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MEMORANDUM

August 29, 2025

To: Andreina Aguilar
Organization: City of Fresno
From: Lauren Pepe, Malia Schilling, Mia Candy Toole Design
Project: **Fresno Active Transportation Plan 2025**

Re: Task 8.3 Shared Mobility Services – Electric Micromobility Assessment DRAFT

Background and Purpose

Fresno Vision Zero Action Plan Community Survey (Spring 2025) found that almost 90 percent of people drive as their primary mode of transportation. As the City considers ways to encourage mode shift out of cars towards more sustainable modes of transportation (walking, bicycling, taking transit), micromobility – and especially electric micromobility – is going to be an important part of the conversation. E-bikes and e-scooters are transformative mobility options, offering relatively affordable, convenient, and quick modes of travel. In recent years, the City has observed an uptick in the number of people using personal e-bikes and e-scooters in Fresno. This is a positive development that can help advance the City's sustainability, equity, and safety goals.

To help the City manage the increasing number of electric micromobility devices on Fresno's streets, Section A of this memo provides an overview of current State and City legislation that regulates electric micromobility (e-scooters and e-bikes). Using case studies from other California communities, we identify gaps in Fresno's current e-micromobility policy and provide recommendations for short- to- medium term policies and programs that can encourage safe micromobility use throughout the City.

Section B provides insights into longer-term options for formalized, *shared* micromobility programs. We describe best practices for the setup, launch, and operations of shared micromobility programs based on findings from peer cities across California. These best practices include considerations for:

- Fleet types
- System types
- Operational models
- Procurement
- Public agency roles and responsibilities
- Funding
- Data sharing requirements
- Equity and accessibility
- Education and encouragement

Defining Micromobility

Micromobility includes forms of transportation that are small, low-speed, and human- or electric-powered. They are typically built for one rider at a time and include bicycles (i.e., human-powered "pedal bikes"), electric bicycles ("e-bikes"), nonmotorized (or human-powered) scooters, and electric scooters ("e-scooters").

"Personal micromobility" refers to micromobility devices that are personally owned, whereas "shared micromobility" refers to the organized operation of a fleet of micromobility vehicles that individuals can rent.

Summary of Findings and Recommendations

At the State level, e-bikes are regulated as bicycles and therefore have all the privileges and restrictions of a bicycle, while e-scooters have more restrictions on their operation. The City of Fresno defers to State guidelines for regulating e-bikes and e-scooters operating within the city.

The City of Fresno does not currently have a shared micromobility program, but it does have a Shared Mobility Ordinance within its code, which (1) defines e-bikes as bicycles, consistent with CA State Law, and (2) addresses *shared* micromobility, placing most responsibilities, such as user safety, on the operator. To both advocate for and regulate *personal* micromobility, the City might consider updating its code with model language to minimize any gray areas or conflicts that exist in the code currently. Drawing on best practices from other cities in California, the City may want to proactively address micromobility safety education, particularly for youth and older adults, in conjunction with code updates.

As the City does not currently have a citywide shared micromobility program in place, most micromobility use in Fresno is via personal micromobility devices. There is currently a three-year Clean Shared Mobility Project (administered by the Fresno Metro Black Chamber Foundation) that is offering low- or no-cost electric vehicle share and e-bikeshare to eligible participants for a limited time (through March 2026).[1] This may account for the recent uptick in people using personal micromobility devices in Fresno.

Table 1: Summary of Fresno's Current Policies and Practices Related to E-Micromobility

Topic	Fresno Today	Recommendation
Sidewalk riding	Inconsistent (clear bans for e-scooters; contextual for e-bikes)	Update ordinance to allow e-bikes on sidewalks outside of Central Business District and mall streets
Youth education	Not formalized	Partner with school districts to standardize bike, pedestrian, and micromobility education
Shared e-micromobility	Has an ordinance but no citywide program	Permit a private operator to launch a citywide shared e-micromobility pilot program
Equity-based access	Grant-based program for qualifying residents through 2026	Launch a City-administered voucher program

[1] https://www.transformfresno.com/projects/clean-shared-mobility-network-csmn/

Section A: E-Micromobility Policy Review and Best Practices

E-micromobility (e-scooters and e-bikes) hold transformative potential to broaden the base of Fresno residents using active transportation to shift trips away from driving. Older adults, some people with disabilities, and people of all ages, abilities, and fitness levels can benefit from e-micromobility, which requires significantly less physical effort to operate and provide opportunities to ride for longer periods of time and over greater distances. As e-micromobility becomes increasingly popular, policies and regulations are now catching up, as local and regional agencies aim to ensure the safety of e-micromobility riders and other roadway and trail users.

