BAY AREA REGIONAL MOBILITY HUBS

MOBILITY HUB IMPLEMENTATION PLAYBOOK

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METROPOLITAN
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Contents

MTC'S MOBILITY HUB PROGRAM

With transportation services and infrastructure evolving rapidly, mobility hubs present an opportunity to flexibly design and integrate a variety of sustainable transportation options to enhance connectivity across the region. Unprecedented growth, affordability challenges, the climate crisis, and changing travel behaviors resulting from the pandemic show the need to prioritize low emission transportation options that support resiliency, choice, and embrace future changes in technology.

Mobility hubs can integrate public and private mobility services in a way that enhance customer experience and transportation system resiliency. Expanding on initial direction in MTC's Transit Connectivity Report (2005), this program establishes implementation guidance and hub typologies, and identifies a set of regionally significant mobility hubs. **This Regional Mobility Hub Implementation Playbook offers a menu of tools for Bay Area communities and transportation agencies to advance mobility hubs from concept and planning to implementation and management.**

The mobility hub program is a Climate Initiative Strategy from Plan Bay Area 2040. The primary goal is to reduce greenhouse gas emissions by reducing vehicle miles traveled. The program supports other regional and Plan Bay Area goals of increasing transit access and connectivity, focusing growth, increasing transit-oriented development, and providing viable travel options to all Bay Area communities.

A PLAYBOOK TO GROW MOBILITY HUBS

You are a public agency or community organization in the Bay Area. You and your implementation partners have decided that the mobility hub, or hubs, in your community should be built or retrofitted to better connect people to regional transit, enhance mobility, reduce transportation emissions, and strengthen community opportunities. Where do you start? How might you develop, nurture, calibrate, and grow the functionality of your mobility hub or network of hubs? What are the local ingredients to ensure regional coordination, consistency, and seamless travel?

There is no one "right way" to modify and enhance a mobility hub, but there are lessons learned, useful experiences, and helpful tools that can be leveraged to guide hub planning and implementation. While each organization that uses this Playbook should tailor its mobility hub implementation to the needs and aspirations of the community it serves, the Playbook offers helpful guidance that will ensure implementation is well-planned, consistent with other related hub project development across the Bay Area and increase the likelihood of obtaining capital and operating funding. This Playbook also aligns mobility hub planning, implementation, and delivery with regional mobility hub objectives: Coordinated Mobility, Climate Action, Equitable Mobility, Exceptional Experience, Safety, and Value.

HOW TO USE THE IMPLEMENTATION PLAYBOOK

MTC developed this Playbook to serve as a comprehensive technical assistance guide with implementation strategies, tactical approaches, and management techniques. The Playbook covers topics that range from implementation phasing and governance models to customer information and funding (suggested by local partners through several input workshops). The seven "plays" in this Playbook represent steps, actions, or strategies that can move your project from plan to installation and maintenance. Ultimately, these plays will help you achieve regional mobility objectives and accrue benefits for the community.

Play 1: Assign and Configure the Hub Kit of Parts

A regional mobility hub typology, kit of parts, and design resources.

Play 2: Phase and Layer Hub Amenities

Phasing approaches, implementation avenues, and tactical installations.

Play 3: Enrich the Community

Essential methods that center community voices, equity, and community co-creation processes.

Play 4: Apply Governance and Management Tools

Managing, operating, and maintaining your hub (or hubs) with your extended implementation team.

Play 5: Inform the Customer

Physical and digital means of conveying mobility and community data.

Play 6: Measure What Matters and Iterate

Measuring how you make mobility and communities better and finding ways to make continual improve mobility hubs.

Play 7: Unlock Funding

Moving beyond fundraising and toward sustainable regional mobility endowments.

GLOSSARY OF TERMS

Anchor Services: Anchor services include at a minimum, transit stops served by rail or multiple frequent transit routes, but could also have microtransit, car share, docked bike share, or other community mobility models depending on the location.

Business Improvement District (BID): Private-public partnerships wherein property or business owners elect to assess themselves in order to fund projects within the district's boundaries. This typically takes the form of capital improvements (new trees, benches, or banners), increased maintenance (additional graffiti removal, litter collection or street sweeping), increased security (either through direct collaboration with the police department or through privately financed 'ambassadors'), and/or additional marketing or promotional events. BIDs may go by other names, such as business improvement area (BIA), business revitalization zone (BRZ), community improvement district (CID), special services area (SSA), or special improvement district (SID).[1]

Community of Concern (CoC): MTC defines Communities of Concern as based on eight American Community Survey 2012-2016 tract-level variables:
- Minority (70% threshold)
- Low-Income (less than 200% of Fed. poverty level, 30% threshold)
- Level of English Proficiency (20% threshold)
- Elderly (10% threshold)
- Zero-Vehicle Households (10% threshold)
- Single Parent Households (20% threshold)
- Disabled (25% threshold)
- Rent-Burdened Households (15% threshold)

If a tract exceeds both threshold values for Low-Income and Minority shares OR exceeds the threshold value for Low-Income AND also exceeds the threshold values for three or more variables, it is a CoC.[2]

Micromobility: Refers to a range of small, lightweight vehicles operating at speeds typically below 25 km/h and driven by users personally. Micromobility devices include bicycles, e-bikes, electric scooters, electric skateboards, shared bicycles, and electric pedal assisted bicycles.[3]

Microtransit: IT-enabled private multi-passenger transportation services, such as Bridj, Chariot, Split, and Via, that serve passengers using dynamically generated routes, and may expect passengers to make their way to and from common pick-up or drop-off points. Vehicles can range

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[1] https://sfbos.org/business-improvement-districts-2-file-no-021934

[2] https://bayareametro.github.io/Spatial-Analysis-Mapping-Projects/Project-Documentation/Communities-of-Concern/

[3] https://www.itdp.org/wp-content/uploads/2019/12/ITDP_The-Electric-Assist_-Leveraging-E-bikes-and-E-scooters-for-More-Livable-Cities.pdf

from large SUVs to vans to shuttle buses. Because they provide transit-like service but on a smaller, more flexible scale, these new services have been referred to as microtransit.[4]

Mobility Hub: Serving as a community anchor, a mobility hub is a welcoming environment that enables travelers of all backgrounds to access multiple transportation options and supportive amenities. Built on the backbone of frequent and high capacity transit, mobility hubs offer a safe, comfortable, convenient, and accessible space to seamlessly transfer across different travel modes.

Mobility Hub Manager: A single entity managing a network of mobility hubs operating at a citywide, transit districtwide, countywide, or other multijurisdictional level.

Transportation Demand Management (TDM): Defined a set of transportation strategies aimed at providing travelers, regardless of whether they drive alone, with travel choices, such as route, time of travel and mode. In the broadest sense, demand management is defined as providing travelers with effective choices to improve travel reliability and policy measures to reflect the true cost of driving, such as congestion pricing, VMT charging and parking management/pricing.[5]

Transportation Management Associations (TMAs): Non-profit, member-controlled organizations that provide transportation services in a particular area, such as a commercial district, mall, medical center or industrial park. They are generally public-private partnerships, consisting primarily of area businesses with local government support.[6]

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[4] https://www.transit.dot.gov/regulations-and-guidance/shared-mobility-definitions

[5] https://ops.fhwa.dot.gov/plan4ops/trans_demand.htm

[6] https://www.vtpi.org/tdm/tdm44.htm

WHAT IS A MOBILITY HUB?

Serving as a community anchor, a mobility hub is a welcoming environment that enables travelers of all backgrounds to access multiple transportation options and supportive amenities. Built on a backbone of frequent and high-capacity transit, mobility hubs offer a safe, comfortable, convenient, and accessible space to seamlessly transfer across different travel modes.

Mobility hubs are critical, not only to achieve per capita GHG reductions associated with Plan Bay Area 2040, the region's long-range transportation plan and Sustainable Communities Strategy, but also to increase the resiliency and redundancy of the transportation system emerging from the global COVID-19 pandemic.

WHERE ARE MOBILITY HUBS IN THE BAY AREA?

While the work to better coordinate mobility amenities and community building at mobility hubs is new, mobility hubs have been operating in some form for decades. The Bay Area is home to hundreds of mobility hubs that connect people to mobility and community amenities today.

Mobility hubs are generally located in three types of locations:

- Anchored at the confluence of multiple, often high-capacity transit services
- Co-located with institutional anchors and entertainment centers anchors
- Opportunity sites where mobility demand exists, but infrastructure and services do not

MTC developed a methodology to identify and categorize **close to 1700 candidate mobility hub locations across the nine-county Bay Area.** MTC's data-driven hub prioritization methodology ranks mobility hubs with the highest potential of advancing regional and Plan Bay Area 2040 goals, enabling MTC to prioritize pilot investment for the top 25 regionally significant mobility hubs in each of the six hub types (see the regional mobility hub typology in the next chapter).

Figure 1 The Bay Area's Regionally Significant Mobility Hubs

Note: MTC will update the regional mobility hub siting and prioritization process to account for population and employment shifts, new development, and evolving transportation networks and travel behaviors. Regularly running this methodology will undoubtedly identify new mobility hub investment priorities that best meet regional mobility hub objectives.

What Does MTC Seek to Achieve?

MTC partnered with cities, transit agencies, county transportation agencies, and other stakeholders to establish consensus on how to build mobility hubs. By developing implementation guidelines and investing in mobility hubs consistently, MTC seeks to achieve the six key objectives depicted on the right.

What Is MTC's Role?

Building out and communicating a set of regionally significant and consistent mobility hubs requires a clear strategy. MTC aims to identify hub locations and planning considerations for different hub types, establish design and implementation guidance, and position implementation partners for success.

MTC's role in the creation of mobility hubs consists of:

Consistency: Establish consistent set of components across the regional hubs.

Guidance: Provide technical assistance to local jurisdictions and transit agencies on how to design, implement, and manage mobility hubs.

Funding: Support implementation of mobility hubs.

Coordinated Mobility

Establish regionally consistent and community-oriented mobility hubs with contextually appropriate options, centered on convenient and affordable first- and last-mile access to frequent and high-capacity transit.

Exceptional Experience

Create inclusive public spaces and support a high-quality customer experience with amenities and integrated wayfinding, travel information, and payment options.

Climate Action

Reduce greenhouse gas (GHG) emissions by converting low-occupancy, unsustainable vehicle trips to sustainable modes such as transit, shared mobility, biking, and walking.

Value

Leverage development and mobility partnership opportunities, while targeting implementation-ready sites first and demonstrating lessons learned.

Equitable Mobility

Achieve equitable outcomes through low-cost, needs-based mobility and anti-displacement measures.

Safety

Create a safe environment at mobility hubs, incorporating local and regional Vision Zero policies and improvements within mobility hub areas.

MTC's six Regional Mobility Hub Program Objectives developed in partnership with cities, transit agencies, county transportation agencies, and other stakeholders.

Play 1

ASSIGN AND CONFIGURE THE HUB KIT OF PARTS

When designed well, mobility hubs are tailored to the needs of Bay Area's diverse travelers and the communities they serve. Mobility hub planning and design features should be unique to each hub, reflecting local land use and transit network characteristics and addressing the mobility and community needs of each specific hub location. This play provides guidance on hub configurations, access hierarchy, and the mobility hub kit of parts within the context of a Bay Area mobility hub typology.

DESIGNING HUBS TO SOLVE REAL PROBLEMS

Mobility hubs can help to solve regional mobility connections. Hubs are existing points in the regional mobility network that can solve mobility and community challenges through coordinated multimodal planning and integrated transit design.

It is important to understand the conditions and gaps we are solving for as we develop a regional hub program and as implementation partners advance projects. Problem statements vary by location, but generally – whether structured around transit or not – hub areas require coordination to solve four key problem areas or elements:

Transit Information Displays, San Francisco @ 4th & King

Problem Area 1: Operational Complexity

Mobility hubs are complex operating environments that sometimes concentrate conflicting demands into limited public spaces. As we give people access to sustainable mobility options (scooter, bikes, transit, carshare) at mobility hubs, partner agencies need to resolve access to and connections across multiple mobility options as well as provide safe pedestrian and bicycle infrastructure access to and from the hub.

Likewise, partner agencies should take an intentional and cohesive approach to siting mobility hub amenities (detailed in the *Kit of Parts* section below). Hub design and configurations should reflect the mode shift, safety, and access outcomes that we want to see as a region.

Problem Area 2: Going Beyond Mobility

Mobility hubs are places of exchange in the broadest sense; yet hub investments often narrowly focus on transportation. Agencies and their community partners must ask whether hubs can support public life, cultural amenities, and public resources. How can these public spaces reflect the community's fingerprints, creating welcoming and safe spaces beyond co-locating mobility amenities?

Successful mobility hubs are those that plan with community and support culturally relevant hub design and programming, which so far is an underrepresented component in mobility hub implementation.

Problem Area 3: Customer Experience

Customer-centric mobility hub design and operations are crucial to the success of hubs across the region. Experiential design should account for multiple perspectives and systems, not just on the 9 a.m. to 5 p.m. weekday commuter. This includes designing a safe and seamless physical and digital experience across public transit and shared mobility options. Not putting the diverse needs of customers first can result in disjointed payments, a lackluster passenger waiting experience, and unsafe conditions for people who bike and walk.

Shared services by private providers should be included in the design of the space to reduce safety issues and impeding access for people with disabilities.

Problem Area 4: Poor Information

Whether it's maps, real-time notifications, or directional signs, mobility information should give people an understanding of their mobility options at any time, their arrival time, and their next best option if there is a disruption. Yet, information at hubs today can be static, difficult to access, and not responsive to disruptions. As people are waiting or passing through hubs, they also should understand the non-mobility amenities available to them and how to access them.

PLACE AND PRODUCT

One of the markers of success for a mobility hub is the ability to bridge the gap between outcomes for a place and experience for the customer. A mobility hub is a product – or an assemblage of products – that needs to sell a compelling value proposition to potential customers. That product needs to be efficient, comfortable, pleasant, easy to understand, and supported by abundant choices. If not, your customer will not frequent the hub.

Central to designing your mobility hub product is the ability to articulate your desired outcomes for the site and for your customers. This articulation should reflect what the community needs, what the regional values and priorities are, and the use cases that align the two.

Use cases for the place and the product can range widely from hub-to-hub and might change depending on the time of day. At one hub, the predominant use case might be to bridge first- and last-mile gaps. Another hub's primary use case is to reduce congestion on the Bay Bridge. And another hub's leading use case could be to give the neighborhood access to car share and shared electric micromobility options at a central access point. These use cases will change over time and adapt based on on-going evaluation and feedback loops from the community.
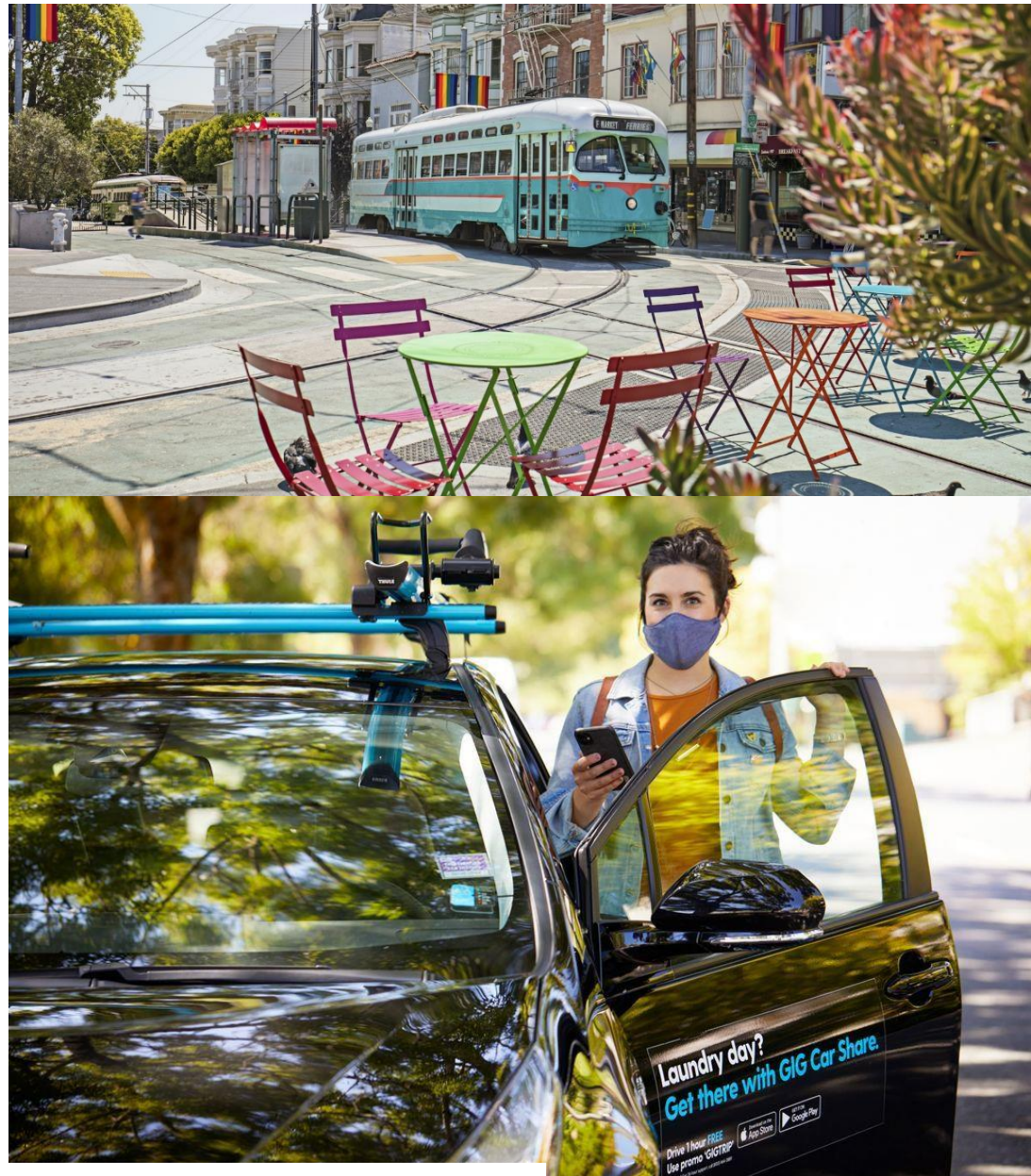
Source: Gig Car Share
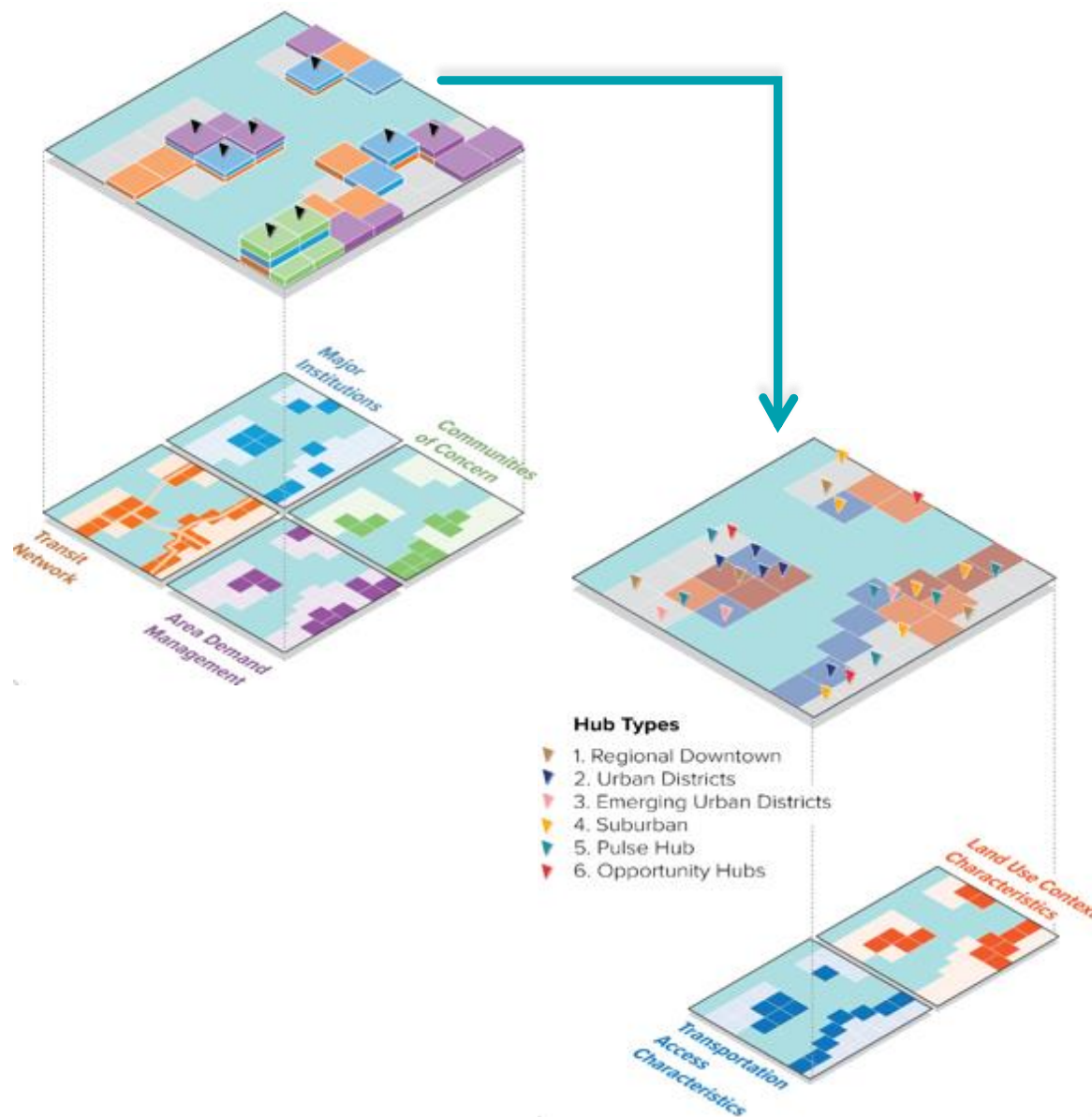
TYPOLOGY AND ANCHOR SERVICES

Hubs range in complexity from the Transbay Terminal and the San Rafael Transit Center to the Curtola Park-and-Ride in Vallejo. The form, function, and amenities needed at a mobility hub will depend on the underlying transit services and frequency, land use, and transportation access characteristics.

As part of the mobility hub location analysis, MTC identified the region's baseline mobility hub network, or universe of mobility hubs. To help guide investment efforts and contextually design hubs, we developed a mobility hub typology and assigned each baseline mobility hub location to one of six hub types:

- Regional Downtown Hubs
- Urban District Hubs
- Emerging Urban District Hubs
- Suburban/Rural Hubs
- Pulse Hubs
- Opportunity Hubs

Each hub type description is detailed on the following pages, including the anchor services likely at each hub type. Anchor services are summarized in Figure 3 on page 20 and include, at a minimum, transit stops served by rail or multiple frequent transit routes. They could also have microtransit, car share, docked bike share, or other community mobility models depending on the location.

Figure 1   Context-Appropriate Regional Mobility Hub Typology

Major Institutions

Communities of Concern

Transit Network

Area Demand Management

Hub Types

1. Regional Downtown
2. Urban Districts
3. Emerging Urban Districts
4. Suburban
5. Pulse Hub
6. Opportunity Hubs

Land Use Context Characteristics

Transportation Access Characteristics

Regional Downtown Hubs

Regional Downtown hubs are the centers of economic and cultural activity. Surrounded by an established mix and scale of development, these hubs are in the highest residential and employment densities of all hub types. The hubs are easy to access for all types of travelers, particularly pedestrians and bicyclists. The hubs are served by a rich mix of modes, including high-capacity transit <u>and</u> high frequency bus service. Users are connected to local and regional travel destination via these hubs.

