



Bicycle and Pedestrian Advisory Committee Meeting Agenda Wednesday, November 18, 2020 5:30 p.m.

Due to the statewide stay at home order and the Alameda County Shelter in Place Order, and pursuant to the Executive Order issued by Governor Gavin Newsom (Executive Order N-29-20), the Bicycle and Pedestrian Advisory Committee will not be convening at its Committee Room but will instead move to a remote meeting.

Members of the public wishing to submit a public comment may do so by emailing Angie Ayers at aayers@alamedactc.org by 5:00 p.m. the day before the scheduled meeting. Submitted comments will be read aloud to the Committee and those listening telephonically or electronically; if the comments are more than three minutes in length the comments will be summarized. Members of the public may also make comments during the meeting by using Zoom's "Raise Hand" feature on their phone, tablet or other device during the relevant agenda item, and waiting to be recognized by the Chair. If calling into the meeting from a telephone, you can use "Star (*) 9" to raise/ lower your hand. Comments will generally be limited to three minutes in length.

Chair: Matt Turner
Vice Chair: Kristi Marleau

Staff Liaison: [Cathleen Sullivan](#), [Chris G. Marks](#)
Clerk: [Angie Ayers](#)

Location Information:

Virtual Meeting Information: <https://zoom.us/j/94312704251?pwd=Y1VkRXUzTm1MY2J6ZjIubUtVaUp6QT09>
Webinar ID: 943 1270 4251
Password: 308486

For Public Access
Dial-in Information: (669) 900-6833
Webinar ID: 943 1270 4251
Password: 308486

To request accommodation or assistance to participate in this meeting, please contact Angie Ayers, at least 48 hours prior to the meeting date at: aayers@alamedactc.org

Meeting Agenda

1. Call to Order

2. Roll Call

3. Public Comment

4. BPAC Meeting Minutes	Page/Action	
4.1. Approve September 17, 2020 BPAC Meeting Minutes	1	A
5. Regular Matters		
5.1. San Pablo Avenue Corridor Project: Phase 2 Approach	5	I
5.2. New Mobility Roadmap	19	I
6. Member Reports		
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6.2. BPAC Roster	45	I
6.3. Member Reports		I
7. Staff Reports		
8. Adjournment		

Next Meeting: February 4, 2021

Notes:

- All items on the agenda are subject to action and/or change by the committee.
- To comment on an item not on the agenda (3-minute limit), submit a speaker card to the clerk.
- Call 510.208.7450 (Voice) or 1.800.855.7100 (TTY) five days in advance to request a sign-language interpreter.
- If information is needed in another language, contact 510.208.7400. Hard copies available only by request.
- Call 510.208.7400 48 hours in advance to request accommodation or assistance at this meeting.
- Meeting agendas and staff reports are available on the [website calendar](#).
- Comments from the public on agenized items must be received no later than 48 hours before the meeting in order to be distributed to BPAC members in advance of the meeting.
- Alameda CTC is located near 12th St. Oakland City Center BART station and AC Transit bus lines. [Directions and parking information](#) are available online.



Alameda CTC Schedule of Upcoming Meetings January 2021

Commission Chair

Mayor Pauline Russo Cutter
City of San Leandro

Commission Vice Chair

Councilmember John Bauters
City of Emeryville

AC Transit

Board Vice President Elsa Ortiz

Alameda County

Supervisor Scott Haggerty, District 1
Supervisor Richard Valle, District 2
Supervisor Wilma Chan, District 3
Supervisor Nate Miley, District 4
Supervisor Keith Carson, District 5

BART

Director Rebecca Saltzman

City of Alameda

Mayor Marilyn Ezzy Ashcraft

City of Albany

Mayor Nick Pilch

City of Berkeley

Mayor Jesse Arreguin

City of Dublin

Mayor David Haubert

City of Fremont

Mayor Lily Mei

City of Hayward

Mayor Barbara Halliday

City of Livermore

Mayor John Marchand

City of Newark

Councilmember Luis Freitas

City of Oakland

Councilmember At-Large
Rebecca Kaplan
Councilmember Sheng Thao

City of Piedmont

Mayor Robert McBain

City of Pleasanton

Mayor Jerry Thorne

City of Union City

Mayor Carol Dutra-Vernaci

Executive Director

Tess Lengyel

Commission and Committee Meetings

Time	Description	Date
9:00 a.m.	Multi-Modal Committee (MMC)	January 11, 2021
10:00 a.m.	Programs and Projects Committee (PPC)	
11:30 a.m.	Planning, Policy and Legislation Committee (PPLC)	
2:00 p.m.	Alameda CTC Commission Meeting	January 21, 2021

Advisory Committee Meetings

5:30 p.m.	Independent Watchdog Committee (IWC)	January 11, 2021
9:30 a.m.	Paratransit Technical Advisory Committee (ParaTAC)	January 12, 2021

Due to the statewide stay at home order and the Alameda County Shelter in Place Order, and pursuant to the Executive Order issued by Governor Gavin Newsom (Executive Order N-29-20), the Commission will not be convening at its Commission Room but will instead move to a remote meeting.

Meeting materials, directions and parking information are all available on the [Alameda CTC website](http://www.AlamedaCTC.org). Meetings subject to change.

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Bicycle and Pedestrian Advisory Committee Meeting Minutes Thursday, September 17, 2020, 5:30

4.1

1111 Broadway, Suite 800, Oakland, CA 94607

• 510.208.7400

• www.AlamedaCTC.org

1. Call to Order

Bicycle and Pedestrian Advisory Committee (BPAC) Vice Chair, Kristi Marleau, called the meeting to order at 5:30 p.m.

2. Roll Call

A roll call was conducted and all members were present with the exception of Ben Schweng and Matt Turner.

Subsequent to the Roll Call:

Matt Turner arrived during item 5.1.

3. Public Comment

There were no public comments.

4. BPAC Meeting Minutes

4.1. Approve February 13, 2020 BPAC Meeting Minutes

BPAC members requested the following amendments to the minutes:

- Third bullet on page 2 under item 5.2 move the verb after "pre-school" and before "eligible."

David Fishbaugh made a motion to approve this item with amendments. Feliz Hill seconded the motion. The motion passed with the following votes:

Yes: Bisson, Fishbaugh, Hill, Johansen, Marleau, Matis, Murtha

No: None

Abstain: None

Absent: Schweng, Turner

5. Regular Matters

5.1. City of Dublin Bicycle and Pedestrian Master Plan

Chris Marks introduced this item and noted that the countywide BPAC serves as the City of Dublin's BPAC. Sai Midididdi with the City of Dublin and Mike Alston with Kittelson & Associates Inc. provided an update on the City of Dublin's Bicycle and Pedestrian Master Plan. Ms. Midididdi and Mr. Alston provided an overview of the plan which included the vision, goals, performance measures, project engagement process, and key findings from the needs analysis which included the pedestrian and bicycle high-injury networks, a level of traffic stress analysis, and a latent demand analysis. Ms. Midididdi and Mr. Alston concluded with the prioritization framework and the next steps for the master plan.

BPAC members provided the following comments/questions on this item:

- Feliz Hill expressed concerns about safety on Dublin Blvd. and suggested the city address the backlog of projects and/or issues that will improve safety.
- Dave Murtha asked if Dublin's zoning code would be revised to support active transportation or if zoning recommendations would be included in the plan.
- Liz Brisson commented that widening Dublin Blvd. to add another travel lane for cars will decrease safety even with a Class II bicycle lane. Ms. Brisson suggested upgrading the existing bicycle facility to be fully protected.
- Liz Brisson recommended a local BPAC would be helpful in providing input on Dublin's bicycle and pedestrian master plan.
- Howard Matis recommended adding signage for bicyclists to get to/from the Dublin BART Station.
- Kristi Marleau concurred with Ms. Brisson's recommendation for a local BPAC. She noted that there are no bicycle advocates on the the Technical Advisory Committee.
- Kristi Marleau asked for a definition of a "side path" and noted they look like sidewalks.
- Kristi Marleau commented that a new high school is being built in Dublin and she recommend a protected intersection at Central Pkwy. and at Gleason Dr. Ms. Marleau commented that an updated bicycle facility is needed at Dublin Blvd. and Tassajara Rd as well. She also recommended a protected bicycle facility on Dublin Blvd.
- Feliz Hill asked about the outreach plan and community engagement efforts, specifically if groups such as Bike East Bay be involved with the plan.
- Dave Murtha expressed concerns about driveways crossing side paths. Mr. Murtha called out Dublin Blvd. at Dougherty Rd., which is a three-lane arterial without a protected bicycle lane.
- David Fishbaugh asked about the project team communication with neighboring communities including planned routes connecting to San Ramon and Pleasanton.
- Kristi Marleau asked if the project team will consider extending the outreach window to accommodate COVID-19.

This item is for information only.

5.2. 2020 Countywide Transportation Plan: Draft Recommendations

(This item was presented after 6.1)

Cathleen Sullivan introduced herself and stated that she is the Director of Planning at Alameda CTC. Ms. Sullivan stated that she is replacing Carolyn Clevenger as staff liaison to the BPAC. She also introduced Kristen Villanueva who discussed the core recommendations of the Draft 2020 Countywide Transportation Plan (CTP) with the BPAC. Ms. Villanueva stated that public outreach is underway and asked for

members to participate in a short survey available on the Draft 2020 CTP webpage. Outreach will be conducted virtually and will be on-going through September. Ms. Villanueva said Alameda CTC received public comments that will be incorporated with the comments from the BPAC into the final CTP later in the fall. Ms. Villanueva requested BPAC to provide her with their top priority actions for Alameda CTC to focus on first.

BPAC members provided the following comments/questions on this item:

- Howard Matis commented that people want to bicycle to Contra Costa County from Alameda County and asked that the CTP look at connections between counties.
- Liz Brisson stated the safe system strategies are most important: Projects that improve conditions on the high-injury networks and the changing legislation around speed enforcement. Ms. Brisson also stated that the multi-modal work and coordination efforts with Caltrans is really important to focus on as well.
- Ms. Brisson expressed concern about road widening projects and said these types of projects should stop. She expressed support for express lane projects, but only as lane-conversions, not lane-expansions which amount to freeway widening projects.
- David Fishbaugh also expressed support for the safe system approach as the top priority, and noted that controlling the pedestrian and bicycle collision rates are the highest importance.
- Dave Murtha stated that the multimodal corridor projects should include bicycle lane protections in the design standards.
- Feliz Hill stated that item 3 on the slide is most important and it focuses on underserved populations.
- Matt Turner supported all of the comments previously mentioned, specifically those against roadway widening and changing design standards to include protecting bicycle lanes. Mr. Turner suggested creating sidewalk-level bike lanes is an optimal solution. He also stated the need for legislative action to encourage rails-to-trails to overcome obstinance from railroads.

This item is for information only.

6. Organizational Meeting

6.1. Election of Bicycle and Pedestrian Advisory Committee (BPAC) Officers for FY2020-21

(This item was presented before 5.2)

Matt Turner nominated Kristi Marleau as Vice Chair. Dave Murtha seconded the nomination. Feliz Hill nominated Matt Turner as Chair. Jeremy Johansen seconded the nomination. Mr. Turner and Ms. Marleau accepted the nominations. The motion passed with the following roll call votes:

Yes: Bisson, Fishbaugh, Hill, Johansen, Marleau, Matis, Murtha, Turner
No: None
Abstain: None
Absent: Schweng

7. Staff Reports

Chris Marks informed the Committee that in July 2020, Alameda CTC launched a COVID-19 Rapid Response Bicycle and Pedestrian Grant Program. He noted that the program made \$1.125 million available in local Bicycle and Pedestrian Measure BB sales tax funds to support local jurisdictions efforts to respond to the COVID-19 impacts. The Program offered eligible recipients a single, maximum grant award of up to \$75,000 for bicycle and pedestrian transportation improvements that achieve the program goals.

8. Member Reports

7.1. BPAC Calendar

The committee calendar is provided in the agenda packet for information purposes.

7.2. BPAC Roster

The committee roster is provided in the agenda packet for information purposes.

9. Meeting Adjournment

The meeting adjourned at 7:30 p.m. The next meeting is scheduled for Wednesday, November 18, 2020, via Zoom.



Memorandum

5.1

1111 Broadway, Suite 800, Oakland, CA 94607

• 510.208.7400

• www.AlamedaCTC.org

DATE: November 10, 2020

TO: Bicycle and Pedestrian Advisory Committee

FROM: Cathleen Sullivan, Director of Planning
Chris G. Marks, Associate Transportation Planner

SUBJECT: San Pablo Avenue Corridor Project: Phase 2 Approach

Recommendation

This item will provide the Bicycle and Pedestrian Advisory Committee with an update on the San Pablo Avenue Corridor Project approach.

Summary

One of the main roles of the Countywide Bicycle and Pedestrian Advisory Committee (BPAC) is to advise the Alameda County Transportation Commission (Alameda CTC) at critical junctures in the development of multimodal corridor projects. The Alameda County Transportation Commission (Alameda CTC) initiated the San Pablo Avenue Corridor Project (Project) in 2017. The BPAC last reviewed the San Pablo Avenue Corridor Project (the Project) on November 21, 2019: Staff presented key findings from Phase 1, including the results of outreach efforts and technical analysis. Staff will provide an update on the project and the approach for Phase 2 of the project.

Background

The San Pablo Avenue Corridor is a critical interjurisdictional arterial corridor that traverses four cities in Northern Alameda County (Oakland, Emeryville, Berkeley, and Albany) and portions of Western Contra Costa County (including El Cerrito, Richmond and San Pablo), providing north-south connections throughout the inner East Bay paralleling Interstate 80 (I-80). It is a multi-purpose corridor in the broadest sense: it traverses diverse neighborhoods, serves thriving commercial districts, major trip generators, and both well-established and transitioning residential neighborhoods; it serves local, regional, and interregional trips; and it plays a critical role in the networks of all modes. A significant portion of San Pablo Avenue is designated as State Route 123, and thus is subject to Caltrans jurisdiction.

The Alameda County Transportation Commission, in partnership with the Contra Costa Transportation Authority and the West Contra Costa Transportation Advisory Committee, initiated the San Pablo Avenue Corridor Project in 2017. Phase 1 concluded in the summer of 2020. The purpose of the San Pablo Avenue Corridor Project is to improve multimodal mobility, efficiency, and safety to sustainably meet current and future transportation needs and support a strong local economy and growth along the corridor, while respecting local contexts.

Phase 1 identified and refined potential long-term concepts for the corridor through extensive outreach and technical analysis. Due to the complex and constrained nature of the corridor, no single long-term vision emerged at the end of Phase 1 for the entire corridor and multiple project alternatives are still being considered for the long-term improvement of the corridor.

However, Phase 1 did successfully narrow the range of options and identified potential for an infrastructure pilot project in the Alameda County section of the corridor to better understand the effectiveness of different treatments and make progress towards a larger, long-term project. Phase 1 also identified a set of smaller-scale corridor improvements within Alameda County that could be implemented in the very near-term (within three years), focused on improving safety on this high injury corridor; these improvements will not interfere with any of the potential long-term visions for the corridor. Phase 2 will refine and advance these two sets of improvements towards construction. A summary of the Phase 1 findings can be found in Attachment A.

Very Near-Term Safety Improvements

The very near-term safety improvements are focused around targeted small-scale changes to improve pedestrian, bicyclist, and transit rider safety with an anticipated construction initiation within the next three years. These improvements do not preclude future, more substantial multimodal improvements under consideration for the corridor. The proposed improvements are exclusively within the Alameda County segment of the corridor from Oakland in the south (16th Street/Frank Ogawa Plaza) to Albany in the north (northern border with Contra Costa County).

Types of improvements include:

- ADA compliant curb ramps and sidewalks
- Pedestrian crossing improvements, including:
 - High visibility crosswalks (replacement of existing crosswalks with high-visibility striping and signage)
 - Pedestrian countdown heads
 - Audible pedestrian signals
 - Adaptive pedestrian signals
 - Rapid rectangular flashing beacons (RRFBs)
 - Pedestrian hybrid beacons (PHBs)

- Leading pedestrian intervals
- Wayfinding signage
- Modification to five-legged or skewed intersections
- Pedestrian lighting at bus stops
- Pedestrian lighting at crosswalks
- Bus stop upgrades, repairs, targeted bus bulbs, relocations, and consolidations
- Concrete bus pads
- Improved bicycle crossings of San Pablo at intersections with major perpendicular bike routes

Infrastructure Pilot

Given the lack of consensus around a long-term alternative for the corridor as a whole, Alameda CTC staff worked closely with city staff and AC Transit staff to identify near-term pilot improvements to make progress towards a long-term vision and test concepts to gather more information about the efficacy of different types of improvements.

Based on outreach and technical analysis in Phase 1, the infrastructure pilot will consider a different approach for different segments of the roadway. In Oakland and Emeryville, the Pilot will consider dedicated bus and bike lanes on San Pablo Avenue in line with significant community and technical support for a substantial change to the roadway. In Berkeley and Albany, outreach results were more mixed with significant support for a bus lane on San Pablo, some support for a bike lane on San Pablo and for bikeways on parallel facilities, and significant concerns about parking and lane loss. In these two cities, the Pilot will consider in-lane bus stops and improved parallel bike facilities to make incremental advancements and build support towards a long-term vision given more mixed outreach results, and ensure a high-quality north-south bike facility throughout the corridor in Alameda County. The approach in Berkeley does not preclude bus or bike lanes on San Pablo in Berkeley and Albany after the Pilot period. The exact configuration to be implemented by the infrastructure pilot will be determined as part of Phase 2.

Phase 2 will include completion of environmental analysis and Caltrans project initiation documents, and conceptual design through preliminary engineering and completion of final 100% design plan sets. The Phase 2 scope includes robust additional community engagement including door-to-door outreach where appropriate, pre- and post-pilot evaluation, additional circulation analysis, and close coordination with AC Transit, Caltrans and city partners.

Phase 2 in Contra Costa County

Due to greater geometric and operational variability, different mode splits and travel needs, and varying attitudes towards preferred improvements, no clear set of improvements emerged from Phase 1 in Contra Costa County. Phase 2 work will include additional location-specific design and technical evaluation needed to advance long-term concepts on the northern segments.

The vision is to build off of the pilot and Phase 2 work in Contra Costa County to continue to advance a cohesive vision for the corridor as a whole in the long-term.

Fiscal Impact: There is no fiscal impact. This is an information item only.

Attachment:

A. Phase 1 Executive Summary

SAN PABLO AVENUE CORRIDOR PROJECT

Phase 1 Executive Summary

August 2020



The San Pablo Avenue Corridor Project identifies short- and long-term improvements to address the increasing multimodal demands along the San Pablo Avenue Corridor.