Both the State of California and the City of Fresno have regulations that define what is classified as an “e-bike” or “e-scooter”, where these devices can operate, and any other regulations that may apply to using e-micromobility.

Table 2 provides an overview of state definitions and operational requirements for e-micromobility vehicles (e-bikes, e-scooters) as well as other similar vehicle types that are not included under the definition of “e-micromobility”.

Table 2: Vehicle Definitions and Requirements according to California Department of Motor Vehicles

Vehicle Category	Definition	Operational Requirements
Motorized scooter (E-scooter) 	Any two-wheeled device with a motor, handlebars, and a floorboard for standing on while riding; including the option of having a driver seat which cannot interfere with the operator’s ability to stand and ride and/or the ability to be powered by human propulsion	Any class of driver’s license (i.e. ride must be at least 16 years old) No DMV registration or proof of insurance required
Electric bicycle (E-bike) 	A bicycle equipped with fully operable pedals and an electric motor of less than 750 watts.	No driver’s license required No DMV registration or proof of insurance required
Motorcycle 	Motor vehicles with a seat for the rider, and engine size larger than 150 cc, and no more than three wheels.	M1 driver’s license DMV registration required Proof of insurance required

Vehicle Category	Definition	Operational Requirements
Motor-driven cycle 	A motorcycle with an engine size less than 150 cc.	M1 driver's license DMV registration required Proof of insurance required
Moped 	A two or three-wheeled device with a max speed of 30 mph, and fully operative pedals.	M1 or M2 driver's license DMV registration required No proof of insurance required

E-Bikes: State Legislation

California Vehicle Code (CVC) defines e-bikes as bicycles with fully operable pedals and an electric motor that does not exceed 750 watts of power (roughly 1 horsepower).[2] The CVC classifies e-bikes into three categories based on degree of assistance and the maximum operating speed:

- **Class 1** are pedal-assist bikes that provide motor assistance up to speeds of 20 mph; the motor *cannot* exclusively power the e-bike
- **Class 2** are throttle-assist bikes that provide motor assistance up to speeds of 20 mph; the motor *can* exclusively power the e-bike
- **Class 3** are pedal-assist bikes with a maximum operating speed of 28 MPH

Class 1 and Class 3 bicycles are allowed to have start assistance or a walk mode that propels the e-bike on motor power alone, up to a maximum speed of 3.7 miles per hour. If an e-bike is modified to attain greater speeds or has its pedals removed, then it is no longer considered an e-bike – these vehicles are not illegal, but cannot be

[2] CA Vehicle Code 312.5. https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=VEH&sectionNum=312.5.

sold, purchased, or ridden as “electric bicycles.” Riders under 18 must wear a helmet and Class 3 e-bike riders must be at least 16 years old.

Per CA State Health and Safety Code, starting in 2026, an e-bike may not be sold unless the storage battery has been tested and meets certain requirements.[3] Table 3 describes where e-bikes are allowed according to the CVC based on facility type.

