

INNOVATE 680
IMAGINE THE POSSIBILITIES



SHARED MOBILITY HUBS

Final Report | January 2023
Version 2.0

**INNOVATE 680
SHARED MOBILITY HUBS
FINAL REPORT**

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Project Lead

Contra Costa Transportation Authority (CCTA)

Technical Advisory Committee/Concept of Operations Working Group

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City of Walnut Creek

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Metropolitan Transportation Commission (MTC)

Town of Danville

Innovate 680 Program Manager

WSP

Consultant Team

Kimley-Horn

Bottomley Planning and Design

Table of Contents

Executive Summary.....	ES-1
I. Shared Mobility Hubs Background and Vision.....	1
Project Process.....	4
Shared Mobility Hubs Visions.....	4
Shared Mobility Hubs Design Principles.....	6
Stakeholder Input Opportunities	10
User Research.....	10
II. Shared Mobility Hubs Sites, Typologies, and Features.....	15
Shared Mobility Hubs Site Selection.....	16
Shared Mobility Hubs Toolkit Features.....	18
Shared Mobility Hubs Typologies	19
III. Implementation at Shared Mobility Hub Locations	27
Martinez Amtrak Station	28
Concord Park-and-Ride	33
Downtown Pleasant Hill	37
Mitchell Drive Park-and-Ride	41
Walnut Creek BART Station	45
Danville Sycamore Valley Park-and-Ride.....	50
San Ramon Transit Center	54
Bollinger Canyon Park-and-Ride.....	58
Summary of Shared Mobility Hubs Improvement Strategies	62
IV. 680 Corridor Considerations	66
Integration with Innovate 680 Projects.....	67
Mode Shift Opportunities	70
Shared Mobility Hubs Network Expansion Considerations.....	72
V. Overall Summary, Benefits, and Next Steps.....	77
Opportunities Created by Shared Mobility Hubs.....	78
Example Renderings.....	78
Near-Term Activities.....	80
Anticipated Implementation Outcomes	81

List of Tables

Table 1. User Behaviors Summary.....	11
Table 2. User Motivators, Concerns, and Priorities.....	12
Table 3. Assignment of Shared Mobility Hubs Typologies to Studied Sites.....	25
Table 4. Improvement Packages for the Martinez Amtrak Regional Transfer Hub.....	31
Table 5. Improvement Packages for the Concord 680 Access Mobility Hub.....	35
Table 6: Improvement Packages for Downtown Pleasant Hill Community Mobility Hub.....	39
Table 7. Improvement Packages for the Mitchell Drive Community Mobility Hub.....	43
Table 8. Improvement Packages for the Walnut Creek BART Regional Transfer Hub.....	48
Table 9. Improvement Packages for the Danville Sycamore Valley 680 Access Mobility Hub..	52
Table 10. Improvement Packages for the San Ramon Transit Center Community Mobility Hub.....	56
Table 11. Improvement Packages for the Bollinger Canyon 680 Access Mobility Hub.....	60
Table 12. Summary of Improvement Package Categories.....	64
Table 13. Shared Mobility Hub Land Use and Travel Characteristics (Residents).....	71
Table 14. Shared Mobility Hub Land Use and Travel Characteristics (Employees).....	71
Table 15. MTC Mobility Hub Candidate Locations.....	73

List of Figures

Figure 1. I-680 Corridor Area.....	3
Figure 2. TAC Meeting Presentation Slide.....	10
Figure 3. Mobility Hub Elements.....	12
Figure 4. Survey Summary Statistics.....	14
Figure 5. Survey Findings of Desired Features and Amenities.....	14
Figure 6. Initial Shared Mobility Hub Locations.....	16
Figure 7. Mobility Hub Locations Selected for Detailed Analysis.....	17
Figure 8. Toolkit Example Pages.....	18
Figure 9. Regional Transfer Hub Example Rendering.....	19
Figure 10. Typical Regional Transfer Hub Amenities.....	20
Figure 11. 680 Access Mobility Hub Example Rendering.....	21
Figure 12. Typical 680 Access Mobility Hub Amenities.....	22
Figure 13. Community Mobility Hub Example Rendering.....	23
Figure 14. Typical Community Mobility Hub Amenities.....	24
Figure 15. Typical Mobility Hub Features by Typology.....	25
Figure 16. Mobility Hub Sites by Typology.....	26
Figure 17. Martinez Amtrak Station Location.....	28
Figure 18. Pedestrian Bridge at Martinez Amtrak Station.....	29
Figure 19. Concord Park-and-Ride Location.....	33
Figure 20. Concord Park-and-Ride Market Street Access.....	34
Figure 21. Downtown Pleasant Hill Location.....	37
Figure 22. Pleasant Hill City Hall Parking Lot.....	37
Figure 23. Mitchell Drive Park-and-Ride Location.....	41

Figure 24. Mitchell Drive Park-and-Ride Entrance.....	41
Figure 25. Walnut Creek BART Location.....	45
Figure 26. Bicycle Storage at Walnut Creek BART Station	45
Figure 27. Walnut Creek Transit Village Site Plan.....	46
Figure 28. Danville Sycamore Valley PNR Location.....	50
Figure 29. Danville Sycamore Valley PNR Bus Stop.....	50
Figure 30. San Ramon Transit Center Location.....	54
Figure 31. San Ramon Transit Center Entrance.....	54
Figure 32. San Ramon Transit Center EV Charging Stations.....	55
Figure 33. Bollinger Canyon PNR Location	58
Figure 34. Bollinger Canyon Park-and-Ride Parking Area.....	59
Figure 35. MaaS Program Integration Example.....	69
Figure 36. MTC-Identified Regionally Significant Mobility Hub Clusters.....	74
Figure 37. Potential Shared Mobility Hub Sites	75
Figure 38. Enhanced Transit Platform.....	79
Figure 39. Public Plaza with Retail Services and Other Amenities.....	79
Figure 40. Pick-up/Drop-off Zone and Shared Use Path with Enhanced Wayfinding.....	80
Figure 41. Enhanced Bicycle Facilities.....	80

Appendices

Appendix A: Vision White Paper
Appendix B: Transportation Habit Survey Summary of Results
Appendix C: Shared Mobility Hub Strategies Toolkit
Appendix D: Background and Issue Identification Report
Appendix E: Station Concepts and Improvement Packages Report
Appendix F: MTC Mobility Hub Siting Criteria, Screening Methodology, and Prioritization



INNOVATE 680
IMAGINE THE POSSIBILITIES

ES

EXECUTIVE SUMMARY

Shared Mobility Hubs represent one of six Innovate 680 Program projects to expand mobility options, improve traffic conditions, and enhance the travel experience in the Interstate 680 (I-680) corridor (Figure ES-1 below). Shared mobility hubs are multimodal transportation nodes where a variety of shared mobility services and supporting amenities interact to create a cohesive transportation network. These nodes facilitate local and regional travel with a specific focus on shared mobility: travel modes and services in which resources are shared between different users. This includes public transit, micromobility (e.g., bikeshare, scooters, etc.), shared rides (e.g., vanpools, carpools, on-demand services, etc.), and technology (e.g., electric vehicle chargers, information kiosks, etc.).

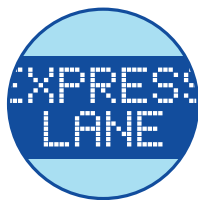
Shared Mobility Hubs are multimodal transportation nodes where a variety of shared mobility services and supporting amenities interact to create a cohesive transportation network.

Figure ES-1. Innovate 680 Program Projects

INNOVATE 680 PROJECTS



PART-TIME
TRANSIT LANES



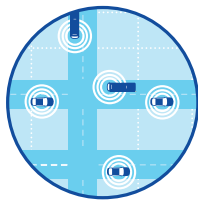
EXPRESS LANE
COMPLETION



SHARED
MOBILITY HUBS



MOBILITY AS A
SERVICE



AUTOMATED
DRIVING SYSTEMS



ADVANCED
TECHNOLOGIES

Shared Mobility Hubs have been deployed throughout the country and have a growing presence in the San Francisco Bay Area. This expansion has involved both unified, planned design of specific sites, as well as gradual adoption of shared services and amenities. The Shared Mobility Hubs project, as part of the Innovate 680 Program, is unique in its corridor-wide approach to developing a Shared Mobility Hubs network.

The Shared Mobility Hubs project was completed in approximately three years. The project initially began in October 2019, resumed in April 2021 (after a pause due to COVID-19), and continued through 2022. The project integrated stakeholder collaboration to develop a corridor-wide vision as well as site-specific solutions.

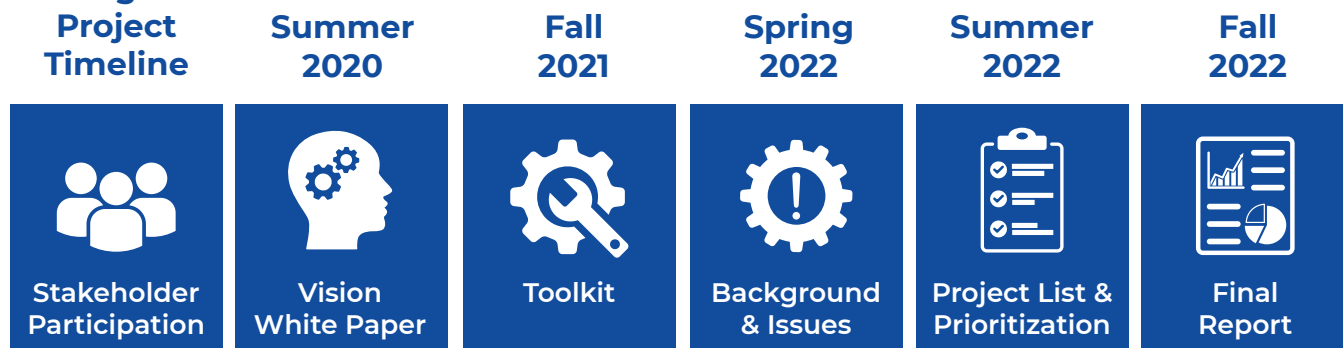
Stakeholder participation was solicited at key points throughout the project. The joint Technical Advisory Committee and Concept of Operations (TAC/ConOps) working group met five times over the course of the project to provide input on items such as visioning, hub locations, toolkit, typologies, needs and opportunities, site concepts, implementation, phasing, and next steps. Participants include representatives from local transit agencies, cities, the Metropolitan Transportation Commission (MTC), California Department of Transportation (Caltrans), California Highway Patrol (CHP), and the Federal Highway Administration (FHWA). In each of these meetings, the working group received a presentation regarding project progress and included discussion questions to encourage conversation about the topic of the meeting.

TAC Meeting Timeline



The Shared Mobility Hubs project was completed in six different tasks: visioning and planning, toolkit development, in-depth design analysis, ongoing stakeholder participation, completion of a feasibility study, and the implementation and phasing plan.

Throughout Project Timeline



Vision Statements

Project vision statements capture the aspirations for how Shared Mobility Hubs can improve transportation access along the I-680 corridor.



Efficient Movement of People: Facilitate convenient and intuitive transfers between travel modes, maximize movement of people, and prioritize modes that efficiently use the transportation network



Universal Accessibility and Enhanced Safety: Promote equitability and enhance accessibility for disadvantaged and mobility-impaired populations by leveraging information, technology, and design to provide safe and accessible mobility options



Improved Access to Alternative Transportation Modes: Overcome existing barriers to use of alternative transportation modes by providing a network of safe and comfortable pathways, promoting first/last-mile connections, and target new and occasional alternative transportation users to achieve mode shift from SOVs



Mobility Hubs as Community Assets: Support neighborhood integration by creating seamless pathways between mobility hubs and surrounding areas, providing on-site amenities, facilities, and activity, and providing a context-sensitive and high-quality aesthetic



Flexibility to Accommodate New Technology and Changing Transportation Conditions: Provide flexible and adaptable designs for amenities and services in order to adapt to new technologies and changes in how mobility services are consumed.



Reflect Community and Regional Aspirations: Integrate local, regional, and mode-specific plans into the mobility hub infrastructure design, leverage public-private partnerships to encourage innovation and use, and support the advancement of key regional initiatives

Design Principles

The design principles, building off the vision statements, provide guidance on the features, priorities, and strategies guiding advancement of the shared mobility hubs.



Location: Mobility hubs must be placed strategically along the corridor to provide convenient access to shared mobility services



Safety and Comfort: Each segment of the passenger journey should feel safe and comfortable for all travel modes and user groups



Usability: Site design should reduce barriers to access, while services and amenities should cater to all types of user groups



Neighborhood Integration: Mobility hubs should be fully integrated into the existing neighborhood fabric to strengthen their role as a transportation hub with shared mobility services as well as a community node



Technology Deployment: Deployment of technology at mobility hubs has the potential to greatly improve mobility services and the customer travel experience



Sustainability: Infrastructure, services, and amenities should mitigate and reduce impacts to the environment and neighboring communities



Parking and Curbside Management: Provision of parking and curb space should be optimized to encourage greater use of limited facilities; these spaces should also provide flexibility for future adaptation to new mobility options

The Shared Mobility Hubs Implementation Strategy Toolkit (November 2021) was developed as a resource for identifying the types of services and amenities and their appropriate applications and implementation considerations that can be considered for the mobility hubs. Features, organized in five categories, are intended to align with the project vision statements and design principles. Within each category, the Toolkit identifies the range of potential services and amenities that can be deployed at mobility hub sites depending on the specific mobility needs of the area.

Figure ES-2. Toolkit Amenities by Category

1 | Transit Amenities



2 | Bike Amenities



3 | Pedestrian Amenities



4 | Motorized Services and Amenities



5 | Support Services and Amenities



Shared mobility hubs can serve different purposes depending on their location, size, and the transportation services offered. In order to assess the types of mobility hub features appropriate for the various transportation needs, to expound on the best practices for the integration of mobility hub features, and to establish a starting point for the application of the toolkit to individual sites, three shared mobility hub typologies were developed.

Regional Transfer Hub

Figure ES-3. Typical Regional Transfer Hub Amenities



Transit Amenities	Bicycle Amenities	Pedestrian Amenities	Motorized Services & Amenities	Support Services & Amenities
<ol style="list-style-type: none"> Neighborhood Electric Vehicle Pickup/Dropoff Enhanced Bus Stop Fare Vending Machine Microtransit/Autonomous Transit Bus Layover Battery Electric Bus Charging Station Driver Relief Facilities Transit Signal Priority Dedicated Transit Lane 	<ol style="list-style-type: none"> Bike Valet with - Repair Station - E-bike Charging Bike Parking Bikeshare Two-Way Class IV Bike Lane Scooter Share 	<ol style="list-style-type: none"> Public Space Walkways Marked Crossings 	<ol style="list-style-type: none"> Pickup/Dropoff with - Passenger Loading - Taxi/Transportation Network Company Park-and-Ride Lot with - Vanpool/Carpool Priority Spaces - Carshare Spaces - Electric Vehicle Charging - Parking Reservation System 	<ol style="list-style-type: none"> Wayfinding Information Kiosk Device Charging Station & WiFi Restrooms Package Delivery Station Mobile Retail Solar Panel Canopy Ambassador Real-time Information Lighting Real-Time Parking Availability

- Provides breadth of amenities and services serving large catchment area
- Serves as an access point for high-capacity, high-frequency transit and rail services
- Serves as connection between local-serving transit services and regional services
- Provides larger scale park-and-ride facility for long- and short-term parking and vehicle charging
- Includes activity centers
- Associated with high levels of first-mile/last-mile activity
- May incorporate Transit-Oriented Development (TOD)

680 Access Mobility Hub

Figure ES-4. Typical 680 Access Mobility Hub Amenities



Transit Amenities	Bicycle Amenities	Pedestrian Amenities	Motorized Services & Amenities	Support Services & Amenities
<ol style="list-style-type: none"> 1. Neighborhood Electric Vehicle Pickup/Dropoff 2. Enhanced Bus Stop 3. Fare Vending Machine 4. Microtransit/Autonomous Transit 5. Bus Layover 6. Battery Electric Bus Charging Station 7. Driver Relief Facilities 8. Transit Signal Priority 9. Dedicated Transit Lane 	<ol style="list-style-type: none"> 1. Bike Valet with - Repair Station - E-bike Charging 2. Bike Parking 3. Bikeshare 4. Two-Way Class IV Bike Lane 5. Scooter Share 	<ol style="list-style-type: none"> 1. Public Space 2. Walkways 3. Marked Crossings 	<ol style="list-style-type: none"> 1. Pickup/Dropoff with - Passenger Loading - Taxi/Transportation Network Company 2. Park-and-Ride Lot 3. Vanpool/Carpool Priority Spaces 4. Carshare Spaces 5. Electric Vehicle Charging 	<ol style="list-style-type: none"> 1. Wayfinding 2. Information Kiosk 3. Device Charging Station & WiFi 4. Restrooms 5. Package Delivery Station 6. Mobile Retail 7. Solar Panel Canopy 8. Real-time Information 9. Lighting

- Serves as gateway to the I-680 corridor transportation network
- Provides connections between local transportation options and regional enhancements on I-680
- Provides a range of safe and accessible transportation options for access, including a focus on pick-up/drop-off
- Provides small to medium park-and-ride facility for long- and short-term parking and vehicle charging
- Includes transit-supportive uses for trip convenience and to promote activity

Community Mobility Hub

Figure ES-5. Typical Community Mobility Hub Amenities



Transit Amenities

1. Neighborhood Electric Vehicle Pickup/Dropoff
2. Enhanced Bus Stop
3. Fare Vending Machine
4. Microtransit/Autonomous Transit
5. Transit Signal Priority
6. Dedicated Transit Lane

Not pictured: Battery Electric Bus Charging Station

Bicycle Amenities

1. Bike Lockers
2. Repair Station
3. E-bike Charging
4. Bike Parking
5. Bikeshare
6. Protected Bike Lane
7. Scooter Share

Pedestrian Amenities

1. Public Space
2. Walkways
3. Marked Crossings

Motorized Services & Amenities

1. Pickup/Dropoff with
 - Passenger Loading
 - Taxi/Transportation Network Company
2. Park-and-Ride Lot
3. Vanpool/Carpool Priority Spaces
4. Carshare Spaces
5. Electric Vehicle Charging

Support Services & Amenities

1. Wayfinding
2. Information Kiosk
3. Device Charging Station & WiFi
4. Restrooms
5. Package Delivery Station
6. Mobile Retail
7. Retail Services
8. Solar Panel Canopy
9. Real-Time Information
10. Lighting

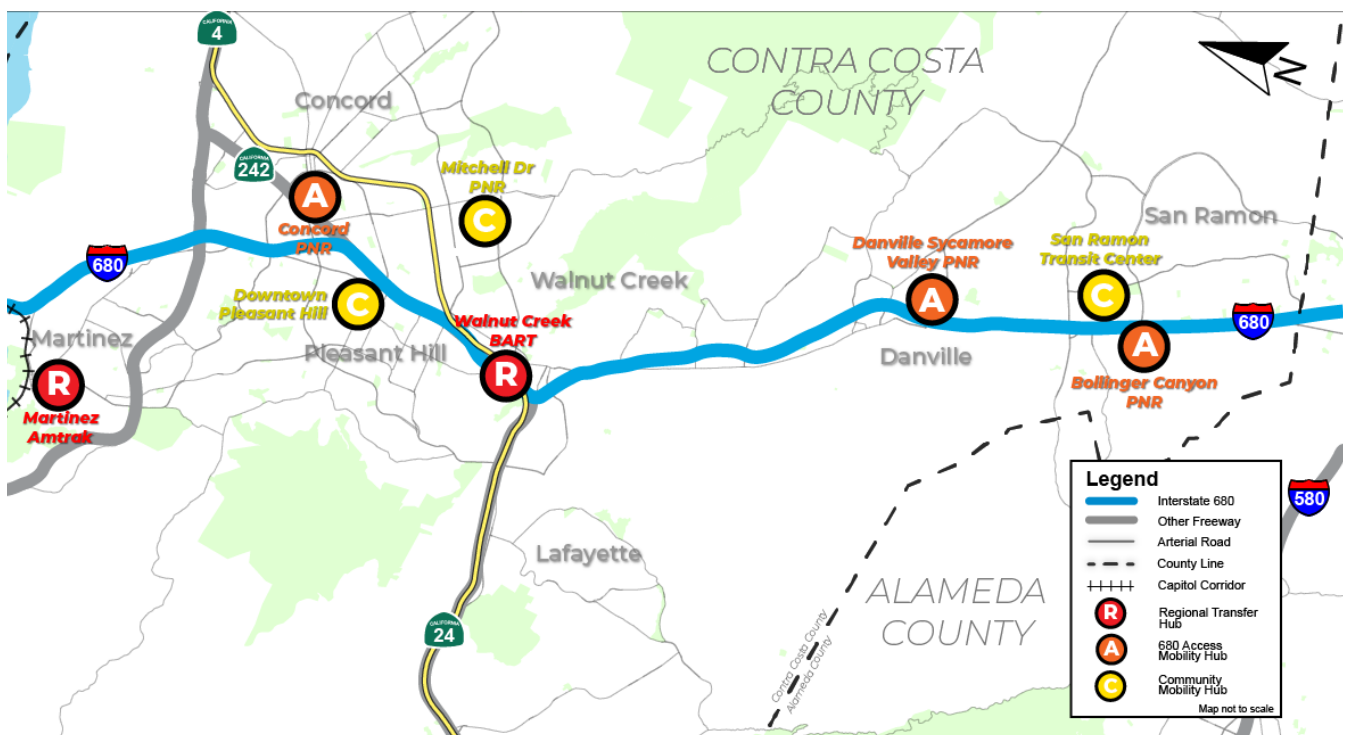
- Serves as a gateway for local housing and to local jobs, providing a connection to the broader transportation network
- Serves as a hub for connections between a variety of local and commuter transit services
- Integrated in surrounding active transportation network to facilitate access from a variety of modes
- Focuses on sustainability, accessibility, and safety that encourages social interaction, walking, and biking
- Serves as a focal point in the community as a placemaking and activity center, enhancing the surrounding community aesthetic and sense of place

To identify the sites for a feasibility assessment of shared mobility hub implementation, the project team began by leveraging Big Data and travel demand forecasts to understand regional transportation activity along the I-680 corridor. The analysis identified a concentration of vehicle trips traveling from existing transportation nodes and residential areas within the I-680 corridor to employment destinations within the corridor (concentrated in Walnut Creek and San Ramon) and to employment centers throughout the Bay Area.

Leveraging input from the TAC/ConOps Working Group, the project team selected eight sites. The eight sites are depicted on Figure ES-6 below with varying characteristics related to geography, existing transportation services, site ownership, and parcel size for detailed analysis as part of this study. Three of the eight sites (Bollinger Canyon Park-and-Ride, Walnut Creek BART, and Martinez Amtrak Station) are proposed stops for a new regional express bus service planned for the I-680 corridor. The new service is expected to operate between Dublin/Pleasanton BART Station and Martinez Amtrak Station, with stops at the Pleasanton Altamont Corridor Express (ACE) station during peak periods. The eight sites were selected to represent a cross-section of potential shared mobility hub locations within the corridor, while also sharing commonalities, such as public ownership, connectivity to transportation services, and proximity to major activity centers. Additional sites, not analyzed in detail as part of this effort, should be considered for shared mobility hub placement in future planning and design efforts.

The eight sites selected were assigned one of the three mobility hub typologies which characterize the hub's transportation function, physical design, and setting within the community.

Figure ES-6. Mobility Hub Locations Selected for Detailed Analysis



Martinez Amtrak Station

Martinez Amtrak Station (Regional Transfer Hub) is located at the west end of downtown Martinez and is connected to I-680 via Marina Vista Avenue and to State Route 4 (SR 4) via Alhambra Avenue. Martinez Amtrak Station serves as a major hub for Northern California Amtrak service, including the Capitol Corridor, Coast Starlight, California Zephyr, and San Joaquin line.

Contra Costa County is the largest employer in downtown Martinez, with the Superior Court and County Government office complex on Court and Pine Streets. There is an opportunity for the hub to serve commuters and visitors to these government facilities. The station has a recent parking lot expansion for shared parking to the north of the rail tracks. The two lots and the platforms are connected by a recently constructed pedestrian overcrossing.

Priorities for Martinez Amtrak Station Mobility Hub include:

- Expanding bus capacity, enhancing passenger amenities, and improving transit access and connections
- Improving pedestrian and bicycle access and amenities
- Integrating shared mobility services and innovative technologies
- Improving station access by enlarging the area for pick-up/drop-off activities

Figure ES-7. Pedestrian Bridge at Martinez Amtrak Station



Figure ES-8. Martinez Amtrak Station Mobility Hub Sketch Concept

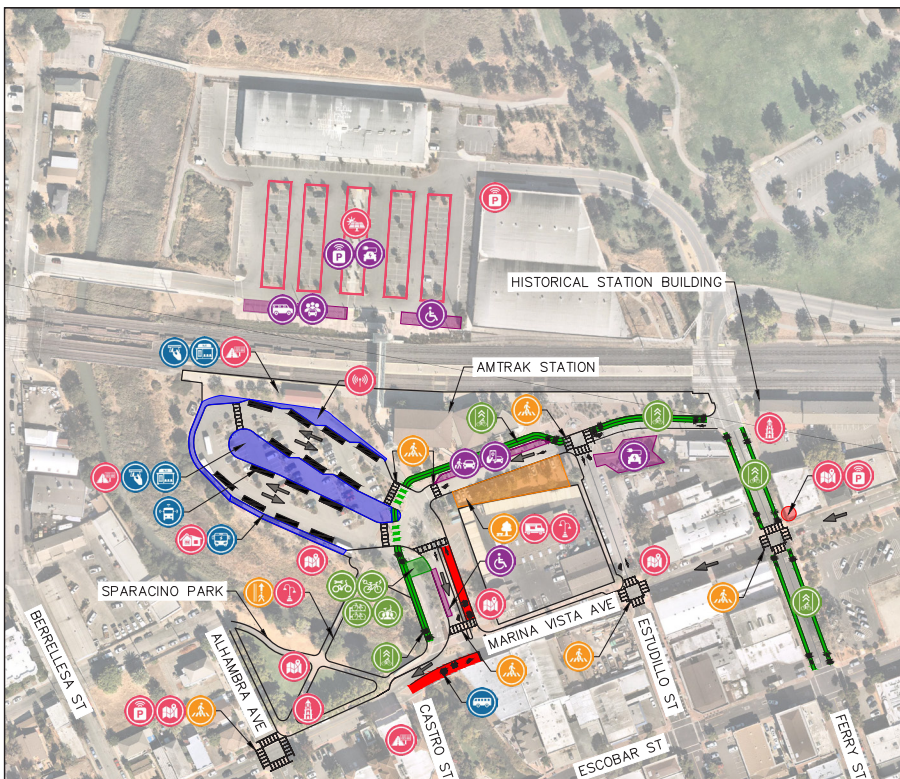
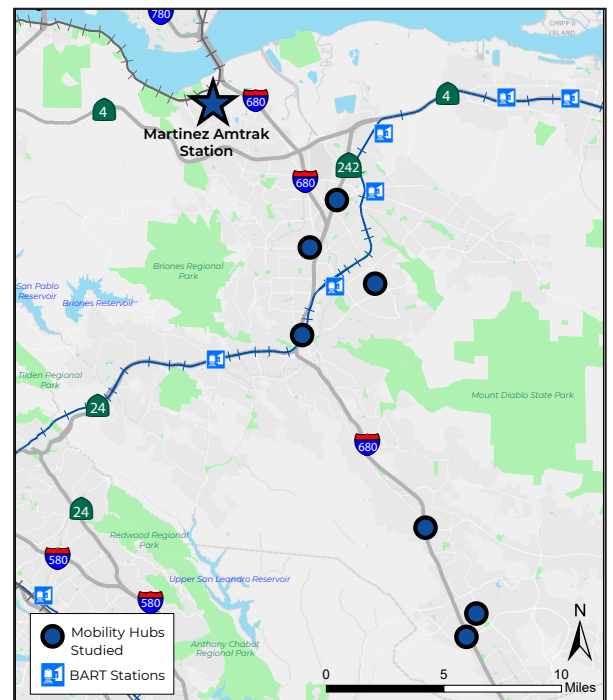


Figure ES-9. Martinez Station Location



Concord Park-and-Ride (680 Access Mobility Hub) is bounded by Willow Pass Road, Market Street, State Route (SR) 242, and freeway ramps. It is located entirely on Caltrans property. Pedestrian access is provided to Market Street. The park-and-ride (PNR) has 45 public parking spaces and is located close to many retail and residential areas on either side of SR 242. While it is not directly served by existing bus routes, several bus stops are located a short walk away.

