DRAFT MEMORANDUM

To: Kim Wever, C/CAG

From: Libby Nachman, Alta Planning + Design

Date: April 13, 2022

Re: San Mateo County Shared Micromobility Feasibility Study | Draft Feasibility Memo

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Executive Summary

The following memo incorporates multiple analyses to evaluate the feasibility of a micromobility program in San Mateo County. The feasibility factors below include qualitative analyses to better understand how a program might achieve its goals and to identify fatal flaws and/or significant barriers to implementing a shared micromobility program in San Mateo County. For each feasibility factor, we note whether the analysis leads to high, medium, or low feasibility (outcomes are explained in further detail on p. 35).

Micromobility Feasibility Factor	Feasibility Outcome
Planning and Policy Review	**High**
Demand Analysis	**High**
Barriers Analysis	**Medium**
Equity Analysis	**High**
Program Opportunity and Resource Analysis: Management Capability	**Medium**
Program Opportunity and Resource Analysis: Vendor Availability	**High**
Program Opportunity and Resource Analysis: Funding Capacity	**Medium**

Based on the frequency of **high** (4) and **medium** (3) feasibility outcomes, this memo concludes that a shared micromobility program **is feasible** in San Mateo County. These outcomes are meant to guide decision-making and are not meant to serve as specific program recommendations. Future steps of the study process will help answer open questions and provide recommendations to C/CAG on program details for a program that will be most likely to be successful in San Mateo County.

Existing Conditions

The study area for the project is San Mateo County. Founded in 1856, the County includes 455 square miles, 20 cities, 764,442 people[1], and 57.7 miles of coastline[2] (**Map 1**). The County is part of the larger Bay Area region, bordering the City of San Francisco to the north and Santa Clara County to the south. As the County covers most of the San Francisco Peninsula, it includes a variety of diverse regions, including coastline, natural areas, and built-up areas, among others. There are numerous parks and open space reserves along the north-south mountain ridge, including San Pedro Valley Park, Purisima Creek Redwoods Open Space Preserve, and the El Corte de Madera Open Space Preserve.

The County has substantial transportation features, including multiple freeways, the San Francisco International Airport, and two commuter rail systems: Bay Area Rapid Transit (BART) and Caltrain. The County also has bus service provided by the San Mateo County Transit District (SamTrans) and a notable number of existing bikeways.

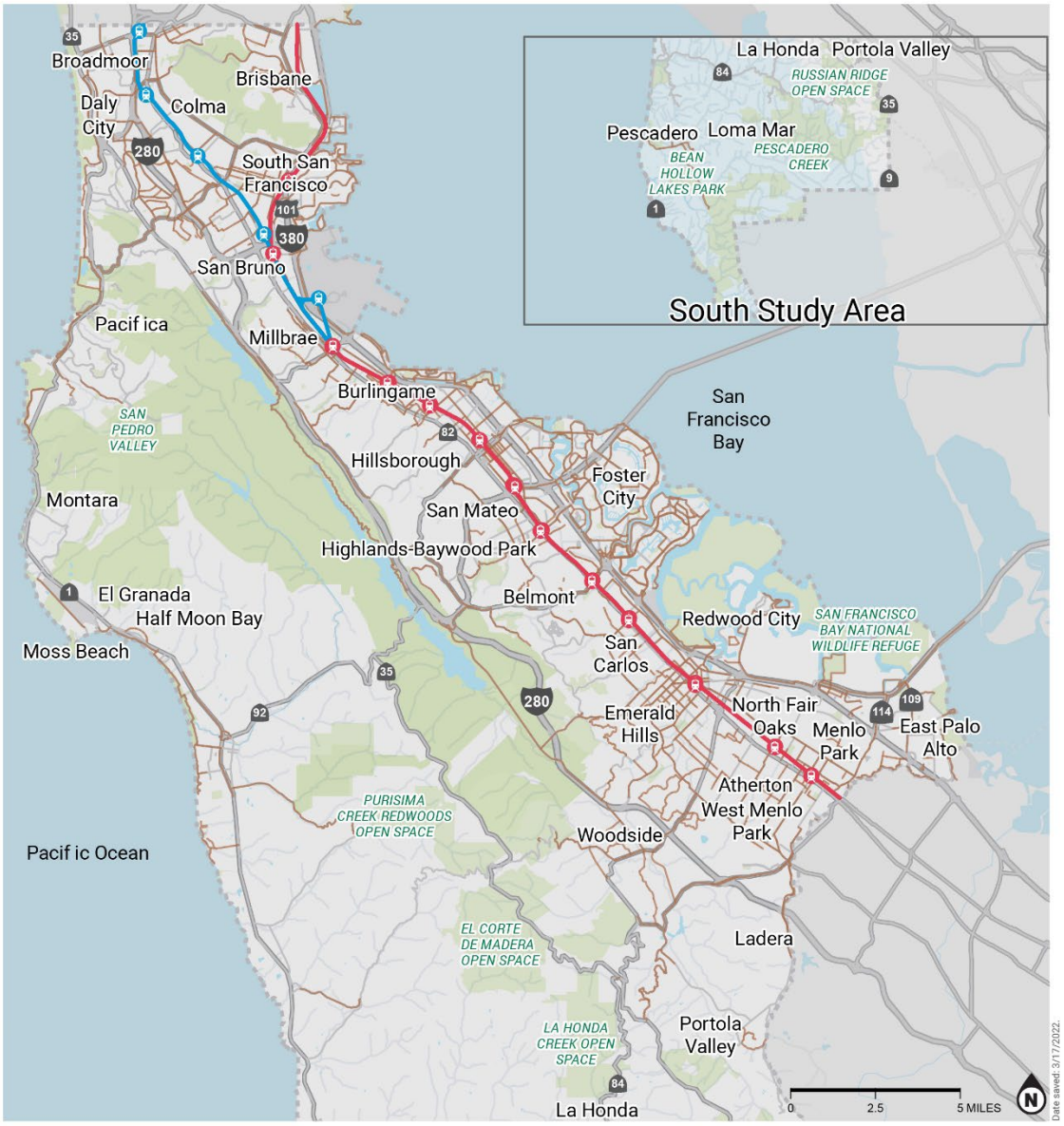
Demographics

According to the most recent census data (ACS 2020 5-year estimates), the median age in San Mateo County is 39.7 years, which is about 10 percent higher than the average age in California. As the County is largely suburban in nature, the population is fairly spread out (**Map 2**). The highest concentration of residents is in Daly City, South San Francisco, San Mateo, and Redwood City. The County's proportion of residents of working age (18-64) is 69 percent. Thirty-nine percent of San Mateo County residents are non-Hispanic White, which is just above the statewide rate of 36.5 percent. The second largest racial or ethnic group is Asian (30 percent) which is about double the statewide rate (15 percent).

The County has a median household income of $122,641, and 5.5 percent of its residents live in poverty. The main centers for employment are found along the bayside, due to the presence of large corporate offices and the airport (**Map 3**). The highest concentration of jobs is found in the Menlo Park, South San Francisco and San Bruno areas. Towards the coast, the census tract including downtown Half Moon Bay also has a high concentration of jobs.

[1] *https://www.census.gov/quickfacts/fact/table/sanmateocountycalifornia/POP010220#POP010220*

[2] *https://www.smcgov.org/fast-facts*



STUDY AREA

SAN MATEO COUNTY
SHARED MICROMOBILITY
FEASIBILITY STUDY

TRANSPORTATION FEATURES

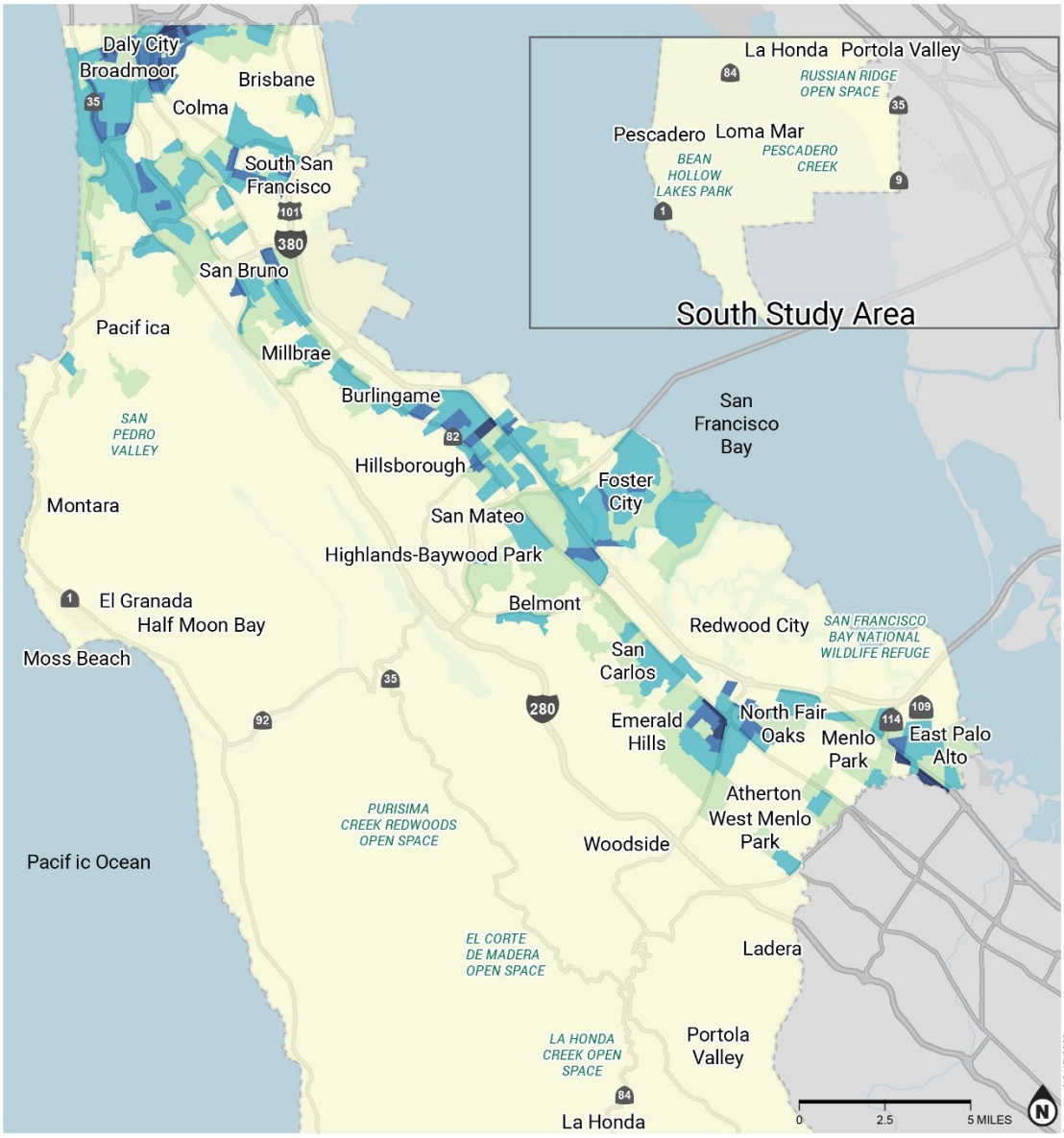
- Existing Bikeway
- BART Station
- BART
- Caltrain Station
- Caltrain
- Road
- Freeway

DESTINATIONS + BOUNDARIES

- Park
- Water
- County Boundary

MAP 1

Data provided by the C/CAG Comprehensive Bicycle and Pedestrian Plan (2021), Caltrans State Highway Network (2021), San Mateo County GIS Open Data (2021), and OpenStreetMap (2021).