Likely Features & Anchor Services

- Multiple high-capacity transit services, above, at, and below grade
- High frequency bus service with two or more transit agencies
- Access to car share and shared micromobility services, including bike share stations and scooter share
- Strong demand for TNCs and taxis

Examples

- Transbay Transit Center, San Francisco
- 12th Street Oakland City Center
- VTA 2nd and Santa Clara, San Jose

Train/Rail Station

Bus Station

TNC

Car Share

Bike Share

Scooter Share
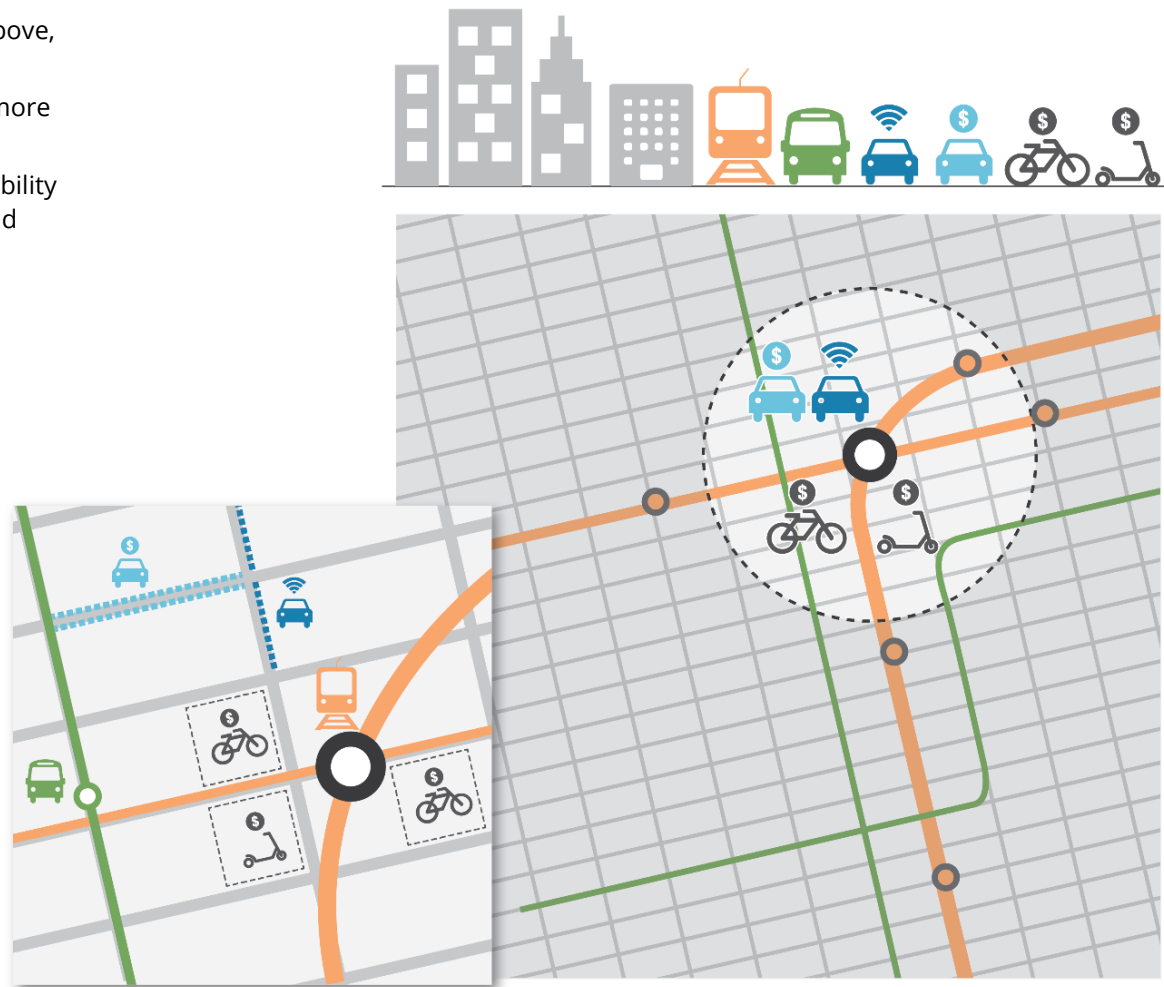
Urban District Hubs

Urban District hubs are major and local centers of moderate to high residential and employment densities. These are often commuter hubs served by high-capacity transit or high frequency bus service, as well as local bus routes. Carshare and/or bikeshare services are within a short distance. Retail and restaurants may be within walking or biking distance, supporting a walkable and bicycle-friendly network immediately around the hub.
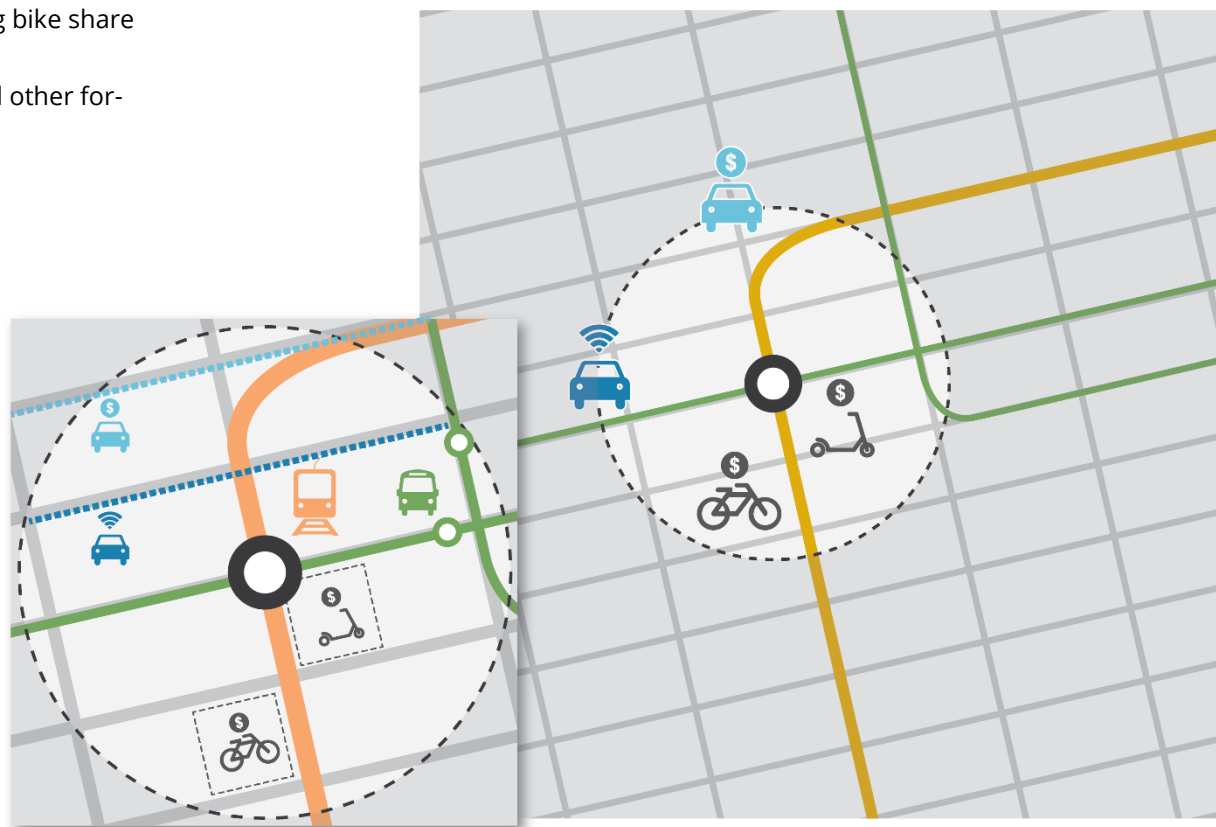
Likely Features & Anchor Services

- High-capacity transit and/or high frequency bus service with two or more transit agencies
- Access to car share and shared micromobility services, including bike share stations and scooter share
- Moderate demand for TNCs and other for-hire services

Examples

- Caltrain Mountain View Station
- BART Pleasant Hill Station
- Caltrain San Mateo Station

Train/Rail Station
Bus Station
TNC
Car Share
Bike Share
Scooter Share

Emerging Urban District Hubs

Emerging Urban District hubs are located within areas of moderate and low residential and employment densities. These hubs are served by high-capacity transit service, functioning as centers for smaller, local communities and economic activity. The location of these hubs primarily in or near MTC Priority Development Areas (PDAs), indicating they are locations for future growth. They are often located near established job centers, shopping districts, and other services.

Likely Features & Anchor Services

- High-capacity transit or high frequency bus service with two or more transit agencies
- Limited shared mobility services, mostly car share
- Moderate demand for TNCs and other for-hire services

Examples

- Caltrain Millbrae Station
- BART Richmond Station
- Suisun-Fairfield Station

Train/Rail Station

Bus Station

TNC

Car Share

Suburban and Rural Hubs

Suburban hubs are in auto-oriented or small neighborhood areas. These hubs provide important connections to regional transit options, which may include regional rail and bus, bus rapid transit (BRT), or local bus routes. Users typically access these hubs via nearby Park-and-Ride lots and/or car share or bike share.

Likely Features & Anchor Services

- Park-and-Ride access connected to regional rail and BRT
- Frequent and infrequent local feeder bus services
- Within car share and/or bike share service areas
- Moderate demand for TNCs and taxis

Examples

- Winchester Station, Campbell
- I-880 Station, Milpitas
- Dublin/Pleasanton Station, Livermore

Train/Rail Station

Car Parking

Car Share

TNC

Bike Share
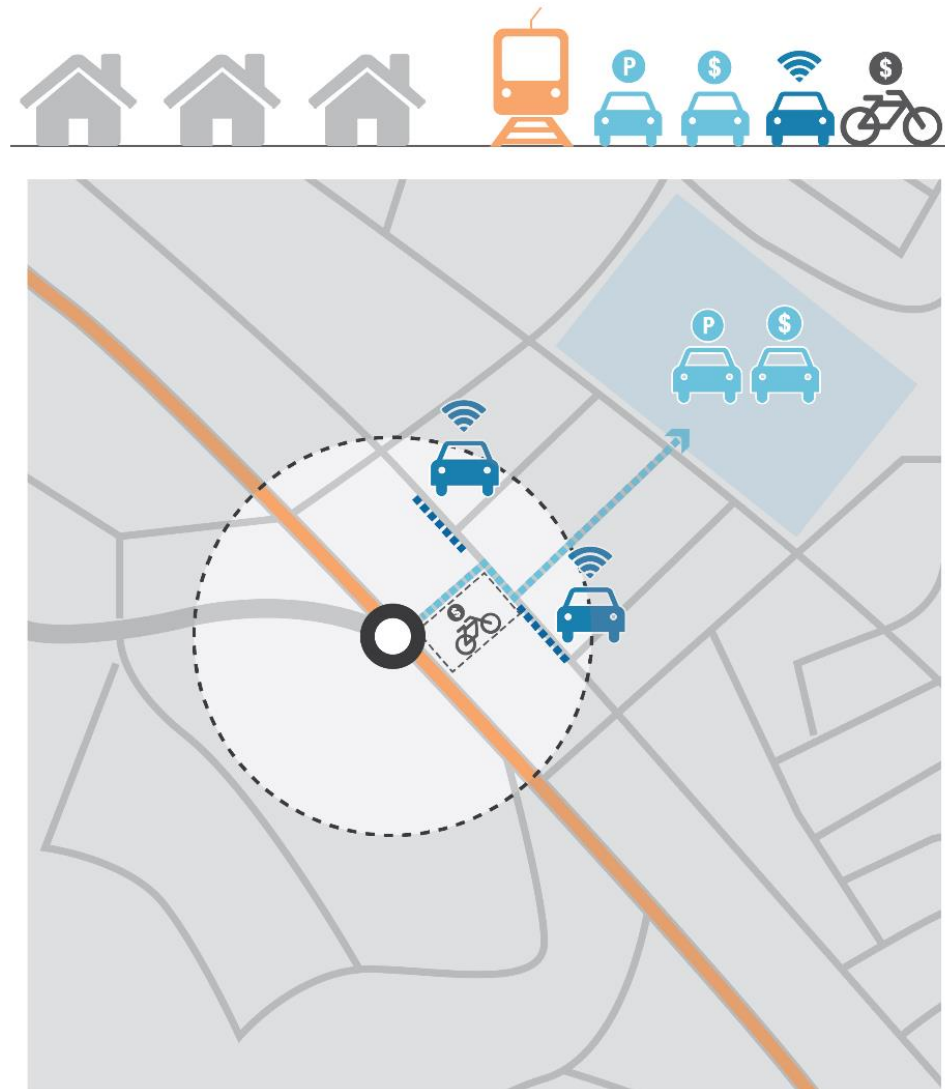
Pulse Hubs

Pulse hubs are large trip generators, including airports, stadiums, universities, and major employer campuses. Transit may not be the focus or center of the area's economic activity. Development around these areas may be recent and street grids may be less connected. These areas may have significant opportunities for mixed-use development if the hubs are well connected to other parts of the region.

Likely Features & Anchor Services

- Defined by a large trip generator
- Frequent and infrequent local feeder bus services
- First- and last-mile services, including shuttles and microtransit (scooters, bikes or other lightweight vehicles, especially electric ones that may be borrowed as part of a self-service rental program)
- Access to car share and shared micromobility services, including bike share stations and scooter share
- Moderate, highly peaked demand for TNCs and other for-hire services

Examples

- Bishop Ranch, San Ramon
- San Jose State University, San Jose
- Google, Mountain View

Colleges
Office Park
Stadium
Airport
TMAs

Train/Rail Station

Bus Station

Car Parking

TNC
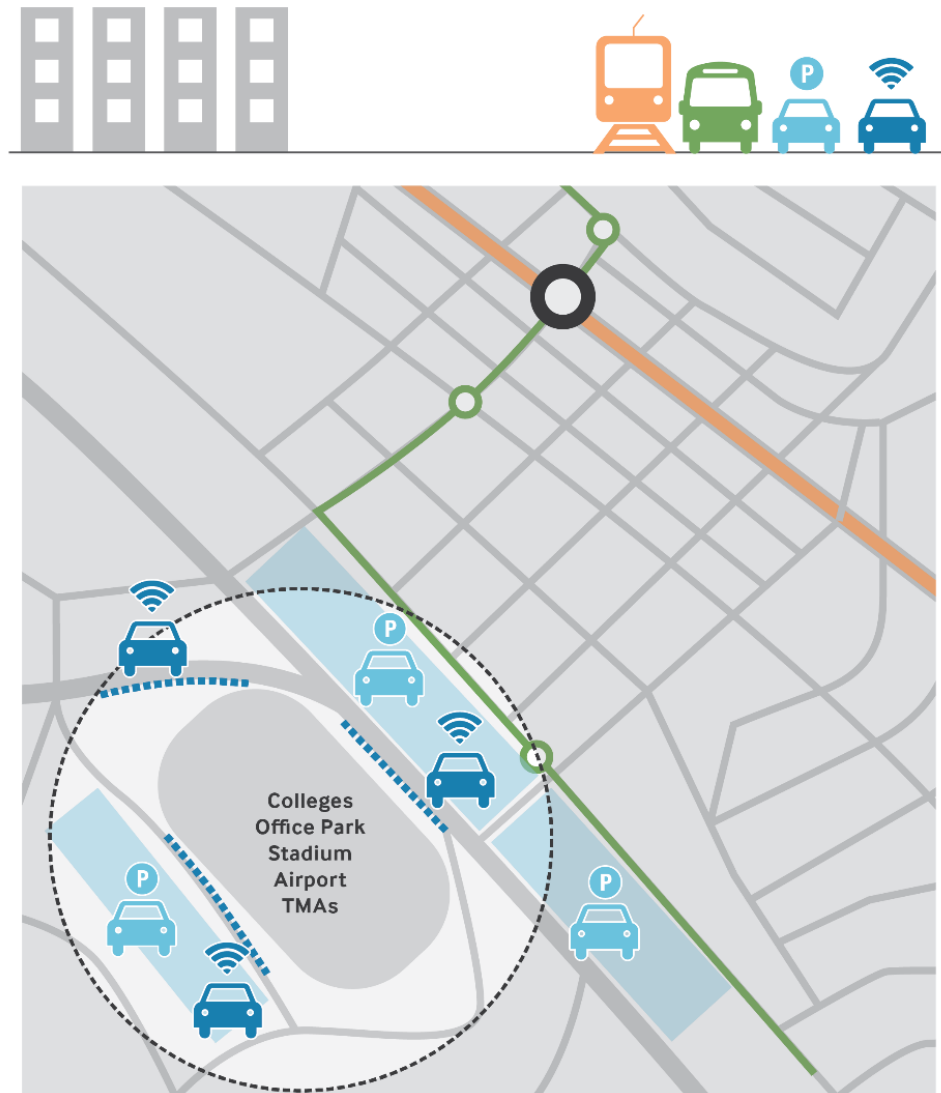
Opportunity Hubs

Opportunity hubs are in outlying town center areas and/or at the intersection of MTC Communities of Concern and/or High Displacement Risk Areas. These areas have many of the key elements needed for a mobility hub – high concentrations of employment or residential density – but lack high quality, frequent transit service or other shared mobility services.

Key Features & Anchor Services

- Areas with concentrated mobility demand, but no proximate access to multiple frequent transit routes or other shared mobility services
- Limited or no anchor services
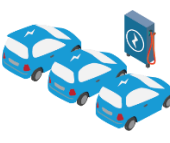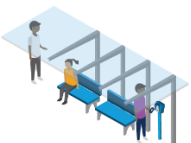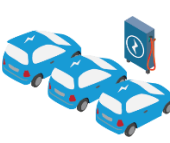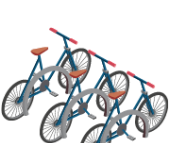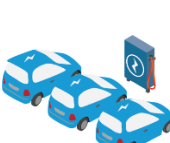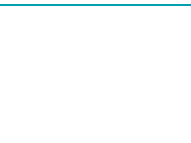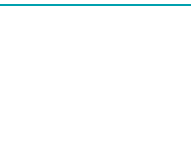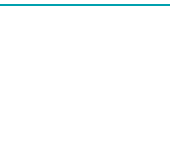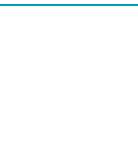
Examples

- Grand Ave & Lake Park Ave, Oakland
- Alum Rock & Capitol, San Jose

Bus Station

Car Parking

TNC

Bike Parking

Figure 2   Anchor Services by Hub Type

Hub Type	Anchor Services						
Regional Downtown Hubs							
Urban District Hubs							
Emerging Urban District Hubs							
Suburban Hubs							
Pulse Hubs							
Opportunity Hubs							

Transit

Shared Micromobility Services

Long- and short-term secure bike parking

Loading zones for ride-hail, shuttles, micro/on-demand transit, and urban freight

EV charging infrastructure for shared vehicles and micromobility

Dedicated car share parking

Common carrier package pickup and other efficient delivery services

THE KIT OF PARTS

Regional mobility hubs are the intersection of four key elements: **Sustainable Access & Mobility**, **Public Realm**, **Customer Experience**, and **Information**. Flexible in their design, mobility hubs are the sum of their parts and integrate plug-and-play features that nimbly accommodate change within each element. The following section outlines each element, the different parts that consist of each element, and the mobility hub types that contain those parts. Each hub type section illustrates which hub features should be included, considered for application, or might not be applicable except in unique cases. For example, some hub locations might not be able to support bike share stations, except where community-controlled bike share or bike libraries are viable.

(S) SUSTAINABLE ACCESS & MOBILITY

(P) PUBLIC REALM

(C) CUSTOMER EXPERIENCE

(I) INFORMATION

Sustainable access and mobility features support mode shift and prioritize active and shared mobility by resolving access and connectivity challenges across mobility services and providing a clear hierarchy of access (see Hub Configuration & Access Hierarchy section below)

Sustainable Access & Mobility

Example Kit of Parts

S1	Transit shelters and waiting areas	**S6**	Dedicated car share parking
S2	Long- and short-term secure bike parking	**S7**	Loading zones for ride-hail, shuttles, micro/on-demand transit, and urban freight
S3	Bike stations with end-of-trip facilities	**S8**	EV charging infrastructure for shared vehicles and micromobility
S4	Clear connections to bike and pedestrian networks	**S9**	Digital policy and geofences
S5	Micromobility stations and drop zones	**S10**	Common carrier package pickup and other efficient delivery services

Figure 3   Sustainable Access & Mobility – Kit of Parts

		Include	Consider	Not Applicable
		●	◑	○

Part		Definition	Hub Types					
			Regional Downtown	Urban District	Emerging Urban District	Suburban	Pulse Hub	Opportunity Hub
S1	Transit shelters and waiting areas	Covered structures at transit stops that provide a safe and comfortable place to wait for transit.	●	●	●	●	●	●
S2	Long- and short-term secure bike parking	Bicycle infrastructure that provides a convenient and secure place to park and repair bikes. Consists of bike lockers, bike cages, or indoor bike parking that provides covered long-term parking as well as short-term bike racks.	●	●	◑	◑	●	◑
S3	Bike stations with end-of-trip facilities	Staffed secure bike parking areas, usually outfitted with changing rooms, maintenance tools, light retail, and other supportive end-of-trip facilities.	●	◑	◑	◑	●	○
S4	Clear connections to bike and ped networks	Roadway improvements for pedestrian and bicycle safety and comfort by providing direct access to transit.	●	●	●	●	●	●
S5	Micromobility stations and drop zones	Designated areas for users to pickup and drop-off shared bikes, scooters, mopeds, and other small vehicles.	●	●	◑	◑	◑	◑
S6	Dedicated car share parking	Parking that has been marked and designated for car share vehicles and equipped with a minimum level 2 electric vehicle charger.	●	●	◑	◑	●	◑
S7	Loading zones for ride-hail, shuttles, micro/on-demand transit, and urban freight	Yellow curbside areas used for active freight and passenger loading and unloading of ride-hail, shuttles, micro/on-demand transit, and urban freight.	●	●	●	◑	●	◑

	Include	Consider	Not Applicable
	●	◑	○

	Part	Definition	Hub Types					
			Regional Downtown	Urban District	Emerging Urban District	Suburban	Pulse Hub	Opportunity Hub
S8	EV charging infrastructure for shared vehicles and micromobility	Charging system that allows for fast charging of shared vehicles and micromobility.	●	●	●	●	●	●
S9	Digital policy and geofences	Critical tools used to effectively and dynamically manage the public right-of-way and enforce access and deployment requirements (e.g., exclusion zones, slow zones, forced drop off, etc.).	●	◑	◑	◑	●	○
S10	Common carrier package pickup and other efficient delivery services	Secure, self-service kiosks for users to retrieve packages and other goods at any given time.	●	◑	◑	◑	◑	◑

Ⓟ Public Realm

Hub work often focuses on mobility function and amenities without reflecting the community's fingerprints. **Public realm** features move beyond mobility to create welcoming and safe spaces through culturally relevant design and programming that support public life with cultural amenities and resources.
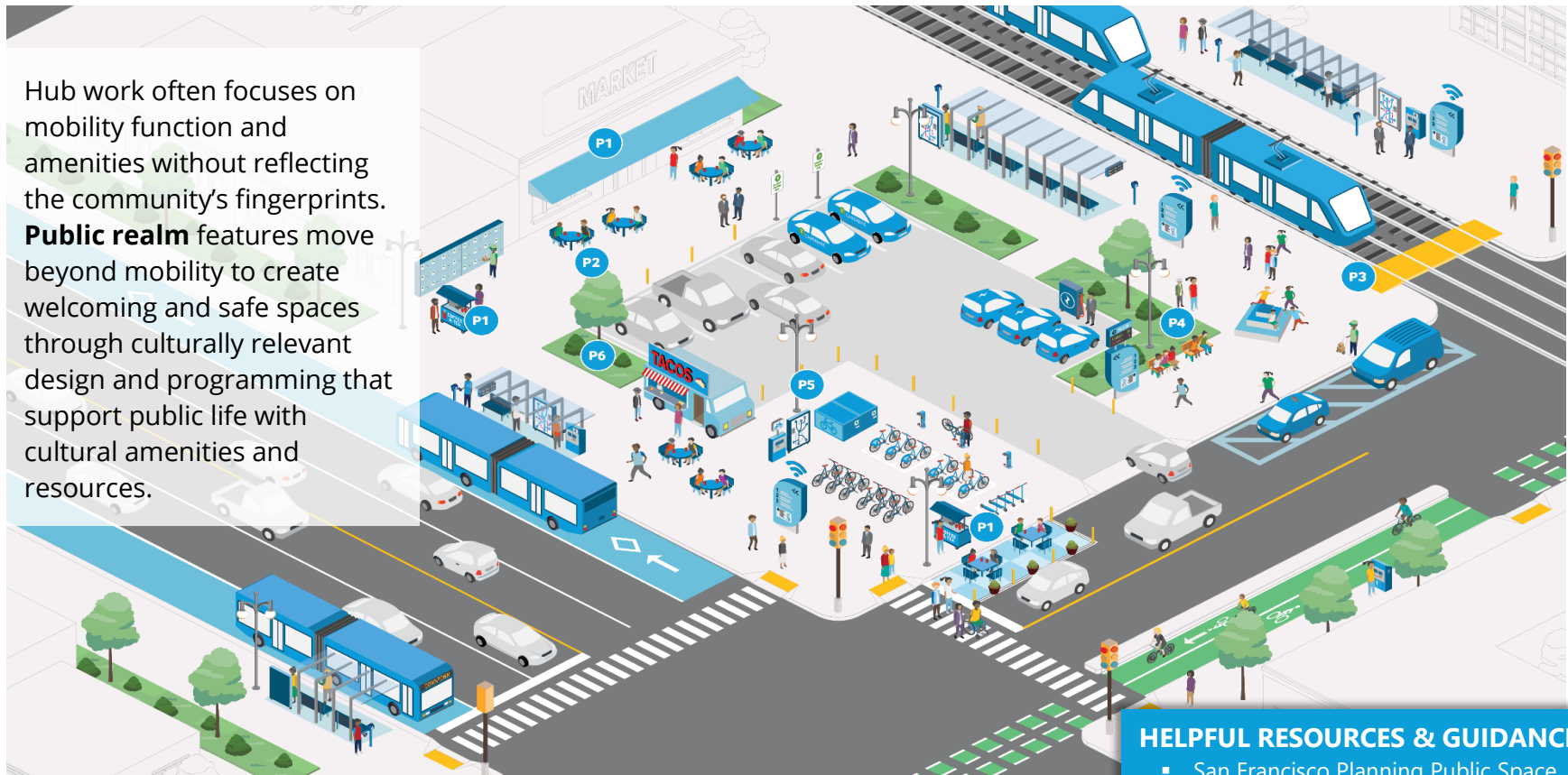
Example Kit of Parts

P1 Permanent and mobile vending/retail space

P2 Culturally relevant programming

P3 Community-driven design elements/tactical urbanism

P4 Street furniture

P5 Pedestrian-scale lighting

P6 Green space

HELPFUL RESOURCES & GUIDANCE
- San Francisco Planning Public Space Stewardship Guide
- Transportation Research Board Fast-Tracked: Tactical Transit Study
- PolicyLink Creating Change through Arts, Culture, and Equitable Development: A Policy and Practice Primer
- Better Block Recipes

	Include	Consider	Not Applicable
	●	◐	○
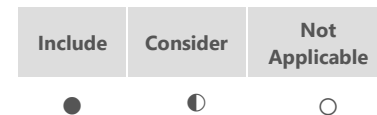
Figure 4   Public Realm – Kit of Parts