The Concord mobility hub area has the most residents within the walkshed, bikeshed, and driveshed of the eight mobility sites studied, as well as the second highest number of jobs within the bikeshed, emphasizing the potential benefit in this area for mobility improvements. The Concord PNR is located in an area with substantially higher equity priority communities, with 29% of the population living below the federal poverty line and 65% of the population noted as persons of color. Approximately 8 percent of households within 2 miles of the mobility hub do not have access to a vehicle, the highest percentage amongst the mobility hubs in this analysis

The priorities for the Concord PNR Mobility Hub include:

- Increasing the utilization of the lot by accommodating microtransit, carpool/vanpool and other modes
- Improving pedestrian and bicycle access to the mobility hub and provide on-site bicycle amenities
- Expanding mobility choices throughout the mobility hub area

Figure ES-11. Concord PNR Mobility Hub Sketch Concept

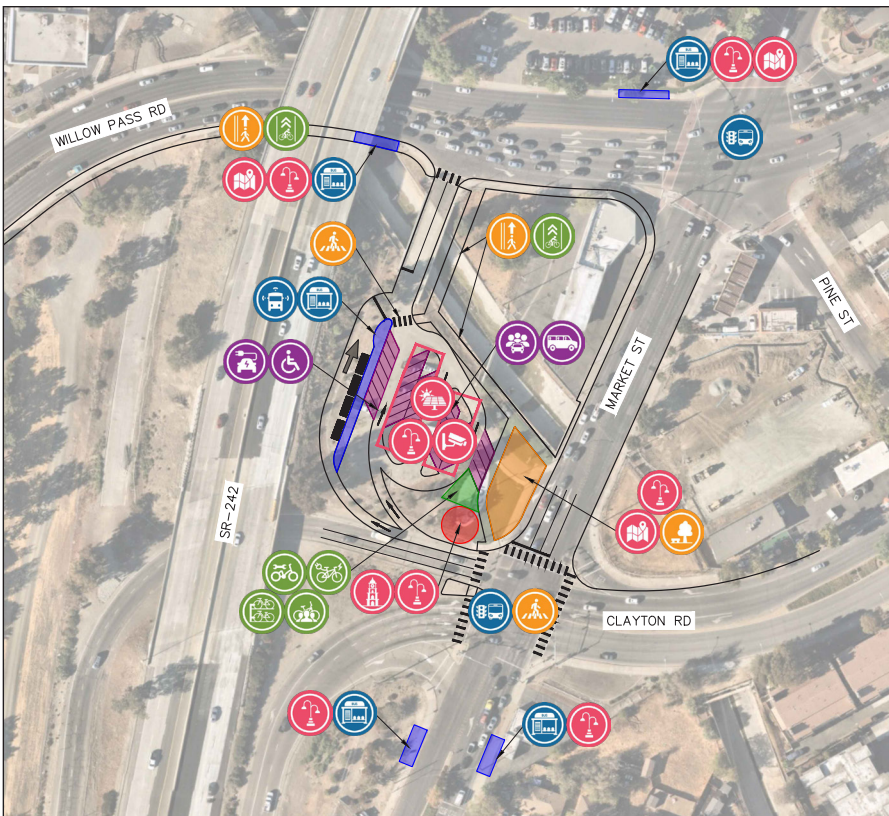
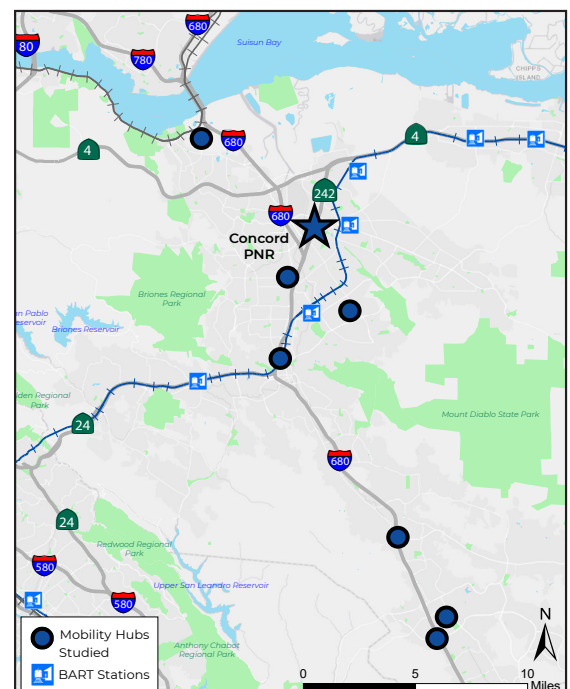


Figure ES-10. Concord PNR Market Street Access



Figure ES-12. Concord PNR Location



The Downtown Pleasant Hill (Community Mobility Hub) location is proposed at City Hall near the southeast corner of Gregory Lane and Cleveland Road. The area currently consists of the City Hall building, two municipal lots, an adjacent park, and a shopping center.

The Downtown Pleasant Hill mobility hub shed area has the second highest proportion of residents below the federal poverty line (20%) out of the eight mobility hubs. Notably, it had among the largest proportion of residents within the bikeshed to residents within the walkshed of the sites evaluated, emphasizing the need for improved bicycle and short-distance transit mobility options in this hub area.

The priorities for the Downtown Pleasant Hill mobility hub include:

- Providing additional mobility options for accessing City Hall and nearby civic and retail uses
- Enhancing pedestrian and bicycle connectivity and safety on nearby streets
- Improving the desirability and efficiency of transit through TSP and bus stop improvements

Figure ES-13. Pleasant Hill City Hall Parking Lot



Figure ES-14. Downtown Pleasant Hill Mobility Hub Sketch Concept

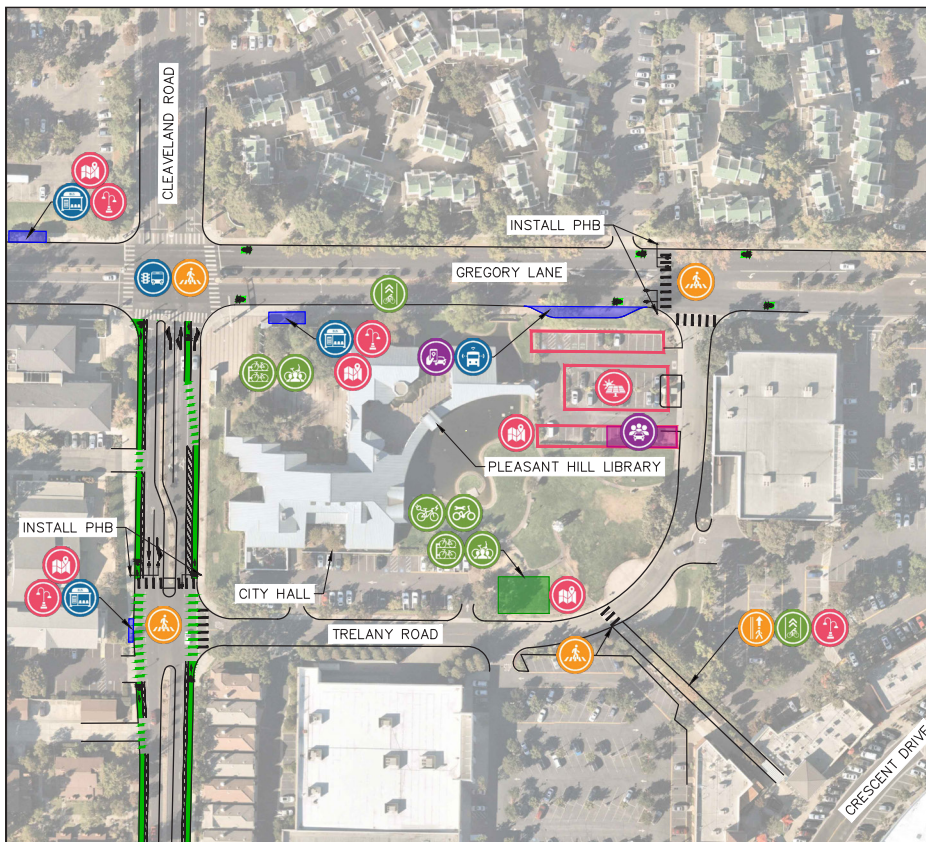
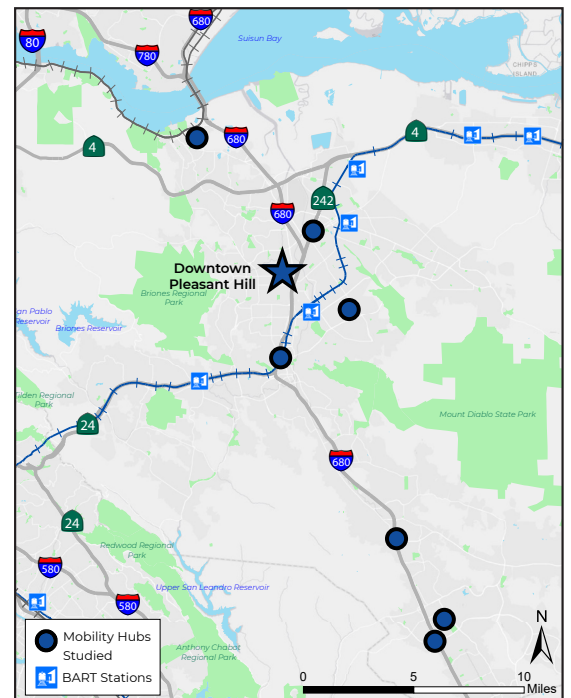


Figure ES-15. Downtown Pleasant Hill Location



The Mitchell Drive Park-and-Ride (Community Mobility Hub) is located in Shadelands Business Park approximately 0.4 miles north of Ygnacio Valley Road and two miles east of Interstate 680. It is owned by the City of Walnut Creek. The park-and-ride is close to several large office buildings, the Contra Costa School of Performing Arts, shopping centers, senior housing, and other residential uses. Four County Connection bus routes stop on Mitchell Drive at the park-and-ride. The park-and-ride has 92 public parking spaces and 3 bike racks.

The Mitchell Drive area notably had the second highest percentage of short distance driving trips to the hub area relative to the other sites. More trips were made within 2 miles of the hub area than from beyond 2 miles of the hub area.

The priorities for the Mitchell Drive PNR mobility hub include:

- Providing additional mobility options for accessing Shadelands and nearby schools
- Connecting the mobility hub to regional trails and destinations
- Increasing utilization of the PNR through prioritization of vanpool/carpool and rideshare services, as well as EV charging

Figure ES-17. Mitchell Drive PNR Mobility Hub Sketch Concept

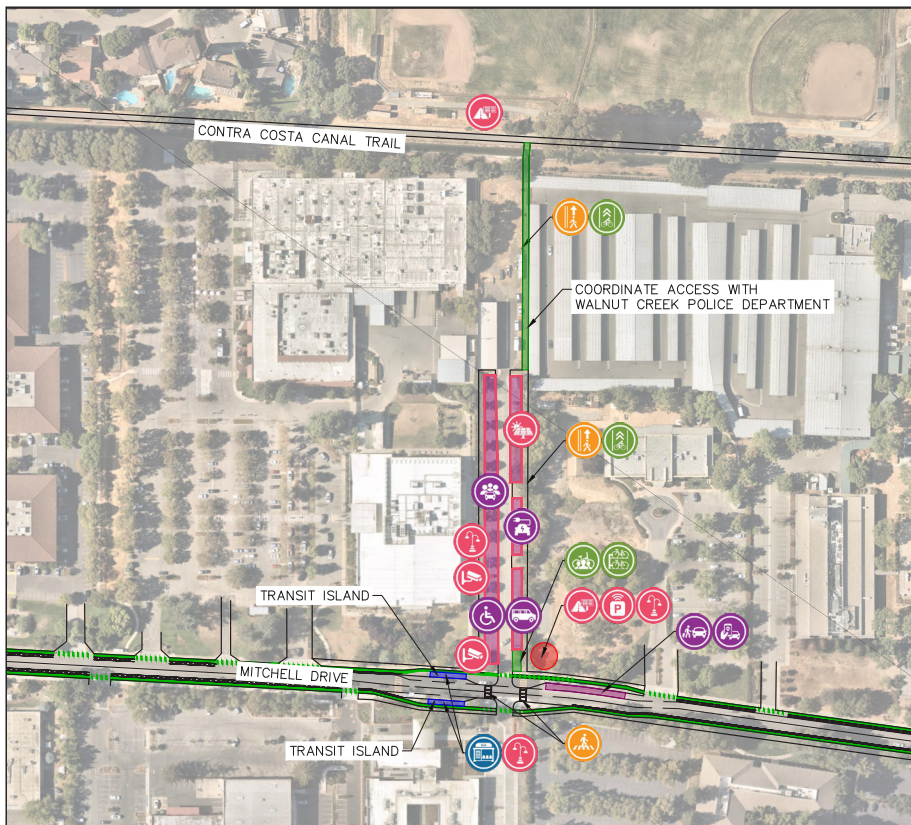
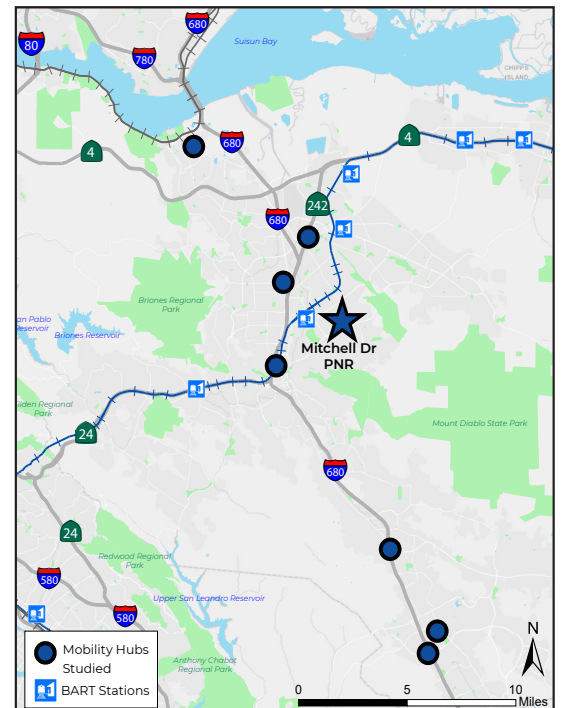


Figure ES-16. Mitchell Drive PNR Entrance



Figure ES-18. Mitchell Drive PNR Location



The Walnut Creek BART Station (Regional Mobility Hub) is located at the northwestern edge of downtown Walnut Creek, on the block bounded by California Boulevard, Ygnacio Valley Road, Pringle Road, and I-680. The station is currently isolated from surrounding uses and downtown Walnut Creek due to its adjacency to I-680 and the major arterials of Ygnacio Valley Road and California Boulevard.

The station is a major intermodal hub served by BART, County Connection, Solano Express, Tri Delta Transit, WestCAT, and LAVTA. A major redevelopment of the station block is currently underway consisting of two primary elements: station modernization and the Walnut Creek Transit Village.

The priorities for the Walnut Creek BART station include:

- Improving bicycle connectivity
- Increasing station utilization by adding amenities to support microtransit, carpool/vanpool, ride share, and shared micromobility services
- Improving user experience by providing shared mobility hub amenities such as signage and wayfinding
- Improving transit access by implementing off-site transit signal priority (TSP) projects at key access points

Figure ES-19. Bicycle Storage at Walnut Creek BART Station



Figure ES-20. Walnut Creek BART Station Mobility Hub Concept

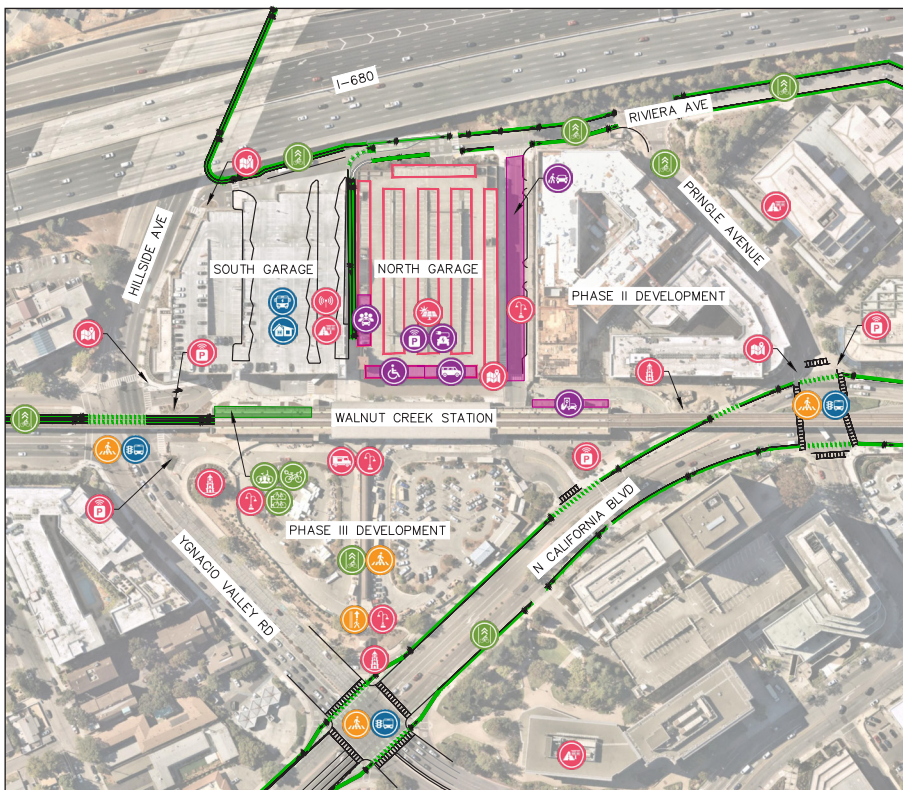
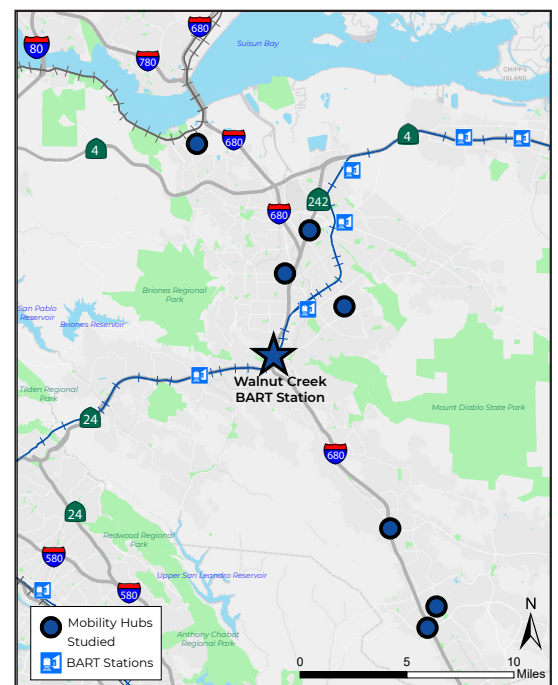


Figure ES-21. Walnut Creek BART Station Location



The Danville Sycamore Valley Park-and-Ride is located in the northeast quadrant of the I-680 and Sycamore Valley Road interchange. The lot is owned and maintained by the Town of Danville. This park-and-ride is currently served by five County Connection routes that connect to other regional rail services such as BART and ACE Train. The proposed mobility hub primarily serves residential neighborhoods and local shopping centers on both sides of I-680. The hub is also adjacent to the Iron Horse Regional Trail. The Town of Danville has a planned project to expand the site and enhance trail connections.

The priorities for the Danville Sycamore Valley PNR mobility hub include:

- Expanding on-site transit facilities to increase transit capacity and amenities
- Providing enhanced pedestrian and bicycle connections to the Iron Horse Trail
- Improving mobility hub access through access and circulation improvements along Sycamore Valley Road for buses, bikes, and pedestrians.
- Increasing the utilization of the mobility hub through expanded pick-up/drop-off areas, EV charging, shared mobility services, and carpool/vanpool priority treatments

Figure ES-22. Danville Sycamore Valley Bus Stop



Figure ES-23. Danville Sycamore Valley PNR Mobility Hub Sketch Concept

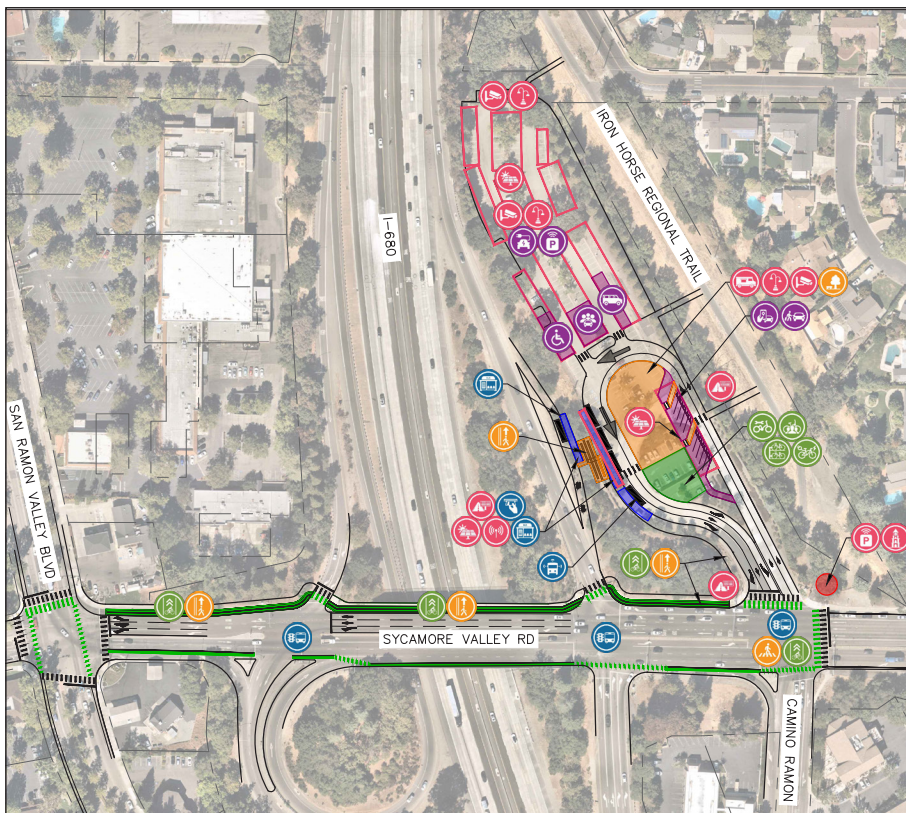
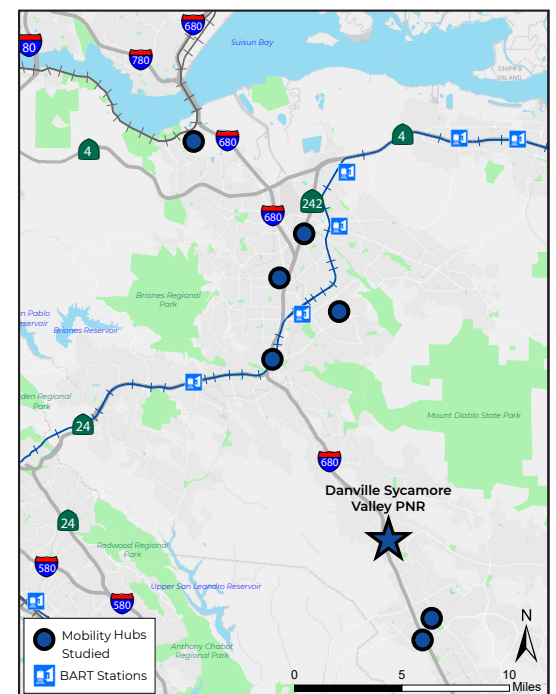


Figure ES-24. Danville Sycamore Valley PNR Location



San Ramon Transit Center (Community Mobility Hub) is located at the eastern end of Executive Parkway in the Bishop Ranch Business Park in the City of San Ramon. The site is owned by the City.

The City of San Ramon has approved the CityWalk Master Plan, which includes the integration of recreational amenities, a 169-key hotel, up to an additional 170,000 square feet of retail, additional parking structures, and up to 4,500 multi-family residential units into the existing Bishop Ranch campus over the next 20-30 years. The increase in the number of residential units in the area will change the travel demands in the area, expanding the need for access to transit services that connect to employment in other areas.

The priorities for the San Ramon Transit Center mobility hub station include:

- Increasing the bus capacity of the transit center
- Increasing visibility and awareness of the mobility hub
- Better connecting the mobility hub to surrounding employment areas and regional trails through new pedestrian and bicycle facilities at and near the mobility hub.
- Expanding the effectiveness of the mobility hub through new shared mobility services programs within and around Bishop Ranch.

Figure ES-25. San Ramon Transit Center Entrance



Figure ES-26. San Ramon Transit Center Station Sketch Concept

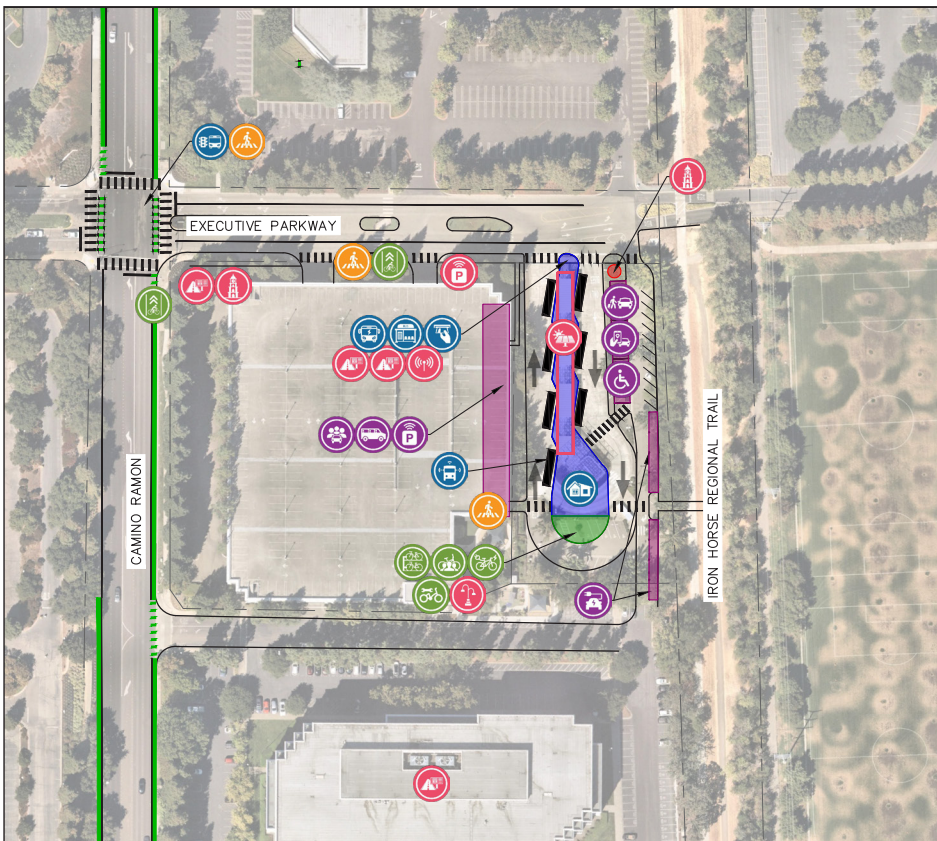
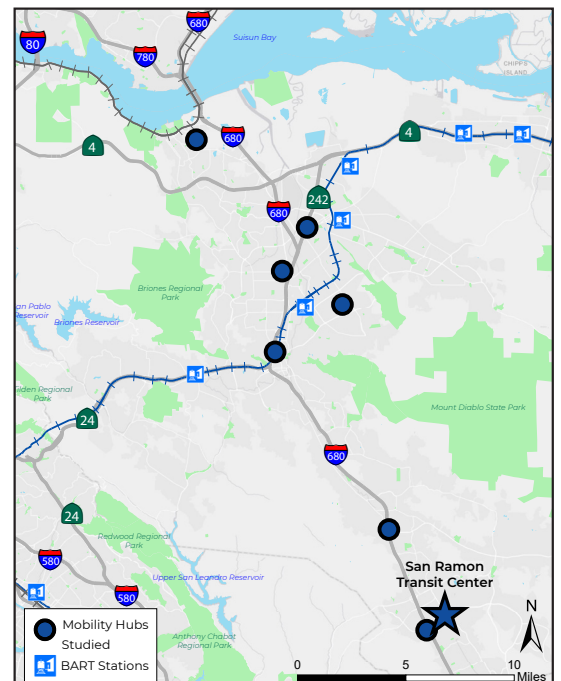


Figure ES-27. San Ramon Transit Center Location



The Bollinger Canyon Park-and-Ride (680 Access Mobility Hub) is located at the southwest corner of Bollinger Canyon Road and Interstate 680. It is located entirely on Caltrans property, approximately 0.4 miles west of the City Center Bishop Ranch shopping center. The park-and-ride has 109 public parking spaces and is most often used by casual carpoolers or as a pickup point for private employer shuttles. No EV charging or other amenities are currently provided.

This mobility hub area has the largest population within the driveshed out of all the analyzed mobility hub areas. It also has by far the largest proportion of population within the driveshed, but not within the bikeshed, emphasizing the need for improved first-mile/last-mile transit connections to the mobility hub.

While the existing Park-and-Ride has been identified for a mobility hub as part of this effort, with major retail, commercial and employment centers east of I-680, it would be beneficial to have a Shared Mobility Hub on the east side of I-680, in the vicinity of Bishop Ranch and City Center, in coordination with Sunset Development.

The priorities for the Bollinger Canyon PNR mobility hub include:

- Providing an integrated and easily accessed bus facility with multiple bus bays, including real-time travel information systems.
- Encouraging pedestrian and bicycle access by implementing on- and off-site pedestrian and bicycle amenities and connections.
- Enhancing the utilization of the mobility hub through provision of dedicated space for carpool/vanpool, ride share, and pick-up/drop-off activities.
- Providing shared mobility and shuttle connections to Bishop Ranch

Figure ES-28. Bollinger Canyon PNR Parking Area



Figure ES-29. Bollinger Canyon PNR Sketch Concept

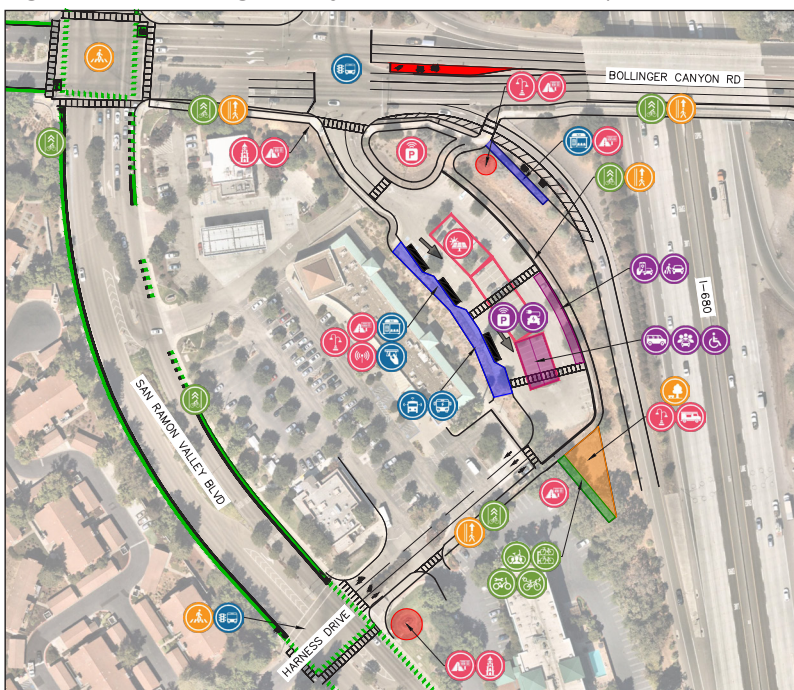
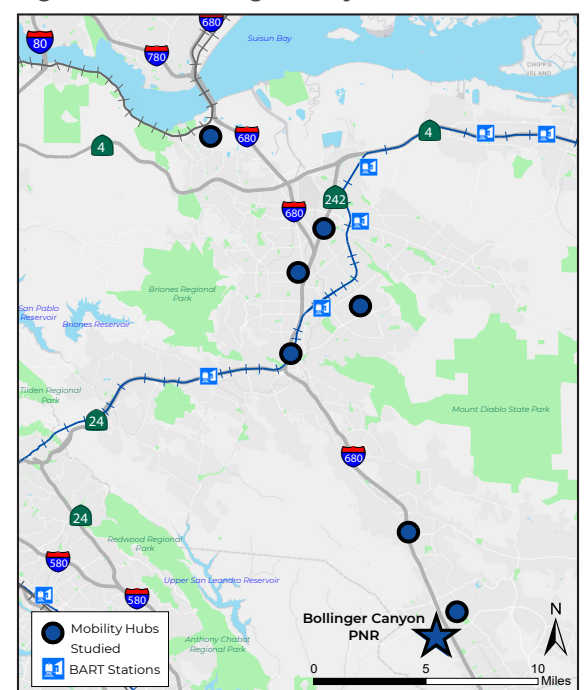


Figure ES-30. Bollinger Canyon PNR Location



This section summarizes the nature and type of the improvement packages under nine categories. While each site has unique characteristics that determine agency roles and next steps for advancing the improvements, implementation process, role, and other considerations components can be summarized for each of the nine categories.

