



SANTA CRUZ METRO'S

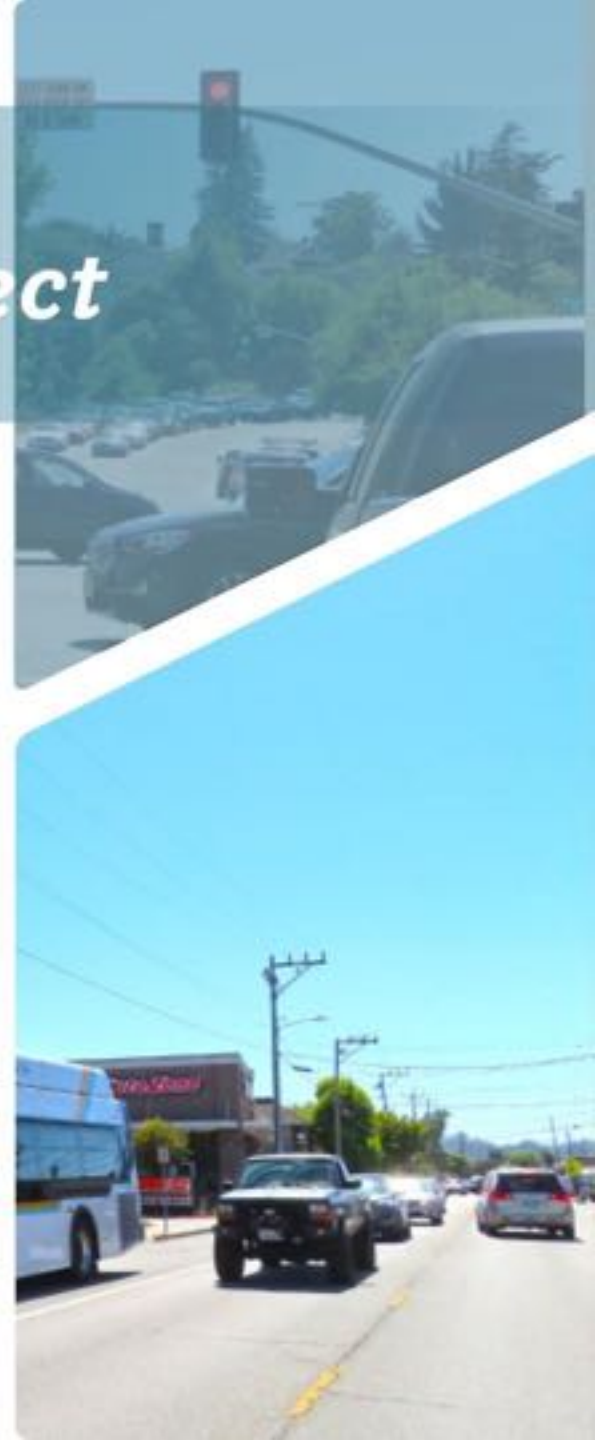
# *Line 71/Rapid Corridors Project*

## ITAC Update

September, 21 2023



Kimley»Horn





# Rapid and Local Improvement Strategies and Recommendations



# Problem Identification

## Field Visit

- **Missing amenities** at bus stops (69% without shelters and 31% without benches)
- **Improper location** (53% of stops are mid block or near sided)
- **Lack of protected crosswalks** near stops
- **Discontinuous sidewalks**
- **Signal coordination** issues

## Data Analysis

- **Delay** due to congestion of up to 20 mins/trip
- **Dwell time** between 20 and 45 mins/trip
- Greatest variability entering/exiting downtown Santa Cruz and near Green Valley Road on Freedom Blvd



# Problem Identification (continued)

## Operator Input

- Turning vehicles cut buses off
- High pedestrian volumes
- Visibility challenges
- Difficulty turning
- Customers using cash increases dwell time
- Customers not familiar with service

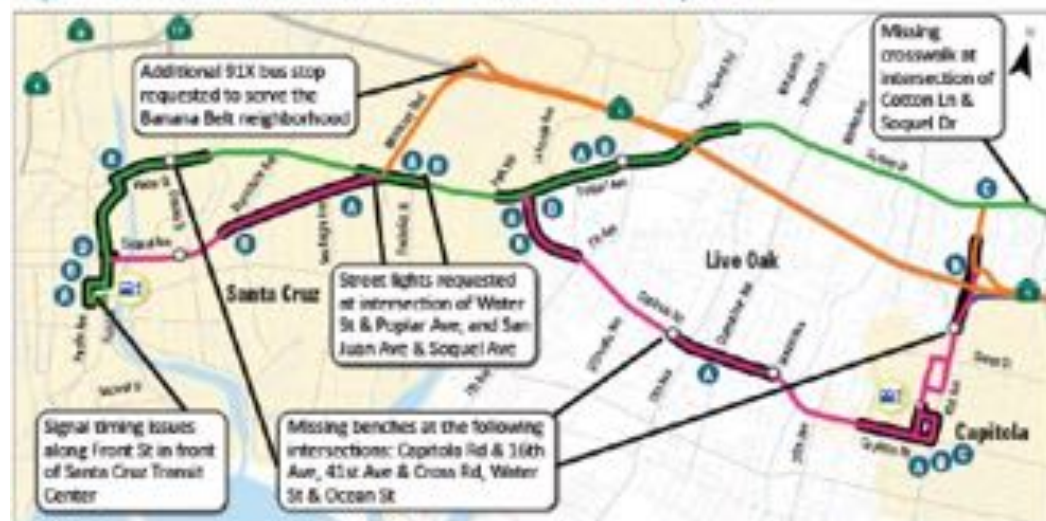
## Public Outreach

- Increase frequency and coverage
- Increased speed and efficiency
- Enhanced wheelchair access, security, and lighting
- Improved bus shelters and more amenities
- Provide up to date schedules and information

