   1. Real Time App for bus location
   2. Cov Delivery Alerts are often sent out too late to be helpful

iv. Apps (SplashPass) should be advertised more at High School bus stops
   1. Contact schools along the route 71
      a. Soquel & La Fonda (Harbor High0 is still using mostly cash

APPENDIX B

Round 1 Public Engagement Report

Watsonville-Santa Cruz Intercity Transit Speed and Reliability Study

Round 1 Public Engagement Summary

April 2023

Table of Contents

Introduction

Kimley-Horn's Public Engagement Plan for Santa Cruz METRO's Line 71/Rapid Corridor Project included strategies and activities to reach a broad cross-section of the community along the study corridor including bus riders, residents, businesses, advocacy groups, and disadvantaged communities. The plan includes two rounds of engagement, the first of which focused on identifying corridor needs and opportunities which is further detailed in this report.

Prior to launching the public-facing effort, METRO and Kimley-Horn teams met with agency partners in the form of a ***Technical Working Group*** on January 17, 2023. The goal was to vet the purpose of the study, review technical work to date, and get feedback on the Public Engagement Plan. The meeting was facilitated and documented by Eileen Goodwin with Apex Strategies and attended by:

- Madilyn Jacobson, Caltrans
- Matt Starkey and Claire Gallogly, City of Santa Cruz
- Justin Meek, City of Watsonville
- Russell Chen, County of Santa Cruz
- Amanda Marino and Briana Goodman, Santa Cruz Regional Transportation Commission
- Amelia Conlen, Ecology Action

The first round of outreach occurred between January and February 2023 and consisted of two main components:

1. In-person pop-up events
2. Online and paper community survey

Round 1 Public Engagement officially launched on January 23, 2023, with the first pop-up event held at the Downtown Santa Cruz Transit Center. The ***in-person effort*** consisted of six pop-ups over a two-week period at various major transit and community hubs in Santa Cruz and Watsonville.

Regeneración Pajaro Valley, a local non-profit community-based organization in Watsonville, supported all the in-person events. Staff also created a translated, hardcopy survey that was effective in reaching low-literacy Spanish speakers, including a strategy to read through the survey to those less willing to take it on their own.

Maps on poster boards were stationed at in-person events, allowing participants to visualize the study area and place dots where they experienced challenges or would benefit from better transit service.

The ***online survey***, provided in both English and Spanish, and interactive mapping tool was also made public on January 23 and remained open for five weeks, until February 28, 2023.

The online survey was promoted through METRO's various communication channels, including a webpage, e-newsletters, Facebook, Twitter and Instagram (pictured right.)

Stakeholders and community leader were asked to support the effort by sharing public notifications with their networks.

Postcards featuring a QR code to METRO's website with links to the survey were developed and handed out at events. Car cards and brochures were also developed and placed on buses throughout the survey intake period. All collateral was disseminated in both English and Spanish, including social media graphics (examples pictured below, all collateral samples in Appendix B.)

In-Person Event Summaries

The following is a detailed account of the six in-person pop-up events held throughout the service area.

Pop-up event kick off w/ KH and Regeneración staff

Transit Equity Day Festival w/ KH and SC Metro staff

January 23, 2023 – Downtown Santa Cruz Transit Center

10:30 am - 12:30 pm

Kimley-Horn and Regeneración kicked off the first round of engagement pop-ups for Santa Cruz Metro at the Downtown Santa Cruz Transit Center. A large proportion of users were students that did not take line 69A, 69W, 71, or 91X. The four poster boards were up on display but had limited engagement due to the windy conditions. Engagement yielded:

- 6 Spanish surveys
- 21 English surveys
- 27 Total surveys
- 3 enlightening conversations with bus operators
- Distributed over 40 postcards with a QR code to the on-line survey

January 24, 2023 – Watsonville Metro Bus Station

2:10 pm – 5:00 pm

While surveying at the Watsonville Metro Bus Station, the Regeneración team found that it was not as busy as the Santa Cruz Transit Station. The team found it difficult to get most folks' attention as many were focused on getting to their destination and walked away with their heads down after getting off the bus. Lack of literacy at this location also seemed apparent with the Regeneración team finding that they often had to read the survey out loud to a handful of Spanish speakers. This event turned out the most Spanish surveys yielding the following engagement:

- 23 Spanish surveys
- 4 English surveys
- 27 Total surveys
- 4 Postcards

January 26, 2023 – Santa Cruz Metro Station (by Capitola Mall)

10:30 am – 12:50 pm

The team arrived at Capitola Mall at 9:30 AM and there was only one person waiting for a bus. After about 45 minutes of little to no one to engage, the team packed up and moved to the Santa Cruz Metro Station and surveyed from 10:30 am to 12:00 pm. The team returned to Capitola Mall at 12:20 and stayed until 12:50, with similar crowd levels as before. Engagement yielded:

- 4 Spanish surveys
- 22 English surveys
- 26 Total surveys
- 4 Postcards

February 1, 2023 – Cabrillo College

1:30 pm – 3:30 pm

At Cabrillo College, the team covered both the northbound and southbound bus stops. Riders waiting for line 69A, 69W, and 71 were more than willing to spare some time to fill out the survey. The team also had a chance to connect with the Director of Student Life & Welcome Services at Cabrillo College, who kindly offered to promote the survey further through the student body. Engagement yielded:

- 2 Spanish surveys
- 25 English surveys
- 27 Total surveys
- 70 Postcards

February 4, 2023 – Transit Equity Day, Watsonville

9:30 am - 1:30 pm

At Transit Equity Day in Watsonville, community members showed interest in the project, but very few took transit regularly. There were also very few festival attendees due to poor weather but those who stopped by did take time to fill out the survey. The physical elements seemed to be the greatest challenge as poster boards and surveys got wet through the wind and rain. Engagement yielded:

- 2 Spanish surveys
- 11 English surveys
- 13 Total surveys
- 25 Postcards

February 7, 2023 – Cabrillo College

11:30 am – 2:30 pm

The team completed another round of surveying at Cabrillo College with team members stationed at both the southbound and northbound bus stops. This location showed itself to be a promising space to gather input and feedback specific to riders from line 69A, 69W, and 71. Engagement yielded:

- 4 Spanish surveys
- 22 English surveys
- 26 Total surveys
- 37 Postcards

Online and Paper Community Survey Responses

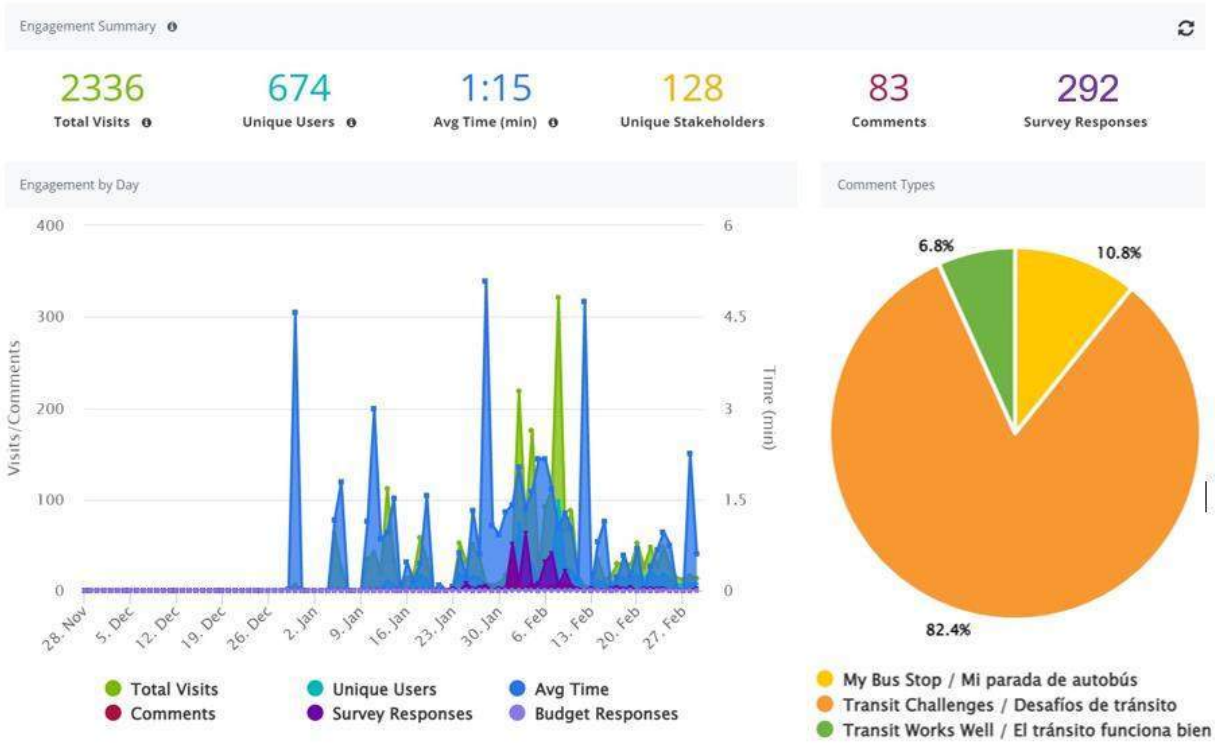
The in-person and online engagement resulted in a total of 292 survey respondents. Out of the 146 in-person surveys conducted, 28% were in Spanish. Pop-up events at Cabrillo College, detailed later in this report, resulted in high student engagement with many opting to take the survey online while heading to class. Close to 700 unique users visited the interactive website, with an additional 146 on-line surveys taken and 83 site-specific comments recorded.

IN PERSON SURVEY ENGAGEMENT

- 41 Spanish surveys completed
- 105 English surveys completed
- 146 Total surveys completed
- 167 Postcards distributed

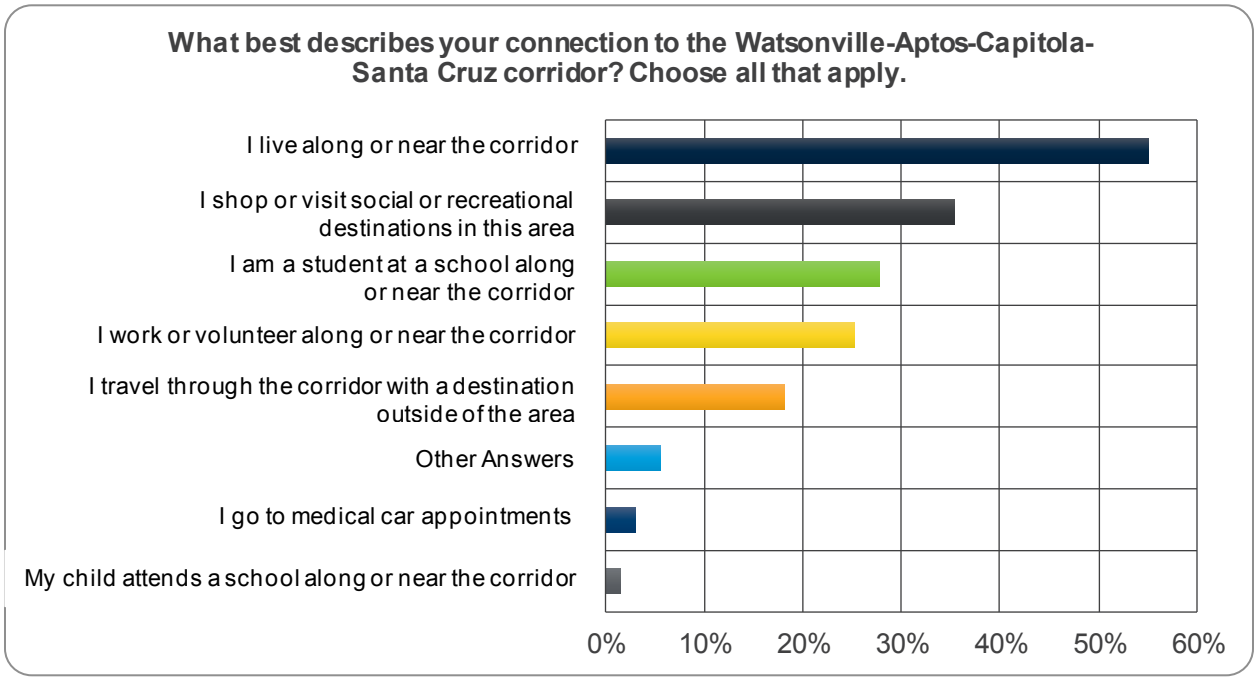
ONLINE MAP & SURVEY ENGAGEMENT

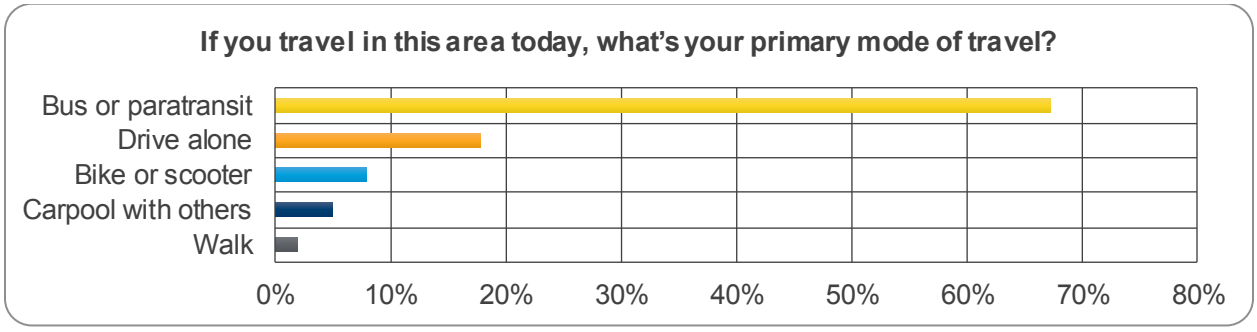
- 2336 Total site visits
- 674 Unique users
- 146 Surveys completed
- 83 Comments



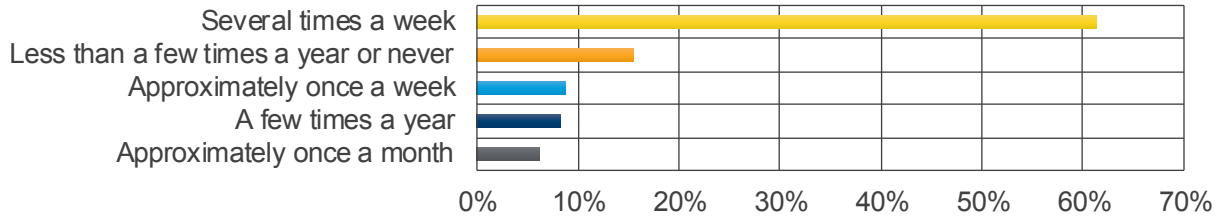
Online and paper surveys collected from various efforts revealed that over half of the respondents live along or near the corridor. Most respondents noted that they mainly depend on bus or paratransit as their primary mode of travel and ride routes 69A, 69W, 71, and 91X several times a week. Most bus riders indicated that they take routes 71 Soquel/Freedom and 69W Capitola/Cabrillo. Survey users who were bus riders noted that the main reason they took the bus was due to a lack of access to a car. Survey respondents were from all of the zip codes along or near the study routes; however, the greatest concentration of users resided in Santa Cruz or Watsonville.

Survey respondents were able to rank a list of transit improvements based on what they were most interested in seeing METRO address. The top three improvements desired by survey users were: 1) shorter bus wait times, 2) buses going to more places, and 3) more reliable travel times. A combination of these top three improvements were selected the most often, followed by a significant drop-off of any other most needed improvement.

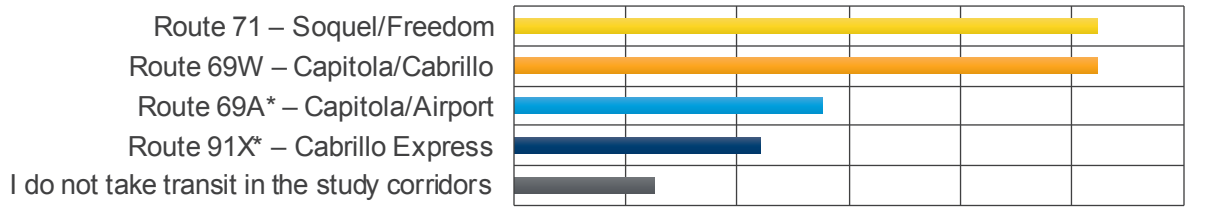




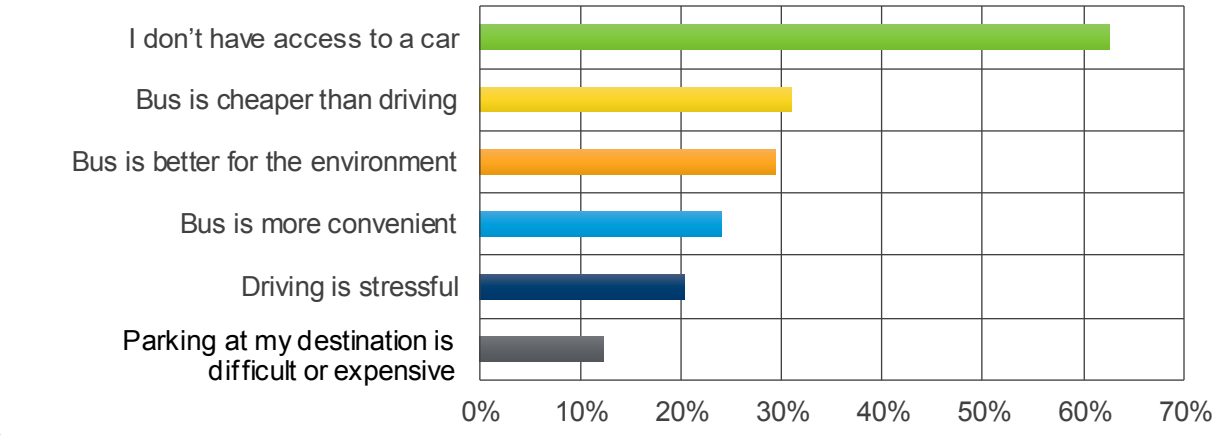
How frequently do you ride the bus routes in the area (Routes 69A*, 69W, 71, 91X*)? Select the option that best describes you.



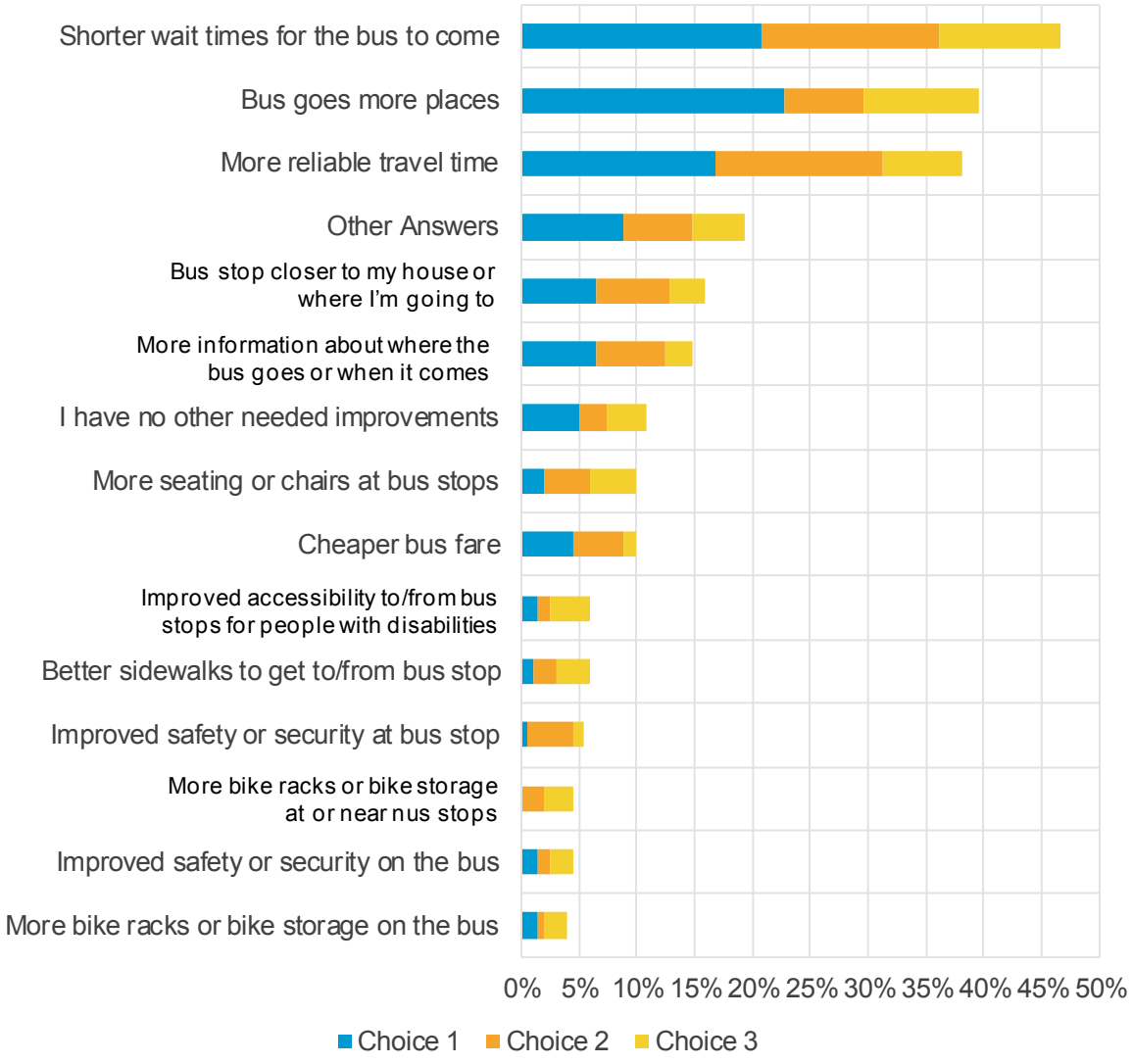
Which bus do you typically take within the corridor? Choose all that apply.

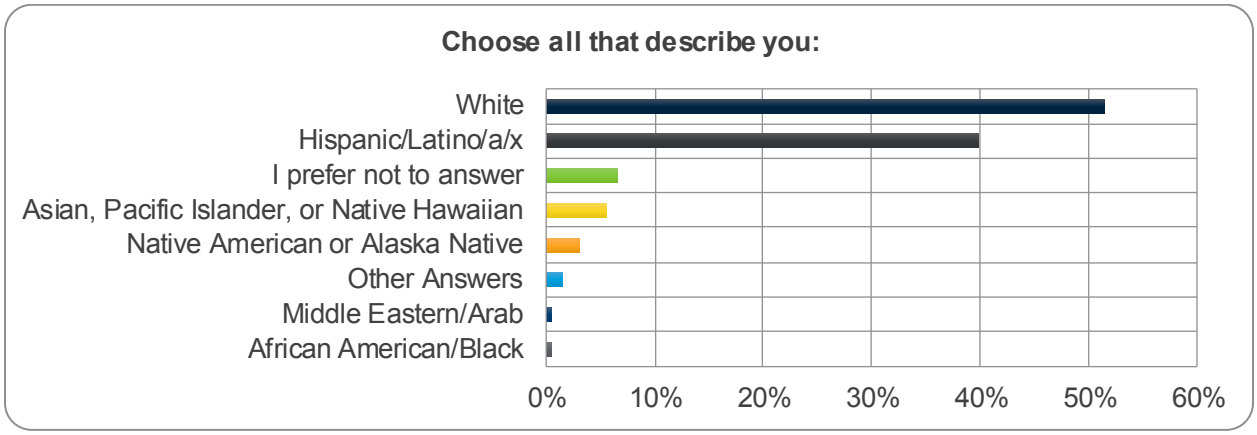


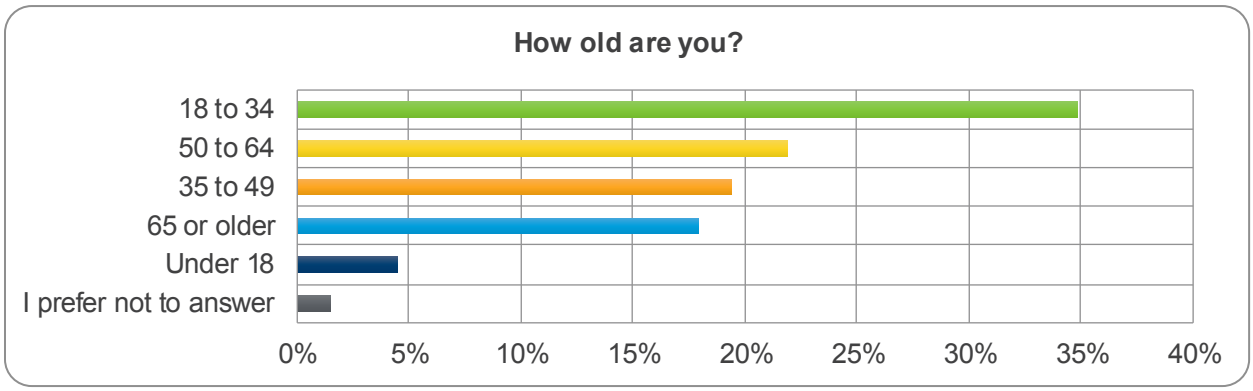
If you currently take the bus in this corridor, what are the primary factor(s) in that choice? Select all that apply.

