ECR Bus Speed and Reliability Study

Final Recommendations & Implementation Plan

SamTrans Board of Directors

December 7, 2022

Agenda

- Study Background
- Final Recommendations
  - Anticipated Benefits
- Implementation
  - Approaches to Implementation
  - Cost Estimates
  - Near-Term Implementation Actions

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STUDY BACKGROUND

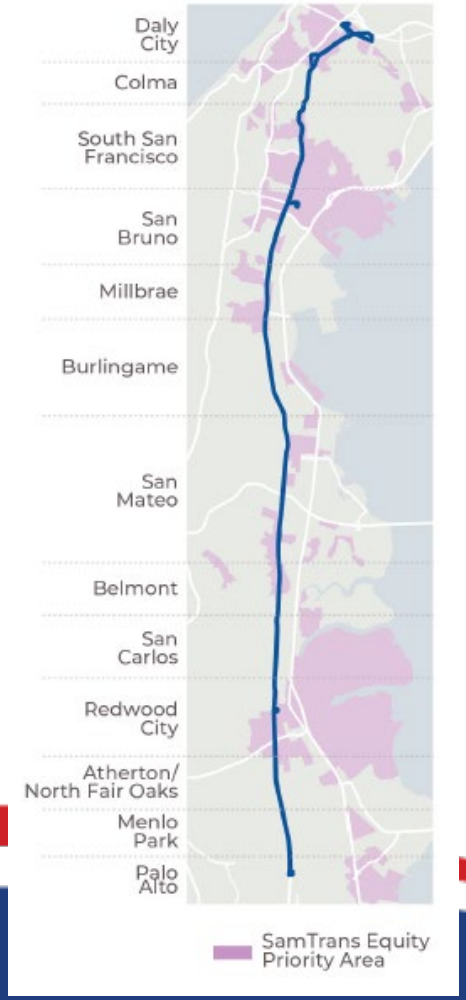
Study Goal and Outcomes

Goal

- Increase bus **speeds** and improve bus **reliability** on El Camino Real

Desired Outcomes

- Improve rider access to social and economic opportunities
- Attract new riders and support ridership recovery
- Better driving experience for our bus operators
- Improve route efficiency



Study Schedule

FINAL RECOMMENDATIONS

Summary of Final Recommendations

Near-Term Recommendations

- Bus Stop Balancing
- Transit signal priority (TSP) Optimization
- Cashless Fare Payments

