

To: Kim Wever, C/CAG  
From: Alta Planning + Design and Foursquare ITP  
Date: July 21, 2022  
Re: **San Mateo Micromobility – Draft Implementation Recommendations**

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## Executive Summary of Recommendations

The San Mateo County Shared Micromobility Feasibility Study provides recommendations for development of a shared micromobility program suitable to the context of San Mateo County communities. The recommendations are based on the results of a feasibility analysis, the vision, goals, and metrics established for the project, and a review of relevant best practices. The following is an executive summary of recommendations for shared micromobility:

- Governance and Management
- System Type
- Cost and Funding
- Plan Development
- Other System Specifications

### Governance and Management Recommendations

- Establish a multi-jurisdictional program with a single program manager responsible for procurement and contract management. This is distinct from other options considered, notably:
  - A model where each jurisdiction manages their own procurement and contract but harmonizes operating requirements to ensure inter-jurisdictional trips are possible. This option was deemed less appealing due to the administrative burden placed on participating municipalities.
  - A highly centralized model for a Countywide program, which would have offered program efficiencies and control, but was deemed less feasible due to variability across jurisdictions and internal resources/staffing capacity of potential leading agencies.
- Contract out to one or more private, third-party operators.
- Management and oversight responsibilities would be the responsibility of a single organization as the program manager, with support from other organizations in specialized roles
- Individual jurisdictions could opt into the program with the flexibility to dictate certain operating requirements, such as no-ride areas, speed limited areas, and restricted parking areas. Jurisdictions will retain the ability to fine the operator or impound vehicles in instances of violations but ideally any day-to-day operational issues will be handled by the vendor with oversight from the program manager.
- Establish a governance committee composed of participating jurisdictions, the program manager and any other key stakeholders as needed. This body would be a venue to discuss program issues, share lessons learned, and resolve problems.
- Establish a process for escalating complaints and issues, creating a clear chain of command for any operational issues and complaints, including a process for jurisdictions to quickly escalate issues to the program manager.

### System Type Recommendations

- E-bikes are the primary vehicle type, with the option to include manual bikes and/or e-scooters as determined by individual jurisdictions
- Hybrid or dockless system types are preferred given their ease of implementation and flexibility of operations when considering a pilot program. However, the results of the feasibility analysis, best

practices memo, and goals of the program indicate that multiple system types could be successful in San Mateo County. The peer system comparison, for example, (see the Best Practices Memo for more information) showed a hybrid, docked, and/or dockless system can be successful for a regional program. The system type, therefore, will depend on level of funding available and interest from operators. See Appendix A for more information about the pros and cons of different system types.

## Costs and Funding Recommendations

- Procure through a competitive RFP a private operator responsible for self-financing and operating the system.
- Public costs would be limited to the cost of procurement, oversight, and contract management and could be partially recouped through a permit fee.
- Opportunity to negotiate a program subsidy in return for operator guarantees such as the equity pricing program, caps on user fees, or certain geographic operating requirements.

## Plan Development Recommendations

- **Phase 1 Pilot Program**
  - Will cover one of 5 Potential Pilot Program Service Areas
    - Where the service area covers multiple jurisdictions, the service area will be contiguous
  - 500 vehicles
  - 50 stations/hubs (if a docked or hybrid system is chosen)
    - 1.6-2.0 designated parking spots per bike
    - 16 hubs per square mile in high density locations
- **System Expansion**
  - The system should expand beyond the initial Phase 1 Pilot Program service area based upon factors such as ridership, funding, infrastructure, new indicators of demand, and political will/agency capacity.
  - Following the pilot program, with the multijurisdictional contract in place, the program manager should work with the operator(s) to develop satellite programs at coastal communities, with consideration for alternate service models, such as reduced user fees and/or longer-term lending.

## Other System Recommendations

### Equity

- Equity Pricing Program that includes:
  - Subsidized Memberships and Income Based Discounts
  - Cash Payment Options
  - Alternative Payment Structures
  - Reduce Liability and Eliminate Hidden Fees
  - Transit Integration

### Rebalancing

- Shared micromobility rebalancing should be done by the operator on a daily basis
  - After the Pilot Phase, the system operator should reassess if rebalancing efforts need to be focused on certain locations, if there is a need to add more racks/reduce racks based on usage, if pricing incentives should be updated to support rebalancing, or if additional staff time is needed to rebalance vehicles.

### Maintenance

- Maintenance protocols should be included within the service level agreement with the vendor.

## Liability and Insurance

- Owners and operators can limit liability related to shared micromobility systems in various ways, including:
  - Purchasing insurance
  - Requiring users of the program to sign waivers releasing the program from liability for injuries
  - Keeping the shared micromobility vehicles well-maintained
  - Educating users about use of the shared micromobility vehicle and providing safety training
- Vendors should be contractually required to purchase and maintain insurance coverage pertinent to the operations and provision of shared micromobility service.

## Impact of No Action

While San Mateo County could elect to move forward with a structure other than the proposed, there are several negative governance outcomes of continuing with the current micromobility status quo:

- The inability to manage or address inter-jurisdictional micromobility issues.
- All procurement, management, and oversight responsibilities falling to individual jurisdictions, resulting in an increased and redundant workload burden on jurisdiction staff.
- Lack of coordination in planning, procurement, and negotiations between jurisdictions and vendors.
- Creation of a fragmented micromobility market where users may be restricted to making trips within a specific town or city. Users may have to switch between operators based on where they are travelling.
- Less predictability regarding user pricing and riding rules.
- No established regulatory or procurement standards from which jurisdictions can build their micromobility program . Individual jurisdictions may struggle to attract the same number and quality of vendors as a multi-jurisdictional program could.

## Draft Implementation Recommendations

The following report provides a recommended approach to developing and implementing a regional shared micromobility program in San Mateo County. The proposed approach is based on technical findings from the study, as well as stakeholder input gained through meetings and presentations and one-on-one interviews with potential partners. C/CAG also conducted a public survey to gauge community interest and preferences related to shared micromobility. The survey was available from May 12, 2022 to June 17, 2022 and was promoted through C/CAG Board Members, Committee Members, Ad Hoc Advisory Group Members, City Council Members, the C/CAG website ([link](#)), and community partners (including the nonprofit Thrive, which publishes a newsletter).

## Governance and Management

Developing an effective governance/management model is essential to implementing a micromobility program in San Mateo County. The governance structure plays a large role in shaping a micromobility program, from determining how responsibilities are distributed among partners, to establishing a process for decision-making and oversight.

There are a number of different ways that micromobility programs are organized, with several options for the governance of a program to be tailored to local circumstances. To help have a clearer sense of the region's governance needs and capacities, the study team conducted one-on-one interviews with a wide array of regional partners including transit operators, cities, non-profit organizations, regional agencies, and San Mateo County. Input from those meetings, along with the body of existing work conducted in this study, allowed the team to refine and better define governance options for San Mateo County.

Based on discussions with stakeholder across the region as well as research on best practices in regional micromobility programs, this study envisions a multi-jurisdictional micromobility program in San Mateo County where operations would be contracted out to one or more private, third-party operators. Management and oversight responsibilities would be of a program manager, and individual jurisdictions could opt into the program and retain certain responsibilities and control over the program within their local jurisdictions. This study team recommended this model based on the factors discussed below.

## Key Considerations Shaping Governance Approach

In our conversations with regional stakeholders and market research, three key issues were identified that ultimately shaped the study team's recommended governance approach. These three issues highlight the benefit of collective management of micromobility while also accommodating the needs of individual jurisdictions:

### Reduce Barriers for Jurisdictions Interested in Implementing Micromobility

As highlighted in the feedback gathered during the regional outreach process, it is important to eliminate or reduce the barriers jurisdictions face in implementing a micromobility program through its governance structure. In the absence of a county-wide approach to micromobility, responsibility for implementing micromobility falls solely on local governments, requiring them to wholly rely on their own resources, expertise, and staff capacity. The status-quo poses a barrier for county-wide program implementation for three main reasons:

- **Duplication of Effort:** Jurisdictions would be duplicating effort by developing their own micromobility regulations and procurement. A single entity could more efficiently manage a micromobility program that covers several jurisdictions.
- **Expertise Gap:** Most jurisdictions in San Mateo County have never managed or regulated a micromobility system, and each relatively small jurisdiction's micromobility program would find it challenging to hire and dedicate a staff person with the expertise needed to manage a program.

- **Economies of Scale:** Operators may be unwilling to operate a stand-alone program in San Mateo County's smaller communities. A single procurement could achieve a more lucrative deal with operators do to the greater size and scale.

A collective governance structure can help address these barriers to implementation by creating a program that communities can opt into. Shared management of a program would reduce the individual regulatory and oversight burden of each participating jurisdiction, and a multi-jurisdictional system would provide a scale that could make the program more appealing to micromobility operators and allow for a stronger negotiating position with those vendors than would be possible individually.

### **Balance Local Control with Regional Coordination**

The study team also gathered that local jurisdictions feel that there is a need to strike a balance between collective action on micromobility and preserving local control. Some aspects of local governments are going to be at the front lines of a micromobility system regardless of the governance model. For example, the public will likely naturally reach out to local government departments and elected officials to resolve issues. Local governments have a responsibility to the public and will need to have the ability to be responsive to complaints. There also is a recognition in a place as varied as San Mateo County that one-size does not fit all. Communities might have specific concerns about where people ride or usage restrictions that need have the ability to be context-sensitive.