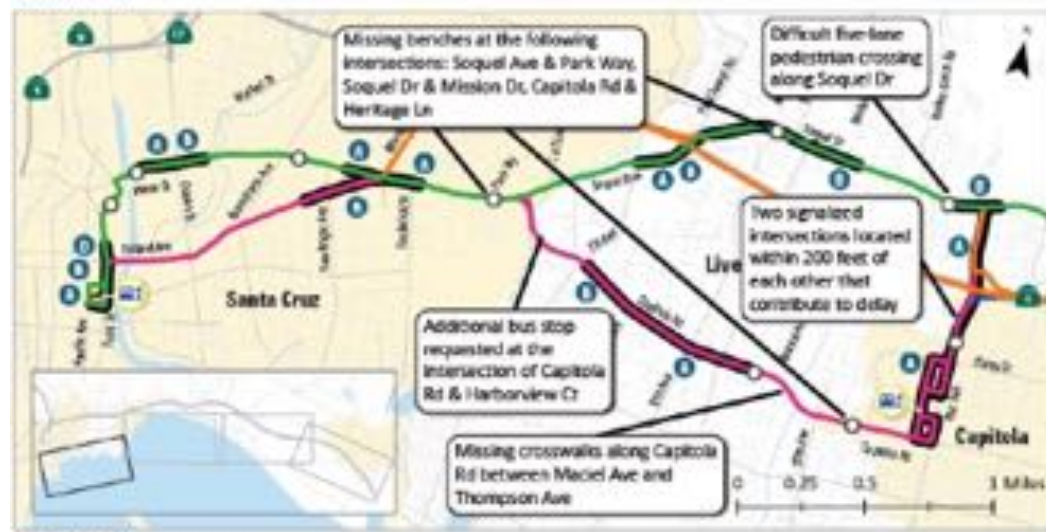




Figure 1A: Problem Identification - Santa Cruz to Capitola



Northbound



Southbound

Figure 1B: Problem Identification - Capitola to Aptos



Northbound



Southbound

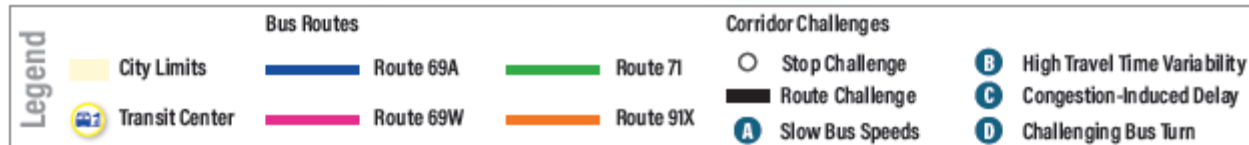
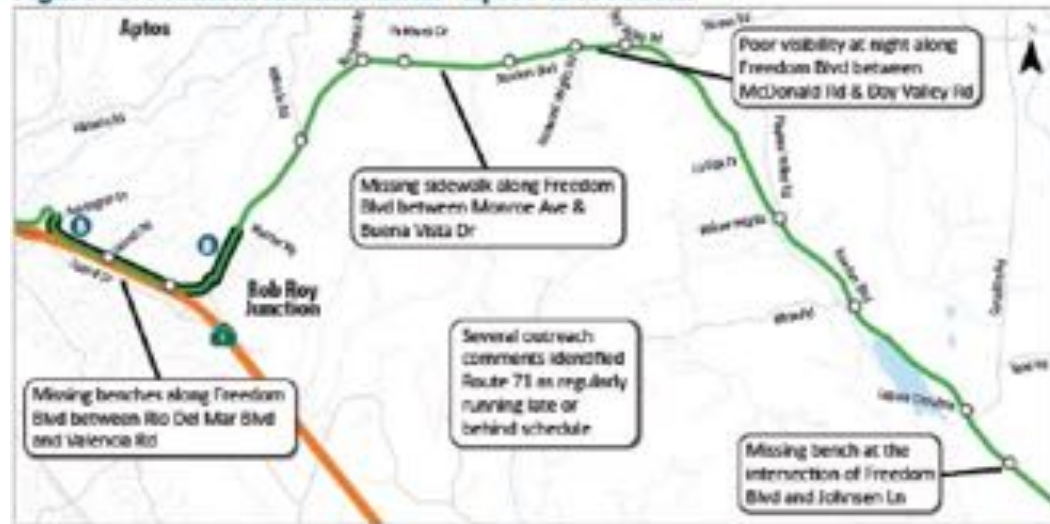






Figure 1C: Problem Identification - Aptos to Freedom



Northbound



Southbound

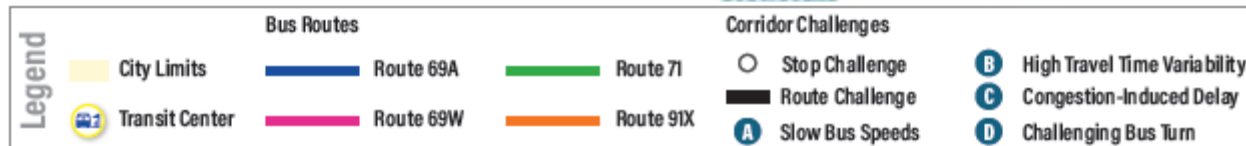
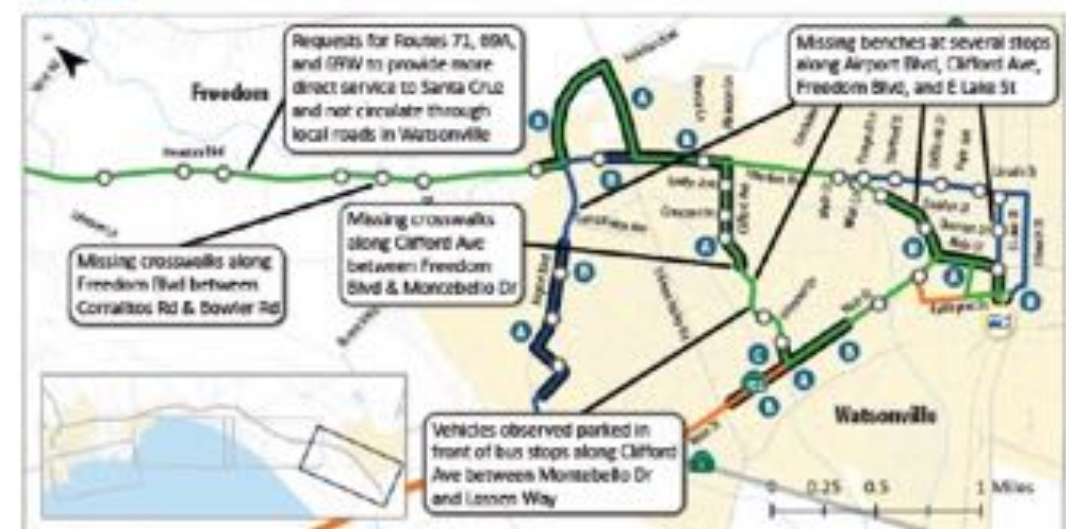


Figure 1D: Problem Identification - Freedom to Watsonville



Northbound



Southbound



# Industry Best Practice

## Bus Priority Treatment

Dedicated Transit Lanes



Traffic Movement Modifications



Early Green/Extended Green Signal Operations (TSP)



