



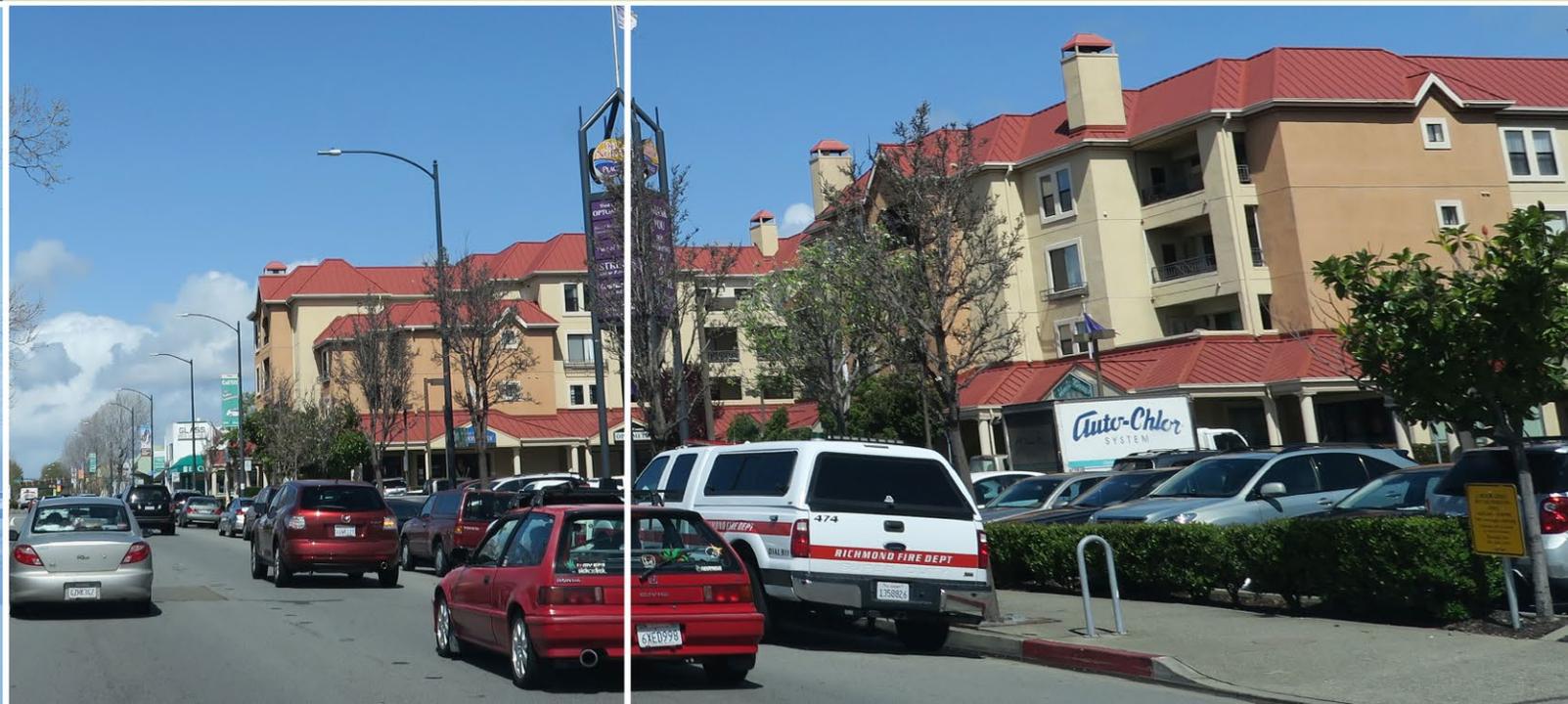
# SAN PABLO AVENUE MULTIMODAL CORRIDOR STUDY PHASE 2