All these factors highlight a need for balancing issues of local control with the benefits of regional coordination. Micromobility providers are not regulated by the State of California. This puts issues like the number of vehicles, requirements for locking devices, and other elements of micromobility services in the control of local jurisdictions. Additionally, local jurisdictions control regulations such as parking regulation creation and enforcement, which are integral to micromobility operations. While micromobility would benefit from harmonized regulations and operating procedures across the cities and unincorporated areas of San Mateo County, such coordination will need to be voluntary and optional. The governance model needs to consider how to provide communities with the ability to respond to local complaints and the ability to customize regulations and operating requirements between jurisdictions, and local powers of enforcement over micromobility users and the operator. Additionally, the county-wide program would benefit from providing a consensus-developed template of local regulations that each local jurisdiction can adopt. More similar local regulations will allow a micromobility operator to incur less cost in meeting differing regulations and will allow users an easier to understand experience, which should support higher ridership.

### **Provide Customers a Seamless Journey**

In the design of a micromobility program, best practices for a successful system include ensuring the system meets the needs of its users. A seamless customer experience that does not require multiple accounts, forms of payment, or different vehicles to complete a single trip can lead to higher ridership and wider system adoption. Trips often do not neatly fit within jurisdictional boundaries and users would benefit from a standardized riding experience across San Mateo County. This means the ability to use the same vehicle or micromobility device across jurisdiction lines and a consistent user experience would serve users and increase the effectiveness of the program.

Governance plays a part in facilitating a seamless journey by ensuring the program functions predictably across jurisdiction boundaries. It is in the interest of all jurisdictions that riders in San Mateo County have a positive experience on micromobility; a negative experience on one micromobility system regardless of its jurisdiction will lower the likelihood of future micromobility trips that individual might take on any micromobility system.

### **Program Manager / Lead**

Creating a multi-jurisdictional micromobility program in San Mateo County will require identifying a program lead and champion. There are two general models for managing a multi-jurisdictional system:

- **Local management with inter-jurisdictional oversight and coordination:** Participating jurisdictions opt into a regional program and have some governance decision-making structure. In this model, local jurisdictions would manage most day-to-day responsibilities for operating the system, while major programmatic and regulatory decisions fall on the collective group. A good example of a decentralized system is Capital Bikeshare in the Washington, DC region. Each jurisdiction has its own contract with Motivate, the program operator, and a committee composed of representatives from each participating jurisdiction make collective decisions that could impact the system such as adopting new user pricing, acquisition of a title sponsor, or coordinating on bicycle replacement investments. An organization with countywide responsibilities like C/CAG could help convene jurisdictions and help run coordination activities; alternatively the program could rely solely on the participating jurisdictions to coordinate among one another.
- **Centralized management on behalf of jurisdictions:** Centralized management of a system is where there is a designated entity that manages the program. Centralized management does not mean that individual jurisdictions do not have a say in program management, just that one entity takes on a leadership role. For example, in the Bay Area, the multi-jurisdiction Bay Wheels program is managed by Metropolitan Transportation Commission (MTC) with input from individual jurisdictions. Jurisdictions also retain autonomy to direct system implementation elements like station placement. As part of this model, participating jurisdictions would have a say in how collective decisions are made and the manager would be responsible for convening an oversight group.

While either approach can work in a variety of contexts, the study team recommends a centrally managed program to best meet the needs of San Mateo County.

### Benefit of a Single Program Manager

The study team recommends that San Mateo County pursue a system with a single program manager to contract and oversee the program. This recommendation is driven by several factors:

- **Simplicity:** A single entity in charge of overseeing and managing the contract is a simpler approach than decentralized management of a program. Third party operators would have a primary point of contact and single point of responsibility.
- **Number and Size of Participating Jurisdictions:** San Mateo County is comprised of over 20 jurisdictions ranging in size from just over 1,500 people in the Town of Colma to over 100,000 people in Daly City. A centralized management approach would reduce the burden placed on individual jurisdictions. While larger communities may have the staff capacity and expertise to play an active role in program management, smaller communities could effectively be excluded from a decentralized program in San Mateo County due to their size.
- **Local Champion:** Among the jurisdictions in San Mateo County, there is no clear local program lead ready to act as a county-wide champion. A single multi-jurisdictional program manager could act as the champion, helping coordinate among the jurisdictions and reach joint decisions.
- **Efficiencies of Scale with Centralized Management:** A multi-jurisdictional system under centralized management would enjoy greater efficiencies of scale compared to a decentralized program. Instead of dividing duplicative responsibilities across people in several jurisdictions, a single program manager could oversee the program. Centralized management could facilitate knowledge sharing and administrative efficiencies for the public members of the system as well as provide a more economically attractive market for a private provider.
- **Greater Negotiating Power:** A collective procurement run by a single program manager has greater negotiating leverage than a system composed of several independently negotiated contracts between jurisdictions and operators. A larger system is more appealing to operators and would likely garner a greater level of interest than a procurement at the local level. As such, the public partners and program manager would likely be able to include program requirements such as equity-based membership subsidy and station placement, which may not be economically feasible in small, independent systems.
- **Fundraising Benefits:** A single program manager would likely be more effective at fundraising as compared to individual jurisdictions. The program manager could oversee multi-jurisdictional grant

applications, which could be more competitive than individual jurisdictions competing with one another for micromobility funding. A single program manager could also take a lead on private fundraising, including sponsorships and on-system advertising, which would directly benefit from economies of scale.

### Roles and Responsibilities

The roles and responsibilities of the program manager could vary based on the desires of participating jurisdictions and the collective needs of the system. Below is a matrix of primary and secondary responsibilities, with secondary responsibilities representing optional functions or functions that could be delegated to other organizations.

Table 1. Matrix of Program Manager Responsibilities

Primary Responsibilities	Secondary Responsibilities
<ul style="list-style-type: none"> <li>• <b>Pre-Procurement:</b> Form regional micromobility collective and develop mutually agreed upon operating guidelines/principles and build out a regulatory framework for micromobility.</li> <li>• <b>Procurement:</b> Develop and execute the procurement of one or more program operators.</li> <li>• <b>Coordination:</b> Establish a forum for participating jurisdictions and help participants come to collective decisions.</li> <li>• <b>Contract Management:</b> Manage operator contracts and serve as a centralized point-of-contact for the vendor.</li> <li>• <b>Manage Issues:</b> Act as an interface between the operator and jurisdictions if any operating issues arise. Work with the operator to resolve issues.</li> <li>• <b>Public Communication:</b> Limited public engagement related to the core function of program such as attending public meetings at the behest of jurisdictions, drafting press releases, and managing press inquiries.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Program Monitoring and Data Management:</b> Act as a central repository for micromobility data and reply to data requests from stakeholders. Support reporting and program monitoring. Procure monitoring software for system.</li> <li>• <b>Marketing and Community Engagement:</b> Lead marketing and engagement or supplement work being done by program operator. Range of functions from equity-focused community engagement to integration of micromobility into existing transportation demand management (TDM) activities.</li> <li>• <b>System Planning:</b> Support siting of micromobility hubs (if applicable). Work with jurisdictions on planning and implementing supporting infrastructure.</li> <li>• <b>Fundraising and Grant Management:</b> Prepare grant applications and manage received grants. Oversee acquisition of sponsors and advertisers.</li> </ul>

Based on the study team’s experience working with other communities, one full-time equivalent (FTE) of staff resources is needed to manage all the listed primary responsibilities. These responsibilities could be held by one individual or distributed across multiple staff members. The resources needed for the secondary responsibilities will vary. Program monitoring and data management could be handled by the same staff FTE as the primary responsibilities, with specialized staff or contract support. Similarly, that FTE could manage some number of grant applications and grant awards with additional support from other staff or contracts.



If the program elected to do additional marketing in-house (e.g., creating a micromobility ambassador program, developing a TDM micromobility program), additional staff resources could be necessary. While the system as envisioned would not need extensive infrastructure planning, if the program manager was responsible for functions like station siting and the planning of support infrastructure (e.g., bike lanes, wayfinding), that would require support beyond the one FTE.

## **Types of Organizations**

Several organizations could serve the role of program manager, including County-wide agencies, independent authorities, or non-profits with suitable mission alignment with micromobility. The lead organization should ideally have the following characteristics and know-how:

- Countywide scope with strong existing relationships with local jurisdictions.
- Ability to navigate local sensitivities and politics.
- Consensus-building and facilitating inter-jurisdictional communication.
- Procurement expertise and capacity.
- Project and contract management expertise, including the capability to oversee a contract, manage additional subcontractors, and fulfill contract reporting requirements.
- Expertise in planning and data management, including the ability to work with micromobility datasets, or the ability to contract for that expertise.
- Ability to effectively apply for and manage grants.
- Ability to conduct field inspections and travel between participating jurisdictions easily.

San Mateo County has several possible candidates to take a leadership role such as C/CAG, SamTrans, and San Mateo County government. Commute.org is another organization that could play a supportive role in program management but may lack the capacity for procurement and contract management. Note that these organizations are identified solely based on a technical capacity and the study team has not received any commitment from an organization to lead program implementation. Any of these organizations may have valid reasons for not taking on a management role, from staff capacity constraints to a lack of suitable alignment with organizational mission and priorities.

Depending on the characteristics the selected lead organization as well as that organization's capacity, a second regional entity could provide a supporting role in program management. For example one agency could manage the data and monitoring of the program, while another could be responsible for procurement, contract management, grant applications and management, and inter-jurisdictional communication and consensus-building.

## **Procurement**

One of the key functions of the program manager is to oversee and execute the procurement of a vendor to provide micromobility services. The program manager would have to work with jurisdictions to develop a standardized procurement for the County that establishes consistent operating requirements and standards. In instances where local micromobility regulations differ substantially, participating jurisdictions would need to work together to develop harmonized regulations. While not all operating requirements need to be standardized, an interjurisdictional system should ideally standardize the following:

- Types of vehicles permitted under the contract
- Operating hours
- Whether vehicle parking will be restricted to pre-defined hubs
- Vehicle maintenance and inspection requirements
- Program pricing and fare media
- Insurance and indemnification requirements
- Operator fees and fines for violating contract terms
- Vehicle rebalancing and distribution requirements



Task 6 of this study will go into greater detail regarding program procurement and specific operating requirements, but the above list captures the types of requirements that ideally are coordinated across the system.