Improvement Packages Descriptions

On-site Transit Improvements: Improve and expand bus transit areas, enhance transit waiting areas, provide bus charging infrastructure, provide fare vending machines, install real-time travel information systems, provide and enhance driver relief facilities, and implement other additional customer amenities such as WiFi and device charging docks.

Off-site Transit Stop/Access Improvements: Construct transit-only lanes, enhance off-site bus stop areas, and construct new in-line stops. Bus stop improvements include enhancing waiting areas and adding real-time traveler information.

Transit-Signal Priority (TSP): Technology that prioritizes bus movements at key intersections, which may require signal control upgrades and equipment installation on buses.

Shared Micromobility, Microtransit, and Vanpool/Carpool Services: Programs to enhance first-mile and last-mile access to the mobility hubs and within the surrounding communities. Implementation features may include infrastructure at the mobility hubs (bus bays, bike storage, designated parking areas), charging stations, priority spaces, wayfinding, and dedicated pick-up and drop-off (PU/DO) zones. These often require implementation programs, such as apps, payment structures, branding and marketing strategies, and data sharing provisions.

On-site Circulation, Public Space, and Parking Improvements: Reconfigure the parking and access spaces at the mobility hubs to improve safety, circulation, and enhance public spaces. Parking improvements may include parking relocation, provision of solar canopies, and parking reservation systems.

On-site and Off-site Signage and Wayfinding: May include static and dynamic signage, real-time traveler information, real-time parking availability at locations on- and off-site, monument signage, and lighting. Improvements would be consistent with the MTC Regional Transit Wayfinding Guidelines.

On-site Pick-up/Drop-off Improvements: Expand or provide new curb spaces designated for various pick-up/drop-off needs, which may include space for private vehicles, transportation network companies, shuttles, microtransit, and taxis. May include dynamic signage to allow for flexibility in curb space assignment.

On-site Pedestrian/Bicycle Facilities Improvements: Provide high visibility crosswalks at intersections, on-site bike facilities, new or improved sidewalks, bike parking, E-bike charging, and bike repair stations.

Off-site Pedestrian/Bicycle Facilities Improvements: Construct bicycle and pedestrian improvements to improve access to the mobility hub, which may include bicycle facilities for all ages and abilities, crosswalk upgrades, new or improved sidewalks, off-site bike parking, and improved crossing treatments, such as pedestrian hybrid beacons (PHBs)/Rapid Rectangular Flashing Beacons (RRFB).

Table ES-1. Summary of Improvement Package Categories

Improvement Package	Mobility Hub								Implementation Role		Corridor-Wide Implementation Considerations
	Martinez	Concord	Pleasant Hill	Mitchell Drive	Walnut Creek	Danville	San Ramon	Bollinger Canyon	Lead Agency	Stakeholder Partners	
On-site Transit Improvements	●					●	●	●	CCTA	<ul style="list-style-type: none"> Transit operators Property owner PG&E (charging infrastructure) 	<ul style="list-style-type: none"> Determine charging infrastructure needs Need to determine O&M responsibilities and funding
Off-site Transit Stop/Access Improvements	●	●	●	●		●		●	CCTA	<ul style="list-style-type: none"> Transit operators City jurisdiction Caltrans (where relevant) 	<ul style="list-style-type: none"> Determine bus service levels and needs Caltrans coordination for improvements in state ROW Need to determine O&M responsibilities and funding
Downtown Pleasant Hill Transit-Signal Priority (TSP)	●	●	●		●	●	●	●	CCTA	<ul style="list-style-type: none"> Transit operators Caltrans (where relevant) City Jurisdiction 	<ul style="list-style-type: none"> Advance Central TSP System (Cloud-Based) Project Prioritize locations Develop O&M agreements
Shared Micromobility, Microtransit, and Vanpool / Carpool Services	●	●	●	●	●	●	●	●	CCTA	<ul style="list-style-type: none"> Transit operators Property owner Caltrans City Jurisdiction Private Vendors 	<ul style="list-style-type: none"> Microtransit feasibility study Identify partnership opportunities and programs Determine data sharing strategies and vendor service agreements
On-site Circulation, Public Space and Parking Improvements	●	●	●	●	●	●	●	●	CCTA, Property Owner, or City Jurisdiction	<ul style="list-style-type: none"> Transit operators Solar, EV charging, private parking vendors 	<ul style="list-style-type: none"> Determine solar and EV implementation strategy Parking reservation system feasibility assessment Need to determine O&M responsibilities and funding
On-site and Off-site Signage and Wayfinding	●	●	●	●	●	●	●	●	CCTA or Property Owner	<ul style="list-style-type: none"> Caltrans Transit operators City Jurisdiction 	<ul style="list-style-type: none"> Integrate MTC regional signage standards with real-time transit data sources Pursue partnerships with adjacent uses
Pick-up/Drop-off Improvements	●		●	●		●	●	●	CCTA or Property Owner	<ul style="list-style-type: none"> Transportation Network Company (TNC) City Jurisdictions 	<ul style="list-style-type: none"> Site-specific
On-site Pedestrian/Bicycle Facilities Improvements	●	●	●	●	●	●	●	●	CCTA or Property Owner	<ul style="list-style-type: none"> Private bike parking vendors City Jurisdictions 	<ul style="list-style-type: none"> Bike parking demand assessments Need to determine O&M responsibilities and funding
Off-site Pedestrian/Bicycle Facilities Improvements	●	●	●	●	●	●	●	●	City Jurisdiction	<ul style="list-style-type: none"> CCTA Caltrans 	<ul style="list-style-type: none"> Incorporate Improvements into Local/Regional Active Transportation Plan (ATP)

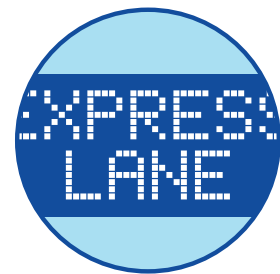
The Shared Mobility Hubs project serves as a key component of the Innovate 680 Program by accommodating multimodal access to the regional transportation network. Shared mobility hubs are where users can access buses operating in the express lanes or part-time transit lanes on I-680 or where they can access the services to be incorporated into the Mobility on Demand (MOD)/Mobility as a Service (MaaS) program. The program projects will work together to create a cohesive and integrated transportation network in the I-680 corridor.



**PART-TIME
TRANSIT LANES**

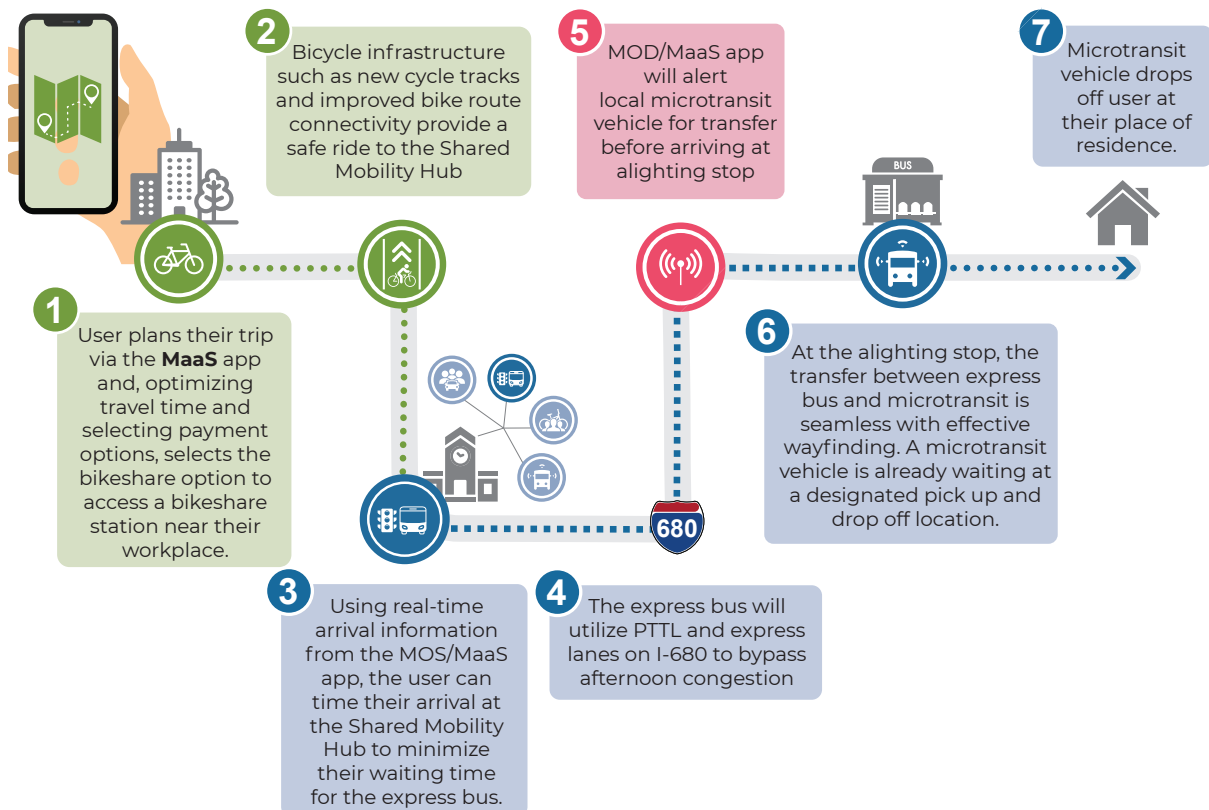


**MOBILITY ON DEMAND (MOD)/
MOBILITY AS A SERVICE (MaaS)**



**NB EXPRESS LANE
COMPLETION**

Example of Program Integration



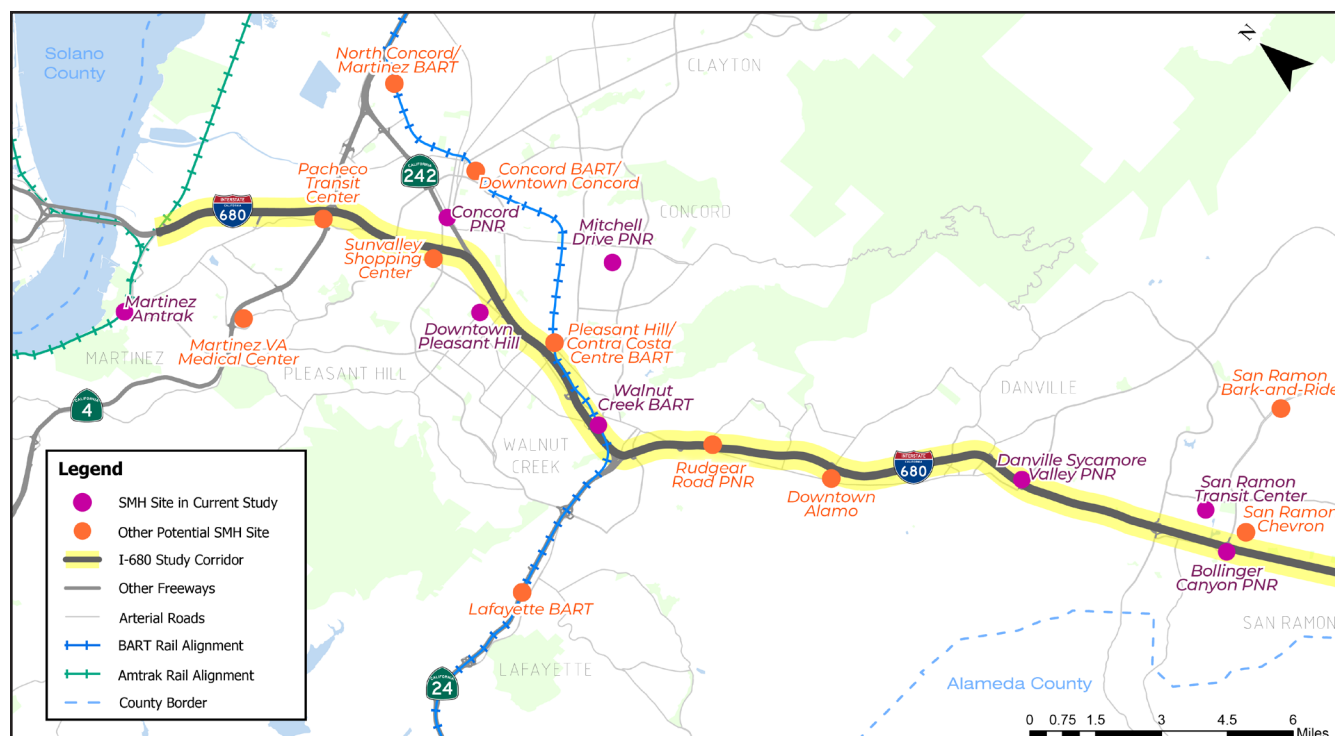
While this study selected eight sites for in-depth analysis as a geographically and functionally representative sample of potential sites in the 680 corridor, the vision is for a comprehensive and well-connected network through the corridor. Therefore, a range of sites, beyond just those eight, will be considered for future implementation. The sites analyzed in this study do not represent the eight highest priority sites or those slated for near-term implementation. Rather, they represent a cross-section of characteristics in order to assess feasibility, costs, and priorities.

Additional/alternative sites will be considered in future Shared Mobility Hub planning efforts to best meet corridor needs. An expanded Shared Mobility Hub network would close network gaps and connect more users to more destinations. Users need first/last-mile mobility solutions on both ends of their trip, thus expanding the network can have a compounding effect on overall accessibility.

As a reference for identifying potential Shared Mobility Hub sites and prioritizing sites, MTC has developed the MTC Mobility Hub Siting Criteria, Screening Methodology, and Prioritization (Nelson\Nygaard, October 2020) as a methodology of identifying, screening, and prioritizing future mobility hub locations across the Bay Area.

Based on an understanding of the transportation patterns and nodes in the I-680 corridor, a number of Shared Mobility Hub sites beyond the eight studied in this feasibility study were identified for consideration as part of the future network. These sites are shown on Figure ES-31 below and represent a mix of transit hubs, park-and-rides, and community gathering areas.

Figure ES-31. Potential Shared Mobility Hub Sites



NEAR-TERM ACTIVITIES

The implementation strategy identifies several near-term improvement strategies to advance Shared Mobility Hub implementation at each studied location. Near-term projects that are already underway, or being considered, include enhancing wayfinding and signage, transit signal priority (TSP), and pilot programs for shared micromobility services such as bikeshare/scootershare. Additional near-term projects will serve to accommodate the new 680 Express Bus service. CCTA and partner jurisdictions should further consider grant funding opportunities for improvements identified in this report. Planning efforts such as a corridor-wide microtransit feasibility study, I-680 corridor wayfinding standards, and electric bus/vehicle infrastructure assessments are recommended to help further define near-term opportunities and projects.

ANTICIPATED IMPLEMENTATION OUTCOMES

The deployment of the proposed improvements would achieve the goals established for the Shared Mobility Hubs project as follows:



Facilitate the efficient movement of people by improving transportation infrastructure and access such as installing additional bicycle and pedestrian facilities, enhancing access and removing barriers to transit, and optimizing the use of infrastructure by prioritizing the most efficient modes.



Provide universal accessibility and enhanced safety through improvements such as improved site design, wayfinding, and real-time transit information, ADA upgrades, and improved bicycle and pedestrian crossings.



Improve access to alternative transportation modes with microtransit, micromobility, and vanpool/carpool programs.



Serve as community assets by creating or enhancing public spaces, accommodating mobile retail services, and improving community mobility.



Accommodate new technology and changing transportation conditions with flexible curb space, integrating with MOD/MaaS applications, accommodating shared micromobility, installing charging infrastructure, and integrating technology into wayfinding.



Support advancement of key regional initiatives by encouraging mode shift from SOVs, promoting active transportation, improving safety, and reducing greenhouse gas emissions.



I

**SHARED MOBILITY HUBS
BACKGROUND AND VISION**

Shared Mobility Hubs represent one of six Innovate 680 Program projects to expand mobility options, improve traffic conditions, and enhance the travel experience in the Interstate 680 (I-680) corridor. Shared Mobility Hubs are multimodal transportation nodes where a variety of shared mobility services and supporting amenities interact to create a cohesive transportation network. These nodes facilitate local and regional travel with a specific focus on shared mobility: travel modes and services in which resources are shared between different users. This includes public transit, micromobility (e.g., bikeshare, scooters, etc.), shared rides (e.g., vanpools, carpools, on-demand services, etc.), and technology (e.g., electric vehicle chargers, information kiosks, etc.).

INNOVATE 680 Projects



PART-TIME
TRANSIT LANES



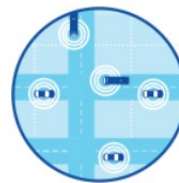
EXPRESS LANE
COMPLETION



SHARED
MOBILITY HUBS



MOBILITY AS
A SERVICE



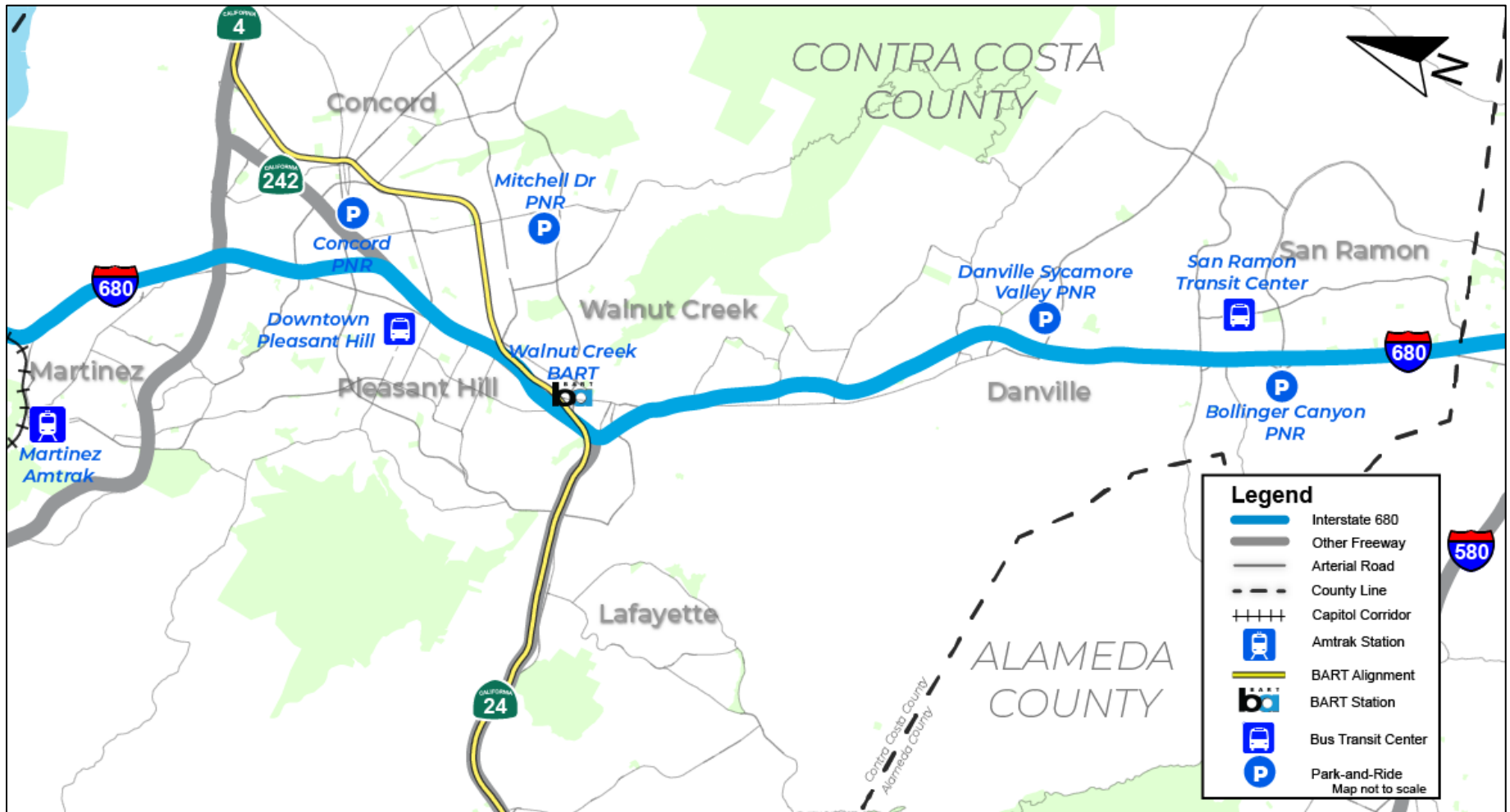
AUTOMATED
DRIVING SYSTEMS



ADVANCED
TECHNOLOGIES

Shared Mobility Hubs have been deployed throughout the country and have a growing presence in the San Francisco Bay Area. This expansion—which includes the I-680 corridor—has involved both unified, planned design of specific sites, as well as gradual adoption of shared services and amenities. The Shared Mobility Hubs project, as part of the Innovate 680 Program, is unique in its corridor-wide approach to developing a Shared Mobility Hubs network. The Corridor Area and the eight mobility hubs analyzed as part of this study are shown on the next page in **Figure 1**.

Figure 1. I-680 Corridor Area



Project Process

The Innovate 680 Program: Shared Mobility Hubs project process integrated stakeholder collaboration to develop a corridor-wide vision as well as site-specific solutions. The project took place over three years. The project initially began in October 2019 and was put on hold for six months during the COVID-19 pandemic.

The project restarted in April 2021 and continued through 2022. The project was completed in five different tasks as follows: visioning and planning, existing and planned conditions assessment, ongoing stakeholder participation, development of Shared Mobility Hub concepts, and finally, the implementation and phasing plan.

Shared Mobility Hubs Visions

The *Shared Mobility Hubs Vision White Paper (Kimley-Horn, August 2020)* establishes a vision for Shared Mobility Hubs and their deployment in communities along the I-680 corridor. The vision statements are described below, and the full document can be found in **Appendix A**. These statements capture the aspirations for how Shared Mobility Hubs can improve transportation access along the I-680 corridor and translate to a complete set of design principles.

1. Efficient Movement of People

Shared mobility hubs will facilitate the efficient movement of people.

- **Seamless travel between modes:** Facilitate convenient and intuitive transfers between travel modes through wayfinding and site configuration. Coordinate the placement of mobility services to support the efficient movement of people between modes.
- **Efficiency of space:** Leverage constrained sites to maximize the movement of people, prioritizing modes that more efficiently use the transportation network. Pricing strategies and facility design will further encourage use of sustainable transportation modes.



2. Universal Accessibility and Enhanced Safety

Shared mobility hubs will be accessible, convenient, and safe for all users.

- **Equitable:** Enhance the equitability of the transportation network, providing increased mobility options for disadvantaged populations. Integrate related programs and policies that focus on enhancing the economic and transportation mobility of low-income and minority populations by bringing together multiple transportation options and leveraging information and technology to overcome economic, language, mobility, and information barriers.
- **Accessible design:** Design with the mobility-impaired in mind, namely when establishing or enhancing pathways, wayfinding, trip planning services, and public spaces. Access and circulation will prioritize the needs of vulnerable users, with lower priority given to single-occupant vehicles.



- **On-site safety and comfort:** Provide a sense of personal safety by increasing on-site activity, incorporating natural surveillance, providing pedestrian-oriented lighting, and including additional safety features.
- **Mitigate conflicts between modes:** Reduce or control potential conflicts between modes through careful site configuration, wayfinding treatments, and urban design treatments.

3. Improved Access to Alternative Transportation Modes

Targeted investments and initiatives will be leveraged to overcome existing barriers to passengers' use of alternative transportation modes.



- **High quality access facilities:** Extend mobility hub improvements into the surrounding community to create a network of safe and comfortable access pathways that will encourage mobility hub access through a variety of active and shared modes.
- **Improved first/last-mile connections:** Leverage existing transportation network investments and promote new investments in first/last-mile connections to achieve direct, convenient, and safe connections to mobility hubs. Reduce connectivity barriers to further encourage the use of multiple modes within a single trip, resulting in a more efficient and faster user experience.
- **Address information barriers:** On-site and online trip planning tools will inform travelers of mobility hub services, amenities, benefits, and availability. Public education and marketing of alternative travel options, such as commuter programs, will target new and occasional users in order to achieve mode shifts from SOVs.

4. Mobility Hubs as Community Assets

Shared mobility hubs will serve as an asset and focal point for both mobility and community activity.



- **Neighborhood integration:** Support neighborhood integration, where consistent with the community character, through seamless pathways between mobility hubs and surrounding areas. Complement the surrounding community character through on-site activity and amenities.
- **Mobility hubs as community hubs:** Provide amenities that attract community use and activity beyond in-route trips. Programmable spaces and site amenities will draw community members for a range of purposes, activating the site and increasing community awareness.
- **Additional customer amenities:** Dedicate space for support services and amenities such as mobile retail, food services, and package delivery lockers that provide both community value and serve critical daily life needs, allowing users to better leverage mobility services.
- **High-quality design:** Incorporate context-sensitive and high-quality architecture and landscaping that complements and contributes to the character of surrounding areas.

5. Flexibility to Accommodate New Technology and Changing Transportation Conditions



Shared mobility hubs will be designed with the future in mind, providing flexibility to adapt to new technologies that change how mobility services are consumed.

- **Curbside management/flex zones:** Provide flexibility and adaptability of curbside space to accommodate different uses at different times, as well as accommodate new uses.
- **Plan for new technology, services, and changing travel needs:** Design for adaptability to meet changing needs. This may include designing for flexibility in utility needs, providing space for shared micromobility parking and access, and designating space for flexible uses.
- **Investment:** Encourage investment and innovation in transportation by providing a platform for the implementation of new transportation technologies and services and integrating those services with legacy and active transportation options.

6. Reflect Community and Regional Aspirations



Shared mobility hubs will apply local and regional mobility plans for the corridor and serve as a focal point to achieve those visions.

- **Integration of local, regional, and mode-specific plans:** Incorporate and synthesize elements of local, regional, and mode-specific plans and visions to create a cohesive local and countywide vision for each gateway to the corridor's transportation network.
- **Public-private partnerships:** Establish frameworks for public-private partnerships as well as multi-agency agreements to increase investment in corridor transportation infrastructure and services. Align different stakeholder visions, capital and service planning, action plans, and investments for the corridor. Leverage partnerships and incentive programs to encourage use.
- **Linchpin for regional mobility initiatives:** Serve as a centerpiece for the testing and implementation of new and emerging trends in transportation planning, leveraging both public and private investment. Support the advancement of key regional initiatives such as Mobility-as-a-Service and Mobility-on-Demand through the provision of specific supporting facilities, customer interfaces, and data collection.
- **GHG reductions:** Incorporate infrastructure and design solutions that support achievement of regional greenhouse gases (GHG) emission targets. Provide amenities and services that encourage mode shifts from high-emission to low-emission travel modes, including for both site access and regional travel.

Shared Mobility Hubs Design Principles

Modal-specific principles, in concert with the vision, can be translated to mobility hub design principles. These are aspects that will influence the location, configuration, and amenities of specific mobility hub implementations. The design principles were utilized in defining the

mobility hub toolkit and typologies as well as sketch planning for specific mobility hub implementations.

1. Location



As a gateway to the I-680 corridor transportation network, mobility hubs must be placed strategically along the corridor to provide convenient access to shared mobility services to encourage greater use of alternative modes and shift travel away from single-occupant vehicles (SOVs).

- To the extent possible, mobility hubs should be integrated into existing and planned activity centers, such as employment hubs, town centers, and other major trip generators
- Placement along existing primary commute routes near the I-680 is key to intercepting potential new patrons and capturing a larger share of SOV travelers

2. Safety and Comfort



Each segment of the passenger journey should feel safe and comfortable for all travel modes and user groups, including site access, waiting, and use of amenities.