POPULATION

SAN MATEO COUNTY
SHARED MICROMOBILITY
FEASIBILITY STUDY

POPULATION DENSITY (PEOPLE/ACRE)

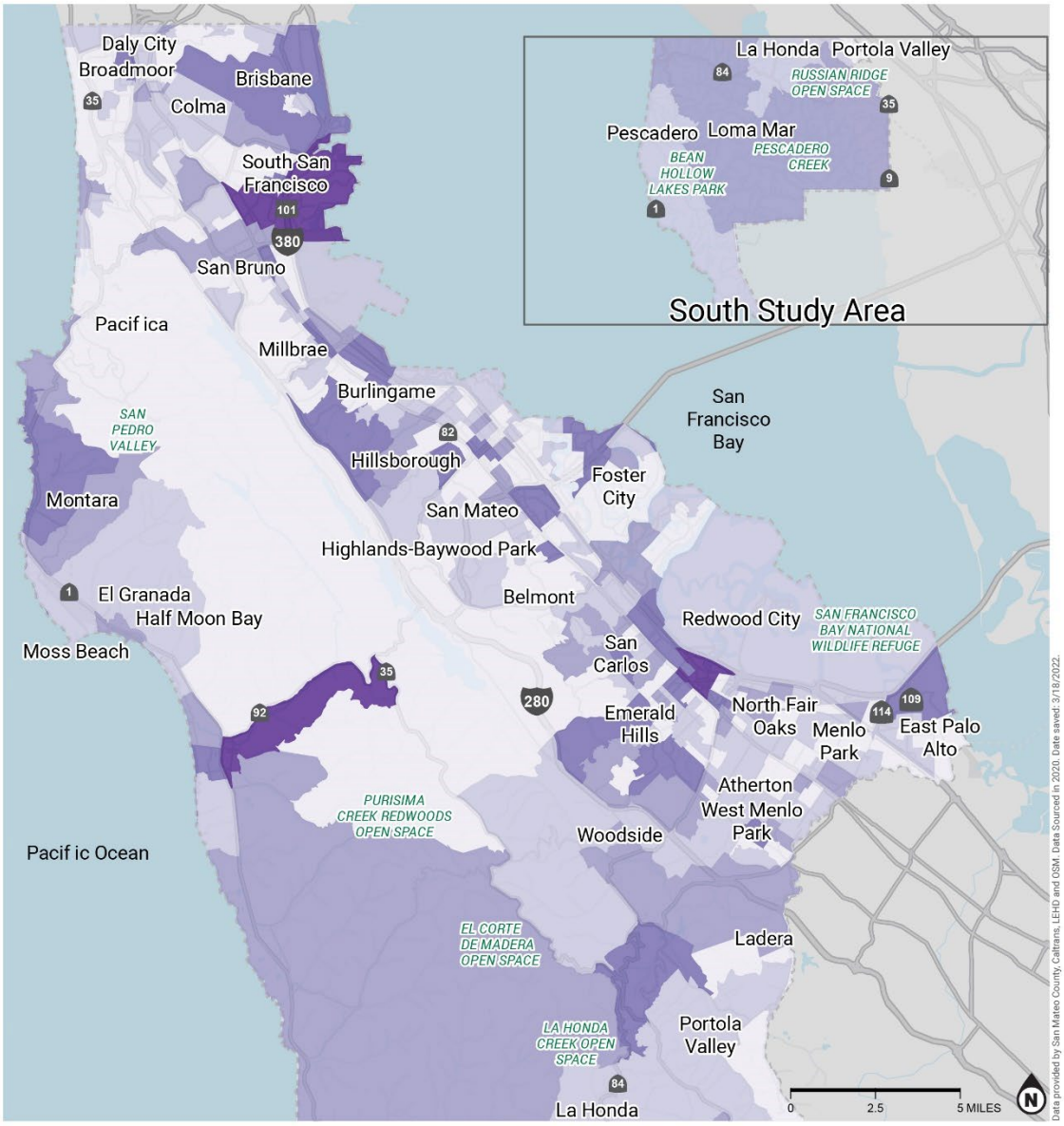
- >50
- 31 - 50
- 16 - 30
- 11 - 15
- <10

DESTINATIONS + BOUNDARIES

- Water
- County Boundary

MAP 2

Data provided by the C/CAG Comprehensive Bicycle and Pedestrian Plan (2021), Caltrans State Highway Network (2021), and the US Environmental Protection Agency Smart Location Database (2021).



EMPLOYMENT

SAN MATEO COUNTY
SHARED MICROMOBILITY
FEASIBILITY STUDY

JOB DENSITY (JOBS/ACRE)

- >35
- 21 - 35
- 16 - 20
- 11 - 15
- <10

DESTINATIONS + BOUNDARIES

- Park
- Water
- County Boundary

MAP 3

Data provided by the C/CAG Comprehensive Bicycle and Pedestrian Plan (2021), Caltrans State Highway Network (2021), US Environmental Protection Agency Smart Location Database (2021), Longitudinal Household-Employer Dynamics (2019), and OpenStreetMap (2021).

Planning and Policy Context

There are a number of planning and policy documents that may impact the implementation and operation of a micromobility program in San Mateo County. Plans and policies can be important measures of program compatibility with local initiatives, such as goals for encouraging healthy and active transportation, reduced greenhouse gas emissions, or providing low-cost transportation options among transit-dependent populations.

Transportation-related state, regional, countywide and local plans—such as transportation elements of general plans and bicycle and pedestrian plans—were reviewed (**Appendix A**). Most reviewed plans include similar goals, objectives and policies. These key goals and other plan elements include recommended projects that have a countywide impact, recommendations and considerations for a shared micromobility system or program, and other topics that relate to shared micromobility such as access to transit, equity considerations, safety, and enhanced mobility options. The most common topics include:

- **Safety**: Reduce bicycle and pedestrian-involved collisions.
- **Access to transit**: Improve bicycle and pedestrian access to transit.
- **Connectivity**: Create a connected network of bicycle and pedestrian facilities that is comfortable for all ages and abilities.
- **Equity**: Ensure everyone, especially historically underserved communities, benefit from active transportation investments and are included in the process.
- **Regional Coordination**: Coordinate with regional agencies to plan and implement the active transportation network.
- **Education & Encouragement**: Create and enhance the culture of active transportation through education and encouragement programs.
- **Support Facilities**: Promote biking and walking by providing supportive facilities such as wayfinding, bicycle parking, etc.

Many of the reviewed plans support shared micromobility either as a goal, objective, policy, or recommendation. All of the regional and County plans, with the exception of the *Caltrans District 4 Bicycle Plan*, explicitly promote or recommend shared micromobility. The *Caltrain Shared Micromobility Strategy* is a document dedicated entirely to supporting shared micromobility at all Caltrain stations and along the Caltrain corridor, which includes the entire length of San Mateo County along the Bayside. The document uses an equity lens to lay out overarching strategies, recommendations, and potential scenarios for shared micromobility. The *San Mateo County Comprehensive Bicycle and Pedestrian Plan* and the *Unincorporated San Mateo County Active Transportation Plan* both recommend developing and/or supporting a shared micromobility program across the County.

While the County and regional plans recommend shared micromobility, recommendations among local municipalities in San Mateo County is more mixed, as shown in *Table 1* below. Over half—12 out of 20—of local municipalities mention support for shared micromobility in their local planning documents. Two of the three municipalities on the coastside of the County—Half Moon Bay and Pacifica—and over half (59%) of the bayside municipalities support a shared micromobility program. In addition to support through planning documents, the City of San Mateo currently has a shared micromobility permit, Redwood City recently approved a shared micromobility ordinance, and Burlingame is currently considering a citywide shared micromobility program.

The San Mateo County Shared Micromobility Feasibility Study can help to address many of the common topics related to shared micromobility outlined in the reviewed planning documents. Among the supportive municipalities, some of the common topics related to micromobility across the planning documents include:

- Increasing access to transit and providing a seamless transfer experience between shared micromobility and transit
- Providing dedicated parking facilities for shared micromobility
- Enhancing bicycle facilities that support micromobility

- Identifying suitable locations for shared micromobility stations and geographic areas where a program should operate
- Coordinating with local and regional agencies and organizations
- Establishing a regulatory framework

Table 1: Recommendation for shared micromobility in existing planning documents among local municipalities in San Mateo County

Local Municipalities	Recommendation for Shared Micromobility in Local Plans
Atherton	
Belmont	X
Brisbane	
Burlingame	X
Colma	X
Daly City	
East Palo	X
Foster City	
Half Moon Bay	X
Hillsborough	
Menlo Park	X
Millbrae	X
Pacifica	X
Portola Valley	
Redwood City	X
San Bruno	
San Carlos	X
San Mateo	X
South San Francisco	X
Woodside	

Appendix A includes the full list of documents reviewed and their relevance to shared micromobility in San Mateo County.

Goals and Objectives

Several goals and objectives were identified for the shared micromobility system through coordination with C/CAG and the Ad Hoc Advisory Group (Table 2). These goals and objectives are used to understand the feasibility of shared micromobility in San Mateo County, because success of the system is incumbent on achieving the stated goals and objectives.

Table 2. Proposed Program Goals and Objectives.

Goal	Objectives
Replace Motor Vehicle Trips A micromobility program can help address climate change and reduce greenhouse gas emissions by providing a cleaner alternative transportation mode compared to single occupancy vehicles.	• Implement a program that connects to existing or planned active transportation facilities. • Ensure that the program pricing structure and coverage area is competitive with other transportation modes. • Relieve congestion by promoting a mode shift for short trips (1-2 miles). • Provide easy access to micromobility for people who may be interested in riding but do not have access to a bicycle. • Implement a program that connects to transit so the program can serve as a replacement for motor vehicles for longer distance trips.
Integrate with Transit Micromobility programs should support public transit by providing locations near bus and rail stations where riders can expect to find bike share stations or devices with a degree of reliability and predictability.	• Increase connectivity to and from regional transit including BART, WETA Ferry, Caltrain, SamTrans, and Commute.org shuttles. • Improve the viability of transit by providing access to shared bicycles as a first and last-mile option for transit riders. • Develop shared payment options for seamless transactions between bike share and transit trips.
Ensure the Program Benefits Everyone Micromobility programs should serve residents of all socioeconomic, disabilities, ages, racial, and ethnic backgrounds.	• Develop a robust equity program that ensures residents from all backgrounds can easily access the system without any financial, accessibility, technological, or language barriers to entry. • Create a system that is affordable across income levels. • Improve transportation access to jobs, schools, and recreation. • Ensure the program improves access to underserved communities by focusing on geographic and economic equity.

Enhance Mobility Options for Local Residents Micromobility programs can provide a reliable mobility option for residents and commuters by serving as a first- and last-mile alternative.	• Provide increased mobility between origins and destinations in San Mateo County by providing access to jobs, employment centers, and other community destinations. • Partner with large employers to provide their employees convenient access to the program. • Ensure that devices are always available near transit and employment centers at peak hours.
Create a Cost-Effective and Sustainable Program Micromobility programs should be cost-effective regarding both capital and operations costs. The success of the system will allow the program to be sustainable in the long-term.	• Develop a successful program that will attract attention and interest from businesses interested in sponsoring the program. • Procure vendor/s that have successfully deployed several programs in diverse geographic, economic, and political regions. • Procure a vendor/s that has proven success in operating the program in a cost effective manner • Strategically phase the program and deploy devices in high demand destinations that can serve large number of riders before expanding to include other locations. • Ensure allocation of public funds and securing grant funding that is dedicated to supporting equitable access to the program.
Support Economic Development Micromobility programs should support economic development through improving convenience and the user experience in accessing downtowns, business districts, and recreational destinations.	• Ensure that the micromobility program focuses on connecting destinations, neighborhoods, downtowns, and business districts. • Promote bike share as an amenity that can help downtowns and communities increase visitorship/tourism
Generate Positive Public Perception about the Program Positive public perception is important for the overall success of a micromobility program. Over time, widespread usage of a micromobility program will generate positive public perception through usage and minimize negative feedback about the system.	• Ensure that the micromobility program is sensitive to the local community context by forming new and maintaining existing relationships with the surrounding local community. • Promote the program by highlighting increased transportation access and the safety, recreational, and health benefits of micromobility trips.

	• Ensure users understand safe ridership practices such as parking in designated locations, maintaining access to and not riding on sidewalks, crossing perpendicular to train tracks, etc. • Ensure the program is a reflection of the community's interests in the program and responsive to the community's feedback as the program is implemented.
Support Tourism Opportunities Micromobility programs should support tourism through improving convenience and the user experience in accessing visitor destinations (such as the beach, hotels, and restaurants).	• Ensure that the program is easy to use for first time riders. • Provide a connected program by strategically placing devices in high demand visitor destinations. • Partner with visitor destinations including hotels and restaurants to offer their customers a reliable and convenient way to get to and from their establishments.

Demand Analysis

In order to properly understand potential micromobility demand throughout San Mateo County, demographic information, commercial information, transportation information and key points of interest were agglomerated to create composite heat maps (**Map 4, Map 5**). In many communities, the local context must be considered as well.

The demand estimates were based on a regression analysis using a North American bike share dataset. The regression model finds that job density, tourism destinations, transit proximity, high-density neighborhoods, the decreased prevalence of individualized car use, and other variables are significant determinants of demand. Additionally, the analysis built on literature[3] regarding the differing demand for both docked and non-docked systems. Tourist attractions and shopping, for example, have a larger impact on demand for a non-docked system. The relative demand scores in this analysis are a result of the following inputs:

- Where people live (Population Density)
- Where people work (Employment Density)
- Where people shop (Shops)
- Where people attend higher education (Student Density)
- Where people can ride transit (Availability of Transit)
- Where people visit (Tourist Destinations and Accommodation Services such as Hotels and Motels)

It should be noted that the existence of demand does not always guarantee micromobility utilization, however it can help provide insight as to where a micromobility system will operate best. Finally, these maps are based on existing conditions, and show current, not forecasted, demand.

As shown on the maps, black and dark purple areas indicate places in San Mateo County with the highest relative demand. Pink, orange and yellow areas indicate some demand for shared micromobility, however, the demand here is lower in comparison to other parts of the County. Areas with no color indicate places that did not have high enough scores in any of the demand input criteria. This analysis serves as a helpful tool in determining the most optimal locations for shared micromobility service in San Mateo County.