### **Number of Operators**

Even the best written contract is no substitute from having a productive and effective relationship with the system operator. The success of a micromobility program depends largely on having a responsive operator who is willing to work with jurisdictions and the program manager as issues arise. As detailed elsewhere in this report, the study team recommends initiating the program as a multi-jurisdictional pilot. San Mateo County would be well served by procuring a single operator for this initial pilot instead of going with a multi-operator procurement for several reasons. A single operator means a single point of contact if there are system complaints and issues, streamlining the administrative burden. Working with a single operator may result in higher quality operations, especially in the pilot phase as kinks are being worked out. Micromobility vendors could struggle in a market split across multiple vendors which could result in decreasing the number of vehicles or reducing system resourcing, which would affect responsiveness, maintenance, and service quality. A single operator system is also appealing to a vendor, whose profit margin could be reduced if there is competition across multiple operators.

Some jurisdictions in the County currently have or will soon have their own micromobility operators. These existing operators do not have to be an impediment to joining a multi-jurisdictional system. It is common to host several micromobility operators in one jurisdiction that are subject to different management and oversight structures. For example, in places like San Francisco the regional bike share program (Bay Wheels) co-exists with a variety of private dockless scooters systems and in Sacramento, the regional operator holding the bike share contract operates alongside individually permitted micromobility operators.

### **Contract Length**

Task 6 can discuss in more detail the pros and cons of different length contracts. For a pilot program like proposed here, the county would be well served by a shorter contract (one or two years) with one-year options for renewal. While operators often prefer longer contracts due to the stability they afford, a shorter contract gives San Mateo County more flexibility to pivot in approach if the pilot does not meet expectations.

### **Contract Customization**

While one of the goals of a countywide micromobility procurement is to coordinate operating requirements among jurisdictions, one-size does not fit all, and some degree of contract customization will be needed. The procurement process could allow jurisdictions to negotiate contract riders that set out additional terms and conditions so long as they do not conflict with the ability to operate an interjurisdictional system. The following types of terms could be customized to the jurisdiction:

- Delineate no-go areas where vehicles cannot be used such as specific streets, parks, or trails.
- Delineate “slow-zone” areas where the user’s speed is restricted below the systemwide speed limit.
- Dictate specific enforcement policies and procedures. For example, one jurisdiction may delegate impounding of improperly parked micromobility vehicles to parking enforcement staff while another may elect to house those responsibilities with the police.
- While ideally standardized across jurisdictions, individual jurisdictions could have some latitude to set their own fines and penalties, if needed.
- Jurisdictions may want to set their own vehicle rebalancing and distribution requirements to achieving geographic and social equity objectives.

## Decision-Making and Coordination

### Governance Committee

The program should have a governance committee composed of participating jurisdictions, the program manager and any other key stakeholders as needed. This body would be a venue to discuss program issues, share lessons learned, and resolve problems. In developing the pilot program, the program manager and participating jurisdictions will need to establish the basic framework for the governing body. For example, how is decision making power delegated among participants? Do decisions require consensus among all members or simply a majority vote? Do all participants have an equal say or are votes reflective of jurisdiction size or share of total micromobility fleet?

### Process for Escalating Complaints and Issues

Micromobility programs will inevitably generate complaints or issues from the public, such as:

- Improper parking of vehicles / blocking public right-of-way.
- Improper or unsafe usage of vehicles by users. While certain issues may require engaging the user, systematic solutions like revising no-ride areas, speed restrictions, and parking locations may be able to address these problems.
- Vehicle vandalism

The program manager and participating jurisdictions should establish a clear process for communicating and resolving complaints. Ideally the process of resolving operating issues is streamlined and efficient while reducing the burden placed on individual jurisdictions. In a micromobility program, complaints and issues may be directed to a variety of places: directly to the operator through the call center or app; to local staff; directly to the program manager; through a 3-1-1 system or similar public resource for non-emergency calls; the police; or local elected officials. To help streamline communication, all issues should be forwarded to a single entity.

The study team recommends that all issues and complaints be directed to the program operator. The program manager should be provided a copy of complaints on a regular basis (ideally daily, with a weekly and monthly aggregate metric made available as well). The program manager should have access to a database to see how any complaints were resolved. If complaints are not resolved within a pre-determined timeframe (e.g., 24-hours), the complaint should be sent directly the program manager for follow-up and resolution with the operator. If necessary, representatives from individual jurisdictions can be brought in to discuss problems.

The governance committee is another venue for any major issues to be discussed and resolved. Jurisdictions should have access to complaints being submitted to the system and a transparent understanding of the type, frequency, and resolution of complaints.

### Local Responsibilities

While the goal of the proposed governance structure is to minimize the day-to-day administrative burden of the program on local jurisdictions, communities will likely want to retain some responsibilities and control over the system.

Jurisdictions help serve as the eyes and ears of the program manager. As mentioned in the previous section, jurisdiction officials will likely be the ones to receive any community complaints. Jurisdiction staff should have access to the same complaint and resolution information as the program manager to allow them to independently follow-up on any complaints.

Jurisdictions will likely want to retain some enforcement responsibilities, including the power to impound vehicles or charge fines and penalties to operators for breach of contract terms. Jurisdictions may elect to do their own system field inspections to supplant any field inspections done by the program manager.

## Costs and Funding

This section outlines the costs and potential funding sources for micromobility in San Mateo County. The public cost of a program is heavily dependent on a program's business model. For example, a community can implement a micromobility program for little cost if a private operator is willing to provide a system under a permit or RFP scheme. The only public costs of such a program are any resources needed for management and oversight. On the other extreme scale, some communities elect to fully own their micromobility program and finance capital equipment and operating costs themselves. These publicly owned programs may rely on a private vendor to run the program but will reimburse the vendor for the cost of operations. In both scenarios, the total cost of operating the program may be very similar but the net cost to the public will differ substantially. To maintain clarity, the study team has focused on the net cost to the public. This memo outlines four cost scenarios to illustrate the range of program costs:

- Scenario 1: No action
- Scenario 2: Fully privately owned system with no public subsidy
- Scenario 3: Fully privately owned system with public subsidy
- Scenario 4: Publicly owned program

### Cost Drivers for Micromobility

There are a range of factors that influence the cost of establishing and operating a micromobility program. **Table 2.** Costs Associated with Micromobility Operations and Management for Micromobility Vendors and Program Managers

Fixed Costs	Per Vehicle Costs
<ul style="list-style-type: none"><li>• <b>Administrative Salaries:</b> salary for the staff responsible for contract and program management.</li><li>• <b>Technology:</b> cost to license software used to manage and monitor a micromobility program.</li><li>• <b>Marketing:</b> expenses for activities above and beyond basic marketing and community engagement, such as developing a Neighborhood Ambassador Program or integrating micromobility into a TDM Program.</li></ul>	<ul style="list-style-type: none"><li>• <b>Facilities:</b> cost of office, garage, and storage space to house equipment and staff.</li><li>• <b>Non-revenue vehicles:</b> vehicles used by jurisdictional staff for program enforcement (spot checking, etc.). In addition, vehicles used by operations staff for rebalancing and in-field maintenance purposes.</li><li>• <b>Tools and equipment:</b> cost of tools and equipment used to maintain vehicles.</li><li>• <b>Operations Salaries:</b> salary for the staff responsible for operations, maintenance, and customer service.</li><li>• <b>Insurance:</b> Insurance policy for program to cover any liability.</li><li>• <b>Connectivity and IT:</b> Cost of mobile data connection and IT support.</li></ul>

presents an overview of the types of costs associated with micromobility operations and management, broken down into two broad categories: fixed costs and per vehicle costs. Note that not all these costs are necessarily borne by public entities depending on the operating scenario being considered. These cost drivers are presented here to better illustrate the types of costs related to program operations.

Table 2. Costs Associated with Micromobility Operations and Management for Micromobility Vendors and Program Managers

Fixed Costs	Per Vehicle Costs
<ul style="list-style-type: none"> <li>• <b>Administrative Salaries:</b> salary for the staff responsible for contract and program management.</li> <li>• <b>Technology:</b> cost to license software used to manage and monitor a micromobility program.</li> <li>• <b>Marketing:</b> expenses for activities above and beyond basic marketing and community engagement, such as developing a Neighborhood Ambassador Program or integrating micromobility into a TDM Program.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Facilities:</b> cost of office, garage, and storage space to house equipment and staff.</li> <li>• <b>Non-revenue vehicles:</b> vehicles used by jurisdictional staff for program enforcement (spot checking, etc.). In addition, vehicles used by operations staff for rebalancing and in-field maintenance purposes.</li> <li>• <b>Tools and equipment:</b> cost of tools and equipment used to maintain vehicles.</li> <li>• <b>Operations Salaries:</b> salary for the staff responsible for operations, maintenance, and customer service.</li> <li>• <b>Insurance:</b> Insurance policy for program to cover any liability.</li> <li>• <b>Connectivity and IT:</b> Cost of mobile data connection and IT support.</li> </ul>

### Key Factors Impacting Program Costs

The level of investment for both the public sector and private operators is influenced most by three factors:

- Breakdown of responsibilities between the public and private sector
- Geographic distribution and scale of the system
- Regulations impacting operator profitability

### Responsibilities of the Public Sector

In San Mateo County, the cost of managing a regional program will depend on what types of responsibilities the program manager or other public partners will take on versus the operator. Many of the costs listed in **Table 2.** Costs Associated with Micromobility Operations and Management for Micromobility Vendors and Program Managers

## Fixed Costs

- **Administrative Salaries:** salary for the staff responsible for contract and program management.
- **Technology:** cost to license software used to manage and monitor a micromobility program.
- **Marketing:** expenses for activities above and beyond basic marketing and community engagement, such as developing a Neighborhood Ambassador Program or integrating micromobility into a TDM Program.