Table 3: State Regulations on Pedal Bikes and E-Bikes

Facility Type	Pedal Bike State Regulations	E-bike State Regulations (all classes)
On-street bike lanes (Class II) & protected cycle tracks (Class IV)	Allowed (§ 21207)	Same as pedal bikes, but if facility is **not** adjacent to a roadway, local authority must grant permission via ordinance ((§ 21207.5 (b)-(c)).
Shared-use paths and off-street bike trails (Class I); equestrian, hiking, or recreational trails	Left to local authorities to regulate (§ 21211)	Same as pedal bikes, but if facility is **not** adjacent to a roadway, local authority must grant permission via ordinance ((§ 21207.5 (b)-(c)). The state park system lists current e-bike restrictions in state-managed parks online.
Sidewalks	Left to local authorities to regulate (§ 21206)	Same as pedal bikes
Regular streets & traffic lanes	Allowed, must follow roadway rules (§ 21200).	Same as pedal bikes
Freeways & urban expressways	Not allowed if a “Bicycles Prohibited” sign is posted by the California Department of Transportation and/or local authorities. (§ 21960).	Same as pedal bikes

E-Scooters: State Legislation

The CVC defines a motorized scooter (or e-scooter) as a two-wheeled device with handlebars and a floorboard or seat, powered by an electric motor and equipped with a working brake. E-scooters are in a separate category from motorcycles, motor-driven cycles, and mopeds (see

Table 2).

[3] CA Health & Safety Code § 26301 (2024). https://law.justia.com/codes/california/code-hsc/division-20/chapter-23/section-26301/

Operators of e-scooters must be at least 16 years old and possess a driver's license or instructional permit. Riders under 18 must wear a helmet. No person shall operate an e-scooter at a speed exceeding 15 miles per hour, regardless of the speed limit of the street it is being operated on.[4]

There are limited references to nonmotorized scooters in the CA Vehicle Code. Section 21212 states that nonmotorized scooter riders under 18 must wear a helmet.[5]

Table 4: State Regulations for E-Scooters

Facility Type	E-Scooter State Regulations
On-street bike lanes (Class II) & protected cycle tracks (Class IV)	Allowed, local authority may prohibit via ordinance (§ 21229, § 21225)
Shared-use paths and off-street bike trails (Class I)	Allowed, local authority may prohibit via ordinance (§ 21230, § 21225). No CVC code specific to hiking, equestrian, or purely recreational trails.
Sidewalks	Not allowed (§ 22411)
Regular streets & traffic lanes	Allowed; e-scooters may only operate on a street with posted speed limit over 25 mph if there is a Class II bike lane present (§ 21221, § 21235 (b))
Freeways & urban expressways	Not allowed (§ 21221, § 21235 (b))

E-Bikes and E-Scooters: Legislation in Fresno

Consistent with the CVC, the City of Fresno's Shared Mobility Ordinance defines e-bikes as bicycles, and all city-specific regulations pertaining to the operation of bicycles as outlined in Section 14-17 of the City of Fresno Code also apply to the operation of e-bikes.[6]

E-bikes may not operate at a speed greater than the prima facie speed limit applicable to motor vehicles (unless otherwise posted, this means 25 mph in residential or business areas and 15 mph in alleys, at railroad crossings, or at intersections with low visibility). [7] Notably, bicycles are allowed to operate on the sidewalk in Fresno, *except*

[4] CA Vehicle Code, 21235. https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=VEH&sectionNum=21235.
[5] CA Vehicle Code, 21212. https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=21212.&lawCode=VEH
[6] City of Fresno Code of Ordinances, 9-34. https://library.municode.com/ca/fresno/codes/code_of_ordinances?nodeId=MUCOFR_CH9REREBUPECO_ART34SHMODE
[7] https://library.municode.com/ca/fresno/codes/code_of_ordinances?nodeId=MUCOFR_CH14VETR_ART17REBI

in the central business district or on any street designated as a “mall street” (which are closed to most vehicle traffic as defined in Section 14-1801 of the City of Fresno Code[8]). A person riding a bicycle on a sidewalk must yield to pedestrians and give an audible signal; if a bicyclist’s view is obstructed, they must dismount and walk their bike. In contrast to this policy, the City’s Shared Mobility Ordinance, Sec. 9-3405, requires shared mobility operators to label all devices with "RIDING ON SIDEWALKS IS PROHIBITED BY STATE LAW."[9]

The City of Fresno Code aligns with the CVC definition and regulations for e-scooters.