Results

Several large connected pockets and corridors of high demand areas emerged from the analysis. Micromobility systems work best where demand is continuous across space. The following connected areas feature high demand compared to other areas within the County:

- **Downtown Areas:** With the prevalence of high densities in regards to population, jobs, commercial and non-commercial shops, downtown areas operate as a core center for micromobility service areas.
- **Areas in Relatively Close Distance to BART and Caltrain Stations:** As micromobility systems benefit from the presence of a more robust transit network, areas within San Mateo County which had either a Caltrain or BART station projected higher demand. This includes smaller communities, such as Brisbane.

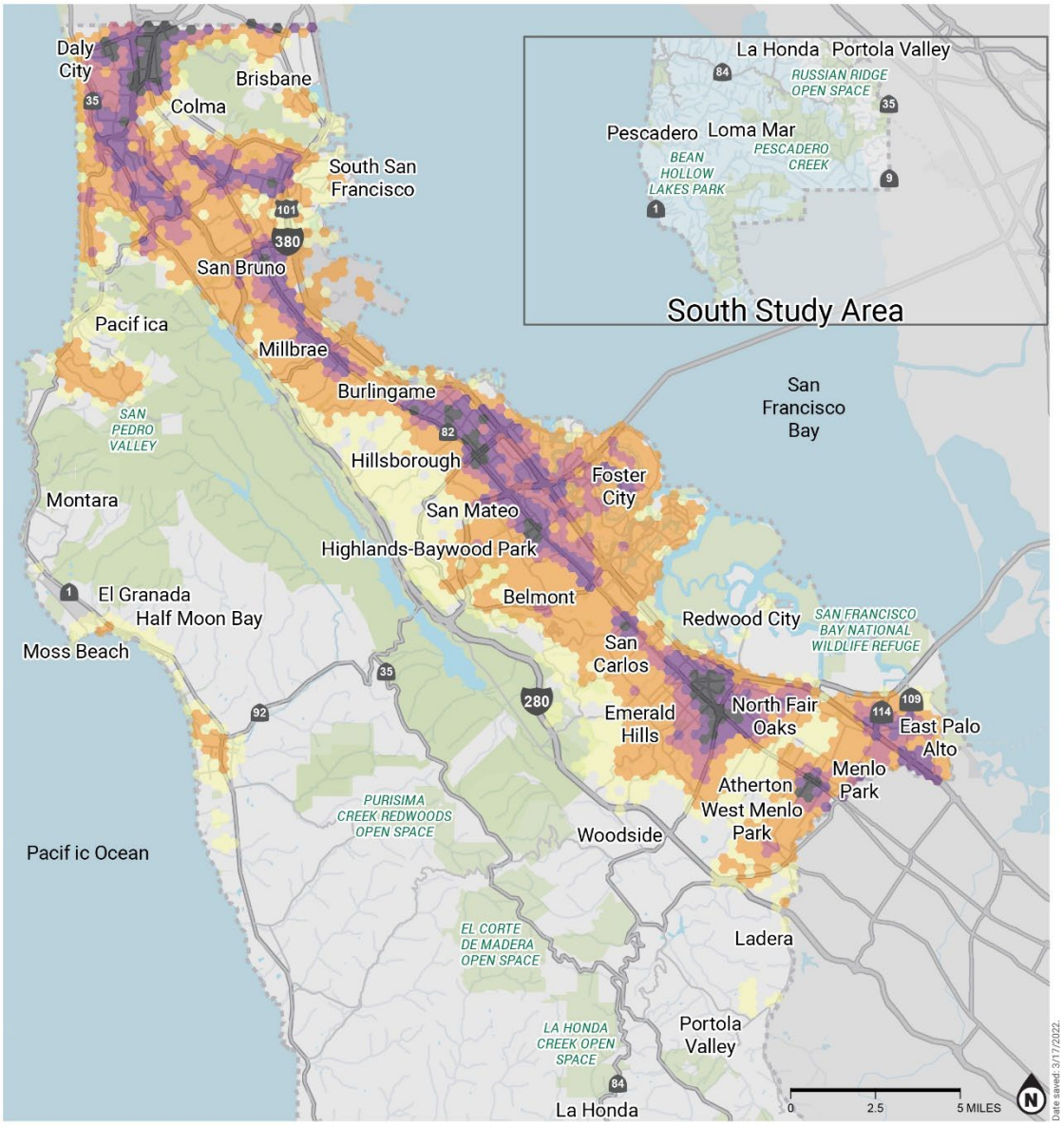
While the majority of high demand areas was found in the populous bayside of San Mateo County, there are other areas of note which should be included in the discussion. These are:

- **Coastal Destination Communities:** With the prevalence of downtown areas and destinations, coastal communities also showed up as having high demand, although lower demand overall within their communities. This points to the possibility of having relatively contained docked and non-docked systems.

[3] *Modeling the Demand for Shared E-Scooter Services (10/21/2021, TRB). https://journals.sagepub.com/doi/10.1177/03611981211051620*

Demand for Docked and Non-Docked Systems

While there is demand to support both docked and non-docked systems in San Mateo County, there are some differences between the demand for the different system types. Docked systems have higher concentrations of areas of high demand in downtown and high-density areas. Non-docked systems show less concentrated demand but cover more area than docked systems. This indicates that while non-docked systems can potentially serve broader areas, docked systems have the advantage in high-density and downtown areas. Each system offers different benefits that should be taken into consideration when deciding what system to implement where.



DOCKED PROJECTED DEMAND MAP

SAN MATEO COUNTY
SHARED MICROMOBILITY
FEASIBILITY STUDY

PROJECTED DEMAND

More Demand

Less Demand

DESTINATIONS + BOUNDARIES

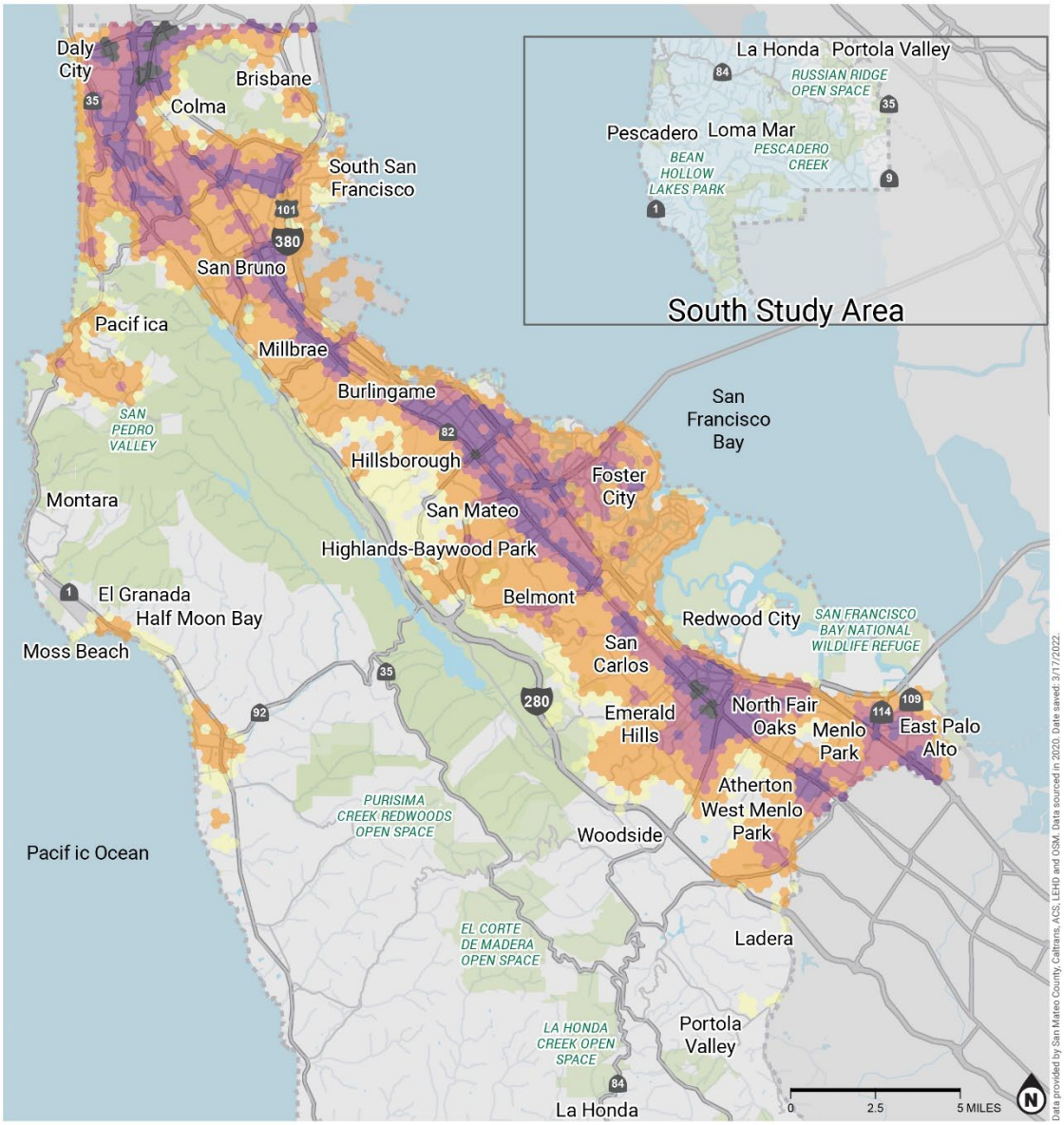
Park

Water

County Boundary

MAP 4

Data provided by the C/CAG Comprehensive Bicycle and Pedestrian Plan (2021), Caltrans State Highway Network (2021), American Community Survey 5 Year Estimates (2019), US Environmental Protection Agency Smart Location Database (2021), Longitudinal Household-Employer Dynamics (2019), and OpenStreetMap (2021), and Bureau of Transportation Statistics Docked Bikeshare Ridership (2021).



NON-DOCKED PROJECTED DEMAND MAP

SAN MATEO COUNTY
SHARED MICROMOBILITY
FEASIBILITY STUDY

PROJECTED DEMAND

- More Demand
- Less Demand

DESTINATIONS + BOUNDARIES

- Park
- Water
- County Boundary

MAP 5

Data provided by the C/CAG Comprehensive Bicycle and Pedestrian Plan (2021), Caltrans State Highway Network (2021), American Community Survey 5 Year Estimates (2019), US Environmental Protection Agency Smart Location Database (2021), Longitudinal Household-Employer Dynamics (2019), and OpenStreetMap (2021), and Bureau of Transportation Statistics Docked Bikeshare Ridership (2021).