Phase 1 of the project was led by Alameda County Transportation Commission (Alameda CTC), in partnership with Contra Costa Transportation Authority (CCTA) and West Contra Costa Transportation Advisory Committee (WCCTAC).

Project Purpose

The purpose of the San Pablo Avenue Corridor Project is to improve multimodal mobility, efficiency, and safety to sustainably meet current and future transportation needs and support a strong local economy and growth along the corridor while maintaining local contexts.

Project Need

The project will improve mobility, efficiency, and safety for all travelers and address the following key needs in the corridor.

Corridor Growth

Demand for travel in the San Pablo Avenue Corridor (“Corridor”) study area, between Downtown Oakland and Hilltop Drive in Richmond (Figure 1), is projected to increase as jurisdictions concentrate growth in designated Priority Development Areas (PDAs) (Figure 2), with higher-density, mixed-use developments recently completed and others under consideration. Improving mobility options for current and future residents will be important to enhance quality of life and manage future congestion within and near PDAs.

Auto Congestion

Today, autos travel at high speeds and move with relative ease through intersections on San Pablo Avenue compared to other urban arterials. However, growth projected for the corridor will put increasing demands on the street, and significant congestion is projected in the future, especially as San Pablo Avenue serves as a reliever route for I-80. Improving multimodal travel options along the corridor can mitigate against a more congested future.

Pedestrian and Bicycle Comfort

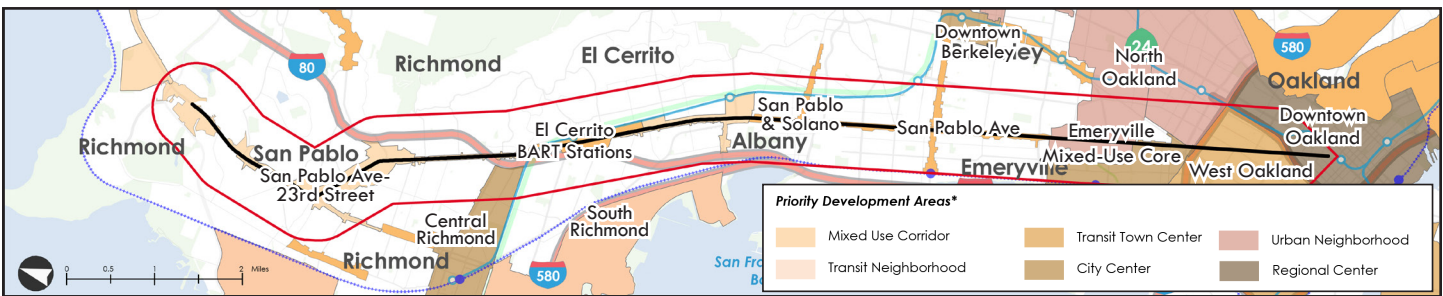
Segments of San Pablo Avenue serve as community “Main Streets”, creating the need for a pedestrian-oriented roadway. Although sidewalks are present on both sides of the roadway along most of the street, large gaps between protected crossings, ADA deficiencies, and the wide cross-section result in an uncomfortable pedestrian environment.

Figure 1: San Pablo Avenue Corridor Study Area



San Pablo Avenue is a direct route for bicyclists, and designated as a bike route by multiple cities; however, only small sections have designated roadway space for bicyclists. Accordingly, most of the study area is considered “high stress” for bicyclists as they mix with high-speed vehicles. In order to support multimodal travel and economic and community development, there is a need for improved pedestrian and bicycle facilities that increase safety and comfort for these users.

Figure 2: Priority Development Areas



Transit Travel Time and Reliability

San Pablo Avenue is one of the busiest transit corridors in the AC Transit system with about 12,500 riders each day on the corridor (routes 72, 72M and 72R in 2018¹; route alignments are depicted in Figure 6 on pg. 5). However, buses run about 30 percent slower than autos during peak-hours and bus travel is less reliable than auto travel. Further, Rapid bus (72R) speeds on the corridor have been falling consistently in recent years; in 2019, the 72R averaged 10 miles per hour during peak hours. Due to high variability in bus travel time, in portions of the corridor, riders have to wait over 1.5 times longer than the schedule indicates before a bus arrives. There is a need for transit priority treatments to improve both bus travel time and reliability.

Safety

Bicyclist- and pedestrian-involved collisions are over-represented in the collision records along San Pablo Avenue relative to existing volumes (Figure 3). Most collisions along San Pablo Avenue occur in or near intersections (within 100 feet) (see High Injury Network shown in Figure 7 on pg. 5). Unsafe speed is a common collision factor between modes.

Project Goals

The goals for the San Pablo Avenue Corridor Project are high-level, value-based targets for improving multimodal mobility, efficiency, and safety along the corridor in sustainable ways. Each goal is tied to specific, measurable objectives that guided the development, evaluation, and refinement of improvement concepts for the study area.



Effectively and efficiently accommodate anticipated growth

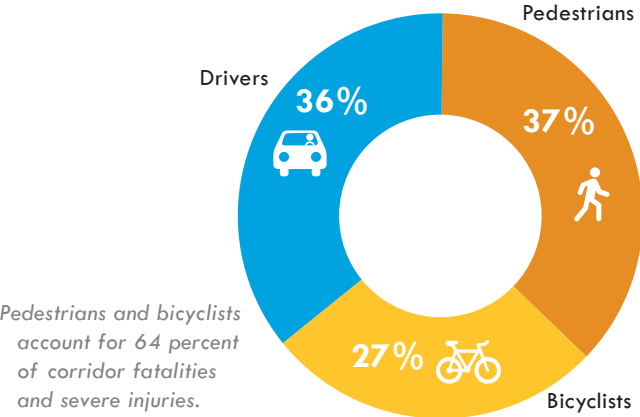
Improving corridor throughput is key to accommodating increasing travel demands. Due to constrained right-of-way, new capacity must be gained through multimodal operational improvements.



Improve comfort and quality of trips for all users

Improved facilities for all modes will expand travel options in the corridor. Success would be indicated by reductions in delay, conflicts, and levels of stress, as well as improved connectivity and reliability.

Figure 3: Share of Fatal and Severe Injury Collisions



This indicates a need for safety improvements focusing on intersections and intersection approaches to protect pedestrians and bicyclists as well as projects that reduce auto speeds.



Enhance safety for all travel modes

Improving safety is critical especially for vulnerable users. Multimodal safety improvements, especially at intersections, will make the corridor safer for travelers of all modes.



Support economic development and adopted land use policies

Expanding the range of viable transportation options and improving the pedestrian experience can support business districts and growth in designated PDAs in accordance with local land use policies.



Provide equitable transportation and design solutions

The corridor traverses many communities, each with diverse transportation needs. Investments should be equitably distributed along the corridor, with particular focus on benefits in Communities of Concern (COC)².

¹ 2018 AC Transit Annual Ridership and Route Performance Report

² Defined by MTC's Plan Bay Area 2040 Equity Analysis Report COC Framework (July 2017) at the census tract level

Corridor Overview

The Study Area covers 13.4 miles of San Pablo Avenue, spanning seven cities in Northern Alameda County and Western Contra Costa County. The Study Area extends one half-mile on both sides of San Pablo Avenue, excluding I-80. It connects tens of thousands of people every day between residential communities, employment centers, schools, centers of public life, and other activity hubs and is a central spine of travel for every mode.

Current Travel Patterns

Approximately 134,000 trips are made along the Corridor by car, bus, or BART during the morning peak-period. Over 30 percent of trips occur via transit, primarily BART, but also the AC Transit 72 series bus routes. Overall trip making is highest in the north end of the Corridor, while transit use is spread more evenly, concentrated in segments with BART access. Of the auto trips, 32 percent are passing through (no trip origin or destination within the study area), while 68 percent access the land uses within the study area (Figure 4).

Geometric Characteristics

San Pablo Avenue consistently has two travel lanes in each direction, with signalized intersections spaced every 0.2-mile (roughly 1,000 feet) on average. The curb-to-curb street width varies considerably throughout the corridor, but is consistently about 73 feet wide in Alameda County. The street does not widen at intersections, which makes them tightly constrained given the additional needs and conflicting movements that occur at these locations. Approximately 13 feet on each side of San Pablo Avenue are dedicated to sidewalks and landscaping, although a few segments have narrower sidewalks. Portions of the corridor have raised medians, some with mature street trees, while other portions have two-way left-turn lanes.

Parallel Transportation Network

San Pablo Avenue, I-80 and the BART Richmond Line (Red/Orange), serve as the transportation backbones of regional travel in northern Alameda County and western Contra Costa County (see Figure 5). In some segments, there is a grid-based local parallel street network providing alternative north-south travel routes, while in others, the streets network is irregular and San Pablo Avenue is the most direct north-south travel route. The Ohlone Greenway, West Street Greenway, Emeryville Greenway, and several well-utilized local bicycle boulevards also parallel some sections of San Pablo Avenue.

Figure 5: Major Parallel Facilities

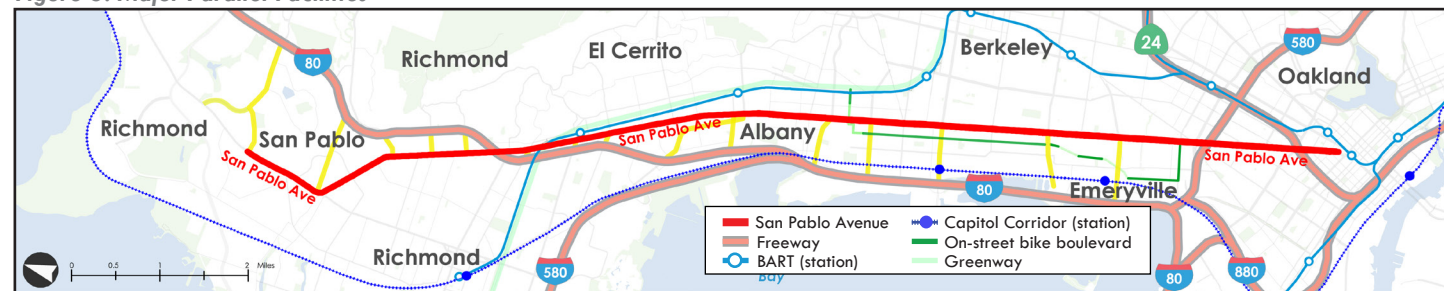
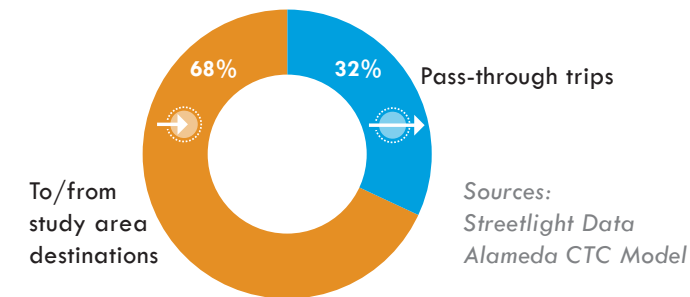


Figure 4: Auto Trips in the Corridor



Signalization

The I-80 Integrated Corridor Mobility (ICM) project installed advanced technology along San Pablo Avenue in 2016, including new controllers, signs, communication systems, and transit signal priority (TSP). Upgrades to corridor TSP technology and rules are currently underway.

Land Use

San Pablo Avenue is a vital commercial corridor with significant potential for mixed-use infill development. Currently, uses vary throughout the corridor, including single-family houses, medium-density residential buildings, schools, regional and neighborhood commercial districts, and strip commercial retail. With the PDA designation, much of the Corridor is zoned to support continued growth and more density.

Parking and Loading

On-street parking supply, management, and demand varies throughout the Corridor. On-street parking is available on most blocks and some cities have installed parking meters. Parking utilization is low to moderate, with most blocks less than 60 percent occupied. Although loading zones are designated throughout the corridor, truck loading was observed to primarily occur outside those loading zones, often via double parking directly outside the destination.

Figure 6: AC Transit 72 Series Bus Routes



Figure 7: High Injury Network for Collisions Involving Pedestrians, Bicyclists, and Automobiles (2009-2013)



Prior Studies and Plans

This project began with a review of regional, city, and corridor-level plans and technical studies relevant to the corridor to better understand corridor context and incorporate previous planning and policy objectives. Many of these plans provided recommendations for corridor improvements and capital projects that were incorporated into this project. Plans reviewed include:

- Alameda Countywide Transportation Plan
- Alameda Countywide Multimodal Arterial Plan
- Alameda Countywide Transit Plan and AC Transit Major Corridors Study
- Contra Costa Countywide Comprehensive Transportation Plan Update: West County Action Plan
- Caltrans Smart Mobility Plan Framework
- City of El Cerrito San Pablo Avenue Specific Plan
- City of Berkeley Bicycle Plan
- West Contra Costa High-Capacity Transit Study

Regional and jurisdictional plans consistently recognized the importance of San Pablo Avenue as a major transit corridor for regional and local travel; however, the specific proposed treatments for San Pablo Avenue varied.



Project Process

Phase 1 commenced in fall 2017 and concluded in summer 2019. Phase 1 identified and refined long-term concepts and alternatives for the San Pablo Avenue corridor through a multi-step, iterative process that combined technical analyses and corridor assessments with stakeholder engagement, to create multiple alternative visions for the corridor.

The project team first assessed existing conditions and identified Corridor needs. This assessment informed the development of the project purpose, goals, and overall evaluation framework. The project team then developed cross-section concepts and geography-specific alternatives to evaluate. Public engagement activities provided opportunities to solicit stakeholder feedback on proposed improvements, which guided alternatives refinement and helped establish the course for subsequent project activities (Figure 8).

The process was also informed by strategic input from Alameda CTC Commissioners and WCCTAC Board Members as well as technical input from the project's Technical Advisory Committee (TAC) and Caltrans District 4 staff.

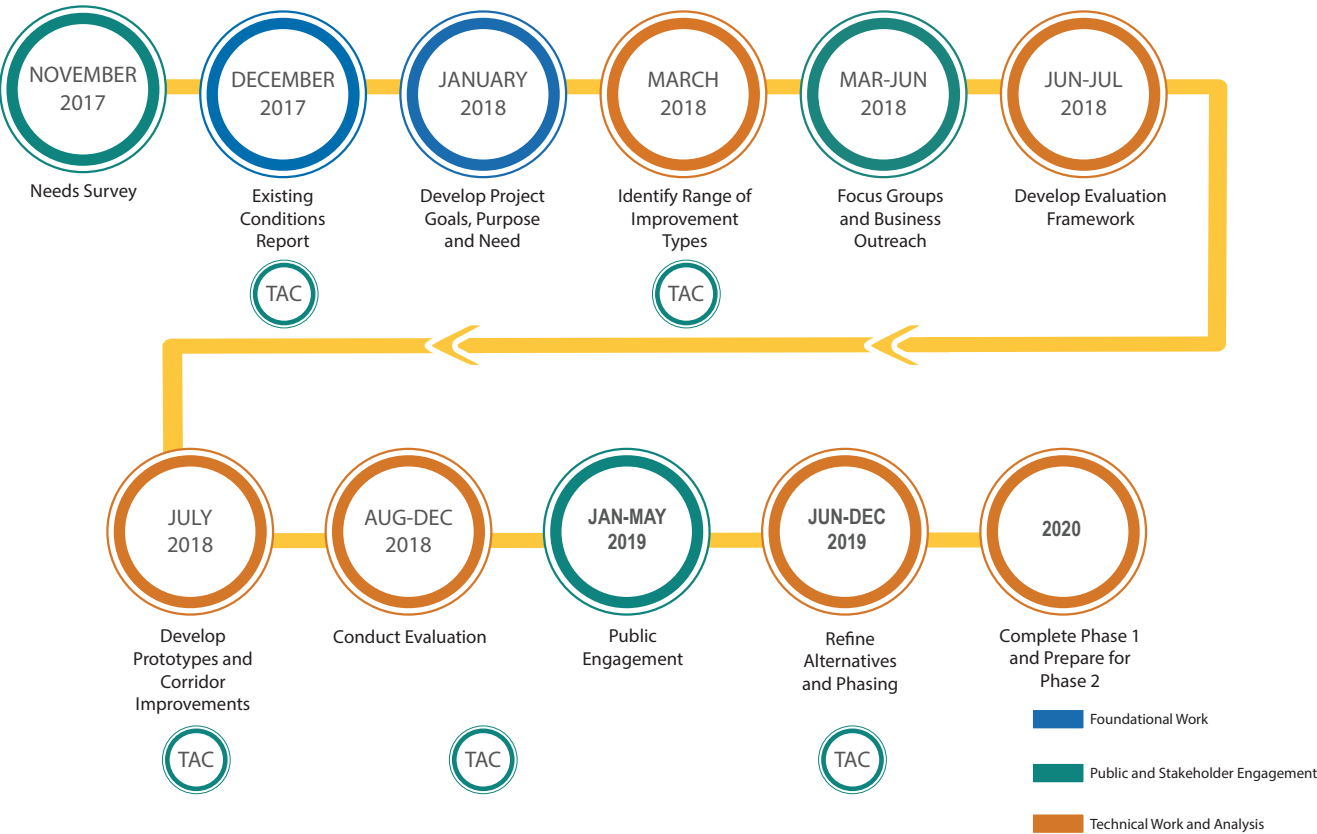


Project Focus Group Meeting, March 2018

The TAC consisted of representatives from the following agencies:

- Alameda County Transportation Commission (Alameda CTC)
- Caltrans
- AC Transit
- Contra Costa Transportation Authority (CCTA)
- West Contra Costa Transportation Advisory Committee (WCCTAC)
- Cities of Oakland, Emeryville, Berkeley, Albany, Richmond, El Cerrito, and San Pablo

Figure 8: Project Process



Outreach and Engagement

Extensive engagement was undertaken to solicit views from a variety of different Corridor travelers.