January 2023 WCCTAC Board Meeting  
Evaluation Summary



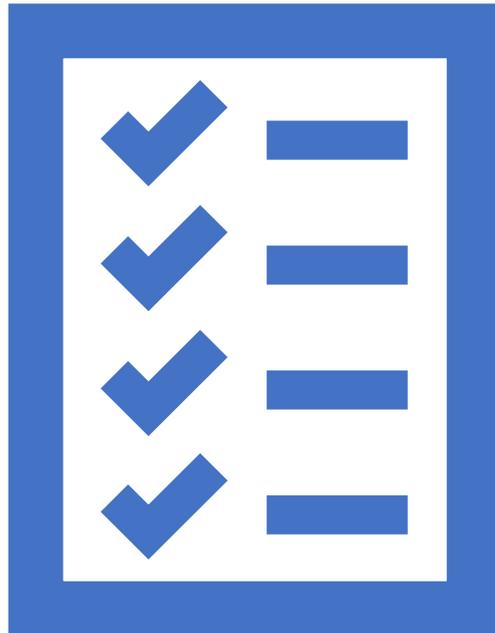
**WCCTAC**

**Kimley»Horn**



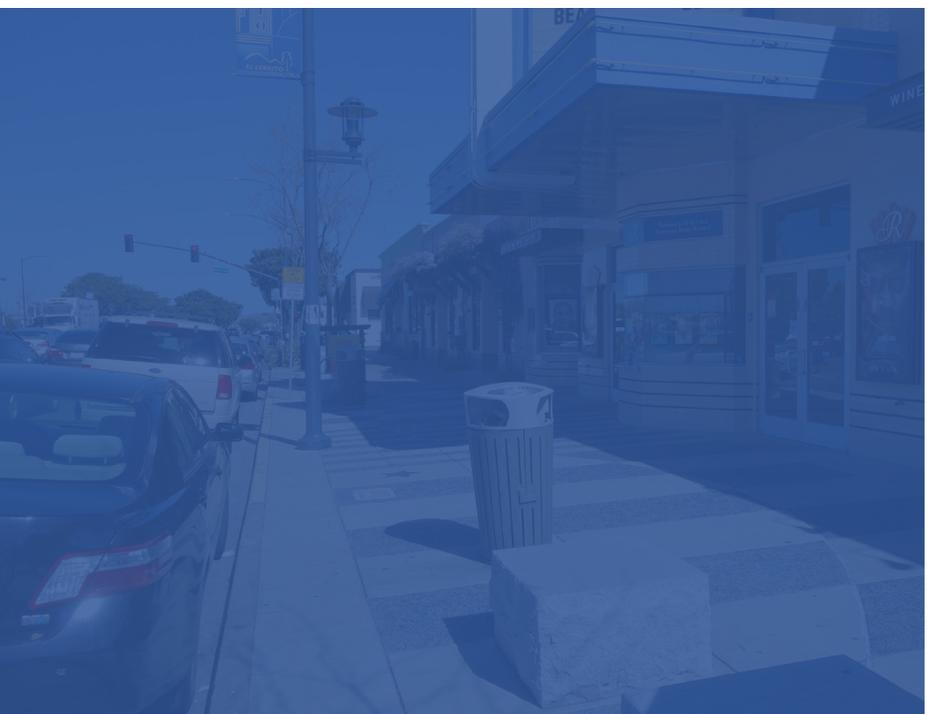


# Agenda



1. Purpose and Background
2. Phase 2 Conclusions
3. Key Findings
4. Next Step Options

# Purpose and Background





## Corridor Study Purpose

Improve multimodal mobility, efficiency, and safety to sustainably meet current and future transportation needs and help support strong growth along the corridor while still maintaining local contexts.

## Goals



Effectively and efficiently accommodate anticipated **growth**



Improve **comfort and quality** of trips for all users



Enhance **safety** for all travel modes



Support **economic development** and adopted **land use policies**



Promote **equitable** transportation and design solutions



## Corridor Study Background

- Multimodal Corridor Study began in Fall 2017
  - Phase 1: Fall 2017-Fall 2020
  - Phase 2: Winter 2021- Winter 2023
- Effort led by Alameda CTC with financial support and involvement by WCCTAC and CCTA
- Study area extended between downtown Oakland and Hilltop Mall
- Phase 1 work included:
  - Existing conditions analysis, concept development, travel demand modeling, and two rounds of public meetings and surveys

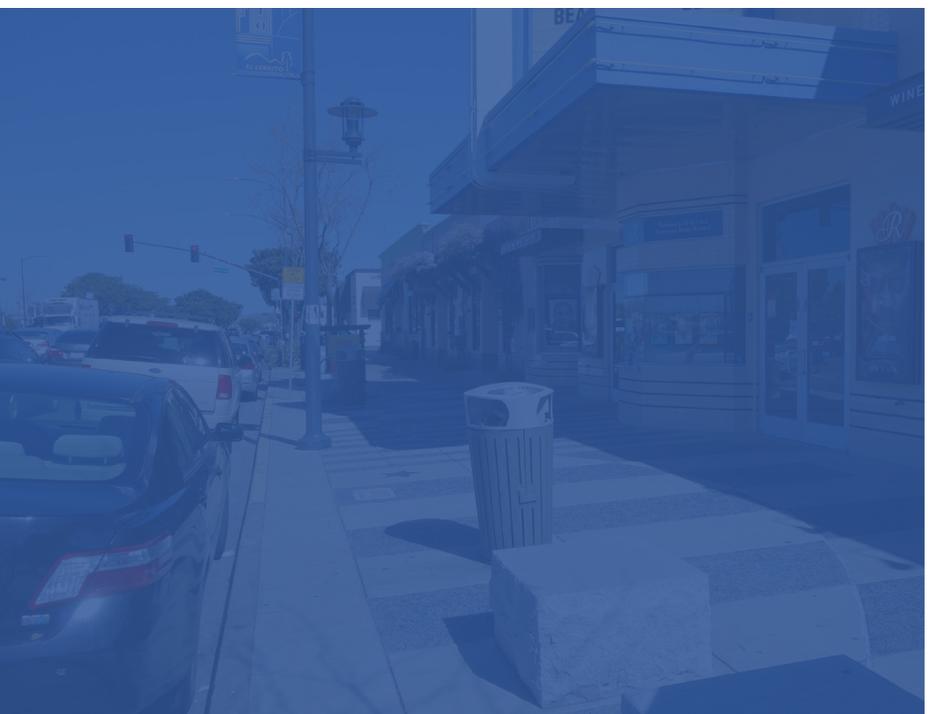


## Phase 2 studied ...

- Combination of facilities that could fit within existing right-of-way
- Where parking would need to be removed to provide a bike facility
- Potential near-term multi-modal safety improvements
- Benefits and trade-offs of a bus lane
- Effects on traffic if a lane is converted
- Feedback from each jurisdiction on potential solutions