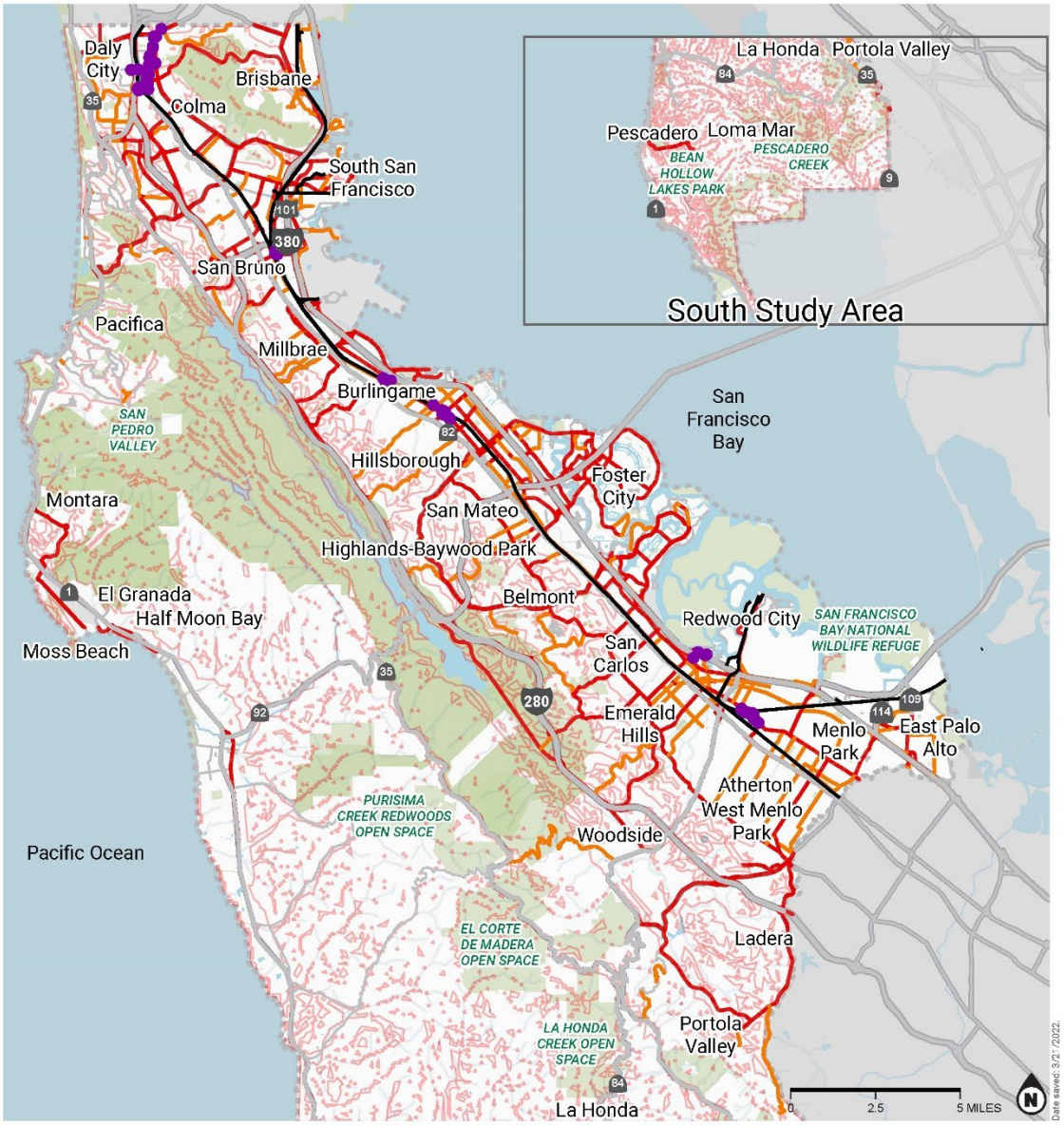
Barriers Analysis

When planning and assessing the areas in which micromobility systems would have the most affect, it is important to understand the barriers that users of these systems would face. These data can be used to identify locations to either avoid placing micromobility or to place micromobility in tandem with streetscape improvements that address the identified barrier. These data can also be used to inform aspects of the micromobility system, such as the type of devices to deploy (e.g. e-vehicles can better accommodate steep slopes). The following inputs were used in the barriers analysis:

- Roadway level of traffic stress (LTS) (provided by C/CAG)
- Clusters of Automobile Focused Businesses (defined in OpenStreetMap)
- Railways
- Highways
- Slope greater than 10%

Results

The results of the analysis are seen in **Map 6**. Clusters of automobile focused businesses are concentrated in downtown areas, indicating a high presence of vehicular use in these specific areas. Bayside communities have many areas without steep slope, but become steeper to the west. Roadways with high LTS scores are indicated in red, and those with moderate scores are demonstrated in orange. Most communities have high-LTS roadways, highways or railways preventing low-stress travel across long distances, but have pockets where low-stress travel may occur.



BARRIER ANALYSIS

SAN MATEO COUNTY
SHARED MICROMOBILITY
FEASIBILITY STUDY

alta

BARRIERS

- Cluster of Automobile Focused Businesses
- Railway
- Areas of High Slope

Level of Traffic Stress Score

- Level of Traffic Stress 4
- Level of Traffic Stress 3

DESTINATION + BOUNDARIES

- Park
- Water
- County Boundary

MAP 6

Data provided by the C/CAG Comprehensive Bicycle and Pedestrian Plan (2021), Caltrans State Highway Network (2021), and OpenStreetMap (2021).

Equity Analysis

In addition to demand and barriers, equity is an essential component in determining the most optimal micromobility system service area. An equitable micromobility system is accessible to underserved communities and is geographically distributed throughout neighborhoods and demographic groups. Furthermore, when planning a shared micromobility system it is important to understand where a high number of collisions have historically occurred. The equity analysis includes two parts:

- Equity Focus Areas (source: C/CAG Comprehensive Bicycle and Pedestrian Plan (CBPP))
- Collision analysis

The Equity Focus Areas were visualized if they scored above an 8 on the equity focus index, as was done in the C/CAG CBPP.

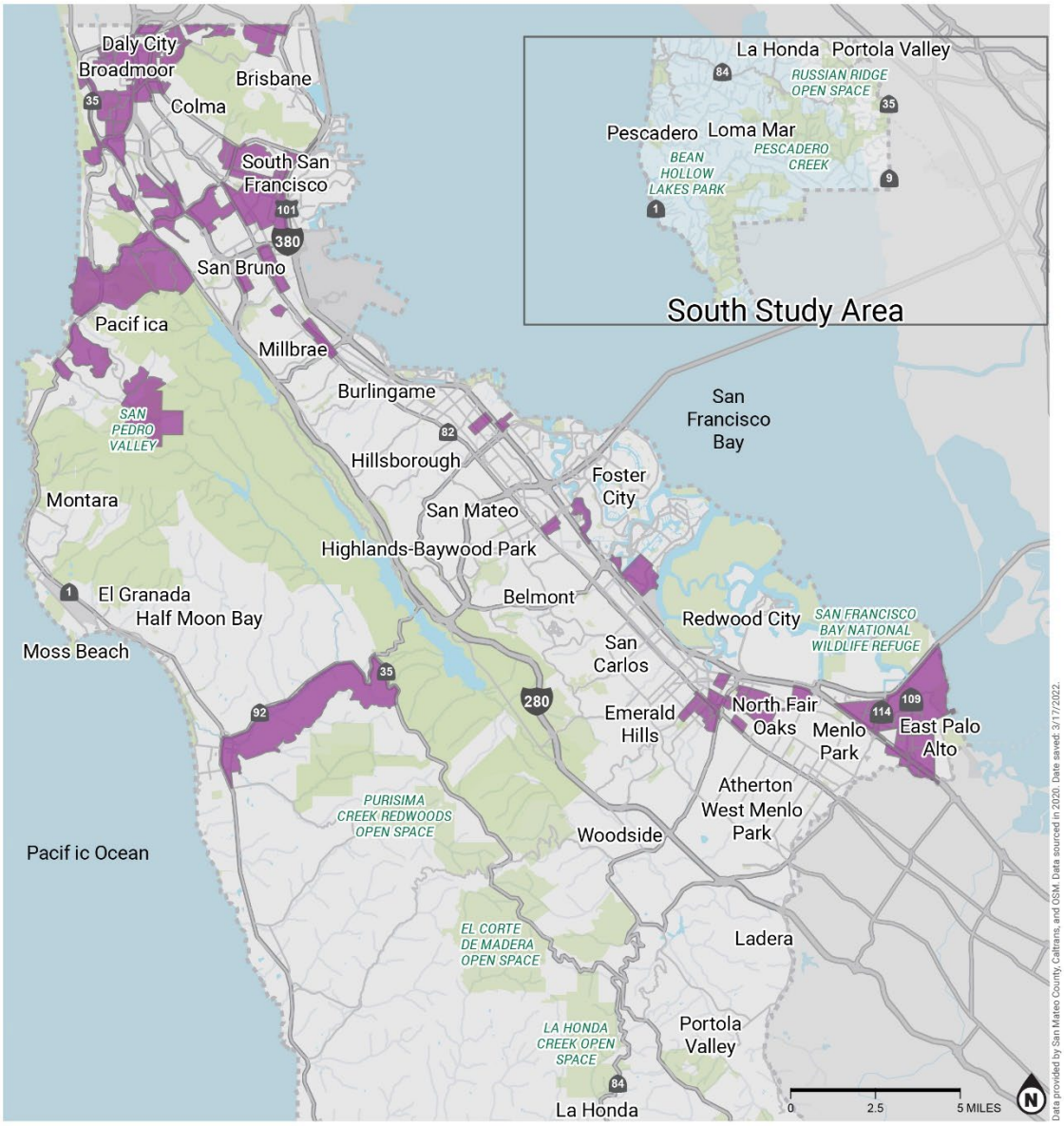
The collision analysis used collision data analyzed for the San Mateo County Safe Routes to School (SRTS) Strategic Plan, in which collisions from 2014-2020 were agglomerated to the closest roadway. While all traffic-related collisions were reviewed within San Mateo County, collisions were weighted more if they resulted in a death or severe injury, involved a person walking or biking, or involved a child. There are some differences in the visualization of these data, as the relative scores were adjusted to be shown on the County scale instead of the local scale.

A collision analysis was included as part of the larger equity analysis because traffic-related collisions disproportionately impact people walking and biking, low-income residents, and people of color, among other historically marginalized populations.[4] The high-collision corridors are also useful to compare with the equity focus areas.

Results

Maps 7 and 8 show the results of the analysis. As seen in the equity map, equity focus areas are found throughout the county, indicating that high equity index scores could be helpful in determining where micromobility systems should be placed to meet equity goals. In terms of collisions, high collision areas are seen in downtown areas, indicating that when selecting where to implement a shared micromobility system in a high-density area, it is crucial to assess the relative safety of the roadway and determine what improvements may be warranted. When comparing both analyses, many high collision areas overlap with equity focus areas, indicating locations where communities could benefit the most from increased investment in bicycle infrastructure, including a possible shared micromobility system.

[4] *https://www.saferoutespartnership.org/sites/default/files/resource_files/at-the-intersection-of-active-transportation-and-equity.pdf*



EQUITY

SAN MATEO COUNTY
SHARED MICROMOBILITY
FEASIBILITY STUDY

EQUITY FOCUS AREAS

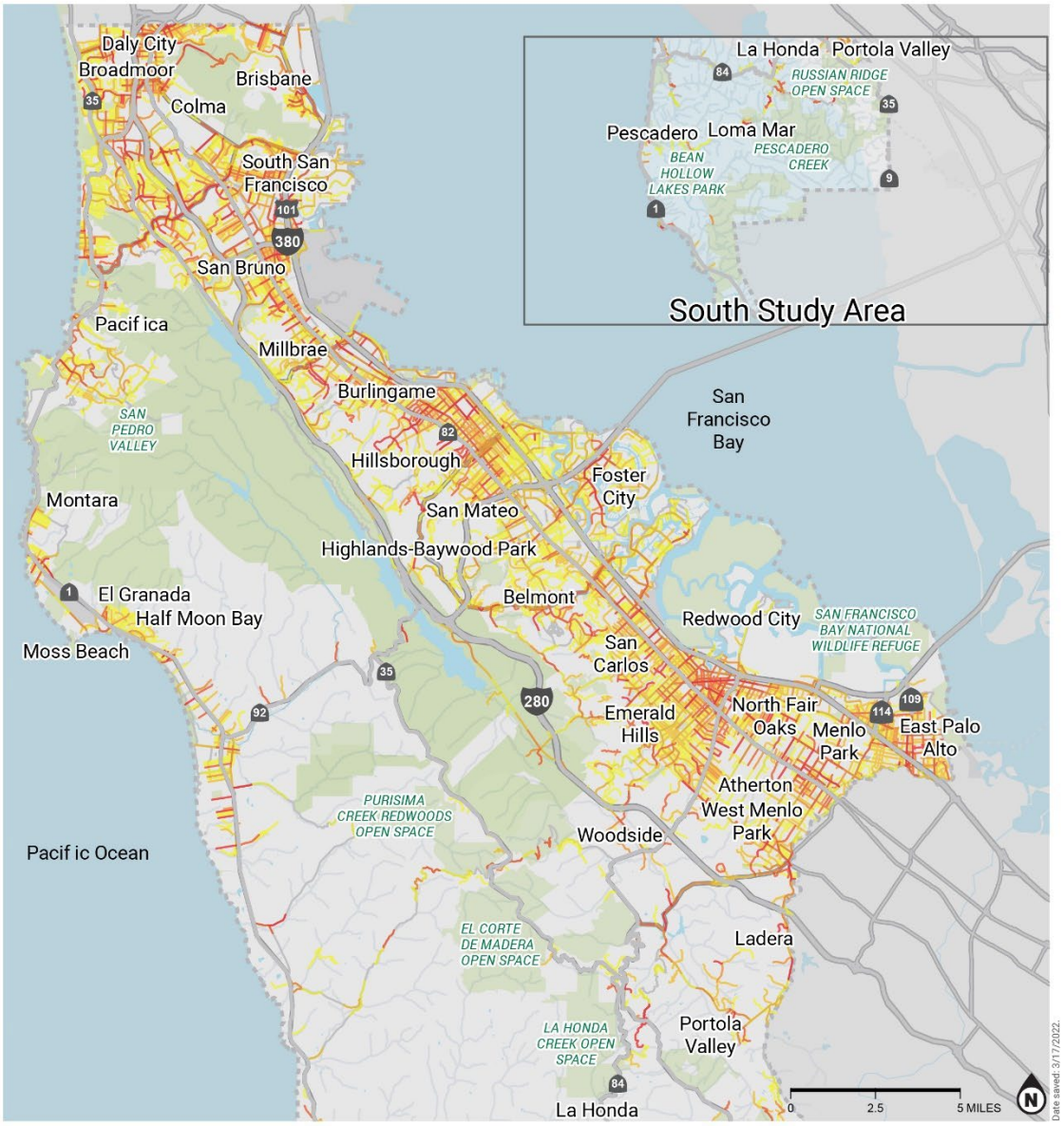
- Equity Focus Areas

DESTINATIONS + BOUNDARIES

- Water
- County Boundary

MAP 7

Data provided by the 2021 C/CAG Comprehensive Bicycle and Pedestrian Plan (2021), Caltrans State Highway Network (2021), San Mateo County Open Data (2021), and OpenStreetMap (2021).