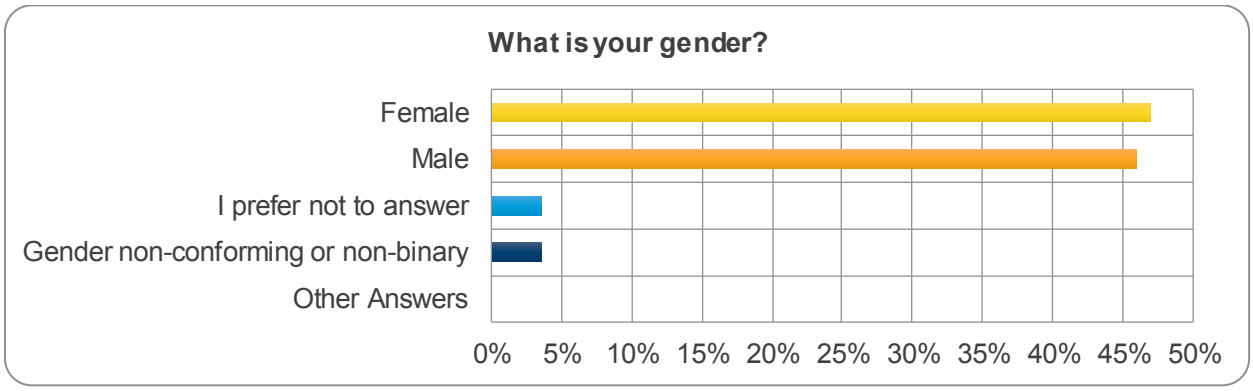


Which of the following improvements would encourage you to take the bus more or improve your experience when taking the bus in this area? What is the most needed improvement?

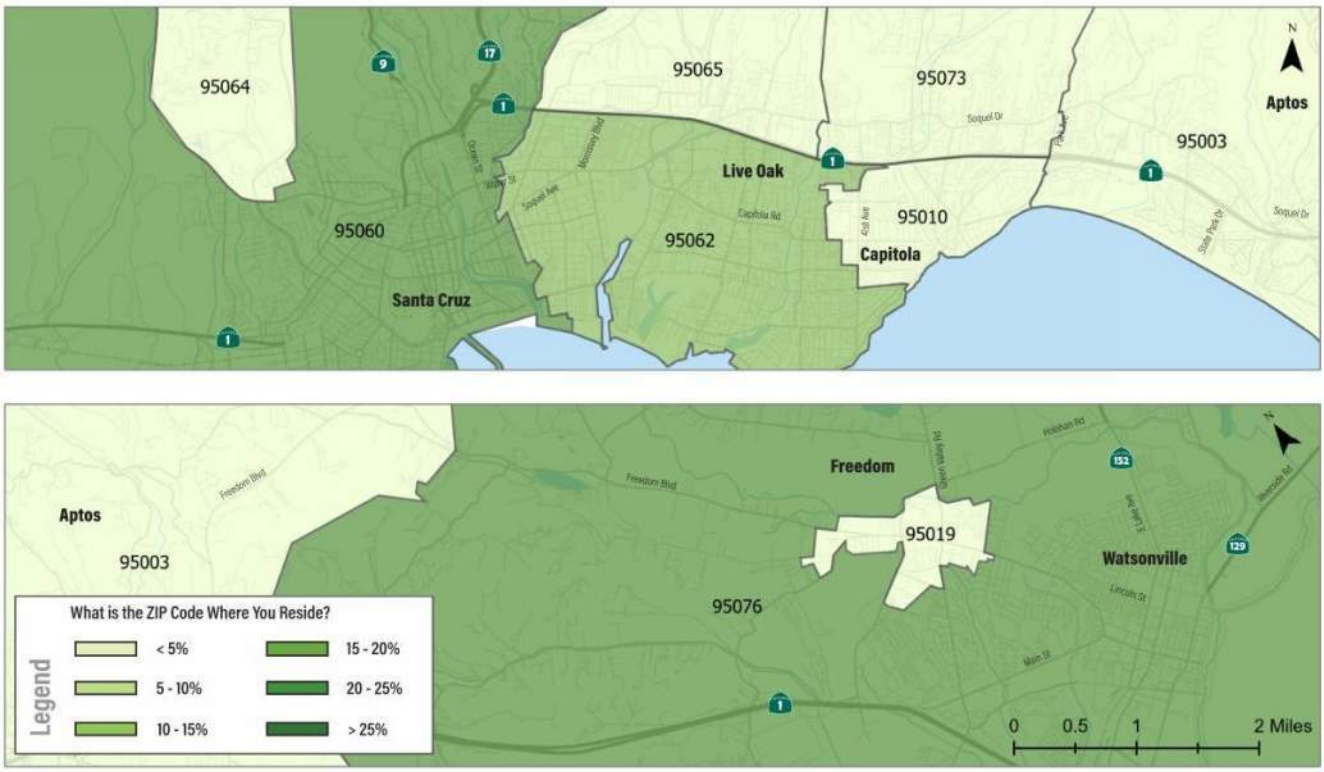



Choose all that describe you:
White
Hispanic/Latino/a/x
I prefer not to answer
Asian, Pacific Islander, or Native Hawaiian
Native American or Alaska Native
Other Answers
Middle Eastern/Arab
African American/Black
0%
10%
20%
30%
40%
50%
60%


How old are you?
18 to 34
50 to 64
35 to 49
65 or older
Under 18
I prefer not to answer
0%
5%
10%
15%
20%
25%
30%
35%
40%


What is your gender?
Female
Male
I prefer not to answer
Gender non-conforming or non-binary
Other Answers
0%
5%
10%
15%
20%
25%
30%
35%
40%
45%
50%

ZIP Codes Where Survey Respondents Reside

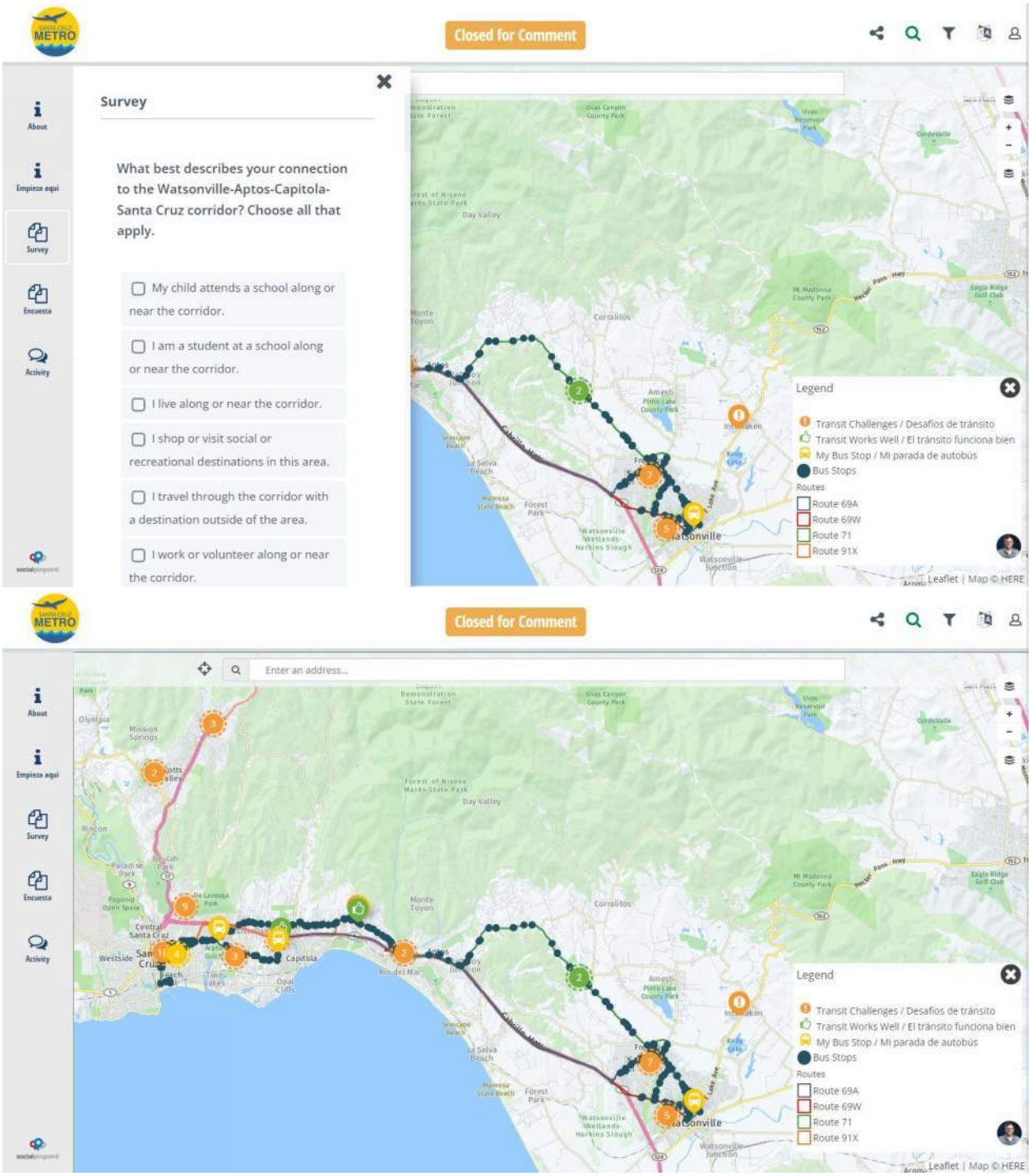


Key Themes from the Survey

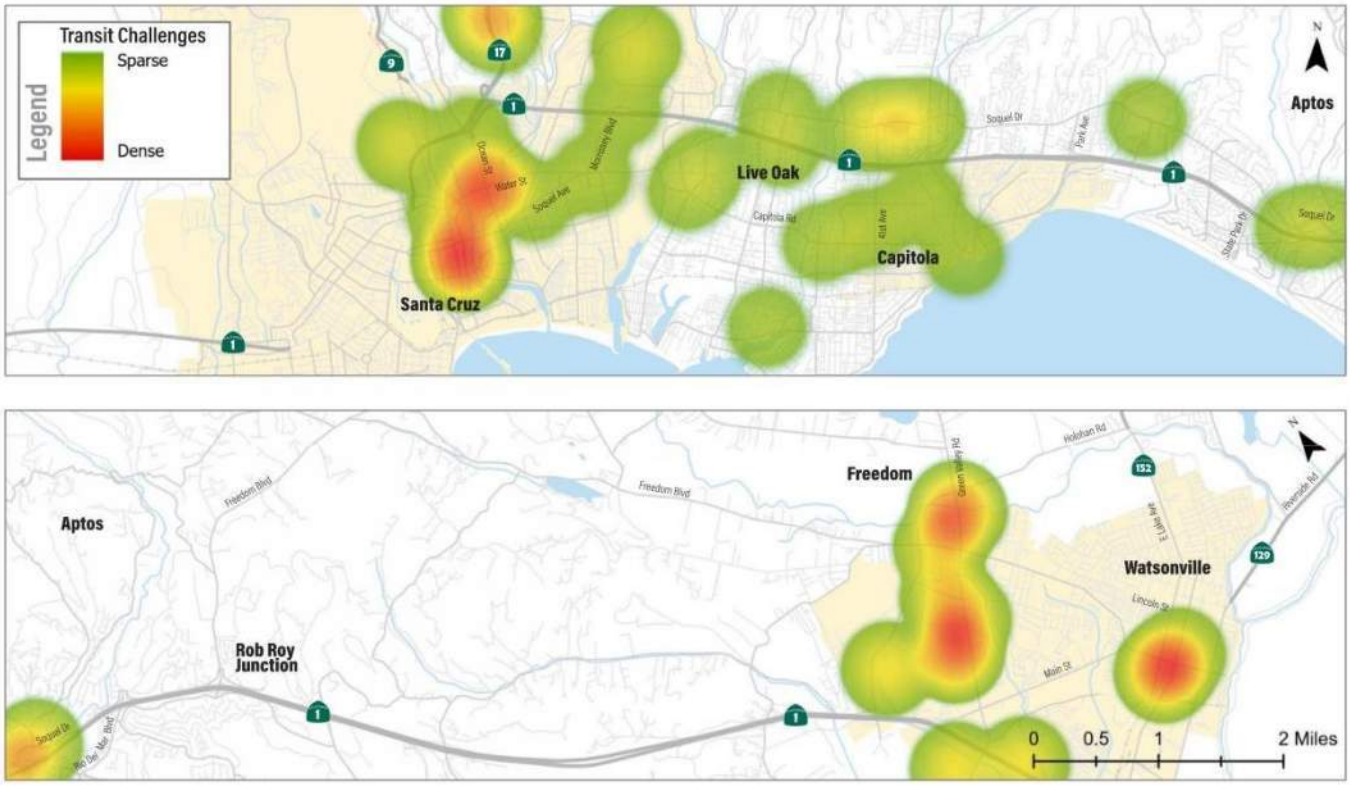
Out of 83 comments received from the on-line map, key areas of focus and themes were as follows:

- Bus Line 71 needs more buses running along Soquel Dr. especially in the afternoon.
- Better service to Dominican Hospital.
- Improve visibility, handicap access and safety.
- Requests to bring Line 69A back.
- Add more bus lines along busy stops (ex: Cabrillo College)
- Requests for better apps, information and website.
- Improved bus shelters with better design/Not happy with the new blue bus shelter design (small holes for ventilation on back wall of the shelter allows water to get through and benches get wet.)
- Requests for extra bus stops in the Banana Belt neighborhood (Line 91X), Aptos and Watsonville.
- Five-lane crossings along Soquel Dr between Dominican Hospital and 41st Ave make it difficult to access key destinations on either side of the road. As a solution, community members requested additional street crossings be placed along Soquel Dr.
- Requests for additional streetlights along Soquel Ave in Santa Cruz to improve safety when accessing and departing from bus stops.
- Requests for better integration with MST's service at the Watsonville Transit Center, particularly during the evening hours.
- Requests for more frequent and direct service between Santa Cruz and Watsonville. Community members cited Routes 71, 69A, and 69W circling around local roads in Watsonville as contributing to the delay in cross-county trips.

- Community members identified issues with passes expiring in the mobile application.
- Several community members identified Route 71 as often running late or behind schedule.



Screenshots of online survey and interactive mapping tool via Social Pinpoint platform



Heatmap of Transit Challenges Identified Through Social Pinpoint

The on-line survey asked an open-ended question about anything survey respondents would like to share with an abundance of feedback related to service reliability, frequency, bus shelter design, better apps and information on the website, dedicated lanes for buses and requests to bring back the 91 route. There were also a number of compliments and appreciation for the customer service provided by bus operators. A full list of legible comments is provided in **Appendix A**. A sampling of outreach collateral is included in **Appendix B**.

All feedback received from Round 1 Public Engagement will be incorporated into initial concepts and strategies for proposed improvements. A second round of outreach will occur in late-summer 2023 where bus riders, residents, businesses, advocacy groups, and disadvantaged communities will once again be asked to provide constructive and informed feedback. Outreach activities will be developed in concurrence with METRO staff, the Technical Working Group, and elected leadership.

Appendix A – All Legible Comments from Survey

Is there anything else related to this survey you would like to share? [English]

1. Route 55 needs to go in both directions.
2. I am a Registered Nurse and use to take the bus to Frederick St. I now work on Soquel Dr/Dominican main campus and there is not bus that goes there from Capitola unless I walk all the way to Soquel Dr. which would be a mile walk in the rain.
3. You can speed up buses by putting in signs that say “exit to the rear” with arrows. Most other bus systems do that! A frustrating percentage of METRO riders exit in the front when people are waiting to board—I’ve never witnessed this in other cities. Also, don’t sit idle while someone takes forever to find their money or pass. Just start driving. Most bus systems do this and it saves a lot of time. Also, don’t require all wheelchairs to be tied down—again this wastes time and most bus systems do not do this.
4. I would really like to take the bus, but I am fearful because I don't know where and when the bus will come and where and how I can get off.
5. Frequency is the most important thing. The 71 corridor should have busses so often that I don't need a schedule.
6. I'd like to see smaller buses that travel further off the "normal" routes.
7. Have seen scary people on the metro bus and have heard some really bad stories about scary people on the metro bus. please provide better security in and around the bus. We cannot go green if we are too afraid to ride the bus.
8. I currently have a car and rarely ride the bus, but I was without a car for 10 years before COVID-19. There were many problems with relying on the bus for transportation, especially when my ability to walk was limited by injuries. Restrooms at or near transit hubs are crucial, and at times were unexpectedly not accessible, causing many transit users to wonder if their humanity had been completely overlooked. The overriding issues that cause me to rely on a car are that public transit took up too much time and really limited where I could go to places served by bus routes and public rest rooms. Using public transit exclusively really limited my life unfortunately, and I know we can do better as a community.
9. I use the 69 traveling south, starting at Capitola Mall and appreciate that it quickly gets to Watsonville in the morning.
10. Bring back 91 best route for real.
11. I am hoping for route 71 of Santa Cruz Metro to operate everyday including holidays just like route 17. It is best to have a bus route that provides passenger service from Santa Cruz Metro to Watsonville Transit Center everyday including holidays.
12. Another improvement would be timed transfer points. And free transfers!
13. Increased 91x trips. More in am and later in the day as well.
14. There are at least 4 decades past 65, and people over 80 have more issues than people in their 60s.
15. All of the priorities above are important, including street safety and secure bike parking. We need them all! The new blue bus stops are depressing - sorry! I'd welcome a design challenge to come up with something more inviting.
16. Service is horrible and changes. 69A rides all the time. 71 doesn't go to the mall. No place to connect with 69W.
17. I’m pretty satisfied with the service as is, however I miss the 91x.
18. The 99% of the driver are amazing I have had the same bus divers since I was 15 they really tried to help everyone.
19. Buses have to few areas for wheelchairs and walkers. Have noticed that 72, 75, 79 buses have not enough area for all the people using the area and on 69s and 71 buses. Young People will in the front and won't move when needed for Seniors. We need more Senior spots as our

population is getting older. Our Drivers are great asking if we need the ramp etc. but without the help of other passengers it is a real challenge on and off each bus.

20. What's the timeline for this project?
21. Please advocate to turn the planned auxiliary lanes on highway into actual bus on shoulder lanes, so buses don't get stuck in traffic. Morrissey to Soquel's auxiliary lane has terrible traffic.
22. Please create a bus route from Watsonville to Santa Cruz that is faster. I would love to ride the bus to work to save money and the environment, but current bus routes take too long.
23. Buses should not come early, wait till scheduling time.
24. It should also be cleaner! Also send updates on bus routes through the app (like if it's late or it has to skip a stop because of a hazard).
25. Yes UCSC + Metro Relationship is fine. Now let's get the rest of the county served well.
26. Metro has no bus to Palm Beach. Cue the "but Watsonville doesn't pay for a beach shuttle" crowd. You guys really dropped the ball on a new WTC, the renovation was halfhearted.
27. I'm really happy I live in a city with public transportation, and I really appreciate all the work that the bus drivers and other metro employees do and I would love to see the metro expand with more busses and more stops.
28. Bus stops need to be more visible from sidewalks when you are looking for bus.
29. Better Apps/Info/Website.
30. I feel like I would use the bus more if there were a dedicated lane for the bus, making for shorter travel time.
31. Can you bring back the La Selva Beach Bus stop.
32. I used to take the bus all the time. Unfortunately, it became too difficult to work for my life. I would really love to go back to using it regularly.
33. I would like an easier way to get to the Santa Cruz area on transit.
34. On early commutes, often the driver had not warmed the bus, especially on cold days that was uncomfortable.
35. I'd like a late-night bus that runs from the Santa Cruz metro station to the Capitola Mall.
36. The Robertson stop sign is the worst. Has to be changed to allow quicker passage through the intersection for busses. Look into Indianapolis BRT where they only too, a single traffic lane to create a dedicated busway.
37. Bus routes should have bus lanes on highways or off highways to avoid traffic jams.
38. I remember hearing that the 91x had low-ish ridership... For myself, I prefer the 91x but due to timing and connection I'd take any of the others, because they were already ready. (Not going to wait 45 minutes even for a bus that saves 20 or 30 minutes.) So, the 91x is better "in theory"... :) thank you for public transit.
39. More busses mean more public use. The 71 is an ideal bus. Just need to come every 10 minutes for people to want to use it more.
40. Soon to become 84 I really dislike the 65 and older designation. There is a hell of a lot of difference between me and someone 19 years younger. Please consider adding an age group that more befits my station in life. Thank you.
41. The buses are always late within last month. We need updated bus schedule that has measured the traffic impact on bus time arrival in certain times of the day. It is difficult to wait in cold or rain for 20 minutes (plus being late to work! - so stressful). This applies to line 71 and 69W. Having an app with real-time arrival would be more beneficial (like nextmuni.com in SF).
    Thank you for your service! I appreciate your efforts!
42. Expand bus corridors to reach County Buildings & Large Employers (Libraries & Sheriff Offices). To support GO Santa Cruz County, add early & late service (for those that work early at coffee shops & late-night restaurants).
43. Would be really great to loop buses back along Mission down to Laurel to transit center. It's very frustrating to have to always connect at SC Transit Center when the 19 is so infrequent

44. Upset taken away routes and changed number of routes, splitting routes. Has waited for hours at some places waiting for buses.
45. 69A removal was no problem.
46. More express routes so I spend less time on bus and more frequent run times.
47. Make sure all drivers are educated on veteran discounts.
48. More frequency bus lines.
49. Make improvements to the web GPS App. Maybe Google maps native integration.
50. Bus stop at Costco please.
51. If the stop by the animal shelter doesn't even get used, it should just be taken down.
52. No express buses are available now, 69Ws are slow and going to Watsonville Hospital has really slowed them down, Not a good idea and no 91 Express is crazy, Restore the canceled routes and have the 69As go to Cabrillo on their trips that way they would have more riders, From Watsonville they could get off at State Park Dr. and back on at Park Av., From Santa Cruz off highway at Park Av. and on Highway at State Park this would help Cabrillo and Students who live in Freedom area who do not connect well with 71 routes.
53. It would be nice if the 71/69 buses stopped in fact lake.
54. Buses are cool.
55. 2 dollars per ride is honestly a pretty good deal.
56. I am going to ride the 17 in 2 years.
57. I am thankful for their hard work.
58. Needs to be able to travel more efficiently from place to place.
59. Would be helpful to have a bus between Santa Cruz & Monterey with stops in Watsonville, Castroville, and Cal State Monterey Bay/Marina.
60. I am visiting Watsonville; I can appreciate the beauty of the buildings/homes/ and the streets are so clean!!
61. Easier lock downs for wheelchairs. It takes up to 10 minutes to lock down a chair and the driver has to climb all over me to make it work. Did not want to do it during the pandemic and still don't like it.

Is there anything else related to this survey you would like to share? [Spanish]

1. Takes kids to school on bus. Bus times online do not match reality.
2. There are times when bus drivers don't stop due to poor visibility, so there needs to be better lighting at bus stops.
3. Likes the fact that the bus is located near destination + Hospital.
4. I miss 69A.
5. Route 71 times were changed & she didn't know and was stranded in the rain until 7pm.69A used to take her to hospital, not comfortable with new routes.
6. Bring back 69A routes.
7. The people who make the routes should know more about the bus routes, so in the future we don't lose important bus routes.
8. The redesign of the blue bus shelters by Cabrillo School are very bad because they have many holes and when it rains, we get wet, plus we cannot sit down when the seats get wet and please bring back Route 69A.

Appendix B – Round 1 Outreach Collateral

- POSTCARDS
- CAR CARDS
- SURVEY FORM
- POSTER BOARDS/MAPS

Santa Cruz METRO's Line 71/Rapid Corridors Project

How can transit serve you better?

Santa Cruz METRO is working with the community to identify solutions aimed at making transit faster, more reliable, and easier to access between the cities of Watsonville and Santa Cruz. This study will identify opportunities to improve the customer experience with better pedestrian and bicyclist access to bus stops and upgraded bus stop amenities.

Please spend 5 minutes to share your feedback at *scmtd.com/rapid* or by scanning the QR code.

For more information about Santa Cruz METRO's Line 71/Rapid Corridors Project, visit *sctmd.com/rapid* or contact the Project Team at planning@scmtd.com or (831) 425-8600.

Scan me!

Proyecto de Corredores Rápidos / Línea 71 de Santa Cruz METRO

¿Cómo puede brindarle un mejor servicio el transporte público?