Longer-Term Recommendations

- Capital Improvement Vision
- Bus-only Lanes

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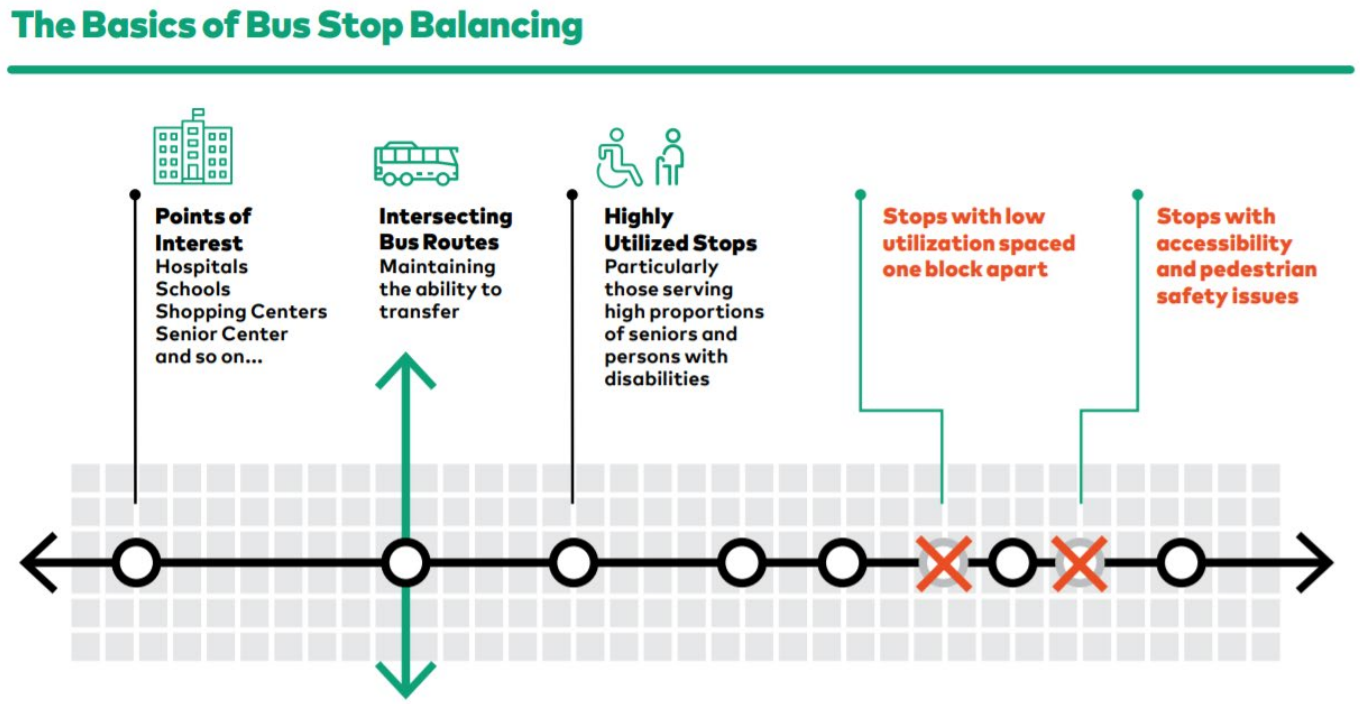
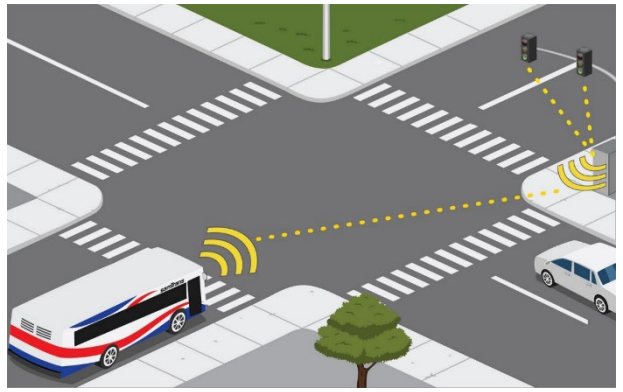
Bus Stop Balancing

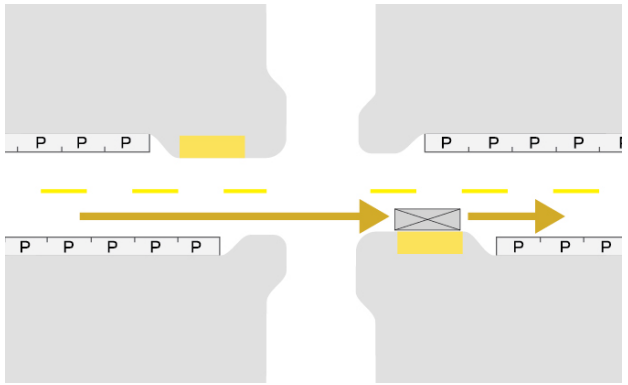
- 20% overall reduction in Route ECR stops to balance stop spacing and increase pedestrian safety
- 97% of riders wouldn't be affected or would have to walk <5 minutes more to a new stop
- 70% of survey respondents are willing to walk farther for faster bus service