- Facility layout, on-site circulation, and access routes should reduce and mitigate potential conflicts between different modes. Modal access hierarchies should be incorporated into facility design and access
- Safe, convenient, and direct access should be prioritized for the most vulnerable users and incorporate “Complete Streets” approaches. Incorporate pedestrian and bicycle facilities at nearby and adjacent crossings to increase safety and visibility as well as support traffic calming
- Apply elements of Crime Prevention Through Environmental Design (CPTED) and BART Facilities Standards (BFS) including lighting, natural surveillance, access control, sight lines and visibility, and increased ground-level activity
- Provide amenities that offer comfort to travelers, such as overhead weather protection structures, lighting, Wi-Fi, mobile device charging stations, benches and other furniture, water fountains, and bathrooms

3. Usability



Facility usability, or ease of use, is critical to attract and retain mobility hub patrons. Site design should reduce barriers to access, while services and amenities should cater to all types of user groups. This may be achieved through:

- Incorporate universal design elements that accommodate users with different travel needs, such as non-English speakers, families and children, persons with physical limitations or disabilities, seniors, and individuals with limited technology literacy throughout the customer journey experience
- Site design and amenities should also account for a range of traveler experience, which may range from frequent users to first-time travelers
- Specific features and touchpoints that cater to diverse user groups include navigation features, access facilities, and travel information
- Site navigation, such as wayfinding and signage, are critical to facilitating the passenger journey. These features should be located on-site and off-site to orient mobility hub patrons to and from adjacent areas and points of interest

4. Neighborhood Integration



Mobility hubs should be fully integrated into the existing neighborhood fabric to strengthen their role as a transportation hub with shared mobility services as well as a community node.

- Provide high-quality access facilities, including wide pedestrian paths and cycling tracks, for highly used routes (e.g., Iron Horse Regional Trail)
- Provide open, programmable spaces for neighborhood use, such as retail, temporary uses, programming, and public art
- Locate neighborhood amenities at mobility hubs and concentrate development adjacent to mobility hubs as appropriate

5. Technology Deployment



Corridor-wide deployment of technology at mobility hubs has the potential to greatly improve mobility services and the customer travel experience.

- Deploy trip planning systems and information at mobility hubs, including public information displays, real-time arrival information, and trip planning kiosks; include device charging and publicly available WiFi to support access to similar information from private devices
- Integrate dynamic, demand-based “Smart” systems for curbside and off-street parking management of wayfinding/motorist guidance, parking meters, reservations, enforcement, and payments
- Implement a universal transportation account for all mobility hub travel options and payments

6. Sustainability



On-site infrastructure, services, and amenities should mitigate and reduce impacts to the environment and neighboring communities. All facilities should incorporate sustainable design features and supporting infrastructure.

- Implement best management practices (BMPs) such as green treatments, bio-retention areas, impervious pavements, etc. to improve the quality of stormwater run-off
- Incorporate sustainable energy sources for on-site power generation and charging facilities, such as solar panels
- Achieve LEED certification for on-site buildings and implement treatments consistent with LEED solutions for site design
- Develop site plans and incorporate design strategies that reduce noise and light pollution

7. Parking and Curbside Management



The provision of parking and curb space should be optimized to encourage greater use of limited facilities. These spaces should also provide flexibility for future adaptation to new mobility options.

- Maximize parking efficiency through shared parking opportunities with adjacent uses
- Strategically locate parking in areas or sites with limited opportunities for other uses (e.g., parcels with irregular shapes or other site development issues)
- Prioritize space for shared mobility options, such as vanpools, carpools, and car share
- Reduce footprint of surface parking facilities through stacked parking solutions
- Provide real-time information about parking availability to allow for improved trip-planning and optimization of use
- Provide electric vehicle charging stations to encourage electric vehicle use and provide off-peak charging locations for shared and transit fleets
- Plan flexible spaces for emerging and future mobility services by retaining curb space, parking, or storage areas for future adaptation into other uses

With these program goals in mind, Shared Mobility Hubs will facilitate and encourage travelers to take alternative modes of transportation through strategic and targeted improvements to mobility hub sites within communities along the I-680 corridor.

Stakeholder Input Opportunities

Stakeholder participation was solicited at key points throughout the project. The joint Technical Advisory Committee and Concept of Operations (TAC/ConOps) working group met five times over the course of the project to provide input on items such as visioning, hub locations, toolkit and baseline conditions, typologies, needs and opportunities, site concepts, and implementation, phasing, and next steps. Participants include representatives from local transit agencies, cities, the Metropolitan Transportation Commission (MTC), California Department of Transportation (Caltrans), California Highway Patrol (CHP), and the Federal Highway Administration (FHWA). In each of these meetings, the working group received a presentation (example shown in **Figure 2**) regarding project progress and included discussion questions to encourage conversation about the topic of the meeting. The TAC meetings occurred on the following dates:

- June 15, 2020
- October 5, 2021
- January 24, 2022
- May 16, 2022
- September 12, 2022

User Research

To better understand opportunities to change travel behavior and improve mobility, the Innovate 680 Program conducted extensive audience research to gain insights on which enhancements and solutions are desired by potential users within the project area. The following section summarizes the findings from a landscape analysis and a representative survey of residents along the I-680 corridor. Both data sources provide useful insights into what can be implemented confidently and provide significant positive impacts to travelers' behaviors at these mobility hubs.

Landscape Analysis

Early in the program, CCTA conducted a Landscape Analysis, which synthesized findings and insights from peer-reviewed journals and case studies from around the world to understand their audience's behavior and preferences, barriers to and motivators to hub use, and the communications and features that support future use. The analysis utilized scholarly articles, case studies, conference presentations, government/organizational white papers and reports, and peer-agency interviews.

A look at local data revealed that 70% of Contra Costa County residents currently commute alone via car. Among those that drive alone, there are differences in behavior, barriers, perceptions, and motivators among different segments, such as life stage, proximity to hubs, income, race and ethnicity, and disability status. **Table 1** summarizes relevant user behaviors across various demographic variables.

Figure 2. TAC Meeting Presentation Slide



Table 1. User Behaviors Summary

User Behaviors by Proximity to Hub:
<ul style="list-style-type: none"> • Live within walking distance to a hub: <ul style="list-style-type: none"> ○ Walk 5-10 minutes to a transit stop, or ¼ to ½ miles ○ 2% in the Tri Valley Area walk to transit
<ul style="list-style-type: none"> • Live within 5 miles of a hub: <ul style="list-style-type: none"> ○ Use bicycles as a mode of transit for trips ○ 75 percent of e-bike and scooter trips are shorter than 2.5 miles
<ul style="list-style-type: none"> • Live more than 5 miles from hub: <ul style="list-style-type: none"> ○ More likely to drive to a hub
User Behaviors by Age
<ul style="list-style-type: none"> • Teens/Youth- Gen Z: <ul style="list-style-type: none"> ○ Take transit 2x more than people 55+ ○ Likely to use E-bikes and scooters
<ul style="list-style-type: none"> • Millennials or “Gen Y” (Age 25-39): <ul style="list-style-type: none"> ○ Less car dependent, more multimodal and active transportation usage ○ Take up to 2/3 of transit riders ○ Greater interest in ride-hailing (60%) than older generations
<ul style="list-style-type: none"> • Gen X (Age 40-54): <ul style="list-style-type: none"> ○ Greater car dependency ○ Part of the 2/3 transit riders
User Behavior by Life Stage
<ul style="list-style-type: none"> • Families with children <ul style="list-style-type: none"> ○ More likely to rely on driving ○ Mix car with other modes
<ul style="list-style-type: none"> • Couples/Families without children <ul style="list-style-type: none"> ○ Not as likely to be multimodal
<ul style="list-style-type: none"> • Retired, elderly, seniors <ul style="list-style-type: none"> ○ Greater car dependence (80% of seniors are car reliant) ○ Least likely to combine modes ○ Use of public transit decreases with age (4% for 60-69, 2% for 70 and over) ○ Ride-hailing services are less used by seniors (2.1% for people aged over 65)
User Behavior by Income
<ul style="list-style-type: none"> • Mid to high income <ul style="list-style-type: none"> ○ More likely to have car access ○ 72% of Americans in the wealthiest income quartile are multimodal drivers (drive+another mode) ○ SF Bay area earning at least \$75,000: <ul style="list-style-type: none"> ▪ 20% are transit commuters ▪ 53% are twice as likely to use ride hail service ○ More commonly commute via bike or other micromobility
<ul style="list-style-type: none"> • Low-income <ul style="list-style-type: none"> ○ Hispanic, low-income riders are more likely to have no car/license and self-identify as transit dependent in CCC ○ Low-income earners make up slightly more than half of riders across all Bay Area transit agencies

Table 2 summarizes additional findings and insights regarding user concerns, perceptions, barriers related to Shared Mobility Hubs as well as the features or amenities that are recommended.

Table 2. User Motivators, Concerns, and Priorities

Motivators of Hub Use	
•	Predictability of transit arrivals and departures via real-time information
•	Efficiency from the seamless integration of transportation options
•	Comfort and convenience to enjoy the hub and reduce the need for additional trips
User Concerns/Opportunities	
•	Access barriers, first-/last-mile issue
•	Safety and security
•	Awareness of the hubs, modes, and amenities offered
•	Wayfinding and navigation
•	Mobility options fit user needs

In regard to awareness, the landscape analysis reveals that the lack of awareness (surrounding transit centers, the transportation options they offer, and the benefits of their use) is the main cause of low utilization or mode shifts. Practitioners suggest that clear branding with bright colors and large signage at mobility hubs lead to increased awareness. **Figure 3** shows various mobility elements from a shared mobility hub in Minneapolis with highly visible branding and color theme.

Figure 3. Mobility Hub Elements



Source: The Musicant Group, Shared Mobility Hubs in Minneapolis, MN
<http://www.minneapolismn.gov/publicworks/trans/mobilityhubs>

Across the literature and case studies, five key mobility hub elements were recommended for motivating users to access the hub:

1. Signage, wayfinding, and branding
2. Security features and comforting amenities
3. A wide range of mobility options: bike/ped connections, shared mobility services, pick-up/drop-off areas, and seamless integration between modes
4. Ease of access and transfer: real-time information, wi-fi, multilingual information
5. Marketing/communication: market via employers, schools, new residents

Transportation Habit Survey (Representative Survey)

From November 2020 through January 2021, the Innovate 680 team conducted a representative survey of corridor residents about their transportation habits. Postcard invitations were sent to a random selection of households in eight cities and unincorporated communities along the corridor. The survey was available in three languages: English, Spanish, and Chinese. Out of the 50,000 invitations sent, 1,533 surveys were completed. The age bracket with the most participants was age 65+, comprising of 33% of all responders. A presentation of results from the Transportation Habit Survey is located in **Appendix B**.

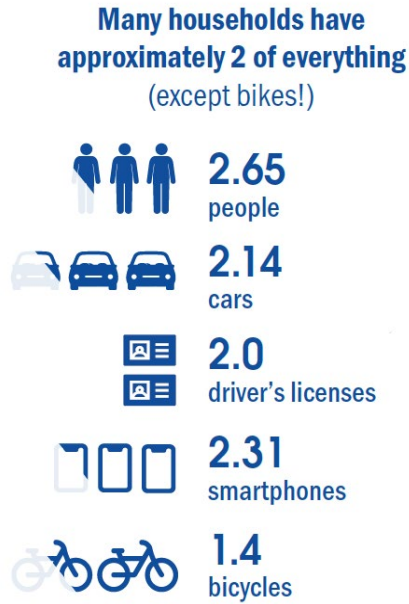
The survey showed that 68% of corridor drivers said they are interested in driving less and 44% of these drivers use the corridor daily. The survey investigated what is keeping people from leaving their cars at home and found that availability of alternative modes and issues related to travel time were the most important factors, along with the quality of the travel experience. Meanwhile, the cost of using alternative modes was one of the lowest ranked barriers, along with safety, comfort, and personal circumstances.

Roughly 1 out of 5 residents indicated they are very interested in trying the following alternative modes of transportation: carpooling with household (21%), telecommuting (17%), private bus or shuttle (15%), BART (14%), public bus (14%), or app-based rideshare (14%).

Other household statistics such as average number of people, cars, driver licenses, smartphones, versus bicycles are summarized in **Figure 4**.

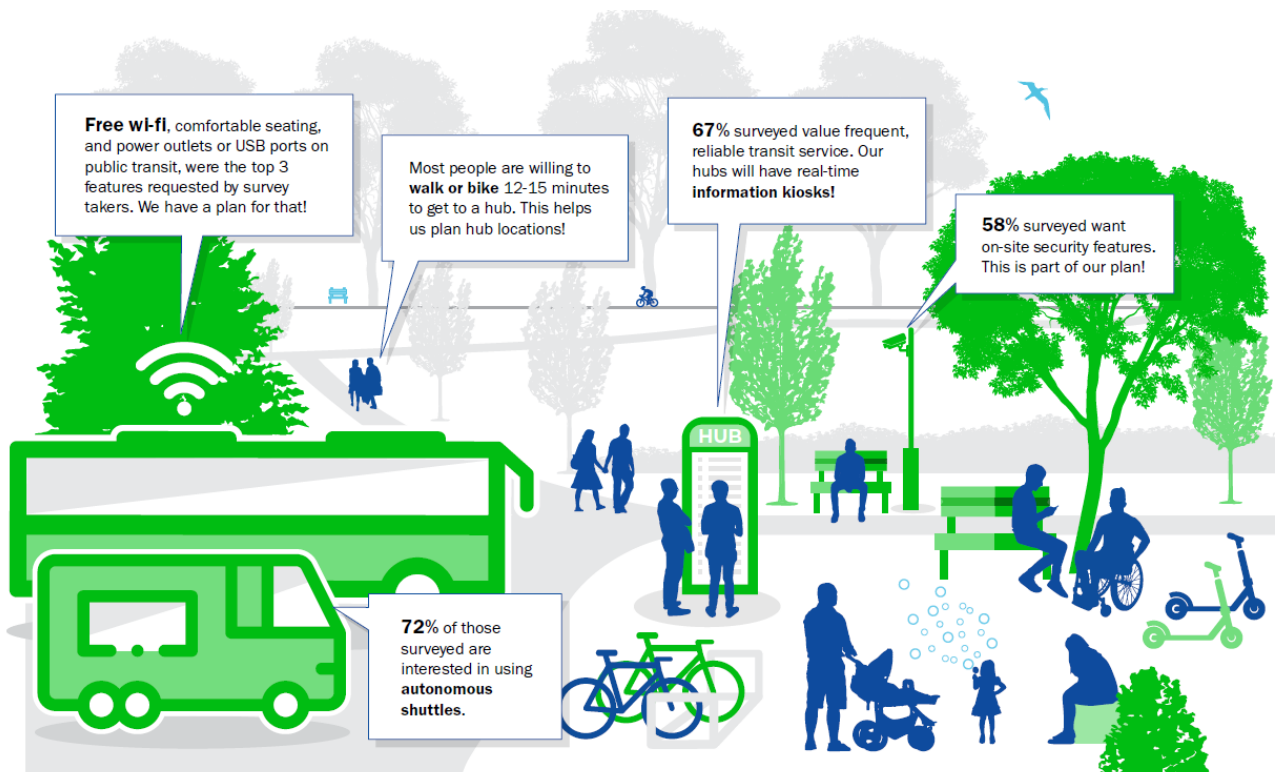
The survey also asked which features and amenities are most important; their feedback is highlighted in **Figure 5**.

Figure 4. Survey Summary Statistics



Source: CCTA Transportation Habit Survey

Figure 5. Survey Findings of Desired Features and Amenities



II

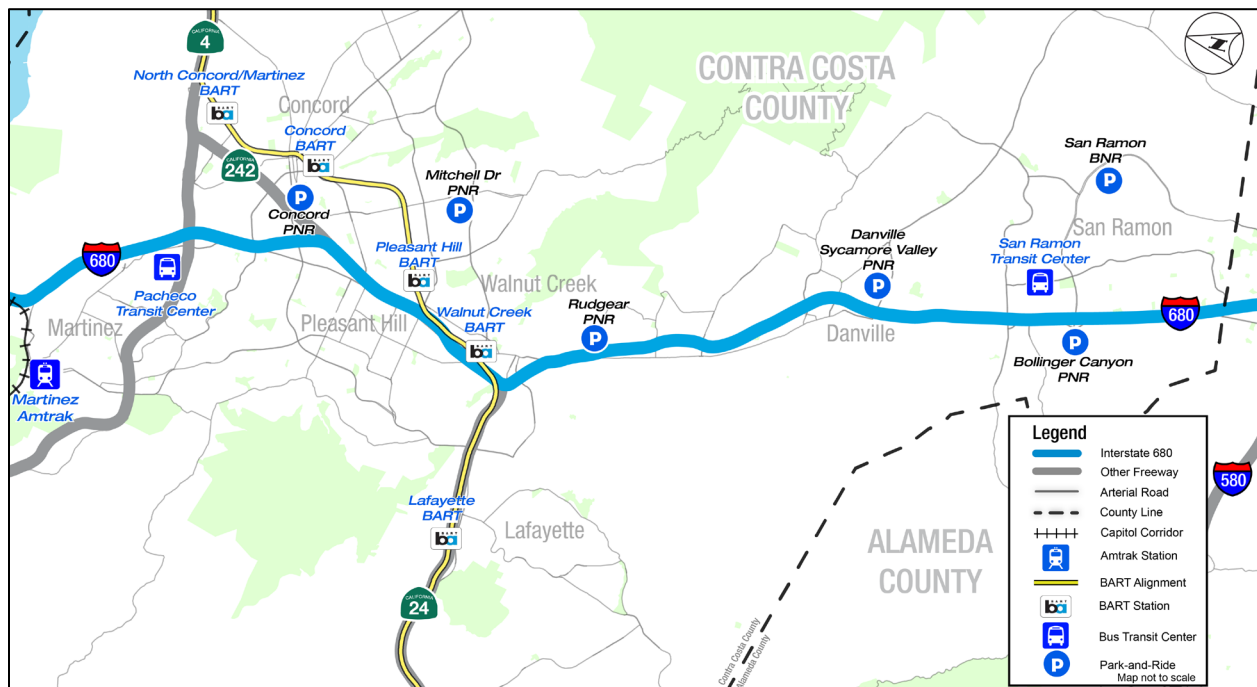
**SHARED MOBILITY HUBS
SITES, TYPOLOGIES, AND
FEATURES**

Shared Mobility Hubs Site Selection

To identify the sites for further assessment of opportunities to convert them into shared mobility hubs, the project team began by leveraging Big Data and travel demand modeling information to understand regional transportation activity along the I-680 corridor. The analysis identified a concentration of vehicle trips traveling from existing transportation nodes and residential areas within the I-680 corridor to employment destinations within the corridor (concentrated in Walnut Creek and San Ramon) and to employment centers throughout the Bay Area.

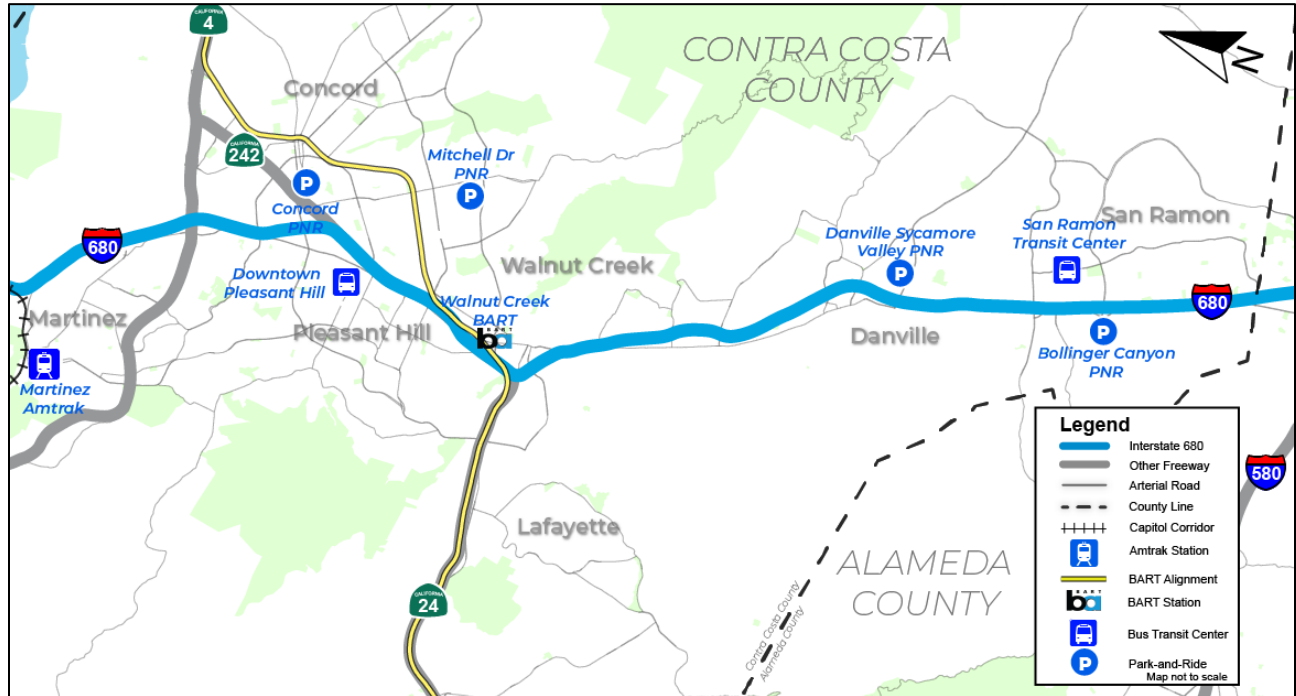
While shared mobility hubs may be configured in a variety of environments, the project is focused on identifying opportunities for upgrades to existing publicly owned transportation nodes including park-and-rides, transit centers, and activity districts, as they represent the greatest potential for near-term implementation of shared mobility services. An initial set of potential locations was developed and, based on feedback from the TAC/ConOps Working Group, refined down to the 14 locations shown in **Figure 6**.

Figure 6. Initial Shared Mobility Hub Locations



As this is a feasibility study, the project team sought to advance an array of sites that represented variety in terms of geography, existing transportation services, site ownership, and site size. Based on those criteria and consistent with the project's scope of services, 8 of the 11 sites shown in **Figure 7** were selected to advance for further study.

Figure 7. Mobility Hub Locations Selected for Detailed Analysis



Three of the eight sites are proposed stops for a new regional express bus service planned for the I-680 corridor, expected to extend between the Pleasanton Altamont Corridor Express (ACE) Station and either the Martinez Amtrak Station or the Suisun Amtrak Station. The three sites expected to be served by that express bus are: Bollinger Canyon Park-and-Ride, Walnut Creek BART, and Martinez Amtrak Station. An additional two locations are park-and-ride lots adjacent to the freeway network: Sycamore Valley Park-and-Ride and Concord Park-and-Ride. And the final three locations are transportation nodes within major employment or commercial areas: San Ramon Transit Center, Mitchell Drive Park-and-Ride (Shadelands area of Walnut Creek), and Downtown Pleasant Hill.

Shared Mobility Hubs Toolkit Features

The *Shared Mobility Hubs Implementation Strategy Toolkit* (Kimley-Horn, November 2021) was developed as a resource for identifying the types of services and amenities and their appropriate applications and implementation considerations that can be considered for the mobility hubs. Features are intended to align with the project vision and design considerations noted in the previous chapter. The Toolkit is organized by five categories of amenities, listed below. The full *Shared Mobility Hubs Implementation Strategy Toolkit* is located in **Appendix C**.



Transit Amenities: features that help riders plan trips, connect between services, access stops, and comfortably wait for their transit or mobility service.



Pedestrian Amenities: located within walking distance of the mobility hub, intended to improve pedestrian connections, enhance pedestrian network safety and comfort, enhance public spaces and improve wayfinding.



Support Services and Amenities: features available to mobility hub users that facilitate convenient use of other mobility strategies, assist users in making informed mobility choices, and provide amenities to enhance the comfort and convenience of alternative mobility options.



Bike Amenities: located within biking distance of the mobility hub, intended to expand the bike network, improve bike network safety and comfort, provide secure options for parking a bike, improve access to bikes, and allow connections to other modes such as transit.



Motorized Services and Amenities: features that efficiently use mobility hub space, maximize potential usage, and allow motorists to make informed mobility choices

Within each category, the Toolkit identifies a range of potential services and amenities that can be deployed at mobility hub sites depending on the specific mobility needs of the area.

Figure 8. Toolkit Example Pages



Shared Mobility Hubs Typologies

Shared mobility hubs can serve different purposes depending on their location, size, and the transportation services offered. For example, a location with regional transit services and a large site will likely see greater demand and different usage patterns than a highly constrained site with limited public transit services. In order to assess the types of shared mobility hub features appropriate for the various transportation needs and to expound on the best practices for the integration of shared mobility hub features, three typologies were created. These three typologies are:

- Regional Transfer Hub
- Community Mobility Hub
- 680 Access Mobility Hub

The three typologies are explained further in the following sections.

A **Regional Transfer Hub** provides a breadth of amenities and services serving large catchment areas with connection needs between local transit services and regional rail services. Typical features may include:

- Station facilities with a wide range of passenger amenities, public spaces, and transportation options, including activity centers
- Large scale park-and-ride (PNR) facilities for long and short-term parking and vehicle charging
- First/last-mile mobility services providing access for residents and workers to destinations in the station area
- May incorporate transit-oriented mixed-use development (TOD)

The Martinez Amtrak Station and the Walnut Creek BART Station were categorized as regional transfer hubs for being access points for high capacity/high-frequency regional rail and transit network, their larger size, their high levels of first- and last-mile activities, and the existing wide breadth of transportation services serving a large catchment area.

Figure 10 shows a rendering of a typical regional transfer hub and lists typical amenities found at this type of site, separated by category.

Figure 9. Regional Transfer Hub Example Rendering



Source: BART

Figure 10. Typical Regional Transfer Hub Amenities



Transit Amenities	Bicycle Amenities	Pedestrian Amenities	Motorized Services & Amenities	Support Services & Amenities
<ol style="list-style-type: none"> 1. Neighborhood Electric Vehicle Pickup/Dropoff 2. Enhanced Bus Stop 3. Fare Vending Machine 4. Microtransit/Autonomous Transit 5. Bus Layover 6. Battery Electric Bus Charging Station 7. Driver Relief Facilities 8. Transit Signal Priority 9. Dedicated Transit Lane 	<ol style="list-style-type: none"> 1. Bike Valet with <ul style="list-style-type: none"> - Repair Station - E-bike Charging 2. Bike Parking 3. Bikeshare 4. Two-Way Class IV Bike Lane 5. Scooter Share 	<ol style="list-style-type: none"> 1. Public Space 2. Walkways 3. Marked Crossings 	<ol style="list-style-type: none"> 1. Pickup/Dropoff with <ul style="list-style-type: none"> - Passenger Loading - Taxi/Transportation Network Company 2. Park-and-Ride Lot with <ul style="list-style-type: none"> - Vanpool/Carpool Priority Spaces - Carshare Spaces - Electric Vehicle Charging - Parking Reservation System 	<ol style="list-style-type: none"> 1. Wayfinding 2. Information Kiosk 3. Device Charging Station & WiFi 4. Restrooms 5. Package Delivery Station 6. Mobile Retail 7. Solar Panel Canopy 8. Ambassador 9. Real-time Information 10. Lighting 11. Real-Time Parking Availability

A **680 Access Mobility Hub** serves as a gateway to the I-680 corridor transportation network and provides connections between transit services operating on I-680 and mobility hub transportation options that serve the surrounding community. Typical features may include:

- Small to medium PNR facility for long and short-term parking and vehicle charging
- Enhanced regional express bus facilities with transit infrastructure that serves I-680 transit routes
- A range of convenient access options, including expanded pick-up/drop-off facilities and various forms of shared mobility
- Transit-supportive amenities, including real-time information, for an enhanced user experience

Figure 11. 680 Access Mobility Hub Example Rendering



Source: CCTA

The three sites were categorized as 680 Access Mobility Hubs, including the Danville Sycamore Valley Park-and-Ride, the Concord Park-and-Ride, and the Bollinger Canyon Park-and-Ride. These sites are located along the state highway network (I-680 or State Route 242) and are currently locally operated or Caltrans-operated park-and-ride lots. These sites have the opportunity to act as gateways to the I-680 corridor transportation network, providing connections between local transportation options and regional enhancements on I-680.

Figure 12 shows a rendering of a typical regional transfer hub and lists typical amenities found at this type of site, separated by category.

Figure 12. Typical 680 Access Mobility Hub Amenities



Transit Amenities	Bicycle Amenities	Pedestrian Amenities	Motorized Services & Amenities	Support Services & Amenities
<ol style="list-style-type: none"> 1. Neighborhood Electric Vehicle Pickup/Dropoff 2. Enhanced Bus Stop 3. Fare Vending Machine 4. Microtransit/Autonomous Transit 5. Bus Layover 6. Battery Electric Bus Charging Station 7. Driver Relief Facilities 8. Transit Signal Priority 9. Dedicated Transit Lane 	<ol style="list-style-type: none"> 1. Bike Valet with - Repair Station - E-bike Charging 2. Bike Parking 3. Bikeshare 4. Two-Way Class IV Bike Lane 5. Scooter Share 	<ol style="list-style-type: none"> 1. Public Space 2. Walkways 3. Marked Crossings 	<ol style="list-style-type: none"> 1. Pickup/Dropoff with - Passenger Loading - Taxi/Transportation Network Company 2. Park-and-Ride Lot 3. Vanpool/Carpool Priority Spaces 4. Carshare Spaces 5. Electric Vehicle Charging 	<ol style="list-style-type: none"> 1. Wayfinding 2. Information Kiosk 3. Device Charging Station & WiFi 4. Restrooms 5. Package Delivery Station 6. Mobile Retail 7. Solar Panel Canopy 8. Real-time Information 9. Lighting

A Community Mobility Hub

serves as a gateway connecting regional transit facilities to local housing and employment centers. Typical features may include:

- Integrated facility promoting connections between transit and shared mobility services
- Active transportation modes with connections to regional pedestrian and bicycle infrastructure
- Placemaking features that integrate with the local community and encourage social interaction

Figure 13. Community Mobility Hub Example Rendering



Source: City of Albany, GA

The three sites that were categorized as a Community Mobility Hub include the San Ramon Transit Center, the Downtown Pleasant Hill site, and the Mitchell Drive Park-and-Ride. These sites are identified within the community mobility hub category due to their proximity to major destination areas, size, and connectivity to local/commuter bus services. These sites can each serve as a connection to nearby employment hubs and housing developments, as well as become a focal point for the surrounding community with additional placemaking and activation in or around the sites.