Santa Cruz METRO está trabajando con la comunidad para identificar soluciones para hacer el transporte público más rápido y confiable y de fácil acceso entre las ciudades de Watsonville y Santa Cruz. Este estudio para identificar las oportunidades para mejorar la experiencia del cliente con un mejor acceso peatonal y para ciclistas a las paradas de autobús y la mejora de los servicios en las paradas de autobús.

SANTA CRUZ METRO

Por favor, tómese 5 minutos para compartir su opinión en *scmtd.com/rapid* o escaneando el código QR.

Para más información sobre el Proyecto de Corredores Rápidos / Línea 71 de Santa Cruz METRO, visite *sctmd.com/rapid* o comuníquese con el equipo del proyecto en planning@scmtd.com o (831) 425-8600.

Escanear!

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Escanear!

Santa Cruz METRO's Line 71/Rapid Corridors Project

Community Engagement Round 1 Survey

Do you currently use route 69A*, 69W, 71, or 91X*? Would you be interested in taking the bus if the experience was improved? **We want to hear from you!**

The Project aims to make transit faster, more reliable, and easier to access between the cities of Watsonville and Santa Cruz. We'd like to hear from you on what improvements could be made to make transit more desirable to use.

** Note: Routes 69A and 91X were temporarily suspended December 22nd due to an ongoing shortage of bus operators and will be restored as soon as the situation improves.*

Survey Questions:

1. What best describes your connection to the Watsonville-Aptos-Capitola-Santa Cruz corridor? Choose all that apply.
   - ◯ I live along or near the corridor.
   - ◯ I work or volunteer along or near the corridor.
   - ◯ I am a student at a school along or near the corridor.
   - ◯ My child attends a school along or near the corridor.
   - ◯ I shop or visit social or recreational destinations in this area.
   - ◯ I travel through the corridor with a destination outside of the area.
   - ◯ Other [Type your answer]
   - ◯ None of the above
2. If you travel in this area today, what's your primary mode of travel?
   - ◯ Drive alone
   - ◯ Carpool with others
   - ◯ Bike or scooter
   - ◯ Bus or paratransit
   - ◯ Walk
3. How frequently do you ride the bus routes in the area (Routes 69A*, 69W, 71, 91X*)? Select the option that best describes you.
   - ◯ Several times a week
   - ◯ Approximately once a week
   - ◯ Approximately once a month
   - ◯ A few times a year
   - ◯ Less than a few times a year or never
4. Which bus do you typically take within the corridor? Choose all that apply.
   - ◯ Route 69A* – Capitola/Airport
   - ◯ Route 69W – Capitola/Cabrillo
   - ◯ Route 71 – Soquel/Freedom
   - ◯ Route 91X* – Cabrillo Express
   - ◯ I do not take transit in the study corridors
5. If you currently take the bus in this corridor, what are the primary factor(s) in that choice? Select all that apply
   - ◯ Bus is cheaper than driving
   - ◯ I don't have access to a car
   - ◯ Bus is more convenient
   - ◯ Parking at my destination is difficult or expensive
   - ◯ Bus is better for the environment
   - ◯ Driving is stressful

6. Which of the following improvements would encourage you to take the bus more or improve your experience when taking the bus in this area? Select top three by placing a '1' by most needed improvement, a '2' by second and a '3' by third.
   - ◯ Bus goes more places
   - ◯ Cheaper bus fare
   - ◯ More information about where the bus goes or when it comes
   - ◯ More reliable travel time
   - ◯ Shorter wait times for the bus to come
   - ◯ More seating or chairs at bus stops
   - ◯ Improved safety or security at bus stop
   - ◯ Improved safety or security on the bus
   - ◯ Bus stop closer to my house or where I'm going to
   - ◯ Better sidewalks to get to/from bus stop
   - ◯ Improved accessibility to/from bus stops for people with disabilities
   - ◯ New or improved crossings of the street to get to/from bus stop
   - ◯ More bike racks or bike storage on the bus
   - ◯ More bike racks or bike storage at or near bus stops
   - ◯ Other [Type your answer]
   - ◯ I have no other needed improvements
7. Choose all that describe you:
   - ◯ African American/Black
   - ◯ Asian, Pacific Islander, or Native Hawaiian
   - ◯ Hispanic/Latino/a/x
   - ◯ Middle Eastern/Arab
   - ◯ Native American or Alaska Native
   - ◯ White
   - ◯ Something else [Type your answer]
   - ◯ I prefer not to answer
8. How old are you?
   - ◯ Under 18
   - ◯ 18 to 34
   - ◯ 35 to 49
   - ◯ 50 to 64
   - ◯ 65 or older
   - ◯ I prefer not to answer
9. What is your gender?
   - ◯ Female
   - ◯ Male
   - ◯ Gender non-conforming or non-binary
   - ◯ Something else [Type your answer]
   - ◯ I prefer not to answer
10. What is the zip code where you reside? _____
11. Is there anything else related to this survey you would like to share? _____

_____

_____

If you would like to stay informed about this plan, please enter your email address. You'll automatically be entered into a drawing for a gift card to a local restaurant. **Thank you for your input!**

_____

For more information about Santa Cruz METRO's Line 71/Rapids Corridors Project, visit *sctmd.com/rapid* or contact the Project Team at planning@scmtd.com or (831) 425-8600.

Proyecto de Corredores Rápidos / Línea 71 de Santa Cruz METRO

Encuesta de participación comunitaria

¿Utiliza actualmente la ruta 69A*, 69W, 71 o 91X*? ¿Le interesaría tomar el autobús si se mejorara la experiencia? **¡Queremos saber su opinión!**

El Proyecto de Corredores Rápidos / Línea 71 de Santa Cruz METRO tiene como objetivo hacer que el transporte público sea más rápido y confiable y de más fácil acceso entre las ciudades de Watsonville y Santa Cruz. Nos gustaría saber qué mejoras se podrían hacer para que el transporte público sea más atractivo.

** Nota: Las rutas 69A y 91X se suspendieron temporalmente el 22 de diciembre debido a la continua escasez de operadores de autobuses y se restablecerán tan pronto como mejore la situación.*

Preguntas de la encuesta:

1. ¿Qué describe mejor su conexión con el corredor Watsonville-Aptos-Capitola-Santa Cruz? Seleccione todas las opciones que correspondan.
   - ◯ Vivo en o cerca del corredor.
   - ◯ Trabajo o soy voluntario en o cerca del corredor.
   - ◯ Soy un estudiante en una escuela en o cerca del corredor.
   - ◯ Mi hijo asiste a una escuela en o cerca del corredor.
   - ◯ Voy de compras o visito destinos sociales o recreativos en esta área.
   - ◯ Viajo por el corredor hacia un destino fuera del área.
   - ◯ Otro [Escriba su respuesta]
   - ◯ Ninguna de las opciones anteriores
2. Si viaja en esta área actualmente, ¿cuál es su principal modo de transporte?
   - ◯ Auto (manejo solo)
   - ◯ Comparto el auto con otros
   - ◯ Bicicleta o scooter
   - ◯ Autobús o transporte para personas discapacitadas
   - ◯ Caminar
3. ¿Con qué frecuencia viaja en las rutas de autobús en el área (Rutas 69A*, 69W, 71, 91X*)? Seleccione la opción que mejor describa su situación.
   - ◯ Varias veces a la semana
   - ◯ Aproximadamente una vez por semana
   - ◯ Aproximadamente una vez al mes
   - ◯ Algunas veces al año
   - ◯ Menos de unas pocas veces al año o nunca
4. ¿Qué autobús suele tomar dentro del corredor? Seleccione todas las opciones que correspondan.
   - ◯ Ruta 69A* – Capitola/Aeropuerto
   - ◯ Ruta 69W – Capitola/Cabrillo
   - ◯ Ruta 71 – Soquel/Freedom
   - ◯ Ruta 91X* – Cabrillo Express
   - ◯ No tomo el transporte público en los corredores del estudio.
5. Si actualmente toma el autobús en este corredor, ¿cuáles son los factores principales en esa elección? Seleccione todas las opciones que correspondan.
   - ◯ Tomar el autobús es más barato que manejar
   - ◯ No tengo acceso a un auto
   - ◯ El autobús es más conveniente
   - ◯ El estacionamiento en mi destino es difícil o caro
   - ◯ Es mejor para el medio ambiente
   - ◯ Manejar es estresante

6. ¿Cuál de las siguientes mejoras lo alentaría a tomar más el autobús o mejoraría su experiencia al tomar el autobús en esta área? Seleccione los tres primeros y marque el número uno, dos y tres.
   - ◯ El autobús va a más lugares
   - ◯ Tarifa de autobús más barata
   - ◯ Más información sobre el destino del autobús o cuándo llega
   - ◯ Tiempo de viaje más confiable
   - ◯ Tiempos de espera más cortos para que llegue el autobús
   - ◯ Más asientos o sillas en las paradas de autobús
   - ◯ Mejora de la seguridad o protección en las paradas de autobús
   - ◯ Mayor seguridad o protección en el autobús
   - ◯ Parada de autobús más cerca de mi casa o mi destino
   - ◯ Mejores aceras para llegar a/desde la parada de autobús
   - ◯ Accesibilidad mejorada hacia/desde las paradas de autobús para las personas con discapacidad
   - ◯ Cruces peatonales nuevos o mejorados para llegar a/desde la parada de autobús
   - ◯ Más portabicicletas o almacenamiento de bicicletas en el autobús
   - ◯ Más portabicicletas o almacenamiento de bicicletas en o cerca de las paradas de autobús
   - ◯ Otro [Escriba su respuesta]
   - ◯ No tengo otras mejoras necesarias
7. Elija todas las opciones que lo describan:
   - ◯ Afroamericano/Raza negra
   - ◯ Asiático, isleño del Pacífico o nativo de Hawái
   - ◯ Hispano/Latino/a/x
   - ◯ Oriente Medio/Árabe
   - ◯ Nativo americano o nativo de Alaska
   - ◯ Raza blanca
   - ◯ Algo más_____
   - ◯ Prefiero no responder
8. ¿Cuántos años tiene?
   - ◯ Menor de 18
   - ◯ 18 a 34
   - ◯ 35 a 49
   - ◯ 50 a 64
   - ◯ 65 años o más
   - ◯ Prefiero no responder
9. ¿Cuál es su género?
   - ◯ Femenino
   - ◯ Masculino
   - ◯ Género no conforme o no binario
   - ◯ Algo más [Escriba su respuesta]
   - ◯ Prefiero no responder
10. ¿Cuál es el código postal donde reside? _____
11. ¿Hay algo más relacionado con esta encuesta que le gustaría compartir? _____
    _____
    _____
    _____

Si desea mantenerse informado sobre este plan, escribe su dirección de correo electrónico. Automáticamente participará en un sorteo de una tarjeta de regalo para un restaurante local. **¡Gracias por su participación!**

_____

Para mas información sobre el Proyecto de Corredores Rápidos/Linea 71 de Santa Cruz METRO, visite *sctmd.com/rapid* o comuníquese con el equipo del proyecto en planning@scmtd.com o (831) 425-8600.

Santa Cruz METRO's Line 71/Rapid Corridors Project
Proyecto de Corredores Rápidos / Línea 71 de Santa Cruz METRO

Place a dot for:
Marque un punto para indicar:

- **Transit challenges** — *Desafíos de tránsito*
- **Where transit works well** — *El tránsito funciona bien*
- **Your bus stop** — *Mi parada de autobús*

Scan Here!
for the online survey
¡Escanee Aquí!
para ver la encuesta en línea

Santa Cruz METRO's Line 71/Rapid Corridors Project
Proyecto de Corredores Rápidos / Línea 71 de Santa Cruz METRO

Place a dot for:
Marque un punto para indicar:

- **Transit challenges** *Desafíos de tránsito*
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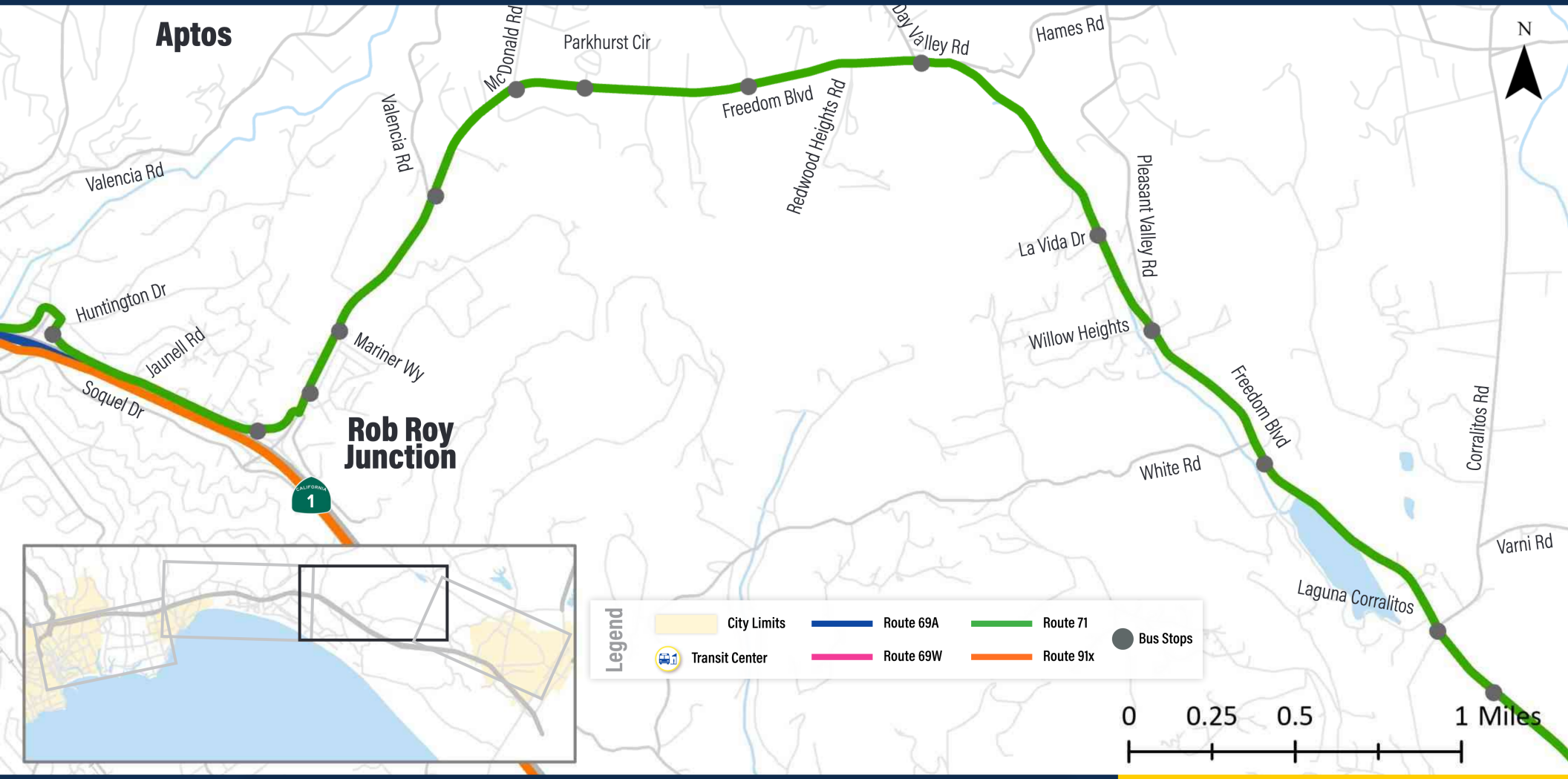
Santa Cruz METRO's Line 71/Rapid Corridors Project
Proyecto de Corredores Rápidos / Línea 71 de Santa Cruz METRO



Place a dot for:
Marque un punto para indicar:

- **Transit challenges** — *Desafíos de tránsito*
- **Where transit works well** — *El tránsito funciona bien*
- **Your bus stop** — *Mi parada de autobús*

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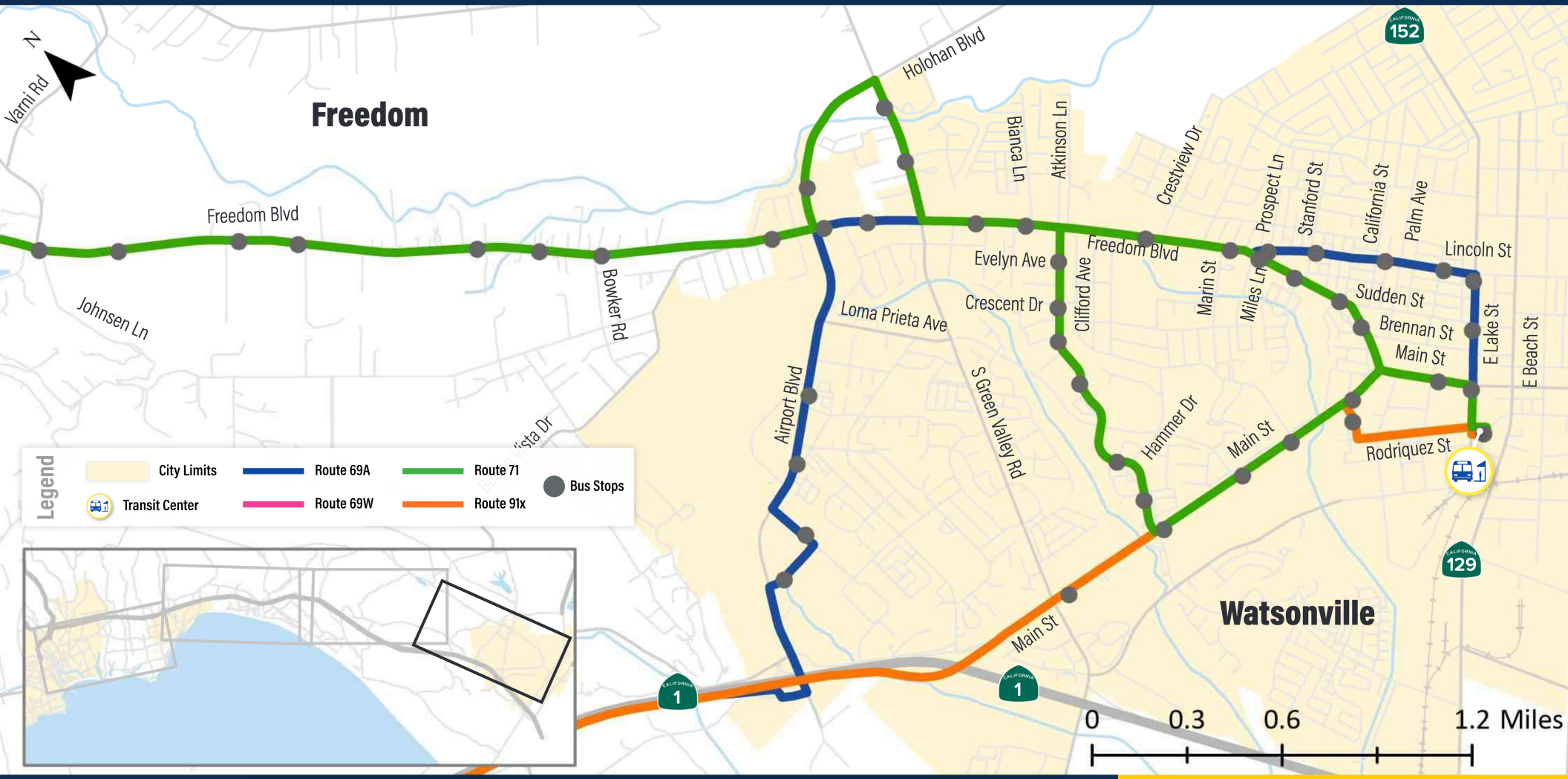


Place a dot for:
Marque un punto para indicar:

- **Transit challenges** *Desafíos de tránsito*
- **Where transit works well** *El tránsito funciona bien*
- **Your bus stop** *Mi parada de autobús*

Scan Here!
for the online survey
¡Escanee Aquí!
para ver la encuesta en línea

APPENDIX C

Round 2 Public Engagement Report

SANTA CRUZ METRO'S

Rapid Corridors Project

Round 2 Public Engagement Summary

December 2023

PREPARED FOR:

SANTA CRUZ METRO

PREPARED BY:

Kimley»Horn

CONTENTS

INTRODUCTION

Kimley-Horn's Public Engagement Plan for Santa Cruz METRO's Rapid Corridors Project included strategies and activities to reach a broad cross-section of the community along the study corridor including bus riders, residents, businesses, advocacy groups, and disadvantaged communities.

The plan included two rounds of engagement, the first of which focused on identifying corridor needs and opportunities which was detailed in the "Round 1 Public Engagement Summary" report submitted in June 2023.

The second round of outreach presented proposed transportation improvements informed by feedback received during the first round of public engagement.

As part of the Project, a Technical Working Group was formed. METRO and Kimley-Horn met with the TWG on June 15, 2023. The goal was to share the results from the first round of outreach and discuss the rapid and local improvement strategies and recommendations prior to the second round of outreach. The meeting was facilitated and documented by Eileen Goodwin with Apex Strategies and attended by:

- Madilyn Jacobson, Caltrans
- Matt Starkey and Claire Gallogly, City of Santa Cruz
- Justin Meek and Murray Fontes, City of Watsonville
- Russell Chen, County of Santa Cruz
- Amanda Marino and Briana Goodman, Santa Cruz Regional Transportation Commission
- Amelia Conlen, Ecology Action

METRO and Kimley-Horn met with the TWG again on December 18, 2023. The goal was to provide a summary of the transit supportive strategies including city-specific quantities, travel time savings, and costs. METRO also shared the results of the second round of public engagement as well as next steps and an implementation plan. The meeting was documented by Kimley-Horn and attended by:

- Madilyn Jacobson and Joanna Xiao, Caltrans
- Matt Starkey, City of Santa Cruz
- Justin Meek and Murray Fontes, City of Watsonville
- Briana Goodman, Santa Cruz Regional Transportation Commission
- Kailash Mozumder, City of Capitola

The second round of outreach, summarized in this report, occurred between September 29, 2023 and October 26, 2023 and consisted of four main components:

1. Comprehensive project website
2. In-person pop-up events
3. Online and paper community survey
4. Virtual public meeting

PROJECT WEBSITE

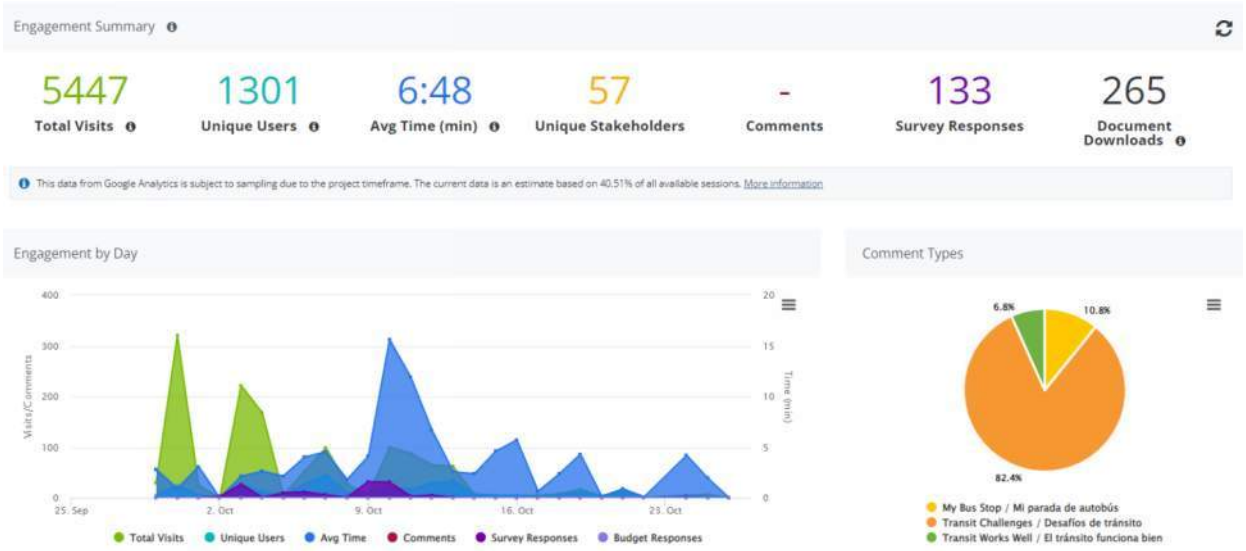
A project website was developed for the public to learn about the proposed improvements which were informed by the input received during the first round of public engagement. The project website included brief summaries of each of the proposed rapid corridor improvements, as well as links to ten public facing

fact sheets, which were made available in both English and Spanish. The project website also contained key information regarding pop-up event dates and locations and housed information for the virtual public meeting, including meeting registration details, a recording of the meeting, and PDFs of the slide deck presented, in both in English and Spanish. Lastly, the project website provided links to the online survey which visitors could choose to read and respond to in either English or Spanish.

A shortened weblink (URL), https://bit.ly/METROround2, was created to easily include on all printed collateral, social media content, and infographics.