Transit Signal Priority Optimization

- TSP live now on El Camino Real
- Bus requests green light extension when approaching an intersection
- Optimization recommendations:
  - Better integration with our CAD/AVL systems
  - Increase share of bus fleet with TSP
  - Relocate stops from near-side to far-side of intersection





Far-Side Stops

Moves stops to far side to reduce conflicts/delays with right-turning vehicles

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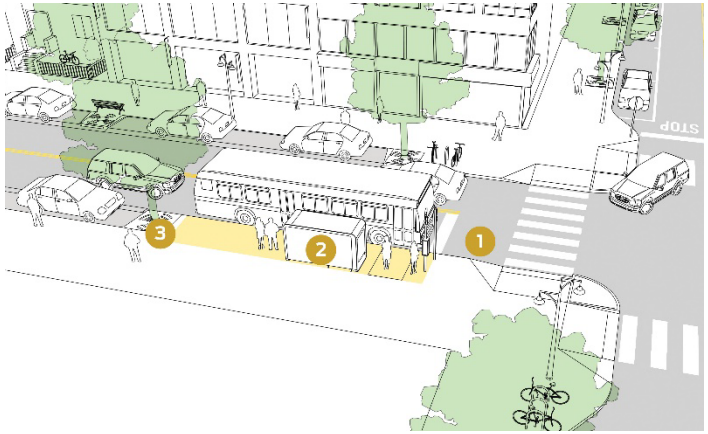
Cashless Fare Payments