Figure 14 shows a rendering of a typical regional transfer hub and lists typical amenities found at this type of site, separated by category.

Figure 14. Typical Community Mobility Hub Amenities



BOTTOMLEY
URBAN DESIGN

Transit Amenities

1. Neighborhood Electric Vehicle Pickup/Dropoff
2. Enhanced Bus Stop
3. Fare Vending Machine
4. Microtransit/Autonomous Transit
5. Transit Signal Priority
6. Dedicated Transit Lane

Not pictured: Battery Electric Bus Charging Station

Bicycle Amenities

1. Bike Lockers
2. Repair Station
3. E-bike Charging
4. Bike Parking
5. Bikeshare
6. Protected Bike Lane
7. Scooter Share

Pedestrian Amenities

1. Public Space
2. Walkways
3. Marked Crossings

Motorized Services & Amenities

1. Pickup/Dropoff with
 - Passenger Loading
 - Taxi/Transportation Network Company
2. Park-and-Ride Lot
3. Vanpool/Carpool Priority Spaces
4. Carshare Spaces
5. Electric Vehicle Charging

Support Services & Amenities

1. Wayfinding
2. Information Kiosk
3. Device Charging Station & WiFi
4. Restrooms
5. Package Delivery Station
6. Mobile Retail
7. Retail Services
8. Solar Panel Canopy
9. Real-Time Information
10. Lighting

The Toolkit identifies services and amenities organized within five categories: transit amenities, bicycle amenities, pedestrian amenities, motorized services and amenities, and support services and amenities.

The three mobility hub typologies and common amenities found at each type are listed below in **Figure 15**.

Figure 15. Typical Mobility Hub Features by Typology

	Transit Amenities				Bicycle Amenities			Pedestrian Amenities			Motorized Services and Amenities				Support Services and Amenities				
	Bus Layover	Bus Stop Amenities	Fare Vending Machine	Real-time Information	Bikeshare	Bike Parking/Storage	Bike Facilities	Pedestrian Facilities (walkway, crossing)	Pedestrian Amenities (lighting)	Public Space and Activities	Rideshare/Pick up – Drop off	Vanpool/Carpool	Park-and-Ride Lot	EV Charging Station	Ambassadors	Wayfinding	Information Kiosk	Wi-Fi and Device Charging Station	Retail Services
(R) Regional Transfer Hub	●	●	●	●	●	●	●	●	●	○	●	●	●	●	○	●	●	●	○
(A) 680 Access Mobility Hub	○	●	●	●	○	●	●	●	●	○	●	●	●	●	▲	●	○	○	▲
(C) Community Mobility Hub	▲	●	○	●	○	●	●	●	●	●	○	▲	▲	○	▲	●	○	▲	●

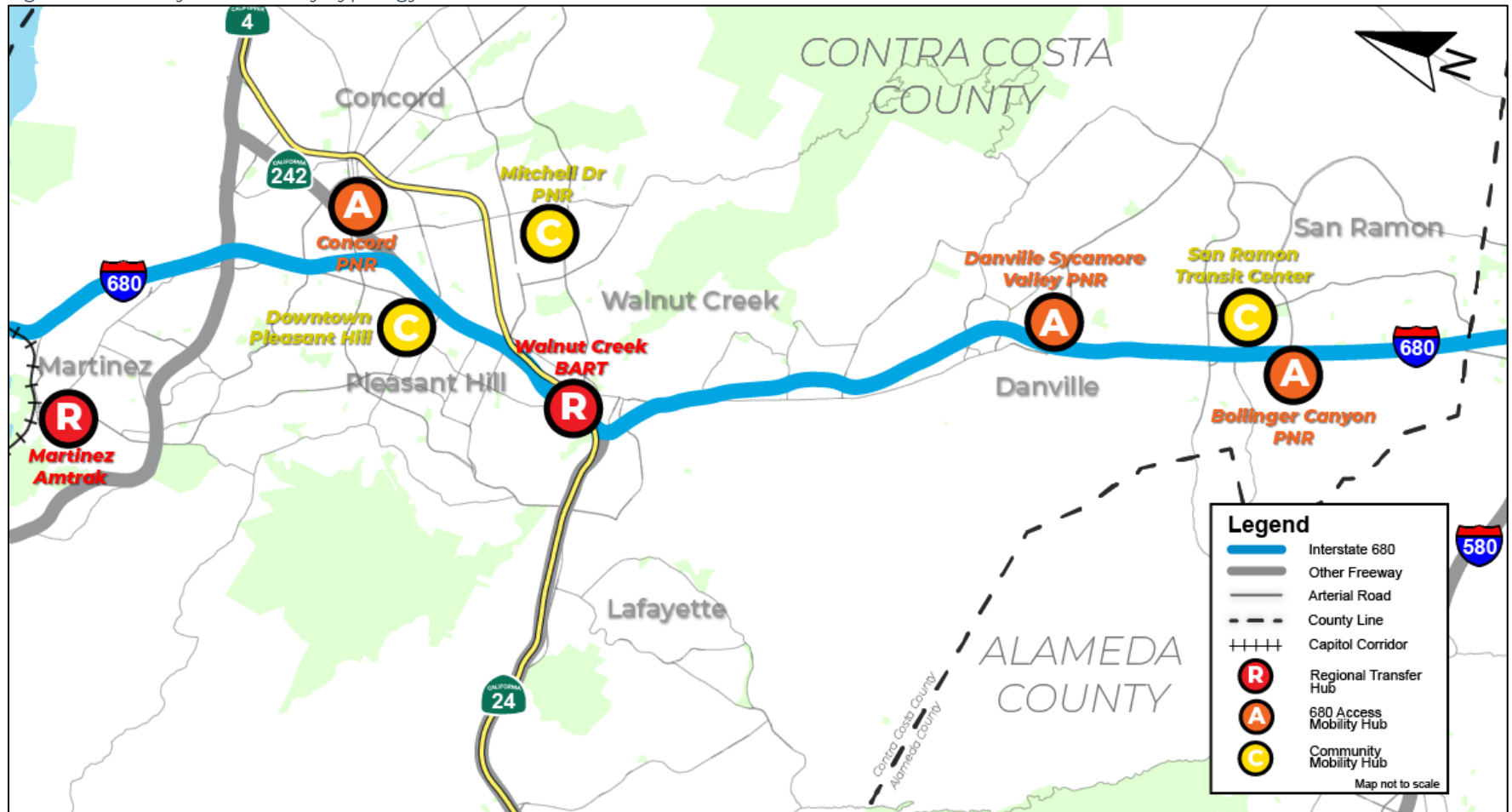
● Critical, in most cases
 ○ Recommended, but context-dependent
 ▲ May be beneficial

The assignment of the eight shared mobility hub locations included in this study with the three typologies is shown in **Table 3** and depicted on **Figure 16**. The sites were assigned to each typology based on their transportation function, physical design, and setting within the community.

Table 3. Assignment of Shared Mobility Hubs Typologies to Studied Sites

Mobility Hub Site	Current Site Type	Mobility Hub Typology
Martinez Amtrak	Transit Center	Regional Transfer Hub
Walnut Creek BART	Transit Center	Regional Transfer Hub
San Ramon Transit Center	Transit Center	Community Mobility Hub
Downtown Pleasant Hill	Downtown	Community Mobility Hub
Mitchell Drive	Park-and-Ride	Community Mobility Hub
Danville Sycamore Valley	Park-and-Ride	680 Access Mobility Hub
Concord PNR	Park-and-Ride	680 Access Mobility Hub
Bollinger Canyon	Park-and-Ride	680 Access Mobility Hub

Figure 16. Mobility Hub Sites by Typology



III

**IMPLEMENTATION AT
SHARED MOBILITY HUB
LOCATIONS**

This chapter identifies the existing transportation needs and challenges at each of the shared mobility hub sites studied as part of this project and then how those needs can be addressed through shared mobility hub improvements. It merges findings from the *Background and Issues Report* (Kimley-Horn, May 2022) found in **Appendix D** and the *Project List and Prioritization Report* (Kimley-Horn, July 2022) in **Appendix E**.

The *Background and Issues Report* highlights existing conditions, key shared mobility hub area opportunities, and constraints for each of the eight shared mobility hub locations. The identification of opportunities and constraints is based on the travel patterns analysis, review and observations of existing site and area circulation, and initial discussions with key agency stakeholders.

The *Project and Prioritization Report* builds on those needs by applying and siting shared mobility features included in the Toolkit for each of the studied sites. It identifies improvements and strategies for each site necessary to upgrade them to Shared Mobility Hubs. The report summarizes the improvements into a consolidated project list and preliminary cost estimates by improvement package along with preliminary improvement conceptual layouts.

Also included in this report is additional information regarding the process and steps to implementation for each of the improvement packages. This includes implementation strategies, the lead entity/owner responsible for advancing the improvements, key stakeholders to be involved in the process, and potential funding opportunities. This information is summarized in a table along with the improvement packages.

Martinez Amtrak Station

The Martinez Amtrak Station (Regional Mobility Hub) is located at the west end of downtown Martinez and is connected to I-680 via Marina Vista Avenue and to State Route 4 (SR 4) via Alhambra Avenue, see **Figure 17**. The Martinez Amtrak Station serves as a major hub for Northern California Amtrak service, including the Capitol Corridor, Coast Starlight, California Zephyr, and San Joaquin line.

The station has two parking lots, located on each side of the station platforms, including a recent parking lot expansion with shared-use parking to the north of the rail tracks (561 total parking spaces). The two lots and the platforms are connected by a recently constructed pedestrian overcrossing (see **Figure 18**). There are 2 EV charging stations and 7 bike racks.

Figure 17. Martinez Amtrak Station Location

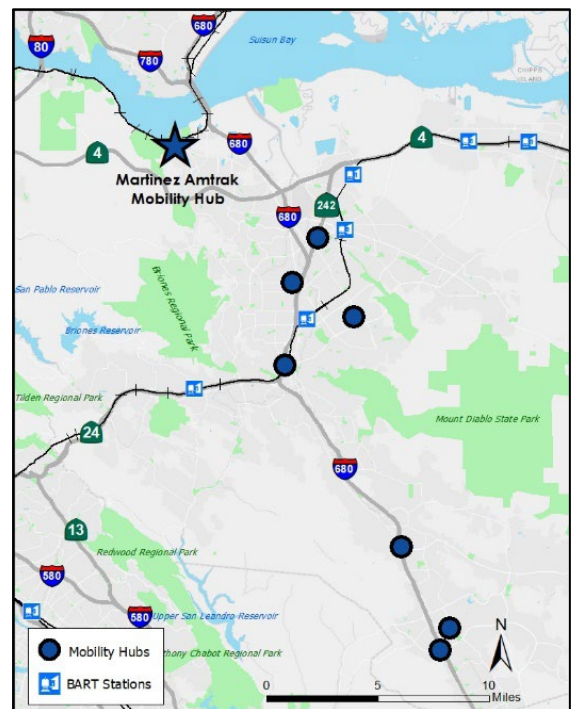


Figure 18. Pedestrian Bridge at Martinez Amtrak Station



2,370 people live within a typical walkshed (0.2 mile) and 15,314 live within the bikeshed (2 miles) from the mobility hub. There are 13,495 jobs within two miles and 6,968 workplace commuters within two miles of the Martinez Amtrak Station. Contra Costa County is the largest employer in downtown Martinez, with the Superior Court and County Government office complex on Court and Pine Streets. There is an opportunity for the hub to serve commuters and visitors to these government facilities.

Overall improvement focuses for the Martinez Amtrak station, as a Regional Mobility Hub, include:

- Expand bus capacity, enhance passenger amenities, and improve transit access and connections. The additional bus capacity is needed to accommodate the planned 680 express bus service.
- Improve pedestrian and bicycle access to the mobility hub, including new on- and off-site pedestrian and bicycle connections to the station, expanding on-site bicycle amenities, and enhancing station visibility to/from downtown destinations.
- Enhance mobility hub usability by providing carshare spaces and expanding electric vehicle (EV) charging.
- Improve station access by enlarging the area for pick-up/drop-off activities, including Transportation Network Companies (TNCs).

Sketch concepts for two phases of the improvement packages are shown in **Appendix E**. Phase 1 would build a portion of the sawtooth bus bays for County Connection and other operators but retain approximately half of the southern surface lot for parking. This is anticipated to provide sufficient capacity for current and near-term transit services. Phase 2 would build out the remainder of the bus transit center to provide additional bus bay capacity, including additional space for microtransit and bus layover. Proposed

improvements focus on enhancing station access and circulation, improving transit amenities, incorporating micromobility services, and enhancing active transportation facilities on- and off-site. Key next steps for implementation include concept development and supporting parking analysis for the on-site modifications and incorporating the proposed off-site bicycle and pedestrian improvements into City planning documents. Improvements at this site are a high priority as this is one of the three locations planned for the new 680 Express Bus service.

Proposed improvements focus on enhancing station access and circulation, improving transit amenities, incorporating micromobility services, and enhancing active transportation facilities on- and off-site. Key next steps for implementation include concept development and supporting parking analysis for the on-site modifications and incorporating the proposed off-site bicycle and pedestrian improvements into City planning documents. Improvements at this site are a high priority as this is one of the three locations planned for the new 680 Express Bus service.

Table 4 identifies proposed improvement packages and preliminary cost estimates for the site (with a 30% contingency). Proposed improvements focus on enhancing station access and circulation, improving transit amenities, incorporating micromobility services, and enhancing active transportation facilities on- and off-site. Key next steps for implementation include concept development and supporting parking analysis for the on-site modifications and incorporating the proposed off-site bicycle and pedestrian improvements into City planning documents. Improvements at this site are a high priority as this is one of the three locations planned for the new 680 Express Bus service.

Table 4. Improvement Packages for the Martinez Amtrak Regional Transfer Hub

Improvement Package	Improvement Package Description	Lead Agency	Stakeholder Partners	Timing	Next Steps	Design & Environmental Considerations and Risks	Operations	Capital Cost (2022\$)
1. Build transit center Phase 1 and reconfigure surface parking lot adjacent to the station	<ul style="list-style-type: none"> Construct up to 7 sawtooth bus bays by reconfiguring the surface parking Construct bus shelters/waiting areas, fare vending machines, WiFi amenity, CCTV cameras, and on-site real-time traveler information systems Improve the pedestrian pathways to the bus bays Construct transit-only lane on Marina Vista Ave Provide parking spaces for microtransit Provide amenities for mobile retail services Provide bus charging infrastructure 	CCTA	City of Martinez, CCCTA, CCJPA, PG&E	May be needed prior to start of 680 Express Bus	<ul style="list-style-type: none"> Parking assessment Concept design Coordination with 680 Express Bus needs 	<ul style="list-style-type: none"> Construction phasing considerations for parking impact CEQA likely Categorically Exempt (CE) 	<ul style="list-style-type: none"> Operating agreements for maintenance of enlarged transit facility 	\$7,633,000
2. Construct new passenger pick-up/drop-off area	<ul style="list-style-type: none"> Construct new passenger pick-up/drop-off curb and TNC loading zone in front of the station by reconfiguring existing parking spaces Relocate ADA spaces 	CCTA	City of Martinez, CCCTA, CCJPA	Ideally, in conjunction with Project 1	<ul style="list-style-type: none"> Parking assessment Concept design 	<ul style="list-style-type: none"> CEQA CE 	<ul style="list-style-type: none"> No specific considerations 	\$226,000
3. Implement north parking lot improvements	<ul style="list-style-type: none"> Install EV chargers and construct solar power canopies Reconfigure parking spaces for carpool, vanpool, rideshare, and ADA parking Relocate ADA spaces Implement parking reservation system for the surface parking spaces in North parking lot Provide real-time traveler digital information system 	City of Martinez/ CCTA	Adjacent businesses, private vendors (solar, carpool/vanpool, parking reservation)	May be desirable in conjunction with or shortly after Projects 1 and 2 to optimize parking usage	<ul style="list-style-type: none"> Concept design Review of parking use agreements Assess solar panel feasibility and implementation strategy 	<ul style="list-style-type: none"> CEQA CE 	<ul style="list-style-type: none"> Operating agreements for maintenance Provision of carpool/vanpool and parking reservation will require oversight and enforcement processes 	\$7,832,000
4. Implement signage and wayfinding program	<ul style="list-style-type: none"> Implement signage and wayfinding improvements on and off-site, including parking information and real-time traveler information at locations on and off-site Implement monument and lighting for on- and off-site locations 	CCTA	City of Martinez, MTC, adjacent businesses	Near-term	<ul style="list-style-type: none"> Coordinate on overall signage program requirements Determine signage locations 	<ul style="list-style-type: none"> CEQA CE Need to assess design solutions for wayfinding/signage on non-City property Consistent with MTC Regional Transit Wayfinding Guidelines 	<ul style="list-style-type: none"> Develop operating and maintenance (O&M) agreements between agencies Explore advertising revenue opportunities 	\$993,000
5. Implement on-site bike storage, charging, and shared bicycle facilities	<ul style="list-style-type: none"> Construct bike parking and storage for on-site bike facility area Construct E-bike charging station and bike repair station Construct bike sharing facilities Construct plaza and lighting improvements near bike facility area 	CCTA, City of Martinez	Private vendors (bike parking)	Off-site improvements for access likely a precursor in order to generate bike parking demand; may require re-alignment of Castro Street (Package 8)	<ul style="list-style-type: none"> Quantify bike storage needs and space requirements Identify charging requirements Determine implementation strategy, public-private partnerships 	<ul style="list-style-type: none"> Assess bike electric charging infrastructure requirements CEQA CE 	<ul style="list-style-type: none"> Determine operations strategy, may include O&M agreements for bicycle parking and charging infrastructure 	\$1,678,000
6. Implement off-site transit signal priority (TSP) projects	<ul style="list-style-type: none"> Implement TSP at key off-site intersections along transit routes, including Marina Vista Avenue/Escobar Street, Alhambra Avenue/Berrellesa Street 	CCTA	City of Martinez, CCCTA	Ideally, in conjunction with Project 1	<ul style="list-style-type: none"> CCTA to continue advancing regional cloud-based TSP technology Study locations and parameters of implementation 	<ul style="list-style-type: none"> Identify hardware and software requirements for signal controllers CEQA CE 	<ul style="list-style-type: none"> Develop an O&M agreement between CCTA, City, and transit operator(s) 	\$358,000

Improvement Package	Improvement Package Description	Lead Agency	Stakeholder Partners	Timing	Next Steps	Design & Environmental Considerations and Risks	Operations	Capital Cost (2022\$)
7. Construct off-site pedestrian/bicycle improvements	<ul style="list-style-type: none"> Construct off-site bike lanes and sharrows on Ferry St and Castro St Construct pedestrian and bicycle walkways through Sparacino Park and high visibility crosswalks at major intersections on Marina Vista Avenue at Alhambra Avenue, Castro Street, Estudillo Street, and Ferry Street Construct bike improvements on Marina Vista Ave/Escobar St east of downtown and Alhambra Ave/Berrellesa St and Court St/Pine St to the south Implement enhanced wayfinding and signage on major pedestrian routes to major employment sites at the Contra Costa County Superior Court and County government office complex around Court Street and provide real-time transit information at these employment sites Improve bicycle wayfinding to major destinations south of downtown (Contra Costa Regional Medical Center, Alhambra High School, Veterans Affairs Martinez). Install secure bike parking and bike charging infrastructure at these locations 	City of Martinez	CCTA	As funding permits	<ul style="list-style-type: none"> Planning and feasibility studies for off-site active transportation infrastructure Incorporate into active transportation plan 	<ul style="list-style-type: none"> CEQA likely exempt via SB 922 Likely will require coordination with local businesses and residents around parking impacts 	<ul style="list-style-type: none"> No specific considerations 	\$12,058,000
8. Build transit center Phase 2	<ul style="list-style-type: none"> Reconfigure the remainder of the parking lot to add an additional 7 sawtooth bus bays, including for microtransit Construct bus charging station, relief, CCTV cameras, and layover area Reconstruct Castro Street north of Marina Vista, including the bus-only lane Construct the public plaza with mobile retail services 	CCTA	City of Martinez, CCCTA, CCJPA	As bus service levels warrant	<ul style="list-style-type: none"> Implement Phase 1 as predecessor Monitor transit service levels to determine if/when additional bus bay capacity is needed. May be triggered by microtransit service. 	<ul style="list-style-type: none"> CEQA likely Categorically Exempt (CE) 	<ul style="list-style-type: none"> Operating agreements for maintenance of enlarged transit facility 	\$4,867,000
9. Implement a shared mobility services program for microtransit, micromobility, and vanpool/carpool services	<ul style="list-style-type: none"> Create a microtransit, micromobility, and vanpool/carpool program with a private-sector operator Operator is responsible for mobility services, infrastructure (docks, charging, signage), branding and marketing, and data sharing with public agencies 	CCTA	CCCTA, City of Martinez	Near-term, ideally in conjunction with parking reduction in Project 1	<ul style="list-style-type: none"> Microtransit feasibility study, determining service areas, service levels, and fares Analysis of micromobility partnership opportunities and programs Assessment of integration with countywide/corridor-wide vanpool/carpool programs Coordination with MOD/MaaS on app and payment structure 	<ul style="list-style-type: none"> Need to integrate mobility services with infrastructure at the station, such as bike share docks, microtransit parking spaces, and carshare / EV charging infrastructure CEQA CE 	<ul style="list-style-type: none"> Operating agreements with private shared mobility companies to operate the service or with CCCTA Agreements should define service parameters, rules, data sharing, maintenance requirements, and vendor agreement details Coordination with MOD/MaaS on operational elements 	Capital Cost TBD based on Operating Structure
Total								\$35,645,000

Concord Park-and-Ride

The Concord Park-and-Ride (680 Access Mobility Hub) is bounded by Willow Pass Road, Market Street, State Route (SR) 242, and freeway ramps, see **Figure 19**. It is located entirely on Caltrans property. Pedestrian access is provided to Market Street. The park-and-ride (PNR) has 45 public parking spaces and is located close to many retail and residential areas on either side of SR 242. While it is not directly served by existing bus routes, several bus stops are located a short walk away. **Figure 20** shows an image of the Market Street access to the Concord park-and-ride lot.

6,489 people live within a typical walkshed (0.2 mile) and 58,167 live within the bikeshed (2 miles) from the mobility hub. There are 43,041 jobs within two miles and 27,130 workplace commuters within two miles of the Concord PNR. The Concord mobility hub area has the most residents within the walkshed, bikeshed, and driveshed of any of the mobility hub sites, as well as the second highest number of jobs within the bikeshed, emphasizing the potential benefit in this area for mobility improvements.

The Concord PNR is located in an area with substantially higher equity priority communities, with 29% of the population living below the federal poverty line and 65% of the population noted as persons of color. Approximately 8 percent of households within 2 miles of the mobility hub do not have access to a vehicle, the highest percentage amongst the mobility hubs in this analysis.

Overall improvement focuses for the Concord PNR, as a 680 Access Mobility Hub, include:

- Increase the utilization of the lot by accommodating microtransit, carpool/vanpool, and other modes.
- Improve pedestrian and bicycle access to the mobility hub and provide on-site bicycle amenities.
- Expand mobility choices throughout the mobility hub area through improved bicycle and pedestrian safety, new and expanded shared mobility services programs, and improved transit amenities.

A sketch concept depicting the improvement packages is included in **Appendix E**.

Figure 19. Concord Park-and-Ride Location



Figure 20. Concord Park-and-Ride Market Street Access

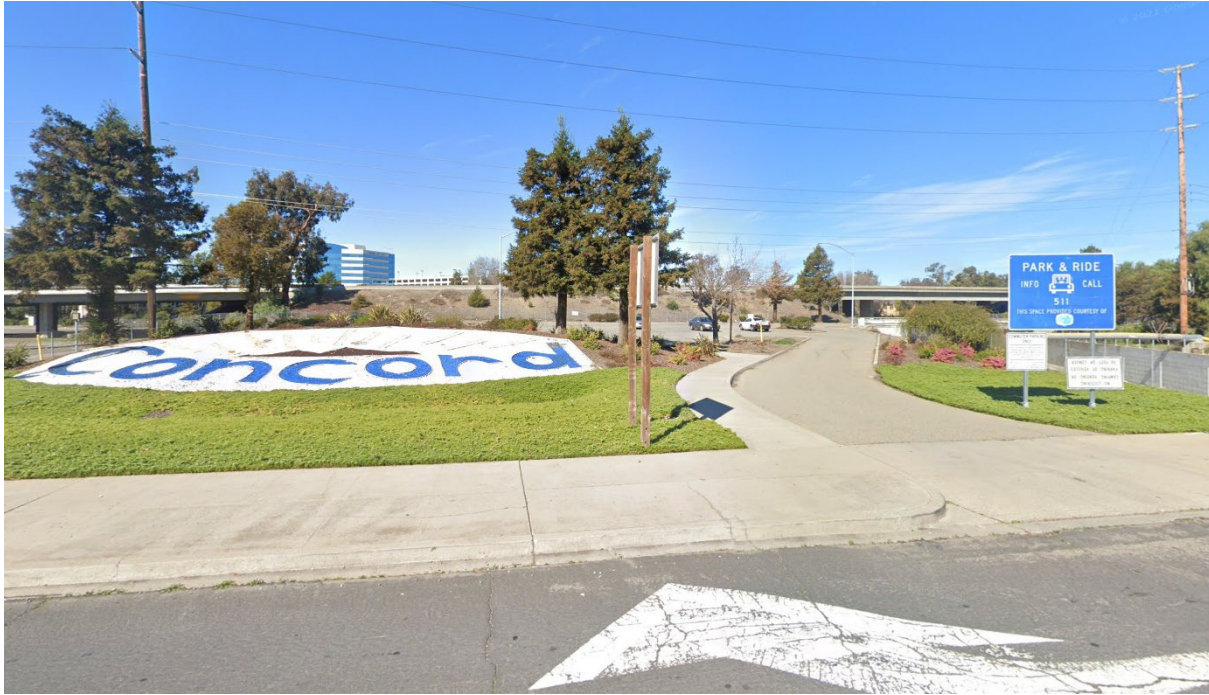


Table 5 identifies the proposed improvement packages as well as the cost estimates for each package (with a 30% contingency). The improvements focus on modifying parking access and circulation to improve accessibility and accommodate microtransit, thereby improving transit access for equity priority communities. Due to its close proximity to local residential areas and commercial businesses, the Concord PNR should primarily aim to serve as a first- and last-mile transfer point.

Table 5. Improvement Packages for the Concord 680 Access Mobility Hub

Improvement Package	Improvement Package Description	Lead Agency	Stakeholder Partners	Timing	Next Steps	Design & Environmental Considerations and Risks	Operations	Capital Cost (2022\$)
1. Reconfigure the parking lot and create a new ingress from the southbound SR 242 ramps	<ul style="list-style-type: none"> Expand and reconfigure the parking lot with a new ingress point from the SR 242 ramps Construct a transit curb with space for up to 4 microtransit shuttles or other transit vehicles Construct bus shelters and real-time traveler information systems Install solar power canopies, lighting, and CCTV cameras Restripe the parking lot and install EV charging and dedicated space for ADA, rideshare, carpool/vanpool parking Install monument/placemaker along with on-site signage and wayfinding Construct a pedestrian plaza to the east of the parking lot and create new sidewalks around the edge of the site Install secure bicycle parking, electric bike charging, bicycle repair station, and bikeshare facilities 	CCTA	City of Concord, CCCTA, Caltrans, PG&E	In conjunction with additional transit (microtransit) service	<ul style="list-style-type: none"> Concept design Caltrans coordination and Co-Op Agreement Quantify bike storage needs and space requirements Identify charging requirements Determine implementation strategy, public-private partnerships 	<ul style="list-style-type: none"> Requires modification to City of Concord signage Will require close coordination with Caltrans to secure modifications to ramp configuration Assess bike electric charging infrastructure requirements CEQA likely Categorically Exempt (CE) 	<ul style="list-style-type: none"> Operating agreements for maintenance of enlarged transit facility Determine operations strategy, including O&M agreements for CCTVs monitoring, bicycle parking, and charging infrastructure Provision of operations and maintenance agreements to determine oversight, enforcement processes for carpool/vanpool/EV/rideshare parking and bicycle storage reservation 	\$9,139,000
2. Construct off-site bus stop and pedestrian and bicycle improvements	<ul style="list-style-type: none"> Reconstruct off-site bus stops on Clayton Rd, Market St, and Willow Pass Rd with enhanced shelters and lighting Improve bus stop amenities and accessibility at bus stops throughout the hub shed area, including CCTV cameras, lighting, shelters; prioritized by existing ridership Implement sidewalk improvements, wayfinding, high visibility crosswalks, and bicycle treatments on nearby streets, including Market Street, Willow Pass Road, and Clayton Road Modify intersections and conflict points to improve safety and access to the residential areas southeast of the mobility hub and surrounding commercial and employment centers 	City of Concord	CCTA, CCCTA	As funding permits	<ul style="list-style-type: none"> Planning and feasibility studies for off-site active transportation infrastructure Incorporate into active transportation plan 	<ul style="list-style-type: none"> CEQA likely exempt via SB 922 Right-of-way may limit bus stop improvements 	<ul style="list-style-type: none"> Bus stop upgrades may increase operating cost 	\$3,280,000
3. Construct new pedestrian and bicycle access to Willow Pass Rd	<ul style="list-style-type: none"> Construct a new pedestrian and bicycle bridge or widen the existing bridge from the mobility hub over the channel to connect with Willow Pass Rd 	CCTA	City of Concord, CCCTA, Caltrans	As funding permits	<ul style="list-style-type: none"> Concept development and cost estimate 	<ul style="list-style-type: none"> Channel crossing may require additional environmental studies 	<ul style="list-style-type: none"> No specific considerations 	\$1,005,000

Improvement Package	Improvement Package Description	Lead Agency	Stakeholder Partners	Timing	Next Steps	Design & Environmental Considerations and Risks	Operations	Capital Cost (2022\$)
4. Implement a shared mobility services program	<ul style="list-style-type: none"> Create a microtransit, micromobility, and vanpool/carpool program to connect to nearby commercial areas, downtown Concord, and residential areas to the southeast Operator is responsible for mobility services, infrastructure (docks, charging, signage), branding and marketing, and data sharing with public agencies 	CCTA	CCCTA, City of Concord	Based on operational feasibility	<ul style="list-style-type: none"> Microtransit feasibility study, determining service areas, service levels, and fares Analysis of micromobility partnership opportunities and programs Assessment of integration with countywide/corridor-wide vanpool/carpool programs Coordination with MOD/MaaS on app and payment structure 	<ul style="list-style-type: none"> Need to integrate mobility services with infrastructure at the station, such as bike share docks, microtransit parking spaces, and carshare / EV charging infrastructure CEQA CE 	<ul style="list-style-type: none"> Operating agreements with private shared mobility companies to operate the service or with CCCTA Agreements should define service parameters, rules, data sharing, maintenance requirements, and vendor agreement details Coordination with MOD/MaaS on operational elements 	Capital Cost TBD based on operating structure
5. Implement off-site transit-signal priority (TSP) projects	<ul style="list-style-type: none"> Implement TSP at key intersections on Market St and Clayton Rd 	CCTA	City of Concord, CCCTA	Clayton Road TSP is currently advancing; expand area as funding permits	<ul style="list-style-type: none"> CCTA to continue advancing regional cloud-based TSP technology Study locations and parameters of implementation 	<ul style="list-style-type: none"> Identify hardware and software requirements for signal controllers CEQA CE 	<ul style="list-style-type: none"> Develop an O&M agreement between CCTA, City, and transit operator 	\$235,000
Total								\$13,659,000

Downtown Pleasant Hill

The Downtown Pleasant Hill Mobility Hub is proposed for a location near City Hall at the southeast corner of Gregory Lane and Cleveland Road, shown in **Figure 21**. The area currently consists of the City Hall building, two municipal parking lots, and an adjacent park. Nearby points of interest include Pleasant Hill Park, the Downtown Pleasant Hill Shopping Mall, and surface and structured parking supporting commercial uses. The mobility hub area is served by County Connection bus routes on both Cleveland Road and Gregory Lane. **Figure 22** shows the existing city hall parking lot.