# Phase 2 Conclusions





# Conditions on the corridor today



Overlapping Local and Rapid Bus service provides bus service every 7 minutes south of Macdonald



Bike lanes only in some segments in the City of San Pablo and newly constructed in El Cerrito (approx. 20% of corridor)



Long gaps between pedestrian crossings and many uncontrolled crossings (e.g., multiple 0.4 mile gaps in protected crossings in El Cerrito)



Sidewalks are continuous, but narrow and not well buffered from traffic in some locations



Corridor curb-to-curb width varies significantly



## Conditions on the corridor today

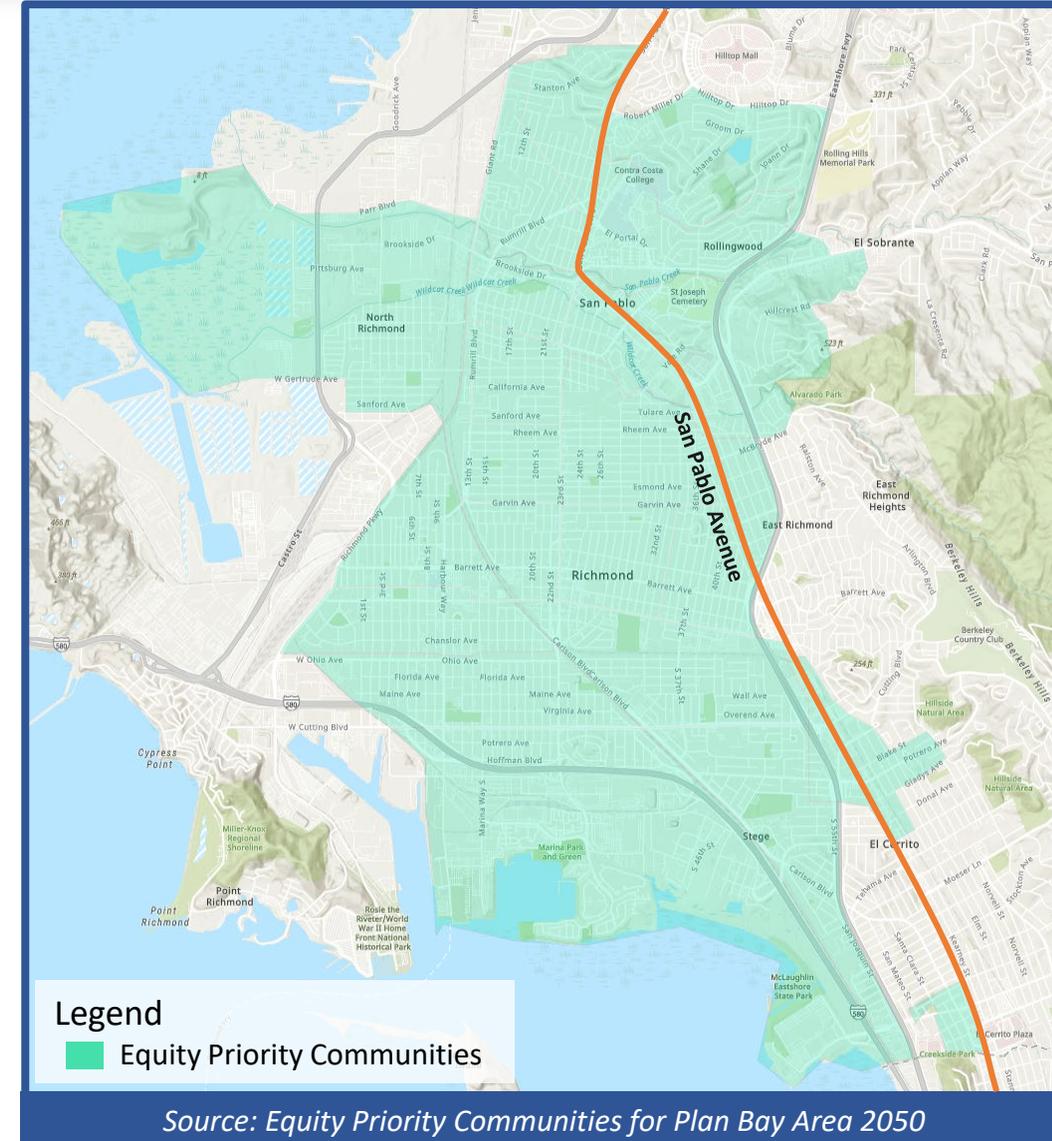
- Used as an alternative to I-80 for longer-distance trips
  - 1/3 of auto trips are just passing through
  - Most frequent pass-through area: El Cerrito-Richmond border to Road 20
- Data indicates potential for auto to bus mode shift
- 1,200 to 1,500 cars per direction in peak hour in most segments
  - Somewhat higher than in Alameda County (which peaks at around 1,300)





# What will happen to mobility if no changes to San Pablo Avenue are made?

- 69% increase in PM traffic delay by 2035
- 12 minutes of additional Route 72R travel time
- Continued safety issues
  - 293 injuries or fatalities in recent 5-year period
  - 73 involving pedestrians or cyclists, including 3 deaths
- Walking and biking will remain difficult
  - Discontinuous bicycle facilities
  - Challenges crossing San Pablo Avenue and side-streets
- Equity Priority Communities will be most impacted
  - 93% of study area within ¼ mile of an equity priority community
  - More difficult/time-consuming to access jobs and recreation