Queue Jumps



## Mobility and Access

Mobility Hubs



Improved Roadway Crossings to Access Bus Stops



Improved Sidewalks and Curb Ramps



Level/Near-Level Boarding







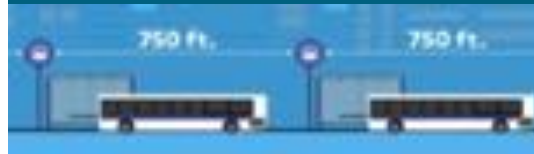
# Industry Best Practice

## Bus Operations

### Route Restructuring



### Bus Stop Consolidation



### Far-Side Stop Placement



### In-Lane Stopping/ Bus Bulbs/ Transit Islands



### Bus Operations



### Red Curb

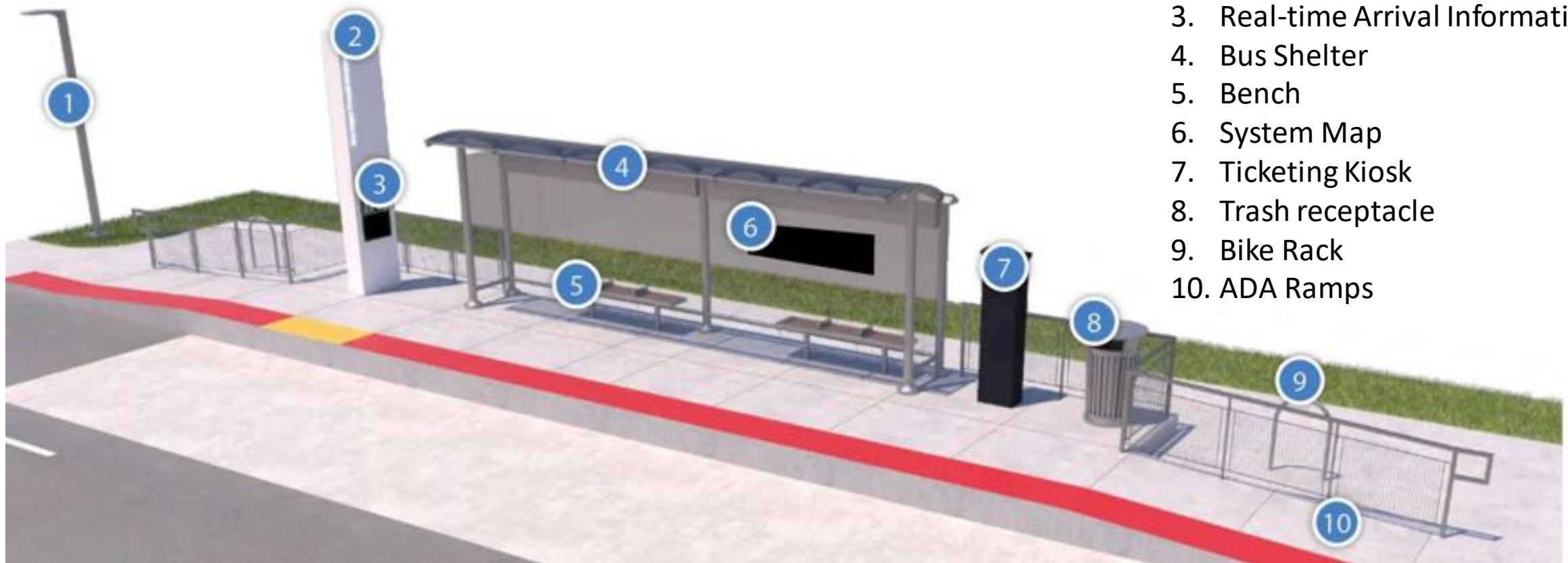






# Industry Best Practice

## Stop Amenities



### Stop Amenities

1. Lighting and Security
2. Monument Sign
3. Real-time Arrival Information
4. Bus Shelter
5. Bench
6. System Map
7. Ticketing Kiosk
8. Trash receptacle
9. Bike Rack
10. ADA Ramps



# Proposed Rapid Corridors Improvements



## PROPOSED RAPID CORRIDOR IMPROVEMENTS



### Improvement Type



#### Bus Stop Consolidation and Relocation

Relocate, add, and remove stops to achieve a 1/3-mile stop spacing. Place stops to improve stop accessibility and safety.



#### Enhance Bus Stop Amenities

Install additional bus stop amenities, such as shelters, benches, and lighting, to improve comfort and safety of riders.



#### Install Bus Bulbs & Transit Islands

Install bus bulbs and transit islands to allow buses to stop in-lane, removing the need to pull out of traffic to the curb and avoiding the need to wait for a gap in traffic to depart from the bus stop. Where stops are adjacent to bike lanes and space allows, provide a transit island to allow the bikes to travel behind the stop, eliminating bus-bike conflicts.



#### Transit Signal Priority (TSP)

Technologies used to reduce transit vehicle delays at signalized intersections. Examples include holding lights green for a few seconds, if needed to allow a bus to pass through before the light turns red, and turning the light green a few seconds earlier to reduce the wait time at red lights.



#### Enhance Pedestrian Crossings

Install Rectangular Rapid Flashing Beacons (RRFBs), Pedestrian Hybrid Beacons (PHBs), and high-visibility crosswalks to increase yielding of vehicles to pedestrians and enhance pedestrian safety around bus stops.



#### Queue Jumps

A queue jump is a travel lane specially marked or signed for transit vehicles at traffic signals that allows buses to get ahead of the traffic queue.



#### Bus-Only Lanes and Shared Bus/Bike Lanes

Bus-only lanes and shared bus/bike lanes are lanes restricted for use by buses and bikes only and are used to separate buses and bikes from traffic congestion.



#### Road & Intersection Reconfiguration

Modify lane and intersection geometry and signal operations to optimize transit movements.

### LEGEND



Faster and More Reliable Buses



Safer Access to Bus Stops



Improved Bus Stop Amenities



Enhanced  
Stop Amenities



Bus Bulb



Pedestrian Hybrid  
Beacon (PHB)



High-Visibility  
Crosswalk



Queue Jump





# Approach for Bus Stop Recommendations

## Location:

- Near side
- ~1/3 mile for rapid and ~1,000ft for local

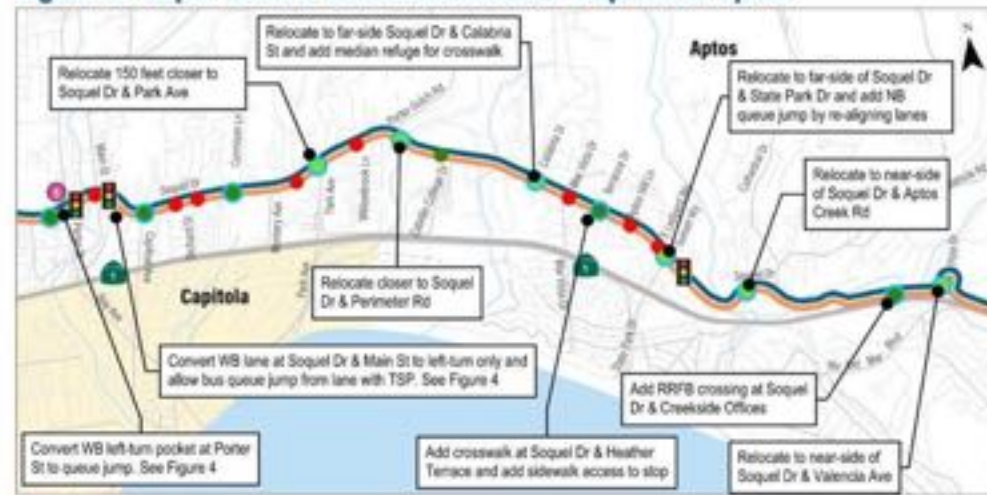
## Existing Amenities:

- Shelter
- Bench
- Lighting
- Crosswalk
- Sidewalk

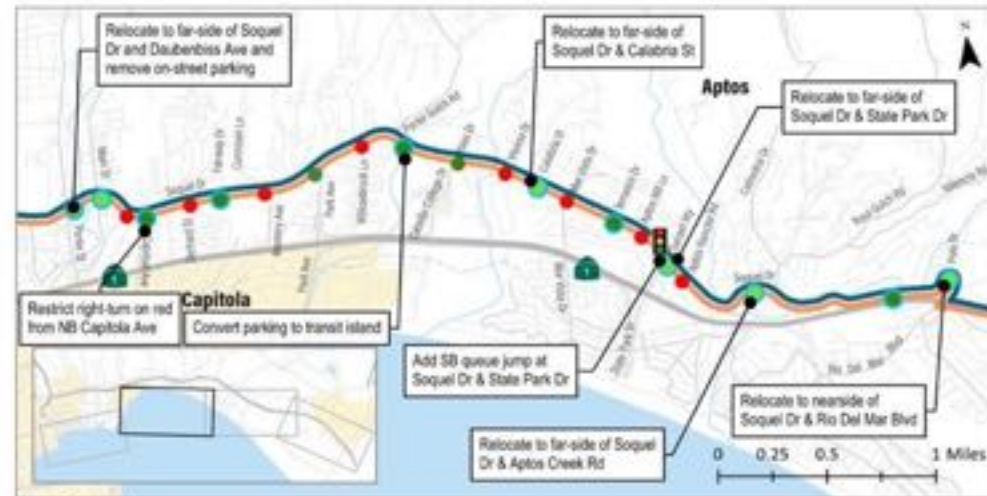
## Boardings:

- >15 boardings

**Figure 1B: Rapid Service Recommendations - Capitola to Aptos**



Northbound



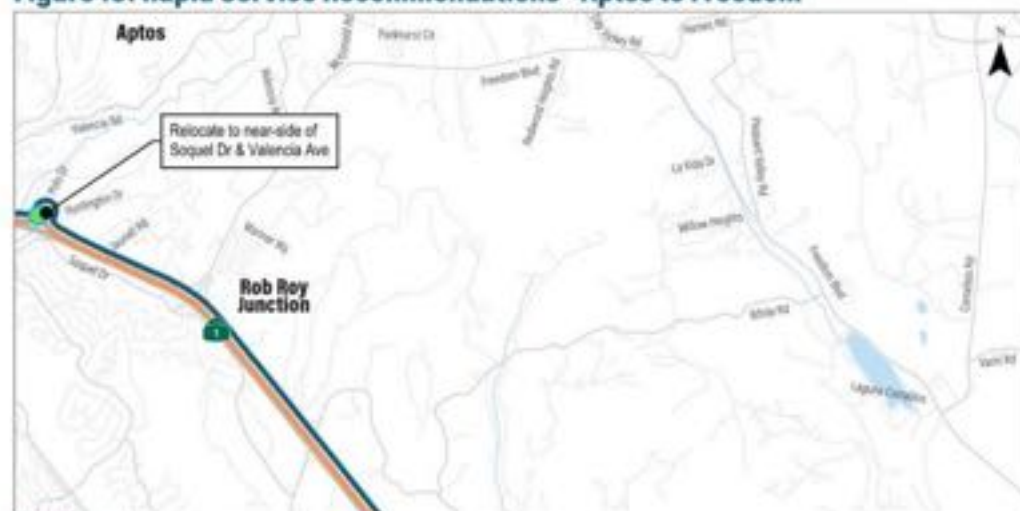
**Southbound**



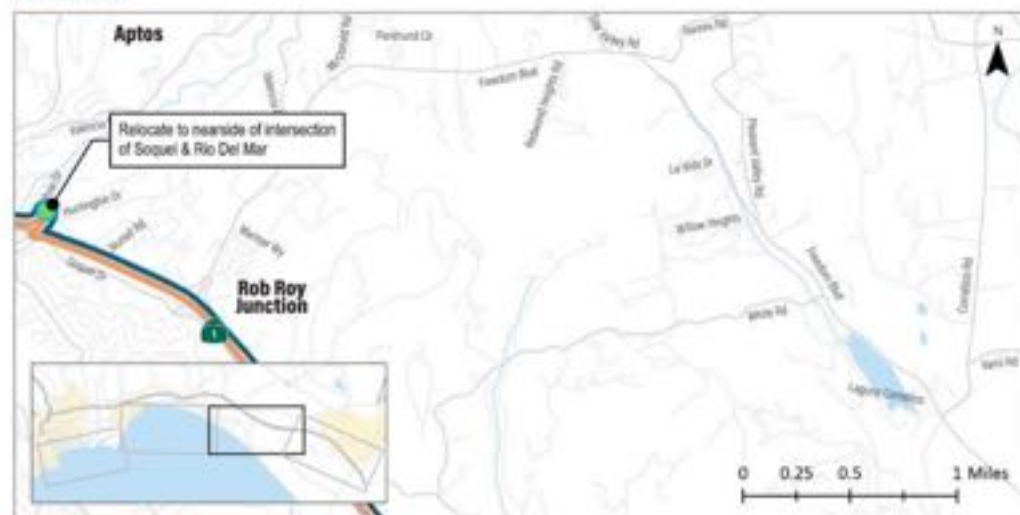




Figure 1C: Rapid Service Recommendations - Aptos to Freedom