Image 1 summarizes the engagement metrics for the project website for both round 1 and round 2. Compared to the round 1 report, there were an additional 3,111 visits to the project website and 627 unique users. The project fact sheets were downloaded 265 times.

Image 1: Project Website Engagement Metrics



IN-PERSON POP-UP EVENTS

The in-person events consisted of seven pop-ups over a three-week period at various major transit and community hubs in Santa Cruz and Watsonville. Local non-profit community-based organization, Regeneración Pajaro Valley, supported all the in-person events with Spanish-speaking team members.

Postcards featuring a customized QR code (pictured left) to the project website with links to the survey were developed and handed out at the pop-up events. Bus stop notices were also developed and placed at stops throughout the survey intake period. All collateral was disseminated in both English and Spanish, including social media graphics. Collateral samples can be found in Appendix B: Round 2 Outreach Collateral.

The following is an account of the seven in-person pop-up events held throughout the service area.

Image 2: Post cards being handed out by Regeneración staff at various pop-up events

Friday, September 29, 2023 – Downtown Santa Cruz Transit Center

10:30 am - 12:30 pm

Kimley-Horn and Regeneración conducted a soft launch of round two in-person engagement at the Downtown Santa Cruz Transit Center. The team prioritized passing out the postcards and encouraged members to visit the website for more details. Engagement yielded:

- 2 Spanish postcards
- 50 English postcards
- 52 Total interactions

Monday, October 2, 2023 – Cabrillo College

10:00 am – 1:00 pm

The Regeneración team conducted outreach at Cabrillo College and was stationed at the north and south directional bus stops. Students expressed interest in the proposed improvements indicating they were looking forward to faster and more frequent service, expressing that there are not enough seats on the bus. Interest was also shared in the 91X coming back to get to Santa Cruz faster. Students were interested in taking the postcards to do the survey in their own time. Engagement yielded:

- 4 Spanish postcards
- 109 English postcards
- 120 Total interactions *(7 declined to engage)*

Tuesday, October 3, 2023 – Downtown Watsonville Metro Station

10:30 am – 1:00 pm

At the Downtown Watsonville Metro Station, the Regeneración team focused their attention on seniors and those who did not have the capability to take the survey by themselves, or simply wanted to have an in-person discussion about the proposed service changes. Fewer postcards were handed out due to the length of time it took the team to complete the surveys in-person and answer questions. Engagement yielded:

- 11 Spanish postcards
- 28 English postcards
- 19 Spanish surveys
- 4 English surveys
- 64 Total interactions *(2 declined to engage)*

Friday, October 6, 2023 – Downtown Watsonville Metro Station

4:30 pm – 6:30 pm

This day turned out fewer people willing to engage due to the hot weather and, likely, time of day. This pop-up was added as an opportunity to try and understand any diversity in ridership at the Downtown Watsonville Metro Station. Many people appeared tired from a long week of work or school and just wanted to make it home. Engagement yielded:

- 9 Spanish postcards
- 4 English postcards
- 2 Spanish surveys
- 2 English surveys
- 22 Total interactions *(5 declined to engage)*

Monday, October 9, 2023 – Downtown Watsonville Metro Station

10:00 am - 1:00 pm

Downtown Watsonville showed slow and steady engagement with a mix of both English and Spanish speakers. Many individuals had comments to share about Santa Cruz Metro's bus service and the associated experience. Engagement yielded:

- 2 Spanish postcards
- 12 English postcards
- 16 Spanish surveys
- 8 English surveys
- 41 Total interactions *(3 declined to engage)*

Tuesday, October 10, 2023 – Downtown Santa Cruz Transit Center

10:00 am – 12:30 pm

The team completed another round of surveying at the Downtown Santa Cruz Metro Transit Center. This location showed itself to be a promising space to gather input and feedback specific to young riders. There was a mix of lulls and highs throughout the late morning. Engagement yielded:

- 0 Spanish postcards
- 10 English postcards
- 4 Spanish surveys
- 11 English surveys
- 34 Total interactions *(9 declined to engage)*

Tuesday, October 10, 2023 – Downtown Watsonville Metro Station

11:00 am – 1:00 pm

The last round of surveying was held in Downtown Watsonville, where the majority of people were seniors and there was a steady flow of people. There were a handful of Spanish speakers that needed translation assistance. For this final pop-up, engagement yielded:

- 6 Spanish postcards
- 25 English postcards
- 11 Spanish surveys
- 2 English surveys
- 48 Total interactions *(4 declined to engage)*

ONLINE AND PAPER COMMUNITY SURVEY

The online survey, provided in both English and Spanish, went live on September 29, 2023 and remained open for nearly five weeks, closing October 26, 2023. The online survey was promoted through METRO's various communication channels, including their webpage, e-newsletters, and social media. A paper survey was distributed to members of the public during the in-person events or administered to those who had a language barrier or felt more comfortable having a team member note their answers.

In-person and online engagement resulted in:

- 133 Total surveys completed
  - 56 (42%) Spanish surveys completed
  - 77 (58%) English surveys completed
- 272 Postcards distributed

Survey respondents were from all of the zip codes along or near the study routes; however, the greatest concentration of users resided in Watsonville or Santa Cruz. Most of the respondents noted that their primary mode of travel was bus or paratransit, followed by driving. The majority of survey respondents also mentioned that they typically ride the bus routes in the area several times a week.

The online survey revealed that of all the proposed improvements for the Rapid Corridors Project, the top three that would have the greatest impact on the survey respondents were 1) improved experience at bus stops as a result of better amenities, 2) more frequent bus service, and 3) improvements that result in faster trips. If all the improvements that were identified in the Project were implemented, respondents stated that they would expect to take transit as often as they currently do, with a large portion of respondents also mentioning that they would expect to take transit more often.

Image 3 to Image 10 illustrate the results of the survey.

Image 3: Zip code where survey respondents reside

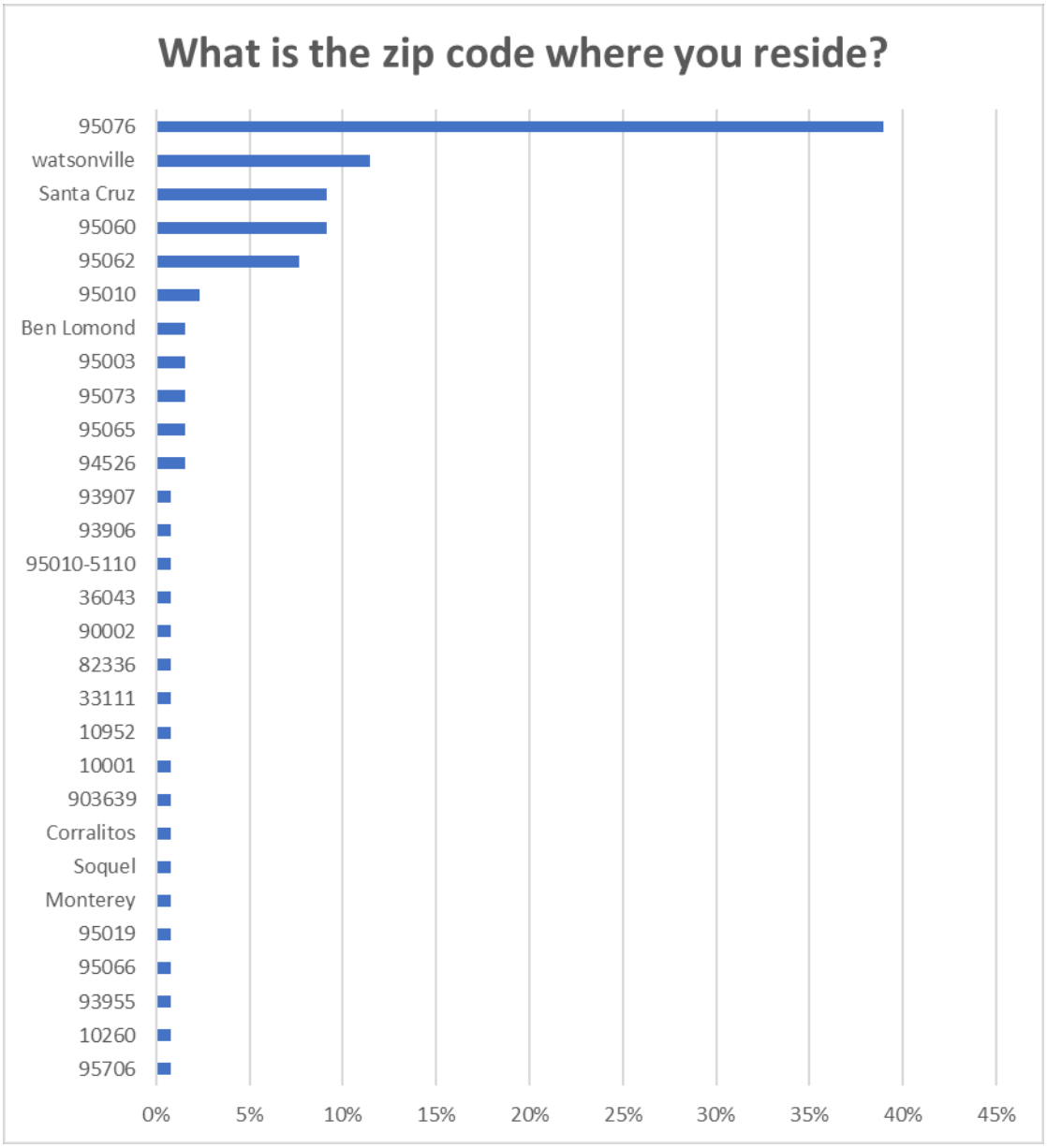


Image 4: Map showing where survey respondents reside

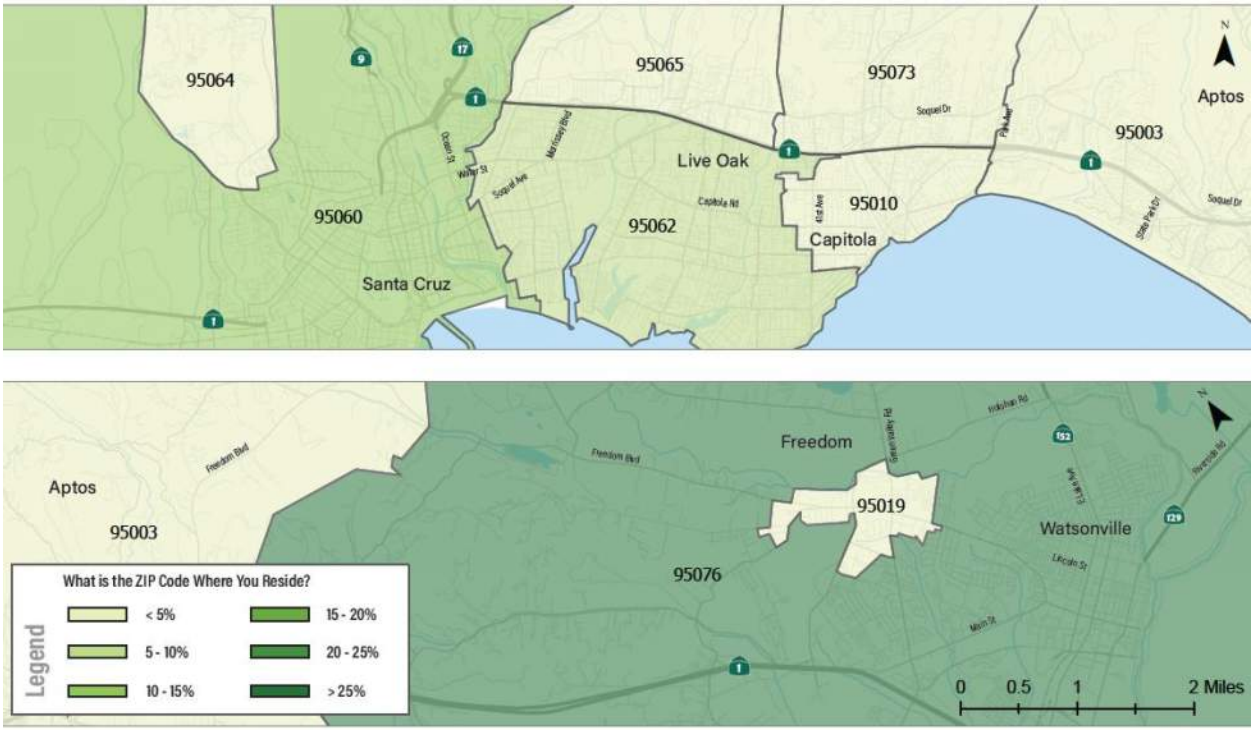


Image 5: Age of survey respondents

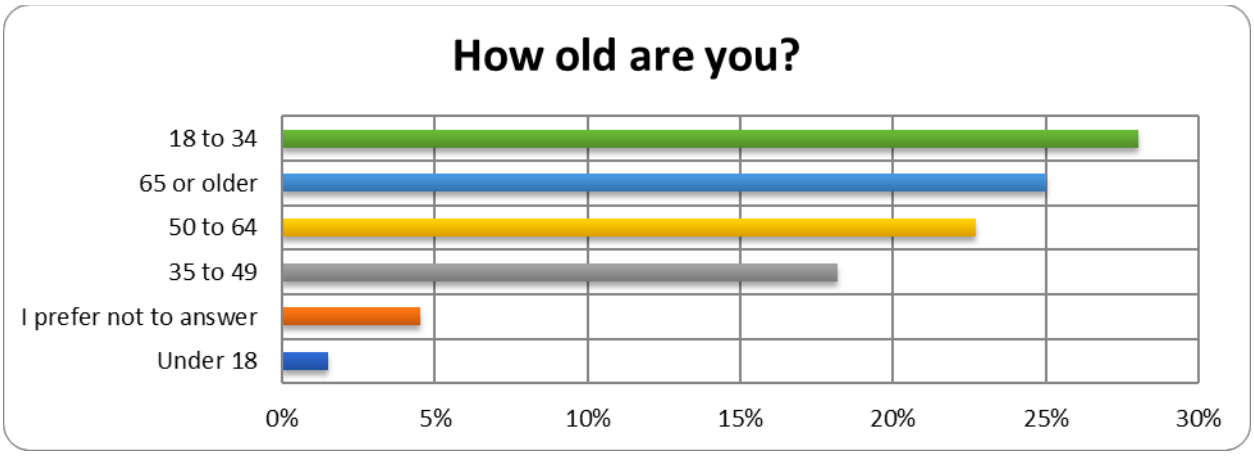


Image 6: Gender of survey respondents

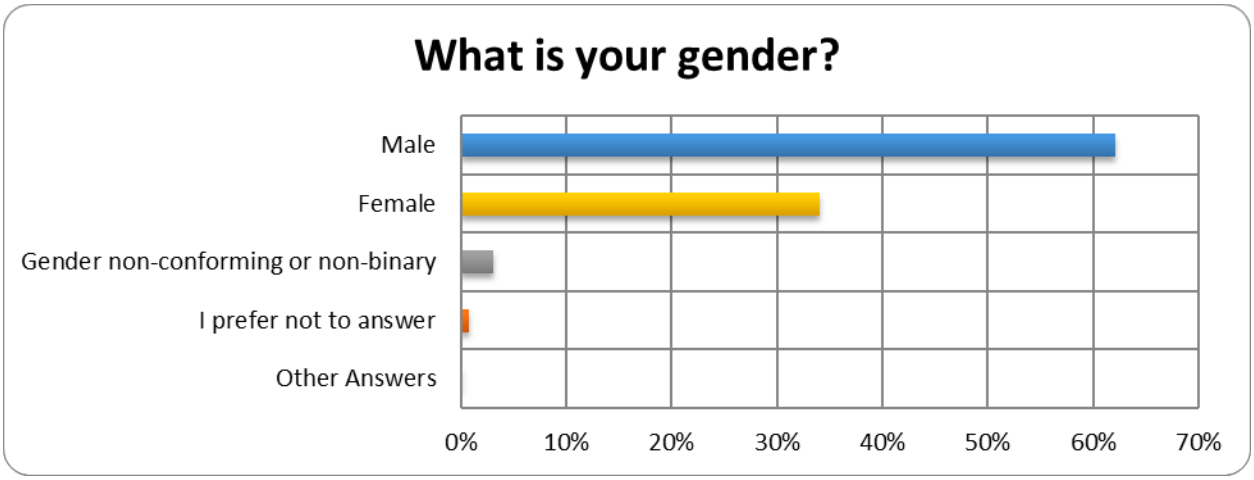


Image 7: Survey respondents primary mode of travel

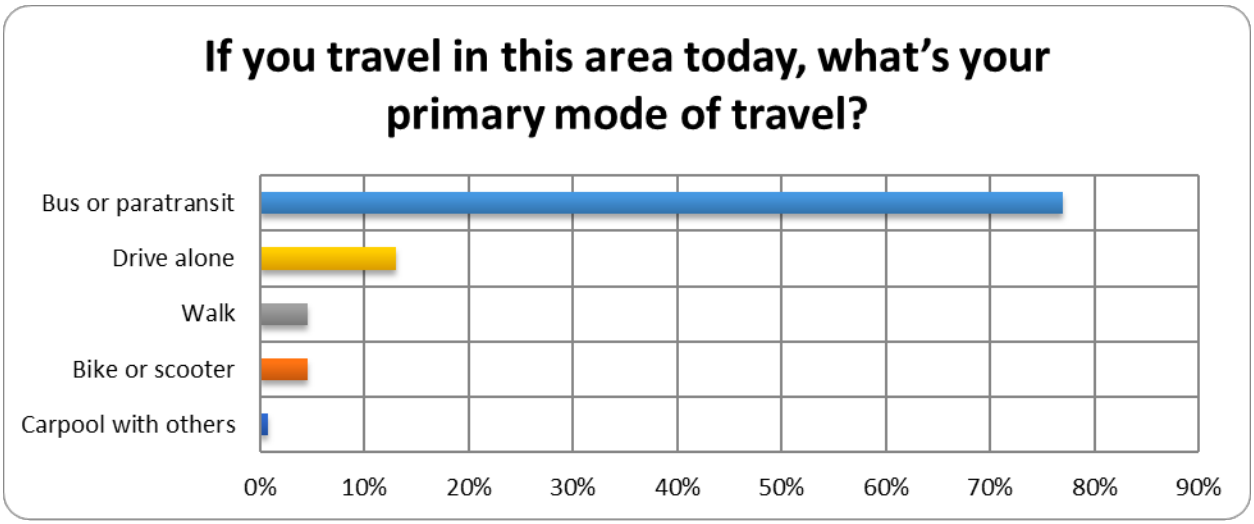


Image 8: Survey respondents use of Project routes

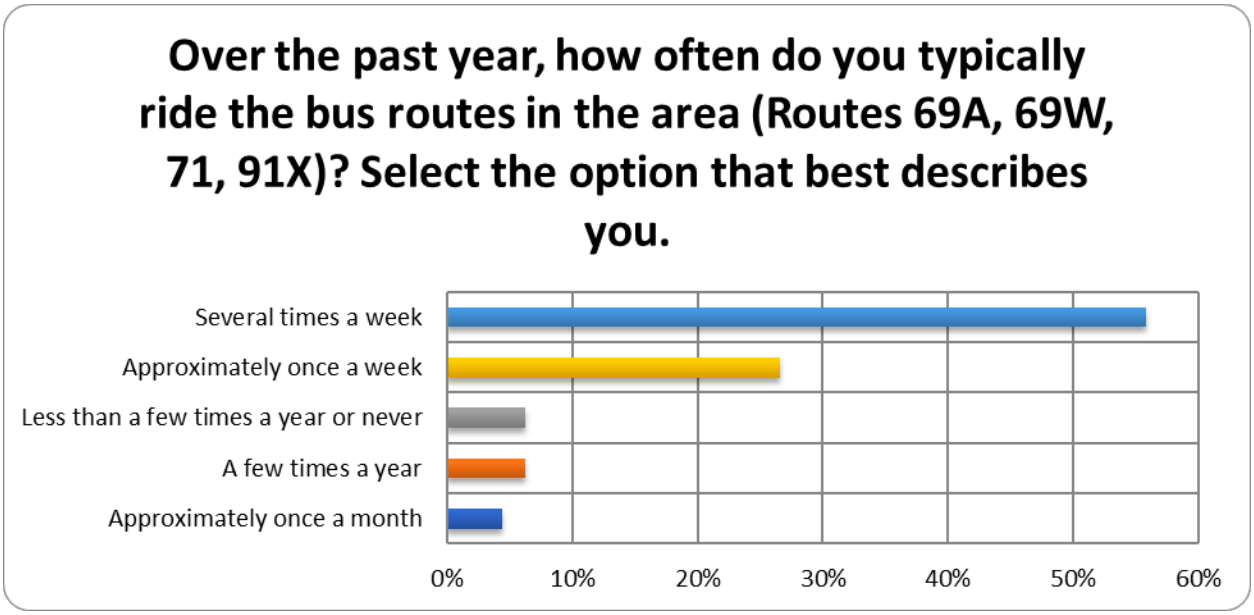


Image 9: Proposed improvements that would most encourage transit use and/or enhance transit experience

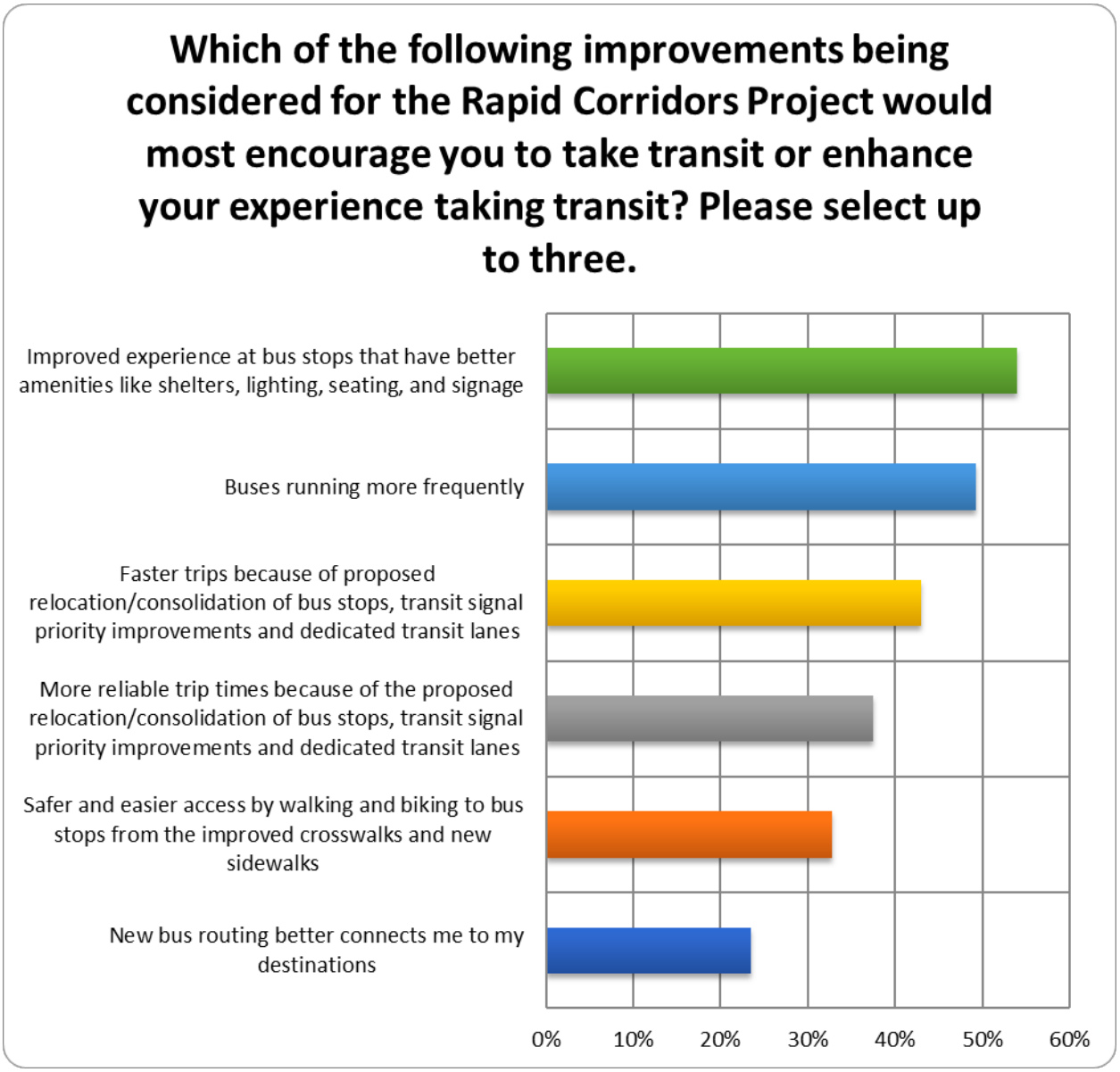
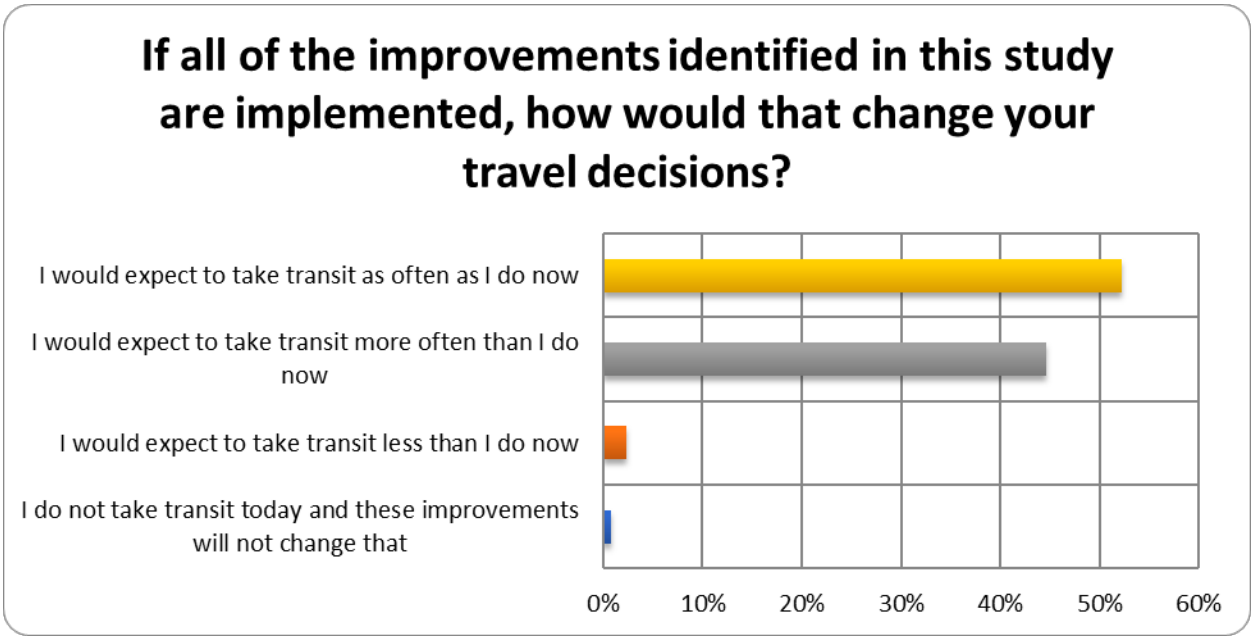


Image 10: How proposed improvements might influence survey respondents travel decisions



Out of 177 comments received from both the online and paper survey conducted during Round 2 Public Engagement, key themes of desired transit improvements and feedback on specific improvements were as follows:

- Desire for faster, more reliable, and more frequent service
- Interest in expanded service and additional routes
- Cleaner bus stops with enhanced amenities
- Desire to keep specific stops

A full list of legible comments is provided in Appendix A: All Legible Comments from Survey.