Policy Gaps and Considerations

- **Policy:** The City may want to reconcile conflicting code regulations regarding e-bikes operating on sidewalks. Current regulations allow bicycles (which includes e-bikes) on sidewalks except in certain areas with high pedestrian activity (specifically, the central business district and mall street sidewalks), while the Shared Mobility Ordinance indirectly implies that e-bikes and e-scooters are not allowed to operate on any sidewalks per State law. Technically only e-scooters are banned from operating on sidewalks per State law, and it is up to local jurisdictions to decide whether e-bikes are allowed to operate on sidewalks. We recommend that e-bikes be allowed to operate on sidewalks in Fresno (outside of the central business district and mall street sidewalks) and the Shared Mobility Ordinance, Sec. 9-3405, should be updated to specify that shared mobility operators only need to label motorized scooters with “RIDING ON SIDEWALKS IS PROHIBITED BY STATE LAW.”
- Updating the municipal code to include positive, supportive e-bike language may encourage mode shift, which in turn would help the City achieve its General Plan goal of reducing greenhouse gas emissions.[10] The City might consider additional code language based on the following model language developed by People for Bikes[11]:
    - *“Except as otherwise provided in this [insert appropriate designation - article, chapter, etc.], an electric bicycle or an operator of an electric bicycle shall be afforded all the rights and privileges, and be subject to all of the duties, of a bicycle or the operator of a bicycle. An electric bicycle is a vehicle to the same extent as a bicycle.”*
    - *“An electric bicycle may be ridden in places where bicycles are allowed, including but not limited to, streets, highways, roads, bicycle lanes, and bicycle or multi-use paths [use appropriate state specific language to describe improved bike paths and related infrastructure; omit language that can be interpreted as trails open to mountain bikers].”*
- **Youth Education:** The City’s Shared Mobility Ordinance treats micromobility safety education as the responsibility of system operators, but that only applies to *shared* micromobility. To educate *personal* micromobility users, or simply to ensure consistent provision of education, the City might consider partnering with Fresno Unified School District, Clovis Unified School District, Central Unified School District, Sanger Unified School District, and Washington Union School District to offer micromobility safety education in schools, along with general pedestrian and bicycle safety education. E-micromobility is very popular among youth because it can offer independence without the requirement of a driver’s license (in the case of e-bikes), but lack of standardized education for safe use of e-bikes puts this vulnerable population at even greater risk.

[8] https://library.municode.com/ca/fresno/codes/code_of_ordinances?nodeId=MUCOFR_CH14VETR_ART18TRREMAALMAARSEAR

[9] https://library.municode.com/CA/fresno/codes/code_of_ordinances?nodeId=MUCOFR_CH9REREBUPECO_ART34SHMODE_S9-3405APPEFR

[10] https://www.fresno.gov/wp-content/uploads/2023/03/upload_temp_Consolidated-GP-10-13-2022_compressed.pdf

[11] https://peopleforbikes.cdn.prismic.io/peopleforbikes/3686d20b-5695-47c1-b0c7-ffe06402be55_Model-eBike-Legislation-Jan2020.pdf