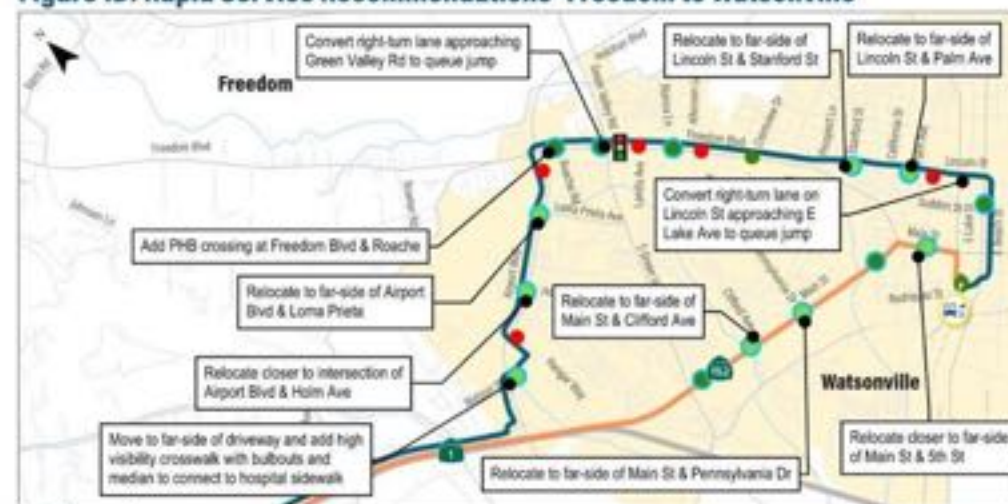


Northbound

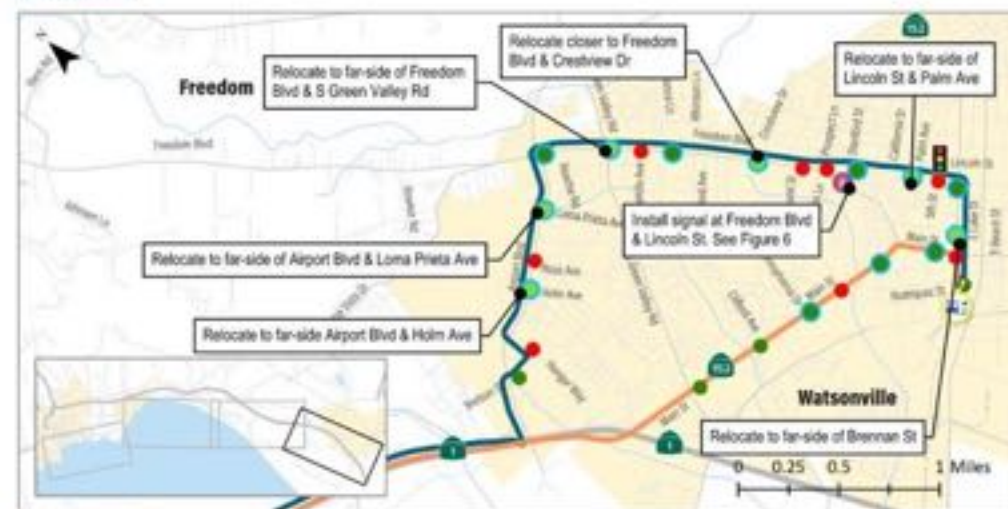


Southbound

Figure 1D: Rapid Service Recommendations- Freedom to Watsonville



Northbound



Southbound



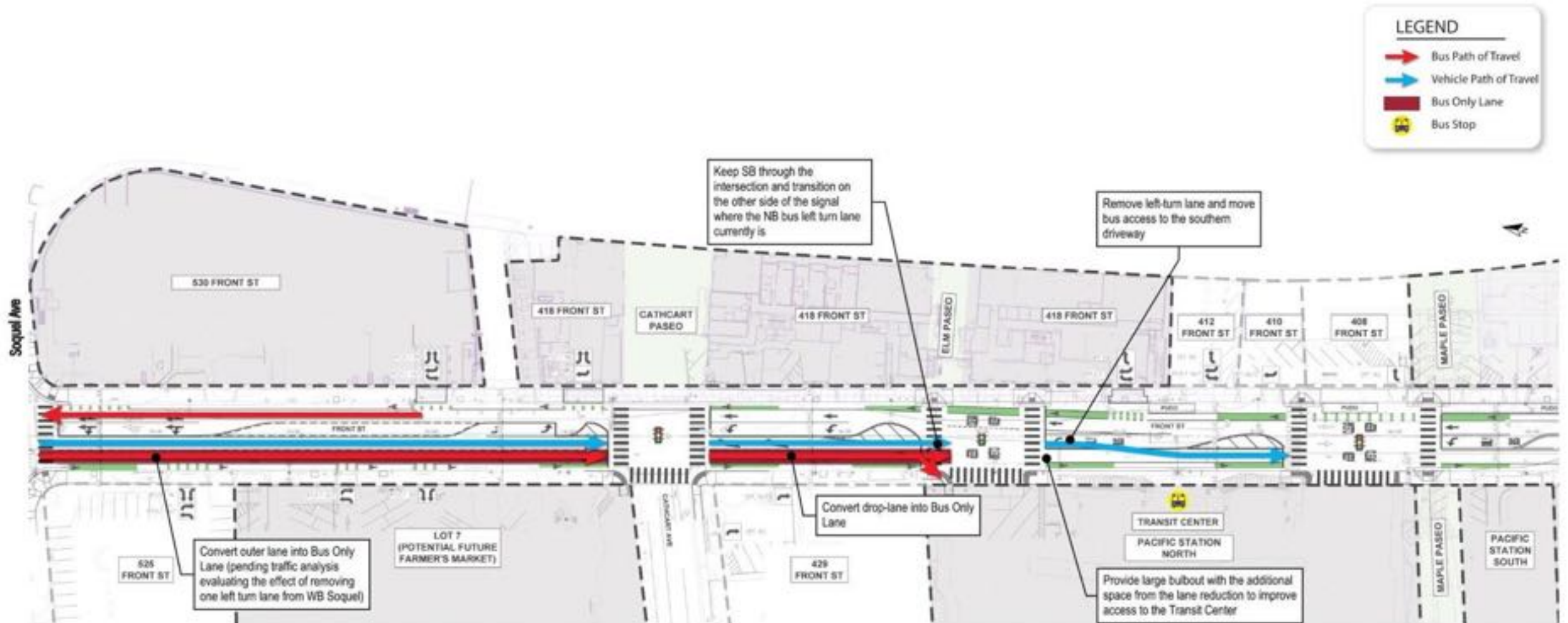




# Key Rapid Intersection Draft Concepts



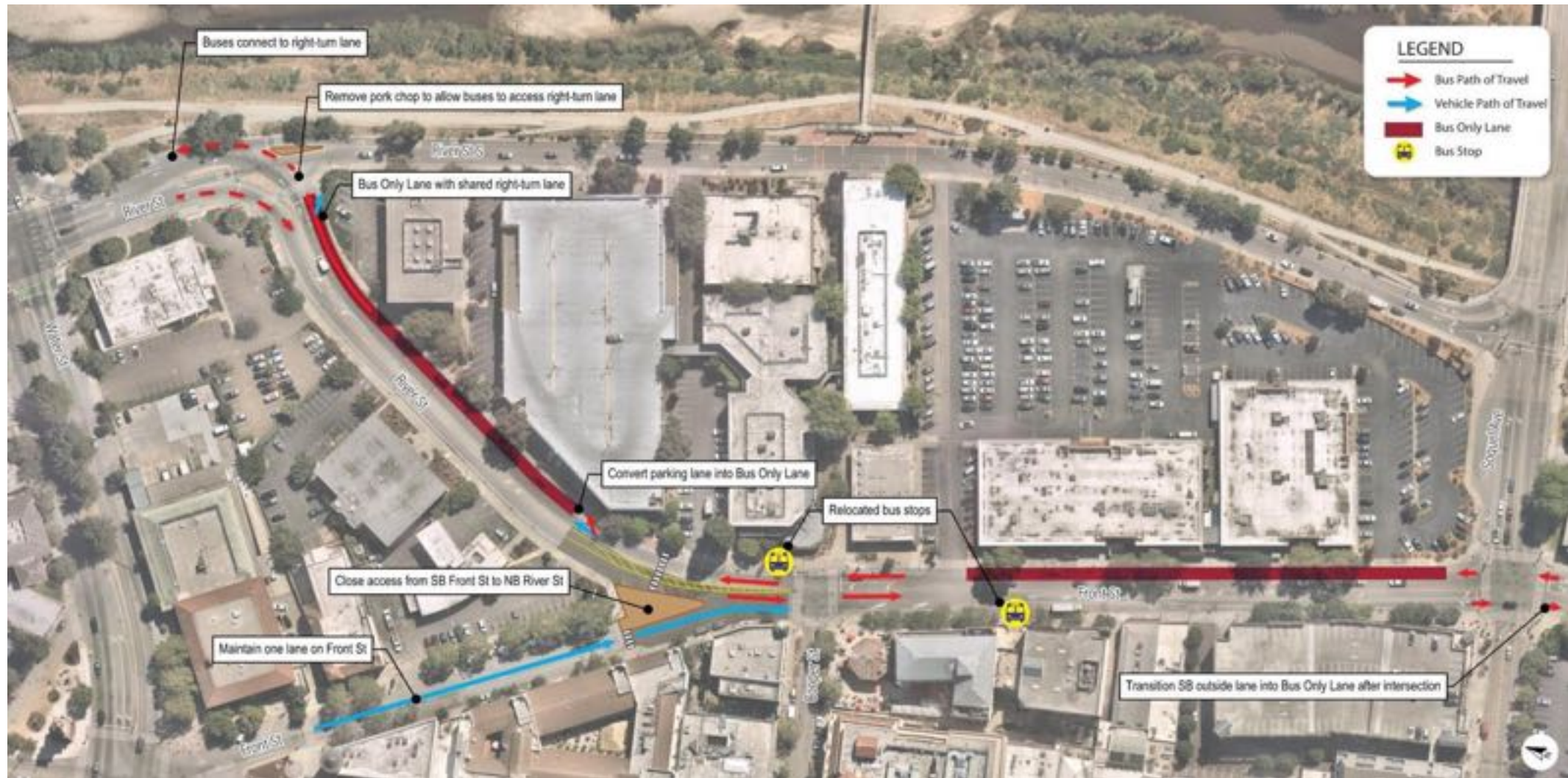