Part	Definition	Hub Types					
		Regional Downtown	Urban District	Emerging Urban District	Suburban	Pulse Hub	Opportunity Hub
P1 Permanent and mobile vending/retail space	A mix of dedicated space for permanent retail services that are anchored to a physical location (e.g., restaurant) and flexible space for mobile vending/retail services (e.g. food trucks, florists, coffee stands) that can share the same space at different times.	●	●	●	◐	◐	◐
P2 Culturally relevant programming	The activation of public space that serves the unique needs of the community it serves (e.g., outdoor dining, cultural spaces).	●	◐	◐	◐	◐	●
P3 Community-driven design elements/tactical urbanism	A community-led approach to community building using simple, temporary, low-cost design interventions that can be altered and scaled up to better serve the community (e.g., curb bulbs, pedestrian enhancements, cultural amenities, and art).	●	●	●	●	●	●
P4 Street furniture	Objects placed or fixed in the public right-of-way that activate sidewalks and establish a sense of place (e.g., benches, planters).	●	●	●	●	●	●
P5 Pedestrian-scale lighting	Street lighting that illuminates the sidewalk and is positioned lower and spaced closer together than roadway lighting, located in areas with high pedestrian activity to improve safety and visibility.	●	●	●	●	●	●

Part		Definition	Hub Types					
			Regional Downtown	Urban District	Emerging Urban District	Suburban	Pulse Hub	Opportunity Hub
P6	Green space	An area that is partly or completely covered with grass, trees, shrubs, or other landscaping.	◑	◑	◑	◑	◑	◑

C Customer Experience

A focus on **customer experience** improves the quality of the waiting experience and the safety of people walking and biking at transit exchanges.
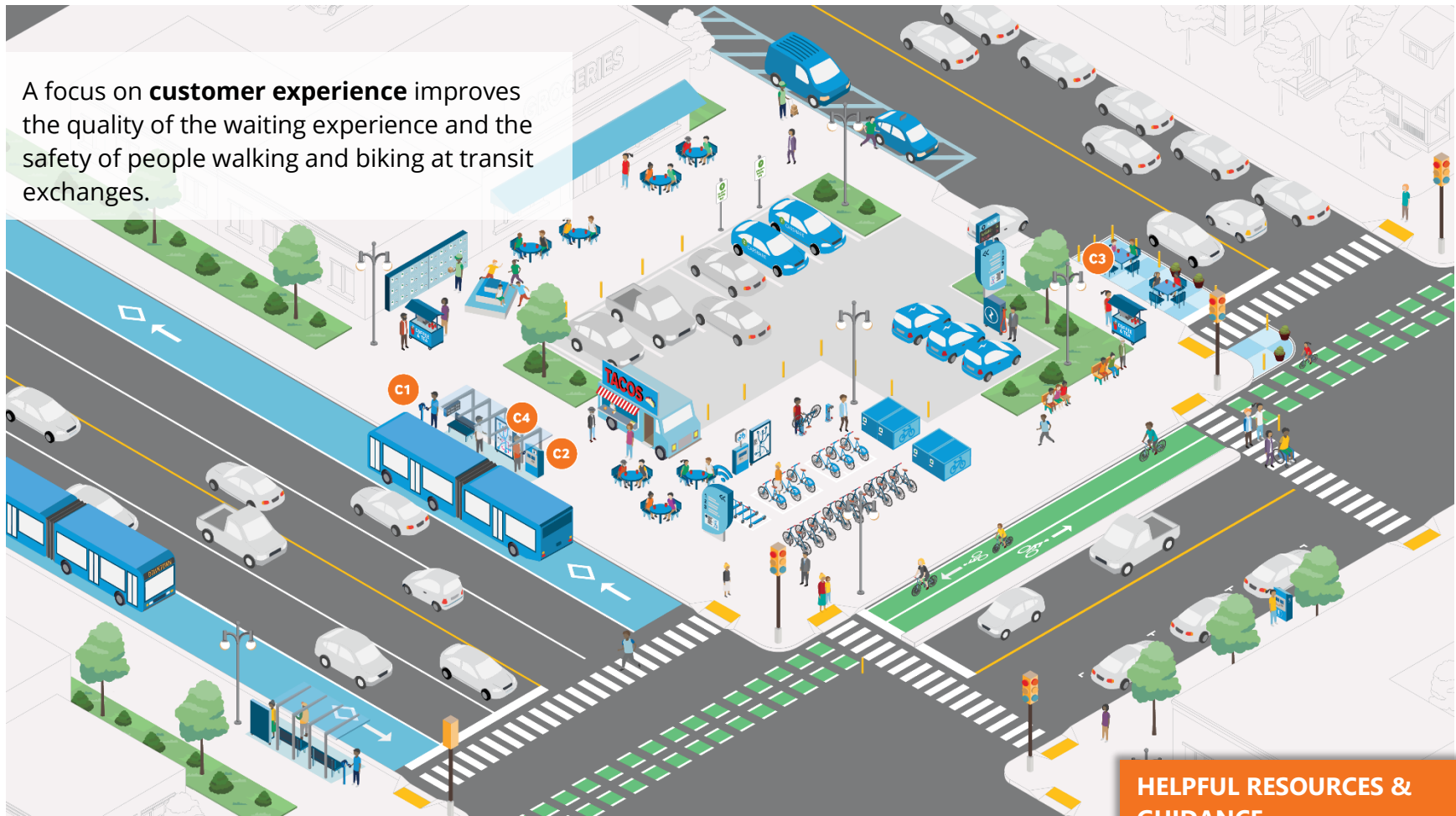
Example Kit of Parts

C1 Off-board payment for transit

C2 Plan, book, and pay technology with Clipper integration

C3 Place programming

C4 Digital screens for booking and trip planning

HELPFUL RESOURCES & GUIDANCE

- NACTO Better Boarding, Better Buses
- Ioby Trick Out My Trip
- TransLink Customer Experience Action Plan

		Include	Consider	Not Applicable
		●	◐	○
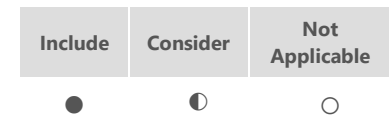
Figure 5   Customer Experience – Kit of Parts

Part		Definition	Hub Types					
			Regional Downtown	Urban District	Emerging Urban District	Suburban	Pulse Hub	Opportunity Hub
C1	Off-board payment for transit	Payment systems located near transit stops that allow transit riders to pre-pay for transit before boarding to speed up boarding times.	●	◐	◐	◐	◐	○
C2	Plan, book, and pay technology with Clipper integration	Integrated vending machines located near transit stops that allow transit riders to pay for their trip and buy/reload their Clipper® cards.	●	◐	◐	◐	●	◐
C3	Place programming	Creation of public gathering spaces that extends the community identity outdoors and establishes a sense of place (e.g., parklets).	●	◐	◐	◐	◐	◐
C4	Digital screens for booking and trip planning	Touch screen kiosks that digitally display nearby mobility options and allow users to book and plan their trip.	●	◐	◐	○	●	○

Ⓘ Information

Information provides an awareness and redundancy of options when and where users need them, even during disruptions. Investment in mobility information should solve for operational problems through real-time communication and give people an understanding of their mobility options at any time, including arrival/departure times and options if there is a disruption.

Example Kit of Parts

I1   Real-time travel information

I2   Hub area maps, amenity information, and bulletins

I3   Monitoring systems to measure mobility and public life metrics

I4   Digital and physical wayfinding (infrastructure that displays mobility and community information)

HELPFUL RESOURCES & GUIDANCE

- MTC Regional Transit Wayfinding Guidelines & Standards
- GTFS Best Practices
- RMI Transit Data Interoperability Report

		Include	Consider	Not Applicable
		●	◑	○

Figure 6   Information – Kit of Parts

	Part	Definition	Hub Types					
			Regional Downtown	Urban District	Emerging Urban District	Suburban	Pulse Hub	Opportunity Hub
I1	Real-time travel information	Information that shares the current status of nearby mobility options to enable travelers to make informed decisions about their trips (e.g., estimated arrival/departure times, location of services).	●	●	●	◑	●	○
I2	Hub area maps, amenity information, and bulletins	Physical displays that help orient users and direct them to nearby amenities and relevant announcements.	●	◑	◑	◑	●	◑
I3	Monitoring systems to measure mobility and public life metrics	Sensor and/or survey-based tools that track and monitor how the hub is used and how often.	●	◑	◑	○	◑	○
I4	Digital and physical wayfinding	A guidance system that directs users to nearby mobility services and amenities and follows the *MTC Regional Transit Wayfinding Guidelines & Standards*.	●	◑	◑	◑	●	○

HUB CONFIGURATION & ACCESS HIERARCHY

Mobility hubs can be configured in one of two layouts. **Fully integrated hubs** are the more user-friendly of the two because all hub elements are self-contained on one site or within a single development (e.g., a park-and-ride or a BART station with sufficient space to house many services and amenities). Fully integrated configurations can be applied within a larger scale facility or at a smaller, more neighborhood scale (see page 34). **Dispersed hubs** are spread across several blocks and have elements located in nearby developments in addition to the transit facility.

Each hub form entails a different level of operational complexity, programming, coordination, and exposure to risk. Dispersed hubs are more complex from an operational, management, and performance measurement standpoint, and require more coordination. However, their dispersed nature can distribute responsibilities across multiple property owners as opposed to full integrated hubs which concentrate most of the management responsibilities on a single facility owner.

Highest and Best Use Considerations

Curb management and amenity siting should align with agency policy objectives and access priorities. While site and market conditions may vary, the most prime curb and facility locations for hub amenities should be prioritized for those that advance climate mitigation, affordability, and equity. Publicly operated and low carbon anchor services should serve as the base of the access hierarchy. These services should be the closest proximity to transit portals and major demand generators in the hub area. The most proximate curbs should also be considered for enhanced pedestrian connections, Class 2 or 3 bikeway extensions to transit's doorstep, or transit priority interventions like transit-only lanes or queue jumps.

Particularly when designing dispersed hubs, implementers should also establish a curb prioritization framework – similar to frameworks developed by SFMTA, BART, and the Seattle Department of Transportation – to determine the highest and

Parking

Personal Vehicles

Shared Vehicles (Carpool, Car Share, TNCs)

Transit Feeder Service, High Capacity Shuttles, Microtransit

Active Modes (Personal & Shared)

Transit Portal
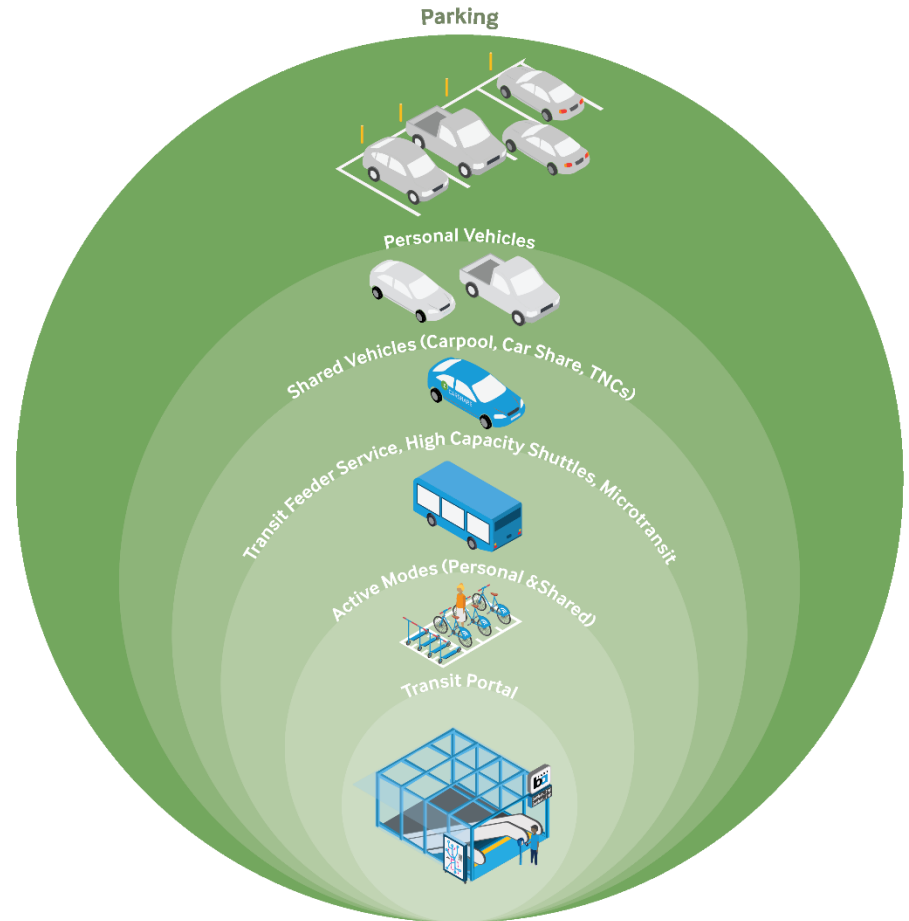
Mirroring BART's multimodal access hierarchy, anchor services like frequent transit service, personal and shared micromobility, and other private feeder services serve as the most proximate options at mobility hubs. Parking and personal vehicles rank last among the mobility hub access hierarchy.

best use of limited curb space for different mobility hub types. Agencies should prioritize active modes – like personal bikes, bike share, and scooter share – along the most proximate blocks to the anchor transit facility, reflecting the local community's and region's policy objectives to encourage and support the most sustainable and affordable mobility options for customers.

Consideration for prioritizing active modes includes mitigating or eliminating any potential conflicts with larger vehicles – most notably ridehail and taxi vehicles accessing the curb. Implementation partners should thoughtfully identify potential conflicts and safe locations for active transportation services.

Small-Scale Hubs

A sub-category of fully integrated mobility hubs, smaller scale – or "corner" mobility hubs – can be implemented with design choices and modal integrations that respond to acute mobility challenges and customer needs. Typically found in a lower density neighborhood context, or along enhanced transit corridors, corner hubs are intended to serve the mobility needs of the immediate neighborhood and meet the first-and last-mile needs of people accessing frequent bus transit.

Corner hubs fit well at locations that are:

- Not served by heavy rail
- Identified as opportunity hubs
- Served primarily by BRT, streetcar, or a connection point between two or more frequent transit routes
- Collecting people taking commuter-oriented and inter-county bus routes.

Smaller-scale hubs might include a limited set of amenities, responding to spatial constraints and more narrowly defined access, transfer, and mobility needs.

Small-scale corner hubs require trade-offs that might repurpose limited curb space from on-street parking storage to bike lane connections, transit lanes and bus queue jumps, shared mobility loading and staging space, open space, and green space.

Play 2

PHASE AND LAYER HUB AMENITIES

Mobility hubs are dynamic places. As you implement and begin operating mobility hubs, you must also nimbly address rapidly evolving mobility options, information, customer preferences, and community needs. Design your mobility hub with the idea that they can be added to or changed as you get a better understanding of how they are being used. Hubs should be continuously iterated to host the most useful, relevant and successful mobility amenities and connections available to the community. This play provides pathways and tools to implement hub improvements strategically and opportunistically over time.

AN ITERATIVE PROCESS

Creating and building on mobility hubs requires thoughtful analysis, management, and evaluation. The first phase of developing your mobility hub is to **understand** mobility gaps and create a clear plan for access, amenities, public realm, customer experience, and information. You and your implementation partners must first understand the mobility needs of the community by gaining insights and perspectives from public engagement, community needs assessments, and field observations.

Once a **cohesive plan** has been developed, the next phase is to identify funding opportunities and the tools you might use to get to implementation. When your **implementation pathway** crystallizes, you can begin **launch planning, installation, and public messaging**. Mobility hub **operations** begins as the construction dust settles and amenities are ready for use. This includes space and vendor management, maintenance, and programming.

Begin evaluating your mobility hub's **performance and product fit** early and often. You should continuously evaluate mobility services, quality of connections, ridership, satisfaction, public life, and other indicators to determine if services, technologies, and information meet local needs and regional mobility objectives.

Finally, mobility hubs should be designed, both physically and contractually, for **agile iteration** of hub design, configuration, services, and programs to meet changing needs.

PATHWAYS TO IMPLEMENTATION

Building out the community's vision for a mobility hub rarely happens all at once. Installing the full kit of parts takes time and often will be layered in as major projects, funding, partnerships, development, and other opportunities present themselves at different times. While MTC aims for consistency, mobility hubs can take many shapes, and vary in size, configuration, offerings, and lifespan. We understand that the incremental nature of mobility hub implementation can leave holes in the experience and lingering next steps that will be remedied over time. Therefore, five main pathways to implementation can be considered.
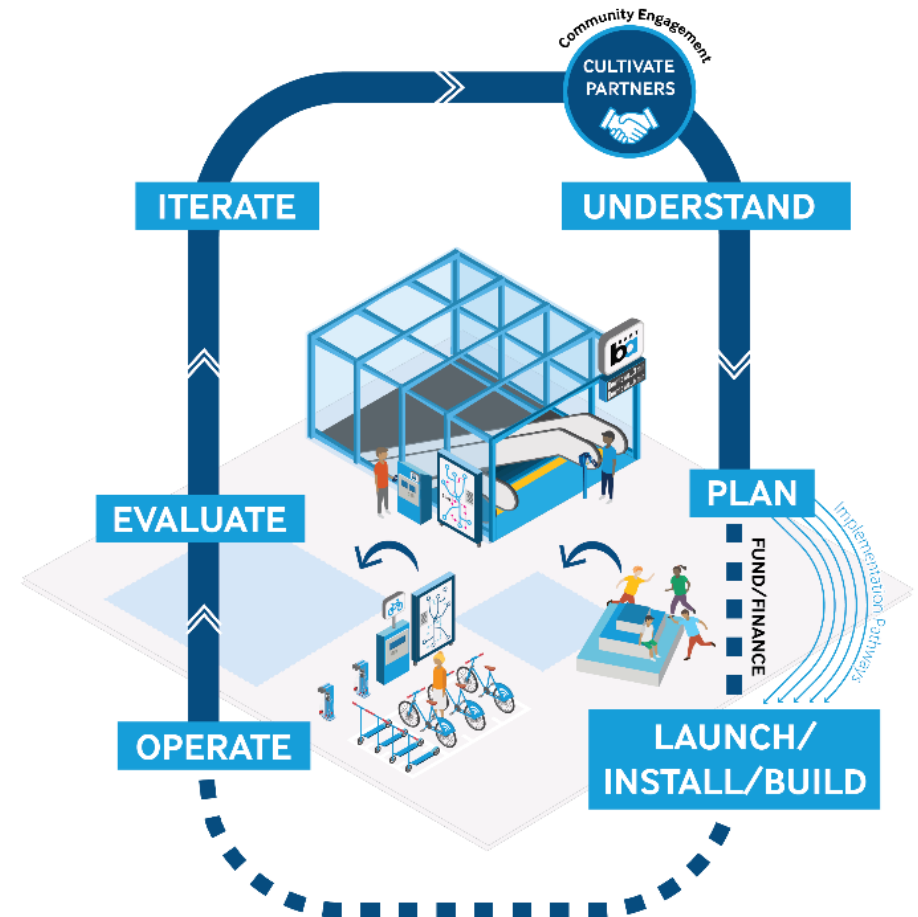
Successful mobility hubs require a thoughtful, phased approach.

Pilot and Demonstrate

Starting small can help you test new hub features on temporary or semi-permanent basis. You can start now with short-term, easy to implement pilots or demonstrations. These might include new curb uses and regulations, temporary wayfinding and branding features, parklet spaces, pop-up retail, micromobility parking, and even staffed features like bike parking valets. Pilots and demonstrations can teach communities about the value of hubs and evaluate if the proposed solution(s) meets the community needs and solves mobility and connectivity issues identified in the understanding and planning processes. Pilots and demonstrations can also take advantage of land that is only available temporarily (e.g., pre-development sites), services that are still breaking into the market, and other exploratory elements to test the viability of a mobility hub and services prior to long-term development.

Retrofit

Mobility hubs are natural intersections of movement, place, and information, but putting it all together often requires layers of retrofits over time. You can program many incremental, major capital retrofits at existing stations and stops to include space for mobility and community solutions beyond transit and other anchor services. Retrofits are longer-lead implementations that you should program into capital plans years in advance or fund with major grant funding applications.

Integrate into Development

New development is an ideal avenue for mobility hub creation and layering. Whether voluntary or required by code, you can identify missing hub amenities and generate the space and financing for implementation through development agreements. Integrating hub amenities into development gives you the opportunity to thoughtfully tailor hub features to that location.

Common features integrated into development include public realm improvements such as streetscape and landscape improvements, real-time information screens, shared mobility service pods, electric vehicle charging, and common carrier delivery lockers. You can also include community building functions rooted in equitable development and engagement frameworks.

Insert and Wedge

As you develop initial implementation plans, be on the lookout for "leftover" parcels, underutilized slivers of land, and opportunities to reprioritize limited space. You can incrementally wedge in mobility hub elements into the nooks and crannies of a hub area. You can also insert new hub amenities or initiate new mobility services (e.g., shared micromobility and car share services) by reusing or reactivating spaces as they become available. In the case of dispersed hubs, you and your implementation partners should find peripheral spaces, one or two blocks from the central hub point, that can house additional hub features and better connect to other hub features through thoughtful site design and wayfinding.

Full Build

The most comprehensive implementation pathways that you can take is a full build out of a mobility hub. Full builds rarely occur as a retrofit. These often come in the form of supplemental capital projects tied into a new transit station (e.g., Milpitas and Berryessa/North San Jose BART stations) or a major transit corridor program (e.g., Tempo bus rapid transit corridor in Oakland and San Leandro). Full builds also allow you and your implementation partners the freedom to design and manage a program that best meets the needs of the community all at once.

IMPLEMENTATION TOOLKIT

You have a variety of implementation tools at your disposal that can be used to activate or repurpose land, to leverage public and private partnerships and new developments, to layer in planning and building requirements, and to secure funding. There are many ways for you and your implementation partners to implement mobility hub features. The following strategies can be mixed and matched to take advantage of short- and long-term opportunities.

Direct Public Action

Cities, transit agencies and state agencies must make strategic choices to leverage existing assets to ensure that land is activated in a useful way. Properties owned by implementation partners can be managed to be supportive of hub elements and the overall transportation network.

Curb Reallocation and Management. Cities can make the financial trade off to reduce paid or permitted parking to enable and manage other priority uses of the curb – particularly new loading, dedicated docking, and communal sitting, resting, and dining space. As stated in Play 1, a city's outcome-focused curb management and prioritization framework can directly benefit mobility hubs. Dynamic and flexible uses at the curb near transit portals is

foundational to allowing multiple mobility services to safely and orderly park, dock, load, and redeploy at hub curb locations.

Right-of-Way Changes. Cities can reprioritize street space to extend bike lanes and add transit-only lanes at the doorstep of mobility hubs. Critical gaps in the bike and transit network and new connections should be identified during planning and targeted for investment.

City of Seattle, WA: Flex zone/curb use priorities

The City of Seattle was one of the first cities to recognize the various functions and flexible uses of the curb, and set up a system to prioritize curb functions based on land use. The priority curb functions allow the City to evaluate curb uses based on the surrounding environment and maximizes utilization of curb space – which is critical in areas where curb competition is greatest. Seattle defined the functions as:

Source: City of Seattle

- Mobility: movement of people and goods
- Access for people: areas for people to arrive, depart, and transfer
- Access for commerce: good and services reach customers and markets
- Activation: vibrant social space
- Greening: Enhance aesthetics and environmental health
- Storage: Storage for vehicles or equipment

These curb use priorities can be augmented and tailored for curb spaces in and around your mobility hub areas.

Permitting. Municipal right-of-way or transit facility permitting processes can be used to provide dedicated space at or on hub property and even require support for mobility hub implementation. As new and existing space is permitted for new mobility uses and public space activation, mobility hubs could become their own type of permitted use, requiring that in-street (e.g., parking spaces) curb, or sidewalk spaces are used for hub uses and programmed activities in priority locations. Existing permit types – including shared mobility permits, parklets, street furniture permits, and EV charging installation permits – can be updated to include language supportive of mobility hubs.

Procurement. If you have the funding available, you can procure specific capital investments or even select services and operators. Provider, property manager, and lease procurement processes could all be written to include language related to mobility hub implementation for specific sites including management of infrastructure to support multimodal options or agreement on allowable uses in the space.

The diagonal parking stalls at the Westlake Mobility Hub entrances in Seattle were repurposed to extend a gap in the protected bike lane network and create a new public space, managed by the Downtown Seattle Association. This is an example of designing, installing, and operating mobility hub spaces in partnership with local government, transit agencies, a downtown business improvement district, and other private employers.

Source: Downtown Seattle Association

Partnerships

Mobility hubs can integrate citywide-permitted private mobility services or other partner mobility arrangements in a way that expressly hosts mobility services at a hub location. This can give community members access to new options and help people connect between public transit and other mobility options, providing choice, better customer experience, and a more resilient transportation system. Partnerships with private entities, including mobility service providers or community-based organizations, add value to mobility hub implementation by directly linking between the mobility hub anchor service and first-/last-mile services.

Multi-Partner Public Demonstrations. Demonstrations can be used to educate users on mobility options and evaluate potential solutions based on public feedback, pilot evaluation, operational criteria, and business indicators. Partnerships can be leveraged to engage community members as well as integrate services and hub features offered by mobility services and technology providers. Demonstrations also expand access to funding, implementation, and operating capacity.