Engagement Activities

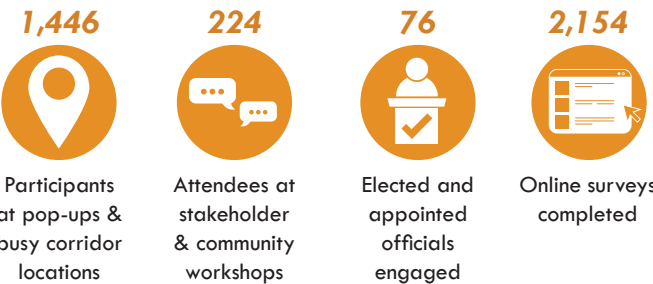
- A map-based online survey that collected information about hotspots needing improvement along the Corridor
- An online survey to understand business access needs distributed to merchants throughout the Corridor
- An online survey to get feedback on priorities that elicited more than 2,000 responses; distributed at events, workshops, via email, and on social media
- A shorter intercept survey, conducted at busy locations along San Pablo Avenue that also sought feedback about priorities
- Pop-up outreach at neighborhood events, at which people could view illustrated concepts and provide feedback
- Community workshops where participants were asked to provide input about priorities and visions for the corridor
- Focus Group meetings with key stakeholders where participants completed reference matrices and staff took detailed notes to record qualitative feedback



Albany Community Workshop, April 2019

Round 2 Public Outreach Participation by Type

Approximately 3,900 individuals participated in Round 2 public outreach



Stakeholders

A substantial effort was made to reach out to key stakeholder groups that have specific needs or represent traditionally disadvantaged groups throughout the Corridor. These included:

- Merchants who own businesses on San Pablo Avenue
- Transit riders
- Seniors and people with disabilities
- Bicyclists



Example outreach materials

Concept Development

Concepts were developed and analyzed that represent a range of configurations for San Pablo Avenue to balance transit, bicycle, pedestrian, and auto needs. Prototypes representing different configurations for the roadway were developed for the 73-foot width that is dominant in much of the Alameda County section. Some segments of San Pablo Avenue are either wider or narrower and thus would include additional or reduced facilities. Illustrations of the four concepts that were selected for full evaluation in Phase 1 are shown in Figures 9-12 (see below for additional concepts considered but not advanced)³.

Treatments to improve pedestrian safety and comfort are common to all concepts and not fully depicted in the illustrations. They include:

- Lighting and streetscape enhancements
- Curb ramp and accessibility improvements
- Bus stop upgrades
- Improved crosswalks and intersection markings

Concepts Considered But Not Advanced

During the course of concept development and evaluation, a number of potential treatments for San Pablo Avenue were fully considered but ultimately eliminated from further consideration, including:

- **2-Way Cycle Track (side- or median-running):** Deemed infeasible due to significant conflicts with vehicular turning movements, challenging intersection operations, and frequent driveway crossings.
- **Reversible or Non-Reversible Single Bus Lane:** Both options deemed infeasible due to operational concerns and high service frequency.
- **Pedestrian Overcrossing:** Deemed infeasible because of cost considerations and required right-of-way to provide ramps and landings.
- **23rd Street as Alternative to San Pablo Avenue:** Bus Rapid Transit (BRT) on 23rd Street has been previously analyzed as an alternative to San Pablo Avenue. Deemed infeasible because 23rd Street does not support additional transit-supportive density and would only provide an alternative in the northern portion of the corridor.
- **Lane Reduction with Cycletrack:** Deemed infeasible due to detrimental impact on bus performance as buses would have to operate in a single mixed-flow lane with other traffic.

Figure 9: Concept A
Bus & Bike Lanes on
San Pablo

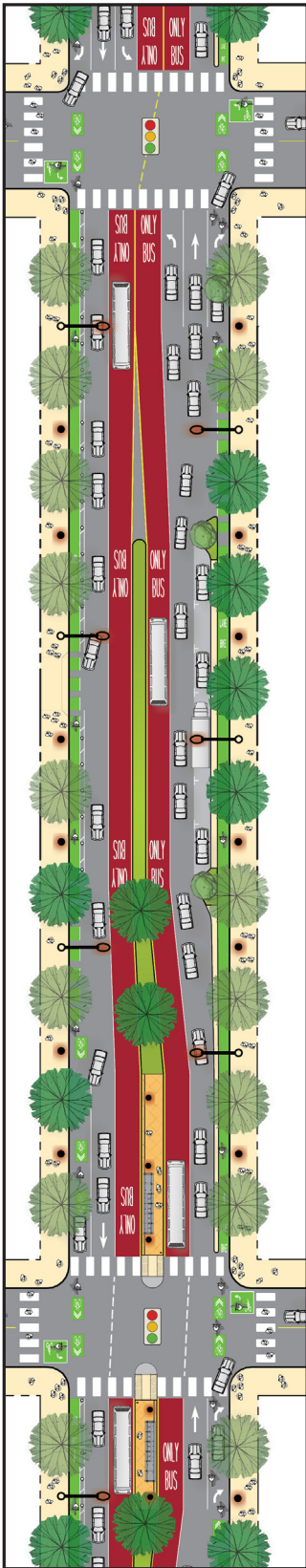


Figure 10: Concept B
Bus Lanes on San Pablo &
Parallel Bike Facility

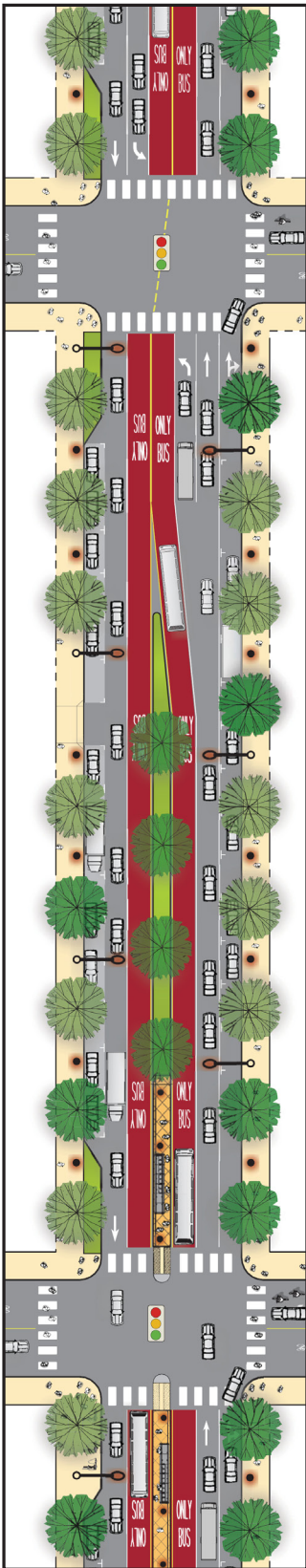


Figure 11: Concept C
Spot Bus Improvements &
Bike Lanes on San Pablo

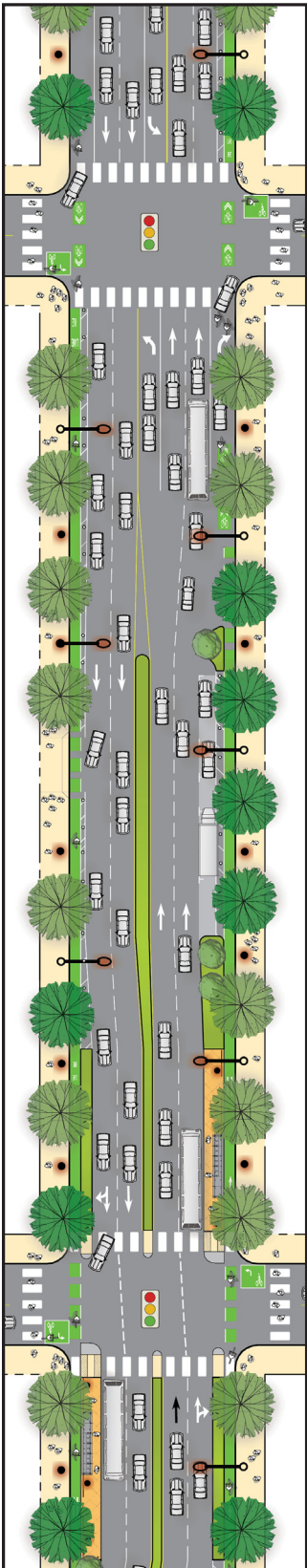
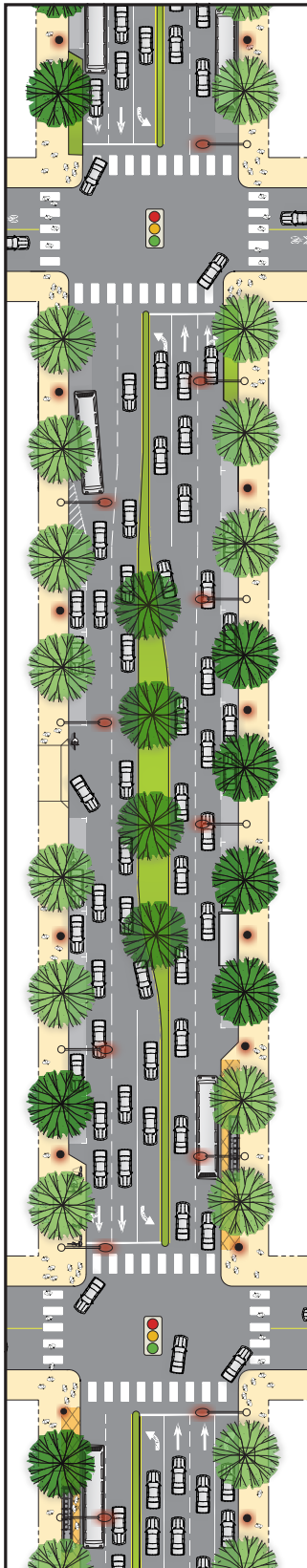


Figure 12: Concept D
Spot Bus Improvements &
Parallel Bike Facility



LEGEND

- PROPERTY LINE
- BUS LANE
- TREE
- ⬆️ TRAFFIC SIGNAL
- ⬆️ ROADWAY LIGHT FIXTURE
- ⬆️ PEDESTRIAN-SCALE LIGHT FIXTURE
- ▬ SOFT HIT POST
- ➡️ BIKE LANE
- MEDIAN / LANDSCAPING / GREEN INFRASTRUCTURE*
- TRANSIT PLATFORM
- SIDEWALK
- *WHERE APPLICABLE

Figures 9 through 12 illustrate the roadway configuration at intersections with and without bus stations.

³ Concept D not included in public survey but most similar to existing conditions.

Parallel Bike Options

Due to many competing demands on the limited right-of-way on San Pablo Avenue and its importance as a bus route, some concepts were developed which utilize parallel routes for bike facilities.

In general, parallel streets have the potential for more comfortable riding conditions due to much lower auto volumes and speeds. Portions of the Corridor already have parallel facilities, including the Ohlone Greenway and 9th Street Bicycle Boulevard in Berkeley, while the street network in other portions of the Corridor is less supportive of parallel facilities. Additional bicycle improvements are needed throughout the Corridor to make parallel facilities more desirable.

To provide an alternative route to San Pablo Avenue that is comfortable and easily navigable for bicyclists would require elements such as:

- Striping, such as marked bicycle lanes potentially including buffers, or sharrows
- Traffic calming measures, such as traffic circles, traffic diverters, and speed humps
- Lane reductions where four lanes exist
- Improved visibility, including lighting and signals
- Wayfinding signage along and to/from San Pablo Avenue and parallel facilities (Figure 15)
- Comfortable connections between San Pablo Avenue and parallel routes

Figure 13: Shafter Avenue Bicycle Sharrows & Roundabout, Oakland

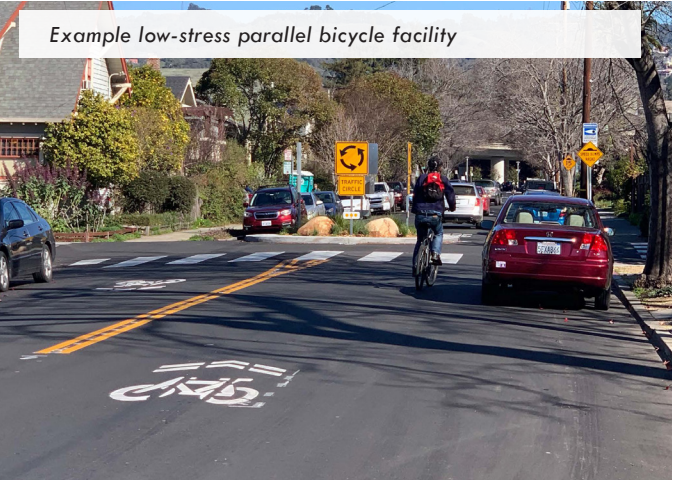
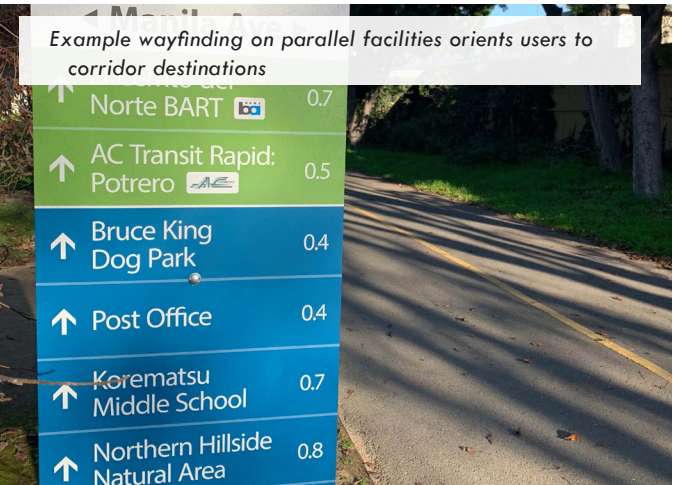


Figure 14: Scott Street Bicycle Facility, San Francisco



Figure 15: Ohlone Greenway Wayfinding, El Cerrito



Parallel and Connecting Bike Network

In Concepts B and D, bicycle connections would be created through a connected parallel network in lieu of bicycle facilities on San Pablo Avenue. For the bulk of the corridor, notably between Emeryville and Richmond, direct and desirable bicycle facilities may be provided on parallel routes. In some cases, parallel routes provide better access to destinations, such as to restaurant and retail uses on 4th Street in Berkeley. Relying on a parallel bike route would require comfortable connections to and from destinations on San Pablo Avenue.

As proposed, the parallel bike corridor would leverage the Ohlone and Emeryville Greenways to the east and west of San Pablo Avenue, respectively. Other corridor segments would include facilities on local streets as identified in Figures 16 to 18.

Options for parallel routes are somewhat limited in the southernmost and northernmost portions of the corridor due to an irregular street grid (especially in southern Oakland and City of San Pablo segments).

Figure 16: Parallel Bike Route Options - San Pablo/Richmond

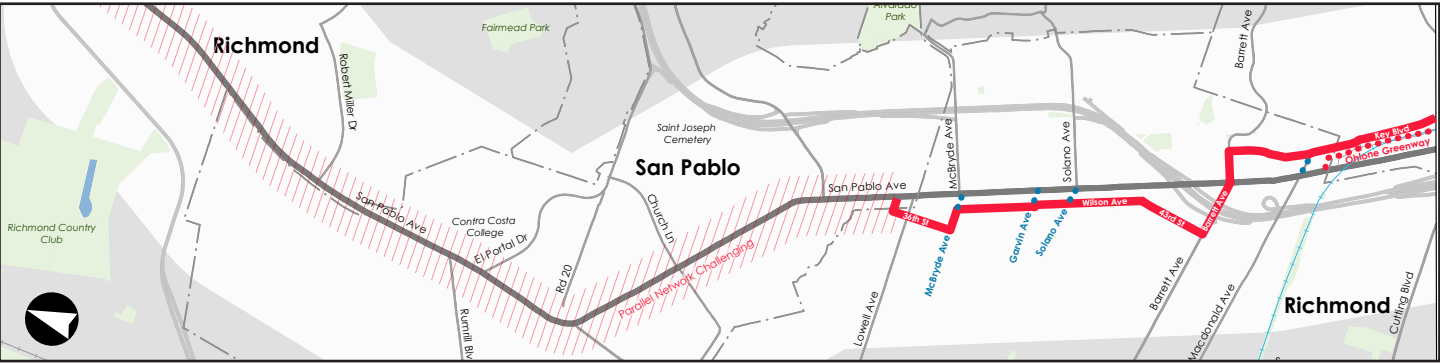


Figure 17: Parallel Bike Route Options - El Cerrito/Albany/Berkeley

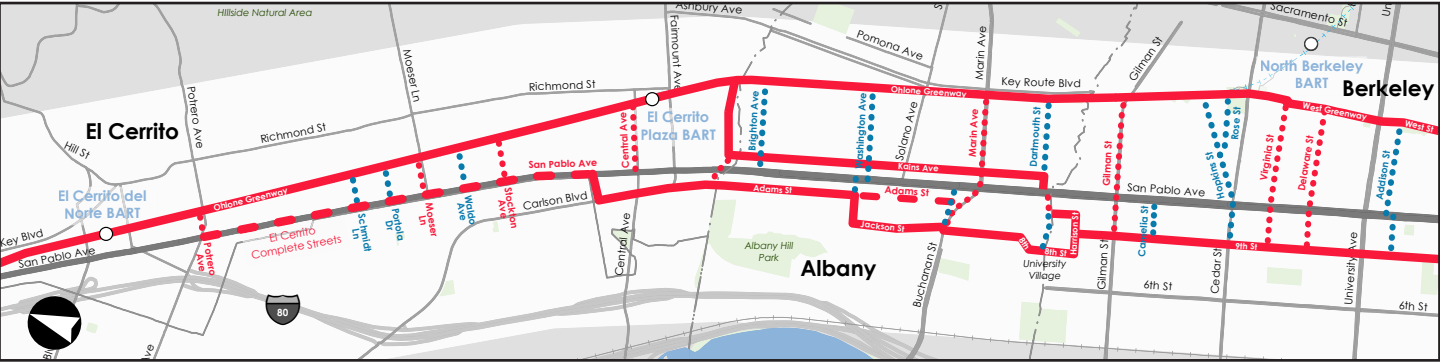
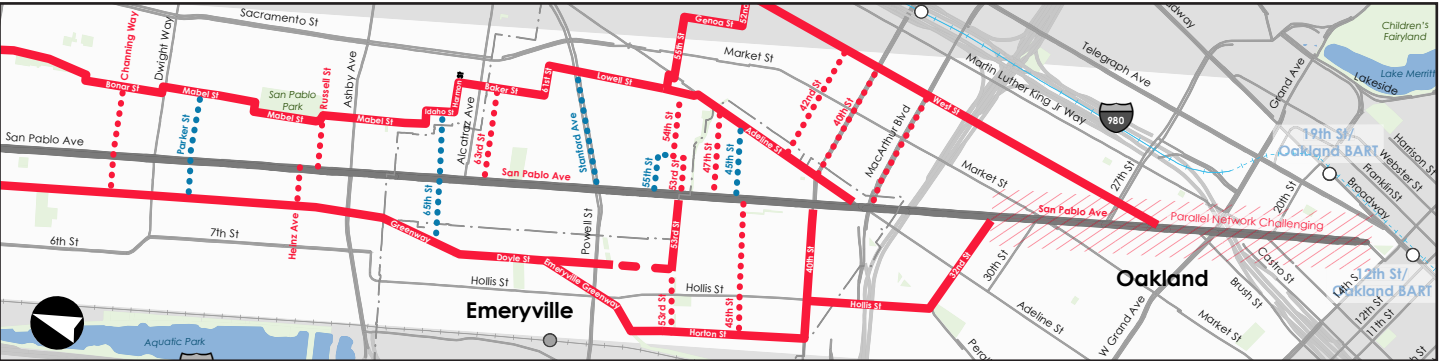


Figure 18: Parallel Bike Route Options - Berkeley/Emeryville/Oakland







































Evaluation Summary

The project team performed a full evaluation of Concepts A, B and C, including a range of criteria that reflected the project goals.⁴ The results of the analysis, also summarized in Figure 19, are as follows:

- Transit Ridership and Mode Split:** Concepts A and B would result in increased transit ridership and a higher transit mode split.
- Transit Travel Time:** Due to increased auto congestion, baseline bus travel times are expected to be 40-80 percent slower by 2040 than they are today.
- Automobile Flow:** Most of San Pablo Avenue is expected to operate near or above capacity in peak directions in future baseline conditions. Concepts that convert an existing mixed-flow lane on San Pablo Avenue to either a bus or bike lane would increase auto congestion on San Pablo Avenue. Trip diversion is anticipated to primarily occur to I-80, with some diversion to a handful of local streets.
- Bicycle Safety and Comfort:** Due to the limited right-of-way especially at intersections, as well as high traffic volumes, high speeds, frequent turning movements, and frequent driveways, it was determined that a truly low-stress bicycle facility which is comfortable for riders of all ages and abilities is not possible on San Pablo Avenue without major impacts to other modes, including the bus. Parallel facilities offer the best opportunity for providing a continuous low-stress bicycle facility.
- Safety at Intersections on San Pablo Avenue:** A universal set of safety improvements is included in each concept. Concepts that retain on-street parking provide the greatest opportunity for bulb-outs at intersections to shorten pedestrian crossing distances, and improve safety by slowing traffic. Concepts that reduce the number of mixed-flow travel lanes from 2 to 1 also calm traffic and provide a safety benefit.
- Economic Development:** The impact on businesses is nuanced and includes significant trade-offs. All concepts include general improvements to the public realm, along with the re-purposing of some curb space from parking/loading to other uses. The amount of parking/loading space loss varies considerably by alternative with Concept A reducing spaces the most and Concept B retaining the most spaces.
- Impact on Equity:** All concepts perform similarly for level of investment and commute impacts for Communities of Concern. Concept B provides the most opportunity for curbside loading and accessibility for vulnerable travelers.