## Per Vehicle Costs

- **Facilities:** cost of office, garage, and storage space to house equipment and staff.
- **Non-revenue vehicles:** vehicles used by jurisdictional staff for program enforcement (spot checking, etc.). In addition, vehicles used by operations staff for rebalancing and in-field maintenance purposes.
- **Tools and equipment:** cost of tools and equipment used to maintain vehicles.
- **Operations Salaries:** salary for the staff responsible for operations, maintenance, and customer service.
- **Insurance:** Insurance policy for program to cover any liability.
- **Connectivity and IT:** Cost of mobile data connection and IT support.

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(notably the variable costs like facilities and operating salaries) will be on the operator, but other could be activities borne by the program manager in certain scenarios. As discussed earlier, the primary responsibilities and some of the secondary responsibilities of a program manager could be covered by approximately one FTE but any work the public sector takes on above and beyond that could require additional staff time.

The following are activities that would increase the public cost of operating a program:

- **Publicly-Owned System:** While a privately-owned and operated system licensed through an RFP process may be the operating model for the County, there are many systems in the United States that are publicly-owned, with the vendor reimbursed for the cost of operations. Under this publicly-owned model, a public-entity would purchase equipment, pay the vendor a fee to operate the program, and receive all revenue generated by the program. Public ownership introduces more costs as compared to a private model but includes more direct control of the system. Many of the benefits of a publicly-owned model could be included into a privately-owned contract if the revenue needs of the operator are met by ridership, fare structure, and subsidy.
- **Marketing and Outreach Activities:** Some communities elect to do their own marketing and community engagement above and beyond what the vendor provides. Activities like community ambassadors, learn-to-ride programs, and TDM engagement could increase upfront program operating costs but would likely have a network effect on increasing ridership, and revenue. In many cases, these costs are indirect as the actual marketing and outreach efforts are absorbed by existing organizations as part of their transportation and TDM work program.
- **Site Planning Requirements:** If the program includes fixed infrastructure like stations, planning for these locations would incur implementation costs. For example, the City of San Francisco went through a lengthy planning and community engagement around the siting of bikeshare stations when it first introduced bikeshare.

## Geographic Distribution and Scale

For both the private vendor and the public sector, the geographic scale and distribution of a micromobility system have impacts on both operating costs and revenues. In general, small, dispersed micromobility systems are more difficult and costly to manage, compared to dense, concentrated systems. The more spread-out a system is, the more resources it takes for basic activities, such as rebalancing and inspections. Systems should be large enough to reach economies of scale, which allow the vendor to operate at better efficiency.

From a customer perspective, a series of small, dispersed micromobility system is more difficult to use. Most evidence suggests that customers use micromobility for shorter trips. The more spread out and difficult to use a system is, the less convenient it is for the customer to choose that mode, reducing ridership and revenue.

## Operator Profitability

As private companies, micromobility vendors are responsible for their bottom line and generally want to enter into markets where there is revenue potential. This goal can run counter to the priorities of the public sector. Micromobility operating requirements, such as regulations around distribution of vehicles and the provision of equity fare structures and station citing can help ensure that a micromobility program aligns with the goals and priorities of the public sector partners. These policies come in a few different forms. For example, a private vendor may be required to rebalance vehicles daily, with a minimum and/or maximum number of vehicles allowed within certain areas of a jurisdiction, or a jurisdiction could require that a certain percentage of an operator's fleet must be distributed within designated high priority areas (e.g., central business districts, equity areas).

However, these requirements can also negatively impact a private operator's revenues. Requiring an equitable distribution of vehicles, for example, could mean that vendors must spend extra resources to redistribute vehicles in lower ridership areas rather than concentrating all vehicles in high ridership areas, where the most revenue can be generated. Similarly, requiring an equity pass program in the fare structure to make micromobility affordable for all residents of San Mateo County, could impact overall revenue, making the County a less appealing market for vendors. A balanced approach to equity programs and independent financial analysis during the negotiating phase can help public partners reach a financially sustainable agreement with a private operator that best serves the public.

Operating requirements are a powerful tool that the public sector should use to ensure any micromobility program aligns with stated goals for the public partners. However, the potential impacts of these requirements should not be overlooked, and communities like San Mateo County may need to balance requirements with incentives and financial support. A robust equity pass program may be more feasible from the vendor's perspective if a jurisdiction does not impose other significant fees on the program that cut into revenues. As discussed in the following section on program costs, an equity pass could be funded by the program manager through subsidies paid directly to the vendor. Redistribution and rebalancing requirements can be more efficient if a micromobility system is dense and well dispersed.

## Costs by Micromobility Scenario

The public costs of creating a micromobility program will vary based on the program's business model. To help illustrate this variability, the study team developed costs for four scenarios: No Action, Regional Program Oversight and Contract Management, Subsidized System, and Fully Publicly Owned System. Each scenario builds on the one(s) before it such that the costs of the Fully Publicly Owned System include the costs of a subsidized system, and the cost of a regional system with program oversight and contract management. **While the four scenarios presented provide context to micromobility costs and revenues, the study team recommends San Mateo County implement one of two scenarios: Regional Program Oversight and Contract Management or a Subsidized System. These two scenarios are consistent with the recommendations laid out in the Governance and Management section above.** For every scenario, the costs are estimated assuming the system will have 500 bicycles and limited infrastructure for parking locations/hubs. The cost of no action is largely theoretical and highlights the opportunity cost of not implementing a program. A summary of the scenarios is shown in [Table 3](#).

Table 3. Overview of program costs by scenario

Scenario	Key Facts	Approximate Annual Operating Costs
<b>Scenario 1: No Action</b>	<ul style="list-style-type: none"> <li>No associated capital costs</li> <li>No associated operating costs</li> <li>Leads to duplication of effort among jurisdiction, small impact on reducing single-occupant vehicle (SOV) trips</li> </ul>	<ul style="list-style-type: none"> <li>Unknown (would include redundant staff efforts in local jurisdictions)</li> </ul>
<b>Scenario 2: Regional Program Oversight and Contract Management</b>	<ul style="list-style-type: none"> <li>Minimal capital costs (about \$2,500 per parking location/docking station; \$125,000 for 50 mobility hubs)</li> <li>One FTE of resources to manage contract and program oversight (\$150,000)</li> <li>Potential for modest revenues through permit fees (\$20 to \$100 per vehicle per year; \$20,000 to \$50,000, or \$0.10 per trip) to offset costs</li> </ul>	<ul style="list-style-type: none"> <li>\$100,000 - \$150,000 per year</li> </ul>
<b>Scenario 3: Subsidized System</b>	<ul style="list-style-type: none"> <li>Minimal capital costs (about \$2,500 per parking location/docking station)</li> <li>One FTE of resources to manage contract and program oversight</li> <li>Subsidies of \$100,000 annually to the vendor to cover costs associated with operations and maintenance of the program<sup>1</sup></li> <li>Potential for modest revenues through permit fees (\$20 to \$100 per vehicle per year; \$20,000 to \$50,000, or \$0.10 per trip) to offset costs</li> </ul>	<ul style="list-style-type: none"> <li>\$200,000 - \$250,000 per year</li> </ul>
<b>Scenario 4: Fully Publicly Owned System</b>	<ul style="list-style-type: none"> <li>Major capital investment (\$2,500 per vehicle and \$2,500 per parking location/docking station, 50 locations)</li> <li>One FTE of resources to manage contract and program oversight plus operating fee with vendor (about \$200 per vehicle per month)</li> <li>25 percent cost recovery from user fees.</li> <li>Potential for additional revenue from advertising, sponsorships, and local operating support not counted.</li> <li>Replacement of 20% of the fleet per year due to state-of-good repair (e.g., end of life replacement, theft, vandalism).</li> </ul>	<ul style="list-style-type: none"> <li>\$650,000 annually in operating (\$1,200,000 operating costs - \$550,000 revenue from user fees)<sup>2</sup></li> <li>\$250,000 in annual state-of-good repair costs</li> <li>\$1.6 million in start-up capital costs</li> </ul>

<sup>1</sup>Based on an assumed trip per vehicle per day of 1.0 and the operating subsidy paid by the program managing public entity to cover operating shortfalls and the added cost of contract requirements.

<sup>2</sup> Operating costs and revenues are estimated based on revenues for peer systems. This figure assumes one trip per vehicle per day for a system of 500 vehicles with average user revenues of \$3.00. The operating cost figure assumes \$200 per vehicle per month.



## No Action

The No Action scenario assumes that no regional micromobility program will be implemented in San Mateo County. Jurisdictions will continue to implement micromobility on their own in a piecemeal fashion, leading to the creation of a fragmented micromobility market, as discussed in the **Impact of No Action** section.

While costs for maintaining the status quo are difficult to capture, this scenario could result in environmental costs. No coordinated micromobility program means fewer travelers will switch from single occupancy vehicles to an alternative mode, including transit accessed by micromobility, resulting in a more limited decline in emissions compared to implementing a regional program.

## Regional Program Oversight and Contract Management

The Regional Program Oversight and Contract Management Scenario envisions a multi-jurisdictional micromobility program where operations would be contracted out to one or more third-party operators, as described in the discussion of governance above. Under this scenario, jurisdictions would opt into a regional program with a standardized regulatory framework. A program manager would coordinate across jurisdictions.