- Approximately 32% of Route ECR passengers pay for their trip with cash, compared with 18-26% at peer agencies
- SamTrans should accelerate adoption of cashless fare collection methods, including Clipper Cards and mobile payments, to speed up the boarding process and reduce delays
  - Direct rider outreach
  - Increase network of Clipper vendors

Transit Capital Improvements



Bus Bulbs

Replaces pullout stops with in lane stops to reduce bus delays merging into traffic and decreases pedestrian crossing distance

Queue Jumps

Adds a bus-specific signal phase at intersections with near-side stops

Pedestrian Access Gap Closures

Addresses unmarked or unsignalized crosswalks, narrow or missing sidewalks, curb ramps, and other barriers to stop access.

Source: NACTO Transit Street Design Guide

Bus-Only Lanes

- Factors considered:
  - Bus speeds
  - Bus passenger loads
  - Right of way & ability to maintain two vehicle lanes in each direction
- Three segments recommended:
  - SSF, San Bruno, Millbrae, & northern Burlingame: 6 miles
  - San Mateo: 3 miles
  - San Carlos (southbound only): 1 mile

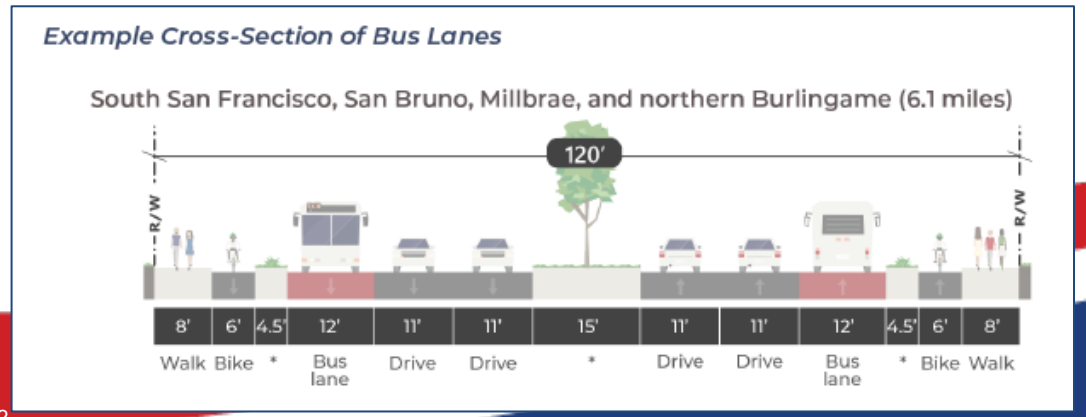
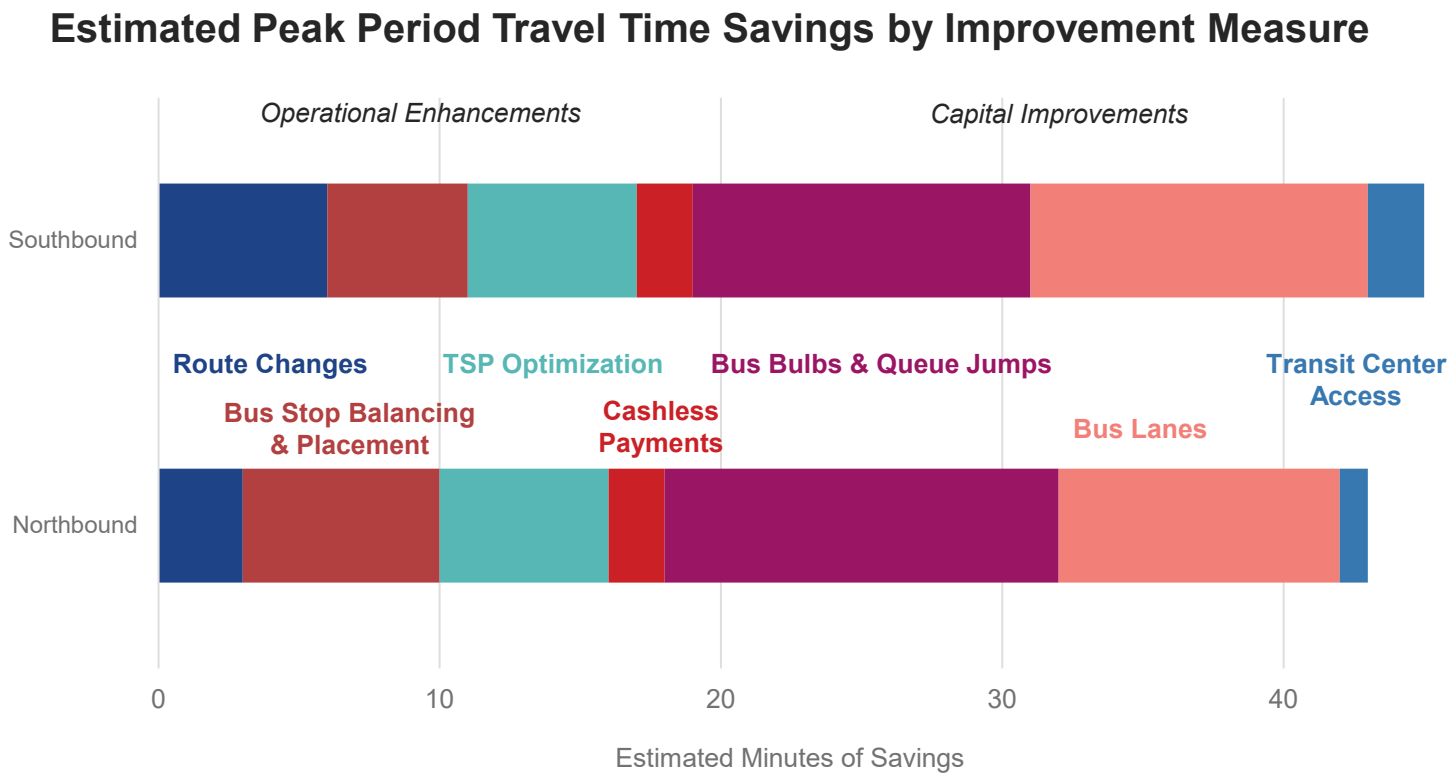