Direct Private Investment and P3s. Public–private partnerships (P3s) are joint ventures between public agencies and private enterprise and funded and operated through a consortium of government and one or more private sector companies. Mobility hub P3s are unique in that there is a clear public mobility and public interest lens, but the private partners provide some mix of public service, public infrastructure, or other benefit in exchange for some financial value. Value can be generated through direct contractual financial arrangement, land value uplift, access to consumers, and/or marketing or advertising opportunities. Depending on the P3 model employed, financial and operational risk can be dispersed across multiple partners. Public agency contributions into the P3 may include operating subsidies; capital investment; cost sharing; transit service; and in-kind services like maintenance support, permitting support, and property access.

While Play 7 enumerates some of the P3 funding opportunities for your mobility hub, the following are examples of P3 arrangements that can fully or partially develop your mobility hub network:

- Joint development opportunities can help capture and redistribute increased land value stemming from transit corridor investments.

- Advertising and sponsorship models from companies that buy and display media can outfit hubs with mobility and experiential amenities, as well as support public realm enhancements and ongoing operations.

- Local jurisdictions implementing mobility hubs can both incentivize development and investment in hub amenities and services by developing a menu of developer incentives, including density exchange or bonuses and reduced (or eliminated) parking requirements.

- Mobility hub property owned by public agencies can encourage direct investment in amenities, operations, etc. through space/ad lease.

- Partnerships can be valuable avenues to direct funding that may be less competitive or restrictive than grant or public funding sources.

Programming Support. Implementation efforts could identify and utilize business or community partners to develop and manage mobility hub programming (e.g. retail spaces, outdoor dining, cultural spaces). These arrangements could ensure programming is maintained and carefully curated for the specific community the mobility hub serves. Downtown or neighborhood business improvement districts (BIDs) are increasingly leveraged for this operational need.
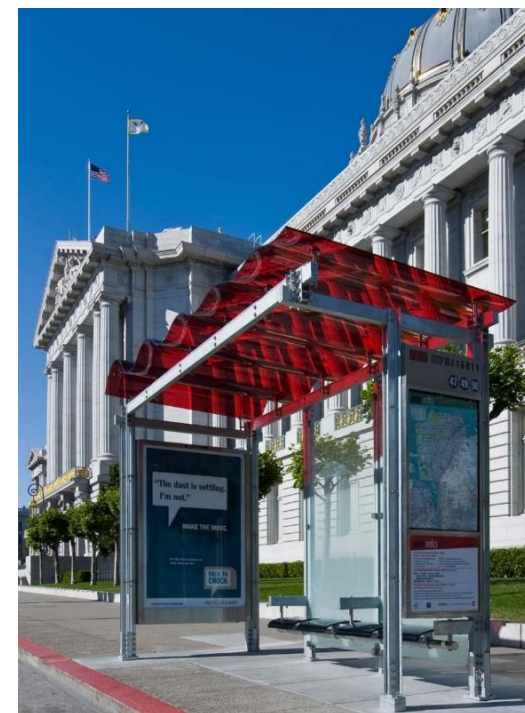
SFMTA's transit shelter program is a partnership with Clear Channel.

Source: Lucid Management Group

Mobility Challenges and Innovation Zones. You and your implementation partners can think even bigger to better connect market solutions with mobility and public interest objectives and mobility hubs. Partnerships can lead to innovation through program and product testing and evaluation. Recent examples of these investment and testing models include the Pittsburgh Mobility Collective and the City of Los Angeles' Transportation Technology Innovation Zone at the Warner Center, operated by Urban Movement Labs. In many cases, the lead public agency establishes an invitation to partner, the physical boundaries defining the area, the roles for community engagement, funding and in-kind services, and access to right-of-way to a portfolio of private partners. In exchange, the private partners contribute infrastructure investment, mobility services, and vital data that help public agencies evaluate technologies, services, and the partnerships themselves.

Leveraging Tools

Existing public processes, plans, and projects can be leveraged to incorporate mobility hubs or component hub parts. Understanding the landscape of the existing plans and projects and being prepared with area-specific mobility hub solutions can accelerate implementation. The mobility hub elements adopted by existing projects and plans are unlikely to have the benefit of being required by code or ordinance but can add additional benefits and return on investment for developers and municipalities. The mobility hub features added through existing processes, plans and projects can act as a selling point to future tenants, the community or public agencies, by bringing added value and showcasing the projects' willingness to meet community need by going above and beyond requirements. The existing public outreach channels associated with planned projects can be used to evaluate the community's appetite for mobility solutions.

New Housing/Commercial Developments. Often entirely new construction projects such as new housing and commercial developments, have extensive code requirements, and planning commission review processes can impact several aspects of the project's final design. Mobility hubs can be positioned to be included in the project plans as solutions to requirements related to single-occupancy trip caps, sustainability and more. Additionally, some private developers may understand the value in mobility hubs and be open to adding elements to the project without being required to do so. Lastly, mobility hubs may be able to assist with vehicle miles traveled mitigation that may be required for transportation impacts under CEQA (in compliance with Senate Bill 743 (Steinberg)). See more information in the *Regional and Statewide Sustainability Initiatives* section.

The City of Pittsburgh offers insights into innovative partnerships that can be used to collocate expanded mobility options and infrastructure at mobility hubs. The City developed an innovative initiative, the Pittsburgh Mobility Collective (PMC), to invite, encourage, and support private mobility providers to serve first- and last-mile connections to and from mobility hubs and major demand centers with the intention to reduce drive alone trips. Selected through a competitive procurement process, the PMC brings together micromobility services and charging station, microtransit, car share, integrated booking and payment, and data platforms to support public transit and Healthy Ride public bike share.

Source: City of Pittsburgh

Ongoing Street Redesign Projects.

The cycle of ongoing street redesign or reconstruction projects makes them a great candidate for mobility hub amenity installation and maintenance. An existing project area can be studied and monitored to build in applicable mobility hub plans that can be incorporated over time. A city's Planning and Public Works departments could coordinate on redesign/construction plans to build in mobility hub amenities.

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Neighborhood, Specific and Master Plans. Long-term plans present a unique opportunity to integrate mobility hubs into an area's lasting identity and design. Neighborhood, specific and master plans attempt to capture goals, philosophies and objectives related to all aspects of a community, often including sustainability, housing, transportation, economic development and more. Layering mobility hubs and solutions into a guiding document, as well as associated city policies and general plan amendments, can help ensure that as the plans come to fruition, mobility hubs are integrated and not left out of projects as they come online.

Major Transit Corridor Capital Investments and Station Improvements. As transportation continues to evolve so should transit thoroughfares and stations. Transit agencies and cities can spur network connectivity by implementing mobility hubs at select transit stations as they are redeveloped or improved. Mobility hubs proposed for transit investment or improvements should be designed to complement the existing transit system and landscape, as well as provide flexibility and resiliency for the future.

The Alameda County Transportation Commission is working with local stakeholders to leverage the newly completed Tempo BRT line to build in mobility hub elements at the new BRT stations.

Requirements

Development requirements, ordinances, and code changes are critical strategies for implementing mobility hubs. These requirements can integrate mobility hubs into new projects or provide funding through development agreements. City coordination and engagement is critical to realize these tools.

The MacArthur Transit Village under construction near the BART station platform. Future transit villages can further integrate mobility hub design and amenity features using overlay zoning.

Source: Santiago Mejia

Hub Overlay Zoning and Private Development. Zoning code changes are powerful tools to ensure mobility hub implementation. One approach to consider is to work with your city partners to adopt a code overlay – similar to transit village or transit area overlays intended to promote transit-oriented community development—that can be applied to new development and major retrofits within dispersed mobility hub areas. A mobility hub overlay would require a menu of mobility hub features in future or retrofitted developments. An overlay zone is also a tool to encode curb, parking, and transportation demand management (TDM) priorities into the fabric of new development.

Mobility hubs are an extension of transit-oriented development (TOD). They impact elements of land use, housing and community development and can be instrumental in providing connections beyond the current transit system. Additionally, when mobility hub amenities are planned and designed in tandem with TOD, mobility offerings can be tailored to specifically support each community and transit stop.

Environmental Impact Report (EIR) and Development Mitigation. Mobility hub amenities can be required as a mitigation tactic to offset impacts of a project as condition of an EIR or EIS. You can also create a specific mobility hub mitigation requirement through either direct action, including adding a mobility hub to the planned project, or funding offsets where the developer can pay into a fund that is used for mobility hub creation elsewhere.

Transportation Demand Management (TDM) Requirements. If built to solve site-specific mobility challenges, mobility hubs can be a quintessential TDM tool. Mobility hub amenities and integrated mobility design can be a solution to manage demand for low occupancy, high carbon trips for both employers and multifamily housing. Hub amenities can be required both programmatically and physically through

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building or permit codes. Employer and residential TDM mobility hub requirements can be tied to new construction, based on estimated number of employees or residents, square footage, and access to non-drive alone travel options. TDM requirements could also be triggered by single occupancy travel rates or goals where mobility hubs would be used as one method for decreasing SOV trips. You should consider integrating mobility hub concepts into TDM requirements at Pulse Hubs or other hub types that have major employment and residential clusters near regionally significant mobility hubs.

Regional and Statewide Sustainability Initiatives. Mobility hub investments are applicable to Senate Bill 743 objectives to determine the significance of a project's transportation impacts to "promote the reduction of greenhouse gas emissions, develop multimodal transportation networks and a diversity of land issues" (as indicated in Section 21099).

Mobility hubs can help to achieve the objectives of Assembly Bill 32. The state law requires California to reduce GHG emissions 40 percent below 1990 levels by 2030. The California Air Resources Board (CARB) determined that the state will not achieve this GHG reduction target without significant changes in how communities and transportation systems are planned, funded, and built. Mobility hub implementation is system change work and can be central to realizing climate mitigation policy objectives.

Consider Pilots

Cities and transit agencies need to think strategically about how to best identify and implement mobility hub implementation opportunities. Implementation does not have to be in the form of a brand new, fully built mobility hub. You and your partners could consider taking an incremental approach or start small. Mobility hubs will evolve overtime, so building the foundation and testing outcomes are important aspects of implementation that can be done in advance of a final infrastructure change.

As mobility hubs are adopted into plans and projects, you and your implementation partners can take an incremental approach to establishing a full mobility hub or network of hubs. Smaller projects can be used to adopt elements of mobility hubs, such as curb management or shared vehicle parking and build to a more robust system over time.

Pilot programs are a strategic approach that can be used to build support and gain land access for future, more permanent hub developments. MTC sees piloting as an important tool to leverage excitement and positive results from a demonstration toward more permanent applications. The temporary and tactical nature of pilot and demonstration installations can allow for quicker implementation than more permanent and robust mobility hubs and can take advantage of existing project construction or phasing, short-term or time-limited funds, and help fill smaller, more

niche community needs. You can develop pilot installations for a number of mobility hub amenities, including, but not limited to:

- Hub wayfinding
- Light-tough micromobiliity parking solutions
- Bike parking
- Pedestrian access improvements at the hub
- New passenger and commercial loading applications at the curb
- Expanded public spaces
- Public realm support features like seating, art, and vending
- Technology and sensor applications

The dynamic and customizable aspects of mobility hub programming and physical form allow for diverse implementation options enabling partners to make the best choices suited for each specific location or network. Awareness and preparedness of all potential pathways allow partners to take advantage as opportunities as they come online and build to a robust implementation methodology.

City of Minneapolis, MN: Modular Mobility Hub Pilots

In 2019, Minneapolis piloted 12 mobility hubs in the public right-of-way across the city to introduce the concept to the public and to help inform a long-term approach to implementing a mobility hub network throughout the city. The goal of the Minneapolis mobility hub program is to increase access to convenient low or no carbon travel options, including transit, shared scooters and shared bikes. The City of Minneapolis conducted events at each mobility hub, where they captured public feedback through surveys. The City found that 64% of participants said they were more likely to use transportation options at the hub, and the top three most important elements needed to improve trips were access to more transportation options, feeling safe and places to sit and gather.

Mobility hub sites had consistent branding, signage, modular furniture and design elements.

The City of Minneapolis has found opportunities to create low-cost parking solutions for shared electric scooters. The concept of opportunistic siting and tactical piloting can be applied to any number of mobility hub elements.

Source: City of Minneapolis

Play 3

ENRICH THE COMMUNITY

As you embark on implementing mobility hubs, ask yourself: Who does the mobility hub serve and how can this investment help communities meet their potential? Does it serve people that don't live in the area, but pass through the neighborhood? Does it serve people that might live there in the future, or people living there now that are at risk of displacement?

Your mobility hub investments should seamlessly integrate with and enrich the surrounding community. Hubs should be developed and implemented with thoughtful consideration of racial equity. **Community-centered hub planning and design take time, but the outcomes are lasting and impactful.**

This play provides key tools that should be applied to your projects to ensure mobility hubs are designed for and by the communities they serve and centered around the needs of people that have been historically underserved and marginalized in transportation planning and decision-making.

ACKNOWLEDGING THE NEED FOR CHANGE

Race is a leading predictor of disparity in transportation and housing. Our region's history of redlining, highway and transit corridor alignments, and many other policies has destabilized and displaced once vibrant and well-connected communities. Redlining, highway and transit corridor alignments, and many other policies were designed to deliberately stunt the potential of Black, Brown, Asian, and immigrant communities throughout the Bay Area.

The effect of restricted community investment, community destruction, and other discriminatory practices is inextricably linked to how people of color navigate the transportation system and use mobility hubs today. In Oakland, Highway 17 (now I-880) was constructed through the heart of the Black community, razing many homes, disrupting the community's social fabric, and destroying economic vitality by cutting areas off from downtown Oakland.

It's important to acknowledge past failures and learn from them as you move forward. By changing the processes by which your projects are planned, designed, funded, and implemented, you can also change outcomes. Given that transportation infrastructure investments typically serve the needs of 9-to-5 commuters, able-bodied people, and white urban or suburban dwellers, mobility hubs and the very idea of mobility "choice" should center around the needs of the community and consider the intersections of mobility, race, affordability, housing insecurity, ableism, and gender.

So how might you advance mobility hubs equitably and center them around the mobility and community needs of Black, indigenous, and people of color (BIPOC)?
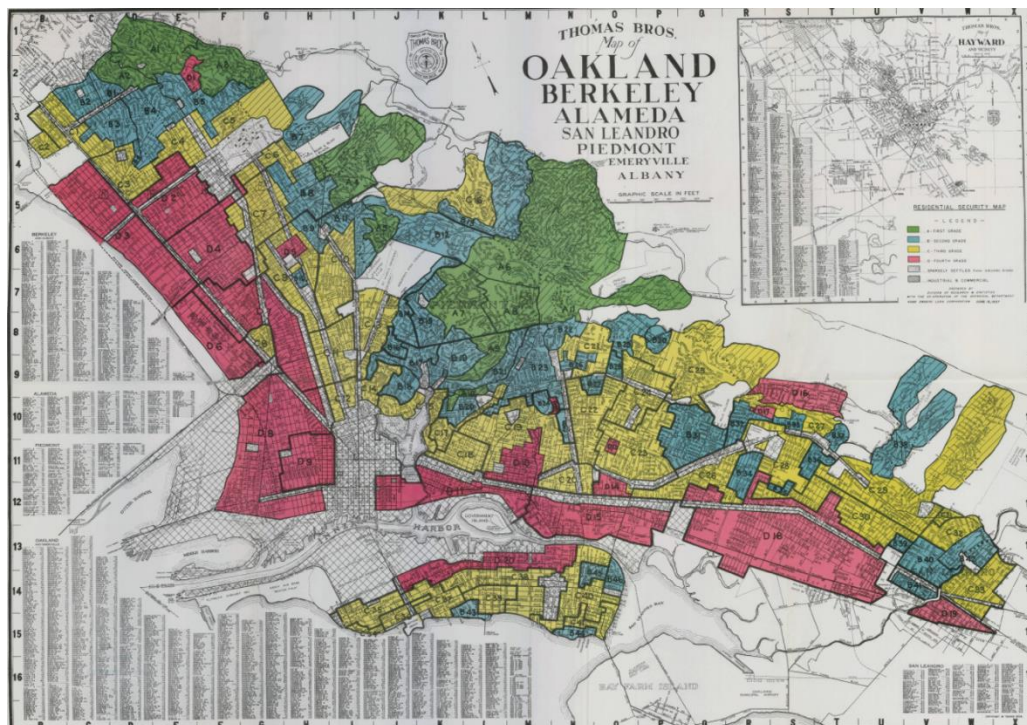
Redlining has had profound implications for how people of color in the Bay Area can access and experience mobility. Exclusion by land use and transportation system design continues to leave BIPOC residents in neighborhoods that are underserved by appropriate mobility options and infrastructure to safely and comfortably get around.

MOBILITY HUBS FOR WHOM?

The way a mobility hub looks, the way the mobility services, connections, and public spaces are designed, and the vernacular through which a hub presents itself can have many meanings in historically marginalized communities, particularly BIPOC communities. If a hub is tailored to commuters or a narrow portion of the population, we continue the legacy of exclusionary mobility systems in the Bay Area. Based on emerging best practices, some questions to ask when engaging with community members about their mobility needs and mobility hub preferences can include:

Míocar, a community-based EV car share service in the San Joaquin Valley, was designed in partnership with low-income community members, leaders and groups that identified shared mobility need in Kern and Tulare Counties. This equitable and community-controlled service and process can be a model for Opportunity Hub type mobility hubs and other hub areas flagged as equity hubs.

- **Do I feel safe and accepted?** Mobility hubs should be designed with and for community residents, and co-managed with marginalized groups.

- **Can I maneuver throughout the hub?** Mobility hubs should be built and retrofitted to maximize the movement, comfort, and cultural institutions of marginalized groups, including people with disabilities. Pathways should be fully accessible and public spaces should be designed to identify with the surrounding community.

- **Can I be connected?** Mobility hubs should provide connections to and across mobility options that meet the unique travel needs of marginalized groups. Providing access to car share, micromobility, or other shared mobility options at hubs does not mean viability. Technological, financial, and cultural barriers will persist until they are explicitly addressed. This will require supporting hubs with education about how to navigate new mobility options, subsidies, incentives, and other financial barrier reduction strategies.

- **Can I understand the hub?** Mobility hubs should be culturally appropriate and multilingual spaces that are easy to use. Hubs should be designed for everyone from the able-bodied teenager to the older immigrant that speaks a language other than English.

- **Is the hub serving my community?** Mobility hubs should build in features and resources that enrich the community, including new job opportunities and local BIPOC-owned retail.

EQUITY FRAMEWORKS & TACTICS

MTC's Equity Platform is built around the common vision of a just and inclusive Bay Area where everyone can participate, prosper, and reach their full potential. The Equity Platform aims to provide community support to those who need it most by understanding constituents' needs, building meaningful partnerships, and setting standards by which to evaluate equity.

What does this mean for you? It means that your work should focus on outcomes that benefit historically underserved and marginalized groups to reverse the disparities that exist in the community today. At the start of any mobility hub project, it's important to acknowledge and understand the past and current actions that have harmed communities. Investments that may have been advantageous for some groups may have inadvertently harmed others. One way to prevent this from happening is by changing who is doing the thinking, the deciding, and the evaluation – in other words, involving the community in the planning, designing, and implementation process.

Fortunately, many BIPOC-led organizations have created tools to help guide you through centering mobility hub implementation on MTC's Communities of Concern. The Greenlining Institute's Equity and Mobility Pilot Toolkit and the Government Alliance on Race and Equity (GARE) Racial Equity Toolkit are great resources to help you get started.

Making Equity Real in Mobility Pilots
Resource & Toolkit

Greenlining Institute's Equity and Mobility Pilot Toolkit includes a Mobility Equity Framework.

Source: Greenlining Institute

Greenlining Institute's Equity and Mobility Pilot Toolkit

Within the Greenlining Institute's Equity and Mobility Pilot Toolkit is a Mobility Equity Framework, which states that in order to achieve mobility equity in transportation planning, social equity and community power must be prioritized. The Framework identifies three steps you might consider:

1. **Identify the mobility needs of a specific low-income community of color.** This includes activities such as brainstorming with the community, educating the community on mobility equity, and working with the community to identify its specific mobility needs.

2. **Conduct the mobility equity analysis to prioritize transportation modes that meet the identified needs, while maximizing benefits and minimizing burdens.** Activities that occur during this step include receiving project proposals from community residents or organizations, prioritizing projects, and conducting an equity analysis of the projects.

3. **Place decision-making power in the hands of the local community.** An example of this is creating community-led decision-making boards and letting the community vote for their preferred projects.

The framework also identifies 12 mobility equity indicators to help you weigh the costs and benefits of your project. These indicators are grouped into three categories that include increasing access to mobility, reducing air pollution, and enhancing economic opportunity.

GARE Racial Equity Toolkit

Racial equity tools seek to eliminate racial inequities, help identify clear goals and measurable outcomes, engage the community, identify who will benefit or be burdened by decisions, examine unintended consequences and potential mitigation efforts, and develop mechanisms for implementation and evaluation.

Similar to the Greenlining Equity and Mobility Pilot Toolkit, the Government Alliance on Race and Equity (GARE) Racial Equity Toolkit lays out six questions for you

and your implementing partners to consider:

1. *Proposal*: What is the project under consideration? What are the desired results and outcomes?

2. *Data*: What does the data tell you?

3. *Community engagement*: How have communities been engaged, and are there opportunities to expand engagement?

4. *Analysis and strategies*: Who will benefit or be burdened by your proposal? What are the strategies for advancing racial equity or mitigating unintended consequences?

5. *Implementation*: What is your plan for implementation?

6. *Accountability and communication*: How will you ensure accountability, communicate, and evaluate results?

These toolkits are one of many important steps to operationalizing equity in decision-making, design, implementation, and on through hub operations.
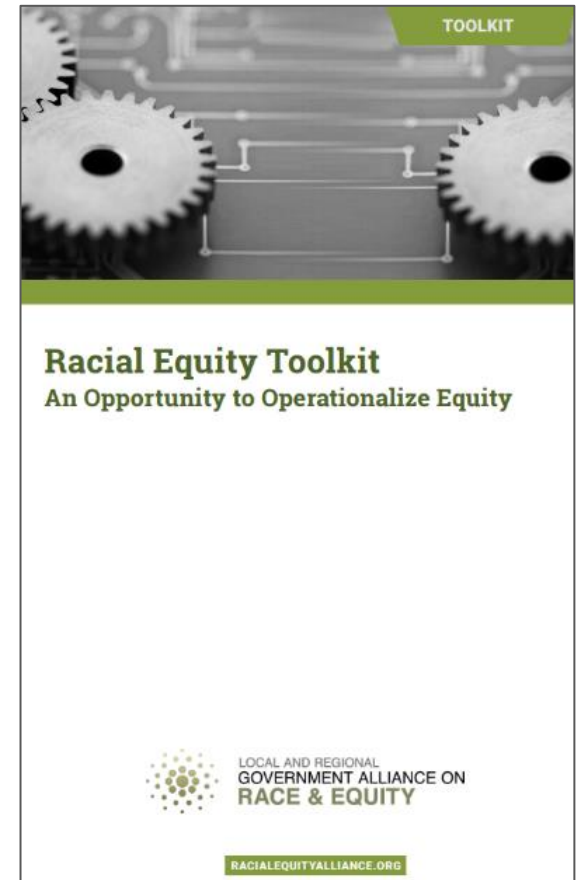
The Government. Alliance on Race and Equity produced a Racial Equity Toolkit with questions to ask before implementation and during evaluation.

Source: GARE

COMMUNITY ENGAGEMENT PRACTICES

What should community engagement for hub pilots and projects look like? Start by listening and learning, acknowledging, and taking community voices to heart. MTC's 2018 Public Participation Plan highlights five guiding principles for community engagement: (1) public participation is a dynamic activity and requires teamwork; (2) input from diverse perspectives enhances the process; (3) relationship building with local stakeholders is important; (4) make the engagement process relevant, remove barriers to participation, communicate clearly, and use compelling visuals; and (5) ensure an open and transparent process that empowers low-income communities and communities of color to participate.

As a mobility hub implementer, you should **build community trust in your project and process**. This requires shifting away from merely informing the public to establishing meaningful partnerships with the community – particularly the most vulnerable populations in our region. It also means maintaining your relationship with the community and honoring the partnerships you've developed even after the project has been completed. Ensuring that two-way communication remains in place after the traditional community engagement period ends shows the community that their feedback is valued.

If you are piloting or developing a mobility hub, your work should incorporate the following elements:

- A community advisory group to provide feedback and support decision-making
- Listening sessions with community members
- In-person and virtual engagement
- A survey tailored to the hub's most vulnerable communities
- A feedback loop to ensure that input was thoughtfully integrated and adequately addressed
- Compensating community-based organizations for their time and efforts

Greenlining's Equity and Mobility Pilot Toolkit documents best practices for meaningful community engagement at all stages of project development. The Toolkit provides a list of potential engagement activities (e.g., focus groups, drafting community benefits agreements, and conducting a community needs assessment) and identifies cultural considerations to keep in mind when conducting community engagement. Five cultural considerations to factor in while conducting community engagement include:

1. *Literacy Level*: Are your materials designed to accommodate different literacy levels, minimizing the use of acronyms where possible?

2. *Socioeconomic Status*: Have you considered factors such as location and timing of activities, transit access, childcare availability, and the availability of food at your engagement activities?

3. *Language*: Are all project materials translated and live events conducted in the major languages spoken in the community?

4. *Local History*: Have you engaged with local community-based organizations who understand the local history?

5. *Competing Interests and Limited Time*: Are you hosting events at places where people already gather and at a time when it's convenient for them?

HUBS AND COMMUNITY NEEDS ASSESSMENT

Every mobility hub project and ideally every pilot should be driven by a community needs assessment. At minimum, the needs assessment should include site visits, data collection (e.g., Census demographic data), and a survey (using standardized transportation needs assessment questions). We recommend convening an advisory group consisting of residents and community leaders to provide feedback on the survey and to ensure that critical insights are included and reporting is context sensitive.