Under this scenario, there would be no public funding for the purchase and maintenance of vehicles thereby eliminating the majority of capital costs. If the system has parking locations or hubs, the public sector may be involved in the site planning and/or construction of these hubs. This investment is minimal and likely not more than \$2,500 per location for paint and bollards. Investments in hub construction and site planning fees typically fall on the program manager who generally have a greater vested interest in ensuring clear and orderly parking locations. Often permit fees can be invested into hub construction. Some programming and operating costs are associated with this scenario. Approximately one FTE of resources would be required to take on the primary responsibilities listed in [Table 1](#).

Jurisdictions may be able to collect some modest revenues from the micromobility vendor through the collection of fines and penalties levied on the vendors for failure to comply with micromobility regulations. These revenues could be invested directly in the micromobility system to help cover program costs or could be distributed to participating jurisdictions to make infrastructure improvements that would support the program.

## Subsidized System

The Subsidized System builds on the Regional Program Oversight and Contract Management scenario but assumes that the participating jurisdictions will provide a subsidy to the vendor to reduce the operator's financial burden, allowing for lower fares to the public and operations practices that can include goals other than maximizing profit. The subsidy gives the jurisdictions a greater financial stake in the regional program and helps ensure that regional micromobility goals are met. The subsidy could be used to fund an equity pass program or it could serve as an incentive for a vendor to remain in a market despite uncertainty in ridership.

Like with the Regional Program Oversight and Contract Management scenario, one FTE of resources will be required for program management and oversight, with the potential for up to one additional FTE of resources to take on secondary responsibilities. Modest revenues may also be gained through fines and penalties.

Unlike the Regional Program Oversight and Contract Model, however, in the Subsidized System scenario, there would be a direct subsidy to the vendor when average daily use of vehicles falls below a certain threshold. This subsidy reduces the vendor's financial risk to operate the system and can help encourage stability and incentivize the vendor to operate in a less lucrative market. The exact value of the subsidy is variable and based on contract negotiations between the micromobility program manager and the vendor. In Sacramento, SACOG, the micromobility program manager pays Lime, the micromobility vendor, a subsidy between \$0.35 to \$0.70 per active vehicle in service per day, depending on the trips per vehicle per day. This equates to a subsidy of approximately \$100,000 a year for a system with 500 vehicles and 1 trip per vehicle per day. This subsidy could go up or down depending on the number of vehicles in service and the average daily use of the vehicles.

The subsidies could also go both ways, such that when the micromobility system reaches a certain threshold of average daily use, the private vendor could share revenue with the public partners. Like with the subsidy to the vendor, the subsidy to the public partners would be variable and subject to negotiations; however, peer systems have earned up to \$0.05 per trip when daily uses reach a specified threshold. This can result in approximately \$3,000 in revenues per month that can be invested into the micromobility program.

### **Fully Publicly-Owned System**

The Fully Publicly-Owned System would provide the most public control over a micromobility program in San Mateo County. Like the Regional Program Oversight and Contract Management and Subsidized System scenarios, in the Fully Publicly Owned System, the jurisdictions would contract micromobility operations out to a third-party, but the public partners would maintain ownership of all equipment, similar to how Capital Bikeshare in Washington, DC operates today.

Unlike the previous scenarios, where the vendor owned and maintained the equipment, in the fully publicly-owned system, the public partners would own all vehicles and would be financially responsible for their maintenance. Vehicles (e-bikes and scooters) cost approximately \$2,500 each, and the initial investment of 500 vehicles would cost about \$1.6 million. The annual cost of maintaining vehicles remains fairly low until the vehicles reach the end of their useful lives and need to be replaced; e-bikes have an estimated useful life of about eight years and scooters have an estimated useful life of about four years. In general, state of good repair costs should total about 20 percent of the initial capital investment in the program once vehicles reach the end of their estimated useful life.

In addition to vehicles, there would be minor investments to parking locations/hubs. Like with the other scenarios, jurisdictions could assume these parking locations would cost up to \$2,500 each for paint and bollard installation. A system with 100 parking locations with space for 10 vehicles at each would cost about \$250,000 to install.

In this scenario, operations would be contracted out to a third party; however, because the system is fully publicly owned, the jurisdictions would be responsible for covering all costs of operations. On average, the jurisdictions could expect to pay approximately \$200 per vehicle per month as part of their operating agreement with the vendor. For 500 vehicles, this would total approximately \$1.2 million annually, but would vary based on ridership and system characteristics. This estimate accounts for the administrative costs to procure and manage the program, which, like in the other scenarios, equates to approximately one FTE in resources.

These costs of operating the system would be offset by user revenues; the County could expect to earn about \$550,000 annually through directly generated user revenues, leaving a gap of about \$650,000 that would need to be covered.<sup>3</sup> Revenues from advertising, sponsorships, and grants, as well as funding directly from participating jurisdictions could fill this gap.

### **Funding Options**

Funding requirements will vary depending on the type of micromobility program implemented; however, the sources of funds are likely to remain consistent across micromobility program types. The primary funding options include:

- Funding directly from participating jurisdictions
- Development proffers/subsidy
- Advertising and sponsorships
- Grant funding

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<sup>3</sup>Operating revenue based on ridership and average revenue assumptions of one trip per vehicle per day for a system of 500 vehicle with average user revenues of \$3.00. The operating cost figure assumes \$200 per vehicle per month.

These funding options could be used to cover the costs of both capital and operating program needs. Unless the regional micromobility program is fully publicly owned and operated, the participating jurisdictions will not be responsible for purchasing any capital equipment, like vehicles, which represent the largest up-front cost of publicly-owned micromobility programs.

### **Funding Directly from Participating Jurisdictions**

One of the major funding sources of many large regional micromobility systems is through direct contributions from participating jurisdictions. These funds could be allocated through a jurisdiction's general fund as part of their annual budgeting process. Funds could also be directly generated through a special tax, fines, or parking enforcement. The level of funding each participating jurisdiction is responsible for can vary depending on a variety of factors. Most peer systems base funding per jurisdiction on the number of vehicles, docks, or stations.

### **Development Proffers**

A common method for funding micromobility programs is through development proffers, also referred to as community benefit agreements. Proffers are defined as a contract between a developer and a community-based organization representing resident's interests that requires the developer to provide specific amenities and/or mitigations to the local community or neighborhood. These amenities aim to offset the impact of the new development. Through a proffer, a developer could fund the installation of a micromobility parking hub on the property of a new development or agree to contribute funds to the operations of a micromobility program to account for new traffic coming to an area because of a development.

### **Permit Fees**

Program operations can also be directly subsidized by permit fees. Many places with micromobility programs require permitted operators to pay a permit application fee as well as annual per-device fees to help cover program management costs. In San Jose, for example, each vendor applying for a permit to operate in the City must pay an annual micromobility permit application fee of \$1,953, an annual fee of \$97 per vehicle in operation, and a \$10,000 property repair and maintenance deposit.<sup>4</sup> In San Francisco, each vendor applying for a permit to operate in the City must pay an application fee of \$5,394. Selected vendors must also pay an annual permit fee of \$38,340 and \$200 for every two vehicles permitted to operate.<sup>5</sup> While permit fees can provide a steady revenue stream to offset the costs of a micromobility program, they can also be a disincentive to vendors. As San Mateo County is expected to generate less demand average ridership demand than San Francisco, permit fees might need to be lower to compensate for the lower revenue potential.

### **Revenue Sharing**

In some rare occasions, program managers have entered into revenue sharing agreements with private micromobility vendors. In Sacramento, for example, Lime, the micromobility vendor shares revenue (\$0.05 per trip) with the program manager when trips per vehicle per day on Lime's scooter fleet rises above a certain threshold. While this revenue sharing is a benefit, it cannot necessarily be relied upon as a regular source of funding for a micromobility program.

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<sup>4</sup> City of San Jose, *Micromobility Vendor Page*, <https://www.sanjoseca.gov/your-government/departments-offices/transportation/micro-mobility/micro-mobility-vendor-page>.

<sup>5</sup> San Francisco Municipal Transportation Agency, *Powered Scooter Share Permit Program*, <https://www.sfmta.com/projects/powered-scooter-share-permit-program>.

## Advertising and Sponsorships

Advertising and sponsorships represent two major sources of private funding for micromobility programs. Perhaps the largest potential source of private funding for a micromobility system is a title sponsor. Title sponsorship agreements last for several years, however; they do require some degree of branding exclusivity. A title sponsor would pay to have their branding and name on vehicles and parking hubs/stations. Most large micromobility systems have a title sponsor, such as New York's CitiBike (Citi Bank), Philadelphia's Indego (Independence Blue Cross), and Portland's Biketown (Nike). In the Bay Area, Ford Motor Company previously provided \$50 million to Bay Area Bike Share (now Bay Wheels) to help the system expand from 700 vehicles to 7,000.<sup>6</sup> A mid-sized Midwestern city received \$500,000 over 5 years from a private foundation's title sponsorship of a system that launched with approximately 100 bikes.<sup>7</sup> Title sponsorships can also come from public agencies. For example, when Capital Metro in Austin initially signed on as a partner to MetroBike, the city's bike share system, they did so largely as a funding partner. Some micromobility programs also have station and bicycle sponsors, which provide smaller scale funding, compared to a title sponsor.

Some micromobility programs can also generate private funding through advertising on stations and/or bikes. While advertising can be limited depending on a jurisdiction's outdoor advertising regulations, advertising revenues have the potential to provide a steady stream of revenue for program operations. The responsibility for securing sponsors can will depend on which program scenario is implemented.