- **Adult Education:** To provide education for adult micromobility users, the City should look to the Berkeley and Santa Cruz case study examples in the following *Case Studies* section. Furthermore, the City could partner with local e-micromobility retailers to offer e-bike safety and rules of the road materials at point of sale, or to offer classes. Pairing this partnership with City-provided vouchers that can be used only at local retailers is a way to boost the local economy while attempting to standard education for safe e-micromobility use.
- **Equity-Based Access:** The California E-Bike Incentive Program, offered through California Air Resources Board, currently offers $1,750 rebates to eligible low-income residents, but receives far more eligible applications than can be accommodated. The City can look to the Berkeley, CA, case study summarized in the following section for best practices on administering its own program to provide free e-bikes or e-bike vouchers to low-income residents.
- **Outreach:** Due to the lower ownership costs compared to owning a vehicle, and in the case of e-bikes, the lack of driver's license requirement, e-micromobility is popular among youth and low-income residents. However, these groups may also hear the least about e-micromobility due to long working/school hours balanced with other commitments. While ensuring consistent e-micromobility education in schools will improve youth outreach, the City may need to try other avenues for reaching low-income adults. One strategy might be to advertise e-micromobility voucher programs via transit advertisements since e-micromobility is often essential in providing first- and last-mile connections.
- **Active Transportation Infrastructure:** Outside of City Code, the City can support electric micromobility use through infrastructure. The City recently received a state grant to develop Mobility Design Guidelines. We recommend including a chapter on Micromobility Design Guidelines which can provide greater detail regarding safe, comfortable, all-ages-and-abilities design standards specifically for different micromobility devices. NACTO recommends four areas of focus when designing for "small things with wheels": [12]
    1. **Lane widths:** Wider facilities allow for safe passing width for wider bikes, such as cargo bikes. A wider facility additionally enables e-bike users traveling at higher speeds to safely pass those on pedal bikes, e-scooters, etc.
    2. **Intersections:** Intersections should account for the turning radii of all devices, ensure visibility of all bikeway users at driveways, and provide sufficient queuing space.
    3. **Surface gradients:** Well-maintained bikeways with smooth surfaces and sensitive grade changes are ideal for accommodating all modes of micromobility.
    4. **Network legibility:** NACTO recommends improved facility legibility, such as stenciling e-scooter icons in addition to bike icons on relevant facilities.

[12] NACTO. Designing for Small Things with Wheels, February 2023.

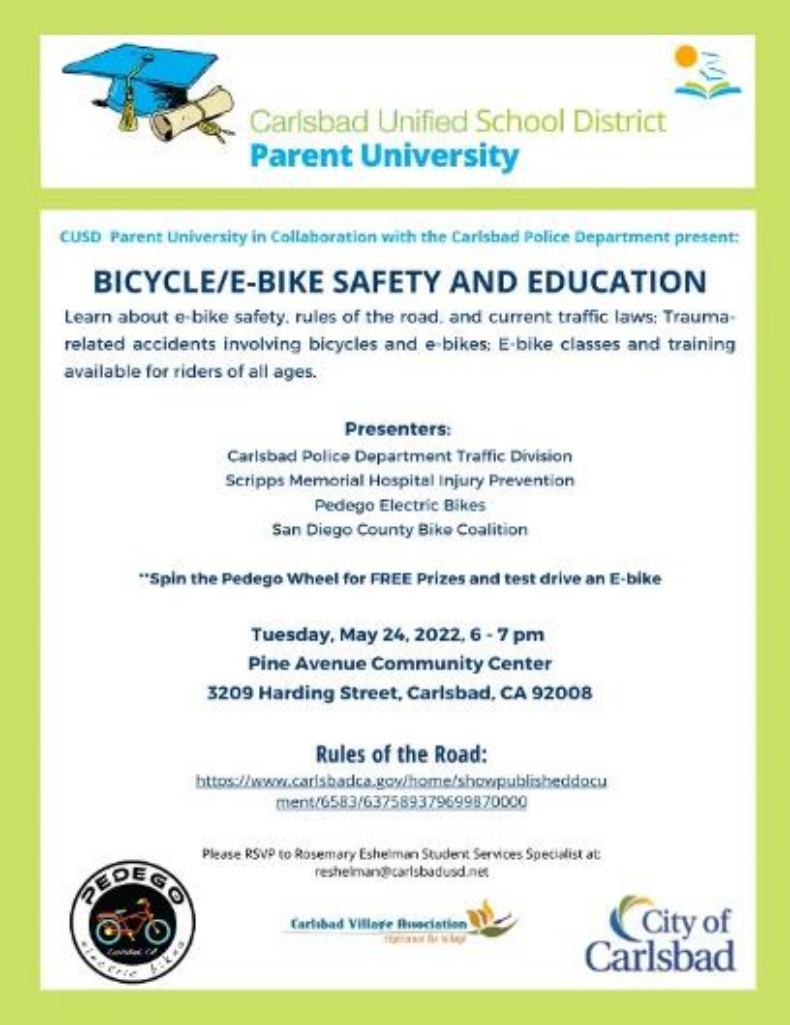
Scooter and bike icons stenciled on a Class IV separated bike lane in Oakland, CA

E-Micromobility Case Studies

Below are best practice case studies from local jurisdictions around managing e-micromobility. The City of Fresno may want to replicate some of these approaches, partnering with local organizations as needed.