When conducting a community needs assessment, you should think about those at the margins as the center of the work. Listen to their experiences and needs. If you lead with Black and Brown communities, you will:

Decenter mobility and uplift the community: Listening to the community's needs might yield less mobility-related investment, but more Black-, Brown-, and Asian-owned businesses supporting initiatives that increase access to their businesses – which ultimately can reduce vehicle miles traveled and greenhouse gas emissions.

Rethink access: Access can mean more useful mobility options. In COVID times, providing access might mean offering mobile services in hub areas that make it easy to deliver food, make health visits, and provide other services without needing to physically travel.

PARTNERSHIPS ENABLE MOBILITY HUB PILOT AT AFFORDABLE HOUSING DEVELOPMENTS

TransForm, a Bay Area nonprofit transportation organization, is leading a partnership with MTC and other local partners to pilot three mobility hubs at affordable housing developments in Oakland, Richmond, and San Jose. A community needs assessment was conducted at the start of the project, which yielded valuable input from residents and community members regarding transportation gaps. The team identified lessons learned from the community needs assessment, some of which include:

- Build trust with residents and partner organizations

- Dedicate considerable time toward a collaborative survey development process

- Present a draft survey to residents to ensure that materials are meaningful, engaging, and easy to use

- Conduct in-person survey outreach to allow members of the outreach team (which consisted of residents) to answer questions and address concerns about the survey or project

- Hire and train residents for survey outreach and data entry as workforce development opportunity

These lessons learned, as well as many others, are discussed in further detail in TransForm's Car Sharing and Mobility Hubs in Affordable Housing Pilot Project report.

MTC AND ABAG'S COMMUNITY-BASED TRANSPORTATION PLANNING (CBTP) PROGRAM

MTC and ABAG's Community-Based Transportation Planning (CBTP) program supports the needs of communities that have historically experienced barriers to participation in the transportation planning process and currently face limited mobility options. Through the CBTP program, MTC and ABAG partner with County Transportation Agencies to conduct community-driven planning efforts in communities of color or low-income communities, providing a venue for residents and community-based organizations to shape planning recommendations in order to improve access and mobility for their neighborhoods. Each CBTP includes a report on baseline conditions, a needs assessment, recommendations, implementation guidelines, a framework for monitoring and evaluation, and a summary of outreach and engagement efforts. Established in 2002, the program has allocated over $4 million in planning funds toward planning efforts in over 30 communities and has recently funded the facilitation of two participatory budgeting pilots.

Participatory budgeting is a form of public engagement where community residents directly decide how to spend part of a public budget. CBTP planning funds have been used to fund participatory budgeting work in San Francisco's Bayview and Hunters Point neighborhoods and in Vallejo. Residents of both communities were engaged multiple times during the planning process, weighing in on their mobility needs, ranking potential solutions, and ultimately choosing which projects received funding. Throughout the process, best practices like providing engagement materials in multiple languages, varying the time and day of meetings, holding meetings in transit-accessible places, and working with community-based organizations to contact hard-to-reach populations were implemented. Ultimately, residents of these two communities prioritized $1 million in funding reserved for implementation of projects coming out of the participatory budgeting process.

The participatory budgeting model can be applied across planning contexts as a way to democratically determine which types of investments are needed most. When planning for mobility hubs, participatory budgeting could be deployed to determine which amenities or mobility options have the most community support, helping to ensure that mobility hubs have the right components to meet residents' need while also engendering a greater sense of ownership over the site.

HUMAN-CENTERED DESIGN

Similar to community needs assessments, human-centered design (HCD) is based on the idea that mobility hub products, services, and systems should be designed to address the needs of potential users, travelers, and communities. HCD is an inclusive method of problem-solving that involves the intended users in the design process. Mobility hub planning and design should emphasize the door-to-door transportation experience – on public transit, when accessing shared mobility services, and when accessing mobility and amenities at a mobility hub.

How can hub pilots, customer experience, management, and construction be informed by HCD process? HCD in a mobility hub context can take on many forms, but the focus is on ensuring all elements are user-centric. Hubs could feature designs from local artists, vendors with locally grown produce, or other services that are tailored to the neighborhood. It can mean installing real-time arrival kiosks in well-lit areas of the hub or improving security measures when operations are less frequent. HCD should employ a robust equitable community engagement strategy to make sure that community needs are heard and uplifted. A recent example of a HCD process applied to mobility hub planning is Seattle's effort to electrify shared mobility hubs. Likewise, many mobility product companies engage

human-centered design experts or have established in-house design thinking studios to build new service, product, and infrastructure concepts. The most notable example of this is D-Ford, a design partnership between Ford and the global design thinking pioneer, IDEO.

HCD also means that the construction of mobility hubs does not negatively impact Communities of Concern. Construction can often impact local economies by blocking access to businesses, reducing visibility of storefronts, or by deterring people from visiting areas in proximity to the construction site. LA Metro established a Business Interruption Fund to provide financial assistance to small businesses affected by project construction. The goal of this fund is to help small businesses thrive throughout construction and post-construction. Over $10 million is allocated in Metro's budget each year for the Business Interruption Fund.

When considering end-to-end mobility experience, the design thinking process should start in the very early stages of
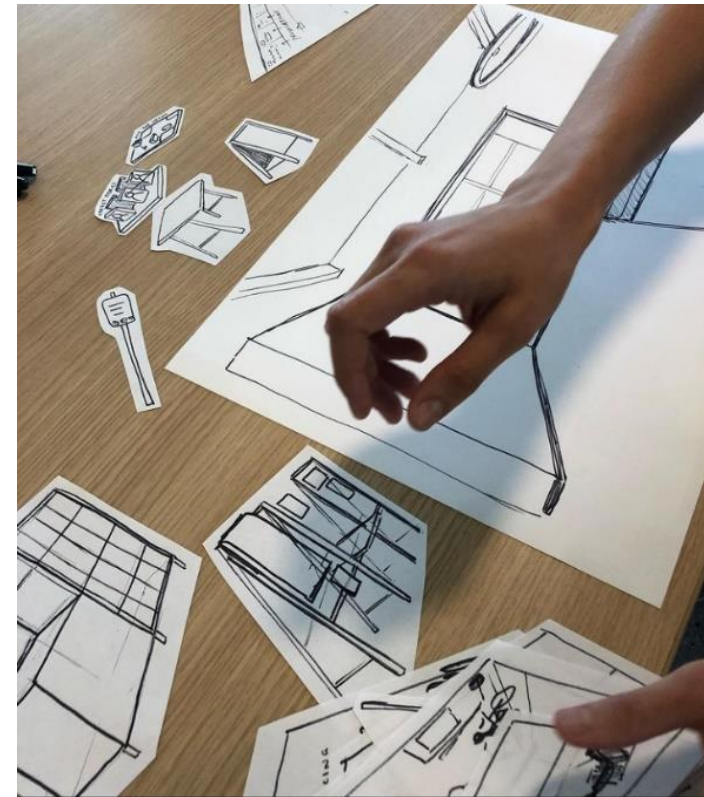
D-Lab's livable street prototyping exercise is an example of applying human centered design principles to place design.

Source: D-Ford

engagement and understanding the problems being solved. Your mobility hub implementation team should consider contracting trained human-centered designers – especially designers of color and designers living with disabilities. This will ensure diverse needs and perspectives are baked into the design process from the beginning.

ANTI-DISPLACEMENT

New transportation improvements, if not carefully planned and implemented, have the potential to displace the residents they are intended to serve. Shiny new infrastructure can make a neighborhood more desirable, bringing newcomers to the neighborhood, raising housing costs, and displacing existing residents and businesses.

What anti-displacement tactics should be built into the planning process, hub design, and ongoing programming?

As you begin thinking through how to address the displacement potential of your hub project, you have access to vital resources and tactics that can be built into pilots and long-term hub area development plans. These resources include the affordability, stability, and anti-displacement policy tools developed through the CASA Compact, as well as anti-displacement strategies, such as the All-In Cities Policy Toolkit developed by PolicyLink. Several successful strategies include:

- **Zoning near transit.** Updating zoning to enable an inclusive mix of homes at mobility hubs.
- **Inclusionary zoning.** Requiring or incentivizing developers to set aside a certain percentage of units in a project as below market rate. Inclusionary zoning is often tied to density bonuses, allowing developers to increase the size of their development beyond existing zoning policies.
- **Unlock public land at hubs for affordable housing.** Reducing barriers to development on public land and repurposing public land to create affordable housing.
- **Just cause eviction ordinances.** Ordinances designed to prevent arbitrary, retaliatory, or discriminatory evictions by establishing specific reasons for eviction such as failing to pay rent. Just cause ordinances can slow the process of gentrification so that all residents can benefit from reinvestment and growth.

Chicago's ETOD Policy Plan

In September 2020, the City of Chicago released its first ever Equitable Transit-Oriented Development (eTOD) Policy Plan. This plan was created to combat the lack of walkable housing and retail near CTA and Metra stations in Black communities and to mitigate displacement pressure felt by residents living in areas near CTA stations that have been experiencing rapid growth. The plan defines eTOD as development that "enables all people regardless of income, race, ethnicity, age, gender, immigration status or ability to experience the benefits of dense, mixed-use, pedestrian-oriented development near transit hubs."

90%

Previously, 90% of new TOD projects took place in the North Side, Northwest Side, Downtown and around the West Loop.

Impacts of Recent TOD Projects

Analysis of TOD development approved between 2016 and 2019 reveals disparities in growth patterns between neighborhoods, reinforcing existing racial inequities. During this time, almost 90% of new TOD projects took place in the North Side, Northwest Side, in Downtown and around the West Loop. In contrast, little TOD activity occurred near station areas in the South and West Sides. Where new TOD development is occurring, white population has increased, Black population has decreased, and Hispanic/Latinx population has increased in some areas and decreased in others. These demographic shifts point to displacement patterns. In contrast, areas near rail stations that are eligible for TOD benefits but that have not seen TOD project activity have 40% more residents of color, 23% more low-income residents and 16% more residents with a high school education or less than areas where TOD projects have occurred.

The analysis also found that TOD projects had positive transportation and economic development impacts. Areas of the City with new TOD projects had lower household car ownership than areas without TOD activity.

Little TOD activity occurred near station areas in the South and West Sides

Source: City of Chicago

Recommendations are grouped into three strategic priorities: (1) Building the city's capacity to support eTOD; (2) making eTOD required, easier, and more equitable; and (3) embedding eTOD principles into Chicago's planning process.

The plan was informed by a workgroup consisting of over 75 individuals across government agencies, developers, civic stakeholders, architects, artists, and community advocates.
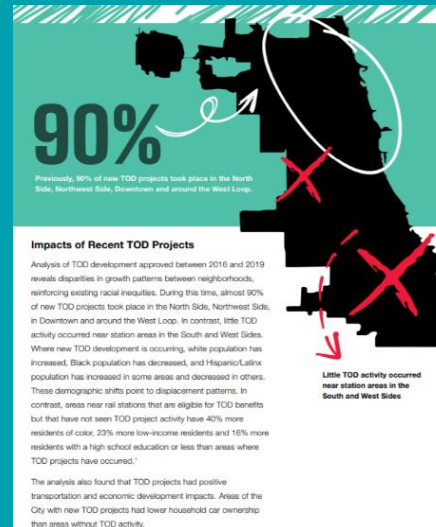
PATHWAYS TO COMMUNITY WEALTH

Mobility hubs are places that co-locate much more than transportation services and infrastructure. Your hub could anchor strategies, services, and resources that build wealth and realize community potential, particularly where hubs are situated in Communities of Concern.

Community wealth building is a hyper local community development model, often anchored on a major public investment, that seeks to build jobs, expand access to public services, and ensure local economic stability. One transformative project, such as a mobility hub, will not lead to community wealth but it is one step toward transforming the local economy so that everyone benefits.

Mobility hub implementers can build many pathways to achieving community wealth into their work, as described in Figure 8. Learn about real-life examples of community wealth building in this interactive map by the Democracy Collective.

Figure 7   Examples of Pathways to Community Wealth

Pathway	How does it lead to community wealth?
Community Land Trusts	Community land trusts are nonprofits designed to ensure long-term housing affordability by acquiring land and maintaining permanent ownership of it. Community land trusts provide low- or moderate-income (LMI) individuals with the opportunity to build equity through homeownership, and they prevent gentrification from occurring.
Individual Wealth Building	Individual wealth building aims to increase the savings of LMI individuals through Individual Development Accounts (IDAs). IDAs match deposits of program participants, encouraging them to save. One stipulation is that participants must complete financial education classes and use their savings for specific purposes, such as a home purchase or renovation project.
Investment in Cultural Capital	Cultural capital is a community's social assets that bond the community together. Investments in cultural capital sustain the values, traditions, or customs that help leverage other types of capital. Examples of investments include supporting venues to showcase cultural achievements or establishing programs that preserve or pass on cultural knowledge and skills.
Local Food Systems	Communities are organizing "food hubs," which the United States Department of Agriculture (USDA) defines as a "centrally located facility with a business management structure facilitating the aggregation, storage, processing, distribution, and/or marketing of locally/regionally produced food products." Food hubs increase access to fresh food for consumers who live in food deserts.
Reclaiming the Commons	In this instance, the "Commons" refers to parks and public spaces. Returning local control of parks and open space to the community ensures that these resources will not be exploited by outsiders and that all community members can benefit from its existence.

Go Hub: A Model for Community Mobility Hubs

The Go Hub is a physical space for community- and power-building, providing access to the necessary hardware (mobility devices and infrastructure) and software (engagement, trainings) to increase mobility.

Led by equity-centered community organization, Equiticity, the Community Mobility Hub is not just a transportation hub. It is a place where North Lawndale neighborhood residents in the City of Chicago can access low-cost equipment rentals and participate in sales and training focused on maintaining physical health. The Community Mobility Hub will also focus on creating spaces for socializing through gatherings such as bike rides, walking tours, and skills training. It is a holistic approach that supports mobility and unemployment, as well as the social and recreational needs of the community.

Conceptual diagrams illustrating a potential new family of information products, engineered through the Regional Transit Mapping and Wayfinding Program.

Source: Metropolitan Transportation Commission

Play 4

APPLY GOVERNANCE AND MANAGEMENT TOOLS

Mobility hubs need to be intentionally designed, managed, and operated to achieve successful integration and ease of use. The more dispersed the hub, the more challenging it is to manage the space and ensure cohesion.

Hub implementation partners have many tools to govern, operate, manage, and maintain mobility hub spaces. Effective hub governance and management are critical to ensure mobility hubs are well-integrated, inviting, and able to get people out of cars and into public transit and other shared mobility options. This play illustrates the range of coordination approaches and management techniques available to implementation partners.

GOVERNANCE AND OPERATING MODEL CONSIDERATIONS

It takes a village to plan, design, implement, and manage a mobility hub.
Before building out your governance and management plan, hub partners need to engage and agree on who is responsible for all pre- and post-implementation activities. Figure 8 illustrates common implementation partners and their respective roles and responsibilities in developing and implementing mobility hubs. The roles identified below are representative and may vary by hub opportunity. Place-based organizations range from housing authorities and development corporations to entities like Local Initiatives Support Corporation.

There is no perfect model to govern, manage, and operate mobility hubs.
Complex governance and operating models with many hubs across a diverse geography might include dozens of organizations with a wide variety of roles. Contra Costa Transportation Authority's Innovate 680 Smart Mobility Hub program is an example of a more complex model, managed at the county level with many delivery leads. Other agencies seek to implement and manage mobility hubs as separate pilots or projects – greatly reducing the management complexity, but limiting coordination across a hub network.

The appropriate model selected depends on several factors, including policy objectives, funding, partner relationships, and more. Cities, transit agencies, and other hub implementation partners should consider the following governance and operating models. Plays 3 and 7 provide detail on public-private partnership models that bake in operations and investment roles as part of the venture.
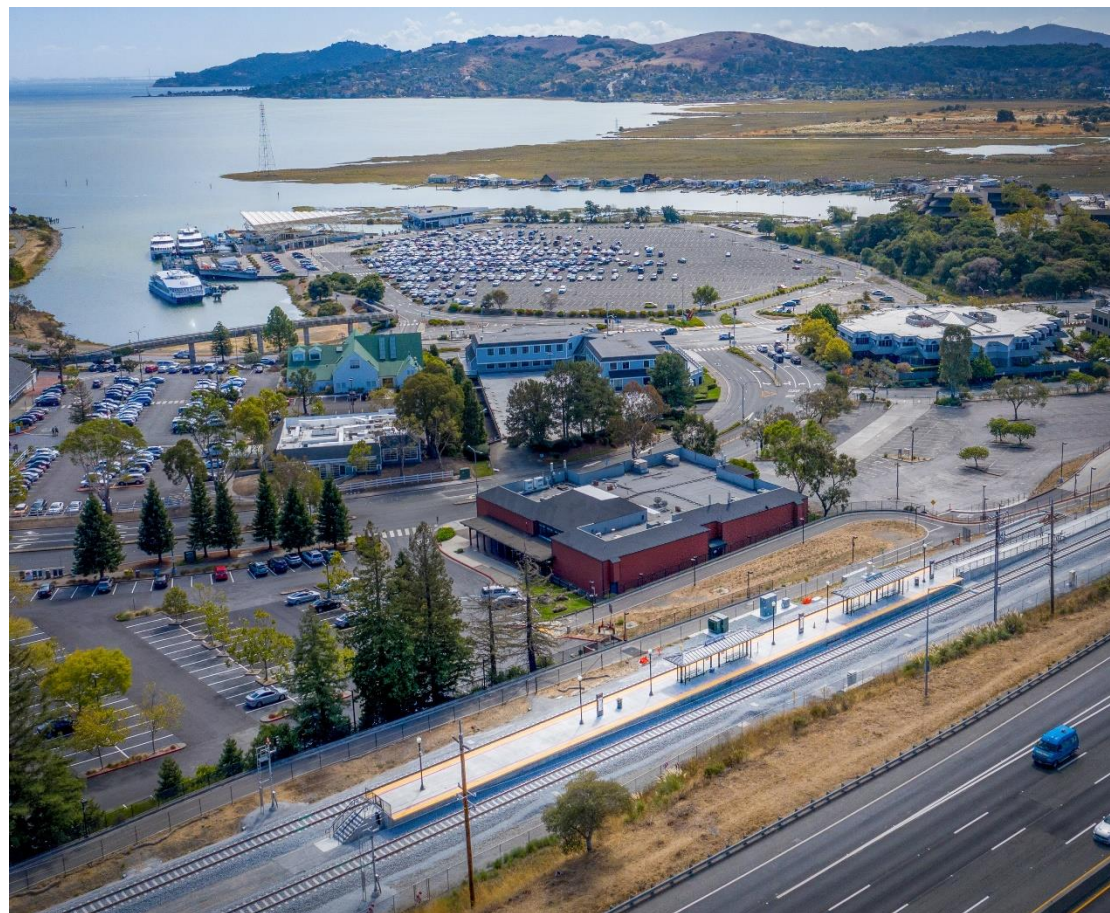
Similar to the Larkspur SMART Station and Ferry Terminal hub area, mobility hubs dispersed across a large portion of land area will require coordinated governance and operations.

Source: Tom Rennie

Figure 8   Mobility Hub Implementation Roles and Owners

Implementation Partners	Convene	Manage Network	Manage Pilot/ Project	Plan/ Design	Develop Policy	Fund	Implement	Host (property)	Manage/ Operate	Maintain	Program	Measure
MTC				Guid-ance			Guidance					
County Trans. Authority												
Cities							Lead / Co-Lead	Public Right-of-Way & Parking				
Regional Transit Agency							Lead / Co-Lead	Station/ P&R Facilities				
Local Transit Agency							Lead / Co-Lead	Stop Facilities				
Caltrans							Lead / Co-Lead	Underutilized Parcels/ P&R Facilities				
Service/Tech Providers							Services & Minor Infrastruc-ture					
Community & Place-Based Orgs												
Developers/Private Property Owners							On-Site / Curb Amenities Only	Developed Parcels				

Implementation Partners	Convene	Manage Network	Manage Pilot/ Project	Plan/ Design	Develop Policy	Fund	Implement	Host (property)	Manage/ Operate	Maintain	Program	Measure
BIDs/TMAs**		■	■			■			■	■	■	■
Major institutions/ employers	■			■		■	■	Campus Buildings/ Spaces	■	■	■	■

*Shading indicates partner involvement in implementation role

**Business Improvement Districts (BIDs)/Transportation Management Associations (TMAs)

Mobility Hub Manager

Managing services and programs that convene many options, incentives, and partnerships requires a clear vision and principled focus on delivering outcomes. Cities, county transportation authorities, and transit agencies should consider the viability of a single entity managing a network of mobility hubs.

The Los Angeles Department of Transportation (LADOT) released a first-of-its-kind RFP tasking a multi-disciplinary team to lead design, financing, operations, and maintenance at 13 mobility hubs. LADOT plans to invest in and manage a network of nearly 100 hubs across the city.

A Mobility Hub Manager could operate at a citywide, transit districtwide, or countywide level. The responsibility of a hub manager would be to:

- Lead visioning and performance measurement
- Advocate for hub policy adoption across jurisdictional boundaries
- Facilitate planning, design, and engagement processes with implementation partners
- Ensure focus on community enrichment and equity
- Coordinate marketing, messaging, and communications

- Build and manage community partnerships (including public space management partners)
- Oversee partnerships and contracts with mobility providers, technology partners, and vendors

- Secure funding and revenue opportunities
- Connect with regional mobility hubs efforts

Hubs that experience major swing in trip supply and demand, Bay Wheels and other shared micromobility services need to be coordinated to meet mobility demands in real-time, limit oversaturation, and ensure timely transfers across modes.

Source: Terra Curtis

Public Space Stewardship

In some cases, mobility hub governance and operations will be defined by longstanding responsibilities. Transit agencies might own, manage, operate, and maintain hub amenities located on their facilities only. City departments of transportation or other public works agencies might manage any feature operating or being stored in the public right-of-way. This operational model will most likely occur in locations where hub features are isolated to one piece of property, like a BART station or at the intersection of a small-scale corner mobility hub.

However, most mobility hubs will be much more complex and resourcing across partners will require some level of collaborative operations. Mobility hub operations, programming, and maintenance activities can be managed through several structures that are well-documented and practiced throughout the Bay Area. This includes Business Improvement Districts, Transportation Management Associations, concession vendors, and other community-led models. These management structures and their associated service level agreements are typically governed via a memorandum of understanding, concessions request for proposals, and other common procurement mechanisms. Many of these structures have effectively managed mobility hubs and transit facilities like transit malls throughout the Bay Area.

Seattle's successful public space program at McGraw Square at the Westlake Mobility Hub is operated through the downtown BID.

Source: Downtown Seattle Association

Improvement Districts and Management Corporations

Improvement Districts and Management Corporations are non-profit organizations created to deliver place-based services and localized improvements. Improvement Districts are often funded through special assessments, property tax levies, member dues, and/or charitable contributions. Within the context of mobility hubs, these districts and non-profit corporations could deliver critical services, including:

- Place programming and public art
- Light capital improvements, like street furniture, bike racks, micromobility parking, and more
- Landscaping and other maintenance activities
- Ambassadors, customer service, and travel training
- Sanitation and public space cleaning
- Wayfinding and map management
- Brand management, marketing, and communications

Business Improvement Districts like the Downtown Seattle Association, the Downtown Pittsburgh Partnership, and the Downtown Tampa Partnership are prime examples of improvement districts that engage in public life activities in addition to integrated planning activities related to mobility hubs and major transit corridors. Likewise, management corporations like the [Bryant Park Management Corporation](#) in New York City are a long-standing model that can be applied to mobility hub management, operations and maintenance.

Transportation Management Associations

Transportation Management Associations (TMAs) are non-profit organizations formed to coordinate and manage mobility programs and access improvements on behalf of private and public employers, business districts, and local governments. TMAs have traditionally served as commute coordinators, mobility managers, and central clearinghouses for transportation-related education.

The Bay Area is home to many TMAs – mobility institutions that have the capacity to support mobility hub development, delivery, and ongoing management. TMAs can expand their mission to ensure integrated connections and high-quality access to diverse transit and shared mobility services at mobility hubs. TMAs could support or lead mobility hub vendor management, operations, maintenance, and performance measurement at hubs within their service area, in partnership with local city agencies and transit providers.

Concession Model

Often delivered as part of a street furniture or bus shelter advertising program, a maintenance concession model grants exclusive and long-term rights to advertise in public spaces in exchange for some combination of public infrastructure like digital information panels, modernized transit shelters, wayfinding, and public art, among other amenities. The capital investment and maintenance at mobility hubs could be funded by the revenue generated from a controlled advertisement program. In this case, the concessionaire could be required to provide public space management, routine cleaning, and other maintenance services.

Community-Led Operations

Community-led operations and maintenance agreements can expand mobility hub resourcing through local hire and volunteer coordination. Even more important, this model can engender a sense of ownership and wealth building opportunities in the communities that mobility hubs serve.

Led by community-based organizations, community leaders, or other neighborhood-level institutions, on-going maintenance of spaces in and around the mobility hub can be undertaken as a paid or voluntary process delivered by community guardians or ambassadors. This kind of arrangement should be governed by an MOU or another applicable legal framework that defines expectations, service levels and funding.

Formalizing Agreements and Partnerships

Implementation partners have a range of formal and informal mechanisms to standardize mobility hub duties, roles, and partnerships. Implementation partners can develop a memorandum of understanding or agreement (MOU/MOA) to memorialize roles, expectations, service level agreements, and even in-kind contributions. The Downtown Seattle Association's public space management agreement serves as a useful template for similar MOUs.