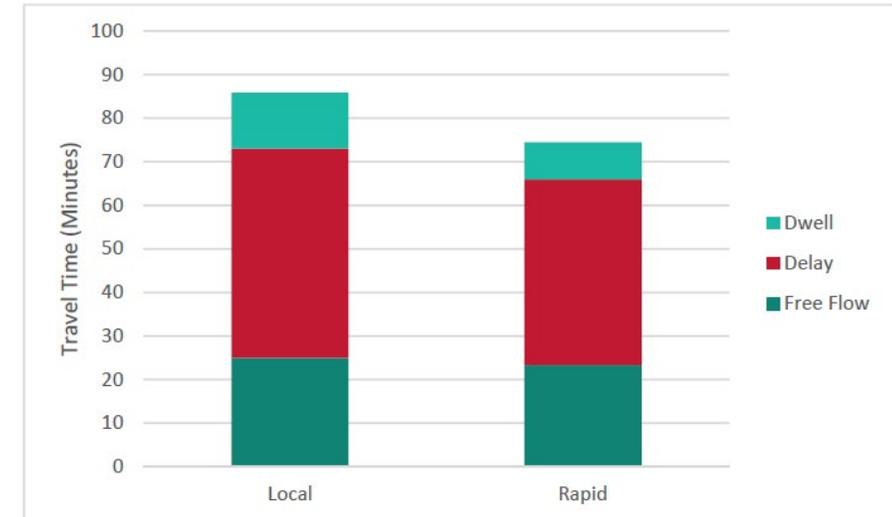
Source: Equity Priority Communities for Plan Bay Area 2050



# What are the needs and opportunities for improving transit?

- Well-utilized today
  - 12,500 daily bus riders (approx. half in Contra Costa County)
  - More riders on 72-series routes than any other AC Transit route (14% of the entire system ridership)
- During peak period, Rapid buses spend 57% of travel time stuck in congestion
- Bus speeds are about 30% slower than auto speeds and speeds for both have consistently been degrading
- Improving transit in this corridor is an equitable solution
  - 77% of 72-series passengers are non-white
  - 61% of 72-series passengers make less than \$50,000 per year

PM Peak Period Northbound Bus Travel Time





## What are the options to improve transit?

### Existing Service

- “Rapid” Branded Service Overlaid with Local Service
- Transit Signal Priority (TSP)

### Bus Rapid Transit

- Dedicated bus lanes
- Improved TSP
- Enhanced Stations
- Improved Station Access
- Distinctive Branding
- Level Boarding
- Off-Board Payment
- More frequent service





# How could BRT be configured in this corridor?

## Center-Running Bus Lanes

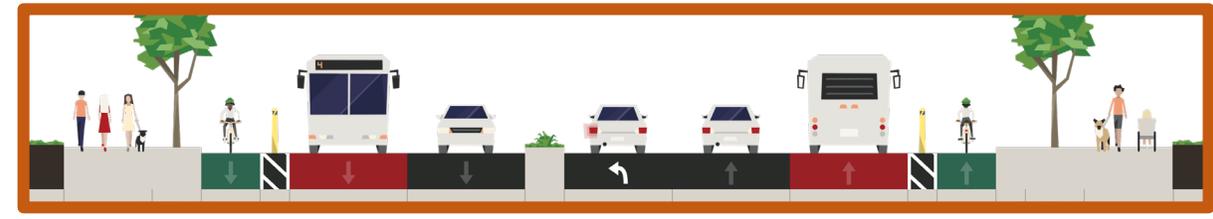
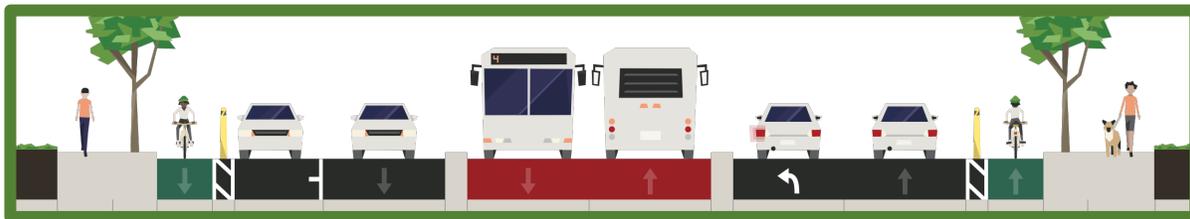


Image Source: SFMTA

## Side-Running Bus Lanes



Image Source: Kimley-Horn





## What are the implications of converting an auto lane to a bus lane?

- Additional traffic congestion on San Pablo Avenue → Some drivers will change their mode, route, or time of day with **center-running** and **side-running** BRT