# Front Street Bus Only Lane







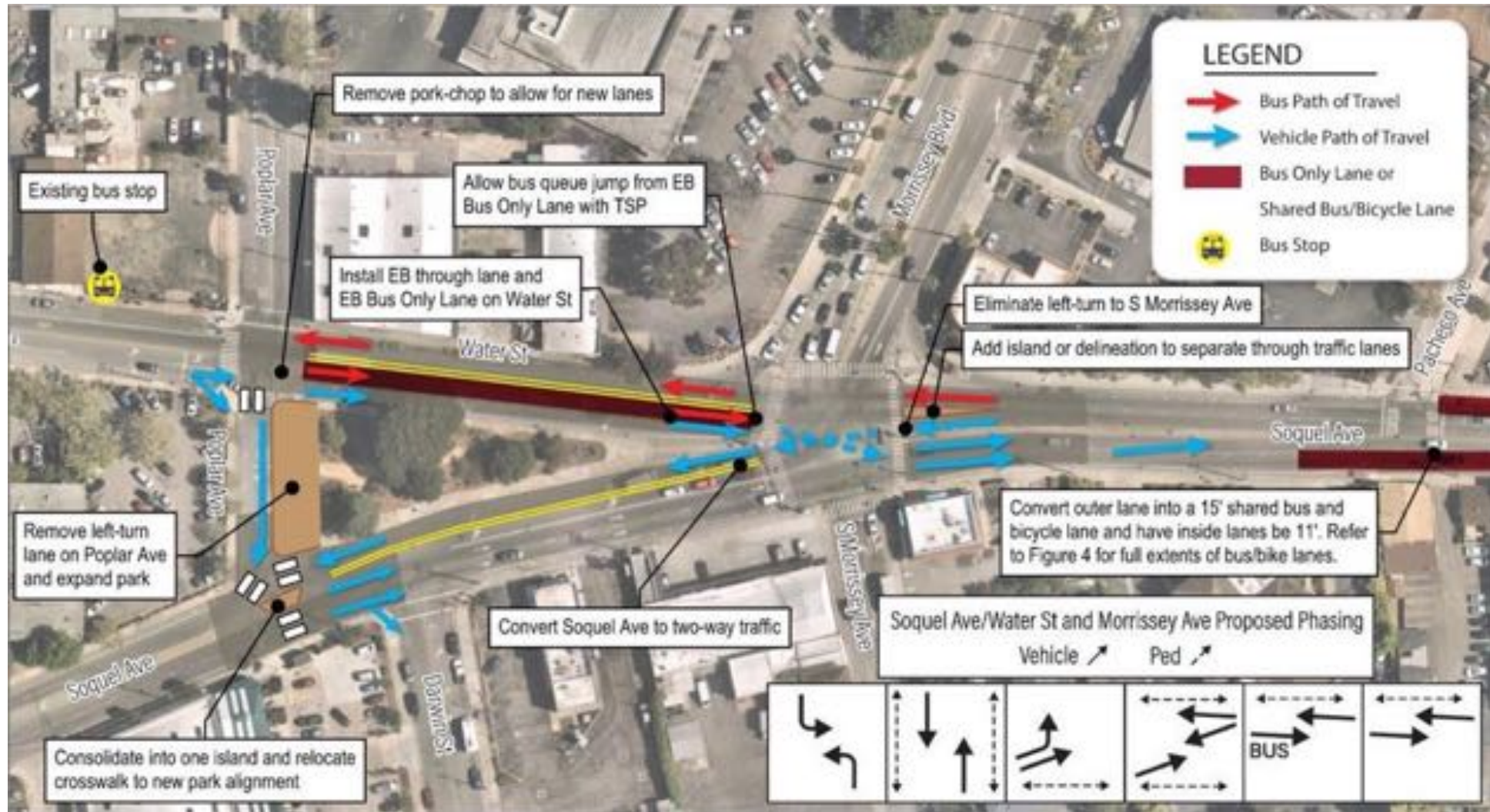
# River Street Northbound Bus Only Lane







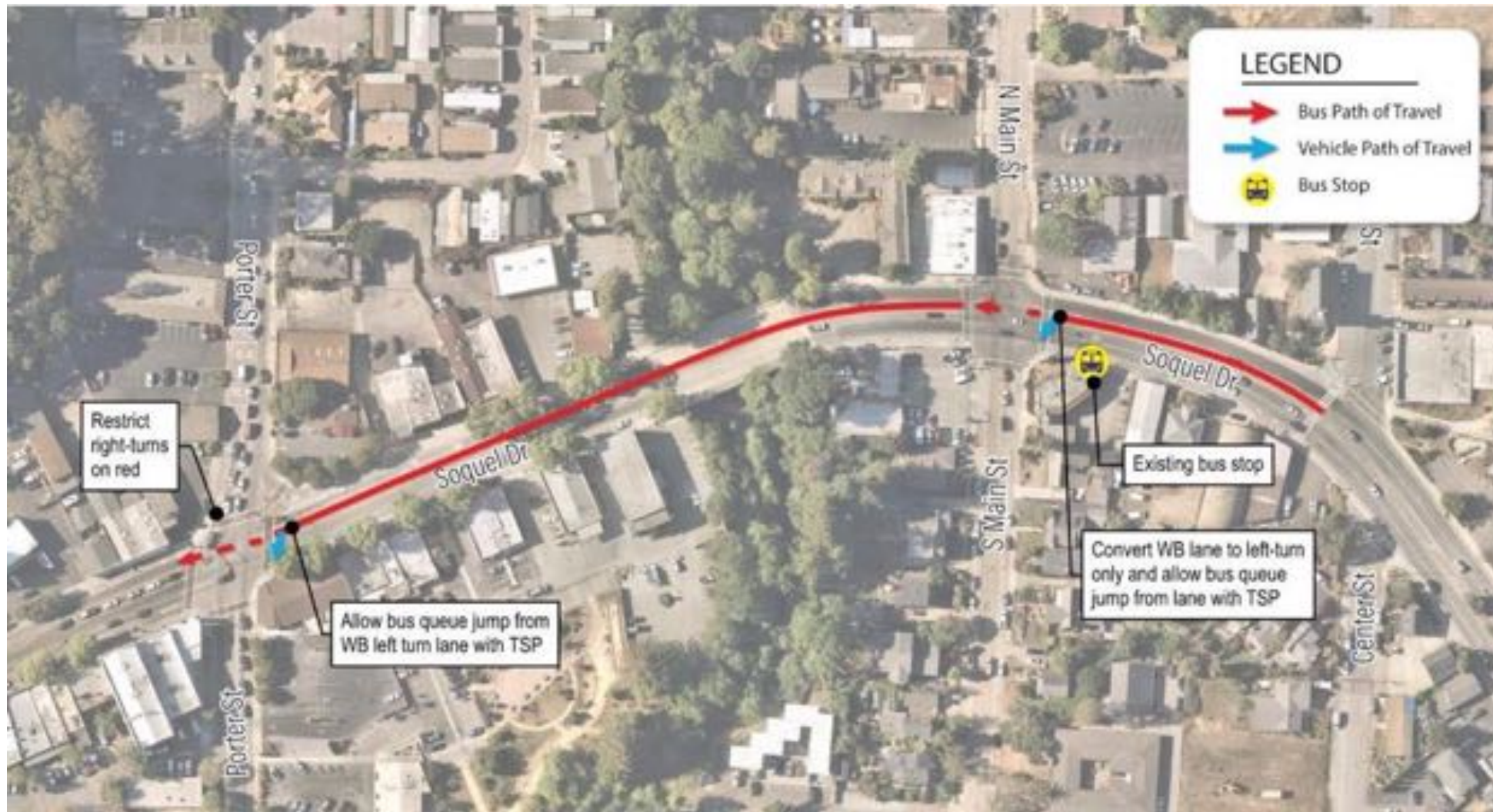
# Water Street/Soquel Avenue and Morrissey Avenue Intersection Concept