Carlsbad, CA – Education as enforcement

In 2022, following a 200% increase in collisions involving bikes and e-bikes, the City of Carlsbad declared an emergency proclamation, which allowed access to $2 million in emergency funds to be used for education, engineering, and enforcement actions to enhance traffic safety. With this funding, the City spearheaded a program requiring students to complete an e-bike safety training to receive an e-bike parking permit.[13] To administer the training, the City paid for several law enforcement officers to become certified American League of Bicyclists safety instructors. As of September 2023, these officers trained over 1000 students. The City also allows residents who were issued certain traffic citations to complete the police-provided e-bike safety training in lieu of filing charges with traffic court.



A Parent University flyer for bicycle/e-bike safety training in Carlsbad

[13] https://records.carlsbadca.gov/WebLink/DocView.aspx?dbid=0&id=7090727&repo=CityofCarlsbad&cr=1

Berkeley, CA – Free e-bikes for low-to-moderate income riders leads to mode switch

In 2023, Berkeley launched the Berkeley Electric Bike Equity Project (BEEP) which provided free e-bikes to 56 low- and moderate-income residents in exchange for tracking their travel patterns over the course of one year. On average, participants rode 13 miles per week, 77% of participants reported decreased reliance on motor vehicles, and 11.6 tons of carbon dioxide emissions were spared.[14] As part of the program, 20 youth interns were trained as e-bike mechanics. They assembled the bikes and performed routine safety inspections. The total cost of the program was $270,000, most of which funded staff time. Funding for the program came from Berkeley City Council as part of the City of Berkeley Climate Equity Fund Pilot. The purpose to the pilot program was to reduce the impact of greenhouse gas emissions and climate change on low-income residents.

BEEP participants pose with their free e-bikes and e-trike

Santa Cruz, CA – E-bike rebates bolster local economy and spur mode shift

As part of the City's GO Santa Cruz Downtown Employee TDM program, the City provides rebates for e-bikes purchased at local retailers. All participating employees receive a base voucher of $400, and income-qualified employees receive an $800 voucher. In conjunction with the rebates, local nonprofit Ecology Action provides e-bike education to all participants who elect to do so. As of March 2023, 91 e-bikes were purchased, resulting in $242,843 invested in the local economy.[15] The GO Santa Cruz program also provides other commute-supportive benefits, such as credits for BCycle (the City's e-bikeshare program).

Best Practices in Education and Engagement

The case studies from Carlsbad, Berkeley, and Santa Cruz are excellent examples of best practices in micromobility engagement and education. More broadly, education and engagement approaches are summarized below.

[14] City of Berkeley Electric Bike Equity Project Impact Report, 2025. https://watersideworkshops.org/wp-content/uploads/2025/02/BEEP-Data-Analysis-Summary-Report-February-2025.pdf

[15]https://ecm.cityofsantacruz.com/OnBaseAgendaOnline/Documents/ViewDocument/Downtown_Commission_2118_Agenda_Packet_5_25_2023_8_30_00_AM.pdf?meetingId=2118&documentType=AgendaPacket&itemId=0&publishId=0&isSection=false

- Develop targeted, age-appropriate education on e-bike safety to riders who are most at risk in Fresno: the school community (parents, students, and staff) and older adults. As staff capacity may be limited, the City might partner with organizations to provide educational and encouragement resources and programs. This is the approach City of Santa Cruz took, partnering with local nonprofit Ecology Action to provide e-bike education to accompany e-bike rebates. In Fresno, the City might partner with Fresno County Bicycle Coalition to develop the curriculum and Fresno Unified School District and Senior Center to administer the tailored curricula. Fresno Unified's ongoing Safe Routes to School and Community Schools initiatives are the perfect opportunity to integrate e-bike safety education.
- Develop a targeted messaging campaign directed towards youth and adults that encourages e-bike and e-scooter use while acknowledging the challenges of traffic safety and interacting with various modes of transportation.
- Partner with locally owned bike shops to offer residents e-bike rebates. This encourages mode shift, bolsters the local economy, and potentially reduces greenhouse gas emissions.