4,184 people live within a typical walkshed (0.2 mile) and 48,324 live within the bikeshed (2 miles) from the mobility hub. There are 32,946 jobs within two miles and 23,582 workplace commuters within two miles of the Concord Park-and-Ride. The station currently has 3 bike racks, 43 total parking spots, and 2 EV charging stations. The Downtown Pleasant Hill area has the second highest number of residents within the walkshed and bikeshed. It also has the second highest proportion of residents below the federal poverty line (20%). Notably, it had among the largest proportion of residents within the bikeshed of the sites evaluated, emphasizing the need for improved

Figure 22. Pleasant Hill City Hall Parking Lot

bicycle and short-distance transit mobility options in this hub area.

Figure 21. Downtown Pleasant Hill Location



Overall improvement focuses for the Downtown Pleasant Hill station, as a Community Mobility Hub, include:

- Provide additional mobility options for accessing City Hall and nearby civic and retail uses through new and expanded shared mobility services and amenities.
- Enhance pedestrian and bicycle connectivity and safety on nearby streets.
- Improve the desirability and efficiency of transit through TSP and bus stop improvements.

A sketch concept depicting the improvement packages is included in **Appendix E**.

Table 6 identifies the proposed improvement packages as well as the cost estimates for each package (with a 30% contingency). The improvements focus on enhancing pedestrian and bicycling connectivity to the mobility hub and within the surrounding community, prioritizing transit through TSP and bus stop improvements, and providing additional mobility options with micro- and shared mobility services.

Table 6: Improvement Packages for Downtown Pleasant Hill Community Mobility Hub

Improvement Package	Improvement Package Description	Lead Agency	Stakeholder Partners	Timing	Next Steps	Design & Environmental Considerations and Risks	Operations	Capital Cost (2022\$)
1. Construct mobility hub amenities at City Hall	<ul style="list-style-type: none"> Restripe the parking lot adjacent to Gregory Ln with carshare, carpool/vanpool, and ADA spaces Install lighting, solar power canopies, signage and wayfinding and real-time traveler information at key locations Install secure bicycle parking, E-bike charging, bike repair station, and bike sharing facilities on Trelany Rd Install secure bicycle parking and bike sharing facilities at the southeast corner of Gregory Ln / Cleaveland Rd Construct a TNC pick-up/drop-off and microtransit stop with passenger amenities on Gregory Lane adjacent to City Hall block 	CCTA	City of Pleasant Hill, CCCTA, PG&E	As funding permits	<ul style="list-style-type: none"> Concept design Assess solar panel feasibility and implementation strategy Quantify bike storage needs and space requirements Identify charging requirements Determine implementation strategy, public-private partnerships 	<ul style="list-style-type: none"> CEQA likely Categorically Exempt (CE) Assess bike electric charging infrastructure requirements 	<ul style="list-style-type: none"> Determine operations strategy, may include O&M agreements for bicycle parking and charging infrastructure 	\$3,924,000
2. Construct off-site pedestrian/bicycle improvements	<ul style="list-style-type: none"> Construct high visibility bicycle and pedestrian crosswalks at intersection of Gregory Ln and Cleaveland Rd Implement a road diet on Cleaveland Rd from Gregory Ln south to Boyd Rd and construct bike lanes on Cleaveland Rd from Gregory Ln to Boyd Rd Provide sharrows on Gregory Ln Install pedestrian hybrid beacons (PHBs) on Gregory Lane and Cleaveland Road at intersections with Trelany Road to improve access to bus stops and overall walkability Construct a shared pedestrian and bicycle path connecting Crescent Drive to Trelany Road with lighting and other path enhancements Improve pedestrian and bicycle connections to the senior housing and residential areas to the north and south of the mobility hub 	City of Pleasant Hill	CCTA	As funding permits	<ul style="list-style-type: none"> Planning and feasibility studies for off-site active transportation infrastructure Incorporate into active transportation plan 	<ul style="list-style-type: none"> CEQA likely exempt via SB 922 Road diet will require community engagement 	<ul style="list-style-type: none"> No specific considerations 	\$6,217,000
3. Implement off-site transit-signal priority (TSP) projects, bus stop improvements, and improved wayfinding	<ul style="list-style-type: none"> Implement TSP at Cleaveland Road/Gregory Lane Install enhanced bus shelters, lighting, CCTV cameras, and wayfinding at existing bus stops on Cleaveland Rd and Gregory Ln Incorporate wayfinding and real-time transit information into bus stops, plazas, and commercial and employment areas around Downtown Pleasant Hill 	CCTA	City of Pleasant Hill, CCCTA	As funding permits	<ul style="list-style-type: none"> CCTA to continue advancing regional cloud-based TSP technology Study locations and parameters of implementation Coordinate on overall signage program requirements Determine signage locations 	<ul style="list-style-type: none"> Identify hardware and software requirements for signal controllers Need to assess design solutions for wayfinding/signage on non-City property Consistent with MTC Regional Transit Wayfinding Guidelines CEQA CE 	<ul style="list-style-type: none"> Develop an O&M agreement between the CCTA, City, and transit operator Explore advertising revenue opportunities 	\$1,551,000

Improvement Package	Improvement Package Description	Lead Agency	Stakeholder Partners	Timing	Next Steps	Design & Environmental Considerations and Risks	Operations	Capital Cost (2022\$)
4. Implement a shared mobility services program	<ul style="list-style-type: none"> • Create a microtransit, micromobility, and vanpool/carpool program • Operator is responsible for mobility services, infrastructure (docks, charging, signage), branding and marketing, and data sharing with public agencies 	CCTA	CCCTA, City of Pleasant Hill	Based on operational feasibility	<ul style="list-style-type: none"> • Analysis of microtransit service areas and feasibility • Analysis of micromobility partnership opportunities and programs • Assessment of integration with countywide/corridor-wide vanpool/carpool programs • Assess infrastructure requirements 	<ul style="list-style-type: none"> • Need to integrate mobility services with infrastructure at the station, such as bike share docks, microtransit parking spaces, and carshare / EV charging infrastructure • CEQA CE 	<ul style="list-style-type: none"> • Operating agreements with private shared mobility companies to operate the service or with CCCTA • Agreements should define service parameters, rules, data sharing, maintenance requirements, and vendor agreement details 	Capital Cost TBD based on operating structure
Total								\$11,693,000

Mitchell Drive Park-and-Ride

The Mitchell Drive Park-and-Ride is located in Shadelands Business Park approximately 0.4 miles north of Ygnacio Valley Road and two miles east of I-680, see **Figure 23**. It is owned by the City of Walnut Creek. The park-and-ride is close to several large office buildings, several high schools, the Contra Costa School of Performing Arts, shopping centers, senior housing, and other residential uses. Four County Connection bus routes stop on Mitchell Drive at the park-and-ride. The park-and-ride has 92 public parking spaces and 3 bike racks. **Figure 24** shows the entrance to the park-and-ride from Mitchell Drive.

The Mitchell Drive area notably had the second highest percentage of short distance driving trips to the hub area relative to the other sites. More trips are made into the hub area from within 2 miles of the hub area than from beyond 2 miles of the hub area.

4,017 people live within a typical walkshed (0.2 mile) and 45,208 live within the bikeshed (2 miles) from the mobility hub. There are 18,697 jobs within two miles and 13,586 workplace commuters within two miles of the Mitchell Drive Park and Ride.

Figure 23. Mitchell Drive Park-and-Ride Location



Figure 24. Mitchell Drive Park-and-Ride Entrance



Overall improvement focuses for the Mitchell Drive PNR, as a Community Mobility Hub, include:

- Provide additional mobility options for accessing Shadelands and nearby schools through new and expanded shared mobility services and amenities, including additional traveler information and wayfinding/signage.
- Improve pedestrian and bicycle access improvements in the Shadelands area as envisioned in the *Shadelands Multi-Modal Improvement Plan* (Fehr & Peers, February 2021).
- Connect the mobility hub to regional trails and destinations, including the Contra Costa Canal Trail and nearby schools.
- Increase utilization of the PNR through prioritization of vanpool/carpool and rideshare services, as well as EV charging.

A sketch concept depicting the improvement packages is included in **Appendix E**.

Table 7 identifies the proposed improvement packages as well as the cost estimates for each site (with a 30% contingency). Proposed improvements focus on advancing planned off-site bicycle and pedestrian facilities and incorporating shared mobility service programs. The narrow configuration of the site limits the opportunity for shared mobility services. Therefore, one of the recommended packages is to further assess opportunities in other locations in Shadelands for a new transit hub.

Table 7. Improvement Packages for the Mitchell Drive Community Mobility Hub

Improvement Package	Improvement Package Description	Lead Agency	Stakeholder Partners	Timing	Next Steps	Design & Environmental Considerations and Risks	Operations	Capital Cost (2022\$)
1. Construct mobility hub amenities in the Mitchell Drive lot	<ul style="list-style-type: none"> Restripe parking lot to incorporate spaces for rideshares services, vanpool/carpool, EV charging, and ADA Install lighting, solar power canopies, CCTV cameras, wayfinding, static parking signage, and a parking reservation system Install secure bicycle parking, bike repair and bike sharing facilities at the entrance on Mitchell Dr Construct enhanced pedestrian and bicycle paths along the eastern edge of the mobility hub 	CCTA	City of Walnut Creek, CCCTA, PG&E	As funding permits	<ul style="list-style-type: none"> Concept design Assess solar panel feasibility and implementation strategy Quantify bike storage needs and space requirements Identify charging requirements Determine implementation strategy, public-private partnerships 	<ul style="list-style-type: none"> Assess bike electric charging infrastructure requirements CEQA likely Categorically Exempt (CE) 	<ul style="list-style-type: none"> Determine operations strategy, may include O&M agreements for bicycle parking and charging infrastructure Operating agreements for maintenance Provision of carpool/vanpool and parking reservation will require oversight and enforcement processes 	\$7,180,000
2. Construct off-site improvements along Mitchell Drive	<ul style="list-style-type: none"> Construct new bus shelters/waiting areas, fare vending machines, WiFi amenity, lighting, wayfinding, and information kiosk at bus stops near the mobility hub entrance Construct passenger and TNC pick-up/drop-off area on Mitchell Dr Construct bicycle facilities on Mitchell Drive extending to the east and west of the mobility hub site Construct high visibility bicycle and pedestrian crosswalks across Mitchell Dr Improve pedestrian and bicycle access and wayfinding from key points along Ygnacio Valley Rd, Oak Grove Rd, and Wiget Ln 	City of Walnut Creek	CCTA	As funding permits	<ul style="list-style-type: none"> Planning and feasibility studies for off-site active transportation infrastructure Coordinate on overall signage program requirements Determine signage locations Incorporate into active transportation plan Coordinate transit improvements with City of Walnut Creek Bus Stop Improvement Plan 	<ul style="list-style-type: none"> CEQA likely exempt via SB 922 Consistent with MTC Regional Transit Wayfinding Guidelines 	<ul style="list-style-type: none"> No specific considerations 	\$3,583,000
3. Create a new connection to the Contra Costa Canal Trail	<ul style="list-style-type: none"> Construct a new pedestrian and bicycle connection from the mobility hub to the Contra Costa Canal Trail through the Walnut Creek Police Department property Create a new bridge over the canal and provide enhanced wayfinding to the schools north of the canal 	City of Walnut Creek	CCTA	As funding permits	<ul style="list-style-type: none"> Design feasibility of access through Police Department property and new canal crossing 	<ul style="list-style-type: none"> May require environmental studies for new canal crossing Requires coordination with Police Department to assess access feasibility 	<ul style="list-style-type: none"> No specific considerations 	\$844,000
4. Implement a shared mobility services program	<ul style="list-style-type: none"> Create a microtransit, micromobility, and vanpool/carpool program Operator is responsible for mobility services, infrastructure (docks, charging, signage), branding and marketing, and data sharing with public agencies 	CCTA	CCCTA, City of Walnut Creek	Based on operational feasibility	<ul style="list-style-type: none"> Microtransit feasibility study, determining service areas, service levels, and fares Analysis of micromobility partnership opportunities and programs Assessment of integration with countywide/corridor-wide vanpool/carpool programs Coordination with MOD/MaaS on app and payment structure 	<ul style="list-style-type: none"> Need to integrate mobility services with infrastructure at the station, such as bike share docks, microtransit parking spaces, and carshare / EV charging infrastructure CEQA CE 	<ul style="list-style-type: none"> Operating agreements with private shared mobility companies to operate the service or with CCCTA Agreements should define service parameters, rules, data sharing, maintenance requirements, and vendor agreement details Coordination with MOD/MaaS on operational elements 	Capital Cost TBD based on operating structure

Improvement Package	Improvement Package Description	Lead Agency	Stakeholder Partners	Timing	Next Steps	Design & Environmental Considerations and Risks	Operations	Capital Cost (2022\$)
5. Identify locations for other mobility hubs in the Shadelands Business Park	<ul style="list-style-type: none"> Identify other opportunities for additional mobility hub locations closer to Ygnacio Valley Rd with enhanced local, express, and microtransit services to destinations in the Shadelands Business Park 	CCTA	City of Walnut Creek, Shadelands Business Park	Near-term	<ul style="list-style-type: none"> Coordinate with stakeholders to identify parcels in the Business Park for space for mobility hub amenities 	<ul style="list-style-type: none"> Site may require acquisition and environmental clearance 	<ul style="list-style-type: none"> Operational responsibility to be determined 	Capital Cost TBD
Total								\$11,607,000

Walnut Creek BART Station

Walnut Creek BART Station is located in northern downtown Walnut Creek, adjacent to I-680, serving as the gateway to the I-680 corridor transportation network and to the downtown Walnut Creek community, see **Figure 25**. The station is currently a major intermodal hub being served by BART, County Connection, Solano Express, LAVTA, Rossmoor shuttle services, and school buses. The mobility hub includes an elevated BART station, two parking garages (the South garage is privately owned and operated), and a bus transfer center underneath one of the garages.

4,107 people live within a typical walkshed (0.2 mile) and 45,208 live within the bikeshed (2 miles) from the mobility hub. There are 52,428 jobs within two miles and 22,411 workplace commuters within two miles of the Walnut Creek BART station. The Walnut Creek station area has over 15% of residents below the federal poverty line and 35% are minority.

These facilities provide a total of 2,150 parking spaces, 12 ADA accessible spaces, and over 115 bicycle racks and 72 bike lockers. The South garage has real-time parking availability. **Figure 26** shows some of the bicycle parking facilities available at this site.

Figure 25. Walnut Creek BART Location

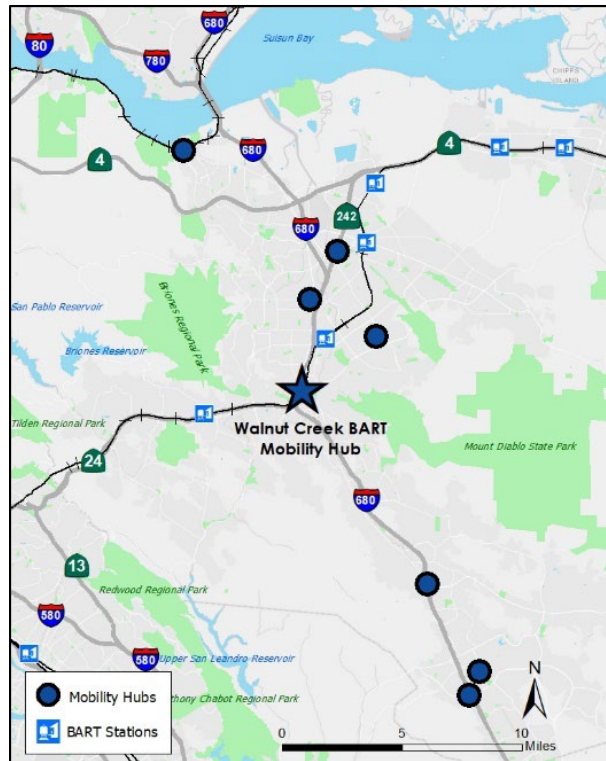
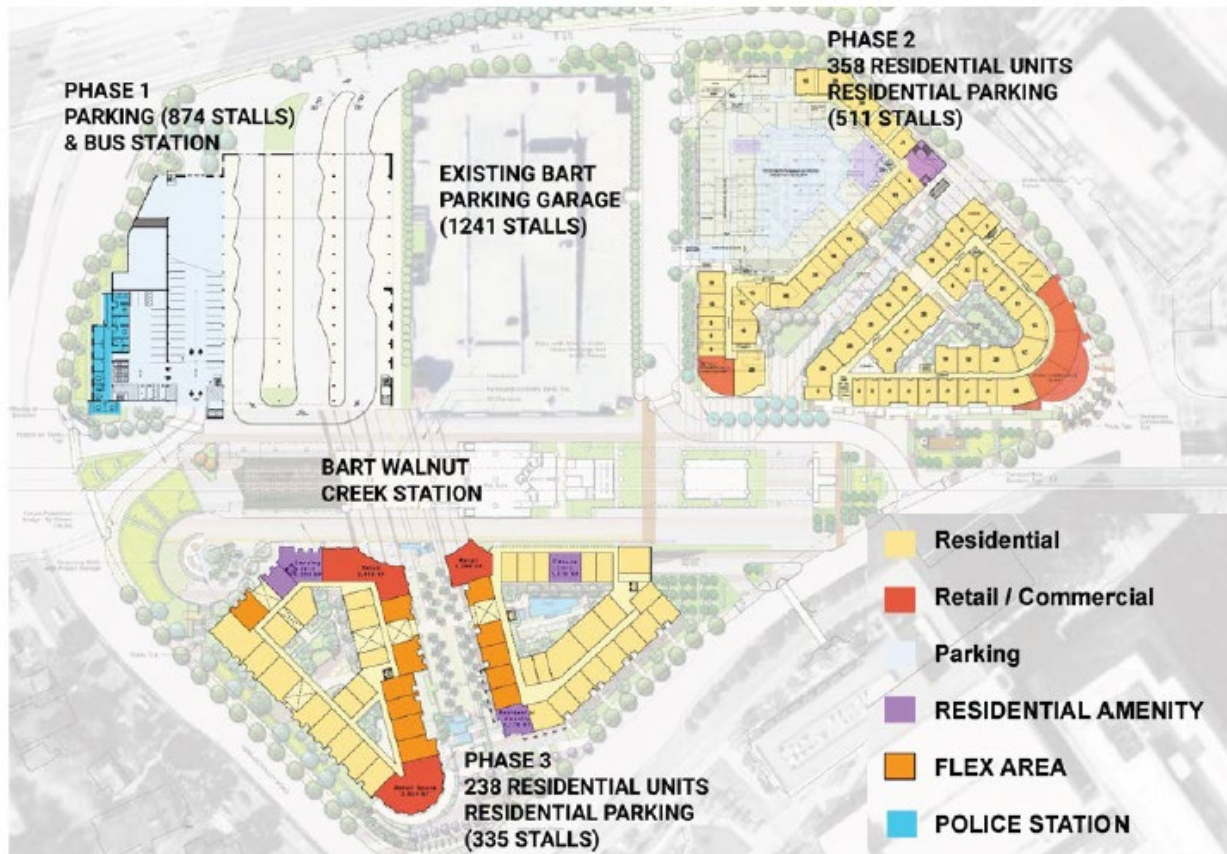


Figure 26. Bicycle Storage at Walnut Creek BART Station



The Walnut Creek Transit Village, transit-oriented development (TOD), is currently under construction at the station; the TOD will include 596 multi-family housing units and 27,000 square feet of retail space. **Figure 27** shows the site plan of the TOD project.

Figure 27. Walnut Creek Transit Village Site Plan



Source: City of Walnut Creek

Overall improvement focuses for the Walnut Creek BART station, as Regional Transfer Hub, include:

- Improve bicycle connectivity by implementing on-site bicycle amenities and bike connections and off-site bicycle projects to connect to regional destinations and trails.
- Increase station utilization by adding amenities for and prioritizing microtransit, car share, and shared micromobility services.
- Improve user experience by providing amenities such as improved signage and wayfinding and installing EV chargers, solar power canopies, and Wi-Fi.
- Improve transit access by implementing off-site transit signal priority (TSP) projects at key access points.

A sketch concept depicting the improvement packages is included in **Appendix E**.

Table 8 identifies the improvement packages as well as the cost estimates for each package (with a 30% contingency). Proposed improvements focus on enhancing bicycle access to the station, improving transit information and wayfinding throughout the community, and incorporating additional shared mobility features at the station. While this station is one of the three locations identified for the planned 680 Express Bus service, sufficient bus bays are provided to accommodate that service. Therefore, while the improvements at this location will benefit all transit users, including those of the new service, they aren't critical to be implemented prior to the start of that service.

Table 8. Improvement Packages for the Walnut Creek BART Regional Transfer Hub

Improvement Package	Improvement Package Description	Lead Agency	Stakeholder Partners	Timing	Next Steps	Design & Environmental Considerations and Risks	Operations	Capital Cost (2022\$)
1. Implement north parking garage projects	<ul style="list-style-type: none"> • Install EV charging infrastructures • Implement changes to carpool/vanpool and car share spaces inside the garage • Implement real-time traveler information and parking availability systems • Install solar power canopy 	BART	CCTA, City of Walnut Creek	Ideally, prior to the structure returning to full utilization	<ul style="list-style-type: none"> • Coordinate with BART on concept design for specific improvements to be included • Assess solar panel feasibility and implementation strategy 	<ul style="list-style-type: none"> • Construction phasing considerations • CEQA likely CE 	<ul style="list-style-type: none"> • Operating agreements for maintenance • Provision of carpool/vanpool will require oversight and enforcement processes 	\$14,853,000
2. Implement south parking garage projects	<ul style="list-style-type: none"> • Incorporate microtransit and autonomous transit services into the south garage bus transfer facility • Install WiFi and device charging amenity, package delivery stations, and information kiosks • Construct driver relief facility, fare vending machines, and on-site real-time traveler information systems • Install electric bus charging infrastructures 	BART	CCTA, CCCTA, other transit agencies, City of Walnut Creek, garage owner, PG&E	Based on timing of microtransit service	<ul style="list-style-type: none"> • See Project 7 for shared mobility services • Concept design 	<ul style="list-style-type: none"> • Charging equipment will require assessment of capacity and connections • CEQA likely CE 	<ul style="list-style-type: none"> • Operating agreements for maintenance • Provision of microtransit could require bus bay re-assignment 	\$1,160,000
3. Implement signage and wayfinding program	<ul style="list-style-type: none"> • Implement signage, wayfinding at key locations on- and off-site • Install monument or placemarkers at three locations • Install bike stair channels 	CCTA	BART, City of Walnut Creek, nearby businesses and residential complexes	BART currently planning a wayfinding project for on-site improvements	<ul style="list-style-type: none"> • Coordinate with BART on their planned signage and wayfinding project • Coordinate on additional signage program requirements • Determine signage locations 	<ul style="list-style-type: none"> • CEQA CE • Need to assess design solutions for wayfinding/signage on non-City property • Consistent with MTC Regional Transit Wayfinding Guidelines 	<ul style="list-style-type: none"> • Develop operating and maintenance (O&M) agreements between agencies • Opportunity for advertising revenue when consistent with BART exclusive advertising contract 	\$933,000
4. Implement bike storage, charging, and shared bicycle facilities and other on-site changes	<ul style="list-style-type: none"> • Construct bike parking and bike storage for on-site bike facility area including bike sharing facilities • Construct E-bike charging station 	BART	CCTA, City of Walnut Creek, private vendors (bike parking)	As demand warrants	<ul style="list-style-type: none"> • Coordinate with BART on feasibility studies • Quantify bike storage needs and space requirements • Identify charging requirements • Determine implementation strategy, public-private partnerships 	<ul style="list-style-type: none"> • Assess bike electric charging infrastructure requirements • CEQA CE 	<ul style="list-style-type: none"> • Determine operations strategy, may include O&M agreements for parking and charging infrastructure 	\$1,980,000

Improvement Package	Improvement Package Description	Lead Agency	Stakeholder Partners	Timing	Next Steps	Design & Environmental Considerations and Risks	Operations	Capital Cost (2022\$)
5. Construct off-site pedestrian/bicycle improvements	<ul style="list-style-type: none"> Construct off-site bike facilities on Riviera Ave, Parkside Dr, N California Blvd, Oakland Blvd, and along Hillside Ave and through Phase II/III development parcels Construct pedestrian/bicycle access improvements to Mobility Hub along Ygnacio Valley Rd, California Blvd, and through the Phase II/III development parcels Install secure bike parking, shared micromobility services, and bike charging infrastructure at key destinations in downtown Provide real-time transit information, lighting at major commercial, medical and employment destinations in and around Downtown. 	City of Walnut Creek	CCTA, Caltrans	As funding permits	<ul style="list-style-type: none"> Planning and feasibility studies for off-site active transportation infrastructure Incorporate into active transportation plan 	<ul style="list-style-type: none"> CEQA likely exempt, via SB 922 Likely will require coordination with local businesses and residents around potential for parking impacts Coordination with local businesses to expand off-site parking supply 	No specific considerations	\$8,434,000
6. Implement off-site transit-signal priority (TSP) projects	<ul style="list-style-type: none"> Implement TSP at key intersections on Ygnacio Valley Road and California Blvd 	CCTA	City of Walnut Creek, CCCTA	Currently advancing at some locations	<ul style="list-style-type: none"> CCTA to continue advancing regional cloud-based TSP technology Study locations and parameters of implementation 	<ul style="list-style-type: none"> Identify hardware and software requirements for signal controllers CEQA CE 	<ul style="list-style-type: none"> Develop an O&M agreement between CCTA, the City, and transit operator(s) 	\$119,000
7. Implement a shared mobility services program	<ul style="list-style-type: none"> Create a microtransit, micromobility, and vanpool/carpool program with a private-sector operator Operator is responsible for mobility services, infrastructure (docks, charging, signage), branding and marketing, and data sharing with public agencies 	CCTA	BART, CCCTA, City of Walnut Creek	Based on operational feasibility	<ul style="list-style-type: none"> Microtransit feasibility study, determining service areas, service levels, and fares Analysis of micromobility partnership opportunities and programs Assessment of integration with countywide/corridor-wide vanpool/carpool programs Coordination with MOD/MaaS on app and payment structure 	<ul style="list-style-type: none"> Need to integrate mobility services with infrastructure at the station, such as bike share docks, microtransit parking spaces, and carshare / EV charging infrastructure CEQA CE 	<ul style="list-style-type: none"> Operating agreements with private shared mobility companies to operate the service or with CCCTA Agreements should define service parameters, rules, data sharing, maintenance requirements, and vendor agreement details Coordination with MOD/MaaS on operational elements Separate property agreement between BART and shared micromobility operators 	Capital Cost TBD based on operating structure
Total								\$27,480,000

Danville Sycamore Valley Park-and-Ride

The Danville Sycamore Valley Park-and-Ride is located in the northeast quadrant of the I-680 and Sycamore Valley Road interchange, see **Figure 28**. The lot is owned and maintained by the Town of Danville. This Mobility Hub is currently served by five County Connection routes that connect to other regional rail services such as BART and ACE Train. The mobility hub primarily serves residential neighborhoods and local shopping centers on both sides of I-680. The hub is also adjacent to the Iron Horse Regional Trail. The park-and-ride has 240 public parking spaces, 24 bike racks, and 12 bike lockers. **Figure 29** shows a school bus at the park-and-ride bus stop.

2,024 people live within a typical walkshed (0.2 mile) and 14,689 live within the bikeshed (2 miles) from the mobility hub. There are 8,606 jobs within two miles and 8,801 workplace commuters within two miles of the Danville Sycamore Valley Park-and-Ride.

Figure 28. Danville Sycamore Valley PNR Location



Figure 29. Danville Sycamore Valley PNR Bus Stop



Overall improvement focuses for the Danville Sycamore Valley PNR, as a 680 Access Mobility Hub, include:

- Expand on-site transit facilities to increase transit capacity and amenities, including real-time traveler information systems.
- Provide enhanced pedestrian and bicycle connections to the Iron Horse Trail, including additional bike storage.
- Improve mobility hub access through access and circulation improvements along Sycamore Valley Road for buses, bikes, and pedestrians.
- Increase the utilization of the mobility hub through expanded pick-up/drop-off areas, EV charging, shared mobility services, and carpool/vanpool priority treatments.