# Soquel Drive and Porter Street Queue Jump







# Freedom Boulevard and Lincoln Street Intersection Improvements



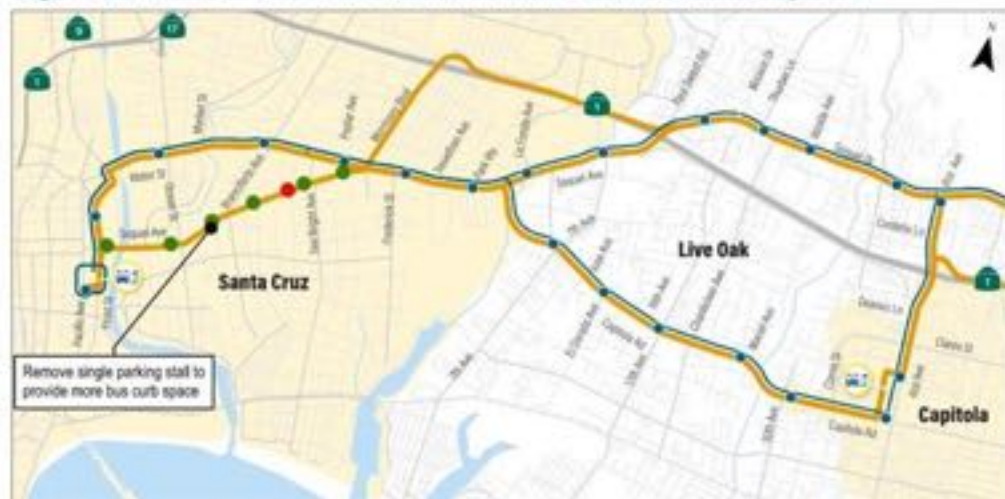




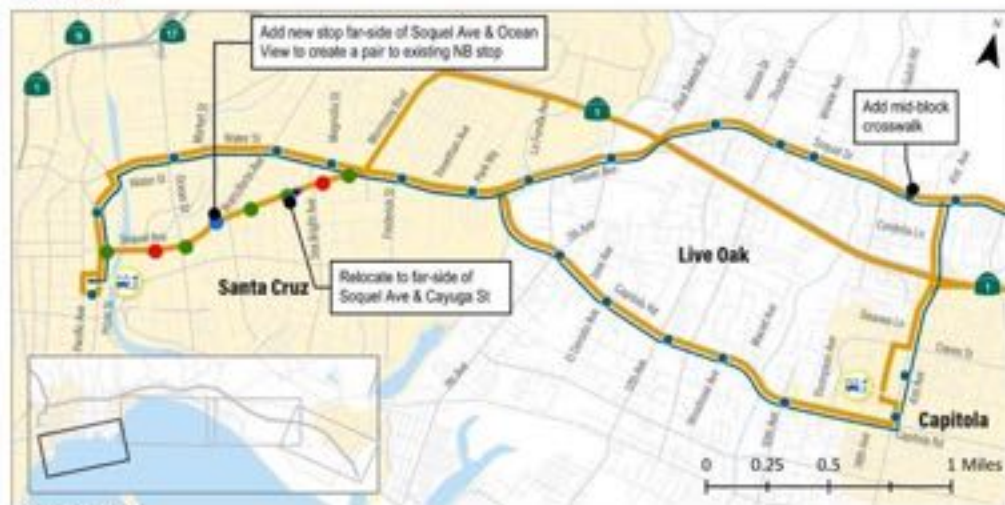
# Local Corridors



Figure 1A: Local Service Recommendations - Santa Cruz to Capitola



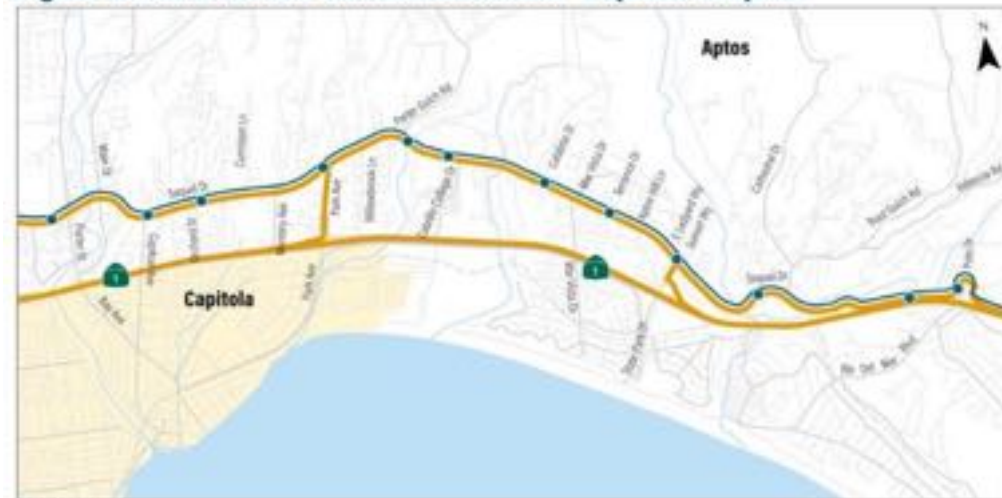
Northbound



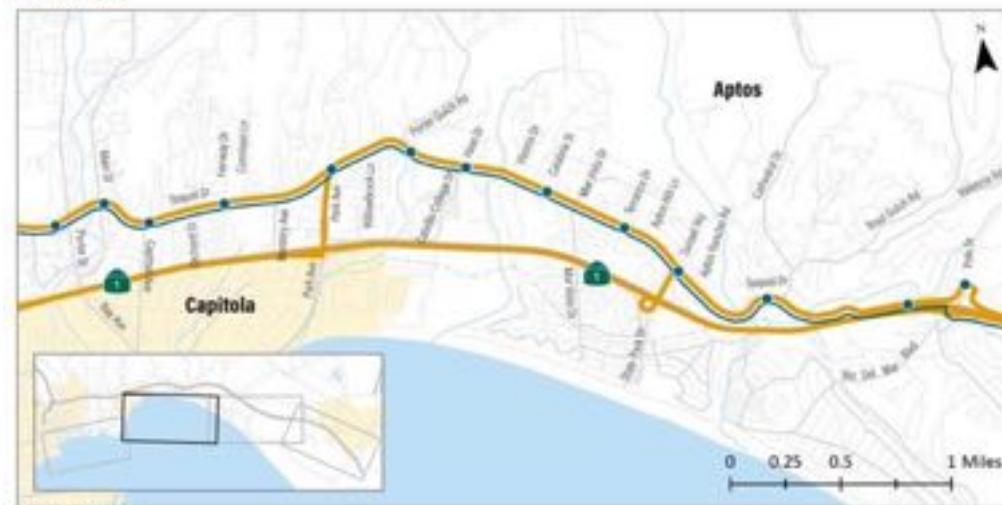
Southbound



Figure 1B: Local Service Recommendations - Capitola to Aptos



Northbound



Southbound

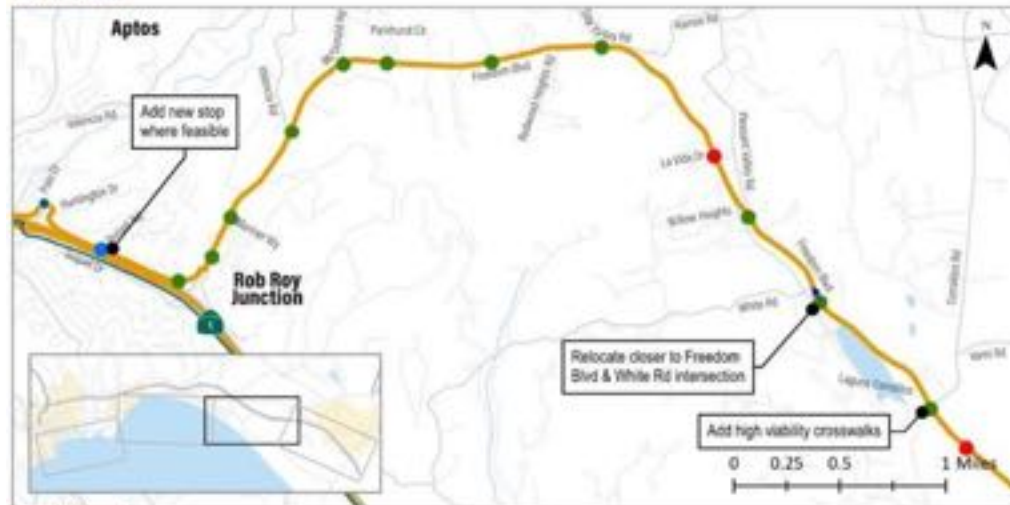




Figure 1C: Local Service Recommendations - Aptos to Freedom



Northbound



Southbound



Figure 1D: Local Service Recommendations- Freedom to Watsonville



Northbound



Southbound





# Goals and Performance Measures

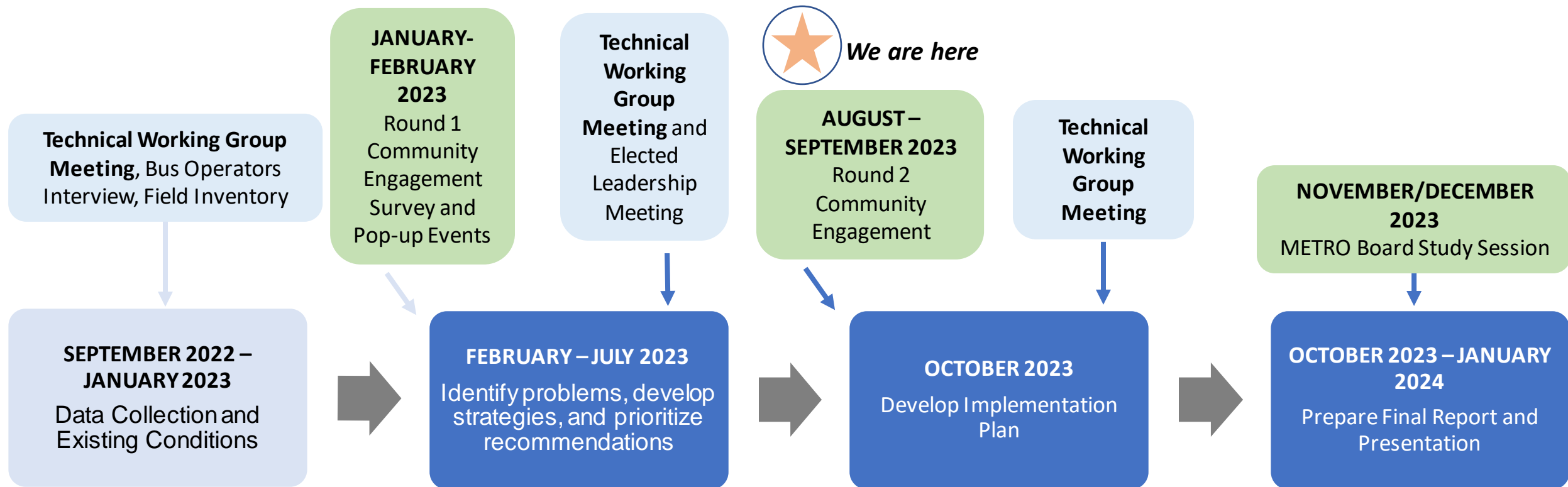
Type of Improvement	Criteria
<b>Bus Speed &amp; Reliability</b>	<ul style="list-style-type: none"><li>• On-Time Performance</li><li>• Trip Time</li><li>• Wait Times</li><li>• User Delay</li></ul>
<b>Bus Stop Access</b>	<ul style="list-style-type: none"><li>• Bus Stop Accessibility</li><li>• Bicycle and Pedestrian Safety</li><li>• Ridership</li><li>• Bus Stop Coverage</li><li>• User Delay</li></ul>
<b>Bus Stop Amenities</b>	<ul style="list-style-type: none"><li>• Passenger Waiting Experience</li><li>• Ridership</li></ul>
<b>Costs &amp; Schedule</b>	<ul style="list-style-type: none"><li>• Operation &amp; Maintenance Costs</li><li>• Capital Costs</li><li>• Timeline</li></ul>



# Next Steps



# Project Schedule







# Upcoming Project Activities

- Meetings with elected leaders
- Round 2 engagement
- Prioritize recommendations
- Develop implementation strategy and financial plan
- Produce final report and presentation



# Questions or Comments?

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