Best Practices in Enforcement

Governing the safe use of e-micromobility may require assistance from the police and code enforcement officials. Police are typically responsible for addressing serious violations that pose immediate threats to public safety, such as reckless riding, DUIs, or collisions. Code enforcement officers handle non-criminal issues, including improper parking of devices, sidewalk obstructions, and compliance with permit conditions. They are better suited for routine inspections and addressing complaints that do not necessitate police intervention.[16]

Best Practices for Storage

Bicycle parking best practices apply for storing personal e-micromobility devices in the public right-of-way. The Association of Pedestrian and Bicycle Professionals' 2015 *Essentials of Bike Parking* guide provides best practices for short-term bicycle parking.

[16] NACTO Guidelines for Regulating Shared Micromobility, Version 2. 2019.

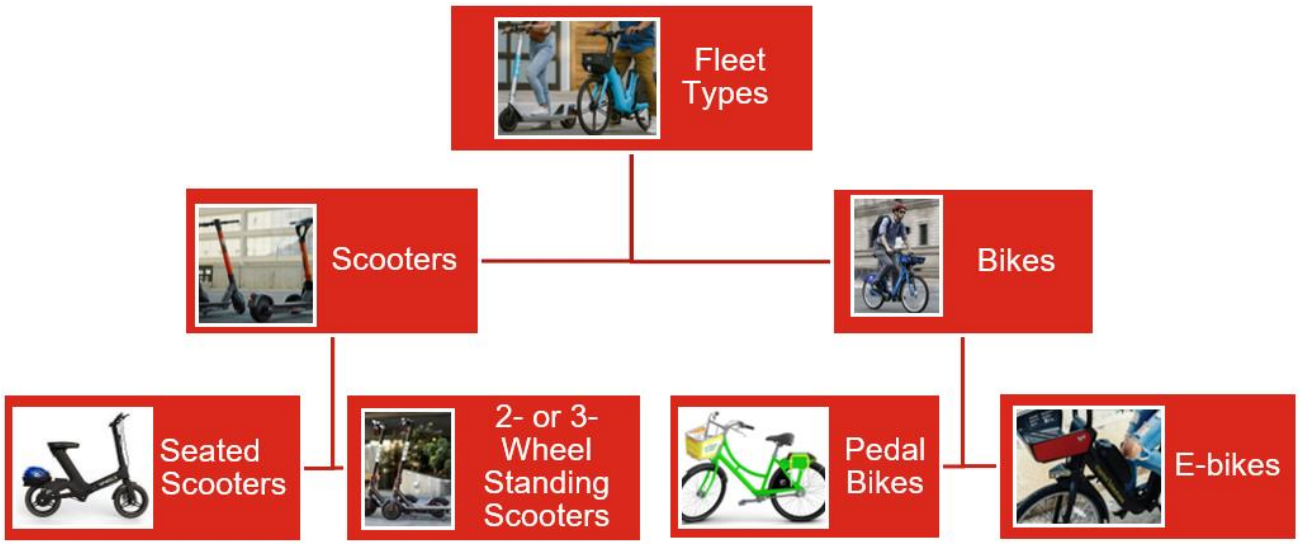
Section B: Shared Micromobility Best Practices

This section details current best practices for the setup, launch, and operations of a shared micromobility program based on national trends and findings from peer cities across California.

Fleet Types

Shared micromobility fleet types can be broadly categorized as bikeshare (including bikes and e-bikes) and scootershare (including standing and seated e-scooters). Other variations and vehicle types are in constant development including shared mopeds and other devices.

Figure 1: Shared Micromobility Fleet Types



The two most common fleet types (bikeshare and scootershare) cater to different use cases, trip lengths, and appeal to different user groups and demographics. Figure 1 shows the typical subtypes of bikeshare and scootershare. Jurisdictions can choose to have combined or separate contracting and permitting processes for different vehicle types. Providing separate fleet caps, but a combined application and permitting process can streamline the application process for operators who would like to offer a multimodal fleet.