VIRTUAL PUBLIC MEETING

The Project team hosted a virtual public meeting on Thursday, October 12, 2023 where the team provided an overview and update on the Project. Twelve members of the community attended the virtual meeting.

The recording for the virtual public meeting was made available on the project website. In addition, PDFs of the virtual public meeting slide deck were made available on the project website in both English and Spanish.

The following questions and comments were heard and acknowledged or responded to:

1. Initially it looked like the 91X would not be part of the new routes, but now it seems like it might be. Could you give us more details about this?

2. When I looked at the website, there was a document with pictures of improvements for the intersection of Morrissey, Soquel, and Water. When would this happen, and where can we learn more about the design choices?
3. Looking at the new routes, it looks like only the 91 will make use of the new bus on shoulder lanes currently under construction and in development. Will there be any effort toward having more bus-only infrastructure?
4. There was mention at an earlier meeting of making transfers between routes less expensive (free?) how would that be handled? How would drivers know that you don't have to pay full fare?
5. Will this improvement add bicycle barriers between the bus and the bike rider?
6. Where can we find the locations suggested for the bus bulbs and transit islands?
7. What's the rationale for extending the 91 to UCSC?
8. 90% more people (I think that's how that went) being within 1/4 mile of a high-quality stop sounds good, but with stops being cut/consolidated, I wonder how many people who are within 1/4 mile of a stop now will no longer be.

APPENDIX A: ALL LEGIBLE COMMENTS FROM SURVEY

Do you have any feedback on the specific improvements recommended? [English]

1. Possibly more bus running. Traffic has made the buses late and sets back time for people taking the bus.
2. drivers are sometimes not on time. drivers start bus before sitting down.
3. drivers won't call ahead to transfer bus if they are late.
4. cleaner bus stops
5. misses the 91x. was fast and reliable. went to Cabrillo which opened up options
6. Do not remove or relocate stops 1900 or 1901. They are the closest stops to my house and are a very important part of my daily traveling. I sometimes have to travel at night and my neighborhood has occasionally had some incidents of violence, and so having to travel to and from a different bus stop would increase the chances of something bad happening to me.
7. The Seabright Ave. stop is the one that I use every day, so I would be strongly against the removal of that bus stop both outbound and inbound.
8. I support transit signal priority and dedicated transit lanes, but not closing bus stops for regular service. These are all different things.
9. Please don't reuse the "1" route number—for us old-timers, it still means the UCSC bus (although *none* of the current routes follow the 1 routing: 15 comes closest but loops the wrong way around campus).
10. Watsonville to Santa Cruz need efficient and reasonably rapid trips for commuters by Metro. It is especially important since the Coastal Commission will most likely eliminate any train service due to the old train route being on cliffs that they won't allow.
11. Cutting buses does not improve bus service, Moving the 69a to Soquel past Cabrillo College is cutting service not improving service, People going to the Mall need the 69a and moving reduces service it's that simple, Moving the 69a off Capitola Rd. is not wise and will have People stop riding Metro. 91X is a waste expecting Riders from Watsonville to Santa Cruz as no one rides as most People get on or off at some point and don't ride the full trip, and what about Cabrillo. No service on the 91x, that is crazy!
12. Yes, operate those bus routes from Santa Cruz to Watsonville not only with higher frequency, but also early morning to midnight. Even on holidays.
13. Busses arrive late on a frequent basis
14. I do think having islands is a great idea. I ride my bike and take public transit and I see the bus versus bike conflict occur because they have to pull into and out of the side. I also really like the idea of signal priority.
15. Specifically as above
16. The cleanliness of buses.
17. Not agree with anything.
18. No I don't.
19. It's improving very well
20. None
21. I want traffic to run more frequently
22. N/A
23. No
24. everything is ok
25. 71 used to go in front of Main St but now only via Rodriguez so she needs to walk really far to get to station.

26. Buses near Pinto lake have no shelters and she and her boyfriend have been there waiting for the bus when it's pouring rain and extremely hot temperatures as well.
27. Buses come every 45 minutes if you miss the bus it takes a long time to catch the next one.
28. Adding a shelter for climate change sitting and lights can make a better experience wild waiting for the bus….
29. New bus drivers are doing better than new drives.
30. Mail at shelter.
31. everything is ok
32. Better lighting and maybe more apparent where bus stops are.
33. New bus routes and uses WC because.
34. Faster routes and shorter.
35. Timing use to work in SC and they stop
36. Please do NOT fully reroute what will now be routes 1 and 2 to travel along Water St. There should be at least one bus route serving Soquel Ave (which would still be down from the two bus routes that currently utilize this street) as the main transit corridor as Soquel is much more pedestrian friendly, well lit, and overall safe for pedestrians. As a small woman, I've constantly felt unsafe when having to walk from Water / Ocean (the next closest stop to me if all transit on Soquel Ave is eliminated) and urge you all to not reroute all buses to Water. Take the voices of the elderly and disabled communities to the forefront of planning efforts and implement what we are telling you is best for all in our community.
37. Maybe bring some old routes back like Highway 17 Soquel park-and-ride that would help me a lot
38. why are there so many routes that go from Santa Cruz to Watsonville that don't go to all areas of town
39. adjusted his schedule to bus schedule
40. some places cannot accommodate more seating
41. older people take the bus regularly and need more stops. doesn't like benches with separators
42. has been deterred from taking bus to Watsonville because it takes so long
43. there are people that live in areas that removing stops would require they walk more. stops are good how they are. time schedule of buses is good
44. removing bus stops would be ok for some people, but others may have trouble accessing stops
45. removing bus stops will make it difficult for her to access stops
46. everything is ok
47. need to see who is impacted by bus stop consolidation. keep the bus stops in Soquel
48. No
49. I like bus stops to be cleaner. Pinto Lake Area medical buildings.
50. Medical office Valle Verde doesn't have seating in the bench.
51. The present administrator has shortened ride times on major routes (71 and 69) and buses are not able at least 33% of the time to follow the schedule. (e.g. I waited 43 minutes for an incoming 71 at Soquel Drive and Daubenbiss this morning at 7:24 and the 71 never came but a 69W went by 18 minutes late). And the early (before 8 am) 71 buses are so loaded a must make so many stops that they cannot adhere to the schedule on week days. Previously the incoming 69 bus would have 15 minutes scheduled from Cabrillo College to Cap. Mall: that has been cut so much the 69W bus incomes late to the Mall which causes It to RUSH toward Santa Cruz or just be late.
52. Please make sure to have early (5:50am) express buses Watsonville to Santa Cruz via Capitola Mall. Last year was a nightmare with crowds piling onto the one non express bus taking an hour to get to Capitola on Freedom Blvd. Many gave up & had to drive to get to work on time.
53. Well-designed roundabouts at intersections for traffic calming and safer use by pedestrians and cyclists. All of the above are needed.
54. Bring back a 91X alternative!

55. No

Do you have any feedback on the specific improvements recommended? [Spanish]

1. She said she agrees, and that she lives in Alvarado St in Watsonville, but all bus stops to go to Santa Cruz are really far from home.
2. Doesn't want stops to be removed
3. He prefers if buses can be on time. No necessarily removing stops but with improved lanes and lights and bus drivers leaving on time.
4. everything is very good
5. Changes in routes might make people walk more, route is fine. I don't think they go slow. Uses route 79, use route 75 and service to Monterey.
6. need more trashcans at stops. no lighting at stop across from Target on Main
7. Improving traffic lights will help he notices that it stops bus a lot.
8. Overall he would like to see more service.
9. good service. drivers are friendly
10. I use bus monthly or once a week, so I don't mind too much the changes I will try to adapt to changes. Changes probably won't impact me too much.
11. if your first bus is late, your planned appointments are all off schedule and it ruins your day. wishes times were more exact
12. if you remove stops you might make people walk further, I like service the way it is I don't mind if it takes me longer. I think the biggest issue is the traffic and not that there are too many stops.
13. Yes bc rain. Yes some stops are too closed to each other: I like the routes currently. New route more direct like 91x. I like that buses go late, for joining events.
14. Very good
15. more personal security. cleaner stops.
16. Wants bench and cover for when it's hot in Pinto lake.
17. 69A gets late to Cardenas store in Crestview. La princesa market across from Ramsey Park needs coverage. 2-3 pm
18. cleaner bus stops
19. Uses bus daily
20. He takes bus to Santa Cruz occasionally. He is also a taxi driver and hear a lot of things from community members about the bus. He recommends more security in bus stops. People have called him to pick them up because they don't feel safe when other people bother them in bus stops. He wants more safety for people.
21. doesn't use the bus frequently. stops are ok in Watsonville
22. Make sure new routes connect good with Monterey schedules of buses.
23. sometimes there are people who are disabled that need to have more bus stops more accessible to them. need to look at where people need service. people also get confused by bus stops that just have a post and no bench or shelter
24. Doesn't want bus stops removed just more frequent service.
25. Bus 71 used to pass by main st, bring that back he walks a lot.
26. Uses bus 1 time per week.
27. If you reduce stops elders like himself will have a harder time walking to stop. We have great necessity for bus stops, no to reducing bus stops. He thinks that there should be a combination of fast routes and routes that have a lot of stops.
28. Bring back WC in opposite direction. More buses that go from metro station in Watsonville to Green Valley and Freedom.
29. Rainy season and hot sun waiting for bus

30. Passengers need to use bathroom, someone in 17 (some years back) peed in trash can.
31. More protection from rain and wind, made from glass like in Salinas.
32. I worked in SC for many years and 91X was nice because I would get there fast.

Are there other transit improvements not already identified that should be considered? [English]

1. Improve service to Monterey. Evening buses should be more often.
2. I would really like it if you were to bring back the 91X. Its removal was deeply inconvenient to myself and most of the people I know.
3. Increasing the frequency and of specifically the 91x would make it viable for me to commute with
4. A lot of women and girls don't feel safe taking the bus because they get stuck next to a creepy person. Not sure the solution, maybe more cameras and kick off creeps.
5. "A train would be nice, but it would be best if there were a stop at New Brighton Road, with a bridge over Highway 1 to Cabrillo College Drive, making a train stop for both Cabrillo College and New Brighton State Beach. It would be good to have direct buses from UCSC to Cabrillo (or all the way to Watsonville), without a detour through downtown. Perhaps the 10 could be extended and run down Water Street to follow the 71 route. This will be especially important if the combined UCSC/Cabrillo dorms are ever built, but even before then, it would cut about 15 minutes off the trip time for Live Oak residents (even better might be to follow the 69W route east of Morrissey, which would make a direct connection from UCSC to Capitola Mall)."
6. Yes, The 71 bus spends way to much time in traffic by Aptos High School, Better turning lane from the school to Soquel Drive would help, Next is a bottle neck at the Junior High, A stop sign for those dropping Children at the school would be fair for everyone, Next would be in the Village, Yes Aptos Village, No Left turns to Spreckels until later in the morning and no traffic turning left off of Spreckels till later in the morning, Those needing to turn left could use Center St. to State Park Dr. and get to Soquel Dr. Keeping that light red longer would move traffic smother without all the stopping and improve travel time for everyone. All the lost time on the 71 route is between Aptos High and Spreckles Dr. once past that area all traffic moves at normal speeds. One other problem is where the Bus Stop is on Soquel Dr. by the turn to the Junior High, That stop is to close to the stop sign, It needs to be moved several hundred feet back at the bus pulls to the right to load or unload and then trying to make a left turn is not easy. A few easy problems could improve this route and cut wait times daily. I have taken these early busses for over 10 years and see what happens daily, Not to mention the stress on the excellent Drivers trying to keep on schedule every day, Changes need to be made!
7. Yes, operate the bus routes from Santa Cruz to Watsonville every day including holidays just like route 17.
8. One more bike rack? Maybe a place to charge things on the bus.
9. I would like to see buses being able to carry electric e-bikes and be able to support differently shaped bikes and mobility devices. This is crucial to helping increase ridership as the "last mile" is often a hurdle that stops many from taking public transportation such as the metro. Having the ability to use your e-bike, bike, or other device to get to the last leg of your trip where the bus does not go is a game changer. I've not taken metro several times to certain destinations because I know I cannot take my bike on the bus to help me finish the "last mile" of my trip.
10. Bring back the Monterey bus
11. NO
12. Allow citizens to own their own buses and provide service. No taxes for buses so we can run them ourselves and have more service and routes. Doesn't have a zip code no home.
13. "Some old shelters you still get wet. Blue shelters are way better. Every day uses bus. 4-5 x per day. "
14. None that I can think of.

15. no
16. No I've not noticed any.
17. Not yet
18. N/A
19. Nothing
20. Having customer service available on the weekend.
21. Make service go in front of Main again.
22. Bus scheduling in both languages.
23. "Would recommend free service like WC to continue. Faster routes. "
24. "Wants service to end later because in Santa Cruz ends later compares to Watsonville. WC can go later than 4pm. Best friend lives behind Wendy's and stops at dark and no lights. Near McDonalds is scary and pitch black and lamps would be helpful. Some bus drives lately have been rude to customers when customers don't understand where buses go. They just ignored questions. Depends on WC, make another free bus like WC that would go to more places. "
25. "When metro is running low on drivers and they cut a trip from the schedule would like metro to inform community. He hasn't seen supervisors riding the buses with old and new hires to make sure the experience in the bus is great."
26. wants the 91 route returned to service.
27. would like to see 91x return
28. never has problems on bus
29. appreciates both 69s go to Cabrillo
30. everything is bus-like
31. more frequent buses on routes that are traveled more
32. have cleaner bus stops
33. add more service on the weekend especially when students are here. thanks for having the 19 every 15 minutes
34. everything is good
35. everything is ok for her now
36. everything is good with the bus system
37. No
38. Monterey Salinas Transit, shows departure times in bus stops. Would like to see more of that, at lot of people ask people when bus comes.
39. "Uses bus every single day. Wished there was more seating because he waits there a long time and he's an elder, depends on the bus. Wish there was better service on weekends he would use bus more. Bus to Salinas doesn't go to the mall, and he shops there. Too much transferring and takes joy of shopping. "
40. "One or two extra incoming 71in early morning (6:45 am to 8 am). Using 91x again. Re-routing 69A to service Soquel Drive between Cabrillo College and 41sst Avenue and the Home Depot and Soquel Drive & 41st Avenue. Adding a 55 bus 2 times (mid-morning and mid-afternoon) on weekends."
41. Post schedules at bus stops. Most of your riders don't use phones to find the bus route. It's very inconvenient
42. Street trees along the routes to improve traffic calming and mitigate climate disrupting CO2 gas.
43. We need the rail system implemented.
44. No
45. More Bus only lanes…
46. How well connections from one route to the next can be made. At this time, based on time stops for route 79 & WC, that connectivity, at the County Offices on Freedom Blvd looks pretty good on paper. In order to make the transfer my experience has shown I must ask the 79 driver to request the WC driver to "hold".

Are there other transit improvements not already identified that should be considered? [Spanish]

1. If bus is faster that they still consider safety . 2-4 times per week uses bus.
2. Add closer to Alvarado St.
3. "No, use bus daily or every other day"
4. Sometimes 72 overlaps and there's 2 buses behind each other.
5. everything is good
6. Improve service to Monterey County
7. stops should be cleaner. buses are clean. service is good. one time a bus driver didn't let a woman with child and stroller get on. one time a bus driver told her she couldn't take a call on the bus
8. Improving weekend service to be same as M-F schedules here in Watsonville.
9. Weekend service improvement
10. More service directly to Santa Cruz from areas where 79 bus stops. He would like a stop between Ace and the school, he is far from both stops. Uses bus 2-3 times per week.
11. Hard to find parking across from metro station in Watsonville sometimes I want to use bus and leave my car parked from home. I would want to save gas.
12. There's no buses from Pinto lake area directly to Santa Cruz, it's a really far.
13. Improve services on weekend, that's when I go out to church. Lives in areas where bus 79 goes.
14. "would like drivers to be friendlier."
15. Make a bus stop near McGregor Rd in Aptos. She walks to Soquel about 22 min. Improve weekend service. Some bus stops don't have all the schedule times. Uses bus daily 6x/week
16. Uses bus 3x per week
17. Stop near pinto lake route 72 needs a bench. Uses bus every day.
18. No
19. "Shade in bus stops only fits like 3 people. One stop before Valencia stop not good access to wheel chair. Not pedestrian crossing. (near some apartments ~block 6,100) freedom near Aptos high school. Prevents him from using that stop. Uses bus 1 time or 2 per week. "
20. uses bus routes on a daily basis
21. More security, in bus many drunk people sometimes. Better access to all clinics.
22. more trashcans at the bus stops. bus stops are not clean (esp on Freedom near Burger King)
23. "Uses buses to go to Valle Verde Clinic near Old Hospital. Uses buses for medical appointments."
24. having bus stop shelters with covers to guard against rain, wind and the sun. gets wet and cold because some shelters have punctured siding
25. "Now lives in Salinas. Buses changed in Salinas and now is harder for people to use it and harder to understand. Uses bus rarely but uses for medical and visiting family."
26. "Wants better service for the weekend. 2x per week uses bus. "
27. "Needs medical in Salinas and would like it to be again every hour. Wheelchair. "
28. would like to see busses stop as close to there time at bus stops as possible
29. everything is ok
30. He recommends that crossing of sidewalks lights up in the road like it does in cities like Gilroy.
31. 71 doesn't pass through Main St anymore and when changed happen they didn't announce it and she didn't know and she was late to work. She said if bus stops are changing, they need to do really great outreach about when and which ones and how it's changing because people might stop riding the bus out of confusion. She doesn't want to be late again from changes. She uses public transport to work every day and works in the fields on Freedom. (route to her work will pass every hour instead of every 30 minutes)
32. more security is needed in buses sometimes. driver sometimes doesn't stop if stop is requested
33. more service on Sundays

34. 72w goes to Corralitos on Saturday and doesn't have a lot of riders. everything is good. Drivers are friendly and respectful of her
35. everything is ok
36. everything is good
37. everything is good
38. Safety inside bus for riders and passenger.
39. "Bus seats need to be more spacious, more leg space. No alcohol allowed in buses. Cleaner buses. Uses bus daily. "
40. Uses bus everyday.
41. "More buses to pinto lake. Make greyhound come back to our station to go to San Jose and other areas. "
42. Watsonville Metro station needs more protection from rain on both sides of the metro. Is hard to wait for bus across the streets when other buses block the view to the bus you are waiting for, so please add some rain coverage on both sides.
43. "Supervisors and drivers should also have more input. He is in disability, and he likes the WC because he saves some money. He said we use the bus out of need. "
44. In the past he had advocated for changes like having electrical plugs, Wi-Fi for community members to use at the station and he felt ignored. He wishes they would have those essential necessities.

APPENDIX B: ROUND 2 OUTREACH COLLATERAL

Postcards

Bus Stop Posters

Social Media Posts


SANTA CRUZ METRO
Join our virtual meeting to learn about newly proposed plans for rapid bus service between Watsonville and Santa Cruz!
Thursday,
October 12 at 6 pm


SANTA CRUZ METRO
¡Únase a nuestra reunión virtual para conocer los planes recientemente propuestos para el servicio de autobús rápido entre Watsonville y Santa Cruz!
Jueves
12 de octubre a las 6PM


Want faster, more frequent service?
Share your feedback at
scmtd.com/rapid
Kimley»Horn

APPENDIX D

Speed and Reliability Improvement Strategies and Recommendations Methodology Memorandum

To: **John Urgo**
Santa Cruz Metropolitan Transit District

From: **Adam Dankberg, P.E.**
Monica Tanner, P.E.
Kimley-Horn and Associates, Inc.

Date: **April 13, 2023**

Subject: **Speed & Reliability Improvement Strategies and Recommendations Methodology Memorandum**

PROJECT BACKGROUND

The Santa Cruz Metropolitan Transit District (METRO)'s Line 71/Rapid Corridors Project (Project) is identifying solutions to improve service efficiency, reliability, and customer access for bus routes operating in the Watsonville – Santa Cruz corridor. The Project is evaluating travel conditions along the corridor to identify opportunities to improve pedestrian and bicyclist access to bus stops, upgrade bus stop amenities, and install transit priority intersection and roadway improvements, as well as develop infrastructure and service plans focused on improving the convenience, access, and reliability of METRO's core intercity routes.

OBJECTIVE

This memorandum presents the methodology for identifying problems related to bus speed and reliability along the Project corridor, summarizing and evaluating industry tools and best practices to address bus speed and reliability challenges, and developing goals and performance measures to be used to evaluate the effectiveness of proposed transit-supportive strategies and monitor progress after implementation.

PROBLEM AREA IDENTIFICATION METHODOLOGY

Field Visit

A bus stop inventory through visual field observations was completed in December 2022 to determine the existing conditions of the 232 bus stops serving the four Project routes. The bus stop inventory identified bus stop amenities, configurations, and access facilities. Additional visual field observations were made to document areas of congestion and delay.

Bus stop challenges identified from the field visit included in the problem identification were:

- Missing benches at bus stops.
- Lack of crosswalks to encourage safe pedestrian crossing.
- Discontinuous sidewalks between bus stops and the nearest crosswalk.

Bus segment challenges identified from the field visit included:

- Areas of congestion-induced delay.
- Signal coordination and corridor progression issues, resulting in increased delay.

Data Analysis

The project team performed a quantitative analysis of existing bus travel speeds and variability using Computer-Aided Dispatch / Automatic Vehicle Location (CAD/AVL) data.

Two forms of analysis were performed with the CAD/AVL data as part of the problem identification. The first analysis calculated the bus speed on small segments across all routes to identify segments with speeds significantly lower than free flow speed and adjacent segments (indicating congestion or other delay hotspots). The second analysis looked at bus travel time variability, as measured by the travel time coefficient of variation. All segments with a coefficient of variation at or above 0.3 were included as part of an initial selection. Segments with highly variable bus travel times were further refined to a list of 20 segments in the northbound and southbound direction that comparatively had a higher travel time variability than adjacent segments.