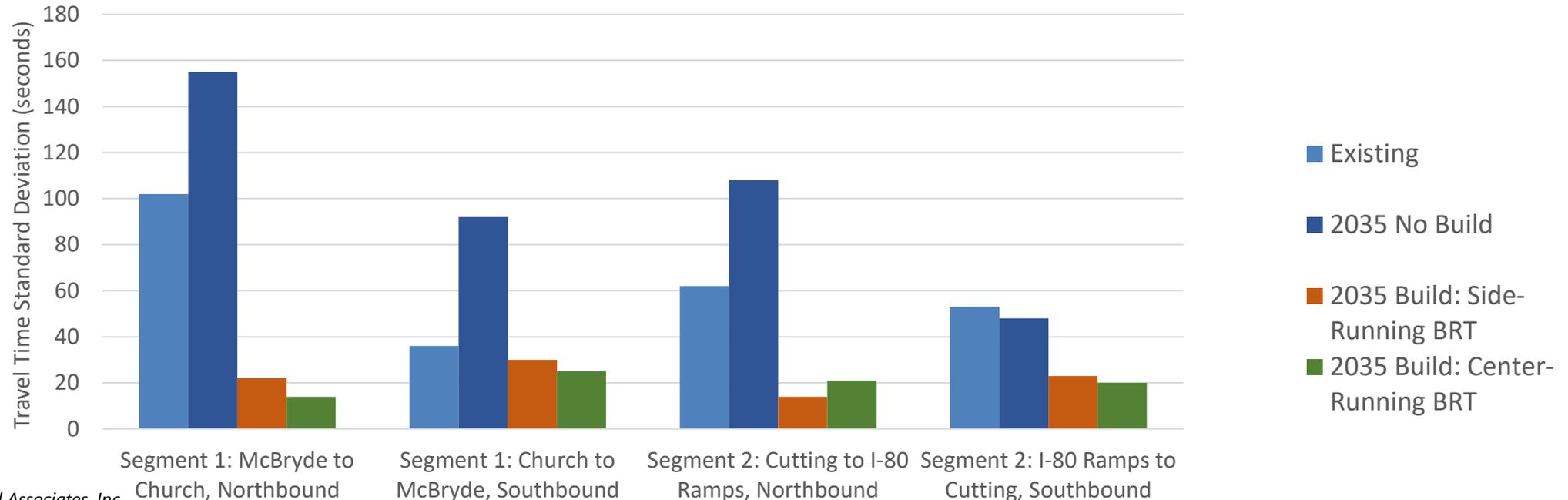
Shift in Auto Traffic	Center-Running	Side-Running
	30%-35%	25%-30%

- If all diverted auto traffic went to I-80, would increase peak hour volumes on I-80 by about 4%
- Local traffic may divert to local streets; however, local diversion routes will experience diversion even with no changes to San Pablo Avenue and may not support significant additional diversion
- Opportunity for traffic calming on diversion streets



## Transit ridership and reliability findings with BRT

- 30%-35% increase in ridership typical with high-quality BRT
  - Travel demand model in Phase 1 projected a 35%-45% ridership increase with BRT
- Bus travel time variability improves by over 50%-80% with both center and side-running options





## Can you mix and match bus lane configurations across segments/cities?

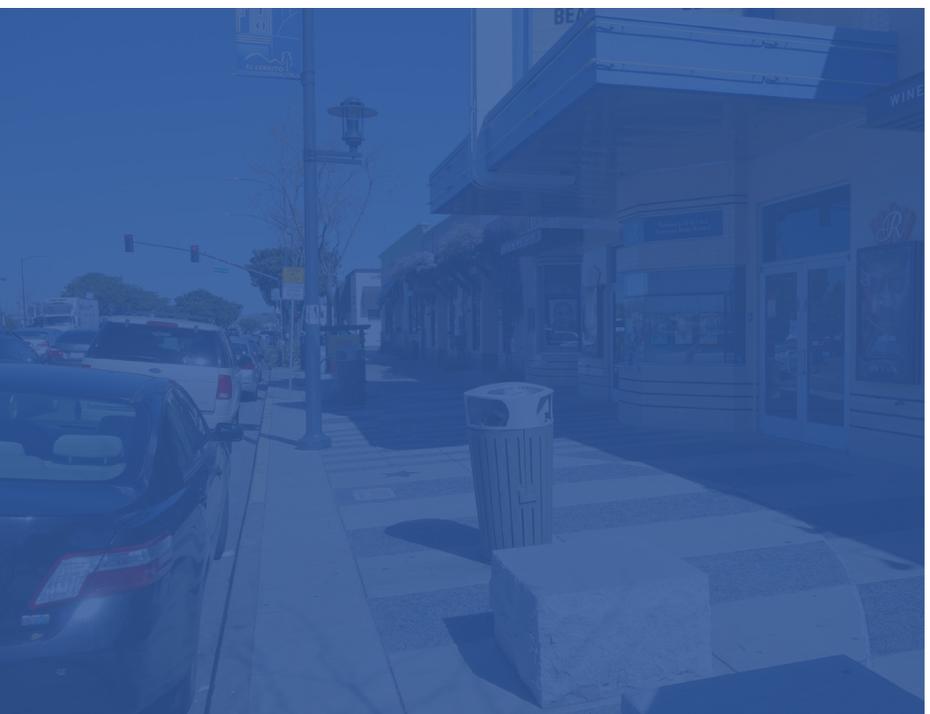
- Each occurrence where the bus shifts between **side-running** and **center-running** or passes through mixed-flow segments, a travel time penalty is incurred
- However, different configurations are acceptable
  - TEMPO BRT is a combination of **side-running**, **center-running**, and mixed-flow
- Recommend minimum 1- to 2- mile segments with continuous configuration
  - BART stations are logical transition points as the BRT would likely deviate into the station