A sketch concept depicting the proposed improvement packages is included in **Appendix E**.

Table 9 identifies the proposed improvement packages as well as the cost estimates for each site. The improvements focus on expanding transit capacity, improving connections to/from the Iron Horse Trail, allowing for additional bus service via an in-line stop on I-680, and improving bicycle and pedestrian accessibility.

Table 9. Improvement Packages for the Danville Sycamore Valley 680 Access Mobility Hub

Improvement Package	Improvement Package Description	Lead Agency	Stakeholder Partners	Timing	Next Steps	Design & Environmental Considerations and Risks	Operations	Capital Cost (2022\$)
1. Construct transit related improvements	<ul style="list-style-type: none"> Widen the parking lot footprint to construct the transit loop and modifications to the ingress and egress lanes in the south portion of the lot Construct four bus bays along the west edge of the south site for buses along with enhanced bus shelters/waiting areas, lighting, CCTV system, fare vending machines, Wi-Fi amenities, real-time traveler information systems, electric bus charging infrastructure, and pedestrian walkways Construct mobility hub amenities inside the loop, which include pick-up/drop-off diagonal “pull through” parking spaces, solar canopies, a public plaza with mobile retail options, and bicycle amenities (secure parking, e-bike charging, bicycle repair station, bike share station) Construct monument and parking information signage at the entrance driveway 	CCTA	Town of Danville, CCCTA	Desirable to implement prior to lot returning to full utilization	<ul style="list-style-type: none"> Concept design Quantify bike storage needs and space requirements Identify charging requirements Determine implementation strategy, public-private partnerships 	<ul style="list-style-type: none"> Construction phasing considerations for parking impacts Assess bike electric charging infrastructure requirements CEQA likely Categorical Exempt (CE) 	<ul style="list-style-type: none"> Operating agreements for maintenance of enlarged transit facility Assess opportunities for increased transit service Investigate opportunity to charge private employer shuttles for use of property in order to fund operations and maintenance 	\$6,957,000
2. Reconfigure the parking lot and provide on-site pedestrian/bicycle connections	<ul style="list-style-type: none"> Implement parking reservation system, traveler information systems Modify parking lot to provide parking spaces dedicated to EV charging, rideshare, carpool/vanpool, and ADA spaces Construct pedestrian/bicycle path connecting to Iron Horse Trail along the eastern edge of the site Widen shared pedestrian/bicycle path connecting to Sycamore Valley Road Install lighting and solar power canopies throughout project site 	Town of Danville	CCTA, private vendors (solar, carpool/vanpool, parking reservation), PG&E	Ideally, in conjunction with Project 1	<ul style="list-style-type: none"> Concept design Assess solar panel feasibility and implementation strategy 	<ul style="list-style-type: none"> CEQA CE 	<ul style="list-style-type: none"> Operating agreements for maintenance Provision of carpool/vanpool and parking reservation will require oversight and enforcement processes 	\$14,565,000
3. Construct in-line bus stop	<ul style="list-style-type: none"> Construct an in-line bus stop on the northbound I-680 on-ramp with a shelter/waiting areas, lighting, CCTV system, and real-time traveler information Provide a pedestrian path to the in-line bus stop from the bus stops within the mobility hub 	CCTA	Caltrans, Town of Danville, CCCTA	Identify feasibility of serving stop with 680 Express Bus service	<ul style="list-style-type: none"> Concept design Assess feasibility of integrating with 680 Express Bus service Coordination with Caltrans to determine approval process 	<ul style="list-style-type: none"> CEQA CE Need design assessment to determine ramping for connections 	<ul style="list-style-type: none"> Operating agreements for maintenance of transit facility in Caltrans ROW 	\$2,308,000

Improvement Package	Improvement Package Description	Lead Agency	Stakeholder Partners	Timing	Next Steps	Design & Environmental Considerations and Risks	Operations	Capital Cost (2022\$)
4. Construct off-site pedestrian/bicycle improvements	<ul style="list-style-type: none"> Construct a two-way cycletrack and improved sidewalk along the north side of Sycamore Valley Rd from the mobility hub to San Ramon Valley Blvd west of the site Improve bicycle facilities on San Ramon Valley Road, Sycamore Valley Road east of Camino Ramon, and Camino Ramon within the mobility hub bikeshed including signal modifications Provide high visibility bicycle and pedestrian crosswalks and wayfinding at Sycamore Valley Road and Camino Ramon 	Town of Danville	CCTA	As funding permits	<ul style="list-style-type: none"> Planning and feasibility studies for off-site active transportation infrastructure Incorporate into active transportation plan 	<ul style="list-style-type: none"> CEQA likely exempt via SB 922 Requires coordination with Caltrans for improvements across interchange Requires lane reduction on Sycamore Valley Rd 	<ul style="list-style-type: none"> No specific considerations 	\$5,045,000
5. Implement off-site transit-signal priority (TSP) projects	<ul style="list-style-type: none"> Implement TSP at key intersections on Sycamore Valley Road at the I-680 off-ramps and the mobility hub access driveway / Camino Ramon intersection 	CCTA	Town of Danville, Caltrans, CCCTA	Ideally, in conjunction with Project 1	<ul style="list-style-type: none"> CCTA to continue advancing regional cloud-based TSP technology Study locations and parameters of implementation 	<ul style="list-style-type: none"> Identify hardware and software requirements for signal controllers CEQA CE 	<ul style="list-style-type: none"> Develop an O&M agreement between the City, Caltrans, and transit operator(s) 	\$477,000
6. Implement a shared mobility services program	<ul style="list-style-type: none"> Create a microtransit, micromobility, and vanpool/carpool program Operator is responsible for mobility services, infrastructure (docks, charging, signage), branding and marketing, and data sharing with public agencies 	CCTA	CCCTA, Town of Danville	Based on operational feasibility	<ul style="list-style-type: none"> Microtransit feasibility study, determining service areas, service levels, and fares Analysis of micromobility partnership opportunities and programs Assessment of integration with countywide/corridor-wide vanpool/carpool programs Coordination with MOD/MaaS on app and payment structure 	<ul style="list-style-type: none"> Need to integrate mobility services with infrastructure at the station, such as bike share docks, microtransit parking spaces, and carshare / EV charging infrastructure CEQA CE 	<ul style="list-style-type: none"> Operating agreements with private shared mobility companies to operate the service or with CCCTA Agreements should define service parameters, rules, data sharing, maintenance requirements, and vendor agreement details Coordination with MOD/MaaS on operational elements 	Capital Cost TBD based on operating structure
Total								\$29,353,000

San Ramon Transit Center

The San Ramon Transit Center is located at the eastern end of Executive Parkway in the Bishop Ranch Business Park in the City of San Ramon, see **Figure 30**. It is located near several office buildings, Iron Horse Trail, and the Bishop Ranch parking garage. The transit center serves six weekday County Connection bus routes and two weekend routes. The transit center has 52 public parking spaces, including 7 EV charging spaces, along with bike racks and lockers and public restrooms.

Figure 31 shows the entrance to the transit center, and **Figure 32** shows some of the EV charging spaces available on-site.

2,467 people live within a typical walkshed (0.2 mile) and 18,206 live within the bikeshed (2 miles) from the mobility hub. There are 37,669 jobs within two miles and 9,696 workplace commuters within two miles of the San Ramon Transit Center.

Figure 30. San Ramon Transit Center Location

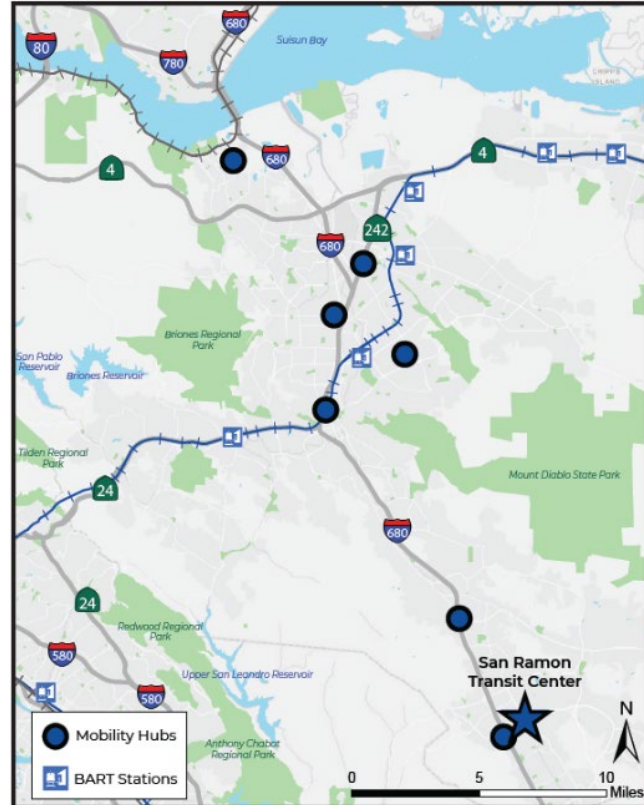


Figure 31. San Ramon Transit Center Entrance



Figure 32. San Ramon Transit Center EV Charging Stations



Overall improvement focuses for the San Ramon Center station, as a Community Mobility Hub, include:

- Increase the bus capacity of the transit center by adding and improving the usability of bus bays.
- Better connect the mobility hub to surrounding employment areas and regional trails through new pedestrian and bicycle facilities at and near the mobility hub.
- Increase visibility and awareness of the mobility hub through features such as improved signage, wayfinding, and traveler information.
- Expand the effectiveness of the mobility hub through new shared mobility services programs within and around Bishop Ranch.

A sketch concept depicting the proposed improvement packages is shown in **Appendix E**.

Table 10 provides the improvement packages of the site as well as the cost estimates for each package (with a 30% contingency). Proposed improvements focus on expanding bus transit capacity, incorporating new shared mobility services, and enhancing bicycle and pedestrian access to the site, including from the Iron Horse Trail.

Table 10. Improvement Packages for the San Ramon Transit Center Community Mobility Hub

Improvement Package	Improvement Package Description	Lead Agency	Stakeholder Partners	Timing	Next Steps	Design & Environmental Considerations and Risks	Operations	Capital Cost (2022\$)
1. Construct transit related improvements within the existing San Ramon Transit Center footprint	<ul style="list-style-type: none"> Install real-time traveler information systems, fare vending machines, WiFi, enhanced bus shelters/waiting areas, electric bus charging facilities, and a solar power canopies over the transit island Reconstruct transit center to accommodate 7 sawtooth bus bays and expand the transit island to the south Reconfigure the parking lot to accommodate the expanded bus area and an expanded pick-up/drop-off area Create a new egress driveway at the south end of the center Provide EV charging spaces along the eastern edge of the site Provide parking spaces dedicated to rideshare, carpool/vanpool, and ADA spaces Install lighting, signage, monuments, CCTV cameras, and wayfinding on- and off-site, including parking information, package delivery stations, real-time traveler information, and mobile retail services infrastructures Install secure bicycle parking, E-bike charging, bike repair station, and bike sharing facilities on the expanded transit island Build an enhanced pedestrian/bicycle path to Iron Horse Trail 	CCTA	City of San Ramon, CCCTA, Bishop Ranch, PG&E, private vendors (solar, bikeshare, bike parking)	As soon as funding permits given needs for additional bus capacity	<ul style="list-style-type: none"> Concept design Coordination with Bishop Ranch on access easement for parking egress Assess solar panel feasibility and implementation strategy Quantify bike storage needs and space requirements Identify charging requirements Determine implementation strategy, public-private partnerships 	<ul style="list-style-type: none"> Easement needed for egress through Bishop Ranch property Coordination with adjacent day care facility CEQA likely CE Assess bike electric charging infrastructure requirements 	<ul style="list-style-type: none"> Operating agreements for maintenance of enlarged transit facility Determine operations strategy, may include O&M agreements for bicycle parking and charging infrastructure 	\$10,338,000
2. Modify first level of the parking garage to integrate with the transit center	<ul style="list-style-type: none"> Restripe eastern portion of the first level of the parking garage to provide rideshare, carpool/vanpool, and reserved parking spaces Install parking availability infrastructure and real-time traveler information system Construct new pedestrian connections from the first level of the parking garage to the transit center 	Bishop Ranch	CCTA, City of San Ramon, private vendors (carpool/vanpool, parking reservation)	As coordination with Bishop Ranch permits	<ul style="list-style-type: none"> Coordination with Bishop Ranch Parking assessment Concept design 	<ul style="list-style-type: none"> Improvements are on private property and will need to be implemented in partnership with the developer Would need to coordinate modifications to parking garage access control CEQA CE 	<ul style="list-style-type: none"> Provision of carpool/vanpool and parking reservation will require oversight and enforcement processes Operating agreements for maintenance with Bishop Ranch 	\$350,000

Improvement Package	Improvement Package Description	Lead Agency	Stakeholder Partners	Timing	Next Steps	Design & Environmental Considerations and Risks	Operations	Capital Cost (2022\$)
3. Construct off-site pedestrian/bicycle improvements	<ul style="list-style-type: none"> Construct bike lanes along Camino Ramon Construct high visibility crosswalks at the Camino Ramon/Executive Parkway intersection Provide dedicated bicycle facilities along Executive Parkway, Norris Canyon Road, and Bishop Drive Provide transit priority treatments along bus routes within Bishop Ranch Provide a pedestrian and bicycle path to connect the Mobility Hub to Alcosta Boulevard 	City of San Ramon	Bishop Ranch, CCTA	As funding permits	<ul style="list-style-type: none"> Planning and feasibility studies for off-site active transportation infrastructure Incorporate into active transportation plan and/or Bishop Ranch Master Plan 	<ul style="list-style-type: none"> CEQA likely exempt, can utilize exemptions such as SB 922 Connection to Alcosta Boulevard may require coordination with adjacent school 	<ul style="list-style-type: none"> No specific considerations 	\$2,013,000
4. Implement signage and wayfinding program with off-site transit signal priority (TSP)	<ul style="list-style-type: none"> Implement TSP at key intersections within Bishop Ranch Install monument/placemaker signs, signage and wayfinding, parking information, and real-time traveler information at the Mobility Hub and at key off-site locations 	CCTA	City of San Ramon, CCCTA, adjacent businesses	As funding permits	<ul style="list-style-type: none"> Coordinate on overall signage program requirements Determine signage locations CCTA to continue advancing regional cloud-based TSP technology Study locations and parameters of implementation 	<ul style="list-style-type: none"> CEQA CE Need to assess design solutions for wayfinding/signage on non-City property Consistent with MTC Regional Transit Wayfinding Guidelines Identify hardware and software requirements for signal controllers 	<ul style="list-style-type: none"> Develop operating and maintenance (O&M) agreements between agencies Explore advertising revenue opportunities Develop an O&M agreement between the CCTA, City, and transit operator(s) 	\$451,000
5. Implement a shared mobility services program	<ul style="list-style-type: none"> Create a microtransit, micromobility, and vanpool/carpool program Implement a frequent shuttle connection to City Center and other Bishop Ranch attractions Operator is responsible for mobility services, infrastructure (docks, charging, signage), app development, payment, branding and marketing, and data sharing with public agencies 	CCTA, Bishop Ranch	CCCTA, City of San Ramon	Near-term in coordination with Bishop Ranch	<ul style="list-style-type: none"> Microtransit feasibility study, determining service areas, service levels, and fares Analysis of micromobility partnership opportunities and programs Assessment of integration with countywide/corridor-wide vanpool/carpool programs Coordination with MOD/MaaS on app and payment structure 	<ul style="list-style-type: none"> Need to integrate mobility services with infrastructure at the station, such as bike share docks, microtransit parking spaces, and carshare / EV charging infrastructure CEQA CE 	<ul style="list-style-type: none"> Operating agreements with private shared mobility companies to operate the service or with CCCTA Agreements should define service parameters, rules, data sharing, maintenance requirement, and vendor agreement details Coordination with MOD/MaaS on operational elements 	Capital Cost TBD based on operating structure
Total								\$13,152,000

Bollinger Canyon Park-and-Ride

The Bollinger Canyon Park-and-Ride is located at the southwest corner of Bollinger Canyon Road and I-680, see **Figure 33**. It is located entirely on Caltrans property, approximately 0.4 miles west of the City Center Bishop Ranch shopping center. The park-and-ride has 109 public parking spaces and is most often used by casual carpoolers or as a pickup point for private employer shuttles. The only transit service directly adjacent to the mobility hub is a school route with a single trip. No EV charging or other amenities are currently provided.

While the existing Park-and-Ride has been identified for a mobility hub as part of this effort, with major retail, commercial and employment centers east of I-680, it would be beneficial to have a Shared Mobility Hub on the east side of I-680, in the vicinity of Bishop Ranch and City Center, in coordination with Sunset Development.

Figure 33. Bollinger Canyon PNR Location

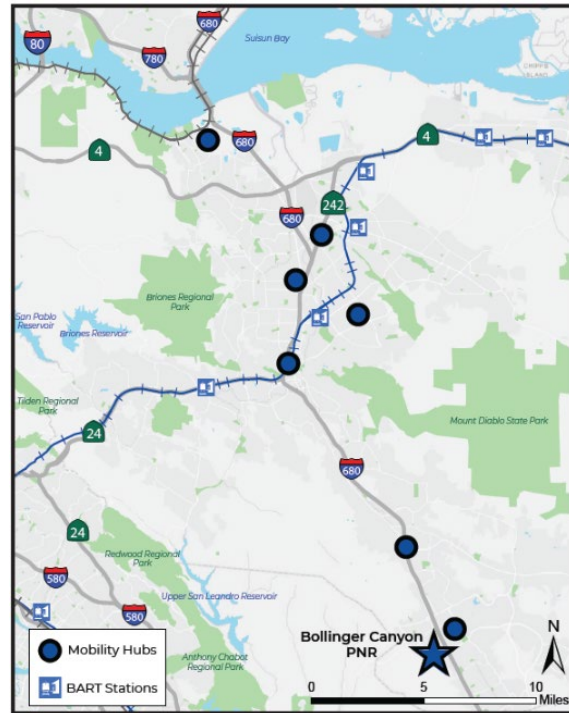


Figure 34 shows the park-and-ride lot.

3,049 people live within a typical walkshed (0.2 mile) and 22,735 live within the bikeshed (2 miles) from the mobility hub. There are 37,897 jobs within two miles and 13,400 workplace commuters within two miles of the Bollinger Canyon Park-and-Ride.

Overall improvement focuses for the Bollinger Canyon PNR, as a 680 Access Mobility Hub, include:

- Provide an integrated and easily accessed bus facility with multiple bus bays, including real-time travel information systems.
- Encourage pedestrian and bicycle access by implementing on- and off-site pedestrian and bicycle amenities and connections.
- Enhance the utilization of the mobility hub through provision of dedicated space for carpool/vanpool, ride share, and pick-up/drop-off activities.
- Provide shared mobility and shuttle connections to Bishop Ranch.

A sketch concept for proposed improvements is shown in **Appendix E**.

Figure 34. Bollinger Canyon Park-and-Ride Parking Area



Table 11 identifies the proposed improvement packages as well as the cost estimates for the site (with a 30% contingency). Proposed improvements focus on creating new transit facilities, enhancing bicycle and pedestrian access, and providing shared mobility services at the site. Due to its close proximity to local residential areas and commercial businesses, the Bollinger Canyon PNR aims to primarily serve as a first- and last-mile transfer point. Transit improvements are critical at this site as it is proposed as one of three stops along the corridor for the planned 680 Express Bus; however, the site currently cannot accommodate transit access.

Table 11. Improvement Packages for the Bollinger Canyon 680 Access Mobility Hub

Improvement Package	Improvement Package Description	Lead Agency	Stakeholder Partners	Timing	Next Steps	Design & Environmental Considerations and Risks	Operations	Capital Cost (2022\$)
1. Construct transit related improvements and modify mobility hub circulation	<ul style="list-style-type: none"> Construct 3 sawtooth bus bays along the west edge of the site for public transit buses and microtransit/autonomous transit Construct bus shelters/waiting areas with lighting, shelter, fare vending machines, WiFi, CCTV cameras, electric bus charging infrastructure, and traveler information kiosks Install WiFi, device charging, package delivery stations, and mobile retail services amenities Construct bus-only left-turn lane from westbound Bollinger Canyon Rd into the transit center Construct egress connection at south end of mobility hub to San Ramon Valley Blvd and close existing access 	CCTA	Caltrans, CCCTA, City of San Ramon, adjacent property owners	Needed prior to start of 680 Express Bus	<ul style="list-style-type: none"> Parking assessment Concept design Coordination with 680 Express Bus needs Coordination with property owners for new access easement Coordination and Co-Op Agreement with Caltrans regarding feasibility of improvements 	<ul style="list-style-type: none"> Will require close coordination with Caltrans for site and intersection modifications Likely CEQA CE New driveway connection to San Ramon Valley Blvd may impact planned improvements at shopping center Parking loss for construction of transit facilities may exacerbate pre-pandemic parking spillover 	<ul style="list-style-type: none"> Operating agreements for maintenance 	\$3,459,000
2. Construct sidewalks and other parking lot changes	<ul style="list-style-type: none"> Restripe parking lot to provide EV charging, ride share, carpool/vanpool, and ADA spaces Install CCTV cameras, lighting, real-time traveler information system, and solar power canopies above parking areas Implement parking reservation system Construct sidewalk for passenger and TNC pick-up/drop-off along the east edge of the site Provide sidewalk improvements for pedestrian access into the mobility hub from Bollinger Canyon Rd and San Ramon Valley Blvd 	CCTA	Caltrans, private vendors (solar, carpool/vanpool, parking reservation), PG&E	Ideally, in conjunction with Project 1	<ul style="list-style-type: none"> Concept design Assess solar panel feasibility and implementation strategy Coordination and Co-Op Agreement with Caltrans regarding feasibility of improvements 	<ul style="list-style-type: none"> CEQA CE Caltrans oversight process for site modifications 	<ul style="list-style-type: none"> Determine operations strategy, including O&M agreements for CCTVs monitoring, parking reservation system, and EV charging infrastructure Provision of carpool/vanpool and parking reservation will require oversight and enforcement processes 	\$6,086,000
3. Implement signage and wayfinding program	<ul style="list-style-type: none"> Implement lighting, signage, and wayfinding on- and off-site, including parking information and real-time traveler information at on-site and off-site locations Install monument at north entrance on Bollinger Canyon Rd and southern exit at Harness Dr 	CCTA	City of San Ramon, Caltrans	Ideally, in conjunction with Project 1	<ul style="list-style-type: none"> Coordinate on overall signage program requirements Determine signage locations Coordination and Co-Op Agreement with Caltrans regarding feasibility of improvements 	<ul style="list-style-type: none"> CEQA CE Need to assess design solutions for wayfinding/signage on non-City property Consistent with MTC Regional Transit Wayfinding Guidelines 	<ul style="list-style-type: none"> Develop operating and maintenance (O&M) agreements between agencies Explore advertising revenue opportunities 	\$699,000
4. Construct on-site pedestrian/bicycle improvements	<ul style="list-style-type: none"> Construct E-bike charging station and bike repair station Implement bike sharing facilities Construct new bike connection within the project site and Harness Dr Construct bike parking and storage adjacent to plaza space Construct public plaza area with lighting and landscaping amenities 	City of San Ramon	CCTA, Caltrans	Ideally, in conjunction with Project 1	<ul style="list-style-type: none"> Concept design Coordination with Caltrans on feasibility of vendor activities Quantify bike storage needs and space requirements Identify charging requirements Determine implementation strategy, public-private partnerships 	<ul style="list-style-type: none"> Assess bike electric charging infrastructure requirements CEQA CE 	<ul style="list-style-type: none"> Determine operations strategy, may include O&M agreements for bicycle parking and charging infrastructure 	\$1,803,000

Improvement Package	Improvement Package Description	Lead Agency	Stakeholder Partners	Timing	Next Steps	Design & Environmental Considerations and Risks	Operations	Capital Cost (2022\$)
5. Construct off-site pedestrian/bicycle improvements and modifications to overcrossing	<ul style="list-style-type: none"> Construct bike lanes along San Ramon Valley Blvd and Bollinger Canyon Rd (west of San Ramon Valley Rd) Provide high visibility crosswalks with pedestrian signal installation at Bollinger Canyon Rd/San Ramon Valley Blvd and San Ramon Valley Rd/Harness Dr intersections Modify the eastbound overcrossing on Bollinger Canyon Rd to provide a wider shared pedestrian and bicycle facility by moving the barrier and narrowing travel lanes. Extend path on the south side of Bollinger Canyon Rd to the Sunset Dr/Chevron Dr intersection Construct secure off-site bike parking, bike charging stations, and bikeshare stations at key destinations near the mobility hub Provide real-time transit information at major employment and commercial locations 	City of San Ramon	Caltrans, CCTA, nearby property owners (bike parking)	As funding permits	<ul style="list-style-type: none"> Planning and feasibility studies for off-site active transportation infrastructure Incorporate into active transportation plan Coordination and Co-Op Agreement with Caltrans on interchange modifications 	<ul style="list-style-type: none"> CEQA likely exempt, can utilize exemptions such as SB 922 Assess feasibility of moving the pedestrian barrier on the 680 overpass 	<ul style="list-style-type: none"> No specific considerations 	\$7,845,000
6. Construct in-line bus stop	<ul style="list-style-type: none"> Construct an in-line bus stop with lighting, shelter/waiting areas, and real-time traveler information sign on the I-680 southbound on-ramp 	CCTA	Caltrans, CCCTA	Ideally, in conjunction with Project 1	<ul style="list-style-type: none"> Concept design Coordination and Co-Op Agreement with Caltrans to determine approval process 	<ul style="list-style-type: none"> CEQA CE Need design assessment to determine how to best integrate with site 	<ul style="list-style-type: none"> Operating agreements for maintenance of transit facility in Caltrans ROW 	\$1,396,000
7. Implement off-site transit-signal priority (TSP) projects	<ul style="list-style-type: none"> Implement TSP at key intersections along Bollinger Canyon Rd, at San Ramon Valley Blvd/Harness Dr, and within Bishop Ranch area 	CCTA	City of San Ramon, Caltrans, CCCTA	As funding permits	<ul style="list-style-type: none"> CCTA to continue advancing regional cloud-based TSP technology Study locations and parameters of implementation 	<ul style="list-style-type: none"> Identify hardware and software requirements for signal controllers CEQA CE 	<ul style="list-style-type: none"> Develop an O&M agreement between the CCTA, City, and transit operator(s) 	\$358,000
8. Implement a shared mobility services program and shuttle service in Bishop Ranch	<ul style="list-style-type: none"> Implement shuttle service between the mobility hub and key Bishop Ranch destinations, including City Center, Chevron, and the San Ramon Transit Center mobility hub Create a microtransit, micromobility, and vanpool/carpool program with a private-sector operator Operator is responsible for mobility services, infrastructure (docks, charging, signage), branding and marketing, and data sharing with public agencies 	CCTA	CCCTA, City of San Ramon, Bishop Ranch	Based on operating feasibility, ideally in conjunction with parking reduction in Project 1	<ul style="list-style-type: none"> Microtransit feasibility study, determining service areas, service levels, and fares Analysis of micromobility partnership opportunities and programs Assessment of integration with countywide/corridor-wide vanpool/carpool programs Coordination with MOD/MaaS on app and payment structure 	<ul style="list-style-type: none"> Need to integrate mobility services with infrastructure at the station, such as bike share docks, microtransit parking spaces, and carshare / EV charging infrastructure CEQA CE 	<ul style="list-style-type: none"> Operating agreements with private shared mobility companies to operate the service or with CCCTA Agreements should define service parameters, rules, data sharing, and maintenance requirements Coordination with MOD/MaaS on operational elements 	Capital Cost TBD based on operating structure
Total								\$21,645,000

Summary of Shared Mobility Hubs Improvement Strategies

The following section summarizes the nature and type of the improvement packages detailed for each mobility hub location into nine general categories. While each site has unique characteristics that determine agency roles and next steps, the text below and **Table 12** generally summarize the nine improvement categories, their locations, and key components.

On-site Transit Improvements

Improve and expand bus transit areas, enhance transit waiting areas, provide bus charging infrastructure, provide fare vending machines, install real-time travel information systems, provide and enhance driver relief facilities, and implement other additional customer amenities such as WiFi and device charging docks.

Off-site Transit Stop/Access Improvements

Construct transit-only lanes, enhance off-site bus stop areas, and construct new in-line stops. Bus stop improvements include enhancing waiting areas and adding real-time traveler information.

Transit-Signal Priority (TSP)

Technology that prioritizes bus movements at key intersections, which may require signal control upgrades and equipment installation on buses.

Shared Micromobility, Microtransit, and Vanpool/Carpool Services

Programs to enhance first-mile and last-mile access to the mobility hubs and within the surrounding communities. Implementation features may include infrastructure at the mobility hubs (bus bays, bike storage, designated parking areas), charging stations, priority spaces, wayfinding and dedicated pick-up and drop-off (PU/DO) zones. These often require implementation programs, such as apps, payment structures, branding and marketing strategies, and data sharing provisions.

On-site Circulation, Public Space, and Parking Improvements

Reconfigure the parking and access spaces at the mobility hubs to improve safety, circulation, and enhance public spaces. Parking improvements may include parking relocation, provision of solar canopies, and parking reservation systems.

On-site and off-site Signage and Wayfinding

May include static and dynamic signage, real-time traveler information, real-time parking availability at locations on and off-site, monument signage, and lighting. Improvements would be consistent with the MTC Regional Transit Wayfinding Guidelines.

On-site Pick-up/Drop-off Improvements

Expand or provide new curb spaces designated for various pick-up/drop-off needs, which may include space for private vehicles, transportation network companies, shuttles, microtransit, and taxis. May include dynamic signage to allow for flexibility in curb space assignment.

On-site Pedestrian/Bicycle Facilities Improvements

Provide high visibility crosswalks at intersections, on-site bike facilities, new or improved sidewalks, bike parking, E-bike charging, and bike repair stations.