Figure 19. Proposed Curbside Bus Lanes

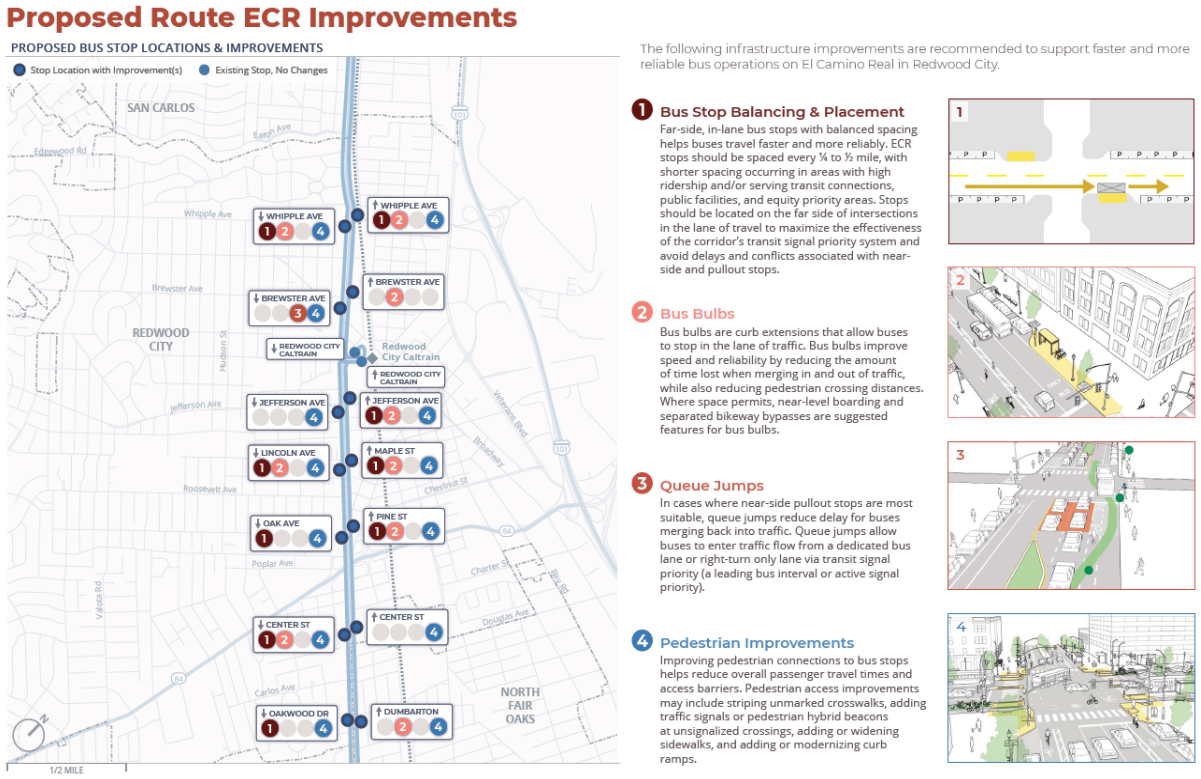
Anticipated Corridor-wide Benefits

- 25-30% increase in bus speeds overall (up to 45 min of travel time reduced compared to 2019 schedules)
- Reduced variability
- Ability to redeploy up to three operators & 60 operating hours per day



LOOKING TOWARD IMPLEMENTATION

Implementation Approaches



The following infrastructure improvements are recommended to support faster and more reliable bus operations on El Camino Real in Redwood City.

1 Bus Stop Balancing & Placement

Far-side, in-lane bus stops with balanced spacing helps buses travel faster and more reliably. ECR stops should be spaced every ¼ to ½ mile, with shorter spacing occurring in areas with high ridership and/or serving transit connections, public facilities, and equity priority areas. Stops should be located on the far side of intersections in the lane of travel to maximize the effectiveness of the corridor's transit signal priority system and avoid delays and conflicts associated with near-side and pullout stops.

2 Bus Bulbs

Bus bulbs are curb extensions that allow buses to stop in the lane of traffic. Bus bulbs improve speed and reliability by reducing the amount of time lost when merging in and out of traffic, while also reducing pedestrian crossing distances. Where space permits, near-level boarding and separated bikeway bypasses are suggested features for bus bulbs.

3 Queue Jumps

In cases where near-side pullout stops are most suitable, queue jumps reduce delay for buses merging back into traffic. Queue jumps allow buses to enter traffic flow from a dedicated bus lane or right-turn only lane via transit signal priority (a leading bus interval or active signal priority).

4 Pedestrian Improvements

Improving pedestrian connections to bus stops helps reduce overall passenger travel times and access barriers. Pedestrian access improvements may include striping unmarked crosswalks, adding traffic signals or pedestrian hybrid beacons at unsignalized crossings, adding or widening sidewalks, and adding or modernizing curb ramps.

Caltrans Lead

Incorporate improvements into Caltrans-led projects

SMCTD or City Lead

SMCTD and/or cities develop projects via Caltrans' project development process

Example capital improvement vision for Redwood City.

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Cost Estimates – Capital Improvement Plan

- Total cost estimates for 25-mile corridor
- Not assumed to be borne 100% by SMCTD
  - Grants, city contributions, bundling with Caltrans or city-led projects

Improvement Measure	Approximate Cost
Bus Bulbs	$26 Million
Pedestrian Gap Closures	$9 Million
Traffic Signal Modifications	$4 Million
Bus Lanes	$1 Million
Total Construction Cost	**$40 Million**
Soft Costs (Design, Permitting, Construction Management, etc) & Contingency	$40-60 Million
Total Cost	**$80-100 Million**

Four Near-Term Implementation Actions

01

Establish an El Camino Real Program Manager at SMCTD

02

Collaborate with partners to establish a Transit-First Policy on El Camino Real

03

Create a Transit Capital Improvement Fund

04

Commit to ongoing partnership with cities and Caltrans

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Next Steps

- Lead implementation of near-term recommendations
  - Bus stop balancing targeted for summer 2023; seek to align with Route ECR service improvements and plentiful customer notification
- Take four near-term implementation actions
  - FY24 Budget will include corresponding items
- Identify and advance a pathway forward for each segment
  - Infuse recommendations or lead where there's a gap
  - Consider a bus lane demonstration project in a single city or across multiple cities