Image Source: Google



# Key Findings





## Key Takeaways - Transit

- No alternative or parallel route for buses along the corridor
  - Without improvements, congestion will significantly increase, impacting mobility
  - **Center-running** bus lanes provide 30%-45% transit travel time savings and would be approximately 10% faster than **side-running**
  - **Side-running** bus lanes avoid some of the implementation challenges of **center-running** and can be easily used by all bus routes in the corridor
  - **Center-running** bus lanes provide greatest opportunity for both parking and bike facilities throughout the corridor. **Side-running** allows for either/or in most segments
- **Support for enhancing transit, but feedback was mixed between “going big” with center-running, support for side-running, and concern about impacts of a bus-only lane**



## Key Takeaways - Bikes

- Bike lanes or cycle tracks are feasible to be implemented, but would require removal of parking in many areas
  - On-street parking is currently plentiful and redundant, but new, more dense development will change the role of on-street parking
- Providing a protected bicycle facility would still result in the corridor having a high level of stress for cyclists
  - Significant number of driveways and intersections
  - Right-turn lanes needed at major intersections requires bicycle facility to be shared with autos, buses, or narrow pedestrian facility
- Lower stress options may be available on parallel streets south of Rheem Avenue



Images Source: Google

## Key Takeaways - Bikes

- In some parts of corridor, jurisdictions have plans to provide new bike facilities or upgrade existing facilities
- **Varying support between bike facilities on San Pablo Avenue and bike facilities on parallel streets**
- **Concerns about impact on businesses from parking removal for new bike facilities**





## Key Takeaways - Pedestrians

- Corridor has experienced fatalities and high number of injuries to pedestrians
  - Challenges include difficult crossings, lack of crossings, poor accessibility, poor lighting, high vehicle speeds
- Safety improvement opportunities at locations throughout the corridor
  - Pedestrian improvements are generally lower-cost and don't preclude other improvements
- **Concerns about safety for elderly and mobility-impaired pedestrians**
- **Widespread support for advancing pedestrian improvements**



Images Source: Google



## Opportunities for Priority Multimodal Safety Improvements

- Improved Pedestrian Crossings
  - Signalization, New Beacons, New Crosswalks, Median Protection, Lighting, and High-Visibility Striping
- Improved Bike Crossings Across San Pablo Ave
- Accessibility Upgrades
- Remove/Modify free right-turns
- Bulbouts into side-streets
- Bus Bulbs at Rapid Stops
- Bus Stop Relocation
- Bus Stop Consolidation





# Priority Multimodal Safety Improvements



## Legend

### Transit Improvements

-  Bus Bulb Improvement at Rapid Stop
-  Bus Stop Relocation
-  Bus Stop Removal

### Pedestrian/Bicycle Improvements

-  PHB/RRFB at Unsignalized Intersections
-  Additional Crosswalks at Signalized Intersections
-  Bike Crossings to Existing Facilities

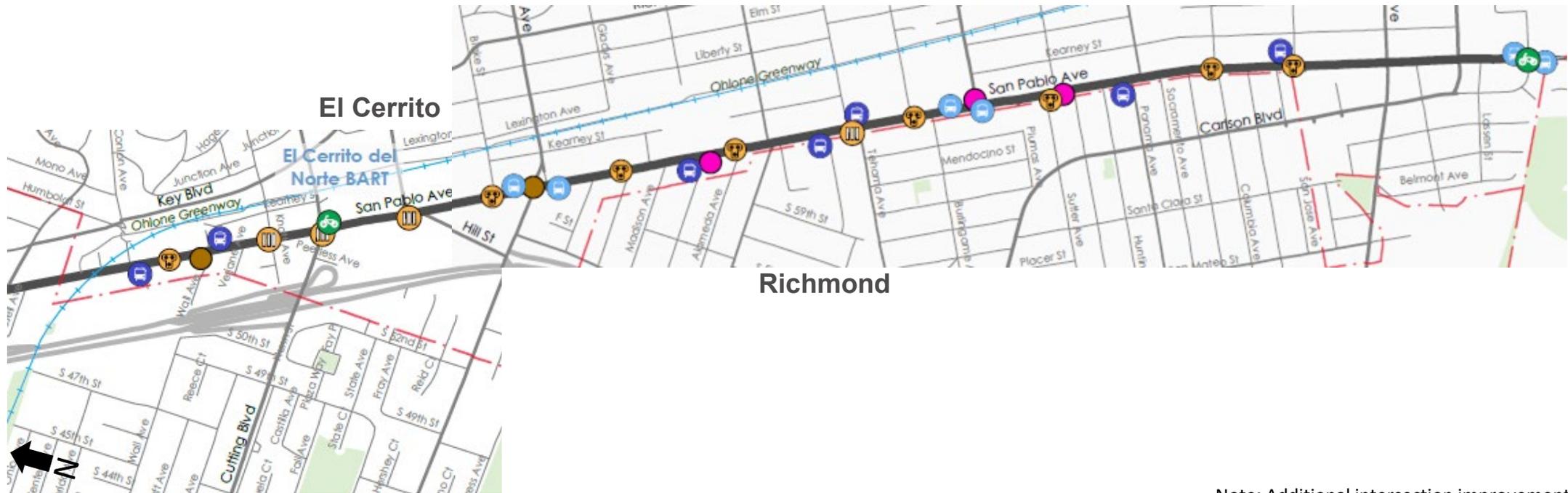
### Other Safety Improvements

-  Pork Chop/Free-right Removal
-  Side-street Bulbout

Note: Additional intersection improvements recommended but not shown would include high-visibility crosswalks, median crosswalk protection areas, advanced limit lines, ADA curb ramp upgrades, and directional curb ramps at locations throughout the study corridor. Bus stop changes shown are preliminary and subject to refinement through a corridor-wide analysis being advanced by AC Transit.