Figure 19: Evaluation Summary

	CONCEPT A Bus and Bike Lanes on San Pablo Ave	CONCEPT B Bus and Managed Lane on San Pablo Ave; Bike facility on parallel street	CONCEPT C Bike Lanes on San Pablo Ave
	 • Less potential for speeding	 • Less potential for speeding	 • More potential for speeding
	 • Faster and more reliable transit service  • More transit riders  • 72 Local and 72 Rapid combined into one service with 1/3-mile spacing  • Transit stations off-set from major intersections	 • Faster and more reliable transit service  • More transit riders  • 72 Local and 72 Rapid combined into one service with 1/3-mile spacing  • Transit stations off-set from major intersections	 • 72 Local and 72 Rapid services remain  • Slower and less reliable bus service
	 • Bikes travel adjacent to sidewalk  • Very limited opportunities to shorten crossing distance	 • Most opportunities to shorten pedestrian crossing distance and create pedestrian refuges	 • Some opportunities to shorten pedestrian crossing distance and create pedestrian refuges
	 • Safer for bicyclists, but <u>not</u> low-stress environment	 • Parallel streets create low-stress comfortable facility  • Less safe for those who may continue to ride on San Pablo Ave	 • Safer for bicyclists, but <u>not</u> low-stress environment
	 • Significant reduction of loading and parking spaces	 • Least reduction of loading and parking spaces	 • Some reduction of loading and parking spaces
	 • Potential for additional delay at intersections  • Some traffic diverted to I-80 and other streets	 • Managed lane is a new traffic pattern  • Potential for additional delay at intersections  • Some traffic diverted to I-80 and other streets	 • Least impact on future delay and congestion

⁴ Concept D was not included in the evaluation as it was added after community input was received

Outreach Survey Findings

An outreach survey gathered input from respondents in each city. Respondents included residents, business owners, shoppers, commuters, and other corridor users. Preferences for the future of San Pablo Avenue varied between these different project stakeholders. Survey respondents' preferences between bus lanes, bike lanes, and the existing condition on San Pablo Avenue are shown in Figure 20. Support for concepts with bus lanes (Concepts A and B) and bike lanes (Concepts A and C) are summed.

Overall Results

- Overall, no concept received a majority support. The concepts most preferred by survey respondents were A (29 percent) and B (28 percent), both of which featured a dedicated bus lane. Concept A proposes a bike lane on the Corridor, while Concept B proposes a parallel bike facility.

Concept Preferences by City

- Respondents in the southern portion of the Corridor (Emeryville and Oakland) most strongly supported change in the corridor, with preferences for retaining existing conditions under 10 percent.
- Support for retaining existing conditions increased moving further north up the corridor; however, the majority of respondents preferred either bus or bike enhancements to doing nothing in every jurisdiction.
- Support for removing a mixed-flow travel lane and providing a dedicated transit lane was consistently high with support from at least 40 percent support in every jurisdiction and over 50 percent in Berkeley, Emeryville, and Oakland.
- Support for dedicated bike facilities along San Pablo Avenue lagged behind support for dedicated bus facilities in all seven corridor jurisdictions.

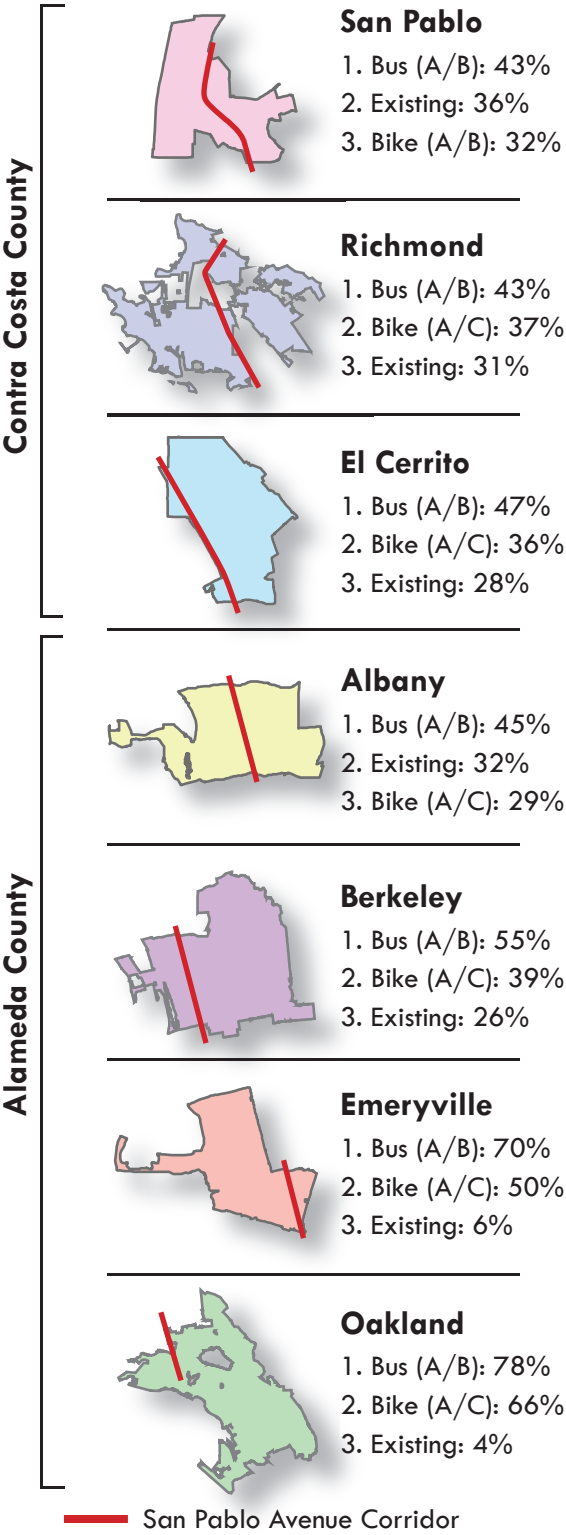
Types of User

- A plurality (46 percent) of business owners preferred San Pablo Avenue as it is today. No other group preferred existing conditions by more than 25 percent.
- Residents, commuters, and shoppers had similar preferences, with Concepts A and B receiving between 27-33 percent and Concept C at between 15-17 percent.

Modes of Travel

- Existing conditions were preferred at the greatest rate by those who drive, at 26 percent.
- Those who commute by bicycle preferred the concept with both bus and bike lanes, but a greater number selected a concept with a bus lane (Concepts A and B) than a concept with a bike lane (Concepts A and C).

Figure 20: Respondents' Preferred Concepts by Jurisdiction



San Pablo Avenue Corridor

Recommendations for Subsequent Project Efforts, Alameda County

Public and stakeholder engagement showed strong support for transit prioritization throughout Alameda County and strong support for bicycle facilities on San Pablo Avenue in the southern portion of the County, where bike volumes are highest and parallel facilities are limited. Based on the outreach and evaluation results, the range of concepts recommended for consideration in the next project phase was narrowed to two concepts in the Oakland/Emeryville segment—Concepts A and B—and three in the Berkeley/Albany segment—Concepts A, B, and D. Concept C has been eliminated from further consideration due to low popularity and poor technical evaluation results. The graphic below highlights key Phase 1 findings that informed selection of Concepts to advance. Additional stakeholder engagement and engineering are needed in the next project phase to select a single preferred alternative and move into project implementation.

Given the importance of improving pedestrian safety in the Corridor, Phase 1 also identified a series of lower-cost improvements that do not preclude implementation of any of the long-term Concepts still under consideration. These are described on page 16.

Berkeley-Albany Segment

- Highest bus ridership in Alameda County segment
- Significant challenges with bus reliability
- Direct and proximate parallel bike facilities are available
- Mixed outreach results with support for bus lanes and bike lanes, but also significant concerns raised by stakeholders over loss of on-street parking/loading and travel lane

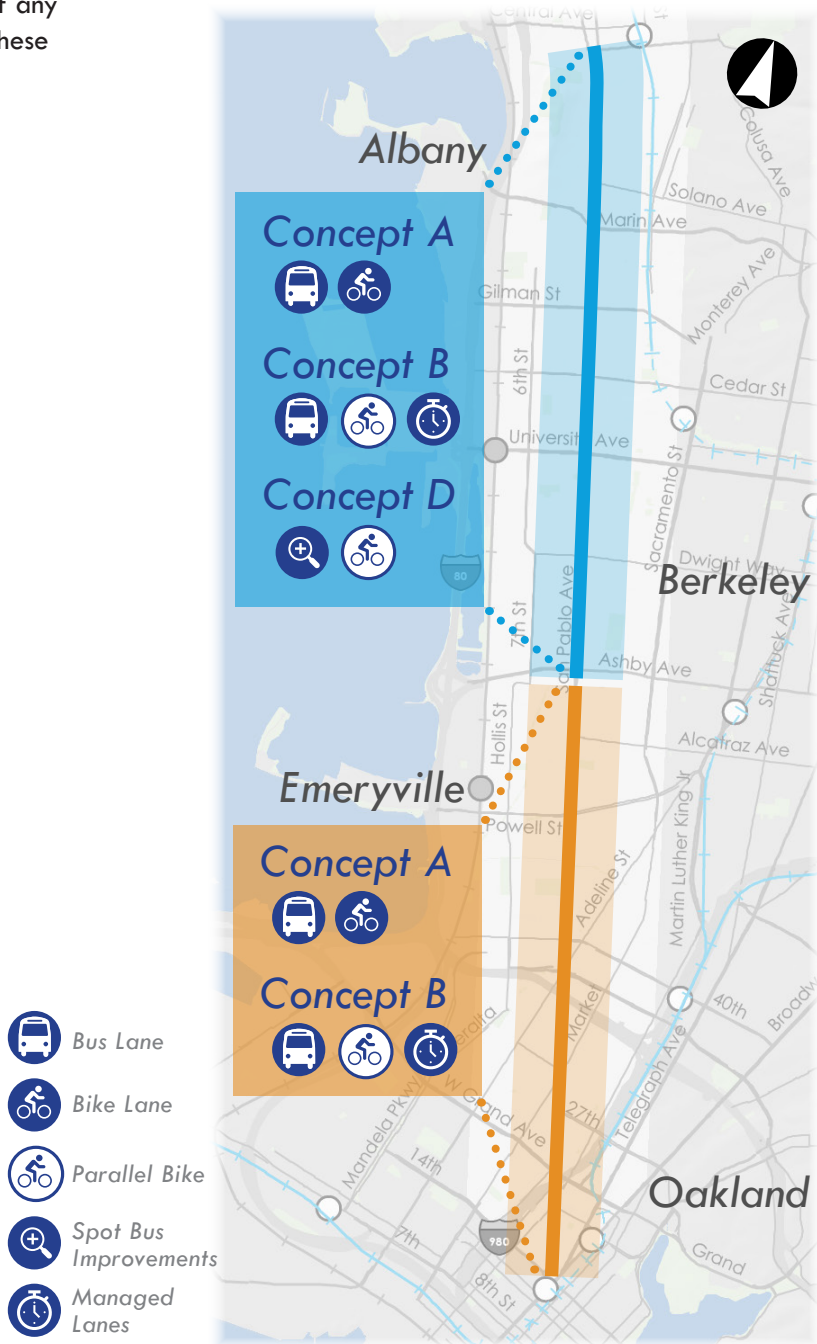
➡ Advance Concepts A, B, and D

Oakland-Emeryville Segment

- Notably lower auto volumes, lessening impact of auto lane reduction
- Higher bicycle volumes on San Pablo Avenue than in any other segment
- Challenging network for parallel bike facilities, particularly south of Market Street
- Overwhelming support from community for modifying existing conditions with vast majority supporting bus lanes and strong support for bike lanes
- Strong community support for safety improvements and traffic calming

➡ Advance Concepts A and B

Figure 21: Alameda County Concepts to Advance by Segment



Recommendations for Subsequent Project Efforts, Contra Costa County

Additional location-specific design development and evaluation are needed to advance concepts in Contra Costa County due to: (1) greater variability in geometric and operational characteristics of the corridor; (2) different mode splits and travel needs; and (3) varying attitudes toward preferred improvements.

San Pablo-Richmond Segment

- Segments of the corridor have or are planned to have Class II bike lanes
- Limited opportunities for parallel bike facilities
- Auto volumes among the highest in the corridor
- There was no clear consensus amongst survey respondents. While a bus lane was slightly preferred of the concepts presented, sentiment for retaining existing conditions was highest in this portion of the corridor.

➡ **Additional Study**
The roadway width narrows in portions of this segment. Further engineering analysis is needed to determine location-specific concept options and further traffic analysis is needed to assess circulation impacts and diversion associated with lane reduction.

El Cerrito-Richmond Segment

- Very high transit ridership around BART stations despite progressively deteriorating transit travel time and reliability due to increasing congestion
- Represents a transition between different development patterns and roadway character
- El Cerrito Specific Plan has concurrently proposed roadway reconfigurations including a bike lane
- Majority of survey respondents supported modifying existing conditions, but lack of consensus on preferred configuration

➡ **Additional Study**
Widest curb-to-curb portion of the Corridor, allowing for inclusion of additional facilities. Further engineering analysis is needed to determine location-specific concept options. Additional analysis needed to determine how to best connect transit corridor and BART stations.

Figure 22: Contra Costa County Corridor Segments



Very Near-Term Improvements

Major modifications to San Pablo Avenue will take several years to advance to implementation, including several intermediate steps: develop stakeholder consensus through robust additional outreach, complete design in coordination with local jurisdictions and Caltrans, obtain full environmental clearance, and finally, undertake construction. However, the project team identified several lower-cost improvements that can be implemented in the short-term to quickly improve safety and comfort, while the longer-term vision is being refined. These improvements can be implemented in five years and do not preclude future corridor plans. Treatments include:

- Curb extensions and Americans with Disabilities Act-compliant curb ramps and sidewalks
- Treatments at unsignalized crossings to enhance pedestrian visibility and comfort: Rapid-Rectangular Flashing Beacons, high visibility crosswalks, and/or median refuge islands
- Wayfinding signage
- Treatments at signalized intersections to enhance pedestrian priority: adaptive pedestrian signals, countdown heads, and/or leading pedestrian intervals
- Modification of larger intersections to channelize auto movements and reduce vehicle speeds
- Bike crossing improvements and targeted bus stop enhancements

Near-Term Alternatives

Based on local support, the project team further explored opportunities to advance a more transformative near-term project in the Cities of Oakland and Emeryville, where interest in bus and bike treatments is highest. Four alternatives were developed, all variations on Concepts A and B, as depicted below:

Alt 1 - Side-running bus and bike lane

Convert mixed-flow lane to side-running bus lane and remove parking to provide protected or buffered bike lane midblock.

Alt 3 - Center-running bus and parking

Convert mixed-flow lane to center-running bus lane; key benefit for bus is avoidance of right-turning vehicles and parking maneuvers.

Alt 2 - Side-running bus and parking

Convert mixed-flow lane to side-running bus lane with limited parking removal. Easiest, least-costly option.

Alt 4 - Center-running bus and bike lane

Convert mixed-flow lane to center-running bus lane and remove parking. Restrict turns at unsignalized intersections. Most expensive and challenging.

Items for Further Analysis or Refinement

Corridor-wide Considerations

There are multiple corridor-wide considerations that require further examination as part of Phase 2 efforts. These include:

Center-Running vs. Side-Running Dedicated Transit Lane

What are the implications of center- vs. side-running bus lanes for ease of construction, construction impact, construction cost, phasing, and bus network connectivity?

Transit Service Approach

Does the extent of transit improvements on San Pablo Avenue warrant merging Local (72/72M) and Rapid (72R) routes into a single BRT service, which would improve transit reliability and efficiency, but increase distance between stops?

Queue Jump Locations

If dedicated bus lanes are not provided throughout the corridor (e.g. Concept D), what are the specific locations where bus queue jump lanes would be both beneficial and geometrically feasible?

Emergency Vehicle Operations in Exclusive Transit Lanes

What is the potential for emergency vehicle use of transit lanes to improve emergency response times?

Managed Lane Configuration/Operation

Is operating a managed lane (e.g. Concept B) feasible, especially enforcement by using city resources? What configuration would optimally balance parking, throughput, and pedestrian safety needs?