COLLISION ANALYSIS

SAN MATEO COUNTY
SHARED MICROMOBILITY
FEASIBILITY STUDY

SEVERITY WEIGHTED COLLISION INTENSITY

- High
- Low

DESTINATIONS + BOUNDARIES

- Park
- Water
- County Boundary

MAP 8

Data provided by the C/CAG Comprehensive Bicycle and Pedestrian Plan (2021), Caltrans State Highway Network (2021), Statewide Integrated Traffic Records System (2014-2020) and OpenStreetMap (2021).

Potential User Groups

Shared micromobility systems are most successful where there is a mix of land uses, medium- to high-density of homes and jobs, and where trip-making occurs throughout the day and night as well as on weekends. While the exact user groups may vary by residential location, age, gender, race/ethnicity and car ownership[5], potential user groups that align with the identified goals for a shared micromobility program in San Mateo County are described below.

Local residents taking utilitarian trips

Local residents who live, study, work and recreate in the bike share service area seeking another mobility option to get to work or school, or go out to a restaurant are a key user group; research into bike share shows that the majority of bike share trips, across bike share programs, happen during morning and afternoon commute hour. These trips are most often taken by bike share members (users who have purchased a monthly or annual bike share pass.)[6] This transportation need can be especially critical for those who do not have access to a personal automobile; the program should identify ways to provide equitable access to the bikes in order to reach this user group.

In San Mateo County, first- and last-mile connections to transit represent an important opportunity for connecting commuters. A specific user group of interest are those who currently commute using BART, Caltrain and/or local bus service, and those who may commute using the ferry in the future.

Visitors and local residents taking recreational trips

Short-term bike share users, or non-members, may purchase either a one-time ride on bike share or a day pass. These casual users are most likely to be using bike share for leisure or sightseeing[7] and are likely visitors to San Mateo County or local residents who are not otherwise active bike share members. This group may use bike share to access parks, entertainment, hotels, and cultural attractions. These trips might include rides along the California Coastal Trail or the Bay Trail.

Non-local employees commuting and taking utilitarian trips during the day

Employees who live outside of San Mateo County and/or the designated service area but work within the County may use shared micromobility as a first- and last-mile connection to transit or to take short trips during the work day. Short trips may include going to lunch, running errands, and/or traveling to meetings or for other work-related reasons.

[5] *Elliot Fishman (2016) Bikeshare: A Review of Recent Literature, Transport Reviews, 36:1, 92-113, DOI: 10.1080/01441647.2015.1033036*

[6] *Ibid.*

[7] *Fishman 2016.*

Program Opportunity & Resource Analysis

The following Program Opportunity and Resources Analysis discusses the major considerations for shared micromobility program resources and evaluates multiple scenarios for program structure and scale.

The analysis considers whether the following resources are aligned with the requirements of a future program in San Mateo County:

- **Management Capability:** Evaluates whether options exist in San Mateo County for system management. This can include staff capacity for contract management and administration, agency partnerships, and project leadership, among other factors.
- **Vendor Availability:** Evaluates vendor availability for a system in San Mateo County. This analysis includes a description of sample vendors who work in communities similar to San Mateo County and provide systems of similar size to the recommended program size.
- **Funding Capacity:** Evaluates funding potential for bike and scooter share in the San Mateo County area. This analysis will include a description of typical public and private sector funding sources and their appropriateness and potential level of impact in San Mateo County.

The following three scenarios are considered for the overarching program structure and scale:

- **Local Program:** Individual jurisdictions implement their own shared micromobility program. Support, guidance, and/or resources may be provided from the County/regional entity, but they are not responsible for administering the program.
- **Multijurisdictional Program:** Multiple jurisdictions agree to operate a shared micromobility program. Support, guidance, and/or resources may be provided from the County/regional entity, but they are not responsible for administering the program.
- **Countywide/Regionwide Program:** A countywide or regional agency administers/operates a shared micromobility program.

Management Capability

Shared micromobility programs in the United States are managed differently depending on the local political and funding environment as well as stakeholder interest and capacity. An organization that is ready to champion the program and move it forward to implementation is key to all successful programs.

In general terms, the tasks involved in launching and managing a shared micromobility program will be different for a contracted system and a permitted system (Table 3). In a contracted system, an agency establishes a shared agreement with a vendor(s) to operate and may take on a bigger role in managing, procuring a vendor and operator, and sometimes funding the system. In a permitted system, an agency sets up a permit or license that allows vendors to operate under certain conditions usually for a set amount of time; the agency is usually not responsible for funding, managing, or operating the system.

Table 3: General tasks for launching and managing a shared micromobility program for a contracted system and a permitted system

Tasks for Launching & Managing a Program	Contracted System	Permitted System
Obtaining political, public, and other support.	X	X
Securing funding for initial capital and operating costs.	X	
Procuring an equipment vendor and system operator.	X	
Administering the contract with the operator.	X	

Tasks for Launching & Managing a Program	Contracted System	Permitted System
Managing operations of the system.	X	
Evaluating and expanding the system.	X	
Negotiating and overseeing system sponsorships or an advertising vendor.	X	
Developing program regulations.		X
Reviewing and approving vendor permit applications.		X
Collecting and utilizing permit fees.		X
Overseeing and evaluating vendor compliance with permit regulations.		X

Potential agencies and/or organizations that can manage the shared micromobility program include C/CAG, interested San Mateo County jurisdictions, County or regional transit agencies (San Mateo County Transit District (SamTrans) or Caltrain), a non-profit organization such as Commute.org, or some combination of these organizations and more. The larger role that an agency plays in managing the system, the more control it would have in making sure the system is meeting the agency's goals. A larger role, however, results in the need for more staff capacity. The program goals and staff capacity will determine how the various jurisdictions and agencies work together.

Staff involvement, regardless of the organization that manages the program, will depend on the program details. Staff involvement, however, varies based upon the chosen shared micromobility program structure and scale as well as the program ownership model. The estimated level of staff resources required for each ownership model—with additional consideration of program structure and scale—is described in more detail below.

Shared Micromobility Ownership Models

There are four basic shared micromobility ownership models in the United States:

1. Privately owned and operated (permitted or contracted)
2. Publicly owned and privately operated
3. Publicly owned and nonprofit operated
4. Nonprofit owned and operated

Privately owned and operated (permitted or contracted)

An experienced private company brings a set of established skills and credentials when it comes to operating bike share programs. The company takes on the risk of funding and operating the program in return for generated revenues. This model is most attractive in markets that support strong returns from advertising, such as larger communities or areas with large, well-known employers. Privately owned and operated systems can either be awarded permits to operate within a community (the company pays the jurisdiction to operate) or it can be awarded a contract to operate within the community (the jurisdiction pays the company to operate.) This is largely dependent on the local market and the goals of the governing jurisdiction. This model exists for both bike and scooter share and is the current, prevailing model for scooter share systems. Examples of this type of business model include Bay Wheels in the San Francisco Bay Area (described in Table 1 below) and Lime's partnership with the City of Sacramento, which have operated since 2015 and 2019, respectively.

Summary of Staff Resources Required

This type of business model likely requires a **low to medium level of agency staff involvement**. Staff time may include:

- Significant involvement in administering and managing a permit program or a contract that enables operations;
- Varying levels of involvement in performance monitoring, depending on the number of vendors operating and/or the robustness of the permit or contract stipulations;
- Limited involvement in outreach/engagement;
- Little to no involvement in seeking sponsor or grant funds.

Private ownership and operation removes financial responsibility and risk from the agency and other local partners. Private operators are also strongly incentivized to ensure program success (e.g. high ridership and profitability) and typically have established skills and experience. This type of business model, however, is correlated to market demand and highly dependent on private sector interest. Agency control and program transparency is also limited to what is defined in regulation and permitting. Lastly, funding options may be limited to what private operator can support and equity may not be a priority for the private operator.

Case Study Example

Table 1. Case Study of a Privately Owned and Operated Shared Micromobility Program

System Name	Bay Wheels
Location(s)	Berkeley, Emeryville, Oakland, San Jose and San Francisco, CA
Owner	Lyft (Motivate)
Operator	Lyft (Motivate)
Administrator	Metropolitan Transportation Commission (MTC)
Program Structure / Scale / Size	Regionwide; 7,000 bikes
Management Capability Considerations	MTC has a dedicated Bike Share Coordinator position to administer the program. The local municipalities that have partnered with MTC also have staff support to help MTC administer the program. The City of Oakland Department of Transportation (OakDOT), for example, has a Shared Mobility team. The system is overseen by a Steering Committee with representation from MTC and the participating jurisdictions to ensure Lyft is meeting the terms of the Program Agreement and Coordination Agreement. MTC set the terms of a Program Agreement (between Lyft and MTC) and the Coordination Agreement (between Lyft, MTC, and the participating jurisdictions) which lay the framework and terms for program operation and installation.

Publicly owned and privately or non-profit operated

Ownership and financial responsibility for the system is managed by a government agency (e.g. a jurisdiction, regional, or transit agency). The agency contracts operations out to a third party (or parties), which manages equipment, sponsorship, and advertising, marketing, promotions, etc. This model exists for bike share but there are no known examples for scooter share. Examples of this type of business model include ValleyBike in Massachusetts (described in Table 2 below) and BikeTown in the Portland, OR, which have operated since 2018 and 2015, respectively.

Summary of Staff Resources Required

This type of business model likely requires a **medium to high level of agency staff involvement**. Staff time may include:

- Significant involvement in contract administration and management;
- Significant involvement in performance monitoring;
- Significant involvement in shared decision-making;
- Varying levels of involvement in outreach/engagement;
- Varying levels of involvement in soliciting sponsorships or grant funds.

With public ownership, the agency has full program control, including the brand, look, and operating standards. While public ownership requires a higher level of staff involvement, the agency can directly apply for funding, the public can hold the agency accountable to a transparent system, and the agency can ensure the program achieves its goals, such as geographic and social equity. Public ownership and more staff involvement, however, requires the agency to have interest and capacity to manage the program, take on risk and ongoing financial responsibility, and meet the public's competing priorities beyond financial and operating performance.

Case Study Example

Table 2. Case Study of a Publicly Owned and Privately or Non-Profit Operated Shared Micromobility Program

System Name	ValleyBike
Location(s)	Amherst, Chicopee, Easthampton, Holyoke, Northampton, South Hadley, Springfield and West Springfield, MA; University of Massachusetts at Amherst
Owner(s)	The Massachusetts communities of Amherst, Chicopee, Easthampton, Holyoke, Northampton, South Hadley, Springfield and West Springfield; University of Massachusetts at Amherst
Operator	Bewegen
Administrator	City of Northampton (lead administrator)
Program Structure / Scale / Size	Multijurisdictional; 1160 bikes
Management Capability Considerations	The City of Northampton is the lead administrator in charge of grants, contracts, and multi-community administration. Each individual municipality pays an administration fee to Northampton and owns the bike share equipment within their municipality and chooses station locations. A bike share committee, with representation from each municipality, meets regularly help administer the program.[8]

[8] *https://www.northamptonma.gov/1599/ValleyBike*

Nonprofit owned and operated

An existing or newly formed nonprofit organization (NPO) takes on ownership and financial responsibility for the program. The NPO can manage any combination of responsibilities, including day-to-day system operations, and can also contract out some services, such as marketing and promotions, sponsorship and advertising, etc., to a third party or parties. This model exists for bike share but there are no known examples for scooter share. Examples of this type of business model include PikeRide in Colorado (described in Table 3 below) and BCycle in the Spartanburg, SC, which have operated since 2018 and 2011, respectively.

Summary of Staff Resources Required

This type of business model likely requires a **low to medium level of agency staff involvement**. Staff time may include:

- Moderate involvement in contract administration and management;
- Varying levels of shared decision-making, depending on contract stipulations;
- Varying levels of performance monitoring, depending on contract stipulations and/or the public agency's role as a funder;
- Limited involvement in outreach/engagement;
- Limited involvement in solicitation of sponsorships;
- Moderate involvement in soliciting grant funds.

Non-profit ownership and operation provides the most flexibility in funding, including local, state, and federal funds, sponsorships, advertising, and philanthropic contributions. The community-oriented missions of non-profit organizations (NPO) are well-received by the public, and a NPO's Board of Directors can be made up of a broad range of community stakeholders that effectively engages public, private, and community organizations in the system. If the NPO is newly formed, however, building capacity and establishing organization can take time and they may lack the skills and experience at system launch. Without adequate support and resources, NPOs may also struggle with fundraising and staff capacity, which can impact the long-term program sustainability. Lastly, the NPO's performance standards may not meet public and agency expectations for transit service.