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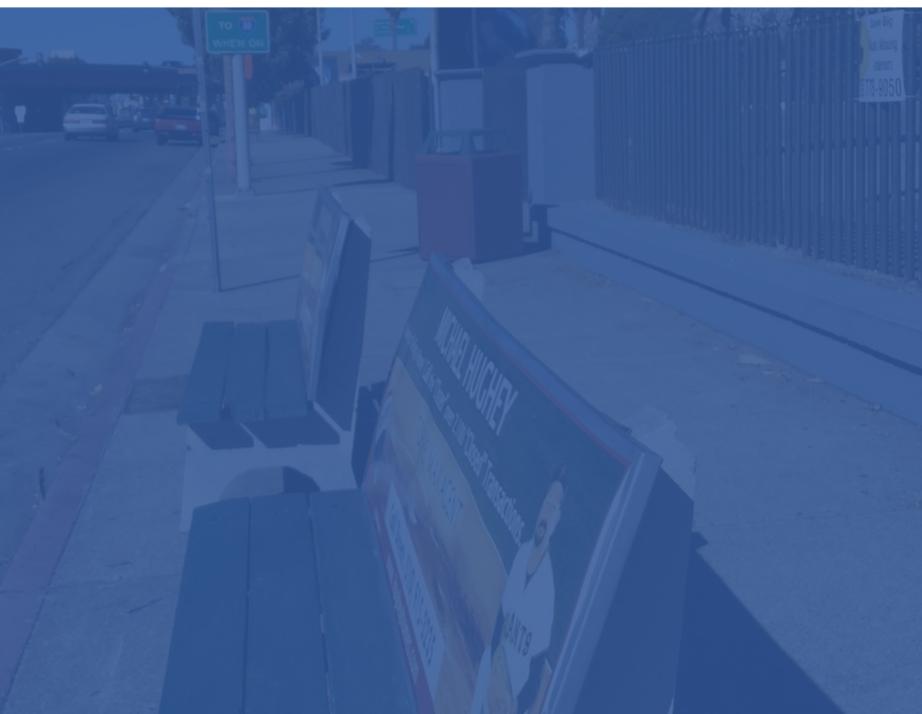
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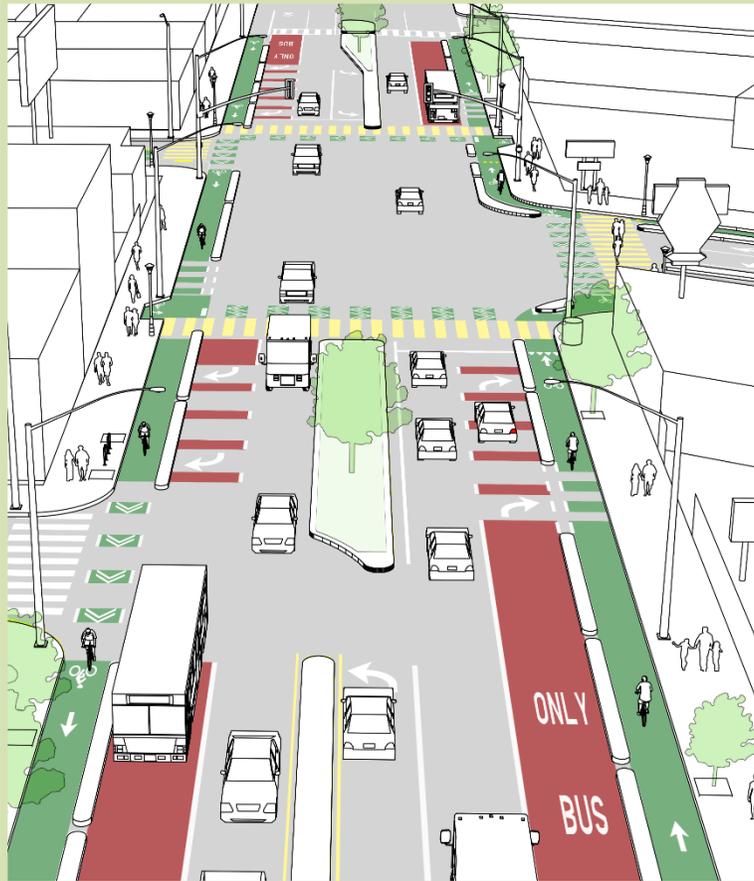
# Next Step Options





## What is Alameda County doing?

### Near-Term Design Concept



Three concurrent project efforts:

- #1 Safety Enhancements throughout Corridor
  - Focused on pedestrian safety and accessibility and bicycle crossings
  - Bus bulbs provide additional space at bus stops and to allow in-lane stopping for transit
- #2 Bus and Bike Lanes Project in Oakland, Emeryville, and South Berkeley
  - Convert auto lane to bus lane
  - Convert parking lane to protected bike lane
    - Parking and loading moved to side streets in most locations
  - Protected intersections and other bicycle treatments
  - Evaluation phase after project implementation
- #3 Bike improvements on parallel network in Berkeley, Albany, and North Oakland
  - While continuing long-term planning efforts in those cities <sup>26</sup>