However, in many cases MOUs/MOAs cannot accommodate goods, services, and other arrangements that require a more formal contract. Various procurement pathways establish formal contractual relationships where implementation partners provide funding in exchange for mobility services, technology, materials, infrastructure, data/performance management platforms, or even operations and maintenance services. Procurement mechanisms might include:

- Traditional requests for proposals (RFP)
- Requests for information or qualifications (RFI/RFQ)
- On-call or bench contracts allowing for flexible selection amongst qualified vendors and organizations
- Direct selection or sole source contracts if purchase orders do not exceed procurement thresholds (or when there is specific expertise needed)

New York City's most recent parking lot concession RFP is a good example that can be replicated at mobility hubs in the Bay Area.

Mobility improvements, public art, and street furniture funded and managed by the DSA.

Source: Downtown Seattle Association

MANAGING YOUR MOBILITY HUB

Effective hub management can manifest in many ways. On the public realm management side, services might be elegantly integrated into the hub site and connected visually by wayfinding and branding. On the experience side, users might have a positive association with walking around and sitting at the hub.

The way you manage your mobility hub reflects the outcomes you want to achieve. Intended outcomes are more likely to be met if your hub is supported by outcome-centered partnerships, appropriate staffing, digital tools, operational plans, and demand management strategies.

Foundation of Managing Demand

Providing new shared mobility services, building better transfers, and improving customer information alone cannot reverse the Bay Area's surging greenhouse gas emissions. If driving is convenient, then people will not change their behavior. In the absence of thoughtful parking, curb, and transportation demand management (TDM) strategies, you will find it difficult to achieve the outcomes and targets you want to see at your hub. Cities and public transit agencies should encode TDM measures, parking management policies, pricing, and other access management tools alongside mobility hub investments. These are foundational to the success of your hub and critical to incentivize and nudge people to shift modes and create new daily mobility habits.

Parking management coupled with demand management investments like the Berkeley Bike Station has led to low drive alone rates in downtown Berkeley and high ridership at the Downtown Berkeley BART Station.

Integrating Private Mobility Services

The Bay Area is home to dozens of private shared mobility services that offer mobility to the public. The mobility marketplace operates via a complex maze of regulatory and governance structures, but mobility hub integration can be achieved through a combination of partnerships, digital policy, incentives, and in-kind property access.

Mobility hub implementation partners seeking to better integrate and connect people to private mobility options at hubs may approach partnerships differently, depending on the service type. Some services like shared micromobility and some car share models are permitted through city departments of transportation and public works departments. Other services like ridehailing are enabled and governed by California Public Utilities Commission rules – limiting the potential to leverage additional requirements at the hub. And in other cases, services are hosted on private property, publicly available, and largely unregulated. Your tools for partnership include, but are not limited to:

Preferred Access and Operations

Implementation partners should develop a service integration plan for each mobility hub. The service integration plan should identify locations and spaces for organized loading of and parking for shared mobility services. This might include paint, post, and sign applications for dedicated car share parking, micromobility docking, and ridehail loading at the curb.

The service integration plan should reflect your curb and access hierarchy to partner mobility services. Dedicated loading, dwelling, and parking locations should reflect the access priorities for the mobility hub.

Scooter charging stations at the 4th & King Caltrain Bike Station – a partnership between Spin and the Bike Hub operator, Tranzito.

Source: Spin

The hub should also account for ingress and egress needs for shared mobility service operations staff. This will ensure that deployment and maintenance work does not interfere with other hub services or the safety of hub customers.

Incentives

Hub managers can incentivize compliance with the hub service integration plan and any operational requirements that might incur a cost on the private provider. Incentives could come in the form of subsidies and other financial incentives, reduced permit fees, increased deployment caps, and front door access to boarding and alighting transit passengers at the hub.

Expectations and Performance

Hub pilot and project managers seeking to partner with providers for specialized services should establish clear expectations and service-level agreements tied to data sharing requirements. As feasible, any operational requirement or incentive for good behavior should be measurable for compliance purposes. This is critical to ensure compliance and data collection.

In some cases, hub performance and compliance data can be captured through existing permit program requirements. In cases where the services are not permitted, hub partners should negotiate a data sharing agreement with the private provider. While the data needs will vary by hub location, services accommodated, and range of use cases, implementation partners can reference SFCTA's Emerging Mobility Evaluation Report and Emerging Mobility Pilot Strategy for data sharing design support and negotiation tactics.

Hub Operational Zones and Digital Policy

Conveying curb and right-of-way policies in a digital format is an emerging tool used by cities seeking to manage private mobility providers. Digital policy could revolutionize how hub managers and operators shape private mobility service operations at mobility hubs and keep the hub organized. Digital policy applications are currently applied to shared micromobility services across the Bay Area. For example, some cities have designated portions of their curbs as ridehail drop-off or pick-up zones by creating a virtual geographic boundary enabling software to trigger a response when a mobile device enters or leaves the zone. Future digital policy applications may include managing movements, loading activity, and ingress and egress for on-demand services like microtransit.

Cities and transit agencies should collaborate to develop digital policies to gain an accurate understanding of how mobility hubs are used, make data-driven policy decisions, and dynamically manage hubs.

Digital policies can be applied passively, such as manually selecting no parking zones for shared scooters and relying on permitted companies to communicate zones to customers. Hub managers can take a more proactive role by communicating digital policies through a system like Mobility Data Specification (MDS) and by actively engaging in compliance and enforcement efforts. Hub managers should test digital policies and make necessary investments to enable active management of curbs and rights-of-way in and around the hub extent.

Staffing and Resources

Whether you are piloting a mobility hub or implementing a more permanent application, adequate staff resources are needed to deliver, measure, and continually manage mobility hubs.

Depending on the scale of the hub or hub network and the funding available, staff might be responsible for multiple roles. Staffing could be concentrated within a single agency. In more collaborative models, staffing and responsibilities might be distributed across multiple agencies and organizations. Ultimately, enough full-time employees (FTEs) are needed to ensure the full mobility hub life cycle is supported with sufficient human resources. Automating policy compliance, enforcement, and auditing efforts with tools like aggregated data platforms and MDS can free up significant staffing for other hub management activities.

Implementation partners, most notably cities and transit agencies, should review and refine digital policy tools that best align with their hub's operational objectives. This includes establishing geofences and other digital operational zones like:

- **Information pushes** about transit access, safety protocol, and other important hub messaging

- **Equity zones**, where shared mobility providers are required to or incentivized to provide service, build community partnerships, and/or meet ridership thresholds

- **No Locking or Parking Zones**, where riders need to find dedicated parking for micromobility vehicles or end their ride outside the zone

- **Speed throttling**, where top end speeds are restricted in special zones

- **No Ride Zones,** where trips are disabled in a restricted area and people are unable to ride or end their micromobility vehicle trip

- **Required loading at dedicated pick-up and drop-off zones**, forcing people to summon rides at operationally advantageous locations
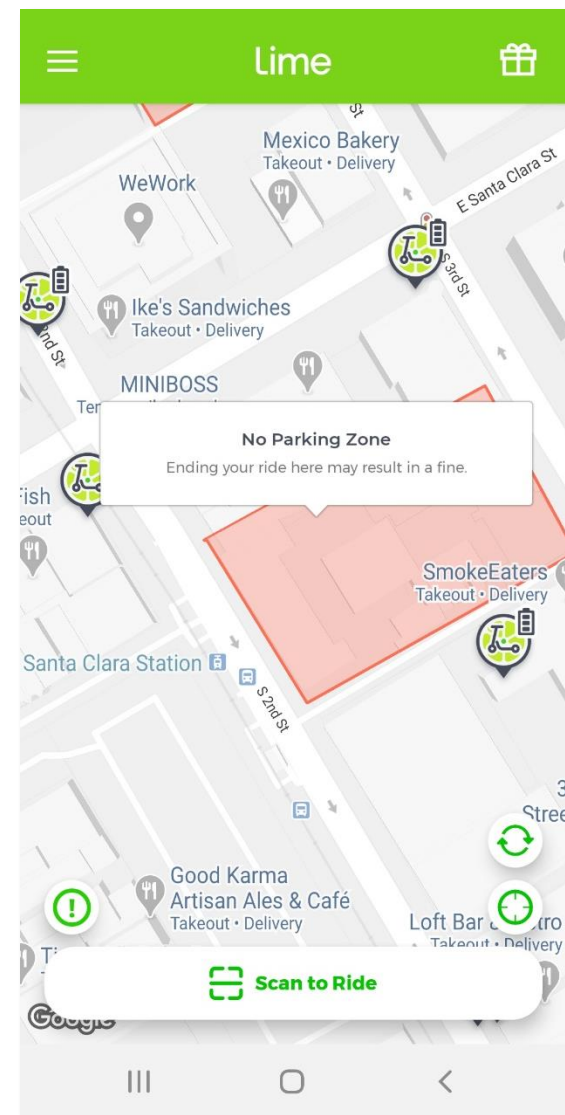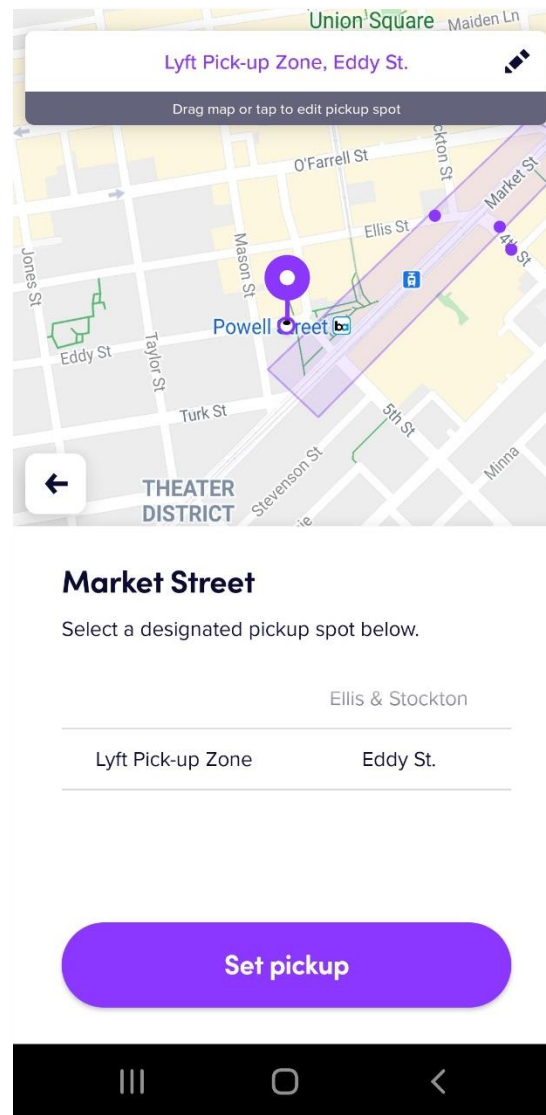
Examples of digital operation zones that require pickups at specific loading zones and disallow scooter parking in specific zones.

Source: Lyft (left) and Lime (right)

FUTURE PROOFING YOUR HUB

Mobility hubs will better coordinate mobility options and ease regional connections today and in the future. But, how do you insulate your hub investments for change? What can you do now to prepare hubs for a future of summoning shared autonomous vehicles and booking new types of micromobility?

Implementation partners should design for mobility needs rather than modes. Private mobility services will certainly change, lose their appeal, and augment to meet changing consumer preferences. In the same way, mobility hubs should be updated over time, reflecting new mobility needs and fresh takes on how local communities want to interact and gain value from their neighborhood hub. Community needs assessment and hub development are never station. Another important element of future proofing is testing out new technologies to ensure mobility hubs continue to meet their intended objectives in the long term. New features and technologies – whether driven by public agencies, private providers, or community groups – should be tested so that mobility hubs are as adaptable as the mobility apps used by your customers.

Livermore Amador Valley Transit Authority's (LAVTA) shared autonomous vehicle provides first- and last-mile connections to the East Dublin/Pleasanton BART Station.
Source: LAVTA

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Play 5

INFORM THE CUSTOMER

The Bay Area transit landscape has at least 27 providers, information design formats, and methods to convey digital information. After layering the dozens of shared mobility brand identities and apps, your customers might be left lost, frustrated, and confused.

The best mobility hub experience is not necessarily one that achieves the quickest connection or the fastest door-to-door trip. It is a reliable, timely experience supported by up-to-date information that is effective, understandable, and potentially real-time. Accurate and real-time information can be the deciding factor when people choose to drive, take transit, or opt into a car-lite lifestyle. This play presents tactics to support mobility hubs with wayfinding, digital information, and a clear messaging and communication strategy.

HELP CUSTOMERS FIND THEIR WAY

In the Bay Area, navigating across different transit systems, agencies, and mobility services is challenging, especially for those new to the region or unfamiliar with a particular location, station, or service. Mobility hubs will provide more transportation choices, which will need to be clearly communicated to passengers in a way that is consistent across the region to minimize confusion. Wayfinding at mobility hubs should come naturally to the user and provide a seamless experience for each user's trip, regardless of how they arrive or depart the hub area, and regardless of a passenger's age, ability, knowledge of, or comfort with Bay Area transportation systems.

Wayfinding is a system of elements that help people navigate, explore, and enjoy spaces and places. The intent of a good wayfinding system is to inspire calm and ease by creating clarity and simplifying information that is otherwise complex. The future vision for a regional wayfinding system is one that prioritizes the user experience for all ages, abilities, and knowledge or comfort with Bay Area transportation systems. It provides real-time information about the surrounding transportation service on mobile apps, which is then confirmed throughout the journey and at the station.

Wayfinding Principles

In general, a wayfinding system provides orientation, navigation, and information at the right moments along a journey. A good wayfinding system should follow the "Five Cs":

- **Comprehensive** – Users get the information they need, with information organized in a hierarchical order that is easy to process, understand, and remember.
- **Consistent** – Reliable from beginning to end, with signs positioned where people expect them.
- **Clear** – User-friendly and easy to understand, with simplified language and typography that is comfortable, legible, and readable.
- **Catching** – Signs should be easily seen and recognized, but not overly present or overbearing. Signs should be attractive and mounted within the natural field of sight.
- **Compassionate** – The design should be for a broad audience, with users of all types in mind.

To achieve these principles, especially at a mobility hub where there may be many stakeholders and agencies with their own signage systems, the wayfinding process must be coordinated.
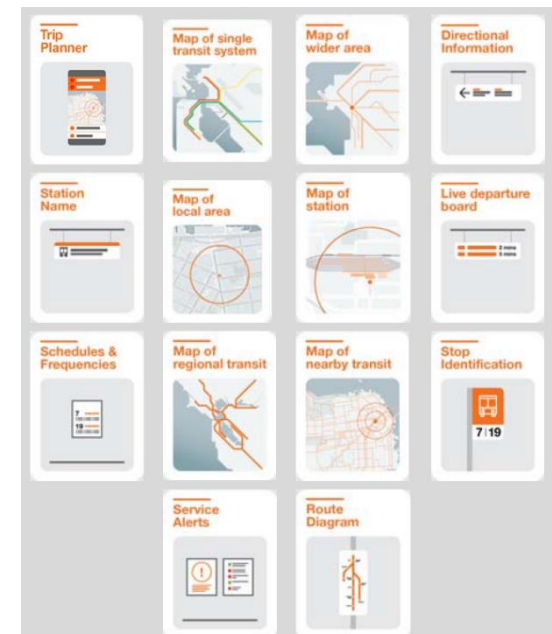
A critical first question: What type of information is needed at mobility hubs?

Source: Metropolitan Transportation Commission

Goals for Hub Wayfinding

While each individual mobility hub will have its own opportunities and challenges depending on the typology, services available, and surrounding land use context and urban form, the following goals should be considered in developing an effective wayfinding information system across all hubs.

- **Create a sense of arrival –** How do I know that I am at a mobility hub?

- **Provide orientation to the hub** – What services are available and how do I access them?

- **Enhance the first-last mile experience** – Where is the hub and how do I get there if I am walking, cycling or scootering, getting dropped off, or taking a local transit line?

- **Facilitate transferring between modes** – Once I arrive, where do I find the service I am looking for and what steps are required to access that service?

- **Create an opportunity to explore the neighborhood** – Where is the nearest restaurant, park, post office, etc.?

- **Apply consistent standards** – Is wayfinding consistent with the Regional Transit Mapping & Wayfinding Program?
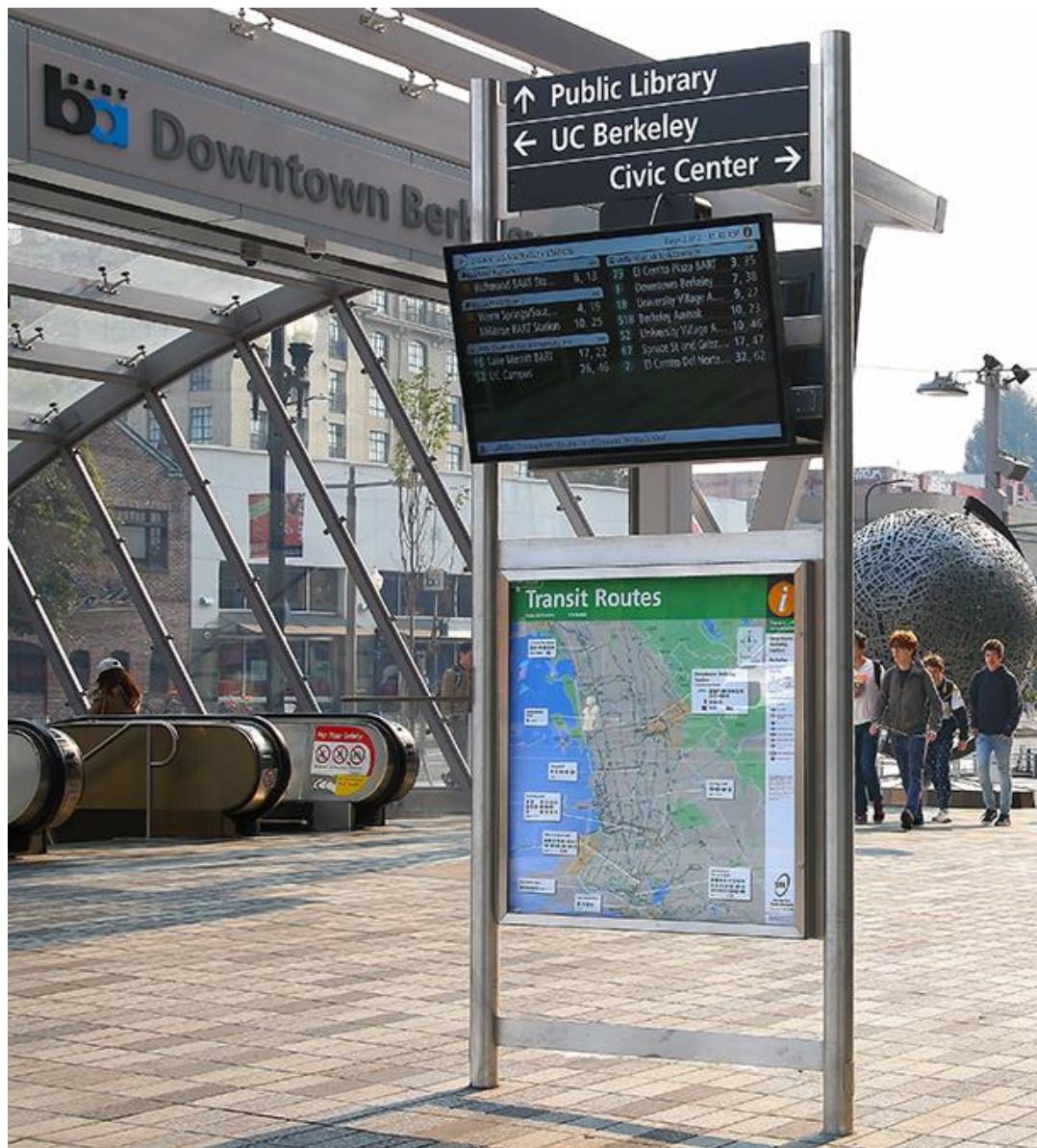
Wayfinding signage at Downtown Berkeley BART Station.

Source: Metropolitan Transportation Commission

MTC Wayfinding Programs

MTC is currently leading several regional wayfinding programs that can support consistent wayfinding and signage at mobility hubs. For more details on the status of these projects and how to leverage them, please contact MTC Hub Signage Coordinator.

MTC Hub Signage Program

A transit hub signage program has been implemented at busy and complex high ridership stations, like the Ferry Building, and at BART and Muni stations to provide standardized signs and displays to help with station area orientation and transit information. These include information displays and real-time sign departure displays. Design guidance for these sign types can be found in the MTC Regional Signage Standards.

Regional Transit Mapping & Wayfinding Program

The Regional Transit Mapping and Wayfinding Program is being developed by MTC in collaboration with regional stakeholders with the objective of making it easier to navigate and explore the Bay Area using public transit and connecting services through harmonization of information and experience. "Harmonization" refers to the notion of creating similarity across different service providers so that systems work together more easily, and the regional transit network is more "legible" to the user. Ultimately, this long-term project would standardize and harmonize regional wayfinding and mapping for the region's more than two dozen transit operators and provide similar guidance for the surrounding urban areas as well. Regional Transit Mapping and Wayfinding Program standards will likely be completed in 2022.
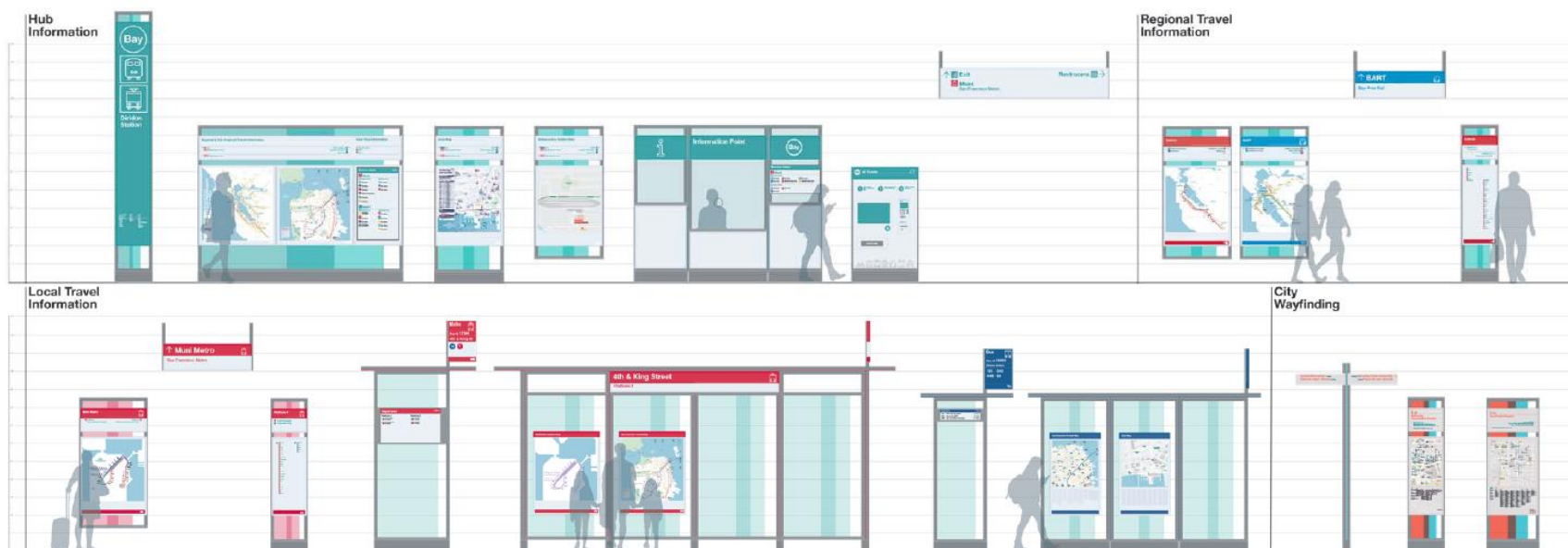
Conceptual diagrams illustrating a potential new family of information products, engineered through the Regional Transit Mapping and Wayfinding Program.

Source: Metropolitan Transportation Commission

Wayfinding Implementation Strategy

Developing a wayfinding system consists of four key steps:

(A) Inventory existing signs

- Understand and evaluate current conditions to inform a comprehensive, strategic approach to signage and wayfinding.

- Conduct an inventory of all current wayfinding signs and systems within the hub and station area.

- Document how each transit agency and local jurisdiction coordinates their wayfinding program with MTC.

- Identify potential gaps and opportunities according to sign type, sign message, sign location, mounting type, and the wayfinding or signage guideline used to create these signs.

(B) Develop passenger journey flow

- Understand the passenger's journey and key decision points to, within and from the hub to identify where information is needed.