Figure 23: Project Development Considerations

Location-specific Considerations

Outstanding location-specific items include:

Northern Terminus

What is the optimal northern terminus for the hybrid BRT that balances riders' desire to limit transfers and have more reliable service, while managing operating costs.

BART Connection

How would a hybrid BRT service integrate with the two BART stations in El Cerrito, and balance both travel time and transit network connectivity?

Line 72M Operations

What southern terminus of Line 72M achieves the best balance between transit rider experience and the most efficient use of operational resources?

Downtown Oakland Terminus

What is the optimal southern terminus in Downtown Oakland considering operational costs, network connectivity, and bus layover placement?

NEXT STEPS

VERY NEAR-TERM SAFETY IMPROVEMENTS

- Advance through design and environmental clearance
- Strong partnership with local jurisdictions through implementation

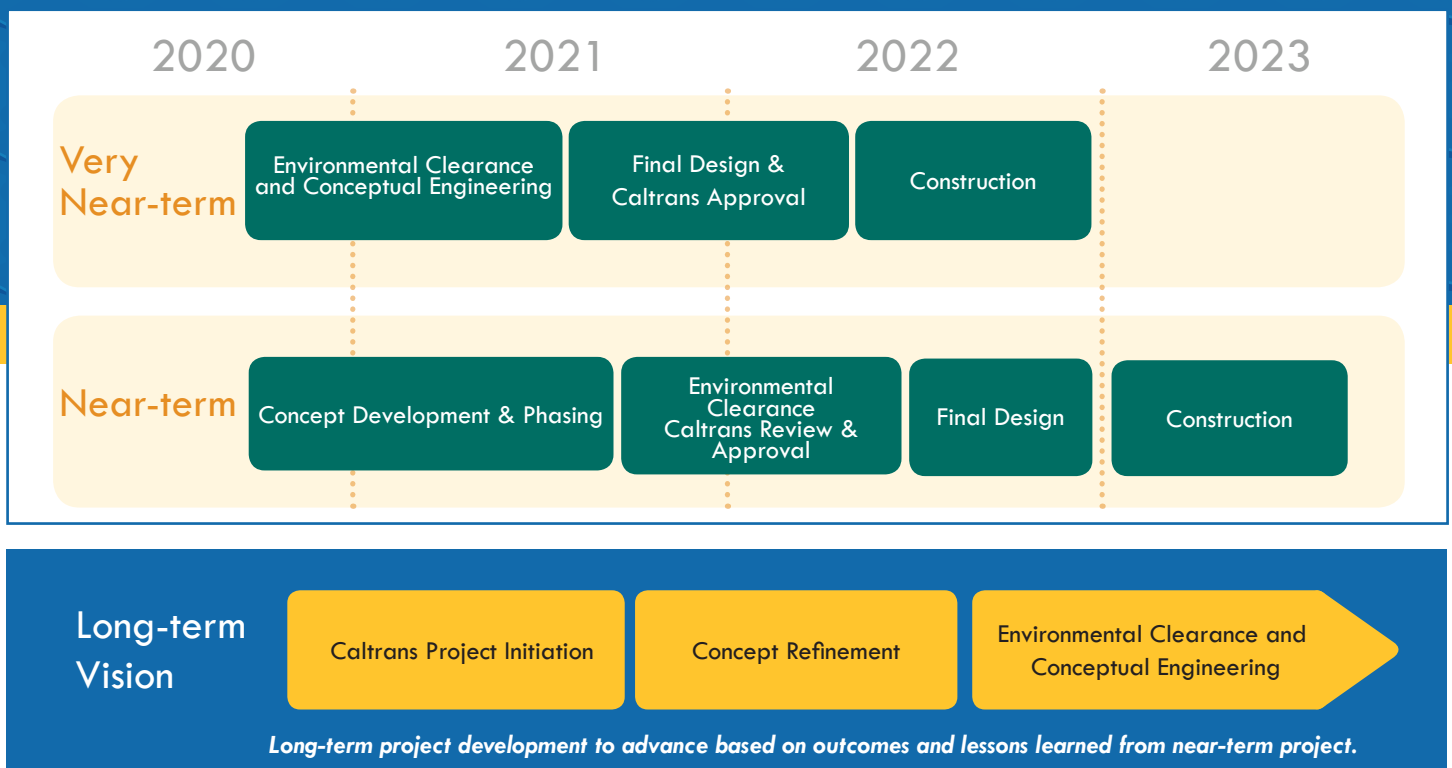
NEAR-TERM IMPROVEMENTS

- Progress development of alternatives and perform additional analysis to assess benefits & trade-offs
- Explore infrastructure pilot opportunities where there is local support
- Advance improvements through design and environmental clearance

LONG-TERM VISION

- Evaluate effectiveness of near-term improvements
- Continue to develop, evaluate, and refine long-term corridor-wide concepts, including improvements for parallel routes
- Advance alternatives to preliminary engineering and environmental clearance

ANTICIPATED TIMELINE





Memorandum

5.2

1111 Broadway, Suite 800, Oakland, CA 94607

• 510.208.7400

• www.AlamedaCTC.org

DATE: November 10, 2020

TO: Bicycle and Pedestrian Advisory Committee

FROM: Chris G. Marks, Associate Transportation Planner

SUBJECT: New Mobility Roadmap

Recommendation

This item will provide the Bicycle and Pedestrian Advisory Committee with an update on the New Mobility Roadmap.

Summary

One of the main roles of the Countywide Bicycle and Pedestrian Advisory Committee (BPAC) is to advise Alameda CTC as it advances projects and programs through its work plans. Staff will provide an overview of the development process for, and recommendations of, the New Mobility Roadmap (the Roadmap) which was developed as a companion document to the Countywide Transportation Plan (CTP). Staff requests input from the BPAC on the Roadmap and near-term priority actions as Alameda CTC begins to take initial steps towards implementation. The full New Mobility Roadmap, including the near-term priority actions can be found in Attachment A.

Background

In 2019, Alameda CTC launched an effort to establish a framework for addressing the rapid change in technology and mobility – the New Mobility Roadmap. The Roadmap will support high quality, modern infrastructure and convenient travel options enabled by new technologies and services. The Roadmap seeks to leverage potential benefits, strategically manage risks to protect users and infrastructure, and facilitate information-sharing and coordination.

Development of the Roadmap was closely guided by a Technology Working Group (TWG) comprised of representatives from jurisdictions and transit agencies in Alameda County to ensure it is relevant and responsive to local conditions. Staff also presented the Roadmap to the Alameda County Technical Advisory Committee, Multimodal Committee, Planning, Policy, and Legislation Committee and the full Commission in June and again in October.

Development of this Roadmap has been a multi-step process that started with nine goals which define broad outcomes for new mobility technologies and services. These were derived from the CTP and adapted to be in alignment with the new mobility context. Next, a set of strategies were developed for each goal to respond to specific challenges and opportunities inherent in new mobility technologies and services.

New Mobility Roadmap Goals

1. Multimodal and High Occupancy
2. Safety
3. Environment
4. Equity and Accessibility
5. Service Quality
6. Cost Efficiency
7. Connectivity
8. Economy
9. Data Sharing and Security

New Mobility Initiatives

A broad range of potential actions were identified to execute each strategy, designed to be both specific and realistic enough to implement. Related actions were categorized and compiled into seven major initiatives, which group similar actions together into more comprehensive approaches. These initiatives define a comprehensive roadmap for Alameda County regarding new mobility that Alameda CTC, local jurisdictions, regional and state partners and transit agencies could pursue in partnership with appropriate private sector organizations over the next five to ten years.

New Mobility Roadmap Initiatives:

1. Transit Integration Initiative aims to identify and improve a network of major transit corridors to support transit as it evolves. These corridors could include: signals that prioritize public transit vehicles; multimodal hubs that have first mile/last mile connections; and ITS infrastructure equipped to enable new and emerging modes of transit, e.g. connected and/or automated vehicles. For travelers, this will result in more reliable, frequent, and faster service, with more options for first mile/last mile connectivity to their destination.
2. Coordinated Information Technology Services (ITS) Initiative aims to modernize ITS for Alameda County through promoting compatibility for the physical ITS infrastructure, applications, and communications across jurisdictions and transit agencies. Advanced ITS on Alameda County roads is essential to deploy and support new mobility technologies and services and maximize the capacity and use of the existing transportation system.

3. Transportation Demand Management (TDM) Initiative would strive to develop a holistic Countywide TDM Program integrating Alameda CTC's TDM efforts with local and regional TDM programs to focus on both traditional tactics for managing travel demand and Active Transportation Demand Management (ATDM) strategies that leverage data and incentives, supported by digital platform(s), to shift traveler behavior.
4. Electric Mobility Initiative is intended to establish a coordinated approach to promoting electrified mobility for a range of modes. The initiative will work to encourage electric vehicle charging stations in strategic locations to improve user access, facilitate electrification of fleet vehicles, and test and promote manufacturer-agnostic charging technologies.
5. Equity and Accessibility Initiative aims to support new mobility as a tool to promote equitable outcomes for Alameda County communities. The approach will identify mobility needs and gaps in disadvantaged communities and where new mobility technologies could meet those needs/fill those gaps, identify challenges that result in people being left without mobility access and how to avoid those moving forward, and explore how to prevent new mobility from exacerbating existing inequalities.
6. Mobility Coordination and Innovation Initiative is intended to produce a framework to explore and facilitate the sharing of knowledge and guidance to effectively address new mobility, especially in areas where a coordinated approach is critical. It will also seek to support innovative approaches to mobility by local jurisdictions and transit agencies.
7. The Data and Automation Initiative identifies ways for agencies in Alameda County to address the emerging trend towards vehicle automation within the county's transportation system, and the proliferation of data made available by new mobility technologies and services.

Near-term Priority Actions

New mobility technologies and services are evolving rapidly and the full suite of initiatives and actions described above allow Alameda County to stand poised to capitalize on opportunities and carefully avoid risks as this change unfolds. However, the realms of new mobility are vast and resources are limited, so a sub-set of near-term actions have been defined as a starting point to begin realizing the goals of the plan. The near-term priority actions are listed below:

Pilot an innovative major transit corridor to facilitate corridorwide transit priority technology installation and integration . This will build on existing efforts and prepare the corridor to be "future-ready" by combining emerging transit concepts, advanced enabling infrastructure, charging infrastructure, and first mile/ last mile mobility options (potentially including mobility hubs). This could create a foundation for a network of major transit corridors or future-ready corridors across the county.

Develop a countywide transportation electrification strategy to support the shift to electrified mobility. This strategy should include approaches to ensure resiliency of an electrified transportation system, including on-site electricity generation and micro-grids.

Develop a Countywide ITS strategy to coordinate system functionality across jurisdictions and identify needs and gaps related to ITS infrastructure. This will include a technology infrastructure inventory to understand current systems and planned improvements, countywide ITS standards to define functionality and compatibility, approaches for public/private partnerships, and functionality such as Transit Signal Priority (TSP) and Emergency Vehicle Preemption (EVP).

Explore and gather equity-related best practices and efforts related to new mobility technologies and services. This could include minimum standards of service for mobility providers, universal accessibility standards for mobility-related digital interfaces that address different barriers to use, and a guidance for evaluating new-mobility-related projects for equity impacts. This could eventually feed into a set of guidance that local jurisdictions and transit agencies can use in new mobility related projects.

Pilot a Mobility Hub that builds on existing local and regional efforts that will test and evaluate effective approaches to connecting travelers to transit hubs.

Establish a formal Technology Working Group (TWG) to become an on-going round-table to share best practices and coordination with regional and local efforts and facilitate spearheading implementation of the New Mobility Roadmap and associated projects, pilots, and programs. The TWG will advise on and advocate for coordination between local jurisdictions and transit agencies, and working with regional and state entities as appropriate. In addition, the TWG will guide development of best practices for future-proofing, pricing framework for incentivizing behavior, and key policy guidance efforts.

Next Steps

The New Mobility Roadmap will be formally approved at the November 19th Commission meeting along with the other elements of the CTP. Once approved, Alameda CTC will begin developing specific next steps to incorporate the near-term priority actions into agency workplans. Input from the BPAC will be critical to making sure these programs and pilots fully serve the needs of all users. The full New Mobility Roadmap can be found in Attachment A.

Fiscal Impact: There is no fiscal impact. This is an information item only.

Attachment:

A. New Mobility Roadmap

New Mobility Roadmap

A guide for the
future of mobility
in Alameda County

2020

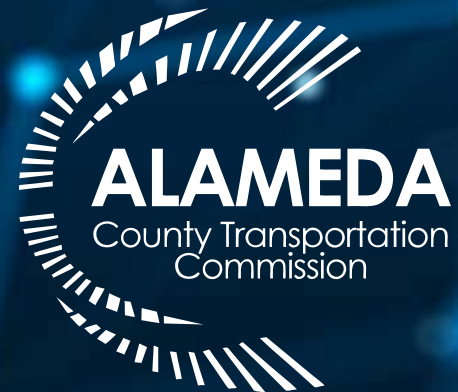


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Executive Summary

Overview

The New Mobility Roadmap (the Roadmap) has been developed with a clear acknowledgment of the rapid and continuing change throughout the transportation industry and an understanding that this evolution impacts mobility for everyone, both positively and negatively. The purpose of the Roadmap is to provide Alameda County Transportation Commission (Alameda CTC) and local jurisdictions with a flexible strategy to efficiently and effectively adapt to this change, harness opportunities, and mitigate risks.

The Roadmap has been designed as a flexible document, which allows Alameda CTC to react to change. It was developed through a multi-stop process. First, nine goals, which articulate desirable outcomes, were established as a foundation for the plan. Second, a set of strategies were developed to react to specific agents driving

technological change. From this, a universe of potential actions were defined and then organized into Initiatives where synergies and dependencies exist between actions. Finally, a list of Near-Term Priority Actions were identified to provide a starting point.

The Roadmap was developed with input from the Technology Working Group (TWG), the Alameda County Technical Advisory Committee (ACTAC), the Planning, Policy and Legislation Committee (PPLC), and the Alameda County Transportation Commission.

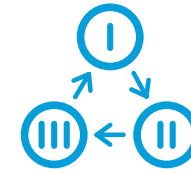
Key outcomes of the Roadmap:

- ➔ **Seven Initiatives** define how Alameda County will coordinate efforts and respond to technological change.
- ✓ **Near-Term Priority Actions** which provide a starting point to affect positive change now.

✓ Near-Term Priority Actions

- ▶ Pilot an innovative major transit corridor
- ▶ Develop a Countywide ITS strategy
- ▶ Explore and gather equity-related best practices and efforts related to new mobility technologies and services
- ▶ Pilot a Mobility Hub
- ▶ Develop a countywide transportation electrification strategy
- ▶ Establish a formal Technology Working Group (TWG)

➔ Initiatives



Transit Integration Initiative aims to identify and improve a network of major transit corridors to support transit as it evolves. These corridors could include: signals that prioritize public transit vehicles; multimodal hubs that have first mile/last mile connections; and ITS infrastructure equipped to enable new and emerging modes of transit, e.g. connected and/or automated vehicles. For travelers, this will result in more reliable, frequent, and faster service, with more options for first mile/last mile connectivity to their destination.



Coordinated Information Technology Services (ITS) Initiative aims to modernize ITS for Alameda County through promoting compatibility for the physical ITS infrastructure, applications, and communications across jurisdictions and transit agencies. Advanced ITS on Alameda County roads is essential to deploy and support new mobility technologies and services and maximize the capacity and use of the existing transportation system.



Transportation Demand Management (TDM) Initiative aims to support a holistic Countywide TDM Program integrating Alameda CTC's TDM efforts with local and regional TDM programs to focus on both traditional tactics for managing travel demand and Active Transportation Demand Management (ATDM) strategies that leverage data and incentives, supported by digital platform(s), to shift traveler behavior.



Electric Mobility Initiative is intended to establish a coordinated approach to promoting electrified mobility for a range of modes. The Initiative will work to encourage electric vehicle charging stations in strategic locations to improve user access, facilitate electrification of fleet vehicles, and test and promote manufacturer-agnostic charging technologies.



Equity and Accessibility Initiative aims to support new mobility as a tool to promote equitable outcomes for Alameda County communities. The approach will identify mobility needs and gaps in disadvantaged communities and where new mobility technologies could meet those needs/fill those gaps, identify challenges that result in people being left without mobility access and how to avoid those moving forward, and explore how to prevent new mobility from exacerbating existing inequalities.



Mobility Coordination and Innovation Initiative is intended to produce a framework to explore and facilitate the sharing of knowledge and guidance to effectively address new mobility, especially in areas where a coordinated approach is critical. It will also seek to support innovative approaches to mobility by local jurisdictions and transit agencies.



The Data and Automation Initiative identifies ways for agencies in Alameda County to address the emerging trend towards vehicle automation within the county's transportation system, and the proliferation of data made available by new mobility technologies and services.

Introduction

Purpose

The mobility landscape has been transformed by new technologies and services and the pace of that change continues to accelerate. The Roadmap supports the Alameda CTC and local jurisdictions as they adapt to these changes and capitalize on opportunities and strategically manage risk across Alameda County.

The Roadmap is the technology element of the 2020 Countywide Transportation Plan (CTP), and was initiated by Alameda CTC in 2019 to proactively plan for technology in Alameda County. The Roadmap has been developed with a clear acknowledgement of the rapid and continuing change throughout the transportation industry and an understanding that it needs to be revisited and updated periodically.

The Roadmap is intentionally flexible and designed to allow Alameda County to react quickly, efficiently, and strategically, to expected and unexpected changes within the transportation landscape and an ever-changing world.

The Initiatives and actions within this Roadmap provide opportunities for strategic action.

The Roadmap is also a tool for Alameda CTC and serves as coordinating element for member jurisdictions and transit agencies throughout Alameda County. Partnerships, cooperation, and coordination are a critical aspect to any effort moving forward to create a holistic transportation ecosystem that functions across Alameda County, even as it is disrupted by technological change, to connect people through a variety of mobility options. The Roadmap provides a structure for continued cooperation, and identifies key areas where efforts should be directed, building upon efforts already underway in the county and throughout the Bay Area.



New mobility located around a key transit stop in Alameda County

Key outcomes of the Roadmap

- Initiatives, a plan of action to manage uncertainty
- Near-Term Priority Actions, critical starting points
- A continuing resource for on-going technology planning and implementation for all partners

How to use the Roadmap

- Strategic plan to harness opportunities and manage risks
- Direction to identify and form partnerships
- Guidance and coordination on technology-related issues for Alameda County

Key Terms

New words and terms are emerging to describe the new concepts, services, technologies, and modes that are being developed and deployed. Although words and terms will continue to evolve as new innovations occur, the definitions and intent of the terms used within this document are described below:

Adaptive Traffic Signals - Continuously monitors arterial traffic conditions and the queuing at intersections, and dynamically adjusts the signal timing to optimize one or more operational objectives, such as minimize overall delays.