Operator Input

The Project team met with METRO bus operators at the monthly Service Planning Review Committee meeting on November 15, 2022, to understand the challenges they encounter on the Project routes. The bus operators made note of specific intersections and locations where they frequently experience delays due to infrastructure (signals and turn lanes) or other vehicles turning in front of them. These challenges were included as part of the problem identification.

Public Outreach

A broad project-specific outreach campaign was conducted in January and February 2023 including six pop-up events and social media engagement. The pop-up events occurred at major transit and community hubs in Santa Cruz, Watsonville, and points in-between. Community members provided feedback via paper surveys as well as through an online survey and interactive map.

Over the course of this outreach round, 146 in-person surveys were completed, 30% of which were completed in Spanish. An additional 146 on-line surveys were taken, including both English and Spanish, and 80 site-specific comments recorded.

Key comments from the community included:

- Requests for extra bus stops in the Banana Belt neighborhood (specifically for Line 91X), Aptos, and Watsonville.
- Five-lane crossings along Soquel Dr between Dominican Hospital and 41st Ave make it difficult to access key destinations on either side of the road. As a solution, community members requested additional street crossings be placed along Soquel Dr.
- Requests for additional streetlights along Soquel Ave in Santa Cruz to improve safety when accessing and departing from bus stops.
- Requests for better integration with MST's service at the Watsonville Transit Center, particularly during the evening hours.
- Requests for more frequent and direct service between Santa Cruz and Watsonville. Community members cited Routes 71, 69A, and 69W circling around local roads in Watsonville as contributing to the delay in cross-county trips.
- Community members identified issues with passes expiring in the mobile application.
- Several community members identified Route 71 as often running late or behind schedule.

Please reference the *Community Context Report* (March 2023) for additional information regarding the approach and key takeaways from the outreach efforts.

PROBLEM IDENTIFICATION MAP

A problem identification map was developed using information from visual field observations, data analysis, operator input, and outreach. The map provides a synthesis of the corridor challenges provided in the above sections and groups these challenges into "stop challenges" and "route challenges". While the map is not intended to imply a limited set of locations where improvements would be beneficial or restrict the breadth of potential improvements, it will be utilized to focus or prioritize improvement recommendation efforts in areas with the greatest need or opportunity. **Appendix A** contains the ***Problem Identification Map***.

Stop challenges included bus stop amenity challenges (missing benches), and bus stop access challenges (lack of crosswalks to encourage safe pedestrian crossings, discontinuous sidewalk between bus stops and the nearest crosswalk).

Route challenges are shown as 20 segments in each direction with high bus travel time variability, and 15 segments in each direction with slow bus speeds. Note that several segments were identified as having both high travel time variability and slow bus speed.

Route challenges were called out on the map using text bubbles with the letters "A", "B", "C", and "D". Each letter describes a specific segment challenge. The letter "A" denotes

areas where bus speeds are significantly degraded. The letter "B" describes areas where travel time was highly variable. Areas marked with the letter "C" are hotspots of congestion-induced delay where segment speeds are significantly less than free-flow speed and adjacent segments. Lastly, segments with the letter "D" were called out by bus operators as challenging for bus turns.

Map callouts are included to provide further explanation of the challenges observed at each location in the Project corridor.

EVALUATION OF INDUSTRY BEST PRACTICES

A toolkit of industry best practices was developed that addresses relevant operational issues identified during problem identification (see the above section). The toolkit provides examples of how each transit-supportive strategy and design solution could serve to improve bus operations, access to transit, and/or performance monitoring. The ***Transit Enhancement Toolkit*** is included in **Appendix B**.

The ***Transit Enhancement Toolkit*** provides estimates for the two types of project costs: 1) capital, and 2) operational & maintenance. These estimates offer a rough order of magnitude of the costs of each transit-supportive solution and are as follows:

- Operational & Maintenance Costs
  - "Low". Solutions that have an operational & maintenance cost at or below $200,000 per year are considered low cost.
  - "Medium". Solutions that have an operational & maintenance cost between $200,000 and $1.5 million per year are considered medium cost.
  - "High". Solutions that have an operational & maintenance cost at or above $1.5 million per year are considered high cost.

- Capital Costs
  - "Low". Solutions that have a capital cost at or below $200,000 are considered low cost.
  - "Medium". Solutions that have a capital cost between $200,000 and $1.5 million are considered medium cost.
  - "High". Solutions that have a capital cost at or above $1.5 million are considered high cost.

Note that these cost estimates apply to each individual application of a solution. Cost estimates for specific improvements proposed for this Project will be developed as part of a later task.

GOALS AND PERFORMANCE MEASURES

Goals and performance measures were developed to address the operational challenges identified in the **Problem Identification** section. These goals are included

as part of the ***Evaluation Ratings Matrix*** found in **Appendix C**. The ***Evaluation Ratings Matrix*** is broken out into three sections (sheets "1A", "1B", and "1C").

Each section is meant to be applied to only one type or "bucket" of project. Individual improvement solutions will be effective at addressing one or more of the project goals, but any one improvement is likely to not address all of the project goals given the breadth of those goals. For example, while a bus priority project may enhance speed and reliability, it may not affect passenger safety in accessing stops. Similarly, improvements to stop amenities may enhance passenger comfort, but won't affect speed and reliability. As such, individual improvement recommendations will be categorized into one or more of the following improvement types in order to evaluate effectiveness across each improvement type:

- Bus speed and reliability
- Bus stop access
- Bus stop amenity

Each section in the ***Evaluation and Ratings Matrix*** includes a set of criteria that are unique to a particular project type. Improvement recommendations that fit into more than one improvement type will be evaluated across all of the applicable criteria. Costs & schedule objectives are more naturally shared by all three types. The criteria and evaluation methods described in this table will be utilized to evaluate and prioritize project recommendations as part of a later task.

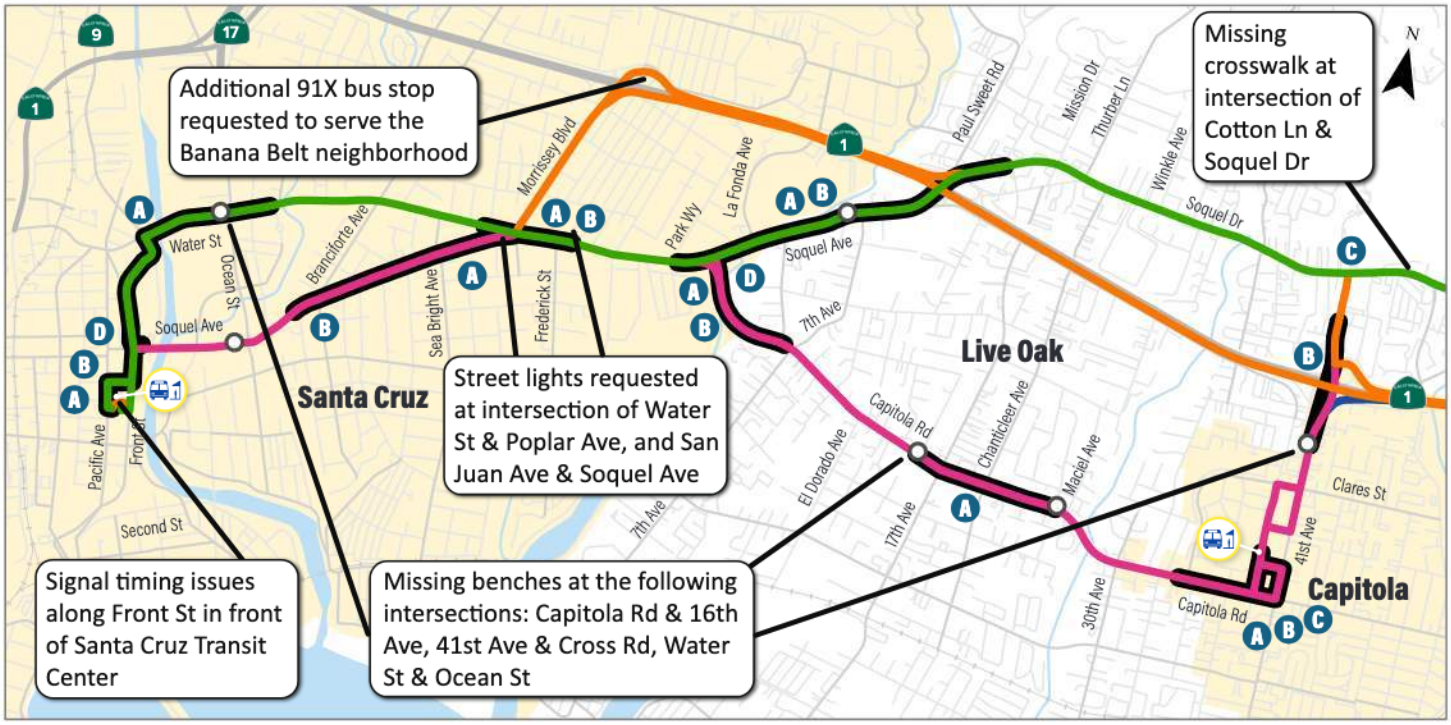
Key performance measures were also developed to monitor post-project progress and to assess the quality of METRO's service. The performance measures are included in **Appendix C** as the ***Effectiveness of Service Ratings Matrix*** (tab "2"). These performance measures can be used to evaluate the quality of METRO's service as it relates to bus performance, bus stop access, and bus stop amenities as capital infrastructure projects are implemented and ridership patterns evolve.

NEXT STEPS

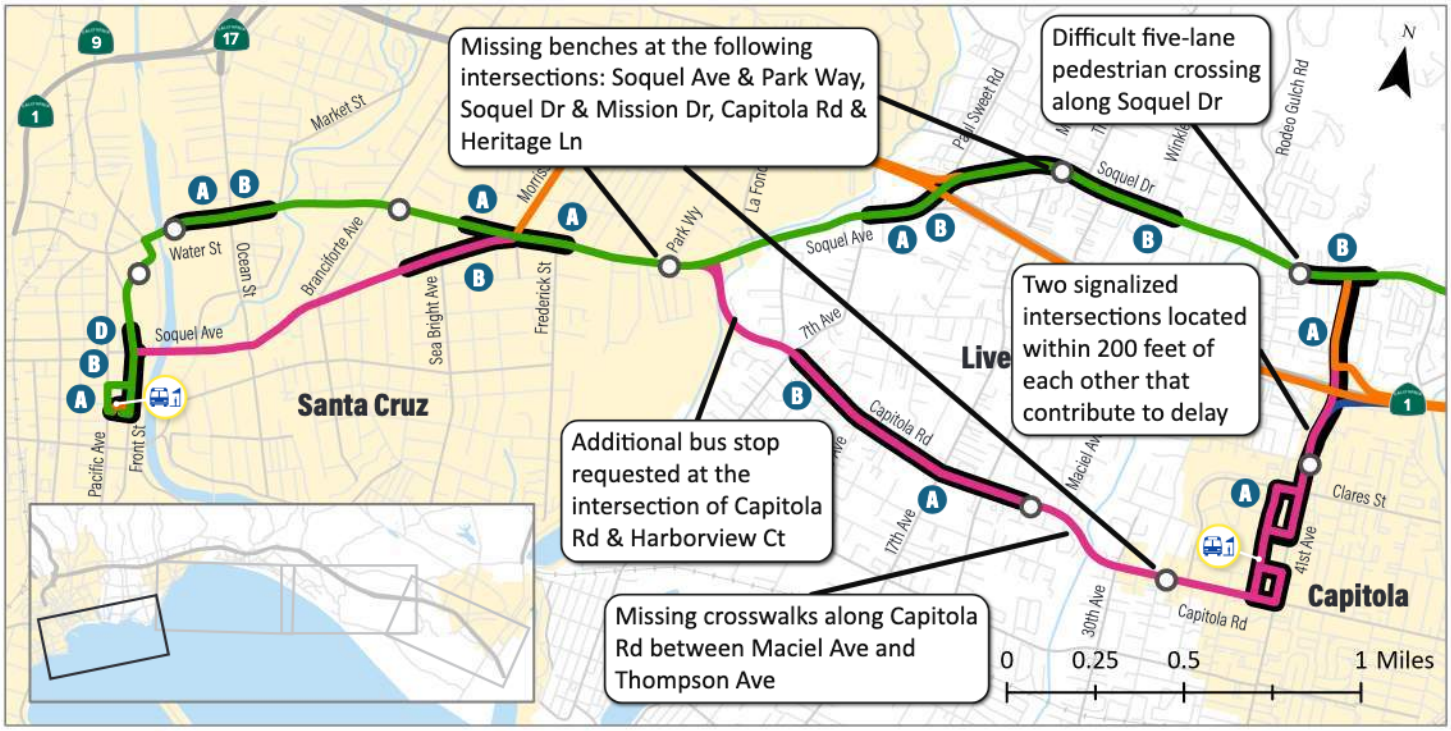
- Information collected as part of the **Problem Identification Section** (field visit, data analysis, operator input, outreach) will be used to identify and evaluate transit-supportive strategies and recommendations.
- The Project team will develop a fact sheet and map for up to six strategies describing the various elements and features, proposed geographic placements, proposed cross-sections (if relevant), and examples of similar applications.
- The Project team will evaluate the effectiveness of each improvement strategy in meeting the performance metrics identified in the **Goals and Performance Measures** section
- The Project team will obtain stakeholder and community input on the initial list of recommendations

APPENDIX A: PROBLEM IDENTIFICATION MAPS

Figure 1A: Problem Identification - Santa Cruz to Capitola



Northbound



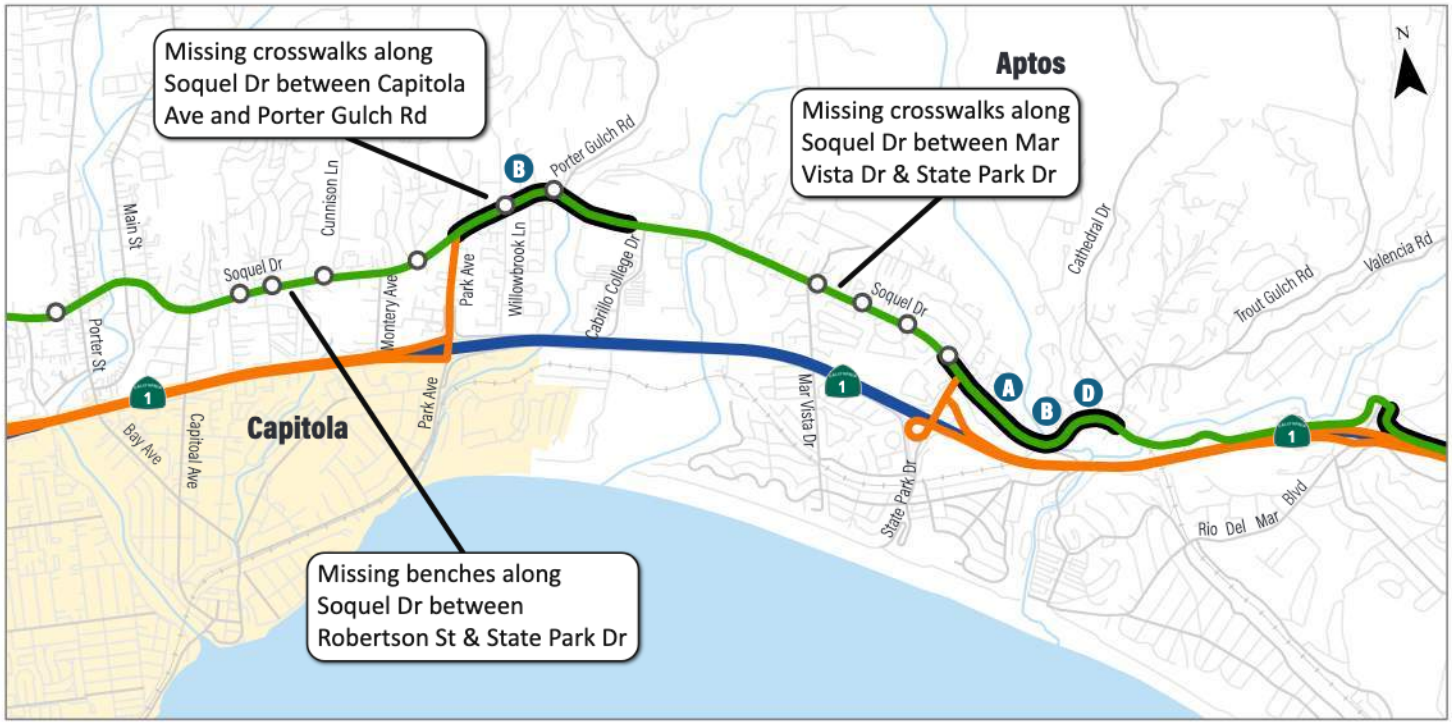
Southbound

Legend

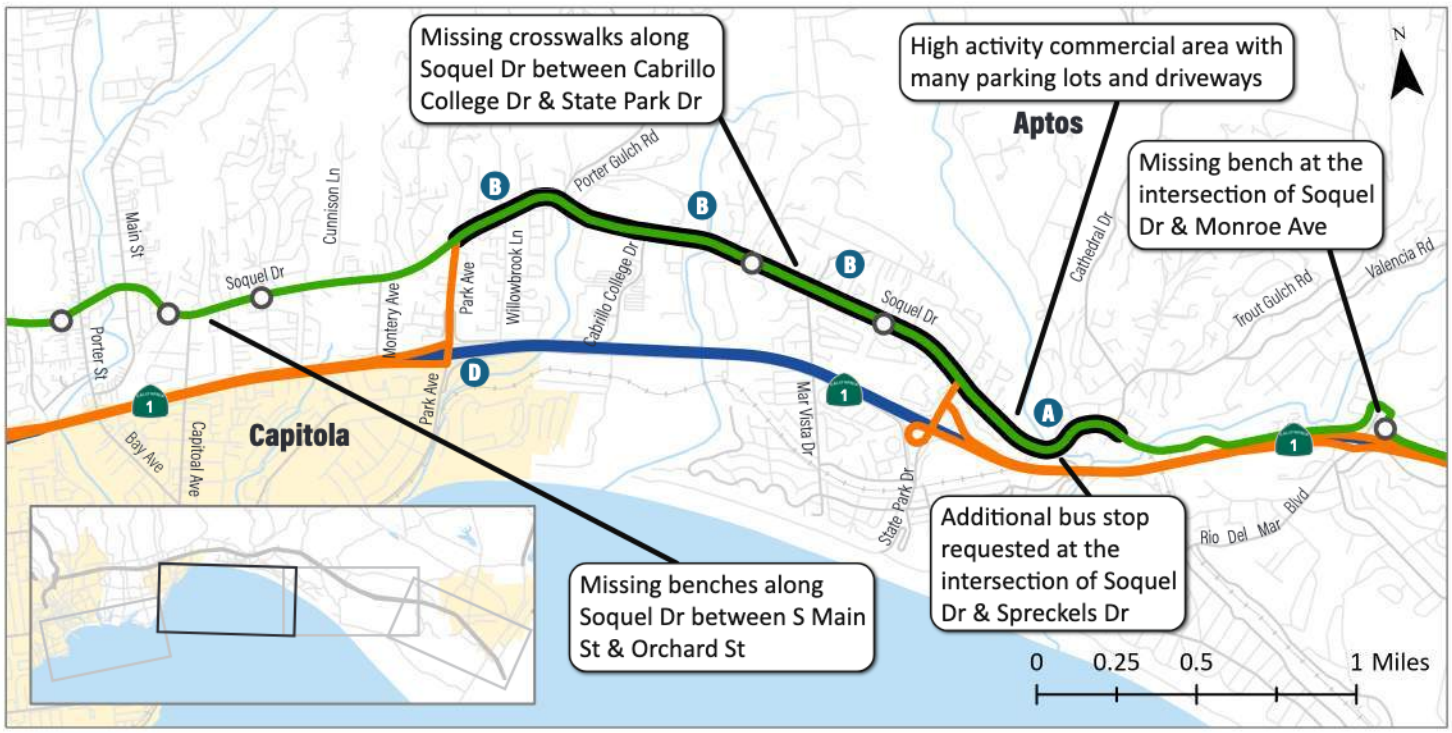
Bus Routes
- City Limits
- Transit Center
- Route 69A
- Route 69W
- Route 71
- Route 91X

Corridor Challenges
- Stop Challenge
- Route Challenge
- A Slow Bus Speeds
- B High Travel Time Variability
- C Congestion-Induced Delay
- D Challenging Bus Turn

Figure 1B: Problem Identification - Capitola to Aptos



Northbound



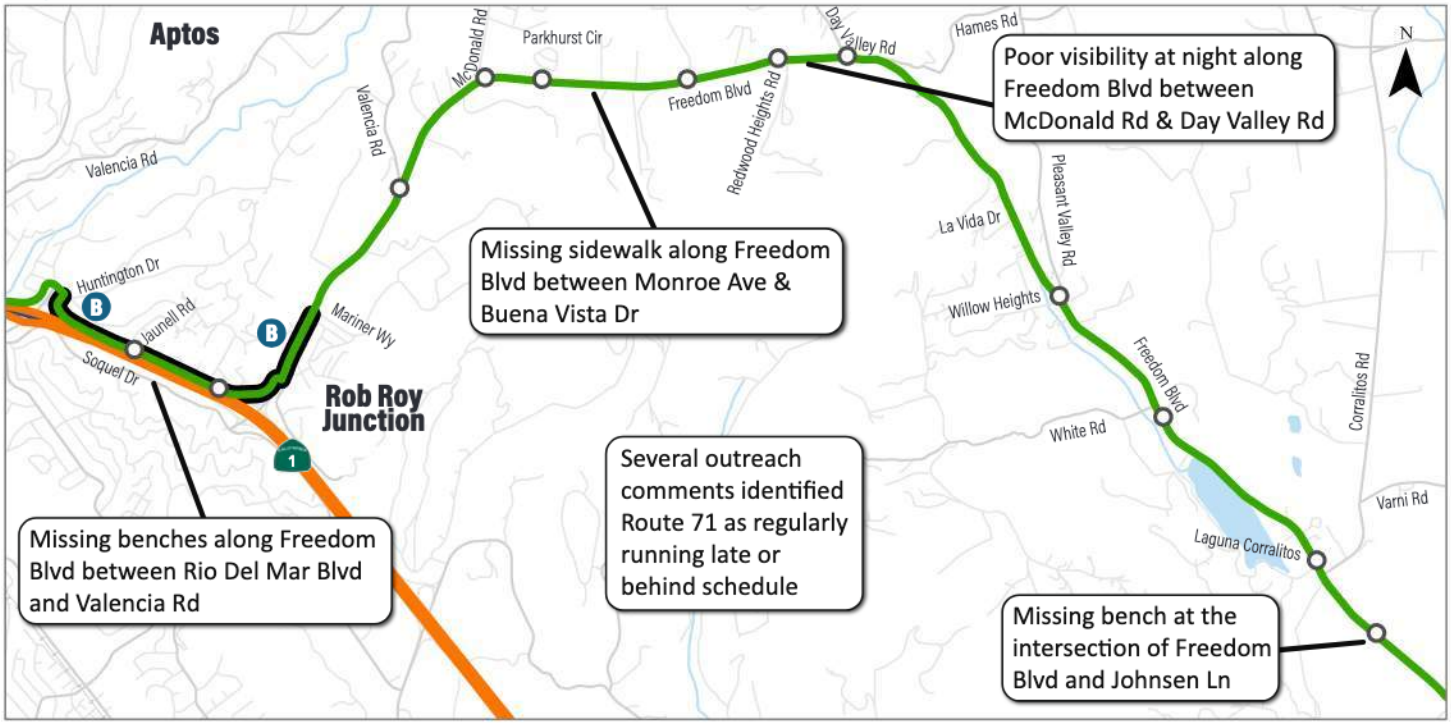
Southbound

Legend

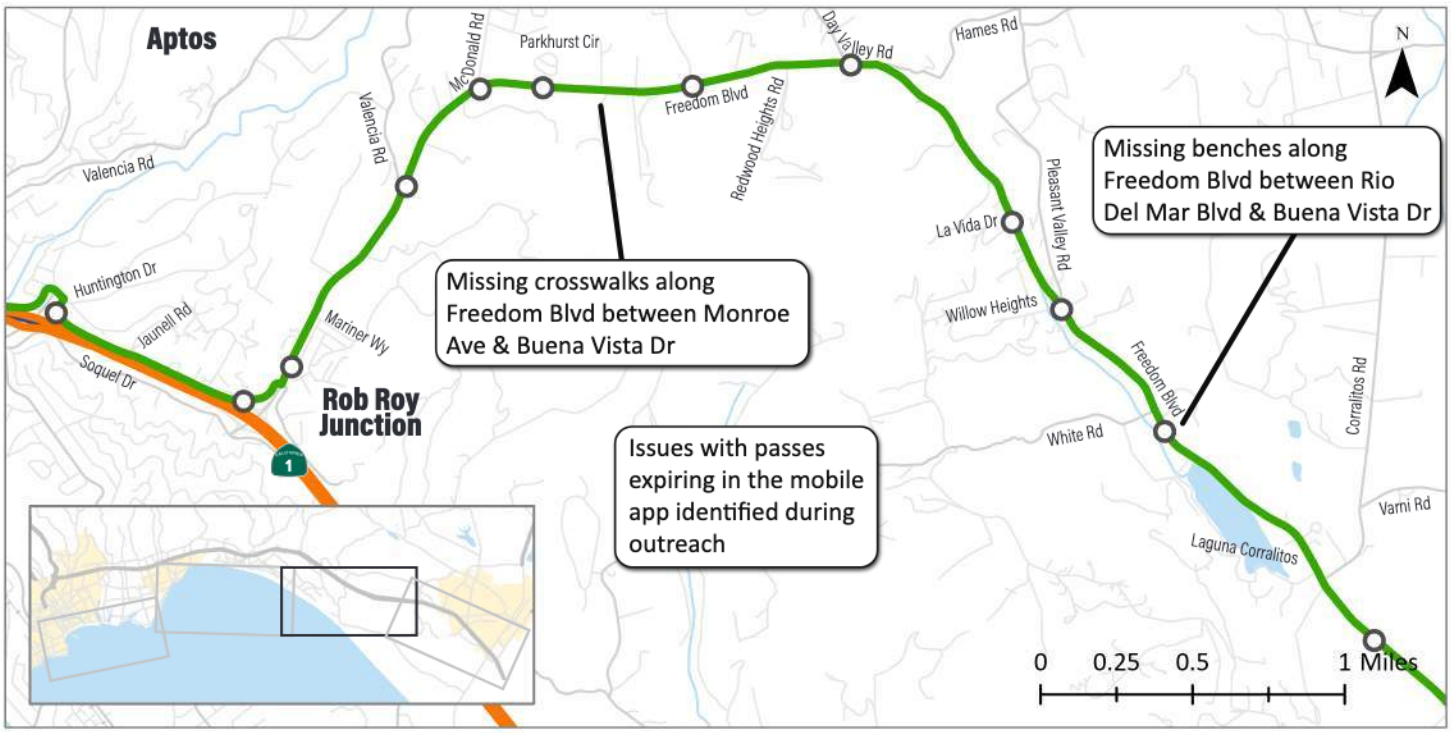
Bus Routes
- City Limits
- Transit Center
- Route 69A
- Route 69W
- Route 71
- Route 91X