## Grants

Grants provide another mechanism for funding micromobility programs through public sources. These grants can cover both the operating and capital costs of implementing and operating a micromobility program. The Infrastructure Investment and Jobs Act (IIJA), passed in November 2021, expanded rules around a number of federal transportation programs and established new programs that provide both capital and operating funds for micromobility. These sources are presented in [Table 4](#).

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<sup>6</sup> Bryan Goebel (September 9, 2016), "The Bay Area's Expanded Bike-Share System—Brought to You by Ford" KQED, <https://www.kqed.org/news/11079980/the-bay-areas-expanded-bike-share-system-brought-to-you-by-ford>.

<sup>7</sup> Alta Planning + Design (private communication, May 2018)

Table 4. Federal Funding Sources

Funding Source	Description
<b>Transportation Alternatives Program (TAP)</b>	The Transportation Alternatives Program (TAP) represents 10 percent of each state’s Surface Transportation Block Grant program funds and can be used to fund a variety of projects, including micromobility projects. <sup>8</sup>
<b>Congestion Mitigation and Air Quality Improvement (CMAQ) Program</b>	Administered through the Federal Highway Administration, CMAQ funds are available to state and local governments for transportation projects that help meet the requirements of the Clean Air Act by reducing congestion and improving air quality. <sup>9</sup> Eligible programs include pedestrian and bicycle projects, transit improvement programs, congestion reduction and traffic flow improvements, and funding for transportation demand management programs. For micromobility, CMAQ funds can be used for capital and operating costs as well as to fund programs to increase system equity. <sup>10</sup>
<b>Carbon Reduction Program</b>	Part of the IIJA, the Carbon Reduction program can be used to fund the planning, design, and construction of on- and off-road active transportation facilities as well as right-of-way improvements. For micromobility, the funds can be used for complete street designs that integrate micromobility infrastructure, such as docking stations and/or protected lanes. <sup>11</sup>
<b>Active Transportation Infrastructure Investment Program</b>	Part of the IIJA, the Active Transportation Infrastructure Investment Program provides funding for active transportation projects and can be used to fund micromobility equipment (stations and vehicles) as part of active transportation networks. <sup>12</sup>

In addition to federal grants, grants are available at the state and local level to help fund micromobility programs, as shown in [Table 5](#).

<sup>8</sup> Jackson Pierce (2022), “What does the new infrastructure law mean for micromobility?” *Transportation for America*, <https://t4america.org/2022/02/23/the-new-infrastructure-law-micromobility/>.

<sup>9</sup> Federal Highway Administration, “Congestion Mitigation and Air Quality Improvement Program.” <https://www.fhwa.dot.gov/fastact/factsheets/cmaqfs.cfm>.

<sup>10</sup> Jackson Pierce (2022), “What does the New Infrastructure Law Mean for Micromobility? *Transportation for America*, <https://t4america.org/2022/02/23/the-new-infrastructure-law-micromobility/>.

<sup>11</sup> Jackson Pierce (2022), “What does the New Infrastructure Law Mean for Micromobility? *Transportation for America*, <https://t4america.org/2022/02/23/the-new-infrastructure-law-micromobility/>.

<sup>12</sup> *Ibid.*

Table 5: State and Local Funding Sources

Funding Source	Description
<b>Clean Mobility Options Voucher Program</b>	Facilitated by the California Air Resources Board, this program offers awards of up to \$1 million to develop and launch zero-emission mobility projects, including bike and scooter sharing. To be eligible, a project location must be in a disadvantaged community, an AB 1550-designated low-income community, or is within federally recognized tribal boundaries. <sup>13</sup>
<b>San Mateo County Transportation Authority (SMCTA) Transportation Demand Management and Bicycle and Pedestrian Programs</b>	SMCTA’s Transportation Demand Management and Alternative Congestion Relief programs promote transit and other forms of community to reduce the use of single occupancy vehicles. Both Millbrae and Burlingame have applied for grants from SMCTA to operate their micromobility programs. <sup>14</sup>
<b>California Transportation Commission Active Transportation Program</b>	Established in 2013, the Active Transportation Program stipulates that \$100 million of revenues from the Road Maintenance and Rehabilitation Account be available for active transportation projects. Eligible projects include infrastructure and non-infrastructure projects that: increase the proportion of trips accomplished by walking and biking, increase the safety and mobility of non-motorized users, advance the active transportation efforts of regional agencies to achieve greenhouse gas reduction goals, and enhance public health. The program aims to fund projects that provide a broad spectrum of projects to benefit many types of active transportation users as well as disadvantaged communities. <sup>15</sup>
<b>Bay Area Air District Transportation Fund for Clean Air</b>	Established in 1991, the Transportation Fund for Clean Air, provides grant funding to projects that reduce on-road motor vehicle emissions. To be eligible for funding, a project must be located within the Air District’s jurisdiction and must achieve a surplus emission reductions. <sup>16</sup>

## Plan Development

A shared micromobility system can be implemented in multiple phases, with an initial service area for system launch and subsequent system expansion. The service area is a designated boundary within which a shared micromobility system operates. The first phase of a shared micromobility system provides the opportunity for residents and visitors to get comfortable with small-scale shared micromobility. This can help build support for bike and/or scooter share and bike infrastructure before the system expands to other neighborhoods and/or jurisdictions.

<sup>13</sup> Clean Mobility Options, <https://cleanmobilityoptions.org/>.

<sup>14</sup> San Mateo County Transportation Authority, <https://www.smcta.com/projects-programs/>

<sup>15</sup> California Transportation Commission, Active Transportation Program, <https://catc.ca.gov/programs/active-transportation-program>

<sup>16</sup> Bay Area Air Quality Management District, TFCRA Regional Fund, <https://www.baaqmd.gov/funding-and-incentives/funding-sources/regional-fund>.

Based upon prior results and analysis—the Feasibility Analysis, Best Practices review, coordination with the Ad Hoc Advisory Group, and the program vision, goals, and objectives—the study team recommends two phases for the shared micromobility system in San Mateo County: the initial Pilot Phase and the expanded Countywide System.

## Phase 1 Pilot Program Recommendations

### Methodology for Identifying the Potential Pilot Program Service Areas

This analysis aims to find potential areas in San Mateo County that are best suited for an initial shared micromobility pilot program. This analysis, consistent with the Feasibility Analysis, took into account characteristics that aim to address the program vision and goals and includes: equity focus areas, proximity to transit, proximity to barriers, and estimated micromobility demand. For more information about each of these factors see the Feasibility Memo.

In addition to the characteristics used in the analysis, political support should be taken into consideration when choosing an area for the initial pilot program. (For a list of supportive jurisdictions—those that have a plan that supports shared micromobility either as a goal, objective, policy, or recommendation—see the Task 2.6 Feasibility Memo.)

A 30 acres hexagon grid, covering the whole county was associated to the characteristics in 6. Each hexagon approximates the typical walkshed of a micromobility station or hub. As previously mentioned, system type has not been chosen, however, the hexagon represents the distance one can reasonably expect a shared micromobility user to walk between a shared micromobility vehicle and their destination.<sup>17</sup>

Table 6. Pilot Study Characteristics and Scoring

Characteristic	Method + Scoring of Association of Hexagon	Weight
Equity Focus Areas (EFA) <sup>18</sup>	<ul style="list-style-type: none"> <li>Hexagon in EFA = 1</li> <li>Hexagon not in EFA = 0</li> </ul>	25%
Proximity to Transit <sup>19</sup>	<ul style="list-style-type: none"> <li>Within ½ mile of commuter rail = 1</li> <li>Within ¼ mile of high frequency transit = 0.5</li> </ul>	15%
Proximity to Barriers	<ul style="list-style-type: none"> <li>Within 500ft of barrier = 0</li> <li>Within ¼ mile of barrier = 0.5</li> <li>More than ¼ mile away = 1</li> </ul>	10%
Demand	<ul style="list-style-type: none"> <li>Percentile Rank</li> </ul>	50%

Once the hexagons were associated with each characteristic, an overall score was calculated for each hexagon using the weights shown in 6. These results are visualized in **Figure 1**, which demonstrates the relative score of each hexagon. The potential pilot program services areas show the highest concentrations of high scoring hexagons.

<sup>17</sup> The goal of these hexagon grids is to score all general locations and enable average scores to show prioritization results by different geographies. The benefit of this unit of analysis is each area under study is equal in size, and has a uniform shape that is known to work well for spatial sampling.

<sup>18</sup> Equity Focus Areas are consistent with the methodology used in the 2021 C/CAG San Mateo County Comprehensive Bicycle and Pedestrian Plan.

<sup>19</sup> Commuter rail includes Caltrain and BART. High frequency transit includes buses with 15 minute headways.