Sign type example from Section 2.2 of MTC Guidelines: Station Wayfinding

Source: Metropolitan Transportation Commission

Figure 9   Envisioning the Passenger Journey
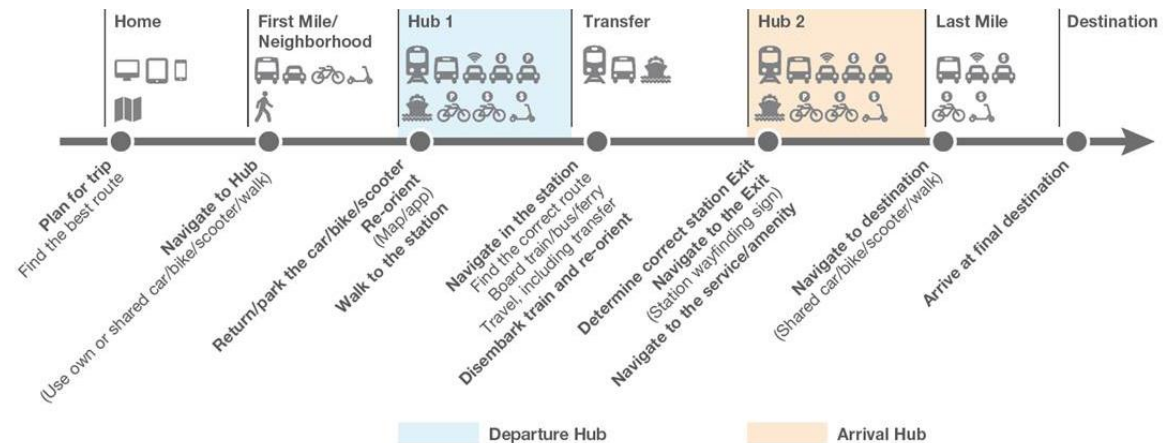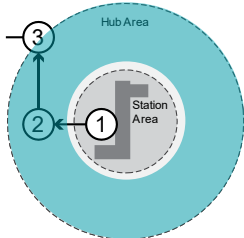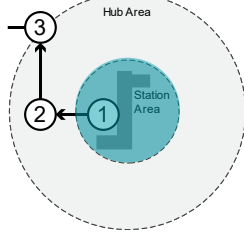
C Identify information needs

- Determine what information is needed and where.
- Use two major thresholds to identify wayfinding information needs and the features that could be used to convey that information:
  - Between the station entrance/exit and the border of the hub area at the street level; and
  - Between the station entrance/exit and the station platforms within the station itself (whether at-grade, above or below-grade).

D Identify wayfinding features for each hub typology

- Determine the types of signs that would best serve information needs of each hub type, including likely messaging needs for each (see Figure 12 on Page 91).

Figure 10 Information Needs and Signage Guidance

Location	Wayfinding Information	Wayfinding Feature
Hub area at street level 	Have I arrived?	Mobility hub identification
	What services are here and how do I find them?	Street level directional signs
		Street level kiosk with community map
	Confirmation of the service/amenity location and related information	Amenity identification sign
	How to get to/from the station?	Street level directional sign with ADA paths identified
		Street level wayfinding kiosk with map
	Bike/Scooter Path	Street level bike path sign/pavement marking
	Confirmation of arriving at the station (on street level)	Station identification
Station area (at grade, above-grade, or below-grade) 	Where is the correct platform?	Station wayfinding sign
	Real-time schedule	Real-time Transit Information Display (TID) or digital platform
	Fare/schedule for each available service	Schedules & Fares (TID or digital platform)
	Confirmation of arriving at the correct station	Station identification sign at platforms
	Where is the closest exit to the next transit or mobility service to rent or drop off a shared vehicle?	Station map (TID) with a directory listing the services/amenities
	How to get to the correct exit?	Station wayfinding sign

WAYFINDING SIGN DESIGN GUIDANCE

Follow MTC Guidelines

- Refer to the MTC Regional Transit Wayfinding Guidelines and Standards and forthcoming standards in the MTC Regional Transit Mapping and Wayfinding Project when developing a sign system to ensure regional consistency and intuitive wayfinding.

- Use the guidelines to inform branding, typeface, layout design, color, and sign placement for wayfinding in the station as well as at street-level within the mobility hub area.

Think beyond the hub area

- Coordination with a local jurisdiction's existing wayfinding system should include adding mobility hub directional information to existing or planned pedestrian, vehicular, and bicycle wayfinding signs, up to ½ mile from the mobility hub area for pedestrians; one to two miles for cyclists; and up to three miles for vehicles.

Use pictograms and logos

- MTC is considering designing intuitive pictograms, or simple, recognizable icons for mobility hubs and their amenities. Integrate these on wayfinding signs at the street-level within the mobility hub area to provide passengers a sense that they have arrived at the hub.

- Place the mobility agencies' logos whose services are available within the hub area on a hub identification sign at street level. Place logos as a group with the same dimension and good alignment, smaller than the hub logo to establish a clear hierarchy. Additional logos beyond hub identification and mobility options are not recommended so as to maintain clear and simple messaging.

- Use pictograms to show the presence of bike share, scooters, and car share. Pictograms should be universal and easily understood for quick comprehension, especially for those with limited English proficiency.

Design for all

- Use internationally recognized pictograms that are consistent with MTC and ADA guidelines to enhance comprehension for all types of travelers. This is particularly important for passengers with special needs, e.g., people who have limited visual, auditory, or physical abilities; people with strollers or heavy bags; families and large groups; international travelers; those with limited English proficiency; and others who will need clear guidance at every step of the way to find the best routes to, from, and within the mobility hub.

- Map the journey for each of these user types to prove adequate signage and information to widen the overall hub's accessibility and appeal. New technology to bring in visual paging/audio wayfinding systems can also greatly enhance accessibility. Additional accessible wayfinding considerations include:

  – Incorporating well-designed, intuitive and durable tactile wayfinding within the hub and station areas;

  – Using braille and raised characters on signage where appropriate as advised by ADA guidelines;

  – Accessible, audible pedestrian crossings at intersections leading to and within the hub area.

Recommended Wayfinding Guidance by Hub Type

Regional Downtown

- Include street level services, amenities, and their locations on station maps. Coordinate with agencies to confirm available services and locations at each hub.

- Develop a consistent hub wayfinding system at street level within the hub area, including a street wayfinding kiosk with community map, directional signs, and identification signs for each service.

- Develop a Transit Information Display (TID) to integrate all service information and provide passengers real-time information. Currently, passengers can dial 511 for updated information, however this can take time, is not as convenient or clear in terms of how to use it.

Sign type example from section 2.6 of MTC Guidelines: Real-time Information Display Systems

Source: Metropolitan Transportation Commission

Urban District

- Include local transit information on existing station map and directional signs.
- Develop street map signs, including local attractions within walking distance to explore.

- Leverage existing local signage where possible to incorporate directions to and from the hub.
- Leverage Transit Information Display (TID) in coordination with MTC to integrate all service information and provide passengers a way to check real-time information (e-TIDs for real-time information).

Emerging Urban District

- Place physical street map showing nearby amenities at the entry point of the station, as well as key decision points along main corridors.
- Place directional signs at key decision points between the stations and other amenity services guiding pedestrians to walk between the station and car share or parking locations.
- Street networks at these hubs might be in varying stages of construction, necessitating flexible wayfinding. Temporary signage, public art, and proper lighting should be considered to create safe and enjoyable pedestrian routes.

Street level directional sign at key decison point

- Carshare location Identification
- TNC pick-up/drop-off location Identification
- Bus stop Identification
- Station Identification
- TID (Community Map)
- Street level directional
- Station wayfinding signs in the station area
- Scooter sharing spot Identification
- Street level directional sign at key decison point
- Hub Identification at appropriate locations along the bordor of hub
- Bike sharing spot Identification

Example information placement at an Urban District hub area

Sign type example from section 2.5 of MTC Guidelines: Transit Information Display (TID)

Source: Metropolitan Transportation Commission

Suburban

- Ensure all nearby amenity information such as parking, car share and service change alerts are clearly present on websites hosting travel information for the public and linked to third-party public apps, e.g., Google maps.

- Develop a consistent street level wayfinding sign system, placing identification signs at the entrance of each amenity. Include a Transit Information Display (TID) to allow passengers to self-orient and identify the locations of station and amenities.

- Hub Identification at appropriate locations along the bordor of hub

- TNC pick-up/drop-off location Identification

- Bike sharing spot Identification

- Station Identification
- TID (Community Map)
- Street level directional
- Station wayfinding signs in the station area

- Carshare location Identification
- Parking Lot Identification

- Street level directional sign at key decison point

- Street level directional sign at key decison point

- TNC pick-up/drop-off location Identification

Example information placement at a Suburban hub area

Pulse Hub

- Leverage the existing wayfinding information system and signage system from the campus/stadium to include the pick-up/drop-off areas and parking lot locations.

- Identify the nearest transit station and how to access it, along with the services available.

- Consider installing real-time transit arrival information for the nearest transit station.

Opportunity Hub

- For the short term, place clear physical identification signs at amenities such as bus stops, parking lots, bike parking and pick-up and drop-off locations.

- Place the physical directional signs at key decision points guiding pedestrians and cyclists to safe paths, and identify important community assets within walking distance.

- For the long term, a hybrid wayfinding system that integrates both physical static signs and digital signs could be considered to provide trip planning and real-time information, especially for low-frequency transit services.

Chase Center Exterior Wayfinding
Source: Mobilesportsreport.com

Minneapolis Mobility Hub Pilot Wayfinding
Source: City of Minneapolis

Figure 11 Typical Wayfinding Components by Hub Type

Area	Signage Type (example MTC sign type)	Hub Types					
		Regional Downtown	Urban District	Emerging Urban District	Suburban	Pulse Hub	Opportunity Hub
Hub Area	Street directional sign	A	A	A	A	A	A
	Street wayfinding kiosk with community map	A	A	A	A	-	-
	Identification sign of community amenities	A	A	A	A	A	A
	Bike path sign/pave making	A	A	A	A	-	-
	Temporary sign, public art, lighting	-	-	A	-	-	-
	QR code or text message system at parking area	-	-	-	D	-	-
	Leveraging the existing wayfinding system and signage system from the campus	-	-	-	-	C	-
	Hybrid Wayfinding system in the future	-	-	-	-	-	D
Hub Area and Station Area	Real-time Information Display Systems (Sign type 2.6) or digital platform	D	D	-	-	-	-
Station Area	Station Entrance/Exit Identification (Sign type 2.1)	B	B	B	B	-	-
	Station Wayfinding (Sign type 2.2)	B	B	B	B	-	-
	Schedules & Fares (TID/eTID or digital platform)	D	D	B	B	-	-
	Station Map (TID) with a directory listing the services/amenities/attractions	D	C	-	-	-	-
	Station Identification sign at platforms	B	B	B	B	-	-

A   Create a new sign type.

B   Leverage existing MTC sign type from the Regional Transit Wayfinding Guidelines & Standards.

C   Leverage existing MTC sign type and with static component coordination, e.g., add or replace message on existing station directional signs or maps.

D   Leverage existing MTC sign type and coordinate for potential digital component integration.

CONVEY INFORMATION DIGITALLY

A regional wayfinding system provides real-time information that is communicated digitally and conveniently shares service changes, real-time arrival and departure information for all agencies, availability of shared mobility options, and other dynamic information. Digital information requires constant maintenance and quality assurance. A digital system requires centralized content management and both upfront and ongoing investment. Getting digital information systems right involves interagency coordination, regional and city-wide digital master planning, data infrastructure investment, content management systems, a digital integrator, and partnerships with third party apps. If conveying digital wayfinding at hub locations, implementers should carefully design information displays and enclosures.

Currently, the regional system primarily relies on static signs and maps, which are supplemented by transportation app services that provide real-time transit information and availability of micromobility and shared mobility services. BART, Muni, and VTA each have an app for ticketing, real-time information, and trip planning.

Digital Information Considerations

Consolidated real-time information should be available online and on mobile applications, or synched with an existing app such as the 511 app, Google Maps, Citymapper, or Transit app. To do this, transit agencies should follow the General Transit Feed Specification (GTFS), General Bikeshare Feed Specification (GBFS), the Mobility Data Specification (MDS), and other emerging data feeds for mobility and curb management. Depending on the specification, these data feeds allow transit and mobility data to be published and leveraged by third party apps.

Real-time departure information should be provided at all stations, especially at stations or stops with low frequency to provide passengers with accurate wait times. Additionally, these updated features should also be available in audio and visual formats to improve accessibility. These opportunities provide users with accurate wait times that improve transit reliability and the overall user experience.

Providing dynamic signage on the bus or train can also improve user experience by letting passengers know where they are and which stop is next. Lastly, numbering transit station exits also improves user experiences especially for passengers unfamiliar with street names.

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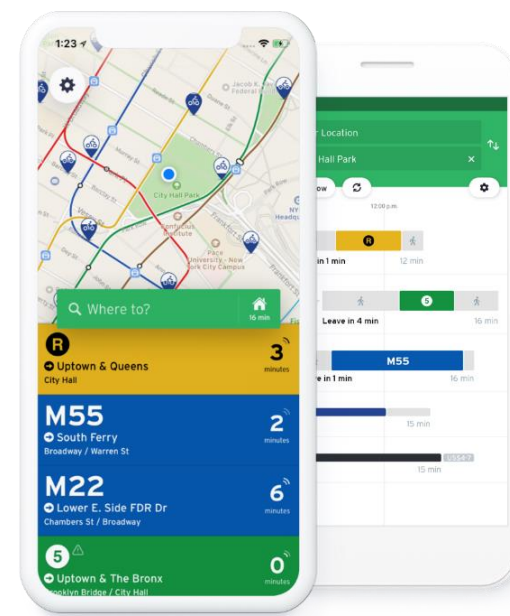
Consolidated live transit data on mobile. Source: Transit App.

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Note: The current Regional Transit Mapping and Wayfinding Program is a major future opportunity to standardize signage and real-time information and mapping, which will include future mobility hub wayfinding as part of its rollout.

IKE Digital Kiosks in Baltimore.
Source: IKE, Berkeleyside.

On-board BART train display screen.
Source: SF Chronicle.

MESSAGING AND COMMUNCATIONS

Proactive communication with the public and stakeholders is critical to the success of the mobility hub program and implementation projects, alike. Mobility hub communication should center around a core message that defines a mobility hub, along with several sub messages targeting specific audiences. For implementing agencies, this core message should be is consistent for all materials – websites, informational materials and in talking points.

This communication guidance supplements engagement tools outlined in Play 3 and will help mobility hub implementation partners:

- Define a mobility hub and its relevance to the local community.
- Identify specific community mobility barriers and opportunities.
- Address possible skepticism the community might have about mobility hubs.
- Garner community and stakeholder support for community investment and implementation.
- Make mobility hubs relatable by sharing real-life examples in other similar communities.

The guidelines also provide the tools for local jurisdictions to engage their respective audiences as an integral part of the mobility hub planning and implementation process as well as to promote awareness and use of mobility hubs once built.

Messaging

What you communicate with your audience about mobility hubs will set the stage for the community vision. Developing consistent "boilerplate" messaging to be used on all materials will introduce the hub concept and help explain the benefits to the local community. Boilerplate messaging is a simple definition of mobility hubs that includes a general description of its purpose and community benefits. Using consistent messaging on all material and channels helps tell the story effectively and reinforce understanding as it takes a few touch points for people to understand and remember.

Boilerplate messaging is important for regional consistency and understanding; tailoring it to your target audience will make it more effective. The technical explanation of a mobility hub is useful for transit agency staff to use internally, but it is important to refine for a general audience to easily understand.

Based on our initial testing results of three messaging concepts, we suggest using the term "**Mobility Hub.**" Mobility Hub is a term that both the technical audience and the

> ### Technical Mobility Hub Definition for Planners
>
> Serving as a community anchor, a mobility hub is a welcoming environment that enables travelers of all backgrounds to access multiple transportation options and supportive amenities. Built on the backbone of frequent and high capacity transit, mobility hubs offer a safe, comfortable, convenient, and accessible space to seamlessly transfer across different travel modes.
>
> Mobility hubs are critical, not only to achieve per capita GHG reductions associated with Plan Bay Area 2040 – the region's long-range transportation plan and Sustainable Communities Strategy – but also to increase the resiliency and redundancy of the transportation system emerging from the global COVID-19 pandemic.

general public understand well. It is also a term that is becoming widely used in other regions of California and the United States.

Crafting a simplified message – one that is relevant to the target audience and that resonates with their community and needs – will ensure the story of the mobility hub is relatable and embraced. The recommended message below is tailored to a broader, less technical audience and tested amongst a small sample group of the general public. It can be easily tailored to each community and the services offered. Since each agency knows its own community best, the message can be enhanced or reduced based on services provided or supported at the mobility hub.

Boilerplate Message

A mobility hub is an active community center providing your transportation needs that could also include amenities such as retail shops, community programming, services, and cultural programs and features.

Figure 12   Tailored Messaging Examples

Audience	Motivations	Tailored Message
Suburban/Urban audience that is familiar with transit and other travel options in its community.	The mobility hub would connect them to all their transit needs.	Mobility hubs combine multiple travel options in one physical location, typically centered around a high-frequency public transit stop. Use a hub to hop on or off public transit, connect to bike share, rest, eat and coordinate to your next connection or final destination.
Underserved communities that do not have the same infrastructure as the Urban/Suburban audience.	The mobility hub is safe, accessible, and convenient.	A mobility hub is a transportation connection point in your community that offers safe, affordable, clean, and convenient access to travel options connecting you to your work, home, healthcare, and daily life.
Businesses, Developers, Property Owners	The mobility hub presents an investment opportunity to help spur economic development.	A mobility hub is a community amenity that will connect people to your place of business and support the mobility needs of your tenants and their employees. Hubs will potentially stabilize the property value within the neighborhood, similar to neighborhood parks and open space.
Elected Officials	The mobility hub benefits the community by providing safe, convenient transportation options within a central location while enhancing potential value to tourism, businesses, main street, and economic development.	A mobility hub can help open the door to developing a more vibrant main street, increased tourism, and bustling business centers.

Communication Materials

Communication tools provide the opportunity for each agency to articulate and share its story directly with the public and foster a two-way communication. The tools highlighted here include best practices for engaging with communities in an inclusive way, and implementation timing for each. Communities differ and there is not a one-size fits all approach; each agency will need to gauge their audience and adjust the tools in their toolkit to meet the needs of their community.

Figure 13 Example of Implementation Timing

Timing	Communication Tool(s)
Project Initiation	▪ Establish Advisory Committee ▪ Launch website/web pages ▪ Post online survey
Planning Concepts	▪ Project fact sheet ▪ FAQs ▪ Meet with Advisory Committee for input on concepts ▪ Public Meetings/Events ▪ Social Media ▪ Digital Advertising ▪ Website updates ▪ Informational presentation to Planning Commission or City Council
Revised Concepts	▪ Update fact sheet and FAQs ▪ Meet with Advisory Committee ▪ Public Meetings/Events ▪ Website updates
Final Concepts	▪ Present to City Council ▪ Public Meetings/Events ▪ Social Media ▪ Advertising ▪ Media ▪ Website updates

Figure 14 Communication & Outreach Toolkit

Tool	Description/Guidance	Timing
Community Partnerships & Champions	▪ A community advisory committee of local advocates, commissioners, other local officials, business leaders, stakeholder groups, and other community leaders who support the hub concept and are willing to advocate for the program. ▪ Serves as a soundboard for community-specific outreach methods, messaging, and tools, and as megaphones to help gain broader understanding and support. ▪ Agency staff will support champions with the necessary outreach tools.	▪ Establish committee at project initiation (in the grant application phase). ▪ Add additional participants as needed to broaden perspectives. ▪ Provide updates to partners and champions after project is built to continue increasing awareness.
Project Fact Sheet	▪ Provides a high-level overview of the project; describes the purpose, needs, and benefits of a mobility hub tailored to the local community. ▪ Contains captivating images of what mobility hubs look like in other similar communities, the projected project timeline, and boilerplate messaging.	▪ Day 1, once funding is secured.
Frequently Asked Questions (FAQs)	▪ Provides information on frequent community questions or concerns as well as details important for the planning teams to convey about the project. ▪ Has an easy-to-follow format as the question is posed and the answer follows the question. ▪ Complements the fact sheet and included as a page on the project website.	▪ Develop at launch (once funding is secured). ▪ Update with new questions and additional information as needed.

Project Website	▪ Provides information about the mobility hub and specific project details:
	  – Story of the project, project goals and timing, meeting information, strategic planning documents, funding/partnership opportunities, FAQs, contact information, social media links, press and media information (if applicable), in-language pages (where applicable).
	▪ Is dynamic, easily updated, and accessible to the majority of the community.
	▪ MTC should create a website or build a web presence within their site that explains the mobility hub program and opportunities, participating agencies, and funding.
	  – Each partner jurisdiction can develop their own web page and link to the MTC site for more resources and detailed program information.
	▪ Include website address on most communication materials.
		▪ Project activation (once funding is secured), before meeting with the general public.
		▪ Develop before engaging with the public to provide a central repository for project details and engagement opportunities.
		▪ Update regularly with current information.

Annual Reporting	▪ Summarizes the success and progress of the mobility hub through highlights and updates. ▪ Contains visually appealing infographics that depict key performance metrics such as the number and demographics of people served, services provided, and goals achieved.	▪ Annually, including after project is built.
Infographics	▪ Conveys concepts and technical information in visually appealing, graphic forms. ▪ Use in project fact sheets, on the website, in presentations, in annual reports, and other collateral.	▪ As needed throughout the project and after the project is complete.
Surveys	▪ Garners input from the community and elicits candid feedback. ▪ Used at project kickoff to get insight on community concerns and desired amenities. Can influence targeted messaging and help narrow design options. ▪ Used on an ongoing basis to capture trends in public awareness, perception, and satisfaction over time	▪ Initial input (during application process) and at key project milestones. ▪ Distribute an annual survey after project is built and incorporate findings in an annual report.

Communication & Outreach Toolkit cont'd

Tool	Description/Guidance	Timing
E-Newsletter	▪ Provides alerts and updates, key milestones, and general information. ▪ Can be printed or in digital form, to be determined by audience needs. The digital version should be available on the project website and archived. ▪ Translated materials are suggested in areas where English is not the primary language.	▪ Based on project needs and milestones, but recommend consistent timing (for example, quarterly or bi-monthly).
Public Meetings & Events	▪ Educates stakeholders about upcoming projects and solicits feedback about the direction a project should take. ▪ Meeting and event type may vary across communities: – In-person town hall/open house, in-person/virtual pop-up events, tabling at community sponsored events, virtual open house, virtual partner meetings. ▪ Vital to ensure meetings provide an open forum for two-way communication, giving all community members a voice at the table. ▪ Include translation and interpretation services where applicable.	▪ In smaller groups, meetings can inform the grant application and garner initial input from the community to determine design needs for the mobility hub.

Announcements and Updates	▪ Increases public awareness by using numerous communication vehicles to meet the intended audience where they gather information. Traditional media still plays an essential role in educating the public on important local issues and recent events.
	▪ Different advertising options are available and selecting the appropriate medium is dependent upon audience and budget.
	▪ Engaging social media accounts can instill loyalty amongst frequent users and increase public awareness for non-users
	▪ Advertising options:
	  – Digital: most cost-effective and easily adaptable
	  – Print: great for targeting specific audience through transit ads, local community newspapers, and publications
	  – Radio: in-language stations and digital options provide coverage opportunities
		▪ Most useful to announce public meetings and events. Plan to target ads two to four weeks in advance to provide ample notice.
		▪ Regularly monitor social media accounts to advertise project updates and highlights, and encourage hub users to post about their experience after project is built.

Social Media	▪ A coordinated social media campaign can accurately and inexpensively attract interest and create momentum for the project. ▪ Using existing agency social media accounts to deliver project information and connect to the community with engaging content is preferred to leverage existing followers. ▪ Determine the preferred platforms and build content for consistent delivery. Include links on the project website to support engagement efforts. Social media is a great way to announce upcoming meetings and events or participation opportunities, including surveys. – Suggested platforms: Facebook, Instagram, Twitter, NextDoor	▪ Create during project kick-off and use consistently throughout the project and after project buildout to provide updates and respond to inquiries and concerns. ▪ Create an editorial calendar and schedule content to successfully manage social media delivery.
Media	▪ Proactive media outreach includes developing relationships with reporters who regularly cover Bay Area transportation, conducting periodic editorial board briefings, preparing, and distributing press kits, regularly issuing press releases, and holding occasional press events. ▪ Work with agency public information officers to support media efforts and adhere to proper protocols for press relations. ▪ Press events: periodic press events can be conducted to bring attention to the award of funds or construction kick-off and completion, as well as other mobility hub milestones including touring the newly opened facility. ▪ Press releases: press releases are developed and sent as a means of informing the public through the media about specific developments.	▪ Large project milestones such as construction kick-off, project completion, and periodic updates as needed after project buildout.

Play 6

MEASURE PERFORMANCE AND ITERATE

Mobility hubs are like a living organism. Conditions within and around the hub area can change over time. Travel needs and the way people move and use the hub can also shift over time. Cities, transit agencies, and community organizations need to continually calibrate, augment, and enhance mobility hubs to meet the community's needs.

How do you know your hub is meeting its goals and objectives? Are the design, operation, and types of features at your hub achieving the intended outcomes that you set out with your community stakeholders? **Consider your mobility hub a living asset, providing a service that meets mobility and community objectives.** Tracking performance, iterating on hub design, and monitoring operations is essential to the success of a hub. As a hub manager, you should build a comprehensive performance measurement system for the hub or system of hubs that you oversee.

SYSTEM AND HUB PERFORMANCE

Performance measures help to track success toward mobility hub goals at individual locations.

Beyond the community-anchoring elements of hubs, **mobility hubs are a product – a collection of components, features, and experiences – to be designed, implemented, and evaluated.** Flexible in their design, mobility hubs are the sum of their parts, their surroundings, and their users. Determining whether the correct mix of components, features, and experiences at each hub helps support sustainable access and mobility, public realm, customer experience, and information goals requires tracking key performance indicators (KPIs) and metrics.

The Vallejo Ferry Terminal's kit of parts are a product that can be evaluated.

Source: Marinas

KEY PERFORMANCE INDICATORS AND METRICS

KPIs measure the most critical policy objectives of mobility hubs, help track progress used since installation, and can identify potential room for further improvement. KPIs can also compare success across hub locations to quantify the impact of elements in diverse environments or on key values. KPIs are standard metrics used by most mobility hubs and should be collected both prior-to-installation and routinely afterward at set intervals.