Corridor Challenges
- Stop Challenge
- Route Challenge
- A Slow Bus Speeds
- B High Travel Time Variability
- C Congestion-Induced Delay
- D Challenging Bus Turn

Figure 1C: Problem Identification - Aptos to Freedom



Northbound



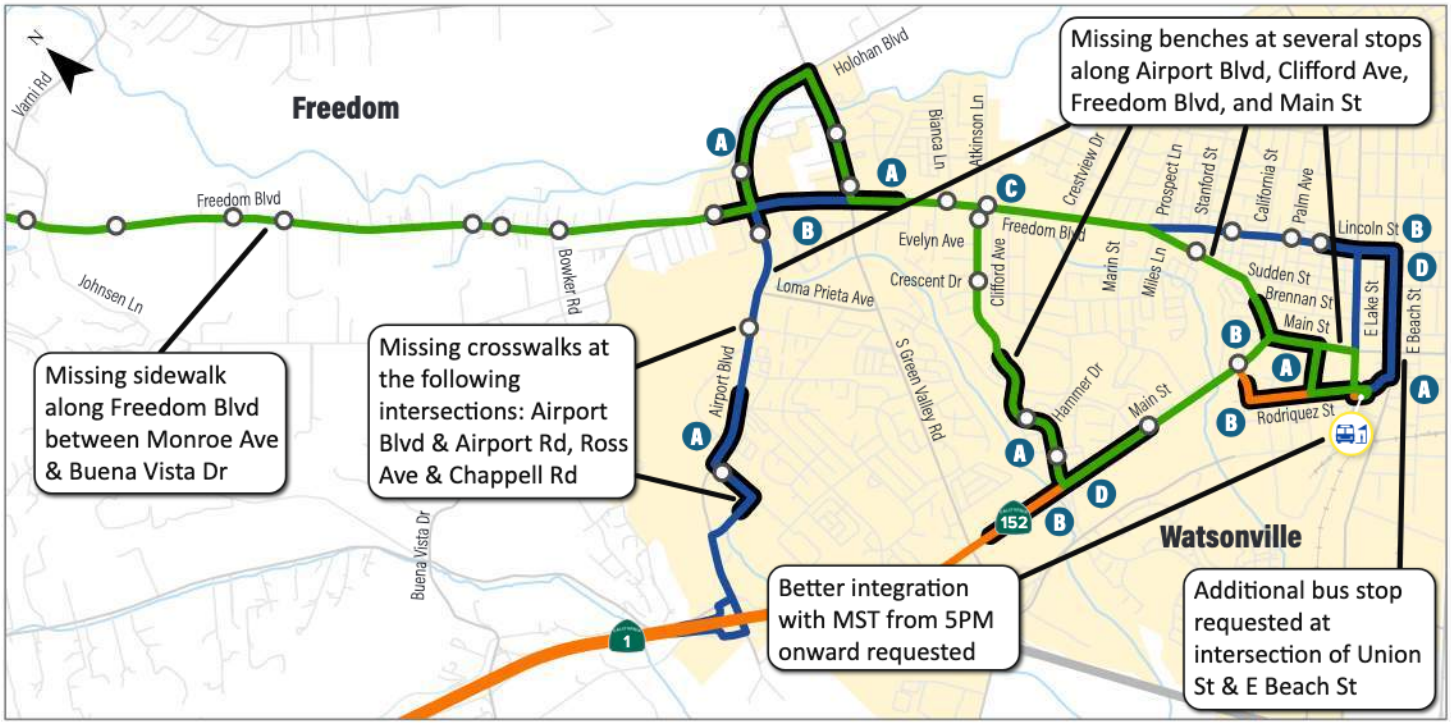
Southbound

Legend

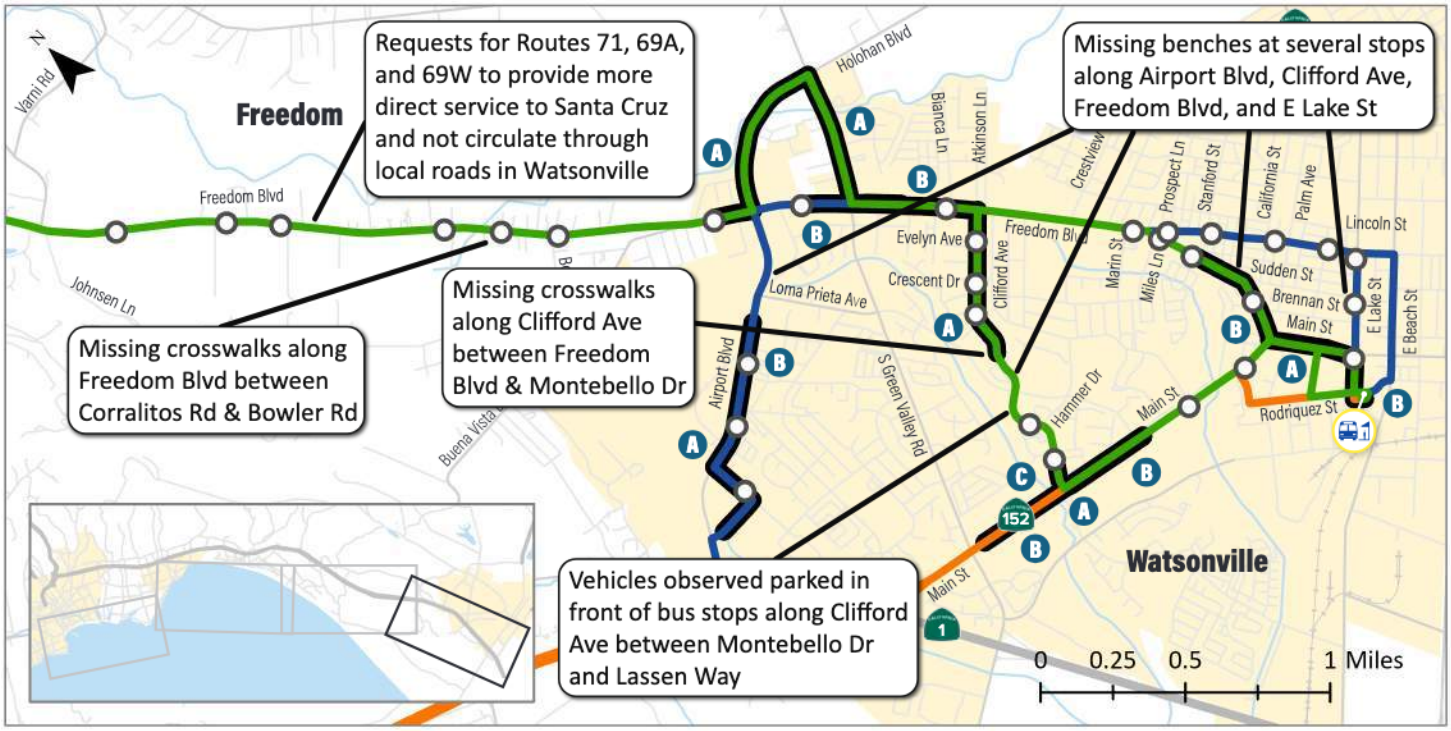
Bus Routes
- City Limits
- Transit Center
- Route 69A
- Route 69W
- Route 71
- Route 91X

Corridor Challenges
- Stop Challenge
- Route Challenge
- A Slow Bus Speeds
- B High Travel Time Variability
- C Congestion-Induced Delay
- D Challenging Bus Turn

Figure 1D: Problem Identification - Freedom to Watsonville



Northbound



Southbound

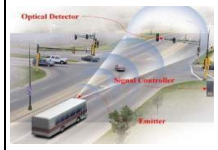
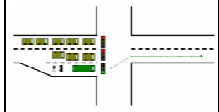
Legend

Bus Routes
- City Limits
- Transit Center
- Route 69A
- Route 69W
- Route 71
- Route 91X

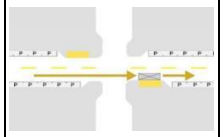
Corridor Challenges
- Stop Challenge
- Route Challenge
- A Slow Bus Speeds
- B High Travel Time Variability
- C Congestion-Induced Delay
- D Challenging Bus Turn

APPENDIX B: TRANSIT ENHANCEMENT TOOLKIT

Santa Cruz METRO's Line 71/Rapid Corridors Project
Transit Enhancement Toolkit

Category	Solution	Description	Features	Implementation Considerations	Operational & Maintenance Cost (typical)	Capital Cost (typical)	Example Image
Bus Priority Treatments	Early Green/Extended Green Signal Operations (TSP)	Early green/extended green signal operations are a set of operational enhancements to normal signal functions to accommodate transit vehicles crossing the intersection.	• Requires technology upgrades on buses and at signal controllers	• Coordination between local jurisdictions and transit operators for implementation and operation plans • Assess feasibility and impacts of integrating transit signal priority with existing or planned signal coordination • Identify opportunities to also benefit emergency vehicles • May require signal controller upgrades	Low	Low	
	Queue Jumps	A queue jump lane is a travel lane specially marked or signed for transit vehicles at traffic signals. These lanes are typically accompanied by a signal that provides a phase specifically for vehicles in that lane.	• Transit signal heads for dedicated transit phases • Requires technology upgrades on buses and potentially at controllers	• Coordination between local jurisdictions and transit district for implementation and operational plans • Assess feasibility and impacts of integrating transit signal priority with existing or planned signal coordination • Identify opportunities to provide benefits for emergency vehicles • May require signal controller upgrades	Medium	Medium	
	Dedicated Transit Lanes	May include signage, markings, or signal modifications to support dedicated bus lane at certain times of day in a general purpose lane or a parking lane. May include time-limited transit lanes, such as peak period bus-only lanes.	• Lane striping • Signage • Dedicate transit signal phases (if appropriate)	• Clear signage and road markings identifying where private vehicles are prohibited • Requires design development to configure signing, striping, and any other associated improvements • Option to limit to certain hours of use and directionality for transit vehicles • May result in traffic or circulation impacts or require additional ROW that would need to be evaluated • Would require extensive enforcement or towing in any time-limited bus lane	Medium	Medium-High	
	Traffic Movement Modifications	Geometric or striping modifications to change traffic patterns, prioritizing bus movements or enhancing bus stops by better facilitating bus pull-in/pull-out manuevers.	• Can include modifications such as striping changes, new or modified signage, modified signal operations, and new or modified raised curb • May include eliminating free right-turn movements, closing driveways, or provide separate turn lanes	• Coordination between local jurisdictions and transit district for implementation and operational plans • May require traffic operations analysis to identify effects on traffic patterns and diversion	Varies	Varies	

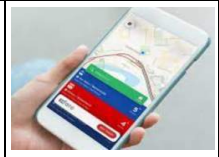
Santa Cruz METRO's Line 71/Rapid Corridors Project
Transit Enhancement Toolkit

Category	Solution	Description	Features	Implementation Considerations	Operational & Maintenance Cost (typical)	Capital Cost (typical)	Example Image
Bus Operations	Route Restructuring and Consolidation	Route restructuring entails modifying routing or scheduling of service to improve operational efficiency.	• Route restructuring can include a simplification of existing routes by removing parallel or redundant routes • Route restructuring may also entail right-sizing service based on ridership or ridership potential	• Decreasing or eliminating service in one route may allow for resources to be shifted towards more productive routes • Need to consider effect on transfers and overall user travel patterns	Varies	None	
	Far-Side Stop Placement	Bus stop relocation moves stops from near- to far-side locations at intersections. A far-side stop configuration locates the stop immediately after an intersection. A near-side stop locates the stop immediately before an intersection. Far-side stops reduce the frequency that buses must stop at traffic signals, thus improving travel time reliability.	• Allows the transit vehicle to pass through the intersection before stopping to load and unload passengers • Provides additional right-turn capacity by eliminating bus blockages at the intersection • Supports the use of a broad array of active TSP technologies since transit vehicles can be anticipated based on typical approach speeds	• Limited right-of-way at the far-side of the intersection could require changes to bus stop and curb and gutter designs • On single-lane streets where in-lane stops are likely needed, far-side in-lane stops may result in traffic behind the bus spilling back into the crosswalk and intersection. At these locations, provide a longer far-side stop that accomodates queued vehicles behind the stopped transit vehicle. • Need to consider parking or other frontage impacts at locations of new stop placement	Same as Existing	Low	 (Far-Side Placement with Bus Bulbout)
	Bus Stop Consolidation	Bus stop consolidation consists of removing closely spaced or low ridership bus stops to ensure service at higher ridership stops is reliable.	• Bus stop consolidation may include relocation of existing stops • Trip times along the route may improve due to reduced dwell and traffic merge time	• Consideration should be placed on any increase in distance or hardship for riders to access bus stops, particularly around facilities for seniors, youth, and mobility-impaired persons • Need to consider parking or other frontage impacts at locations of new stop placement	Potential for reduction in cost	Low	
	In-Lane Stopping/Bus Bulbs/Transit Islands	In-lane stopping allows buses to stop in-lane, avoiding the need to wait for a gap in traffic flow to exit the bus stop. It also may allow for more room for bus stop amenities.	• Transit island (with a bike lane) or bus bulb (no bike lane) • At intersections, refuge islands may provide pedestrians protection in the crosswalk • For transit islands, need to assess configuration of bike lane behind	• Platforms can be configured for level or near-level boarding if desired • May be necessary to require people on bikes to yield to people accessing the island at high-volume stops • Requires careful consideration of placement to avoid safety or congestion issues. Often not appropriate on one-lane roads	Low	Medium-High	
	Red Curb	Expanded use of red curb at bus stops on streets where parking is provided to accommodate bus pull-in/pull-out manuevers.	• Red curb zones are no-parking zones where no stopping, standing or parking is allowed at any time • Buses are permitted to stop in red curb zones	• Associated with parking removal that may require jurisdiction approval	Low	Low	

Santa Cruz METRO's Line 71/Rapid Corridors Project
Transit Enhancement Toolkit

Category	Solution	Description	Features	Implementation Considerations	Operational & Maintenance Cost (typical)	Capital Cost (typical)	Example Image
Bus Operations	Schedule Adjustments	Refine timepoints and schedules to allow for increased on-time performance and to benefit from bus priority treatments identified as part of the project.	• Can improve the reliability of the bus service by providing more accurate travel time estimates	• Review travel time data from CAD-AVL to identify opportunities to adjust schedules	Varies	None	
Mobility and Access	Improved Roadway Crossings to Access Bus Stops	Improved pedestrian crossings at intersections. A variety of features and strategies can be implemented to enhance safety and comfort for pedestrians.	• May include curb extensions, high-visibility crosswalks, median crossing islands, pedestrian signals or flashing beacons	• Identify street segments with long gaps between crossings and assess whether there is a need for a midblock crossing • Upgrade existing facilities to meet ADA requirements • May require significant drainage or curb improvements	Varies	Medium	
	Improved Sidewalks and Curb Ramps	New or upgraded sidewalks, which may also include lighting and landscaping, as well as accessibility upgrades, including providng a clear path of travel and upgraded curb ramps.	• Ideally includes landscape strip to separate from automobiles and street furniture zone • Wayfinding	• Follow local and national design guidelines and ADA requirements • Ensure pathways are well-maintained and well-lit • Landscaping and walkways should be designed for safety; avoid creating easily inhabitable places	Low	Medium-High	
	Level/Near-Level Boarding	Level/near-level boarding refers to having bus platforms that are approximately level with the bus entrance. Level/near-level boarding makes it so that passengers do not have to climb any steps to board the bus, and allows people in wheelchairs to board quickly and easily without special assistance.	• Near-level platforms typically place curb height at 8-11 inches • Allows faster boarding, and are compatible with most existing transit fleets	• Suitable for side and center boarding islands, bus bulbs, or sidewalk stops • Provide ADA-compliant ramps to achieve desired height leading to the boarding pad • Transit vehicles must be able to pull in very close to the curb to eliminate the gap • Detectable warning strips or another detectable surface must be installed along the edge of the boarding platform	Low	Medium	
	Mobility Hubs	A mobility hub enables travelers to access multiple transportation options and supportive amenities. Mobility hubs offer a safe, comfortable, convenient, and accessible space to seamlessly transfer across different travel modes.	• Transit amenities • Bike storage and connection to the bike network • A safe and comfortable pedestrian network • Access to micromobility • Wayfinding	• Use cases range widely across various transit system contexts • May be used to bridge first-last mile gaps • Requires some dedicated right-of-way	Varies	Varies	
Stop Amenities	Additional Stop Amenities	Additional bus stop amenities improve the passenger experience and can include enhanced bus shelters, signage, wayfinding, and real-time traveler information.	• Shelters • Benches • Bike parking • Real-time arrival • Wayfinding • System info • Lighting • Security	• Shelters should be considered where there is sufficient ridership to warrant, available sidewalk space, and limited canopy coverage • Shelters provide opportunity for integrating wayfinding and real-time transit information • Bike parking should only be installed if it can be properly secure, including in active spaces	Medium	Low	

Santa Cruz METRO's Line 71/Rapid Corridors Project
Transit Enhancement Toolkit

Category	Solution	Description	Features	Implementation Considerations	Operational & Maintenance Cost (typical)	Capital Cost (typical)	Example Image
Fare Policy	All-Door Boarding	All-door boarding decreases dwell time at stops and, subsequently, overall travel times by reducing front-door queues, crowding, and slow service.	• Requires off-board fare collection and/or mobile ticketing with fare validation	• Requires fare compliance strategies • Reduction in operating cost from reduced dwell time must be compared against potential for increased fare avoidance	Varies	Low	
	Expanded use of Mobile Ticketing	Mobile ticketing solutions utilize the smartphones many passengers already carry with them to combine mobile and payment technology and improve user experience.	• Improves user experience and cuts operating costs • Increases convenience, speed, and simplicity • Removes the need for passengers to carry cash or wait in line to buy tickets	• Mobile payment may be used in conjunction with smart card or chip reader • Requires solutions to maintain access for riders without smartphones or who are unbanked	Varies	Varies	
Service Monitoring	Automated Passenger Counters (APC)	Automated passenger counters (APC) records boarding and alighting data on board the bus through sensors at doorways.	• Allows for tracking transit ridership at the stop and trip level	• Requires validation to ensure accuracy	Low	Medium	
	Origin-Destination On-Board Surveys	Origin-destination surveys ask a random sampling of riders about their trip, including trip purpose and transfers. This can be utilized in service planning.	• A detailed sampling plan will determine the size of the survey needed	• Recommended to occur every 5 years, or more frequently as budget is available	Low	None	

APPENDIX C: EFFECTIVENESS OF SERVICE RATINGS MATRIX

Santa Cruz METRO's Line 71/Rapid Corridors Project
Evaluation Ratings Matrix for Bus Speed & Reliability Projects

Type of Improvement	Criteria	Evaluation Ratings Matrix for Bus Speed & Reliability Projects			
		High	Medium	Low	Evaluation Method
Bus Speed & Reliability	On-Time Performance	On-time performance would measurably increase	Minimal increase or decrease in on-time performance	On-time performance would measurably decrease	Qualitatively estimated based on industry research or engineering judgement
	Trip Time	Bus trip times would measurably decrease	Minimal increase or decrease in bus trip times	Bus trip times would measurably increase	Estimated change in travel times based on existing delays and industry research
	Wait Times	Allows for more frequent service	Does not change service frequency	Results in less frequent service	Effect of changes in bus routing and cycle time on expected wait times at stops
	User Delay	No change or a reduction in road user delay	May cause a slight increase in road user delay in select locations	May cause major increases in road user delay	Qualitatively estimated effect on road user delay based on field observations and provided traffic data
Costs & Schedule	Operation & Maintenance Costs	Measurable reduction in operation and maintenance costs	Negligible or no change in operating and maintenance costs	Measurable increase in operating and maintenance costs	Estimated change in revenue hours/revenue miles or a qualitative change in maintenance costs
	Capital Costs	Minor capital costs, or capital costs can be easily captured within existing budgets	Capital costs anticipated to be reasonably funded through available grant programs	Significant capital costs that may be challenging to fund	Rough order of magnitude of capital cost
	Implementation Barriers	Few barriers to implementation, allowing for near-term project	Moderate barriers to implementation, allowing for mid-term project	Signficant barriers to implementation, likely requiring a long-term project	Qualitative assessment of implementation timeframe based on stakeholder coordination, cost, construction timeline, and other risk factors.

Santa Cruz METRO's Line 71/Rapid Corridors Project
Evaluation Ratings Matrix for Bus Stop Access Projects

Type of Improvement	Criteria	Evaluation Ratings Matrix for Bus Speed & Reliability Projects			
		High	Medium	Low	Evaluation Method
Bus Stop Access	Bus Stop Accessibility	Significant increase in bus stop accessibility	Moderate increase in bus stop accessibility	Does not increase bus stop accessibility	Qualitative assessment of improvements to sidewalk access to bus stop.
	Bicycle and Pedestrian Safety	Significant increase in bicycle and pedestrian safety in accessing bus stops	Moderate increase in bicycle and pedestrian safety in accessing bus stops	No change or decrease in bicycle and pedestrian safety in accessing bus stops	Qualitative assessment of bicycle/pedestrian safety impacts.
	Ridership	Large number of existing riders would benefit or would generate large number of new riders	Moderate number of existing riders would benefit or would generate some new riders	Small number of existing riders would benefit and would not be expected to generate new riders	Existing boardings and alightings and proximity to key destinations
	Bus Stop Coverage	Increase in number of people within a 1/4-mile radius of a high quality bus stop	Negligible or no change in number of people within a 1/4-mile radius of a high quality bus stop	Decrease in number of people within a 1/4-mile radius of a high quality bus stop	Estimated change in number of people within 1/4-mile radius of a high quality bus stop (has a crosswalk, sidewalk, and at least a bench)
	User Delay	No change or a reduction in road user delay	May cause a slight increase in road user delay in select locations	May cause major increases in road user delay	Qualitatively estimated effect on road user delay based on field observations and provided traffic data
Costs & Schedule	Operation & Maintenance Costs	Measurable reduction in operation and maintenance costs	Negligible or no change in operating and maintenance costs	Measurable increase in operating and maintenance costs	Estimated change in revenue hours/revenue miles or a qualitative change in maintenance costs
	Capital Costs	Minor capital costs, or capital costs can be easily captured within existing budgets	Capital costs anticipated to be reasonably funded through available grant programs	Significant capital costs that may be challenging to fund	Rough order of magnitude of capital cost
	Timeline	Few barriers to implementation, allowing for near-term project	Moderate barriers to implementation, allowing for mid-term project	Signficant barriers to implementation, likely requiring a long-term project	Qualitative assessment of implementation timeframe based on stakeholder coordination, cost, construction timeline, and other risk factors.