Equity - The distribution of resources based on the needs of the recipients.

Equality - The distribution of resources equally among recipients.

Intelligent Transportation Systems (ITS) - The application of sensing, analysis, control and communications technologies to ground transportation in order to improve safety, mobility and efficiency.

Micromobility - Micromobility refers to personal shared transportation devices like bicycles, mopeds, and e-scooters that are paid for through an app.

Mobility as a Service (MaaS) - A shift away from personally owned modes of transportation and towards mobility solutions that are consumed as a service.

Shared Mobility - Transportation services and resources that are shared among users, either concurrently or one after another.[1] Shared mobility technologies cover bikes to scooters and car sharing to transportation network companies.

Technology Working Group (TWG) - The coordination group with representation from jurisdictions, transit agencies, and Alameda CTC staff that tasked with addressing planning and technology-related issues.

Transit Signal Prioritization - Adjusts traffic signal green and red times when possible as buses approach to improve bus travel time and reliability.

Transportation Network Companies (TNCs) - TNCs operate ridehailing services. Companies that offer this service include Uber and Lyft.

Transit Mobile Ticketing/Payment - An app that allows transit riders to pay for fares online and use their phones to present proof of fare upon boarding. Could evolve to include all forms of fare-based transport in a unified payment platform.

Transportation Demand Management (TDM) - A set of strategies aimed at providing travelers with effective choices to improve travel reliability.

Travel Information and Payment - Trip planning and payment applications that allow private and public transit operators to integrate their services in ways that reduce the need for a traveler to utilize multiple stand-alone transit applications.

What is new mobility?

A service, mode, transportation infrastructure, or a combination of these that leverages new digital communication platforms and data to connect travelers to mobility options to move, share and use the transportation infrastructure.

Roadmap Hierarchy

The Roadmap was developed through a multi-step process, beginning with policy-level goals and culminating with discrete actions. The nine goals are the most foundational element of the Roadmap which articulate a set of desirable outcomes. A set of strategies were then developed to react to specific drivers of technological change. From this, a universe of potential actions were defined and then organized into Initiatives where synergies and dependencies exist between actions. Each element of the Roadmap is further defined below:

Goal

Desired outcomes for new mobility technologies and services defined in broad terms.

Goals are foundational to this effort, and express the values and broad public benefits and outcomes that the Roadmap is working towards. These are based on the CTP goals and refined for the context of new mobility.

Technology Drivers

Range of evolving technologies and services that act as agents of change in Alameda County.

These categories represent the key technologies and trends that are driving innovation and disruption in transportation. Their growth is affecting how travelers access mobility, how mobility affects the transportation system, and how new modes are continuously evolving.

Strategies

Approaches to achieve each goal.

The creation of strategies were an iterative step in translating the goals into actions. They are not a key part of the roadmap, but can provide guidance on the general approach to achieving the nine goals.

Actions

Specific steps to support each of the strategies.

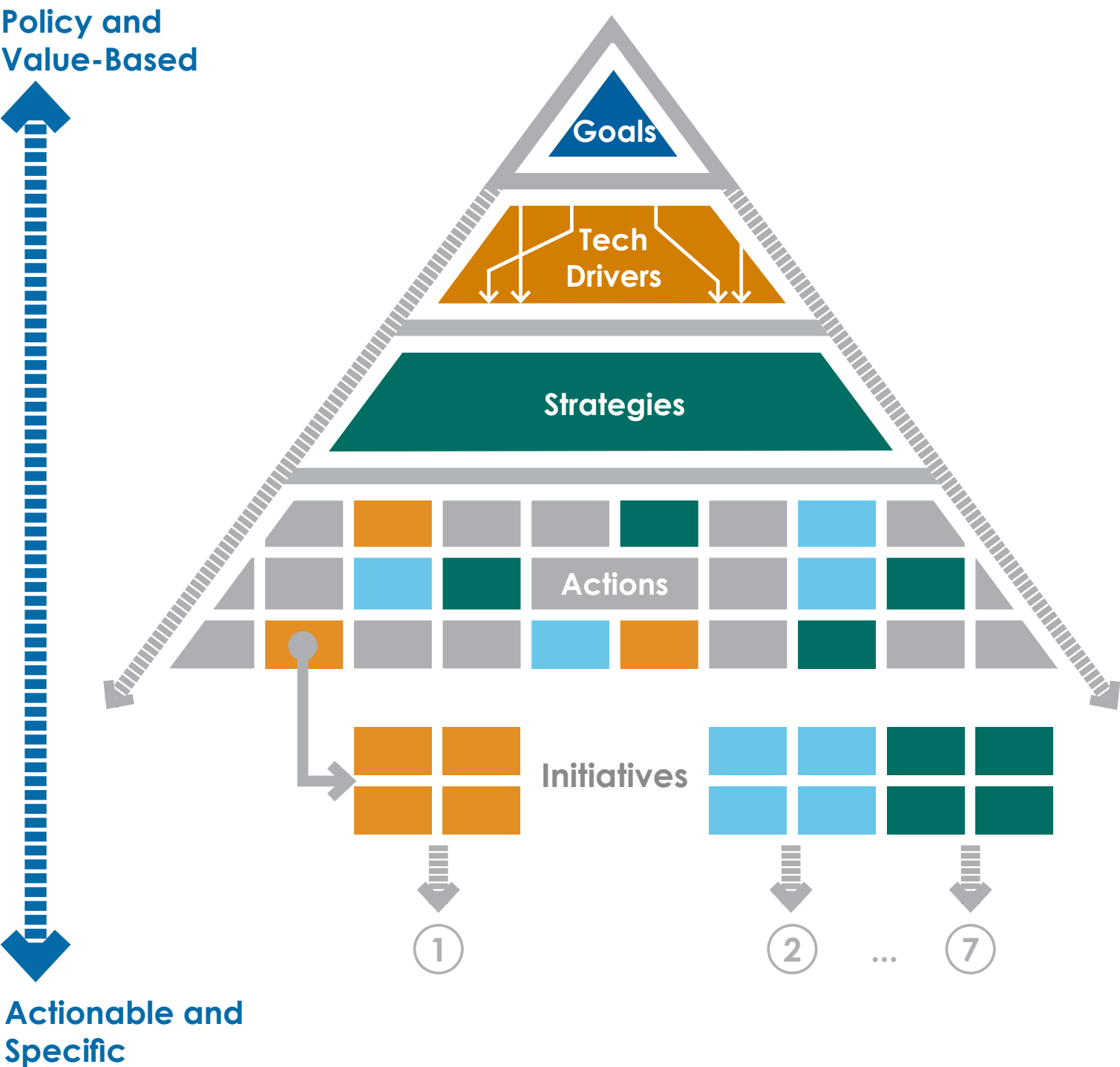
Developed as projects, programs, policies, or organizational actions, these are finite actions that Alameda CTC, member jurisdictions and transit agencies can take to support the goals and desired outcomes identified. These actions will provide a specific and strategic path forward to harness the positives and mitigate the negatives of new mobility technology. The approach created a “universe of actions” that are not all meant to be completed before the Roadmap is revisited, but instead allows for a broad array of tools which can be used to adapt to unforeseen changes in the industry.

Initiatives

Groups of related actions that define the New Mobility Roadmap intended to inform Alameda CTC and partner agency efforts in coming years.

The seven Initiatives were created to group actions into a cohesive and coordinated approach that are intended to direct activities and highlight the particular areas of focus needed to advance the Roadmap.

Roadmap Hierarchy Pyramid



Goals

Overview

Alameda CTC, with input from the Transportation Working Group (TWG) and based on various planning efforts including the Countywide Transportation Plan, identified nine goals for new mobility services and technologies in the spring of 2019.

In simple terms, these goals point towards a number of desired outcomes (ex. Convenient travel options, support for active transportation, service complementary of public transit, etc.) in the context of new mobility services and technologies. The nine goal statements represent the heart of the Roadmap and provide a description of the outcomes that new mobility should be used to achieve. The nine goals are:

1 Multimodal and High Occupancy
New mobility services and technologies must complement public transit and support active transportation and provide convenient travel options while taking into account the urban, suburban, and rural parts of Alameda County. They must also consider effects on traffic congestion, mode choice, and transit reliability.

2 Environment
Support system and environmental sustainability, promote convenient non-auto modes, and reduce vehicle miles traveled.

3 Safety
New mobility services and technologies must improve traveler safety and reduce conflicts between modes.

4 Equity and Accessibility
New mobility services and technologies will be used to advance equitable outcomes through Alameda County's diverse populations, be easily accessible and affordable for all travelers, and distributed equitably as appropriate throughout the County.

5 Connectivity
Improve connections across jurisdictions, promote efficient goods movement, offer seamless connectivity through improved modal transfers, and better connect and integrate land use, housing, jobs and transportation. They must be consistent with a common county-wide approach, and support shared regional communication infrastructure.

6 Service Quality
New mobility services and technologies must support and complement convenient and reliable public transit options and offer high quality travel options to promote a high quality of life for community members.

7 Economy
New mobility services and technologies must support vibrant communities and engage in fair labor practices.

8 Cost Efficiency
New mobility services and technologies must promote a positive fiscal impact on infrastructure investments and delivery of publicly-provided transportation services.

9 Data Sharing and Security
New mobility providers, cities, transit and other agencies, and Alameda CTC must engage and collaborate with each other and the community to share all relevant data to improve the transportation system and agency efficiency. They should also protect traveling public and infrastructure from cyber security threats.

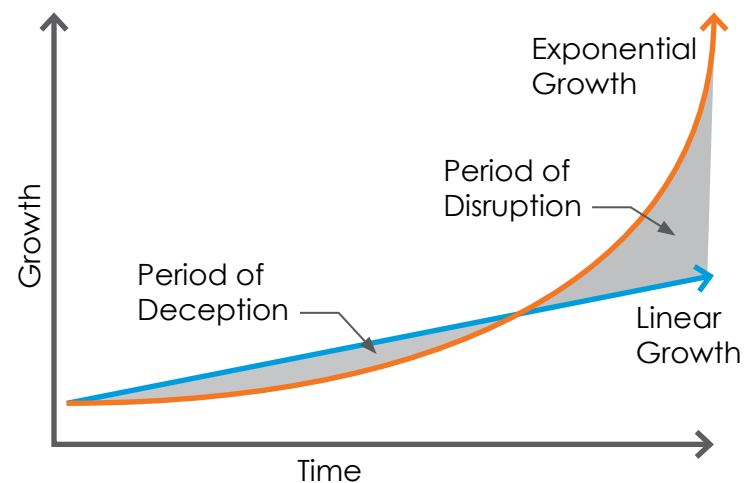
Technology Drivers

Overview

Any plan requires a clear understanding of the agents of change and inventory of the landscape it hopes to affect. This is especially true for a response to exponential growth.

Exponential growth may be deceptive initially, appearing to be incremental change until the “knee” of its growth curve at which point the abrupt acceleration of change can upend established strategies to manage the transportation network.

New Mobility technologies and services are growing exponentially, becoming more sophisticated and available at lower costs as they mature.



Exponential vs. Linear Growth

The Roadmap identifies five key technology drivers which are already affecting the transportation landscape. To proactively plan and effectively respond to these, it is critical to first understand these agents of change, which are:

- Connected
- Electric
- Shared
- Autonomous
- Data



Connected

The ability to communicate information real-time between mobility modes, infrastructure, users, and any other component critical to the movement of people and goods.

5G and the Internet of Things are the next generation of communications technology that promise ubiquitous connectivity for transportation networks. Communications standards, such as Vehicle to Infrastructure (V2I), Vehicle to Vehicle (V2V), and Vehicle to Everything (V2X) are forming the basis of digital connectivity needed to support future transportation modes and models. These technologies are being applied to a variety of applications, including transit, freight, and safety-critical features such as forward collision warning and forward intersection assist.



Electric

A vehicle or infrastructure that uses stored or transmitted electricity to power a vehicle instead of traditional internal combustion engines (ICE), usually by means of batteries.

Electric vehicles can utilize any number of domestic power sources to operate, including renewables like wind and solar, carbon-free sources like nuclear and even fossil fuels like natural gas and coal. Moving to electrified vehicle fleets means there is flexibility to add new and cleaner energy sources when new ones become available. Bloomberg New Energy Finance has found that since 2010, the cost per kWh has fallen approximately 87 percent and is forecasted to continue, making electric vehicles cost-competitive with internal combustion engine (ICE) vehicles around 2024. This drop in price will likely create a strong economic incentive to switch, as vehicles will have greater range, shorter charging times, and longer battery life.



Shared

Transportation services and resources that are shared among users, either as a shared vehicle or a shared trip.

Enabled by technologies such as wireless communications and smartphones, the trend toward shared mobility has continued to gain traction, especially in urbanized areas, with the Bay Area as a hotbed of innovation in this space. The shared mobility trend encompasses both the sharing of vehicles and the sharing of trips, and includes transit, microtransit, TNC's, docked and dockless scooters and bicycles, and carshare. Shared modes and services work most efficiently in dense areas, meaning urbanized areas have seen the largest adoption rates, while suburban and rural areas may require innovative approaches or government assistance to develop shared mobility options.



Data

Information generated by the vehicle, infrastructure, or user that can be used for decision-making, analysis, or operation of transportation.

The transportation system has the potential to generate enormous amounts of data, ranging from vehicle operational data, system-wide information gathered from sensors and Intelligent Transportation System (ITS) infrastructure, to passenger-focused data such as payments, tolling, pricing, and trip planning. Data is becoming the currency of the future transportation system, and is a key enabler of other technologies such as automation. Governments can utilize information to better manage assets, manage traffic, and to optimize their service offerings.



Autonomous

Vehicle automation for the purpose of transporting people and goods that can navigate and operate without assistance from a human driver or operator.

Automation is a suite of technologies that enables a vehicle to operate independently of human intervention, and this capability does not lend itself to one form of vehicle, mode, or service model over another. This means autonomous vehicles could be privately-owned and operated similar to a single occupancy vehicle, or they could be part of a robo-taxi fleet that provides mobility by trip or subscription. Further still, these technologies could be applied to a transit vehicles such as buses and shuttles to enable lower operating costs and better service for passengers. The opportunities and challenges of automation are highly dependent on the forms it takes and how consumer preference and government policies shape the landscape for this technology.

Emerging Mobility

Examples of emerging modes and services

The categories below represent the modes and services where emerging technologies are being applied.

Connected
Electric
Autonomous
Shared
Data

Several emerging mobility applications, which build off the technology drivers outlined in the previous section, are being developed that can potentially change mobility access and options in Alameda County.

Several factors can influence how these mobility types are adopted, including differences in development density, land use and the progress of technologies over time. Transportation behavior of users is also a factor, particularly when it comes to mode choice.

The technologies are also highly interrelated including aspects of Mobility as a Service (MaaS), Autonomous Vehicles, Connectivity, Micromobility, and Electrification. As adoption of technology takes place, each will further support the greater mobility network.

The modes emerging from these technologies fall into four categories; personal vehicles, passenger, transit, and goods movement. These are not exhaustive categories, but represent the key trends in mobility that these technologies are being applied to.

Increasing the application of technology to different mobility types can shift the paradigm away from private vehicle ownership and single occupancy vehicles. New and emerging modes and service types will continue to evolve, providing both opportunities and challenges to Alameda County.

Personal Mobility modes and services

These smaller personal mobility options are typically part of a network of shared vehicles and include docked and dockless bikes, e-bikes, and scooters. Other emerging mode types are being tested that enable automated repositioning back to a charging area or a destination. The modes are typically battery-electric powered, wirelessly connected and GPS enabled, making them appropriate for short trips.

Coordinated alongside transit, and potentially incorporated into mobility hubs, these vehicles can address the first mile / last mile needs of transit riders, effectively increasing the catchment area of each transit stop.



Micromobility Lime scooters

Passenger modes and services

A movement toward shared vehicles and trips, combined with emerging concepts such as connected, electric, and autonomous technologies could increase the market for MaaS in Alameda County. This service model is best seen in the TNC's currently operating in the county, with both the benefits and consequences that accompany, including greater access to mobility, but also concerns of traffic, equity, and curb management. A key piece is digital access, which will allow travelers to access multiple modes, including personal mobility and transit through a single platform.



Autonomous MaaS

Transit modes and services

Electric, connected, and autonomous transit vehicles have been tested and deployed in communities throughout the country. The vehicles feature advanced sensor technology to detect their environment and the vehicle's position within it. Vehicles can operate under a number of different service models, including circulator, skip-stop, and demand responsive, lending a high degree of flexibility for how they could be deployed. The use of autonomous full-sized buses is now being tested globally and could eventually integrate into compatible corridors. This will change the long-term service and operational opportunities for public transportation.



Autonomous articulated transit bus

Goods Movement modes and services

With advances in urban freight, small-scale autonomous delivery devices will quickly alter the way package delivery works, and how these vehicles operate on the roadway. The terrestrial drones that operate autonomously for package delivery are being tested throughout the country by all major corporate delivery companies including Amazon, FedEx and UPS.

Technology will also have significant impacts on freight movement and supply chains. Trucking is likely to be at the leading edge of the AV adoption curve, due to earlier implementation opportunities on interstate highways.



Tesla electrified freight trucks

Initiatives

Overview

The Initiatives are the primary outcome of the New Mobility Roadmap; they contain discrete actions that will direct the work of Alameda CTC and partner agencies as they implement new mobility technologies and services in Alameda County over the coming years. Each Initiative addresses a major area of new mobility and includes clear next steps: Programs, policies, pilots, and projects to initiate or coordinate with member jurisdictions, transit agencies, or regional partners. A list of potential actions was developed. Each action was designed to be both specific and realistic enough to implement.