Off-site Pedestrian/Bicycle Facilities Improvements

Construct bicycle and pedestrian improvements to improve access to the mobility hub, which may include bicycle facilities for all ages and abilities, crosswalk upgrades, new or improved sidewalks, off-site bike parking, and improved crossing treatments, such as pedestrian hybrid beacons (PHBs)/Rapid Rectangular Flashing Beacons (RRFB).

Table 12. Summary of Improvement Package Categories

Improvement Package	Mobility Hub								Implementation Role		Corridor-Wide Implementation Considerations
	Martinez	Concord	Pleasant Hill	Mitchell Drive	Walnut Creek	Danville	San Ramon	Bollinger Canyon	Lead Agency	Stakeholder Partners	
On-site Transit Improvements	•					•	•	•	CCTA	<ul style="list-style-type: none"> Transit operators Property owner PG&E (charging infrastructure) 	<ul style="list-style-type: none"> Determine charging infrastructure needs Need to determine O&M responsibilities and funding
Off-site Transit Stop/Access Improvements	•	•	•	•		•		•	CCTA	<ul style="list-style-type: none"> Transit operators City jurisdiction Caltrans (where relevant) 	<ul style="list-style-type: none"> Determine bus service levels and needs Caltrans coordination for improvements in state ROW Need to determine O&M responsibilities and funding
Transit-Signal Priority (TSP)	•	•	•		•	•	•	•	CCTA	<ul style="list-style-type: none"> Transit operators Caltrans (where relevant) City jurisdiction 	<ul style="list-style-type: none"> Advance Central TSP System (Cloud-Based) project Prioritize locations Develop O&M agreements
Shared Micromobility, Microtransit, and Vanpool /Carpool Services	•	•	•	•	•	•	•	•	CCTA	<ul style="list-style-type: none"> Transit operators Property owner Caltrans City jurisdiction Private vendors 	<ul style="list-style-type: none"> Microtransit feasibility study Identify partnership opportunities and programs Determine data sharing strategies
On-site Circulation, Public Space, and Parking Improvements	•	•	•	•	•	•	•	•	CCTA, property owner, or City jurisdiction	<ul style="list-style-type: none"> Transit operators Solar, EV charging, private parking vendors 	<ul style="list-style-type: none"> Determine solar and EV implementation strategy Parking reservation system feasibility assessment Need to determine O&M responsibilities and funding
On-site and Off-site Signage and Wayfinding	•	•	•	•	•	•	•	•	CCTA or property owner	<ul style="list-style-type: none"> Caltrans Transit operators City jurisdiction 	<ul style="list-style-type: none"> Integrate MTC regional signage standards with real-time transit data sources Pursue partnerships with adjacent uses
Pick-up/Drop-off Improvements	•		•	•		•	•	•	CCTA or property owner	<ul style="list-style-type: none"> Transportation Network (TNC) City jurisdictions 	<ul style="list-style-type: none"> Site-specific

Improvement Package	Mobility Hub								Implementation Role		Corridor-Wide Implementation Considerations
	Martinez	Concord	Pleasant Hill	Mitchell Drive	Walnut Creek	Danville	San Ramon	Bollinger Canyon	Lead Agency	Stakeholder Partners	
On-site Pedestrian/Bicycle Facilities Improvements	•	•	•	•	•	•	•	•	CCTA or property owner	<ul style="list-style-type: none"> Private bike parking vendors City jurisdictions 	<ul style="list-style-type: none"> Bike parking demand assessments Need to determine O&M responsibilities and funding
Off-site Pedestrian/Bicycle Facilities Improvements	•	•	•	•	•	•	•	•	City jurisdiction	<ul style="list-style-type: none"> CCTA Caltrans 	<ul style="list-style-type: none"> Incorporate Improvements into Local/Regional ATP



IV

**680 CORRIDOR
CONSIDERATIONS**

The Shared Mobility Hubs project serves as a key component of the Innovate 680 Program by accommodating multimodal access to the regional transportation network. Shared mobility hubs are where users can access buses operating in the express lanes or part-time transit lanes on 680 or where they can access the services to be incorporated into the MOD/MaaS program. The recommendations contained in the previous chapter will work together to create a cohesive and integrated transportation network in the 680 corridor. However, it is noted that the study analyzed representative sites and that a mobility hub network beyond the eight discussed in this report is necessary to fully integrate transportation services in the corridor. This chapter discusses the relationship of the Shared Mobility Hubs project to other Innovate 680 programs and how the recommendations in this study can be used to build out a mobility network.

Integration with Innovate 680 Projects

Part-Time Transit Lanes (PTTL)



The Part-Time Transit Lanes (PTTL) /I-680 Express Bus Service project is a transit operations innovation to achieve faster, more reliable transit. Buses would utilize freeway shoulder lanes and auxiliary lanes to bypass congestion during peak periods with heavy traffic on I-680. This type of treatment was recently installed in San Diego, is planned on the Dumbarton Bridge, and is being considered for several other applications throughout the state. In addition, CCTA recently received funding to implement a new express bus service, initially identified as a need in the 2018 California State Rail Plan. The express bus service would

connect between the Dublin/Pleasanton BART Station and the Martinez Amtrak Station, also stopping at Bollinger Canyon Road and the Walnut Creek BART Station. Mobility hubs are a critical component in the effective implementation of the PTTL and Express Bus project. By providing shared mobility services and enhancing the desirability and effectiveness of the mobility hub sites, it will become easier to access all express bus services on 680, enhancing ridership and improving the sustainability of the service. In addition, in-line stops are proposed at two of the mobility hubs, allowing for buses to serve the hub without deviating off the freeway corridor; thereby, saving travel time for through riders, reducing operating cost, and enhancing bus access. In addition, the Martinez Amtrak and Bollinger Canyon Road stops proposed for the express bus service either do not have the bus bay capacity to accommodate the new bus service, or modifications are needed to the bus bays to improve access and circulation. Improvements at the mobility hubs are a critical component of providing the infrastructure necessary for the PTTL/Express Bus to be successful.

NB Express Lane Completion



The NB Express Lane Completion Project, currently in the environmental clearance phase, will complete the I-680 express lane network through Contra Costa County, extending the express lane recently constructed to the south on I-680 up to the Benicia-Martinez Bridge Toll Plaza. The express lane will be utilized by transit services operating on this corridor. The NB Express Lane Completion Project will alleviate congestion by providing a continuous, or near continuous express lanes network along NB 680. The project team is currently studying a range of build alternatives, some of which would increase auto

capacity. Research has demonstrated that increased auto capacity also increases vehicle miles traveled (VMT). Per SB 743, projects that increase VMT need to include mitigations that will serve to reduce greenhouse gas emissions. The Shared Mobility Hub Project would serve as mitigation for the NB Express Lane Completion Project by enhancing multimodal options for corridor users and increasing transit ridership.

Mobility On-Demand (MOD)/Mobility as a Service (MaaS)



The Mobility-on-Demand (MOD) project is a Mobility-as-a-Service (MaaS) application under development that will provide real-time, multimodal trip planning options customized for individual user trips. The app would allow users to find the best travel options based on the user's desire for the most cost-effective trip, most sustainable, or the fastest route. The app would also provide a universal payment option and reward select travel behaviors and promote public and active transportation options. Passengers would utilize the Shared Mobility Hubs as transfer points between regional transit services, such as BART, Capitol Corridor, and express buses, with first/last-mile transit services.

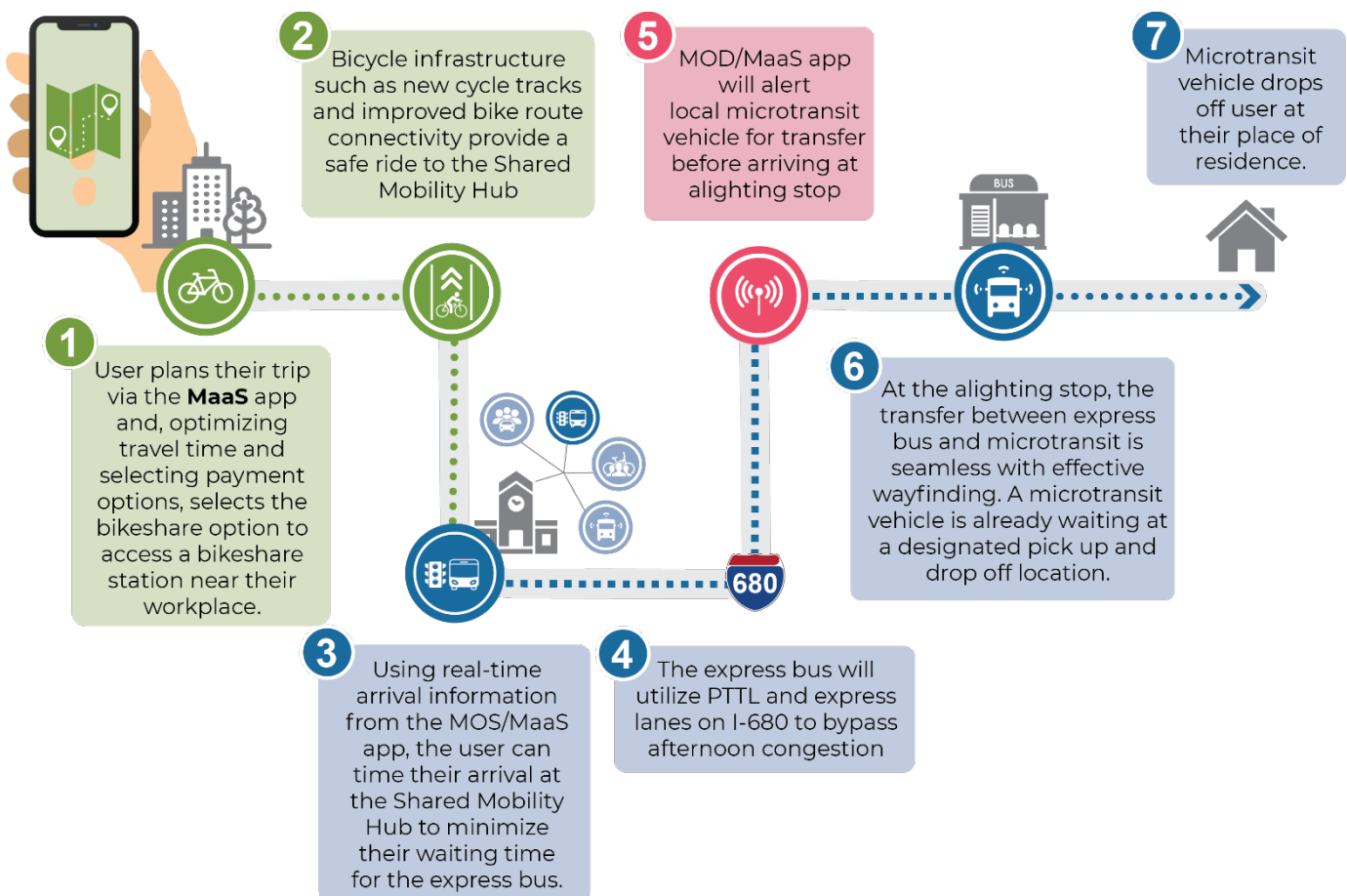
By fully integrating the MOD/MaaS program with Shared Mobility Hubs, users could have a seamless transportation journey. This presents an opportunity to integrate the digital (payment, trip planning) with the physical (transfers, service availability). The Shared Mobility Hub will enhance the mobility hub sites to include shared mobility services, improved wayfinding, and improved quality of facilities. The MOD/MaaS program could allow users to learn about shared mobility options, reserve their trip, and complete all payments seamlessly. The MOD MaaS project is scheduled to begin a first phase BETA test in the first January 2023. Subsequent phases are planned to improve access to mobility options, improve user experience, and increase reach of possible users.

Example of Program Integration

To demonstrate how the various Innovate 680 projects mentioned above can be integrated, consider a user who is traveling back to their home in a 680 community from their employment in the Bishop Ranch area. They will be able to use the MOD/MaaS app to identify their origin and destination to have the optimal trip identified with an anticipated travel time and be able to pay for all legs of their journey with one tap. They can access the San Ramon Transit Center or Bollinger Canyon Road Park-and-Ride using a bikeshare corral

located near their place of employment and at the mobility hub. They will utilize improved bicycle infrastructure in order to safely make the trip. They will know when the express bus is arriving from real-time information in the MOD/MaaS app or via real-time signage at their place of employment, allowing them to time their trip to minimize wait time. The express bus will be able to utilize PTTL on I-680 to bypass afternoon congestion, making the trip faster than if they used their automobile. Before they get to their alighting stop near their home, the MOD/MaaS app will alert a local microtransit vehicle that the rider is approaching, and they have a ride request. The microtransit vehicle will arrive at a new loading area at the Shared Mobility Hub. The transfer will be comfortable and seamless, with effective wayfinding and limited vehicle conflicts. They will then be able to use microtransit to be dropped off at their front door. By providing easy trip-planning, seamless connections, and a competitive travel time, the user will not need to use their single occupant vehicle, thereby achieving VMT reduction goals in SB 743 and regional plans. See **Figure 35** for an illustration of a user experience example.

Figure 35. MaaS Program Integration Example



There are many other use cases similar to the one noted above. That is considered one of the benefits of Shared Mobility Hubs: by accommodating a wide variety of transportation modes in one spot, users can select the mode that best aligns with their needs to best access regional, high-capacity transit services.

Mode Shift Opportunities

To identify the potential for mode shift by Shared Mobility Hub location analyzed in this study, regional trip patterns were analyzed using StreetLight Data. This dataset derives origin-destination (O-D) flows and other transportation volume metrics from anonymized location records from smartphones and in-vehicle navigation devices in cars and trucks. The hub sites vary greatly in the magnitude of trips generated, with the Concord Park-and-Ride area having the greatest number of outbound trips and the Martinez Amtrak area having the fewest number of outbound trips.

Table 13 summarizes resident population capture potential for the area around each Shared Mobility Hub studied. Population densities are greater in the walkshed than the bikeshed for all sites, indicating that the mobility hubs are well positioned to capture walking and short distance trips. Additionally, providing comfortable and convenient access both within the walkshed and the larger bikeshed creates the potential for each mobility hub to serve a larger number of residents.

Table 13. Shared Mobility Hub Land Use and Travel Characteristics (Residents)

	Walkshed	Bikeshed	Work Commuters
	Residents within 0.5 miles of mobility hub	Residents within 2 miles of mobility hub	Work commuters within 2 miles of mobility hub
Martinez Amtrak	2,370	15,310	7,000
Concord	6,490	58,170	27,130
Downtown Pleasant Hill	4,180	48,320	23,580
Mitchell Drive	4,020	45,210	13,590
Walnut Creek BART	4,020	45,210	22,410
Danville Sycamore Valley	2,020	14,690	8,800
San Ramon Transit Center	2,470	18,210	9,700
Bollinger Canyon	3,050	22,740	13,400

Source: Census Longitudinal-Employment Housing Dynamics, 2019

Table 14 summarizes employment capture potential for the area around each Shared Mobility Hub studied. Many of the work trips to the Shared Mobility Hub areas are from longer distances, although it is notable to reference the shorter trips to the hub area for both Mitchell Drive and Danville Sycamore Valley, potentially associated with the retail uses located near each hub area.

Table 14. Shared Mobility Hub Land Use and Travel Characteristics (Employees)

	Jobs ¹	Vehicle Trips to the Mobility Hub Census Block Group from Other Areas ²		
	Jobs within 2 miles of mobility hub	Internal to Block Group	0-2 miles to Block Group	2+ miles to Block Group
Martinez Amtrak	13,500	2,100	1,470	7,770
Concord	43,040	11,580	6,690	35,330
Downtown Pleasant Hill	32,950	6,700	2,260	20,290
Mitchell Drive	18,700	5,450	14,590	19,600
Walnut Creek BART	52,430	10,140	6,330	30,450
Danville Sycamore Valley	8,600	7,560	2,570	8,440
San Ramon Transit Center	37,670	4,360	3,120	20,470
Bollinger Canyon	37,900	5,790	3,700	20,820

Sources:

(1) Census Longitudinal-Employment Housing Dynamics, 2019

(2) StreetLight Data, 2019

In referencing both tables, it is apparent that the areas around each Shared Mobility Hub support a large number of both jobs and work commuters, emphasizing the opportunity for

mobility hubs to shift current auto trips to alternative modes on both the origin and destination side of trips.

Shared Mobility Hubs Network Expansion Considerations

While this study selected eight sites for in-depth analysis as a geographically and functionally representative sample of potential sites in the I-680 corridor, the vision is for a comprehensive and well-connected network through the corridor. Therefore, a range of sites, beyond just those eight, will be considered for future implementation. The sites analyzed in this study do not represent the eight highest priority sites or those slated for near-term implementation. Rather, they represent a cross-section of characteristics in order to assess feasibility, costs, and priorities.

Additional/alternative sites will be considered in future Shared Mobility Hub planning efforts to best meet corridor needs. An expanded Shared Mobility Hub network would close network gaps and connect more users to more destinations. Users need first/last-mile mobility solutions on both ends of their trip, thus expanding the network can have a compounding effect on overall accessibility.

As a reference for identifying potential Shared Mobility Hub sites and prioritizing sites, MTC has developed the *MTC Mobility Hub Siting Criteria, Screening Methodology, and Prioritization (Nelson\Nygaard, October 2020)* as a methodology of identifying, screening, and prioritizing future mobility hub locations across the Bay Area (see **Appendix F**). The recommended five-step process to identify potential locations is as follows:

1. **Establish a baseline network:** Identify candidate Shared Mobility Hub locations based on criteria such as an existing transit network, area demand management, major institutions, and MTC Communities of Concern that aren't served by transit.
2. **Categorize candidate locations by hub type:** Assign each location into six typologies, which are Regional Downtown, Urban District, Emerging Urban District, Suburban/Rural, Pulse, and Opportunity
3. **Prioritize regionally significant mobility hubs:** Hub locations are ranked using three mobility hub objectives, which are Coordinated Transit, Climate Action, and Equitable Mobility.
4. **Identify mobility hubs that advance equity:** Score hub locations based on whether they are in an MTC Community of Concern, or a High Displacement Risk Area.
5. **Rank regionally significant mobility hubs with implementation:** Out of the top 25 ranked locations per MTC typologies, select ones that are ready for implementation and have immediate impacts.

The MTC mobility hub locations were selected by dividing the Bay Area into small, equal-sized squares, and then consolidated into one location if there is a cluster spanning a similar urban area. The potential mobility hub sites identified by MTC in the Siting Analysis Methodology report are shown in **Table 15**.

Table 15. MTC Mobility Hub Candidate Locations

Potential Location	City	Mobility Hub Type
Concord	Concord	Opportunity Downtown
Pleasant Hill/Contra Costa Centre BART	Contra Costa Centre	Urban District
TMA - Bishop Ranch	San Ramon	Pulse Hub
Job Center – Chevron Corp	San Ramon	Pulse Hub
West Dublin/Pleasanton	San Ramon	Suburban/Rural Hub
Walnut Creek	Walnut Creek	Suburban/Rural Hub
Danville (Park & Ride)	Danville	Suburban/Rural Hub

When choosing which potential sites to be implemented into a Shared Mobility Hub, MTC utilized the following screening criteria to determine site priority:

- Coordinate Transit: connections between local transportation options and regional enhancements
- Climate Action: promote active transportation and shared mobility services
- Equitable Mobility: focus on High Displacement Risk Areas (HDRA), Priority Development Areas (PDA)
- Exceptional Experience: inclusive public spaces, amenities supporting a high-quality customer experience
- Safety: address safety issues (Vision Zero strategies), improve seamless integration with planned network
- Value: Property and right-of-way opportunities if funding permits or is available soon

It is important to note that the MTC analysis was done at the metropolitan area level and was not able to consider the unique needs and patterns of individual communities. This Shared Mobility Hubs study reflects a more granular assessment of the mobility connections needed in the I-680 corridor. It will be beneficial for CCTA to work with MTC in incorporating the findings of this study in future iterations of region-wide mobility hub planning. However, referencing the already identified MTC locations is helpful in understanding current regional priorities and how funding for improvements has been allocated thus far.

Based on an understanding of travel patterns in the I-680 corridor, existing transit hubs or other publicly owned facilities, and TAC input, an initial broader slate of potential Shared Mobility Hub locations in the I-680 corridor was developed. **Figure 36** shows a map of those MTC potential locations. Further site development is needed to determine suitability and effectiveness of these or other locations for Shared Mobility Hub amenities.

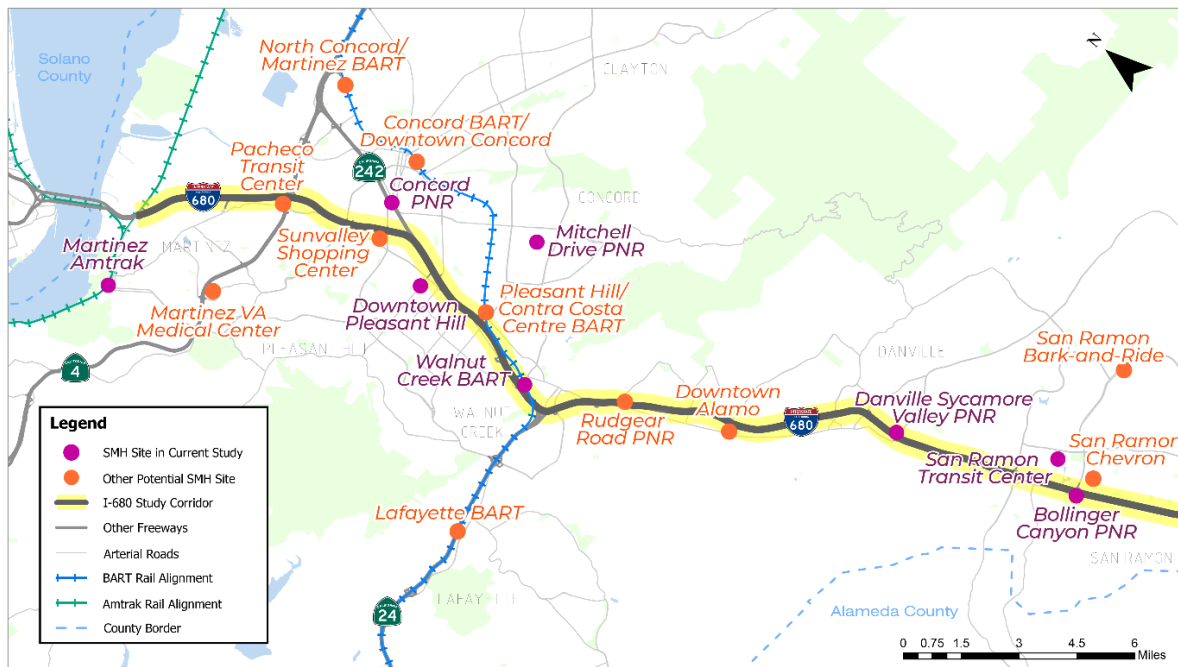
Figure 36. MTC-Identified Regionally Significant Mobility Hub Clusters



Source: MTC Mobility Hub Siting Criteria, Screening Methodology, and Prioritization

Based on an understanding of the transportation patterns and nodes in the I-680 corridor a number of Shared Mobility Hub sites beyond the eight studied in this feasibility study were identified for consideration as part of the future network. These sites are shown on **Figure 37** and represent a mix of transit hubs, park-and-rides, and community gathering areas.

Figure 37. Potential Shared Mobility Hub Sites



While the Concord Park-and-Ride site was heavily constrained due to its size and access, providing a Shared Mobility Hub in that area of Concord would be highly beneficial given the high levels of transit-dependency in that area and limited existing mobility options. Further analysis is needed to identify optimal Shared Mobility Hub location(s) and services.

Other sites, such as in Pleasant Hill and Concord, will benefit greatly from Shared Mobility Hub services identified in this report and should be advanced as funding allows.

A widely accessible network of mobility hubs will not only include larger facilities with parking and multiple bus routes with frequent service, such as those discussed in this study, but also local mini-hubs at activity centers or other community gathering places. These mini-hubs would include a mix of shared mobility features, such as shared micromobility, bike parking, e-bike charging, carshare, and bus stops. They would be located within the public right-of-way or developed in coordination with nearby landowners or businesses. The specific locations of mini-hubs will be determined through further coordination with each of the cities as buildout of the mobility hub network advances. As one example, the City of Concord has suggested the following general locations for mobility hubs in the 680 corridor at key activity centers within the City:

- Intersection of Clayton Road and Treat Boulevard.
- Intersection of Alberta Road and Clayton Road
- East St and Almond Avenue (near the John Muir Concord Medical Center)

Given the quantity of potential hub locations, factors that can be utilized in prioritizing Shared Mobility Hub locations for advancement may include:

- **Trip capture potential:** Is the hub in a location that will encourage use and a shift from auto-dependent trips?
- **Transit connections:** Is there an opportunity for high-frequency transit to serve the hub, providing a regional connection for local mobility services?
- **Equity:** Is the hub located in an equity-priority community or to what degree will it facilitate trip-making by transit-dependent populations?
- **Barriers to implementation:** Is the property owner interested in expanding shared mobility options? Are there environmental constraints that would limit improvements? Is the site large enough and with sufficient access points to accommodate additional services?
- **Funding:** Is there a currently or reasonably available funding source for both capital and operating costs?
- **Placemaking/TOD:** Does the site provide opportunities for community place-making or new transit-oriented development?

Considering the above criteria, a few of the eight sites analyzed by this study may rise to the top as higher priority sites. These include (organized geographically from north to south):

- **Martinez Amtrak Station:** Planned for service by the new 680 Express Bus service; provides connection to regional Capitol Corridor services; located adjacent to downtown Martinez, a major employment center
- **Walnut Creek BART Station:** Planned for service by the new 680 Express Bus service; major existing hub with a need for improved bike access facilities and wayfinding
- **Danville Sycamore Valley Park-and-Ride:** Improvements to parking areas and the Iron Horse Trail connection are already being advanced by City; potential to serve as an additional stop for the 680 Express Bus services with an in-line stop; over-subscription of existing parking areas demonstrates potential for residential auto trip capture
- **Bollinger Canyon Park-and-Ride:** Planned for service by the new 680 Express Bus service; provides potential for convenient connections to Bishop Ranch employment areas; over-subscription of existing parking areas demonstrates potential for residential auto trip capture. CCTA, in coordination with Sunset Development, is considering other locations east of I-680 to place the Shared Mobility Hub closer to major retail and employment areas.



V

**OVERALL SUMMARY,
BENEFITS, AND NEXT STEPS**

Opportunities Created by Shared Mobility Hubs

Shared mobility hubs will create dynamic transportation nodes providing a variety of services and amenities to create a cohesive and seamless mobility network. These nodes will be integral in facilitating local and regional travel using alternative modes of travel, reducing congestion, and achieving greenhouse emission reduction targets. Shared mobility hubs will accommodate travel modes and services in which resources are shared between different users, including public transit, micromobility (e.g., bikeshare, scooters, etc.), shared rides (e.g., vanpools, carpools, on-demand services, etc.), and technology (e.g., electric vehicle chargers, information kiosks, etc.).

Shared mobility hub sites provide the potential to serve a broad spectrum of mobility needs within the I-680 corridor, with no two hub areas alike in terms of the transportation patterns, demographics, and mobility opportunities. Some mobility hub sites are located in transit-rich areas with supporting bicycle and pedestrian infrastructure, while others currently provide parking for commuters but lack other essential mobility hub amenities. Each of the sites has a range of needs to improve their accessibility, usability, and community benefit.

Shared mobility hubs represent one of the six Innovate 680 Program projects to expand mobility options, improve traffic conditions, and enhance the travel experience in the I-680 corridor. With 68 percent of corridor drivers expressing interest in driving less, providing easy-to-access services are a means to change the way residents travel through this corridor and surrounding areas.

The availability of alternative modes and issues related to time are the biggest barriers to drivers who have not shifted their travel mode. The 680 Access Mobility Hubs will begin to break down this barrier for residents and travelers of this area. Additionally, many residents expressed a desire for certain features that would make them more likely to use an alternative form of transportation, such as comfort, technology, and on-site security features. This feedback has been and will continue to be included in the design of the mobility hubs in order to best serve residents.

Example Renderings

The images on the following pages depict how some of the shared mobility hub features could be integrated at an example site.

Figure 38. Enhanced Transit Platform



Figure 39. Public Plaza with Retail Services and Other Amenities



Figure 40. Pick-up/Drop-off Zone and Shared Use Path with Enhanced Wayfinding



Figure 41. Enhanced Bicycle Facilities



Near-Term Activities

The implementation strategy identifies several near-term improvement strategies to advance Shared Mobility Hub implementation at each studied location. Near-term projects that are already underway, or being considered, include enhancing wayfinding and signage, transit signal priority (TSP), and pilot programs for shared micromobility services such as bikeshare/scootershare. Additional near-term projects will serve to accommodate the new

680 Express Bus service. CCTA and partner jurisdictions should further consider grant funding opportunities for improvements identified in this report. Planning efforts such as a corridor-wide microtransit feasibility study, I-680 corridor wayfinding standards, and electric bus/vehicle infrastructure assessments are recommended to help further define near-term opportunities and projects.

Anticipated Implementation Outcomes

The deployment of the proposed improvements would achieve the goals established for the Shared Mobility Hubs Project as follows:

- Facilitate the efficient move of people by improving transportation infrastructure and access such as installing additional bicycle and pedestrian facilities, enhancing access and removing barriers to transit, and optimizing the use of infrastructure by prioritizing the most efficient modes.
- Provide universal accessibility and enhanced safety through improvements such as improved site design, wayfinding, and real-time transit information, ADA upgrades, and improved bicycle and pedestrian crossings.
- Improve access to alternative transportation modes with microtransit, micromobility, and vanpool/carpool programs.
- Serve as community assets by creating or enhancing public spaces, accommodating mobile retail services, and improving community mobility.
- Accommodate new technology and changing transportation conditions with flexible curb space, integrating with MOD/MaaS applications, accommodating shared micromobility, installing charging infrastructure, and integrating technology into wayfinding.
- Support advancement of key regional initiatives by encouraging mode shift from SOVs, promoting active transportation, improving safety, and reducing greenhouse gas emissions.

INNOVATE 680
IMAGINE THE POSSIBILITIES