Case Study Example

Table 3. Case Study of a Nonprofit Owned and Operated Shared Micromobility Program

System Name	PikeRide
Location(s)	Colorado Springs & Manitou Springs, CO
Owner(s)	PikeRide
Operator	PikeRide
Administrator	PikeRide
Program Structure / Scale/ Size	Multijurisdictional; 250 bikes
Management Capability Considerations	The system is owned and operated by PikeRide, a nonprofit that grew out of a program of Downtown Ventures, a charitable non-profit that administers and funds public art and benefit programs in Downtown Colorado Springs. Ten months after launching, the program spun off to create a 501c3. PikeRide applies for permits from the local jurisdiction prior to installing a bike share hub or station.

Vendor Availability

The shared micromobility market, and the available vendors, has continued to rapidly change. Changes include companies acquiring each other (Lyft acquired Motivate in 2018; Tier Mobility acquired Spin in 2022), vendors going out of business (Zagster ended all of their operations in 2020), and new vendors continue to enter the market (Razor Share launched in 2018). Many vendors are also supported by venture capital. This rapidly changing market and the reliance on venture capital can limit a vendor's dependability. It is important for the implementing agency to take this volatile market into consideration when selecting vendors.

A variety of potential shared micromobility vendors have operated or currently operate in the San Francisco Bay Area and in communities of similar size to those in San Mateo County. San Mateo County has a suburban and semi-rural character with many mid-sized and small communities along the coast and the San Francisco Bay.

The following list of micromobility vendors have worked in communities that reflect many of San Mateo County's characteristics:

- BCycle
- Bewegen
- Bird
- Bolt
- Drop Mobility
- Lime
- PBSC/Shift Transit
- Pedal Movement LLC
- Razor
- Spin (now Tier)
- Superpedestrian
- Veo

Lyft (formerly Motivate) is the exclusive vendor for the Bay Wheels bike share program operating in multiple jurisdictions across the San Francisco Bay Area, making it an attractive vendor for San Mateo County. Lyft, however, doesn't match the characteristics of an operator we would expect to see in San Mateo County for some of the following reasons:

- Lyft is typically concentrated in major urban areas;
- Historical involvement of San Mateo County in the San Francisco Bay Area regional system ended after the Bay Area Bike Share pilot program when Motivate (later acquired by Lyft) pulled out of San Mateo County and concentrated in San Francisco, San Jose, Oakland, Emeryville, and Berkeley; and
- The City and County of San Francisco is considering purchasing the Bay Wheels system from Lyft. This may affect how and where Lyft, and therefore Bay Wheels, operates in the Bay Area. Additionally, it may be difficult for jurisdictions in San Mateo County to join the Bay Wheels program under the current contract agreement.

Vendor Considerations

The following considerations should be examined when determining program size and structure:

- **One Vendor vs. Multiple Vendors:** Exclusivity can be attractive to a potential vendor as it is more likely to be profitable for the vendor. Exclusivity can also allow more agency control in achieving its goals. An exclusive vendor allows for more consistency for users, such as one platform for payments and finding micromobility vehicles. A single vendor can also aid in establishing and using a system across multiple jurisdictions. Exclusive vendor rights, however, can abruptly end a shared micromobility program if the vendor decides to opt out of the system. As described above, Lyft is the exclusive vendor for Bay Wheels.

- **Contract Program vs. Permit Program:** A contract between the vendor and the agency allows the agency more control in setting goals and performance standards. Contracts can also be more likely to require the vendor to pay or share revenue with the agency. A system that requires a vendor to obtain a permit can make it easier for the agency to charge fees to support the program. Typical permits may include vehicle requirements, operating regulations and restrictions, communications and data requirements. Contracts with too many requirements or unrealistic terms, or permits with high application fees may discourage a vendor from applying.

Funding Capacity

Funding for shared micromobility programs typically comes from user fees, sponsorship and advertising, and grants. It is not likely that the full cost of shared micromobility will be covered by a single source. All types of funding, in addition to securing local funds, should be leveraged to implement and sustain the system.

User Fees

User fees include the fees shared micromobility patrons pay for annual, monthly or daily memberships, along with any additional fees (i.e., use of a bicycle or scooter beyond the prescribed use period) and pay-per-trip options that are not classified as a membership. Higher user fees can allow the operating costs of a shared micromobility system to be covered as long as the increased costs don't suppress demand. Higher user fees, however, can result in a segment of users being priced out of the system. If a program relies on high prices, it should consider a subsidy program for low-income users. The Bay Wheels system, for example, has relatively high prices, but also has a subsidized *Bike Share for All* program that offers qualified members lower prices for membership.

Sponsorship and Advertising

Shared micromobility sponsorship typically involves a long-term relationship between the sponsor and vendor, where stickers are placed on the infrastructure (bikes, hubs, and/or websites) with a logo and/or public statement that the company supports the shared micromobility system. Experience has shown that companies are generally interested in sponsorship for its positive impression and "good corporate citizen" benefits as much for its media exposure.

Sponsorships are a critical component to raising money to launch and operate shared micromobility systems, but there is no standard structure for the allocation of sponsorship funds. For example, Boston's Hubway is able to supplement public funding with private sponsorships to pay for capital and operating expenses. New York's Citi Bike initially forwent public funds and relied solely on sponsorships to fund all system costs that were not covered by user-generated revenue. The lack of standard structure for sponsorships can provide the managing agency with flexibility depending on the program's needed revenue.

There are three main approaches to sponsorship, with additional options available:

- **Title Sponsor:** This can be a single sponsor that pays for full branding of system infrastructure (e.g., London or New York) or multiple sponsors that split the cost (e.g., Boston or Toronto). Commitment is typically a 3-5-year period.
- **Presenting Sponsor:** Sponsor(s) pays for branding of certain parts of the infrastructure e.g., Hubway (Presented by New Balance), Nice Ride (Presented by Blue Cross Blue Shield of Minnesota), Pronto Emerald City Bike Share (Presented by Alaska Airlines.) Commitment is typically a 3-5-year period.
- **Station/Hub Sponsors:** This model sells sponsorship opportunities on system infrastructure, e.g., PikeRide, the bike share program for Colorado Springs, sells logo placement on stations, station kiosks, and bikes. A station sponsorship costs $10,000. Commitment is typically a 3-year period.
- **Marketing Sponsors:** Numerous options available, such as one-time sponsors (e.g., Volkswagen paid for day passes in Chattanooga for a weekend), product partners, media sponsors, and other ideas. Commitment is typically a 1-3-year period.

In San Mateo County, there are numerous civic institutions, major employers, and other companies who may be appropriate to approach with sponsorship opportunities. Possible companies include Commute.org, Kaiser, Meta (Facebook), Genentech, College of San Mateo, San Mateo County Chamber of Commerce, etc.

Grants & Public Funding

Numerous public funding options are available for shared micromobility in the United States, but the most common are federal grants issued by agencies such as the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), or Center for Disease Control (CDC), state grants, and local transportation funds. The FHWA provides a summary of public funding sources in its guide to Bike Sharing in the United States.[9] Some of those sources are listed in Table 4.

Table 4. Potential Shared Micromobility Funding Sources

Funding Opportunity	Eligible Project Types	Funding Source Detail
Surface Transportation Block Grant Program (STBGP)	Bicycle and Pedestrian improvements, among others.	With the passage of the 2016 Federal Transportation Bill, Fixing America's Surface Transportation Act (FAST Act), the former Surface Transportation Program (STP) has become the Surface Transportation Block Grant Program (STBGP), which now includes Transportation Alternatives Program funding. The State is required to allocate Transportation Alternative funds through a competitive process which allows eligible applicants an opportunity to submit projects for funding.
Rebuilding American Infrastructure with Sustainability and Equity Discretionary Grant Program (RAISE)	Bicycle and Pedestrian improvements, among others, that promote national infrastructure objectives and have a significant local or regional impact.	RAISE grants, formerly known as Better Utilizing Investments to Leverage Development (BUILD) and Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grants, is a federal competitive program that awards capital funding directly to public entities.
Congestion Mitigation and Air Quality Improvement Program (CMAQ)	Funds may be used for a transportation project or program that is likely to contribute to the attainment or maintenance of a national ambient air quality standard	CMAQ funding is apportioned by the federal government to state governments, which can then fund projects either in an MPO's current transportation plan and transportation improvement program (TIP) or the current state transportation improvement program (STIP). Allocating CMAQ funds to bike/scooter share would ensure bike/scooter share is included in the TIP/STIP.

[9] *https://www.bikesharing.ch/fileadmin/minisites/redaktion/bikesharing/Dokumente/Bikesharing_in_the_United_States.pdf*

Funding Opportunity	Eligible Project Types	Funding Source Detail
Transportation Alternatives Program (TAP)	Bicycle and pedestrian improvements only	The FAST Act combines the former TAP (which included the former Recreational Trails and the Safe Routes to School programs) into the STBGP (above). Though program requirements will stay roughly the same, total funding has been slightly increased. Most projects have an 80/20 federal/local match split, and can include sidewalks, paths, trails (including Rails-to-trails), bicycle facilities, signals, traffic calming, lighting and safety infrastructure, and ADA improvements. Unless a state opts out, it must use a specified portion of its TA funds for recreational trails projects.
National Highway Performance Program (NHPP)	Bicycle transportation associated with a National Highway System (NHS) facility	NHPP funds support goals such as improving infrastructure condition, safety, congestion reduction, system reliability, or freight movement on the NHS. Projects must be identified in the STIP/TIP and be consistent with the Long-Range Statewide Transportation Plan and the Metropolitan Transportation Plan(s). Bike share or bike facilities may be eligible for funds in association with a project on an eligible roadway in Berkshire County.
FTA Funding	Bicycle and Pedestrian infrastructure. Project must enhance or be related to public transportation facilities	Multiple FTA funding sources exist. Most FTA funding can be used to fund bike sharing stations and bicycle infrastructure "that enhance or are related to public transportation facilities" (defined as within a three-mile radius of a transit station or bus stop). However, the purchase of bikes for a bike sharing network is not an eligible expense.
State and Regional Funding		
Transportation Fund for Clean Air (TFCA)	First- and Last-Mile Connections (existing and pilot), trip reduction projects, bicycle parking, bikeways, bike share	In 1991, the California State Legislature authorized the Bay Area Air Quality Management District to impose a $4 surcharge on motor vehicles registered within the Bay Area to fund projects that reduce vehicle emissions. The Air District allocates this revenue through its Transportation Fund for Clean Air (TFCA) program to fund eligible projects and programs. The County Program Manager funds ongoing projects such as Commute.org and BART shuttles as well as local quick build projects. Projects must demonstrate cost effectiveness.

Funding Opportunity	Eligible Project Types	Funding Source Detail
Bike Share Capital Program	Grants support local government to conduct community planning, site selection, and contract with private vendors for a bike share system.	Administered by MTC and provides grants to help launch bike share in Bay Area Counties. The grants are part of the larger One Bay Area Grant (OBAG) program.
Clean Mobility Options for Disadvantaged Communities Program	Grant funding for bike share or scooter share can go towards project planning and design, outreach and marketing, capital costs, operations and maintenance, and implementation costs.	Administered by the California Air Resources Board to fund zero-emission mobility services—including bike share or scooter share—in underserved communities.
Transit and Intercity Rail Capital Program (TIRCP)	First mile/last mile projects, bicycle and pedestrian infrastructure near transit, and bike share programs.	Administered by CalSTA and Caltrans Division of Rail and Mass Transportation to fund capital projects that benefit California rail, bus, and ferry transit systems.
Transformative Climate Communities (TCC)	Bike share program, as part of a larger place-based strategy, and bicycle and pedestrian infrastructure	Administered by the Strategic Growth Council and Department of Conservation to fund community-led projects that achieve environmental benefits in underserved communities across California.

As noted earlier, local funds will likely be required to sustain the shared micromobility system. In addition to this funding sources, the following are additional strategies for securing local funds:

- **Local matches for federal grants** (e.g. CMAQ)
- **One-time or ongoing allocation from capital budgets funds** (ex: Columbus, OH committed $2.3M of local funds from the Capital budget to purchase the equipment and Boulder, CO commits $50k annually to operations of the bike share program).
- **Local steady stream sources** (e.g. parking revenues, bus bike rack advertising, special taxes, or a portion of the fees imposed for new license plates).
- **Developer transportation demand management (TDM) strategy** (ex: Cambridge, MA used part of a developer's TDM strategy to fund six new bike share stations).
- **Solicit grant funding from other public agencies**

Funding Considerations

A high amount of local investment can further ensure the longevity of the shared micromobility program. With a higher amount of local investment, money can go towards establishing an equity program that reliance on private funding may not provide. With more local funding, a program would have more flexibility in terms of program structure and scale as well as management capacity and vendor availability, and wouldn't need to rely as much on grants. Local jurisdictions, for example, could pay a fee to fund the staff who could operate/manage the program.