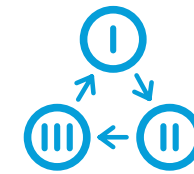
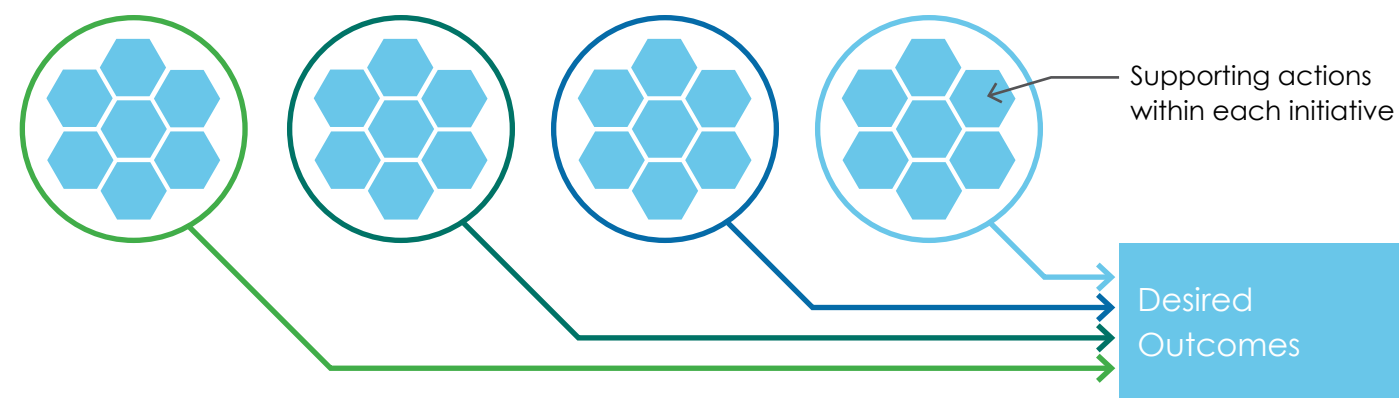
The Roadmap was reviewed by the Technology Working Group (TWG): staff with experience delivering New Mobility projects

Actions leverage coordination opportunities, align with local and regional efforts including those lead by the Metropolitan Transportation Commission (MTC), member jurisdictions, transit agencies, and other programs and projects led by Alameda CTC.

Related actions are grouped into seven major Initiatives that together define a roadmap for what Alameda CTC could pursue in close partnership with jurisdictions, transit agencies and Caltrans over the next five years related to new mobility.

The following spreads outline the actions developed to support each Initiative, along with an action dependency for each Initiative. Any action can be addressed on its own, and the action dependency is intended to show the interrelation of actions and suggested, but not mandatory path to implementation.

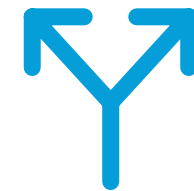
Initiatives and Actions



Transit Integration Initiative aims to identify and improve a network of major transit corridors to support transit as it evolves. These corridors could include: signals that prioritize public transit vehicles; multimodal hubs that have first mile/last mile connections; and ITS infrastructure equipped to enable new and emerging modes of transit, e.g. connected and/or automated vehicles. For travelers, this will result in more reliable, frequent, and faster service, with more options for first mile/last mile connectivity to their destination.



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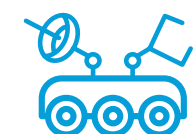
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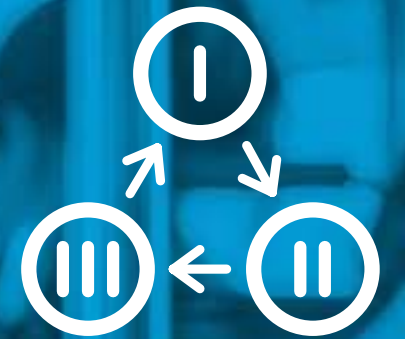


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1 TRANSIT INTEGRATION INITIATIVE



The Transit Integration Initiative aims to identify and improve a network of major transit corridors to support transit as it evolves. These corridors could include: signals that prioritize public transit vehicles; multimodal hubs that have first mile/last mile connections; and ITS infrastructure equipped to enable new and emerging modes of transit, e.g. connected and/or automated vehicles. For travelers, this will result in more reliable, frequent, and faster service, with more options for first mile/last mile connectivity to their destination.

There are many emerging services and technologies creating opportunities to improve transit to make it a more attractive and preferred travel choice that could be considered for inclusion in this Initiative. They offer opportunities to improve travel times and reliability, consolidate ticketing and payment, and improve comfort for riders.

For travelers, this will result in more reliable, frequent, and faster service, with more options for first mile/last mile connectivity to their destination.

1.1

Establish a network of major transit corridors or future-ready corridors across the county to facilitate prioritizing transit technology installation and integration.



1.2

Establish a countywide Corridor Transit Signal Priority (TSP) program, including EVP functionality, to enable effective cross-jurisdictional or long corridor transit operations. This effort can be spearheaded by a pilot corridor TSP project that builds on existing efforts to inform the scaled-up TSP program.



1.3

Explore the potential for mobility hubs to provide first mile/last mile mobility that will better connect passengers to major transit networks, potentially facilitating partnerships between private sector mobility providers and member agencies to develop innovative approaches to first mile/last mile connections to transit.



1.4

Support and leverage the rollout of Clipper 2.0 to include a broader array of mobility services in Alameda County to consolidate mobility planning, booking, and payment (including for parking) under a uniform platform, and in combination with Alameda County's TDM program.



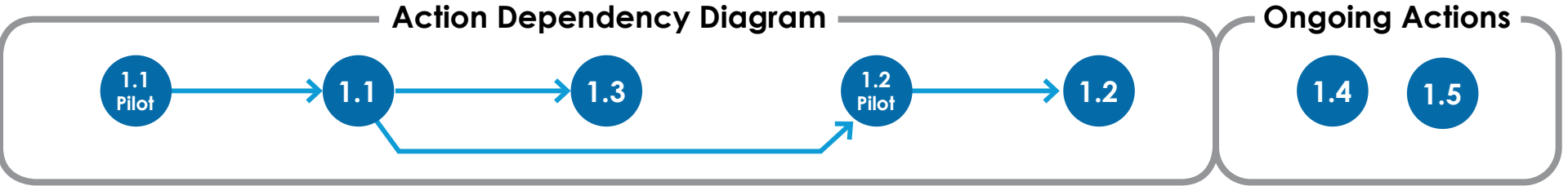
1.5

Identify ways to better support seniors and populations with disabilities using new mobility services and expanding technology options to be incorporated into Alameda CTC's Paratransit program.



Goals

- Multimodal/High Occ.
- Safety
- Environment
- Equity/Accessibility
- Service Quality
- Cost Efficiency
- Connectivity
- Economy
- Data Sharing/Security



2

COORDINATED INTELLIGENT TRANSPORTATION SYSTEMS (ITS) INITIATIVE



Coordinated Information Technology Services (ITS) Initiative aims to modernize ITS for Alameda County through promoting compatibility for the physical ITS infrastructure, applications, and communications across jurisdictions and transit agencies. Advanced ITS on Alameda County roads is essential to deploy and support new mobility technologies and services and maximize the capacity and use of the existing transportation system.

This effort will work towards a consistent ITS system on cross-jurisdictional corridors, enabling enhanced functionality for safe and efficient traffic flow and other functions such as Transit Signal Priority (TSP), Freight Signal Priority (FSP) and Emergency Vehicle Preemption (EVP). It will also consider the critical infrastructure necessary to

support the next generation of mobility technologies, such as connected vehicle applications and autonomous mobility. Benefits of a coordinated ITS system include better travel times for all modes, dynamic traffic management, increased safety, and the ability to prioritize the travel of freight, transit, and emergency vehicles, as needed. Additionally, a coordinated system can optimize the utility of existing infrastructure by adding the future capacity to accommodate new modes, automated and connected vehicles, and new technologies such as adaptive signal controls.

2.1

Develop a countywide ITS strategy to coordinate system functionality across jurisdictions, identify needs and gaps, and prioritize ITS infrastructure investments. This will include a technology infrastructure inventory to understand current systems and planned improvements, countywide ITS standards to define functionality and compatibility, approaches for public/private partnerships, and functionality such as Transit Signal Priority (TSP) and Emergency Vehicle Preemption (EVP).



2.2

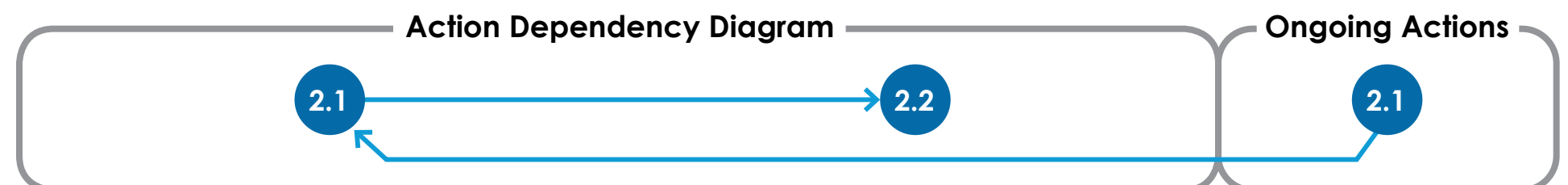
Promote Freight Signal Priority (FSP) on major or congested established truck routes and within impacted communities to reduce pollution and maintain efficient movements.



Benefits of a coordinated ITS system include better travel times, dynamic traffic management, increased safety, and the ability to prioritize the travel of freight, transit, and emergency services, as needed.

Goals

- Multimodal/High Occ.
- Safety
- Environment
- Equity/Accessibility
- Service Quality
- Cost Efficiency
- Connectivity
- Economy
- Data Sharing/Security



3

TRANSPORTATION DEMAND MANAGEMENT (TDM) INITIATIVE



Transportation Demand Management (TDM) Initiative would strive to develop a holistic Countywide TDM Program integrating Alameda CTC's TDM efforts with local and regional TDM programs to focus on both traditional tactics for managing travel demand and Active Transportation Demand Management (ATDM) strategies that leverage data and incentives, supported by digital platform(s), to shift traveler behavior.

Travel Demand Management is a collection of strategies used to influence and alter traveler behavior, shifting the time, mode, or route of trips to relieve congestion and improve effectiveness of the overall transportation system. It is a way to maximize capacity from the existing transportation infrastructure.

Anticipated outcomes include fewer vehicles on the road, especially during peak times, less congestion, less pollution, and a greater shift toward transit and other non-single-occupant vehicle (SOV) modes.

ATDM can include multiple approaches spanning demand management, traffic management, parking management, and efficient utilization of other transportation modes and assets; most of them dynamically. Travelers would have access to real-time travel information to make informed decisions on travel options, along with an array of incentives for behavior change. Anticipated outcomes include fewer vehicles on the road, especially during peak times, less congestion, less pollution, and a greater shift toward transit and other non-single-occupant vehicle (SOV) modes. This effort is supportive of Senate Bill 743, and aligns with the environment goal to support sustainability, promote convenient non-auto modes, and reduce vehicle miles traveled.

3.1

Support and advocate for the integration of regional platforms and efforts into TDM programs throughout Alameda County to enable greater access and greater variety of mobility choices, e.g. Clipper 2.0, Clipper Start, and Mobility as a Service (MaaS), Seamless Bay Area, new and emerging ATDM platforms.



3.2

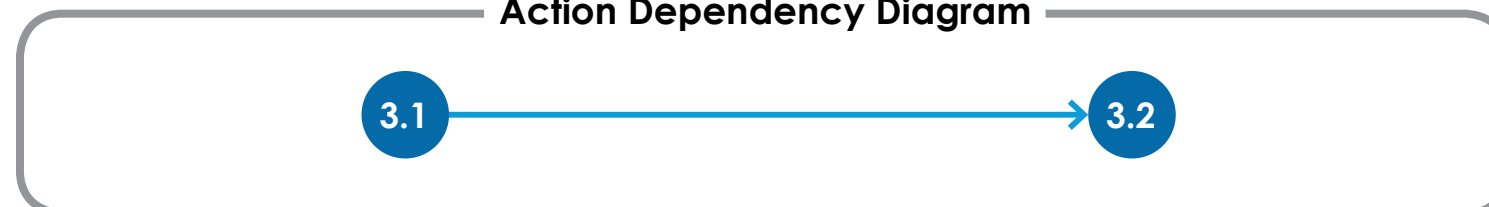
Explore and identify most effective policy tools to support shared vehicles and trips and support development and adoption at appropriate jurisdictional level.



Goals

- Multimodal/High Occ.
- Safety
- Environment
- Equity/Accessibility
- Service Quality
- Cost Efficiency
- Connectivity
- Economy
- Data Sharing/Security

Action Dependency Diagram



4

ELECTRIC MOBILITY INITIATIVE



Electric Mobility Initiative is intended to establish a coordinated approach to promoting electrified mobility for a range of modes. The Initiative will work to encourage electric vehicle charging stations in strategic locations to improve user access, facilitate electrification of fleet vehicles, and test and promote manufacturer-agnostic charging technologies.

It is widely recognized that the shift to electric vehicles is currently underway, and Alameda CTC has an opportunity to accelerate this shift and support electrification of the transportation sector in an efficient manner. Electrified mobility's market share is growing; as the cost of battery storage continues to drop, it will become more competitive with fossil-fuel vehicles. This effort will work towards establishing a network of charging facilities, thus incentivizing adoption and preparing the county for the accelerated adoption of electrified mobility.

Alameda CTC has an opportunity to accelerate the shift to electric vehicles and support electrification of the transportation sector in an efficient manner.

4.1

Develop a countywide transportation electrification strategy to support the shift to electrified mobility. This strategy should include approaches to ensure resiliency of an electrified transportation system, including on-site electricity generation and micro-grids.

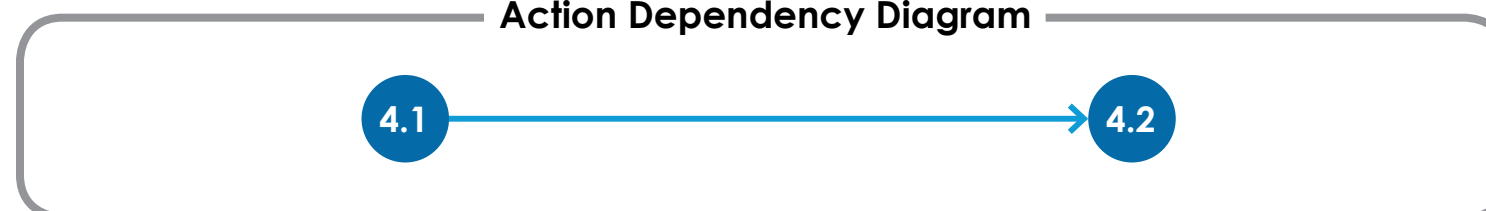


4.2

Support electrified heavy vehicle charging infrastructure to serve freight services, transit and other electrified heavy vehicles.



Action Dependency Diagram



Goals

- Multimodal/High Occ.
- Safety
- Environment
- Equity/Accessibility
- Service Quality
- Cost Efficiency
- Connectivity
- Economy
- Data Sharing/Security

5 EQUITY AND ACCESSIBILITY INITIATIVE



Equity and Accessibility Initiative aims to support new mobility as a tool to promote equitable outcomes for Alameda County communities. The approach will identify mobility needs and gaps in disadvantaged communities and where new mobility technologies could meet those needs/fill those gaps, identify challenges that result in people being left without mobility access and how to avoid those moving forward, and explore how to prevent new mobility from exacerbating existing inequalities.

Transportation plays a critical role in promoting equity by providing access to opportunities, but in some cases transportation projects and innovations have also created barriers, disrupted communities and exacerbated inequality. As new, potentially disruptive, modes and technologies play a larger role in Alameda County's transportation ecosystem, a better understanding of the needs and potential impacts on disadvantaged communities should be developed.

This Initiative will identify ways in which innovations in transportation can be leveraged to address social disparities and current inequalities. This program is intended to ensure equitable access to transportation for all community members, and establish equity as a key metric in new mobility projects, pilots, and programs. This process will be guided by an Equity Policy Guide for new mobility a level of service standard with an equity focus, to define the basic components and standards of equity-focused mobility.

This program is intended to ensure equitable access to transportation for all community members, and establish equity as a key metric in new mobility projects, pilots, and programs.

5.1

Identify ways to incorporate equity considerations into outreach and engagement efforts around new mobility to understand, coordinate, and address mobility challenges on an on-going basis.



5.2

Engage local experts in the Bay Area and use existing research to identify equity and accessibility issues that may be created or intensified by new mobility modes or services and ways of addressing challenges.



5.3

Identify "Mobility Deserts" where community members or population groups have inadequate or limited access to needed mobility options.



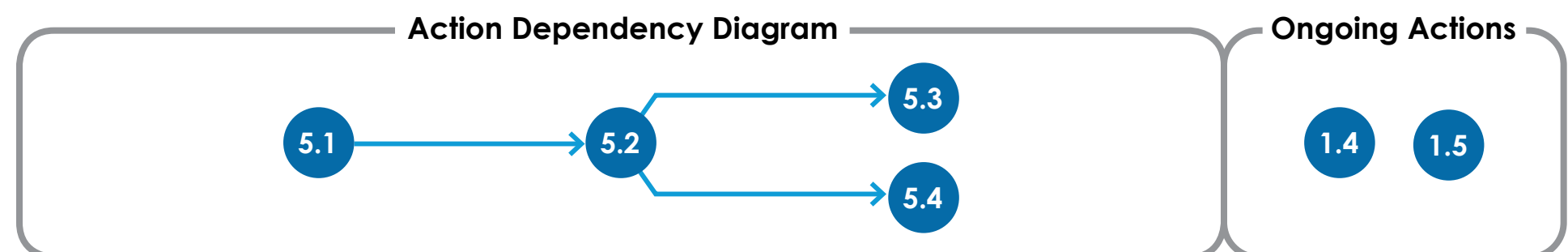
5.4

Explore equity related policies and efforts for new mobility technologies and services, and develop an Equity Policy Guide for Alameda CTC, local jurisdictions and transit agencies to apply in projects. This should include minimum standards of service for mobility providers, universal accessibility standards for mobility-related digital interfaces that address different barriers to use, and a guidance for evaluating new mobility related projects for equity impacts.



Goals

- Multimodal/High Occ.
- Safety
- Environment
- Equity/Accessibility
- Service Quality
- Cost Efficiency
- Connectivity
- Economy
- Data Sharing/Security



6

MOBILITY COORDINATION AND INNOVATION INITIATIVE (1/2)



Mobility Coordination and Innovation Initiative is intended to produce a framework to explore and facilitate the sharing of knowledge and guidance to effectively address new mobility, especially in areas where a coordinated approach is critical. It will also seek to support innovative approaches to mobility by local jurisdictions and transit agencies.

This Initiative is intended to capture the innovative ecosystem within the Bay Area, and direct those innovations to improve mobility options and effectiveness within Alameda County. This can be accomplished through engaging the private sector as a partner, creating a framework for matching their innovations to meet community needs and facilitating implementation. The outcome of this Initiative is expected to be a streamlined process for testing, deploying, and learning from innovative mobility concepts, and better applying those advances to future projects for the benefit of the County's communities.

This Initiative is intended to capture the innovative ecosystem within the Bay Area, and direct those innovations to improve mobility options and effectiveness within Alameda County.