Santa Cruz METRO's Line 71/Rapid Corridors Project
Evaluation Ratings Matrix for Bus Stop Amenity Projects

Type of Improvement	Criteria	Evaluation Ratings Matrix for Bus Speed & Reliability Projects			
		High	Medium	Low	Evaluation Method
Bus Stop Amenity	Passenger Waiting Experience	Significant increase in passenger waiting experience	Moderate increase in passenger waiting experience	Minimal or no increase in passenger waiting experience	Qualitative assessment of effect on passenger waiting experience
	Ridership	Large number of existing riders would benefit or would generate large number of new riders	Moderate number of existing riders would benefit or would generate some new riders	Small number of existing riders would benefit and would not be expected to generate new riders	Existing boardings and proximity to key destinations
Costs & Schedule	Operation & Maintenance Costs	Measurable reduction in operation and maintenance costs	Negligible or no change in operating and maintenance costs	Measurable increase in operating and maintenance costs	Estimated change in revenue hours/revenue miles or a qualitative change in maintenance costs
	Capital Costs	Minor capital costs, or capital costs can be easily captured within existing budgets	Capital costs anticipated to be reasonably funded through available grant programs	Significant capital costs that may be challenging to fund	Rough order of magnitude of capital cost
	Timeline	Few barriers to implementation, allowing for near-term project	Moderate barriers to implementation, allowing for mid-term project	Signficant barriers to implementation, likely requiring a long-term project	Qualitative assessment of implementation timeframe based on stakeholder coordination, cost, construction timeline, and other risk factors.

Santa Cruz METRO's Line 71/Rapid Corridors Project
Post-Implementation Evaluation Metrics

Effectiveness of Transit Service			
Category		**Criteria**	**Data source and method**
Bus Speed & Reliability	**Bus Speed**	Average bus speeds during morning and afternoon peak periods	CAD/AVL data, measuring end-to-end travel time
	Dwell Time	Average amount of dwell time per boarding	CAD/AVL data, measuring time spent at stop, and APC data for ridership
	Bus Stop Spacing	Number of bus stop pairs that are below bus stop spacing standards	GIS database of stops
	On-Time Peformance	On-Time Performance for each route, measured as 0-5 minutes relative to schedule at each timepoint	CAD/AVL data
	Productivity	Average productivity for reach route, measured as riders per revenue hour	APC or farebox data
	Passenger load factor	Average peak passenger load factor	APC data and vehicle capacity
	User Delay	Total person-delay	Actual travel time obtained from CAD/AVL above the free flow travel time multiplied by passenger load as measured by APC boarding data, calculated by timepoint
Bus Stop Access	**Sidewalk**	Percentage of stops with 15 or more average daily boardings that have an accessible sidewalk adjacent to the stop	Stop database, APC data
	Pedestrian Crossings	Percentage of stops with 15 or more average daily boardings that have a signalized or enhanced crosswalk within 200 feet of the stop	Stop database, APC data
	Bus Stop Coverage	Number of residents that are within a 1/4-mile radius of a high quality bus stop (i.e. has a crosswalk and shelter)	APC data, network analysis
Bus Stop Ammenity	**Shelters**	Percentage of stops with 15 or more average daily boardings that have a shelter	Stop database, APC data
	Benches	Percentage of stops with 15 or more average daily boardings that have a bench	Stop database, APC data
	Wayfinding	Percentage of stops with wayfinding information	Stop database, APC data

APPENDIX E

Local Bus Stop Improvements

RELOCATION/CONSOLIDATION OF LOCAL BUS STOPS

Northbound

Legend

- City Limits
- Transit Center
- Existing Local Route Alignment
- Proposed Rapid Route Alignment
- Existing Stop to Remain
- New/Relocated Stop (Proposed Location Shown)
- Stop Identified for Removal
- Rapid Stop (Proposed Location Shown)

Kimley»Horn

RELOCATION/CONSOLIDATION OF LOCAL BUS STOPS

Southbound

Legend

- City Limits
- Transit Center
- Existing Local Route Alignment
- Proposed Rapid Route Alignment
- Existing Stop to Remain
- New/Relocated Stop (Proposed Location Shown)
- Stop Identified for Removal
- Rapid Stop (Proposed Location Shown)

Kimley»Horn

RELOCATION/CONSOLIDATION OF LOCAL BUS STOPS

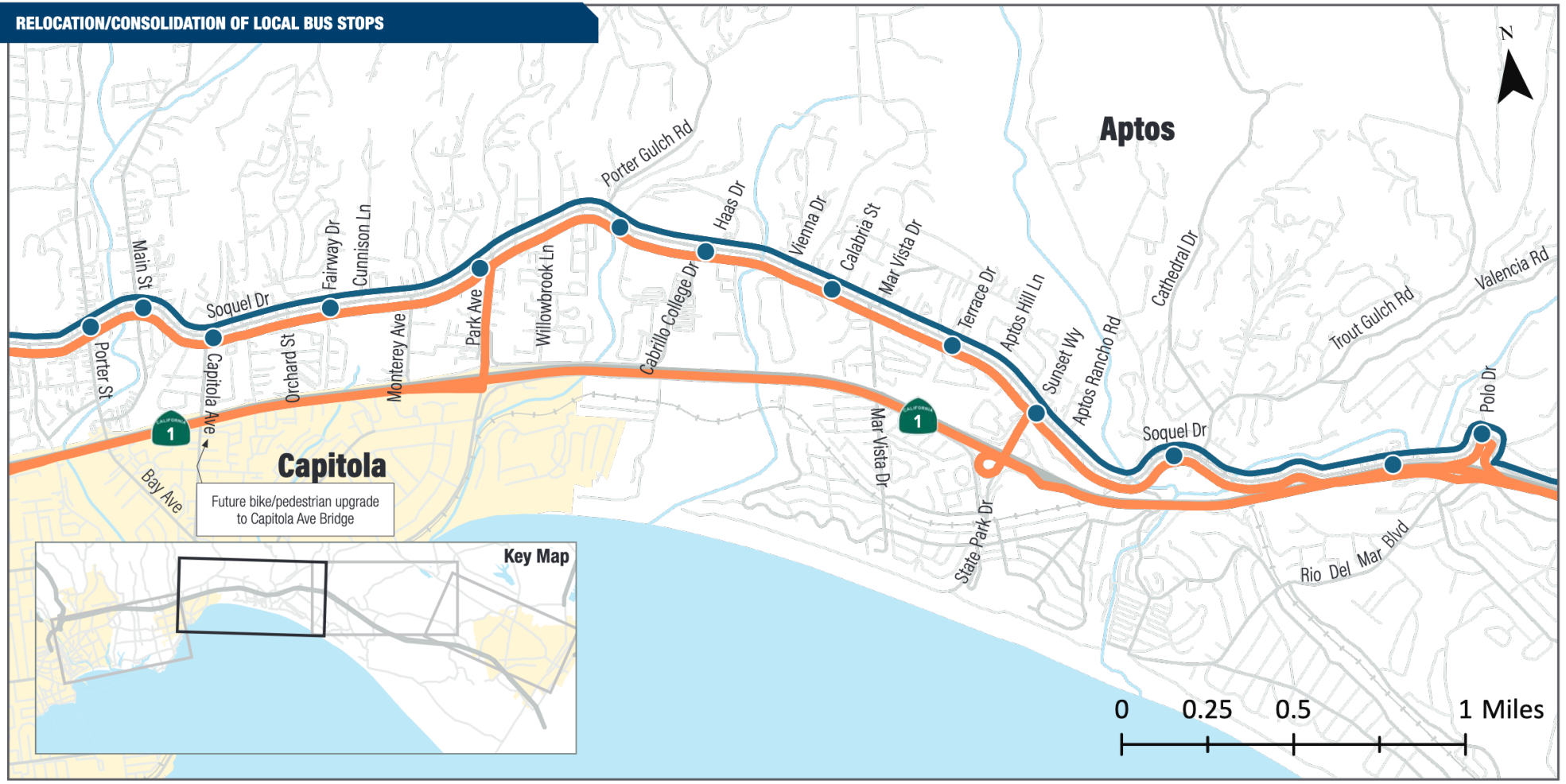
Northbound

Legend

- City Limits
- Transit Center
- Existing Local Route Alignment
- Proposed Rapid Route Alignment
- Existing Stop to Remain
- New/Relocated Stop (Proposed Location Shown)
- Stop Identified for Removal
- Rapid Stop (Proposed Location Shown)

Kimley»Horn

RELOCATION/CONSOLIDATION OF LOCAL BUS STOPS



Southbound

Legend

- City Limits
- Transit Center
- Existing Local Route Alignment
- Proposed Rapid Route Alignment
- Existing Stop to Remain
- New/Relocated Stop (Proposed Location Shown)
- Stop Identified for Removal
- Rapid Stop (Proposed Location Shown)

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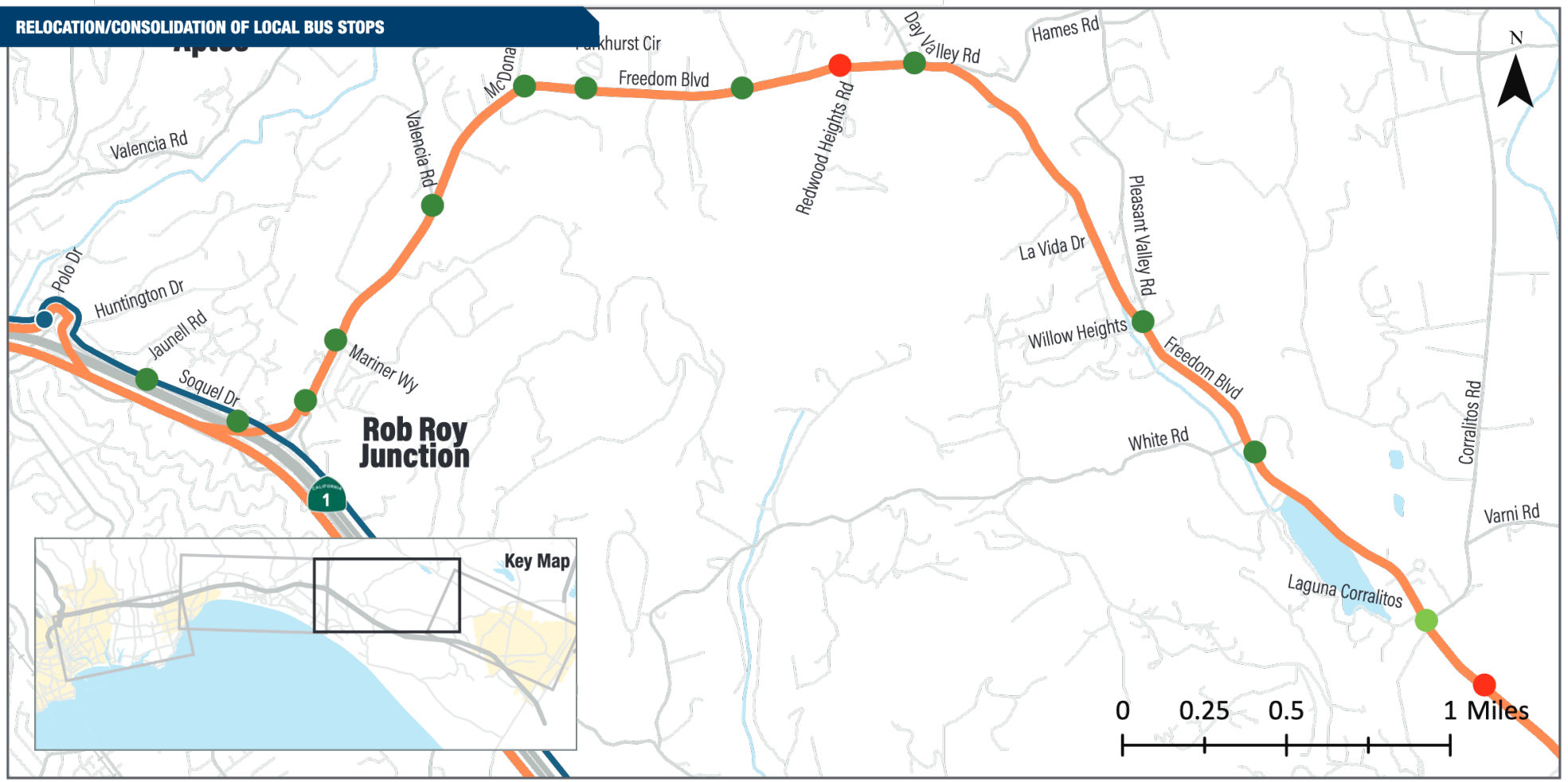
RELOCATION/CONSOLIDATION OF LOCAL BUS STOPS



Northbound

Legend

- City Limits
- Transit Center
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- Proposed Rapid Route Alignment
- Existing Stop to Remain
- New/Relocated Stop (Proposed Location Shown)
- Stop Identified for Removal
- Rapid Stop (Proposed Location Shown)

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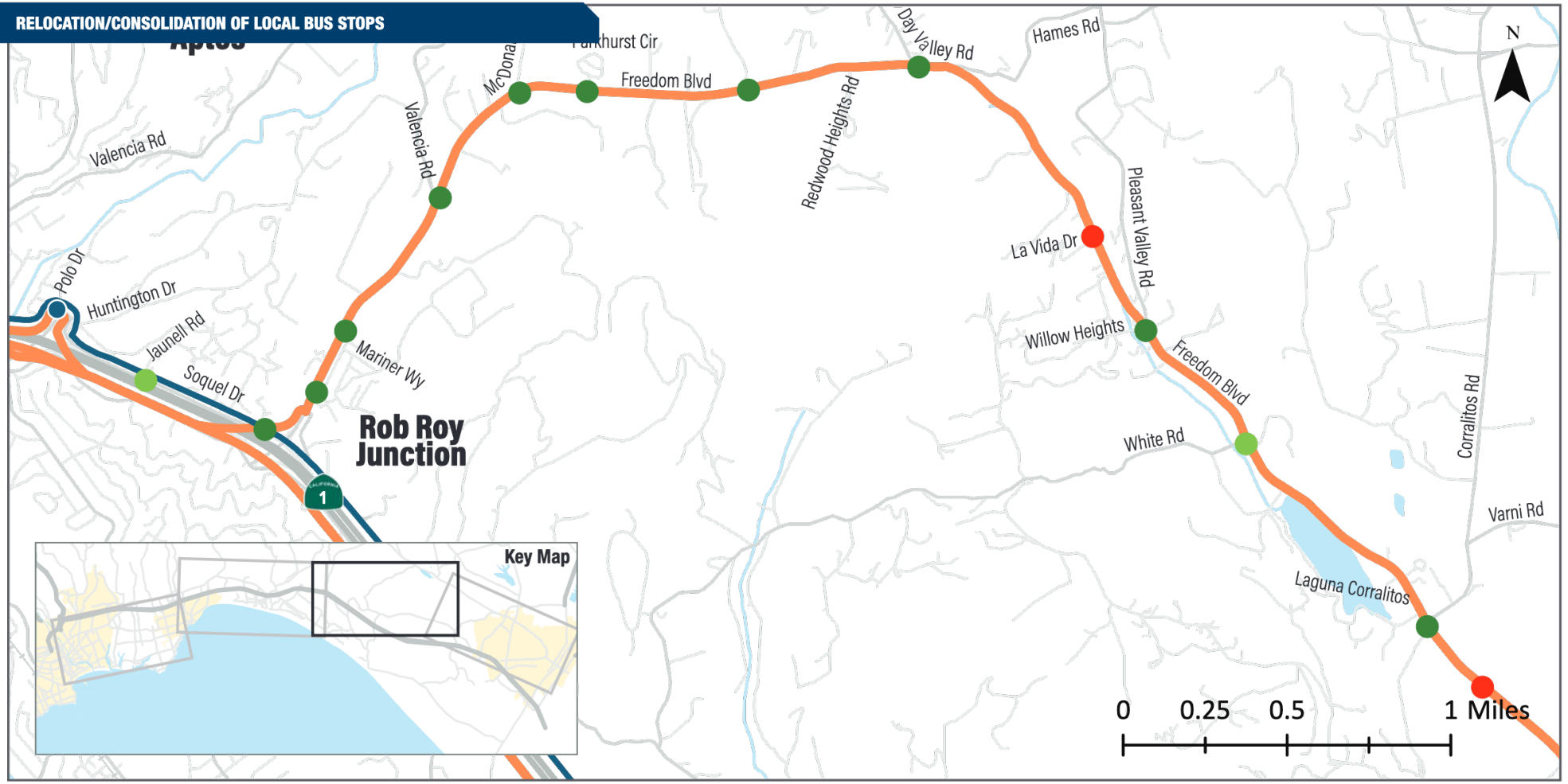
RELOCATION/CONSOLIDATION OF LOCAL BUS STOPS



Southbound

Legend

- City Limits
- Transit Center
- Existing Local Route Alignment
- Proposed Rapid Route Alignment
- Existing Stop to Remain
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- Stop Identified for Removal
- Rapid Stop (Proposed Location Shown)

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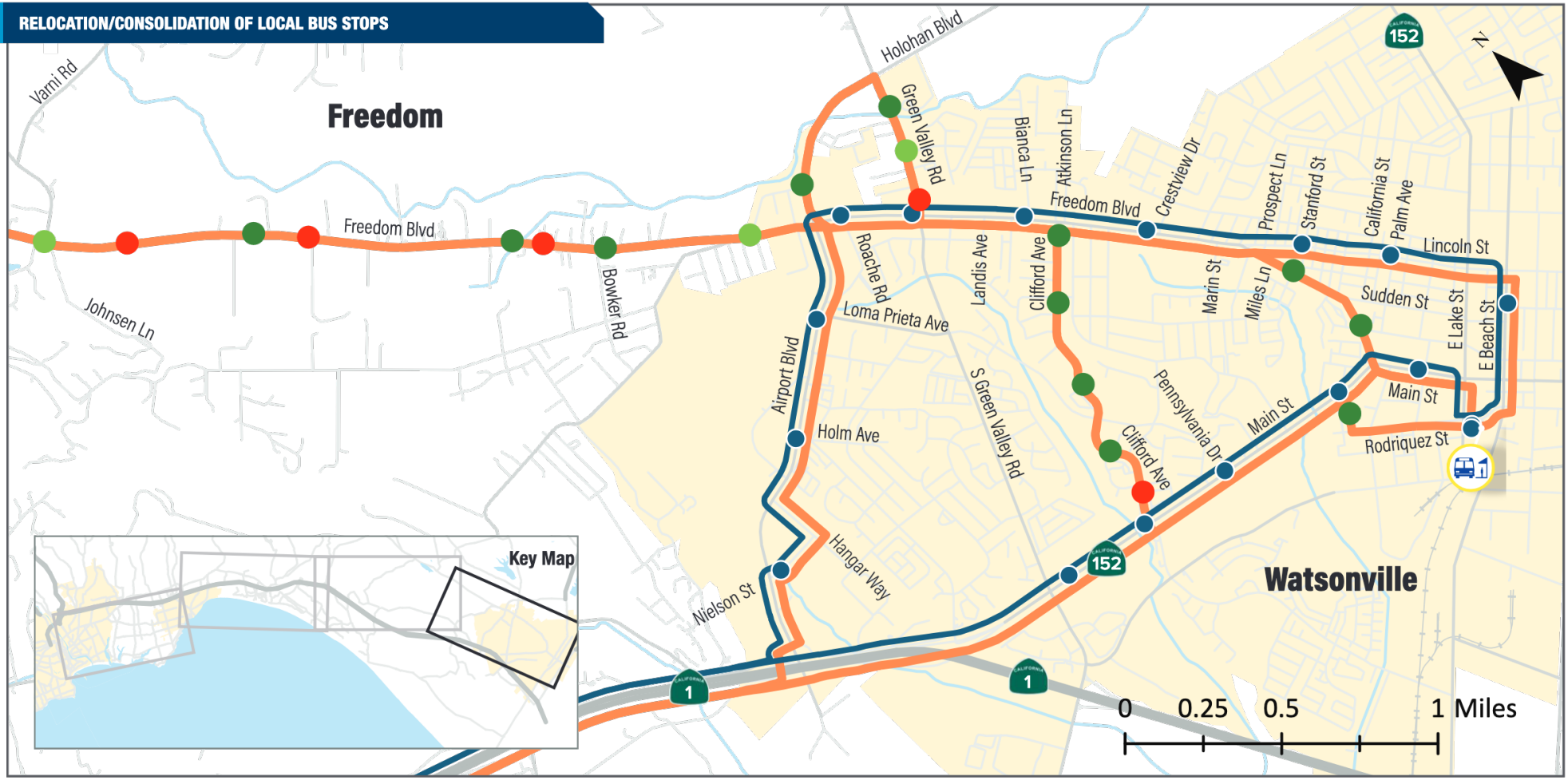
RELOCATION/CONSOLIDATION OF LOCAL BUS STOPS



Northbound

Legend

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- Transit Center
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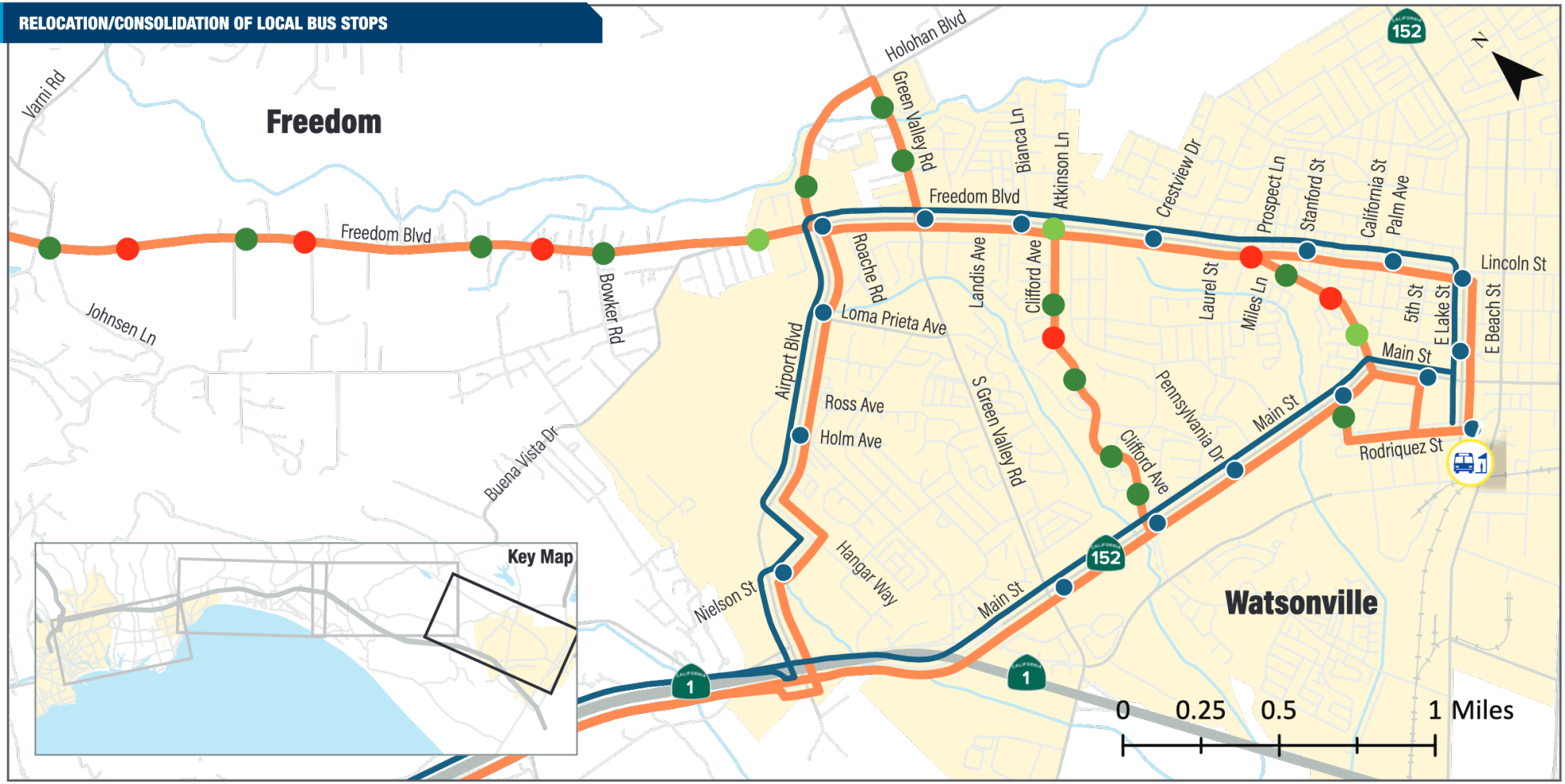
- Proposed Rapid Route Alignment
- Existing Stop to Remain
- New/Relocated Stop (Proposed Location Shown)
- Stop Identified for Removal
- Rapid Stop (Proposed Location Shown)

SANTA CRUZ METRO

Kimley»Horn

RELOCATION/CONSOLIDATION OF LOCAL BUS STOPS



Southbound

Legend

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