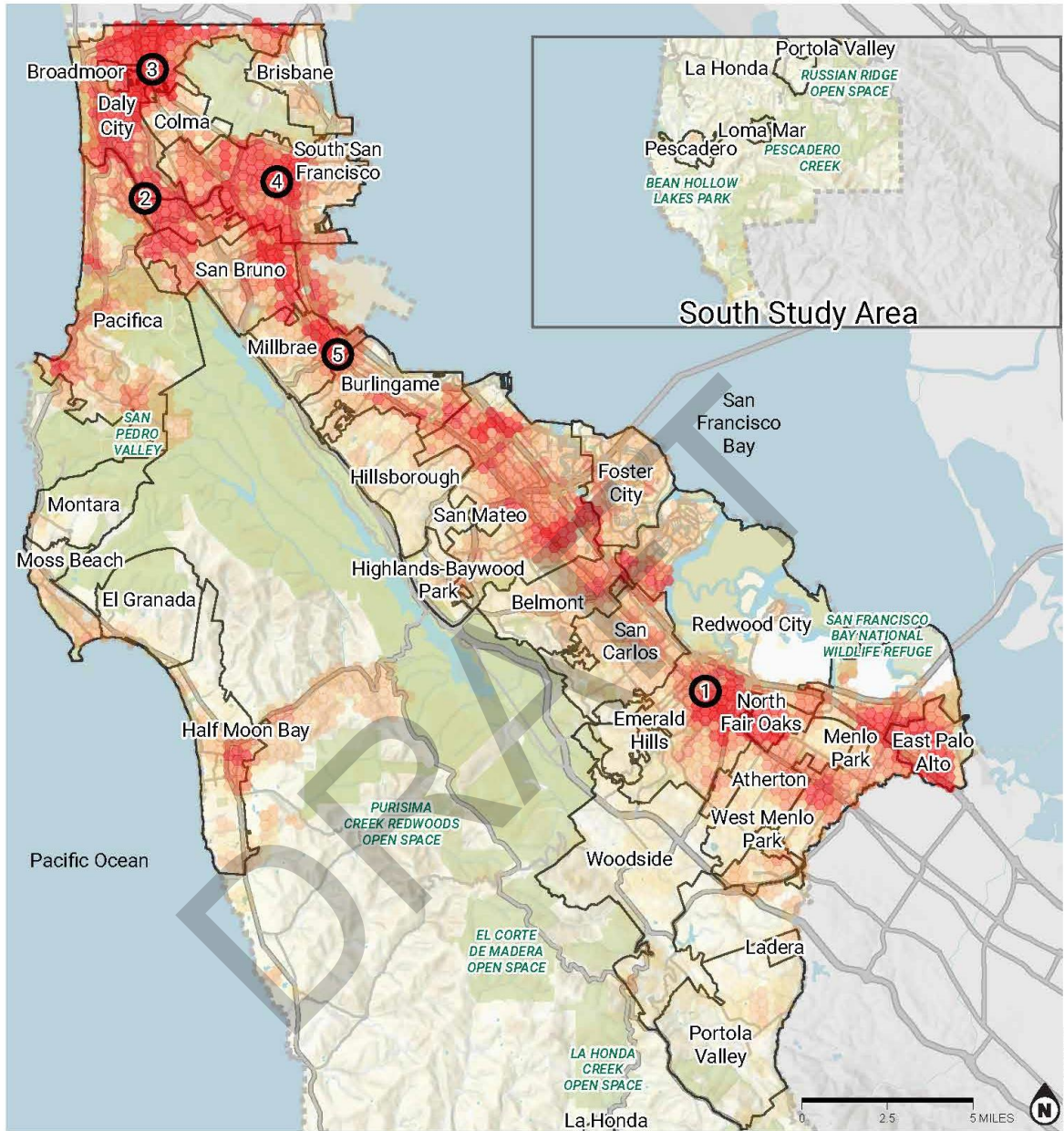
## Potential Pilot Program Service Areas

**Figure 1** shows the five top scoring locations for San Mateo County’s shared micromobility pilot program. This study **recommends one of the five locations** be selected for the pilot. The five potential service area locations are meant to guide decision-making for an appropriate pilot program. Each location contains multiple jurisdictions, so the pilot can test out the proposed governance structure across jurisdiction boundaries. The chosen pilot program service area should have jurisdictional support from all jurisdictions within the pilot area. The potential pilot program service areas include:

1. **Redwood City & North Fair Oaks:** This potential pilot location covers areas of both Redwood City and North Fair Oaks. Within the areas are a number of restaurants and stores, a downtown district and medical facilities. Additionally, the area contains a Caltrain station, scored high in the demand analysis, and includes equity focus areas in both jurisdictions.
2. **Daly City, Pacifica, South San Francisco, & San Bruno:** This pilot area includes sections of four jurisdictions: Daly City, Pacifica, South San Francisco and San Bruno. This area contains equity focus areas, multiple commercial areas, Skyline College, and scored relatively high in the demand analysis.
3. **Daly City and Broadmoor:** This pilot project area serves both Daly City and Broadmoor. This area includes the Daly City BART station, many businesses along Mission Street, scored high in the demand analysis, the majority of the area is an equity focus area.
4. **South San Francisco & Unincorporated San Mateo County:** Although this recommendation would only serve South San Francisco and a small portion of unincorporated San Mateo County, the number of businesses and relative scores of the hexagons in the area make it an appealing potential location. This area has a Caltrain station, the many businesses in downtown South San Francisco, scored well in the demand analysis, and is an equity focus area.
5. **Millbrae & Burlingame:** This pilot area includes Millbrae and the northern border of Burlingame. This area has a Caltrain station, includes an Equity Focus area, many businesses along Broadway in Millbrae, and a medical center and businesses along Camino Real in Burlingame.

While Coastal communities in San Mateo County were not included as one of the five potential pilot program service areas, they should be considered as part of the program service area expansion. The results (**Figure 1** below) show areas along the coast that scored well—such as Half Moon Bay and Pacifica—but they are smaller areas that would not be well suited for a pilot program. See below for more information about recommended pilot program size, coverage, and station/hub density.

Figure 1. Map of Potential Pilot Areas



**PROSPECTIVE PILOT AREAS**

SAN MATEO COUNTY SHARED MICROMOBILITY FEASIBILITY STUDY



**PILOT STUDY RECOMMENDATIONS & SCORE**

- Pilot Study Recommendations
- Higher Score
- Lower Score

**DESTINATIONS + BOUNDARIES**

- San Mateo County City Boundaries
- County Boundary
- Water
- Park

MAP 11

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

## Pilot Program Size and Coverage

Regardless of system equipment type, the minimum number of recommended shared micromobility vehicles for a for the chosen pilot program service area in San Mateo County is 500 vehicles. A system with less than 500 vehicles will not be able to cover multiple jurisdictions at an adequate density of vehicles (see vehicle density standards below). The pilot program service area should be contiguous when covering multiple jurisdictions. Gaps within the service area make it harder for users to navigate the systems and for operators to rebalance the system.

## Stations and/or Hubs

Should the program include a docked or hybrid system type, the minimum number of recommended shared micromobility stations/hubs should be 50 stations/hubs. The following should be considered when determining the density of stations and/or hubs:

- The industry standard for providing parking capacity for bike share ranges from 1.6-2.0 designated parking spots per bike. A higher number of racks per bike reduces the likelihood of hubs reaching full capacity, which reduces out-of-hub parking and makes for a better and more reliable user experience.
- Within higher demand areas—such as downtowns—industry best practices suggest that bikes or bike hubs should be placed within a 3 to 5-minute walking distance of one another, corresponding to approximately a quarter mile. This represents a hub density of roughly 16 hubs per square mile. For lower demand locations, the inclusion of the hybrid system with vehicles that can lock to a bike rack anywhere in the service area allows for hubs to be farther apart, as users will have the option to park at a rack near their destination. The project team recommends hubs in areas of higher demand have more vehicles and more racks, while hubs in areas of lower demand have fewer vehicles and fewer racks.

## Service Area Expansion

Shared micromobility service expansion can be accomplished either as a single large-scale system expansion or incremental installation of hubs as funds become available.

### Conditions for system expansion

It is not necessary to expand all at once. The timing and size of the expansion should consider the following factors:

- **Ridership:** High system ridership—over 1 trip per vehicle per day—may indicate the system is ready to expand.
- **Funding:** Identifying additional funding from sponsorships, grants, or operational funding will be necessary to determine the timing and size of system expansions.
- **Infrastructure:** As new bike infrastructure is implemented, system expansions could be coordinated with the arrival of new facilities that provide safe connections for people riding micromobility devices. Space for shared micromobility can be included in the design of new infrastructure; for example, a bike share station could serve as a separation device in a protected bike lane, or a shared-use path could include additional bike racks for parking micromobility vehicles. Additionally, planning for higher usage of bikeways may result in different engineering to accommodate more and a wider variety of users than if micromobility is not planned.
- **New Indicators of Demand:** Shared micromobility system expansion could be implemented to respond to new development, changes in land use, or expansion of transit service.
- **Political will/agency capacity:** Above all, shared micromobility system expansion will depend upon the political will and the capacity of the managing agency and its public partners.

Following the pilot program, with the multijurisdictional contract in place, the program manager should work with the operator(s) to develop satellite programs at coastal communities, with consideration for alternate service models, such as reduced user fees and/or longer-term lending.

## Pricing Considerations

While the selected operator may have their own business model, the public partners can consider requiring equity pricing considerations (for more information refer to the Task 4 Best Practices Memo) such as:

- Subsidized Memberships and Income Based Discounts
- Cash Payment Options
- Alternative Payment Structures
- Reduce Liability and Eliminate Hidden Fees
- Transit Integration

## Innovative and cost-effective bike rebalancing strategies

Rebalancing is a critical element to the success of shared micromobility operations and positive user perception. It is important to implement strategic redistribution of vehicles to ensure that locations have the appropriate number and are not over or undersupplied for long periods of time. Shared micromobility rebalancing should be done by the operator on a daily basis.

Rebalancing can be built into the system by incentivizing riders to park at designated hubs and bike racks or else fees will incur. It is typical for hybrid systems to charge a small fee for users to lock vehicles at locations outside the designated hubs, and a larger fee for vehicles that are parked outside of the designated service area. For example, the operator can prioritize certain locations to ensure that no one location is oversupplied. Another strategy is to reward user behaviors by encouraging users to park vehicles at a hub that has more available racks. Credits can also be issued to users who return vehicles to popular hubs, reducing the need to deploy people to rebalance the fleet.

After the Pilot Phase, the system operator should reassess if rebalancing efforts need to be focused on certain locations, if there is a need to add more racks/reduce racks based on usage, if pricing incentives should be updated to support rebalancing, or if additional staff time is needed to rebalance vehicles.