With minimal investment, a shared micromobility program may need to rely more on unreliable funding sources and agency partnerships. Low agency investment may also make it challenging to launch a shared micromobility program due to high start-up costs—primarily from sourcing capital equipment. Low initial agency investment may also result in more uncertainty for long-term viability before the program knows how much revenue to expect from user fees.

Matrix Summary

The following matrices provide an overview of the different shared micromobility program scenarios and how they may meet the goals of the program. The different program scenarios are qualitatively provided a score between 1 (lightest shade) and 4 (darkest shade)—1 (lightest shade) meaning the scenario is the least likely to meet the program goal and 4 (darkest shade) meaning the scenario is most likely to meet the program goal.

The program's ability to meet its goals will depend, to various degrees, upon the program structure (local program, multijurisdictional program, or countywide program) and the program's level of resources (management capacity, vendor availability, and funding capacity). As shown in the matrices below, a regional/countywide agency would be more likely to meet its program goals under a Countywide program with one or multiple vendors and significant funding. These scenarios, however, may not be feasible or as cost-effective. The following matrices are not meant to serve as program recommendations but aim to provide a structure to guide program decision-making.

Management Capacity

Goal	Local Program		Multijurisdictional Program		Countywide Program	
	High Staff Capacity	*Low Staff Capacity*	*High Staff Capacity*	*Low Staff Capacity*	*High Staff Capacity*	*Low Staff Capacity*
Replace Motor Vehicle Trips						
Integrate with Transit						
Ensure the Program Benefits Everyone						
Enhance Mobility Options for Local Residents						
Create a Cost-Effective and Self-Sustaining Program						
Support Economic Development						
Generate Positive Public Perception about the Program						
Support Tourism Opportunities						

Vendor Availability

Goal	Local Program		Multijurisdictional Program		Countywide Program	
	Single Vendor	*Multiple Vendors*	*Single Vendor*	*Multiple Vendors*	*Single Vendor*	*Multiple Vendors*
Replace Motor Vehicle Trips						
Integrate with Transit						
Ensure the Program Benefits Everyone						
Enhance Mobility Options for Local Residents						
Create a Cost-Effective and Self-Sustaining Program						
Support Economic Development						
Generate Positive Public Perception about the Program						
Support Tourism Opportunities						

Funding Capacity

Goal	Local Program		Multijurisdictional Program		Countywide Program	
	High Funding Capacity	*Low Funding Capacity*	*High Funding Capacity*	*Low Funding Capacity*	*High Funding Capacity*	*Low Funding Capacity*
Replace Motor Vehicle Trips						
Integrate with Transit						
Ensure the Program Benefits Everyone						
Enhance Mobility Options for Local Residents						
Create a Cost-Effective and Self-Sustaining Program						
Support Economic Development						
Generate Positive Public Perception about the Program						
Support Tourism Opportunities						

Feasibility Conclusions

The feasibility analysis conducted in this memo examined multiple feasibility factors that would affect a shared micromobility system in San Mateo County. For each factor, we note whether the analysis leads to high, medium, or low feasibility, open questions, and in which output of the study process these questions will be answered.

Micromobility Feasibility Factor	Feasibility Outcome	Open Questions	Study Output
Planning and Policy Review	**High**; multiple jurisdictions are interested in shared micromobility, suggesting political and public support.	What additional policy language is necessary? How will success be measured?	**Task 3.2** Vision Statement and Performance Metrics **Task 6** Program Guidelines and Regulatory Framework
Demand Analysis	**High**; the demand analysis identified multiple areas of high demand along both the bayside and coastside for multiple vehicle types.	Where should shared micromobility be located? How should it be phased? What is the appropriate scale and size of the program?	**Task 5.1** System Types and Recommendation **Task 5.2** Plan Development
Barriers Analysis	**Medium**; a number of physical barriers were identified that decrease connectivity for shared micromobility vehicles and will require mitigation.	How can identified barriers be mitigated?	**Task 4** Best Practices **Task 5.1** System Types and Recommendation **Task 5.2** Plan Development
Equity Analysis	**High**; the analysis identified areas where investment in transportation opportunities can support equity populations. The analysis also identified areas of collisions.	How can the program be structured to make it accessible to populations living in equity areas? How can identified areas of collision be addressed to increase safety?	**Task 4** Best Practices **Task 5.1** System Types and Recommendation **Task 5.2** Plan Development **Task 6** Program Guidelines and Regulatory Framework
Program Opportunity and Resource Analysis: Management Capability	**Medium**; although there is currently no agreed-upon management option, multiple options for management were identified that meet stated program goals.	What is the most appropriate management structure for the program? What are potential governance models for both program implementation and program operation?	**Task 5.3** Business Plan and Financial Analysis **Task 6** Program Guidelines and Regulatory Framework
Program Opportunity and Resource Analysis: Vendor Availability	**High**; multiple vendors were identified that would likely be interested in providing shared micromobility services in the County, including scenarios that meet stated program goals.	How should vendors be engaged to provide services?	**Task 5.4** Example RFPs for Micromobility Vendors **Task 6** Program Guidelines and Regulatory Framework

Micromobility Feasibility Factor	Feasibility Outcome	Open Questions	Study Output
Program Opportunity and Resource Analysis: Funding Capacity	**Medium**; while multiple funding options exist, it will likely be necessary to compile multiple funding sources to fund the program. Scenarios exist that meet stated program goals.	How much funding will be needed for start-up costs? How much funding will be needed for ongoing operations costs?	**Task 5.3** Business Plan and Financial Analysis **Task 6** Program Guidelines and Regulatory Framework

Based on the frequency of **high** (4) and **medium** (3) feasibility outcomes, this memo concludes that a shared micromobility program **is feasible** in San Mateo County. Future steps of the study process will help answer open questions and provide recommendations to C/CAG on program details for a program that will be most likely to be successful in San Mateo County.

Appendix A. Plan and Policy Review

Table A-1: Reviewed Planning Documents and Key Components Related to Shared Micromobility

Document Name	Relevance to Shared Micromobility
State	
Caltrans District 4 Bike Plan, 2018	• Goal: "Social Equity: Invest resources in communities that are most dependent on active transportation and transit." • Goal: "Mobility: Increase walking and bicycling in California." • San Mateo County improvements to state highways (pg. 44-46)
Region	
Caltrain Shared Micromobility Strategy, 2021	Key Outcomes for Shared Micromobility: • Alleviate sidewalk, station, and in-train conflicts by organizing device parking, alleviating on-board bike capacity, increasing wayside accommodations, and building access partnerships. • Offer customers more choices, especially for riders who prefer to bike, scoot, or use other forms of micromobility that cannot always be brought on-board the train. • Provide a seamless experience between Caltrain and shared micromobility services that is supportive of multimodal access to stations at either end of a customer's trip and minimizes the differences across providers, rules, and fares. • Develop a collaborative environment where corridor cities coordinate mobility policy, investment, and ideas. Overarching Strategies to Guide Shared Micromobility: • Strategy 1: Access and Partnerships Access policies, partnerships, and programs to facilitate safe, seamless, and affordable shared micromobility access to Caltrain stations. • Strategy 2: Micromobility Parking and Operations Shared micromobility parking design, regulation, and operational considerations for Caltrain and providers. • Strategy 3: Data Sharing and Management Accessing micromobility data and tracking performance to understand trends and better meet customer mobility needs.

Document Name	Relevance to Shared Micromobility

	• Strategy 4: Integrated Mobility Strategies to reduce user friction between Caltrain and shared micromobility systems.
	Shared Micromobility Scenarios:
	• 1. Permitted Micromobility Systems Across the Corridor
	  ○ Multiple cities launch their own micromobility permit programs where regulations may vary city-to-city
	• 2. Bay Wheels Expansion Across the Corridor
	  ○ MTC, Caltrain, and Lyft collaborate to expand Bay Wheels to better serve Caltrain stations
	• 3. Micromobility Partnership(s)
	  ○ Transit access partnerships with major event centers, universities, and major employers that may include incentives, marketing, infrastructure support, and targeted rebalancing
	Equity Framework:
	• 1. Enhance equity in the system and addressing historical inequities that have cause the rail service to be disproportionately underutilized by lower income riders and people of color
	• 2. Improve connectivity to other transit systems
	• 3. Proceed on a path of recovery and growth.
	Recommendations
	Access Partnerships & Programs
	• Recommendation 1: Engage corridor cities to ensure coordination and knowledge exchange across cities.
	• Recommendation 2: Identify avenues to increase the affordability of shared micromobility
	• Recommendation 3: Develop safety and education campaigns
	• Recommendation 4: Work with major employers and campuses to incentivize micromobility access to/from Caltrain stations.
	• Recommendation 5: Coordinate with cities to establish safe, connected bike infrastructure to/from Caltrain stations.

Document Name	Relevance to Shared Micromobility
	Micromobility Parking & Operations • Recommendation 1: Identify visible and flexible micromobility parking space at each station. • Recommendation 2: Partner with bike parking vendors to support shared micromobility parking needs • Recommendation 3: Establish digital policies that support operational safety and access objectives. • Recommendation 4: Establish protocols and practices for provider operations at Caltrain facilities. • Recommendation 5: Consider testing protocols and agreements for collaborative operations. • Recommendation 6: Reflect parking policy and ideal behaviors into the in-app experience • Recommendation 7: Partner with micromobility charging infrastructure providers Data Sharing & Management • Recommendation 1: Establish transit access metrics for shared micromobility • Recommendation 2: Collaborate with corridor stakeholders to align Caltrain metrics and data sharing requirements. • Recommendation 3: Provide Caltrain trip and survey data to providers to collaborate on shared micromobility system planning • Recommendation 4: Consider investing in a data platform that manages and visualizes metrics. Integrated Mobility • Recommendation 1: Build shared micromobility into station wayfinding • Recommendation 2: Identify opportunities to integrate multimodal payments.
MTC Plan Bay Area 2050, 2021	• Goal: Reduce Climate Emissions; Strategy: "EN9. Expand transportation demand management initiatives. Expand investments in programs like vanpools, bikeshare, carshare and parking fees to discourage solo driving." • Goal: Reduce Climate Emissions; Strategy: “EN7. Expand commute trip reduction programs at major employers. Set a sustainable commute target for major employers as part of an expanded Bay Area Commuter Benefits Program, with employers responsible for funding incentives and disincentives to shift auto commuters to any combination of telecommuting, transit, walking and/or bicycling.” • Goal: Create Healthy & Safe Streets; Strategy: "T8. Build a Complete Streets network. Enhance streets to promote walking, biking and other micro-mobility through sidewalk improvements, car-free slow streets, and 10,000 miles of bike lanes or multi-use paths."

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	• Goal: Maintain & Optimize the Existing Transportation System; Strategy: "T2. Support community-led transportation enhancements in Equity Priority Communities. Provide direct funding to historically marginalized communities for locally identified transportation needs." • Goal: Expand Access to Parks and Open Space; Strategy: "EN6. Modernize and expand parks, trails and recreation facilities. Invest in quality parks, trails and open spaces that provide inclusive recreation opportunities for people of all backgrounds, abilities and ages to enjoy."
County	
C/CAG San Mateo County Comprehensive Bicycle and Pedestrian Plan, 2021	• Goal: "Mode Shift: Promote more people bicycling and walking for transportation and recreation." • Goal: "Equity: Develop, prioritize, and fund projects to advance equity." • Visionary Regional Planning Priorities (pg. 73-74): Peninsula Bikeway; Dunbarton Corridor Trail; Bay to Sea Trail; Grand Boulevard Initiative; Midcoast Multimodal Parallel Trail; California Coastal Trail • SMC Proposed Bikeways pg. 41-57 • "Policy 1.8: Encourage local and regional agencies, including Caltrans, Caltrain, and SamTrans to work together to provide and maintain comfortable walking and bicycling connections to regional transit stations and close first-/last-mile gaps." • "Policy 2.5: Explore feasibility of micromobility programs (e.g., bikeshare) to increase access and convenience of walking, bicycling, and riding transit. • High Priority Program: First- and Last-Mile Transit Connections: "Transit stations should provide secure, long-term bike parking for personal bicycles and designated parking areas for micromobility devices such as bikeshare and e-scooters." • High Priority Program: Micromobility Strategy: "C/CAG should provide micromobility policy and implementation guidance, and develop a policy framework that local jurisdictions can easily adopt. This guidance should include actions such as: ○ Encouraging local programs to include requirements for vehicle type, distribution, cash payment options, and accessible/adaptive vehicles to ensure that micromobility programs are equitable distributed and inclusive.