6.1

Develop a systematized approach to coordinate local and regional piloting efforts through piloting process hub where agencies can share template agreements and processes to share experience, knowledge, best practices and approaches to matching community needs to private sector expertise. This hub can also be used to identify best practices to move from pilot to full deployment and evaluation frameworks to understand the potential equity and accessibility impacts of new mobility pilots. The piloting efforts will support the following potential pilot projects that support the New Mobility Roadmap Initiatives, including:

- Mobility Hub Pilot that will test and evaluate effective approaches to connecting travelers to transit.
- Electrified Arterial Corridor Pilot to support stationary and innovative charging technologies, and to explore the inclusion of micro-mobility charging infrastructure.
- Electrified Freight Charging Pilot to test different approaches and charging technologies related to electrified freight.
- Equitable and Accessible Mobility Pilot in under-served communities to explore innovative approaches to mobility such as community rideshare, shared mobility, and microtransit, potentially integrated within Alameda CTC's existing Paratransit program.

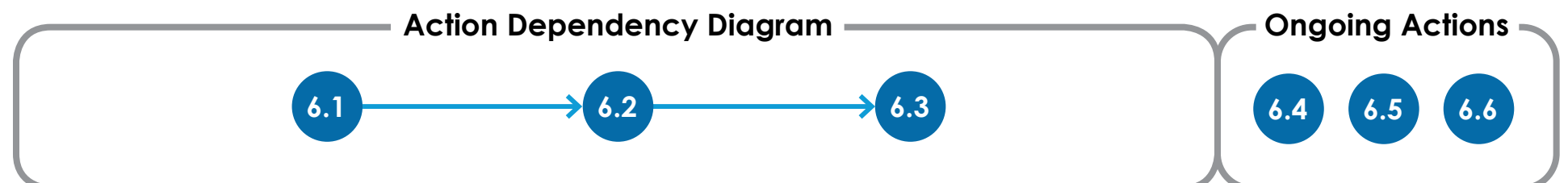


- Innovative Transit Pilot to test emerging concepts, such as autonomous and connected transit vehicles, data and information applications, and different modes of operation such as demand responsive transit service.
- Right-of-way Allocation Pilot to rapidly test how new modes fit into the existing right of way, and how interactions between these modes can be made safer.
- Innovative Major Transit Corridor that combines emerging transit concepts, advanced enabling infrastructure, charging infrastructure, and first mile/last mile mobility options integrated into mobility hubs.

Goals

- Multimodal/High Occ.
- Safety
- Environment
- Equity/Accessibility
- Service Quality
- Cost Efficiency
- Connectivity
- Economy
- Data Sharing/Security

Action Dependency Diagram



6

MOBILITY COORDINATION AND INNOVATION INITIATIVE (2/2)



6.2

Create an innovation sandbox and grant program to prototype and pilot innovative mobility concepts in Alameda County.



6.3

Establish a formal Technology Working Group (TWG) to become an on-going round-table to share best practices and coordination with regional and local efforts and facilitate spearheading implementation of the New Mobility Roadmap and associated projects, pilots, and programs. The TWG will advise on and advocate for coordination between local jurisdictions and transit agencies, and working with regional and state entities as appropriate. In addition, the TWG will guide development of best practices for future-proofing, pricing framework for incentivizing behavior, and key policy guidance efforts as identified below:

- Parking – Explore creative and effective strategies to address parking issues, such as advanced parking management deployed by jurisdictions and best practices for parking and development policies related to the impacts of new mobility.
- Curb Management - Explore creative and effective curb management strategies as part of corridor studies and share lessons learned with jurisdictions



6.4

Engage in and advocate as needed for the County's shared interests to regional and state entities for regional and state legislative and policy efforts, and to address the potential negative impacts of emerging modes and services on labor, mode interactions, and impacts on the greater transportation system.



6.5

Explore and identify effective ways to work with Transportation Network Companies (TNC's) and navigation platforms and engage with them to reduce the traffic and congestion impacts on community streets.



6.6

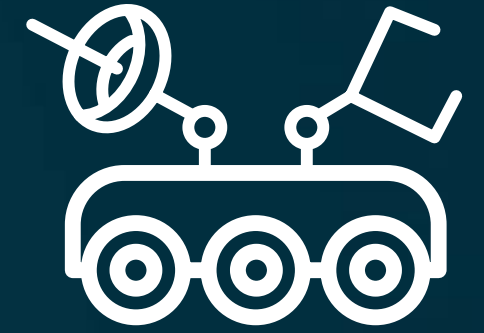
Explore options to develop a resiliency guidance to identify risks, vulnerabilities, and mitigation efforts for technology-enabled infrastructure, new mobility modes, and cyber security to ensure Alameda County's transportation system continues functioning when disasters occur. This effort should be coordinated with MTC's Regional Communication Plan to ensure redundancy where possible.



Goals

- Multimodal/High Occ.
- Safety
- Environment
- Equity/Accessibility
- Service Quality
- Cost Efficiency
- Connectivity
- Economy
- Data Sharing/Security

7 DATA AND AUTOMATION INITIATIVE



Data and Automation Initiative identifies ways for agencies in Alameda County to address the emerging trend towards vehicle automation within the county's transportation system, and the proliferation of data made available by new mobility technologies and services.

The automation of transportation will be one of the most consequential changes to the transportation system since the advent of the automobile, ushering in changes ranging from land use and development to shifts in how infrastructure is prioritized. The effects of automated mobility will be far-reaching, and its launch should be targeted to meet the intent of the adopted new mobility goals. While data is not a new topic, the amount and pervasiveness of transportation-related data is a trend that Alameda CTC will need to manage and address.

The effects of automated mobility will be far-reaching, and its launch should be targeted to meet the intent of the adopted new mobility goals.

7.1

Develop a Data Sharing and Security guidance for jurisdictions and transit agencies within Alameda County based on efforts and best practices at the regional and state levels.

- Identify and establish the role for Alameda CTC, jurisdictions and transit agencies related to data sharing and data security within the County.
- Explore options for a data sharing framework to facilitate data exchanges between mobility operators, data users, and local governments and transit agencies.
- Engage in state and regional efforts to develop Personally Identifiable Information (PII) best practices, and standards for the transparency of data collection methods and type of data collected on travelers.



7.2

Develop an automated vehicle strategy to facilitate the rollout, application and use of autonomous modes within Alameda County, including an infrastructure needs assessment for AV-related infrastructure. This strategy should address automated and connected freight movements, including human-piloted platoons and fully automated vehicles, as well as guide the implementation of automated first mile/last mile delivery and how right-of-way allocations are affected.



7.3

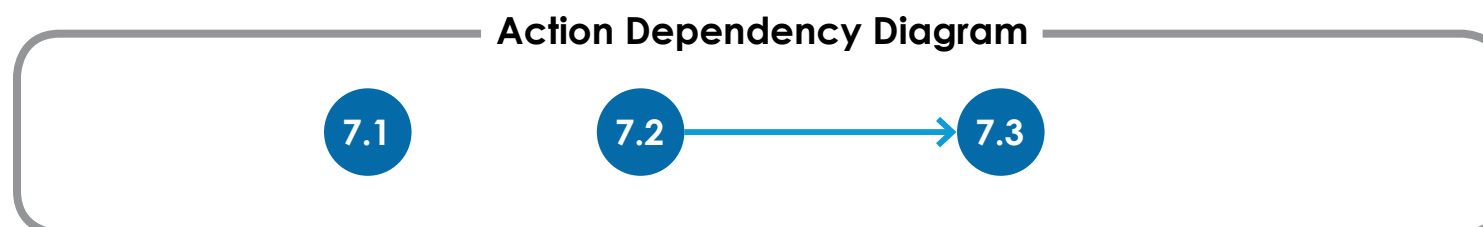
Engage in state or regional efforts regarding automated vehicle pricing policy to guide a consistent approach and appropriate adoption in the County to AV mobility service fees and behavior incentives including incentives towards shared use to maximize efficiency of the system and avoid increased congestion that could be created by widespread adoption of personal AVs.



Goals

- Multimodal/High Occ.
- Safety
- Environment
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Action Dependency Diagram



NEAR-TERM PRIORITY ACTIONS

Prioritization Approach

These Near-Term Priority Actions were selected based on application of the following prioritization factors.

Relationship to Goals – While the full suite of identified actions has been designed to fully realize the outcomes defined in the goals, some actions provide cross-cutting benefits and can quickly provide broad benefits. With this in mind, as a first step, every action has been evaluated against the entire set of goals in addition to its primary goal.

Urgency/Readiness – The relative urgency of each action and its ability to capitalize on existing opportunities was assessed based on the following criteria:

- **Opportunity for Action** – Does the current environment/ecosystem warrant an urgent action on the part of Alameda CTC or member jurisdictions and agencies?
- **Readiness** – The technology development is sufficiently advanced that work will not become obsolete in the near-term.
- **Risk Avoidance** – Has a technology been introduced or evolved in a way that requires action to address or mitigate risks or negative outcomes?
- **Momentum** – Is there an existing effort underway within Alameda County or the Bay Area that an action can build upon?
- **Demonstrated Need** – Are there any extenuating circumstances that warrant additional focus or action now?



Pilot an innovative major transit corridor

to facilitate corridor-wide transit priority technology installation and integration. This will build on existing efforts and prepare the corridor to be “future-ready” by combining emerging transit concepts, advanced enabling infrastructure, charging infrastructure, and first mile/last mile mobility options (potentially including mobility hubs). This could create a foundation for a network of major transit corridors or future-ready corridors across the county.




Develop a countywide transportation electrification

strategy to support the shift to electrified mobility. This strategy should include approaches to ensure resiliency of an electrified transportation system, including on-site electricity generation and micro-grids.

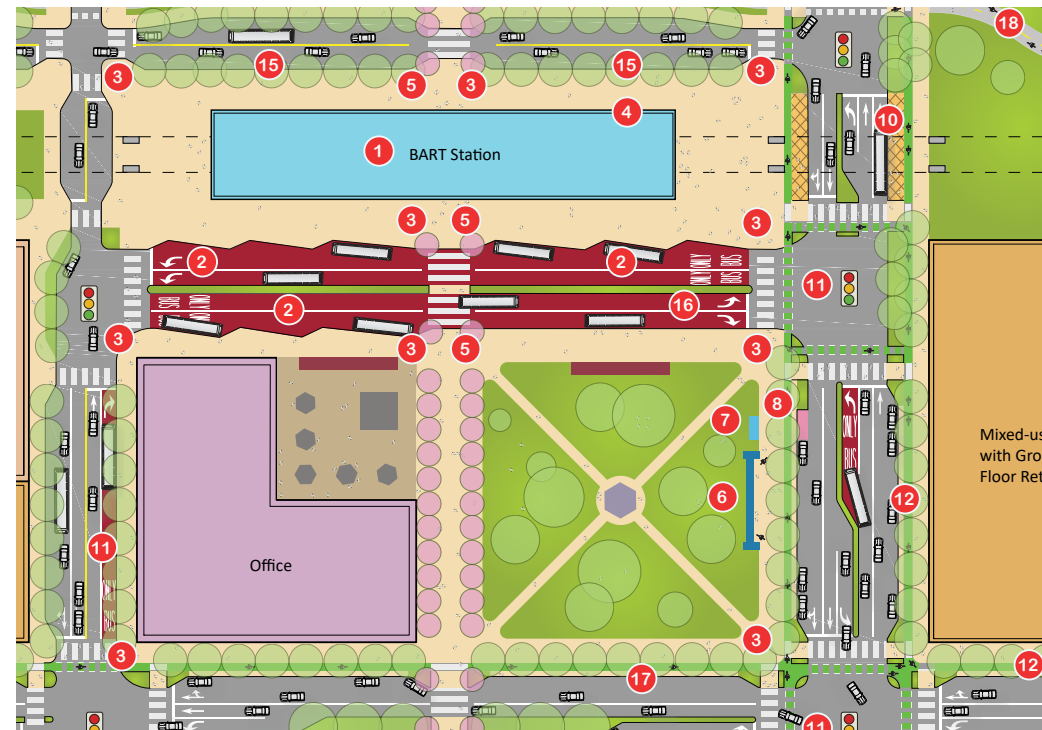


NEAR-TERM PRIORITY ACTIONS

 **Develop a Countywide ITS strategy** to coordinate system functionality across jurisdictions and identify needs and gaps related to ITS infrastructure. This will include a technology infrastructure inventory to understand current systems and planned improvements, countywide ITS standards to define functionality and compatibility, approaches for public/private partnerships, and functionality such as Transit Signal Priority (TSP) and Emergency Vehicle Preemption (EVP).



 **Explore and gather equity-related best practices and efforts related to new mobility technologies and services.** This could include minimum standards of service for mobility providers, universal accessibility standards for mobility-related digital interfaces that address different barriers to use, and a guidance for evaluating new-mobility-related projects for equity impacts. This could eventually feed into a set of guidance that local jurisdictions and transit agencies can use in new mobility related projects.



 **Pilot a Mobility Hub** building on existing local and regional efforts that will test and evaluate effective approaches to connecting travelers to transit hubs.



 **Establish a formal Technology Working Group (TWG)** to become an on-going round-table to share best practices and coordination with regional and local efforts and facilitate spearheading implementation of the New Mobility Roadmap and associated projects, pilots, and programs. The TWG will advise on and advocate for coordination between local jurisdictions and transit agencies, and working with regional and state entities as appropriate. In addition, the TWG will guide development of best practices for future-proofing, pricing framework for incentivizing behavior, and key policy guidance efforts.

The Road Ahead

The New Mobility Roadmap is a first step in orienting Alameda CTC to deal with the changes currently happening in mobility, and a recognition of the impact these mobility changes can have on Alameda County communities.

The Roadmap represents a current understanding at a particular moment in time, and in an area defined by constant change in innovation, the ability to plan for these changes will be impacted by advances that may not yet be evident. It will be important to continuously reevaluate the opportunities and risks posed by emerging technologies, and to continuously update this roadmap to meet the current needs of Alameda County.

This Roadmap provides the key Initiatives needed to respond to a changing world of technology, and provide Near-Term Priority Actions to coordinate and align Alameda CTC and partners on a plan of action.

Key outcomes of the Roadmap

- [Initiatives, a plan of action to manage uncertainty](#)
- [Near-Term Priority Actions, critical starting points](#)
- [A continuing resource for on-going technology planning and implementation for all partners](#)

How to use the Roadmap

- [Strategic plan to harness opportunities and manage risks](#)
- [Identify and form partnerships](#)
- [Guidance and coordination on technology-related issues for Alameda County](#)

Special Thanks

Technology Working Group

AC Transit
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City of Oakland
Michael Ford, Parking & Mobility Division Manager
LAVTA
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City of San Leandro
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City of Dublin
Obaid Khan, Transportation and Operations Manager
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City of Pleasantown
Michael Stella, Land Development Engineer

Alameda County Transportation Commission

Chair Mayor Pauline Cutter	City of San Leandro
Vice Chair Councilmember John Bauters	City of Emeryville
Supervisor Scott Haggerty	Alameda County, District 1
Supervisor Richard Valle	Alameda County, District 2
Supervisor Wilma Chan	Alameda County, District 3
Supervisor Nate Miley	Alameda County, District 4
Supervisor Keith Carson	Alameda County, District 5
Director Rebecca Saltzman	BART
Mayor Marilyn Ezzy Ashcraft	City of Alameda
Mayor Nick Pilch	City of Albany
Mayor Jesse Arreguin	City of Berkeley
Mayor David Haubert	City of Dublin
Mayor Lily Mei	City of Fremont
Mayor Barbara Halliday	City of Hayward
Mayor John Marchand	City of Livermore, South
Councilmember Luis Freitas	City of Newark
Councilmember Sheng Thao	City of Oakland
Councilmember At-Large Rebecca Kaplan	City of Oakland, North
Mayor Robert McBain	City of Piedmont
Mayor Jerry Thorne	City of Pleasanton, South
Mayor Carol Dutra-Vernaci	City of Union City

Plan prepared by:

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Chris G. Marks, Associate Transportation Planner

HDR, Inc.
Justin Robbins, AICP, Technology Planner/Project Manager

Alameda County Transportation Commission
Bicycle and Pedestrian Advisory Committee

DRAFT Meeting Schedule for 2020-2021 Fiscal Year
September 10, 2020

	Meeting Date	Meeting Purpose
1	Thursday Sep 17, 2020	<ul style="list-style-type: none"> • City of Dublin Bike/Ped Master Plan • Countywide Transportation Plan • FY20-21 Organizational Meeting
2	Wednesday Nov 18, 2020	<ul style="list-style-type: none"> • San Pablo Multimodal Corridor Project Phase 2 Approach • New Mobility Roadmap
3	Thursday Feb 4, 2021	<ul style="list-style-type: none"> • Bike/Ped Count Program • Annual Performance Report • Oakland-Alameda Access Project
4	Thursday May 27, 2021	<ul style="list-style-type: none"> • TDA Article 3 Project Review • FY21-22 Organizational Meeting

Other items to be scheduled:

- I-80/Ashby Interchange Project
- East Bay Greenway

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**Alameda County Transportation Commission
Bicycle and Pedestrian Advisory Committee
Roster and Attendance Fiscal Year 2020-2021**

	Suffix	Last Name	First Name	City	Appointed By	Term Began	Re-apptmt.	Term Expires
1	Mr.	Turner, Chair	Matt	Castro Valley	Alameda County Supervisor Nate Miley, District 4	Apr-14	Dec-19	Dec-21
2	Ms.	Marleau, Vice Chair	Kristi	Dublin	Alameda County Mayors' Conference, D-1	Dec-14	Jan-19	Jan-21
3	Ms.	Brisson	Liz	Oakland	Alameda County Mayors' Conference, D-5	Dec-16	Dec-18	Dec-20
4	Mr.	Fishbaugh	David	Fremont	Alameda County Supervisor Scott Haggerty, District 1	Jan-14	Mar-19	Mar-21
5	Ms.	Hill	Feliz G.	San Leandro	Alameda County Supervisor Wilma Chan, District 3	Mar-17	Jul-19	Jul-21
6	Mr.	Johansen	Jeremy	San Leandro	Alameda County Mayors' Conference, D-3	Sep-10	Feb-18	Feb-20
7	Mr.	Matis	Howard	Berkeley	Alameda County Supervisor Keith Carson, District 5	Sep-19		Sep-21
8	Mr.	Murtha	Dave	Hayward	Alameda County Supervisor Richard Valle, District 2	Sep-15	Jun-19	Jun-21
9	Mr.	Schweng	Ben	Alameda	Alameda County Mayors' Conference, D-2	Jun-13	Jul-19	Jul-21
10		Vacancy			Transit Agency (Alameda CTC)			
11		Vacancy			Alameda County Mayors' Conference, D-4			

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