## Specific procedures for maintenance and repair

A reliable shared micromobility system requires ongoing maintenance of vehicles and hubs. Maintenance protocols should be included within the service level agreement with the vendor. Penalties for noncompliance should be included within the agreement to empower the governing agency and/or participating jurisdictions to enforce maintenance procedures. A number of existing shared micromobility systems have incorporated ways of reporting a vehicle needing repair through the app or within the vehicle hardware. The following is a list of specific procedures for maintenance and repairs recommended by the Institute for Transportation & Development Policy (ITDP)<sup>1</sup>:

- A designated warehouse or storage space is critical for daily operations and can serve as a repair center, vehicle storage, and customer service center.
- The operator will either collect e-bikes/e-scooters to charge the batteries in the warehouse or swap out batteries on location as needed throughout the day.
- Hubs must be consistently maintained including general upkeep like replacing torn decals, graffiti removal, and removal of any debris. Hubs with solar charging capabilities must be administered to ensure power levels don't drop and the hubs remain online during operating hours.
- Vehicle maintenance is important to the reliability and success of the system. Routine inspections and tune-ups must take place on a regular basis. Reports of damaged vehicles, faulty brakes, flat tires, and broken chains must be addressed within a few hours of a report being made.
- Maintain consistent and reliable staff members. Staff members will be trained to perform maintenance on vehicles which contain complex technology. They will also have the ability to respond to user inquiries and troubleshooting issues as they arise.



## Liability Considerations

Owners and operators can limit liability related to shared micromobility systems in various ways, including:

- Purchasing insurance
- Requiring users of the program to sign waivers releasing the program from liability for injuries
- Keeping the shared micromobility vehicles well-maintained
- Educating users about use of the shared micromobility vehicle and providing safety training

Vendors should be contractually required to purchase and maintain insurance coverage pertinent to the operations and provision of shared micromobility service. At minimum, vendors should maintain:

- Commercial general liability insurance of \$500,000 to \$1,000,000 per incident for death and bodily injury and \$500,000 to \$1,000,000 per incident for property damage
- Automotive liability insurance (for vendors that utilize motor vehicles in their operations procedures) of \$500,000 to \$1,000,000 per incident for death and bodily injury and \$500,000 to \$1,000,000 per incident for property damage
- Employer liability insurance of \$100,000 to \$500,000 per incident bodily injury and disease
- Workers' compensation insurance in compliance with current state standards

Cyber Liability/Information Technology Insurance of \$500,000 to \$1,000,000 per claim is also desirable. Vendors may want to consider including sub-contractors on these policies to minimize risk to the entire operations team.

Public agencies have some immunity in regards to discretionary decisions, such as shared micromobility station locations, maintenance schedules, and helmet use by system users. For more information regarding insurance and liability for governing agencies, see section 2 of the *NACTO Guidelines for Regulating Shared Micromobility*.

## Theft/Vandalism/Security Considerations

For all shared micromobility system types, theft and vandalism are part of the business. However, shared micromobility vendors have designed the current generation of market-available vehicles to be more resistant to vandalism and theft than earlier models. Today's shared micromobility vehicles may have a number of anti-vandalism and anti-theft features, including:

- GPS tracking: GPS technology integrated into shared micromobility vehicles allows for the tracking and recovery of vehicles that have been stolen.
- Integrated locks: Integrated locks allow users to securely lock dockless and hybrid shared micromobility vehicles to a hub or public bike rack.
- Encasement of vulnerable parts: Shared micromobility vehicles today often feature wires, chains, and gears that are partially or entirely encased within the frame of the bike or scooter itself. This encasement shields these vulnerable parts from being cut or stolen off of the vehicle.
- Anti-theft hardware: Shared micromobility vehicles generally feature anti-theft nuts and bolts that cannot be quickly or easily removed using standard hand tools.
- Accessory integration with frame: Accessory features on shared micromobility vehicles (such as lights, bells, and baskets) are sometimes integrated into the design of a vehicle's stem, handlebars, or frame rather than being attached as a mountable feature.
- Solid tires: Some shared micromobility vehicles feature tires made out of solid rubber rather than inflatable tubes to mitigate risk of flats and slashed tires.
- Custom design: Shared micromobility vehicles are highly customized to the unique demands of shared mobility, and many parts are not compatible with private bicycles. This greatly reduced the street value of shared micromobility vehicle parts.

Additionally, the encouragement and enforcement of secure parking practices through in-app messaging, user fines, and diligent complaint response times can decrease the risk of shared micromobility vehicle theft.

## Appendix A: System Types

### Docked Systems

#### Description

Also referred to as “smart dock” systems, this shared micromobility system type is based on powered stations with docks that securely lock a bike and/or scooter and kiosks for user payment transactions and information. At the kiosk, casual users can purchase a short-term membership on demand. Shared bikes and scooters must be retrieved from and returned to a station. Because the equipment is relatively expensive, most U.S. agencies use federal transportation grants and large corporate sponsorship deals to cover the capital and operations costs. Most docked systems only include bikes, however, Chicago’s Divvy system now includes docked scooters as well.



*Docked bike share station with a payment kiosk in the City of Chicago.*

#### Defining Feature

Station density and visibility are critical to success since the bicycles and scooters must be secured at a station. Additionally, the rebalancing of vehicle units is a major element of operations for dock-based systems. If station density and rebalancing upkeep is adequate, users of dock-based systems enjoy the reliability of knowing where they can plan on finding a bike or scooter from day to day. These systems are largely city or agency-owned, giving them control over station locations, level of service, and pricing.

#### Feasibility in San Mateo County

##### Pros

- Station placement can give agencies control over bike or scooter locations and parking in the public right-of-way.
- Contracting can establish service level standards including: pricing, maintenance, customer service, usage data, bike/scooter quality, and safety.
- Bike and scooter locations within dock-based systems can be more predictable for users, which is particularly valuable for commuters and transit riders.
- Stations can create a physical presence for the bike share system and advertise to new users.
- Status as “infrastructure,” can establish a more long-lasting system.

##### Cons

- Stations with docks often mean higher system costs than dockless or hybrid options.
- More upfront work is required to plan and design station locations.
- Station placement may require permits and negotiation with adjacent land owners.
- Reliance on sponsorship and grants can be difficult to sustain.
- Lack of flexibility limits the geographic reach and access to destinations for users.
- Difficult and expensive to upgrade system, as technology evolves.

#### Estimated Cost

Typical station with 8-10 bikes: \$35,000 to \$55,000

Operating fees: \$2,000-\$2,500 per bike per year.

## Dockless Bike or Electric Scooter Share Systems

### Description

Dockless bike and electric scooter share systems are a fleet of self-locking bikes or scooters without any fixed stations, docks, or kiosks. Users retrieve or park bikes or e-scooters anywhere within the service area using a smart phone app. They offer an appealing level of flexibility and are generally permitted to operate in cities rather than procured.

### Defining Feature

Compared to hybrid and docked, dockless systems provide more flexibility for users, but less agency control over bike locations, pricing, and level of service. Because they are privately funded and operated, dockless bike and scooter share systems programs are offered in locations where there is sufficient market demand.



*Dockless bike share bikes parked in a designated dockless parking zone.*

### Feasibility in San Mateo County

#### Pros

- System can be launched more quickly than docked or hybrid systems.
- Station planning and design is not necessary, which saves time and money.
- Due to venture capital involvement, little to no public funding is required.
- Less city/agency liability for helmet laws.
- System is highly flexible for users.
- Can be more affordable for single-trip, casual users.

#### Cons

- Agencies generally have much less control over dockless bike share systems compared to other system types, including the sustainability of the system.
- Dockless companies determine where they operate and are currently focusing on expanding into major markets and contiguous growth.
- Smaller cities have less leverage to regulate dockless companies than major markets.
- Bikes and scooters can be improperly parked and obstruct the right-of-way.
- Lower quality bikes may negatively affect user experience.
- Fleet can suffer higher rates of vandalism and theft.

### Estimated Cost

Equipment and operations typically provided to agencies at no cost. Companies are supported by venture capital and user fees.



## Hybrid Bike Share Systems

### Description

Also referred to as a “smart bike” system, this approach houses transactions on the bike rather than at a station. Stations, also called hubs, consist of branded racks for parking bike share bikes. Though stations are available, the program does not require that a bike be left at a station and it is permitted to be parked anywhere within the service area. The racks have no software or technology features (different than the dock-based “smart-docks”). Hybrid systems typically charge a fee to park outside of the stations or offer an incentive to park at the stations to encourage users to use the docks.



*Hybrid bike share bike and docks in Orlando, Florida.*

### Defining Feature

Offer the reliability and visibility of docked systems with the flexibility of dockless systems. Agency contracts or ownership provide control over implementation, but less ability to manage parking in the right-of-way once launched. Hybrid systems are found in cities of all sizes.

### Feasibility in San Mateo County

#### Pros

- Sponsorship opportunities can create community partnerships.
- Station placement gives agencies control over bike locations and parking in the right-of-way.
- Stations create a physical presence for the system and advertise to new users.
- Bike locations are both predictable and flexible for users.
- Users can more easily locate a pod of bikes for a group to ride.
- Status as “infrastructure,” can establish a more long-lasting system.

#### Cons

- The hardware and software included on the bikes and the need for stations means higher costs than dockless systems, but lower than fully docked.
- Station placement may require permits and negotiation with adjacent land owners.
- Bikes or e-scooters can be improperly parked and obstruct the right-of-way.
- Time and funding for rebalancing bikes.
- Difficult and expensive to upgrade system as technology evolves.

### Estimated Cost

Typical station with 8-10 bikes: \$20,000 to \$25,000.

Operating fees: \$2,000-\$2,500 per bike per year.