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	○ Designating micromobility vehicle parking areas and increasing bicycle parking to reduce occurrences of parked vehicles blocking walkways. ○ Encouraging communities to clearly communicate where e-scooters, and other new mobility devices can be operated to reduce conflicts and increase safety. ○ Coordinating cross-jurisdictional policies that clearly outline authority, data standards, and small vehicle standards. C/CAG can facilitate discussions between local jurisdictions and the County to promote interjurisdictional learning opportunities on the topic. C/CAG can also develop a micromobility feasibility study to identify which jurisdictions are best suited to first- and last-mile transportation solutions like micromobility, what form it could take, and provide implementation tools for jurisdictions that are interested in the program. Examples of these tools can be standardized template policies and permit applications. The feasibility study can also identify the different options available to jurisdictions to pursue (e.g., on-demand transit, feeder services, etc.)."
Unincorporated San Mateo County Active Transportation Plan (Office of Sustainability), 2021	• Visionary Regional Planning Priorities (in addition to those identified in the SMC Bike & Ped Plan above): Crystal Springs Regional Trail; SF Bay Trail; Bay Area Ridge Trail • Goal: Flexibility: "Create a resilient and flexible transportation network that supports a variety of modes of transportation and can adapt to changes in land use, infrastructure, and transportation technologies over time, including new micro- mobility solutions." ○ Objective: "Stay current on and support new mobility options (e.g., electric-assist bicycles, scooters, and other personal mobility devices) and contribute to coordination between local and regional agencies to provide seamless, equitable travel options throughout the county." • Recommendation: Micromobility Programs: "In unincorporated areas, station-based programs that provide bikes and e-bikes may be the best option and would need to be based in more densely developed areas to mitigate the need for major fleet rebalancing efforts"; "Communicate with C/CAG and other local jurisdictions to gauge interest in and develop micromobility programs."
Local	
City of Millbrae ATP, 2022	• "Establish micromobility guidance and regulatory framework to support emerging modes of transportation. E-scooters, e-bikes, and other shared rideable systems (“micromobility”) are rapidly evolving new approaches to

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	travel in urban areas. The City should establish guidance for regulating and managing shared micromobility services to ensure the benefits of the systems to users and define expectations of micromobility operators in the City." • "Expand active transportation connections to transit. The City should provide facilities for bicyclists and pedestrians to connect to the Millbrae Intermodal Station and bus stops along El Camino Real. Bridging the first-mile/last mile gap between these transit facilities and local destinations will support transit use."
City of South San Francisco 2040 General Plan (Shape SSF), 2022	• Guiding Principle: "A Safe, Convenient, and Accessible Transportation Network Well-connected to the region," which includes "The City embraces and prepares for emerging transportation innovations and micro-mobility, such as scooters, bike share, and electric buses and vehicles." • Policy MOB-4.2: "Embrace innovation: Prepare the City for changes to transportation technology (such as autonomous vehicles and micromobility) and incorporate such innovations into projects when appropriate and where feasible"
Colma General Plan Update, 2021	• "M-8-1: Parking Standards. Reevaluate minimum parking standards to account for emerging mobility trends, such as shared mobility, micromobility, autonomous vehicles, and future technology changes. Consider reducing parking requirements for mixed-use developments."
Colma El Camino Pedestrian & Bicycle Improvement Plan, 2021	• Goal: Economic Development: "Developing solutions that encourage economic growth and equitable economic opportunities for all neighborhoods and corridor users."
Ciyt of Menlo Park Transportation Master Plan, 2020	• Recommendation: "Establish Shared Mobility Program: Adopt an ordinance and permitting process for dockless bikeshare providers and other rolling modes, building on processes put in place by other mid-peninsula cities" • Recommendation: "Establish Voucher Program for Shared Mobility Services from Transit: Explore voucher system for first-mile/last-mile connections to transit, including shared mobility (car share, bike share, ride share, other roller share)"
City of Pacifica Bicycle & Pedestrian Master Plan, 2020	• "Micromobility: Building a network of high-quality, connected, and safe bicycle facilities also benefits people on smallwheeled devices such as mobility scooters, skateboards, electric and non-electric scooters, roller skates, and tricycles. A bike network will help foster a more organized and predictable riding environment for all roadway users. Furthermore, implementing wider bicycle lanes, where feasible, provides space for users to safely and comfortably pass slower users (i.e. a bicyclist passing a skateboarder)."

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	• "There are currently no formalized shared-mobility services, bikeshare, scooter-share, etc., within Pacifica. Should Pacifica be interested in developing a shared-mobility system, a separate study should be conducted to analyze potential users, trips, locations for dedicated stations and parking, funding/branding, and other items."
City of San Carlos Bicycle and Pedestrian Master Plan, 2020	• "Policy 2.A.2: Explore opportunities for implementing a bicycle and/or scooter share program within San Carlos. Using lessons learned from other jurisdictions, develop policies to ensure safe use and accountability." Recommended Shared Micromobility Program/Policy: "The City of San Carlos would likely benefit from a responsibly deployed micromobility fleet. The City should work with one or more vendors to develop a pilot program that would allow a limited fleet of bikes and/or e-scooters within a defined geographic region for a fixed period (typically one-year or less). The pilot program would allow the city to examine and refine system characteristics including: • Licensing and Permits: Cities have largely shifted away from procurement and exclusive contracts for establishing bike and scooter share. Licensing or permitting programs are used as a way to manage micromobility providers, including establishing the rules, responsibilities, and conduct of operators. Establishing a process for the fair and thorough vetting of vendors is an important first step in regulating for or partnering to address the topics below. • Vendor Fees: Cities issuing micromobility permits have the ability to set application fees, annual renewal fees, and per unit fees to establish funding for the City's oversight of the program and/or infrastructure upgrades. • Fleet Size: Fleet size requirements allow cities to cap the number of micromobility units deployed, or develop variable fleet size policies that require vendors to remove or add units to achieve the desired average number of rides per unit per day. • Parking Policies: Cities can build dockless mobility parking requirements into micromobility permits and contracts. These requirements can include mandatory response times to customer complaints on improperly parked units and penalty fees for failure to comply. • Trail and Sidewalk Requirements: Cities that allow dockless mobility providers to operate have a diversity of policies on the legality of riding e-scooters and e-bikes on sidewalks and multiuse paths or trails. Prohibiting the use of electric micromobility devices on facilities shared with pedestrians is recommended to ensure safe and comfortable walking conditions. • Investments in Bike Infrastructure: A micromobility pilot program should also consider whether safe and comfortable bike infrastructure is available for micromobility riders to use.

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	• Geographic Areas of Operation: Cities can control where micromobility units are concentrated through two primary methods: system rebalancing requirements and geofenced operation boundaries.
	  ○ System rebalancing requirements allow cities to identify key locations or areas where units should be located after recharging.
	  ○ Geofenced operation boundaries allow cities to define zones where dockless mobility units should not be ridden. These boundaries are most often enforced by in-app warnings, accompanied by user penalty fees for riding outside of an approved area."
	• "During the pilot phase data collection, including trip origins and destinations, routes, vehicle use, crash reports and complaints are collected and analyzed, in addition to structured community feedback. Pilot programs allow cities to remain flexible and provide an opportunity to adjust permit terms, consider proposals from different service providers, and incorporate community input into program planning before issuing a long-term permit program."

City of San Mateo Bicycle Master Plan, 2020	• Existing Shared Mobility Permit Program: "Equity-focused shared mobility policy: The City requires Shared Mobility Permit holders to include equity programs in their applications and programs."
	• Goal 1: Connectivity; Objective: "Ensure that plentiful, high-quality support facilities (e.g., bicycle parking) that complement the bicycle and micromobility network are installed at key community and transit destinations as well as commercial and residential developments.
	• Goal 2: Safety & Comfort; Objective: Provide safe, direct bicycle and micromobility connections across barriers, including: intersections, freeways, and the Caltrain tracks.
	• Goal 3: Community: Foster a bicycle- and micromobility-friendly community outlook
	  ○ Objectives:
	  ○ Implement programs, initiatives, and support infrastructure that promote understanding between road users and educate all road users (i.e., pedestrians, bicyclists, users of micromobility, and drivers) about the rules of the road and how to safely travel to their destinations.
	  ○ Support community initiatives that encourage bicycling and micromobility use and help make these viable transportation options and enjoyable parts of daily life.
	  ○ Create a safe and well-connected bicycle and mobility network that fosters a community where people choose to bike or use micromobility instead of driving by default.

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	• Goal 4: Equity: Create a comfortable bicycle and micromobility network that connects to all neighborhoods throughout San Mateo and serves people of all ages, abilities, and socioeconomic statuses.
	  ○ Objectives:
	  ○ Implement inclusive bicycling and micromobility programs, initiatives, and outreach.
	  ○ Identify opportunities to increase access to bicycling and micromobility use among traditionally underserved communities, such as through bike light or helmet giveaways or low-income discount programs for micromobility programs.
	• Recommended Program: "Develop and implement a citywide bicycle and micromobility wayfinding strategy."
	• "Support micromobility: Explore opportunities for shared mobility services in San Mateo to reduce the reliance on driving for short trips. Develop a plan to support micromobility users with dedicated space, such as protected bike lanes, and dedicated parking areas onstreet or in pedestrian amenity zones for e scooters and other micromobility devices."

City of Burlingame General Plan Update, 2019	• "M-3.10: Bicycle Sharing: Implement a bicycle sharing program to provide an alternative to driving, enhance bicycle accessibility, and offer a last-mile option to transit. [SO, PA, S]"
City of Half Moon Bay Bicycle and Pedestrian Master Plan, 2019	• Recommendation: Bike Share "Several Bay Area cities currently use the Ford Go Bike system, a docking system that uses Clipper cards to unlock a bike. Clipper cards are already used on SamTrans buses and other regional transit systems."
RWC Moves Transportation Plan, 2018	• Shared Micromobility Permit in progress/Under consideration **"Guiding Principles for Emerging Transportation Services:** • Safety: Emerging transportation services must be consistent with Redwood City's goal for eliminating traffic fatalities and severe injuries for all modes by 2030. • Multimodal: Emerging transportation services must prioritize, rather than compete with, walking, biking, carpooling, and transit services. • Equitable Access: Emerging transportation services must promote equitable access to goods and services for all people, including people with disabilities, low-income, and the young and elderly. • Efficiency: Emerging transportation services must consider person throughput and travel time reliability.

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	• Public Health: Emerging transportation services must promote public health and help to reduce environmental impacts, including greenhouse gas (GHG) emissions and energy consumption. • Accountability: Emerging transportation service providers must share relevant data so that the City and the public can effectively evaluate impacts on the transportation system. • Collaboration: Emerging transportation service providers must collaborate effectively with the City and the community to ensure new services are planned for and regulated based on the community values."
City of East Palo Alto General Plan, 2017	• "4.7 Bikeshare: Support the expansion of the regional bike share pilot program, helping to identify appropriate locations for system expansion within East Palo Alto." • "5.5 Transit stops: Support the installation of transit stop amenities, including shelters, benches, real-time information panels, lighting, bike parking, bike sharing stations, etc."
Belmont Comprehensive Pedestrian and Bicycle Plan, 2016	• "A bike sharing station is being explored in Downtown (Belmont Village) or near the Caltrain station...The City of Belmont can potentially coordinate with neighboring peninsula cities to offer a cohesive bike share program that is long term and can offset the operating costs through a joint partnership."
City of Menlo Park General Plan, 2016	• "Policy CIRC-5.6 Bicycle Amenities and Transit. Encourage transit providers to improve bicycle amenities to enhance convenient access to transit, including bike share programs, secure storage at transit stations and on-board storage where feasible." • Goal: "GOAL CIRC-3 Increase mobility options to reduce traffic congestion, greenhouse gas emissions, and commute travel time." ○ Objective: "Policy CIRC-3.3 Emerging Transportation Technology. Support efforts to fund emerging technological transportation advancements, including connected and autonomous vehicles, emergency vehicle pre-emption, sharing technology, electric vehicle technology, electric bikes and scooters, and innovative transit options." • "Program CIRC-2.I Bike Sharing Program. Work with local and regional organizations to develop and implement a citywide bike sharing program."
Atherton Bicycle and Pedestrian Master Plan, 2014	• A vision for a safer El Camino Real, including locations for crosswalk upgrades and the potential for a "Grand Boulevard Greenway" trail that can be implemented in phases over time

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	• Priorities for implementing the regional bike plan, including enhancements to existing bike lanes and development of a new north/south "bike boulevard" that provides a low stress, shared bikeway into south to Menlo Park/Palo Alto and north to Redwood City" (from website)
City of Daly City 2030 General Plan, 2013	• "Task CE-13.2: Continue to the participate in the effort of the Grand Boulevard Initiative for Mission Street and, when considering the design of Mission Street pedestrian improvements, make every reasonable effort to implement the street design guidelines identified by the Grand Boulevard Multimodal Transportation Corridor Plan."
City of Half Moon Bay General Plan, 2013	• "Policy 4-12. Consult with SamTrans to provide end-of-trip facilities at high- ridership transit locations within the city. "