Metrics measure the ability of the mobility hub itself and the network of hubs to solve problem areas, and to meet hub-specific mobility and community needs. As a result, metrics can vary by hub, or by hub typology, to align with specific problems in that location and use quantitative and qualitative measurements that reflect the problem statements.

For the Bay Area to reach its climate, equity, and quality of life goals, regional mobility hubs must be welcoming places for people using a diversity of modes and mobility services – regardless of race, economic condition, age, or ability. Mobility hubs will be natural nexuses for activity; Bay Area travelers seek out hubs for their transportation needs and transfer among transportation modes at hub locations. However, hubs should also reflect the places and communities that they serve, providing access to education, health,

social, and economic opportunities. Mobility hub performance measurement systems should measure the spectrum of mobility and community outcomes that local cities, transit agencies, and community organizations seek to achieve.

Figure 15 presents potential KPIs and metrics that mobility hub managers can monitor and base decisions on.
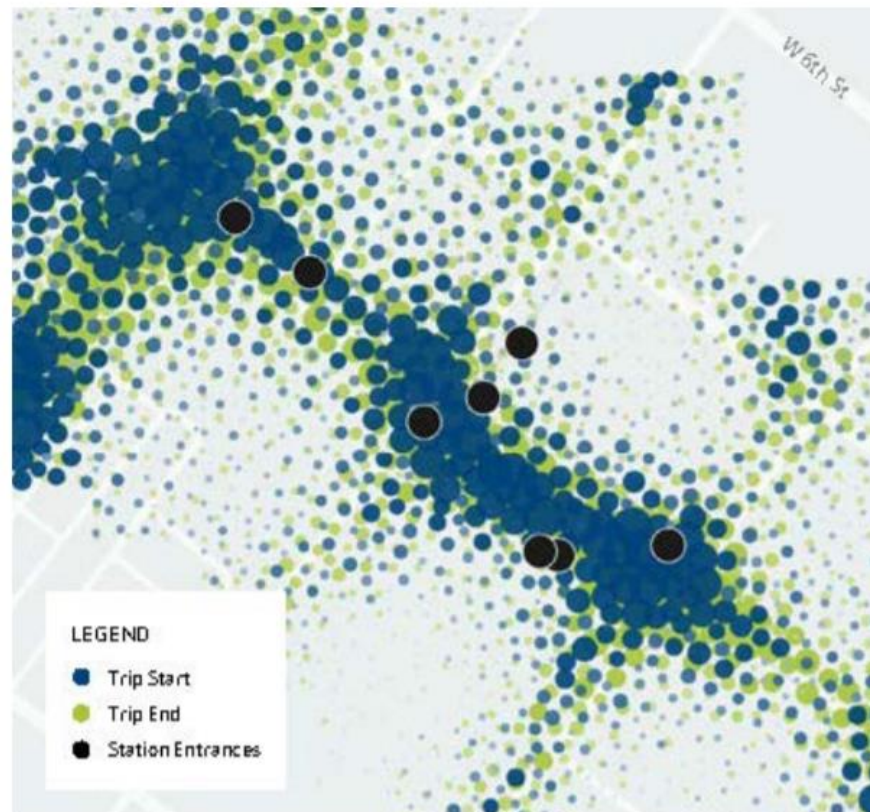
LADOT dockless scooter trip start and end activity outside 7th Street/Metro Center station entrances. This is an example of how hub managers can track access, deployment, and operations at mobility hubs.

Figure 15 Key Performance Indicators and Metrics for Mobility Hubs

Measure	KPI or Metric	Data Collection Method	Goal
Coordinated Mobility			
# of daily transit boardings and alightings	KPI	Automated Passenger Counts (APC)	Increase
# of new transit transfers at hubs	Metric	Clipper/APC/Survey	Increase
# of average daily and peak microtransit and shuttle boardings and alightings	Metric	MOU data share or other feed specification	Increase
# of bike share, scooter share, and car share trip starts and ends at mobility hub (average daily, monthly, and annual)	KPI	General Bikeshare Feed Specification and Mobility Data Specification	Increase
Average shared micromobility dwell time at mobility hub	Metric	Mobility Data Specification	Decrease (with management)
Bike share, scooter share, and car share average trip distance/trip duration for trips starting or ending at the mobility hub	Metric	General Bikeshare Feed Specification and Mobility Data Specification	Monitor
# of additional bike parking spaces		Survey, manual counts	Increase
Average daily bike parking utilization rate	KPI	Survey, manual counts	Increase
# of TNC pickups and drop-offs (PUDO) events	Metric	MOU data share, visual survey, video	Increase (with management)
# of deliver events and dwell time	Metric	MOU data share, visual survey, video	Monitor

Measure	KPI or Metric	Data Collection Method	Goal
Climate Action			
Arrival mode share to hub	KPI	Intercept survey or travel diary	Increase in non-auto modes
Trip reduction	KPI	Intercept survey or travel diary	Increase
Average access distance (miles) of hub user	Metric	Intercept survey or travel diary	Decrease
EV charger utilization (average daily vehicles charged) and charge time	Metric	Charging network API	Increase
Equitable Mobility[7]			
Average household vehicle ownership	KPI	Intercept survey or travel diary	Decrease
Age-diversity of hub users and surrounding community	Metric	Intercept or visual public life survey, Census data	Increase in youth and elderly cohorts
Racial diversity of hub users and surrounding community	Metric	Intercept or visual public life survey, Census data	Increase in BIPOC travelers and hub users
Income diversity of hub users and surrounding community	Metric	Intercept or visual public life survey, Census data	Increase in low-income and hub users
% of income spent on transportation	KPI	Intercept survey, Census data	Decrease

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[7] Equitable mobility indicators should be co-developed and vetted by community partners during initial community engagement and community needs assessment.

Measure	KPI or Metric	Data Collection Method	Goal
Exceptional Experience			
Peak hour of daily use/pedestrian counts	KPI	Public Life Data Protocol (full or modified method - see Common Data Standards to Measure Performance call out box below)	Monitor to understand potential displacement
Public life (see callout on page 94)	Metric	Public Life Data Protocol (full or modified method)	Increase
Legibility	Metric	Intercept survey, Public Life Data Protocol (full or modified method)	Increase
Customer satisfaction score	KPI	Intercept and employee survey	Increase
% of space dedicated to public realm, lingering, and non-mobility functions	Metric	Public Life Data Protocol (full or modified method)	Increase
Value			
Average property values	Metric	County assessor data	Monitor for potential displacement impacts
Small business retail revenue at mobility hub	Metric	Survey	Increase
Private investment in public mobility	KPI	Survey	Increase
Value of amenities integrated into adjacent development/properties	Metric	Survey	Increase
Safety			
Annual collisions, serious injuries, and deaths	KPI	Police reports, UC Berkeley SafeTREC Transportation Injury Mapping System (TIMS), other local reporting mechanisms	Decrease
# conflicts between vehicles, pedestrians, and cyclists	Metric	Camera counts	Decrease
Comfort	Metric	Intercept survey	Increase

TRANSPARENCY AND REPORTING OUT

The purpose of reporting out KPIs and metrics is to determine whether individual mobility hubs meet intended outcomes and to adjust their hub features or design to better meet targets. Understanding hub performance also helps MTC gauge which features are more impactful under which conditions and guide local jurisdictions on how to design, implement, and manage their hubs. Evaluation is a key step in refining the network and hubs themselves.

The successful implementation of mobility hubs has the potential to not only reduce travel times, improve utility, and increase convenience for users, but also extend the reach of existing transit and active transportation investments from MTC and local partners. Mobility hubs provide great potential to influence transportation choices and patterns when optimized for performance at their individual locations.

Measurement Methods

Evaluation of mobility hubs can be conducted with both quantitative and qualitative data sources. Mobility hub mode utilization can be measured through travel surveys, data partnerships or agreements, or data feeds from private and public mobility providers.

Where possible, data fed into the dashboard platform should be automated using standard data formats and feed specifications (see Common Data Standards to Measure Performance call out box for examples). Ridership and transfer data from transit agency automated passenger counters (APCs), ridehailing companies, bike share and scooter share companies, parking meter utilization and duration, and electric vehicle charging data can be requested and organized from providers to automatically update on the dashboard. The Mobility Data Specification format can be used to actively manage this data from private shared mobility companies.

Utilization and volume data can also be collected through passive data platforms (like Streetlight) and internet service providers. Community engagement should not stop at project planning and initial design. Hubs and mobility systems may be outdated and need improvement the moment the ribbon is cut. Intercept surveys of hub users can also inform mode split, customer satisfaction, and recommendations for improvement of hub elements or hub design. You should gather critical insights to measure performance, ensure management and operations is human-centered, and base hub iteration on community needs and perspectives.

Evaluation Frequency and Tools

KPIs and other metrics should be collected and analyzed on an annual basis, at minimum, and monthly for more responsive evaluation and iteration. Regular reporting should be established through a data platform or dashboard that can be accessed by decision-makers at any point in the evaluation cycle. The use of dashboard and regular reporting will ensure progress is tracked over time in a transparent fashion, and a spirit of continual iteration with regular mileposts is built. Decision points and threshold values for KPIs can be set for when a hub should be reevaluated in greater detail. By reporting data to the same platform over time, patterns can emerge of how hubs mature and how hub performance may diverge in different locations. These patterns can highlight priority hubs that require investment or redesign.

Common Data Standards to Measure Performance

Data standards are critical to accurately and efficiently measure mobility hub performance. While mobility hub performance measurement should consist of a mix of quantitative and qualitative data sources, data standards can simplify performance measurement and offer a mix of real-time and historic looks at performance. The Open Mobility Foundation's Mobility Data Specification and the Gehl Institute's Public Life Data Protocol are two examples that cities and transit agencies should consider.

Auditors collecting public life data. Source: Gehl Institute

Mobility Data Specification

MDS is a data specification managed and curated by the Open Mobility Foundation. MDS is a set of modular Application Programming Interfaces (APIs) used to process data from dockless e-scooters, bicycles, mopeds, and carshare – similar to GTFS and GBFS formats for transit ridership and performance data. Unlike GTFS and GBFS, MDS establishes a common language for information to be conveyed between mobility providers and local transportation agencies. Used by more than 90 cities and public agencies around the world, MDS helps cities interact with private shared mobility companies operating in the public right-of-way. Three distinct components are part of MDS: the *provider* API, the *agency* API, and the *policy* API.

The *provider* API is most useful for tracking performance of a mobility hub. When a municipality queries information from a mobility *provider*, the *provider* API has a historical view of operations. The *agency* API was designed for regulatory agencies to capture specific events, such as trip starts, and allows for the monitoring of mobility services in real-time. The *policy* API enables cities and transit agencies to convey operational requirements and restrictions digitally, which could be an important hub management tool for hubs that organize shared mobility services.

Public Life Data Protocol

The Protocol establishes a common format for the collection and storage of metrics relating to people moving and staying in public space. Now used by over 250 cities around the world, the Protocol outlines a series of data collection approaches to public spaces that maps hub elements and counts multimodal activity to answer whether the mobility hub achieves its goals at the site. Tools include people moving counts, age and gender counts, stationary activity mapping, and intercept surveys. The Gehl website offers Public Life Data Protocol guides including criteria, tallies, mapping.

Data Partnerships

Where data cannot be required of permitted or contracted providers, you should develop data partnerships with mobility providers using memoranda of understanding (MOU). MOUs should be developed to clearly specify and collect anonymized data including:

- Origin and destination pairs
- Miles traveled per trip, on average, or a gross total
- Unique user counts
- Number of repeat users

Privacy and competitive concerns may prevent the ability to present all this data to the general public, but the dashboard can remain internal to the mobility hub manager and decision-makers. Multimodal volume counts can also be structured for easy upload to the data platform.

Pilot-to-Permanence Decision-Making & Scaling

Making performance-driven design and operational changes will create a direct link between hub features, use, and alignment against stated outcomes. Hubs are intended to be flexible and adapt to surrounding conditions. For tactical pilot project installations, where performance data provides a case for successfully meeting goals, funding for permanent features should be pursued.

Performance-driven design and flexibility also allows for hubs to be scaled – in size or mix of elements – as demand increases or as hub contexts evolve. An Emerging Urban District Hub may transition to an Urban District hub as residential or employment density increases with development. KPIs may indicate that shared micromobility stations and bike stations with end-of-trip facilities may further increase bicycle mode share and reduce VMT.

When building your initial hub design, you should factor in elements that can be scaled or enhanced over time to ensure seamless improvements and positive hub performance over the long-term.

Play 7

UNLOCK FUNDING

You have developed a plan with and for the community, your partners are on board, and you are ready to build out your mobility hub. So, how might you fund your mobility hub project? The short answer is that it depends.

Funding mobility hub projects and demonstrations requires a strong understanding of your capital versus non-capital project elements, when you want to phase them in, and whether to leverage opportunities through partnerships or policy intervention. Mobility hub funding mechanisms can vary from traditional government grants and dedicated revenue streams to more cooperative implementation partnerships.

This play provides a scan of funding options and considerations for securing funding and building partnerships, particularly for hubs sited on public property. Play 2 provides leveraging strategies that can fund hub elements that are integrated into private property and this is particularly relevant for pulse hubs, which are often run by private entities.

THE MANY PATHWAYS TO FUNDING

Funding a mobility hub project is rarely a simple equation. Most funding sources can only be used for specific mobility hub elements, such as capital improvements, operations and maintenance, planning and design, or community engagement. Furthermore, mobility hubs are rarely built all at once since mobility needs, customer preferences, and technology change over time. Given the siloed nature of funding sources and phased development, mobility hubs rely on a combination of incremental funding sources.

Figure 16 Funding Different Hub Elements

Funding category	Pilot/Tactical Installations	Major Capital	Wayfinding/ Info Systems	Operations and Maintenance	Planning and Engagement
Local	■	O	■	■	■
Regional	■	O	■	O	O
State	O	■	O	■	O
Federal	O	■	O	■	O
Integrated project delivery	■	■	■	O	■
Public-Private Partnerships	■	■	■	■	O

■ Major funding source
O Limited funding source

The funding equation can be even less straightforward for opportunity hubs—hub locations that are not connected to frequent transit service and underserved by other shared mobility options. Depending on the mobility needs being addressed at each opportunity hub, planning, design, implementation, installation, and turnkey costs of could range between $250,000 to $2 million. The capital and operations costs can be supported by a range of funding sources, including local sales tax funds, grant awards, economic development funding sources like community development block grants, foundation support, and more. However, opportunity hub implementors should assess considerations for long-term financial sustainability.

Local Resources

Beyond allocating general funds, local communities have several funding sources at their disposal to support mobility hub capital improvements and ongoing operation and maintenance.

Local **fees and tax revenue** fund the majority of transportation infrastructure and mobility improvements. Tax revenue can be used to fund a variety of hub investments, but fee revenue must recover costs related to program the administration, management, and regulation from which the fee is extracted. Examples of these types of funding sources that may be available to support mobility hub development include curb parking revenue, commercial parking taxes, ride-hail taxes, and shared micromobility permit fees. For example, San Francisco's shared micromobility permit fee requires each company to pay $75 per scooter per year, which supports the installation of new racks for bike and scooter parking.

If your mobility hub is near potential development sites or at a pulse hub (e.g., university, employer campus, other major institutions), **development requirements, impact fees, and Transportation Demand Management (TDM)**

requirements can support site-specific or even public benefit investment in mobility services and/or infrastructure to reduce reliance on single occupancy vehicle (SOV) travel. Consider working with these partners to integrate mobility hub elements into their TDM plan, which typically includes investments in a range of micromobility, transit, car share/carpooling, infrastructure, mobility information systems, and ridership incentives.

Another approach to apply local funding would be to establish or leverage an existing tax district, such as **Tax Increment Financing (TIFs)**, **Community Benefits Districts (CBDs)**, and **Mello-Roos Community Facilities Districts (CFDs)**. TIFs redirect property tax revenues to fund infrastructure, other public facilities, and affordable housing. CBDs, also known as Business Improvement Districts (BIDs) in California, are tax districts established through a partnership between the City and the community that allow communities to raise money for local infrastructure investments and services. In California, local governments also can establish CFDs to finance improvements to public facilities; such special districts can be applied to new developments and station areas.

County and Regional Funds

County and regional funding sources can support a range of mobility hub expenditures, from pilot and tactical improvements to operations and maintenance and community engagement. MTC is responsible for directing federal, state, and regional funds throughout the nine Bay Area counties.

BART leverages **parking fee revenue** generated by its demand-based parking program to fund minor station enhancement and access projects. This incremental funding source could be leveraged by cities, surface transit agencies, and other community organizations to better connect people across mobility services at BART stations.

Additional regional funding sources include **countywide sales tax measures**. Eight of the nine Bay Area counties have a sales tax measure that funds transportation programs and projects.[8] For example, San Francisco's Prop K half-cent sales tax for transportation generates about $100 million annually for projects and programs in four buckets: transit, streets and traffic safety, paratransit, and transportation

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[8] Every Bay Area county, except for Solano County, has a sales tax measure that funds transportation infrastructure and services.

Austin's Project Connect will fund nine new mobility hubs.

Source: Project Connect

systems management / strategic initiatives.[9]

Transit agencies have recently built mobility hub capital and operating funds into major tax measures, including Bend, Oregon's $190 million Go Bend and Austin, Texas' $7.1 billion Project Connect measures.

State Opportunities

State funding sources are increasingly being use for mobility hub planning and constructions. The **California Air Resources Board (CARB)** offers opportunities to fund mobility hubs; two sources include the Clean Mobility Options Voucher Pilot and the Sustainable Transportation Equity Project (STEP). The voucher pilot will distribute up to $20 million for shared mobility projects: car share, bike share, and on-demand programs to disadvantaged, low-income communities. Public agencies, tribal governments, and non-profit organizations are eligible. The intent of STEP is to increase low-income residents' access to key destinations through the implementation of clean transportation projects. Eligible activities include establishing bike share programs, voucher programs, and access to transit.

Caltrans grant opportunities include the Sustainable Transportation Grant Program which funds Sustainable Communities Grants ($29.5 million) and Strategic Partnership Grants ($4.5 million) to further the State's greenhouse gas reduction goals. Fiscal Year 2020-21 awarded projects included a handful that were relevant to mobility hubs, such as the Southern California Association of Governments (SCAG) Interstate-710 North Mobility Hubs Plan.

Senate Bill 1 (SB1), or the Road Repair and Accountability Act of 2017, dedicates $54 billion to state highway maintenance, local streets and roads, transit agencies, and bicycle and pedestrian projects.[10] The funding pots available through SB1 that are applicable to mobility hubs include improvements to transit access, local planning grants, and matching funds for local agencies through Caltrans Sustainable Transportation Planning Grants

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[9] https://www.sfcta.org/funding/prop-k-half-cent-sales-tax

[10] http://rebuildingca.ca.gov

Federal Grants

While federal sources expand the resources available to mobility hubs, you may find it more challenging to seek out this funding as federal grants are competitive, have local match requirements, and require dedicated staff to manage grant administration and reporting requirements. Likewise, funding shortfalls across the country related to the COVID-19 pandemic have increased competition in federal grant processes.

The **Federal Transportation Authority (FTA)** offers a number of relevant grant programs that support station area enhancement and access projects as well as support for innovative mobility. Some of the most relevant FTA grant programs include the Pilot Program for Transit-Oriented Development Planning, Mobility on Demand Sandbox Demonstration Program, Bus and Bus Facilities Projects, Accelerating Innovative Mobility (AIM), and Integrated Mobility Innovation (IMI), among others. In Fiscal Year 2019-20, the FTA awarded two agencies grants to construct mobility hubs through the Bus and Bus Facilities Projects Grants Program. Formula funds are distributed by MTC's Transit Capital Program.

The **Federal Highway Administration (FHWA)** also offers competitive grants for transportation improvements that reduce traffic congestion and improve air quality. For example, the FHWA's Fixing America's Surface Transportation Act (FAST) established the Advanced Transportation and Congestion Management Technologies Deployment Program that funds the deployment of transportation and congestion management technologies.[11] Example eligible activities related to mobility hubs include advanced traveler information systems, advanced public transportation systems, and advanced mobility and access technologies.

Congestion Mitigation and Air Quality Improvement (CMAQ) and Surface Transportation Program (STP). CMAQ program funds are distributed to states to reduce traffic congestion and improve air quality. STP is a flexible fund source for variety of surface transportation investments/projects. These programs

IndyGo in Indianapolis is using the FTA Mobility On-Demand On-Ramp Program to develop strategic plans for integrated mobility hubs.

have been a key mechanism for implementing non-motorized projects, and in turn, reducing greenhouse gas emissions. The FAST Act directs FHWA to apportion CMAQ and STP funds to states. They can be flexibly used for permanent and pilot installations.[12] In the Bay Area these funds are distributed through MTC's One Bay Area Grant (OBAG) program.

The **Department of Energy (DOE)** also offers several programs that can fund mobility hub elements and connecting services, including features that can electrify mobility hubs. For example, the DOE awarded $139 million to 55 projects in 2020 to advance innovative vehicle technologies.[13] Selected projects included funding for transit smart mobility, transportation energy efficiency

[11] https://www.fhwa.dot.gov/fastact/factsheets/advtranscongmgmtfs.cfm

[12] https://www.fhwa.dot.gov/fastact/factsheets/cmaqfs.cfm

[13] https://www.energy.gov/articles/doe-announces-139-million-funding-55-projects-advance-innovative-vehicle-technologies

improvements, and electric vehicle charging infrastructure.

During the ongoing COVID-19 global pandemic, the federal government and national organizations have **established emergency relief funding programs** to support mobility services and improvements. In March 2020, the Coronavirus Aid, Relief, and Economic Security (CARES) Act allocated $25 billion to support transit capital, operating, and other expenses needed to continue service during the pandemic.[14] In August 2020, the National Association of City Transportation Officials awarded $25,000 grants to ten community-based projects through its Streets for Pandemic Response and Recovery Program.[15] Through this program, the City of Minneapolis Public Works Department was awarded funding for a mobility hub pilot. Throughout the

pandemic, it will be prudent for you to continue to monitor relief funding programs that support mobility needs. Over the coming years, additional federal stimulus will likely become available, likely funding transportation resiliency projects like mobility hubs.

INTEGRATED PROJECT DELIVERY AND PARTNERSHIPS

You may also consider integrating the planning and/or implementation of a mobility hub into other ongoing or future transportation projects, such as **transit-oriented development, station access, and/or transit capital projects**. For example, Milpitas and Berryessa/North San Jose BART extensions and AC Transit's Tempo BRT line built enhanced station features and mobility hub elements as part of the federally funded corridor and station projects. The mobility goals of such projects typically align with those of a mobility hub. For instance, a transit-oriented development aims to reduce reliance on automobile travel by increasing density at or near transit; reducing parking requirements; and encouraging or offering seamless, concentrated mobility options and connections on-site; A mobility hub seeks to do just that.

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[14] https://www.transit.dot.gov/cares-act

[15] https://nacto.org/2020/08/25/nacto-announces-awardees-of-streets-for-pandemic-response-and-recovery-grant-program/?utm_source=NACTO+Newsletter&utm_campaign=f70b51cd66-EMAIL_CAMPAIGN_2019_04_22_04_58_COPY_01&utm_medium=email&utm_term=0_8f3492144e-f70b51cd66-1204386181&mc_cid=f70b51cd66&mc_eid=b3be92ff47

Many successful mobility hubs often rely on partnerships for integrated planning, financing, development, and installation. Partnerships require collaboration between various stakeholders, including public transit agencies, developers, property managers, employers, foundations, and/or transportation and technology service providers. Private partners typically offer funding and/or the latest transportation technologies and services. Working together, partners can launch pilot mobility hub projects, which they can learn from and build upon to establish permanent mobility hubs.

Small-scale partnerships can be particularly helpful to outfit your hub with specific infrastructure features like street furniture, digital wayfinding, EV charging infrastructure, and more. In July 2020 Caltrain, Spin, and Tranzito entered into a public-private partnership. Through this partnership, Spin, a mobility service provider, and Tranzito, a technology and micromobility dock company, established a mobility hub at Caltrain's 4th and King station. The hub offers sixteen charging and parking spaces for e-scooters accompanied by in-person customer support service.[16]

Larger scale, more permanent mobility hub projects seeking to integrate mixed used

development with intermodal mobility infrastructure can tap into deeper **public-private partnership (P3) models**. Many different P3 models are available to you

and your implementation partners with varying degrees of complexity, risk allocation, and orientation towards capital development versus operations and

Spin and Tranzito partnered to develop micromobility charging hubs at the 4th and King Caltrain Station.
Source: Tranzito

[16] https://blog.spin.pm/spin-and-tranzito-take-the-emerging-mobility-hub-concept-to-the-next-level-ce27420aa866

maintenance. P3 structured deals might include:

- Operations and Maintenance P3s, a more common arrangement at transit station and mobility hubs where the hub owner either outsources the operations and maintenance as a contracted municipal service or selects a hub asset partner for design, build, and financing via advertising agreements. This is very typical of public street furniture, bus shelter, and digital panel programs run by companies like JCDecaux, OUTFRONT, and Clear Channel.

- Design-Build (DB), where a private contractor designs and builds a new or retrofitted mobility hub facility.

- Design-Build-Operate-Maintain (DBOM), where the private contractor staffs the facility after design and build activities, and leads ongoing maintenance and upgrades. This is often designed as a public concession model, which requires public financing.

- Design-Build-Finance-Operate and/or Maintain (DBFOM), where the private sector finances the project directly in addition to agreeing to design, build, and concession services.