## Element 1: Package of priority multimodal safety improvements

- 70+ improvements at 40-45 intersections to benefit pedestrian safety, bicycle safety, transit access, and transit operations
  - Each improvement has independent utility, so implementation can be phased
  - Efficiency, consistency, and cumulative benefits in implementing corridor-wide
- Seek CCTA as design and implementation lead
- CCTA and WCCTAC partner to identify funding
  - Very preliminary estimated construction cost range of \$20M-\$35M, design cost range of \$3M-\$5M
  - Numerous potential state and federal grant funding sources, but many require local match
- Local jurisdictions partner for design review and establish maintenance commitment



## Element 1: Package of priority multimodal safety improvements (cont.)

- Next steps are design and outreach to confirm improvement locations/types
- Advance design to position project for construction grant opportunities
- If supported by Board, incorporate into latest draft of Action Plan
- Staff recommends advancing this element



## Element 2: Advance a near-term demonstration project on a portion of the corridor with side-running bus lanes

- Contingent on local jurisdiction support
  - Initial interest by El Cerrito and Richmond at staff level
  - Requires support and coordination with AC Transit on potential corresponding operational changes
  - Begin with 1 to 2 mile segment – consider Cutting to Solano (outside of Caltrans jurisdiction)
- Spectrum of improvement types and costs
  - A. Simple: Commit to lower-cost Quick-Build type improvements – construction cost of \$5M per mile or less
  - B. Complex: Incorporate more substantial infrastructure improvements, which would require more funding/longer schedule – construction cost of \$35M per mile or more
- Need further engagement with local jurisdictions, community engagement, and design to determine accompanying roadway improvements
  - Bike facility is possible to include in project, with trade-off of parking loss. Local jurisdictions would need to provide direction on roadway priorities



## Element 2: Advance a near-term demonstration project on a portion of the corridor with side-running bus lanes (cont.)

- CCTA and/or AC Transit have technical capacity and staff to coordinate multi-agency project and assume lead on project management
- CCTA, WCCTAC, and AC Transit partner in identifying funding
- Next step is outreach as part of concept design development
- If supported by Board, incorporate into latest draft of Action Plan
- Timeframe to implementation likely 3+ years to assemble funding, receive approvals, complete design, and construct
- *As a demonstration project*, should include evaluation after implementation

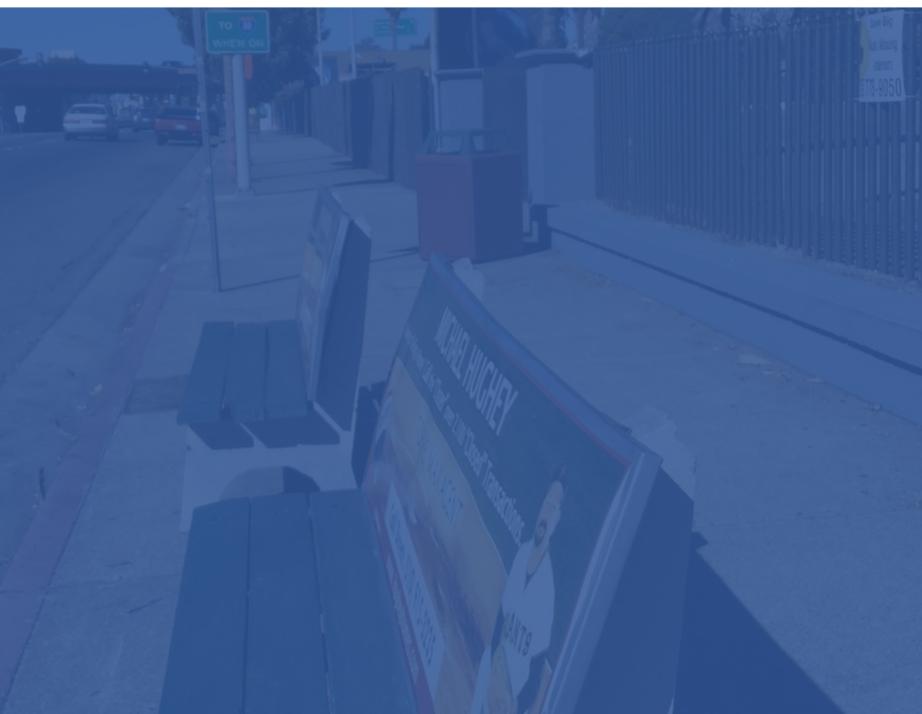


## Staff Recommendations for Next Steps

Subject to local jurisdiction and AC Transit's participation:

- **Advance Element 1: Multimodal Safety Improvements**
  - Advance design and outreach to formalize list of improvements with jurisdictions
  - Establish necessary working agreements
  - Seek CCTA to manage
  - Seek funding for outreach, design and construction process
  - Begin concept design and cost estimates
- **Advance Element 2: Demonstration Project**
  - Further explore interest at Cities of Richmond and El Cerrito and AC Transit
  - Focus on “simple”-type demonstration project as a proof of concept and for faster implementation
  - Extensive public engagement plan required
  - Begin to pursue funding for planning, design, and construction
  - Concept design, outreach, and cost estimates

# Backup Slides





## Council/Board/Community Presentations

Meeting	Date
WCCTAC Board	May 31, 2022
Richmond City Council	June 28, 2022
San Pablo City Council	July 18, 2022
El Cerrito City Council	July 19, 2022
AC Transit Board	July 27, 2022
East Richmond Neighborhoods	October 13, 2022