Bikeshare

A bikeshare program consists of making bicycles and/or electric bicycles available for a fee to individual riders for short-term rental. Bikeshare is often preferred for longer distances and by users who are more familiar with riding a bike or more comfortable in a seated position. Some shared micromobility providers may not offer a bikeshare option because the cost to manufacture bicycles (especially e-bikes) is higher and ridership tends to be lower. Because of the lower return on investment, some operators will only offer bikeshare with some sort of funding support or incentives such as being able to provide higher levels of scootershare, which is reported to have a higher return on investment.

E-Bikes vs Pedal/Human-Powered Bikes

E-bikes and pedal bikes are operated very similarly, with the difference being the battery pack that provides assistance to an e-bike rider. Compared to traditional pedal bikes, the benefits of e-bikes include the ability to carry heavier loads, go longer distances, bike in hotter temperatures, and climb steep hills. While e-bikes are more expensive than traditional bicycles, e-bike sales have grown significantly in recent years, even outpacing

growth rates for more traditional bicycles. Many private micromobility operators offer both e-bikes and pedal bikes to users. Because California state law regulates e-bikes like human-powered bicycles, e-bikes are not subject to the registration, licensing, or insurance requirements that apply to motor vehicles.

Scootershare

Like bikeshare, a scootershare program makes e-scooters available for a fee to individual riders for short-term rental. Most private shared micromobility operators prefer to include some level of e-scooters in their fleet, as they have a lower unit cost and are usually more popular than bikes amongst users, resulting in a higher return on investment. Cities usually have rules about where e-scooters can be parked and how to address poorly parked vehicles, as well as equity requirements to deploy e-scooters in specific neighborhoods within their service areas.

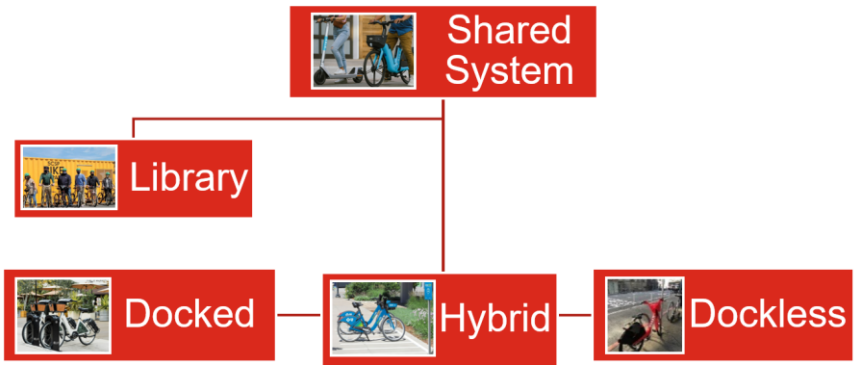
Higher costs to manufacture seated scooters, as well as lower usage rates, have led to many operators not offering these vehicles unless required. Some operators offer separate programs where seated scooters are provided at certain locations or can be delivered directly to a disabled user.

System Types

This section summarizes the potential shared micromobility program system types, as illustrated in

Figure **2**.

Figure 2: Shared Micromobility System Types



Docked, Dockless, and Hybrid Systems

Docked shared micromobility systems are generally more expensive and time-intensive than dockless systems given the additional capital cost of purchasing the docks and station infrastructure: on top of the $1,000-$2,000 unit cost per bike or e-scooter, additional station equipment ranges from $40,000-$50,000 per station. Docked systems also require additional staff resources to identify, permit, and install stations in the public right-of-way. While a docked, station-based system creates more organized pick-up and drop-off, the availability of bikes and scooters is limited to the station locations.

Dockless systems provide more flexibility in where vehicles can be parked allowing closer access to destinations. There can be some issues in reliably knowing that a bike or scooter (or multiple devices for group rides) will be available nearby, but this has been (at least partly) addressed in other systems by ensuring a sufficiently large fleet of vehicles and encouraging regular rebalancing, particularly to identified high-demand and equity areas. Dockless systems are more likely to have issues with clutter and bikes or scooters being parked blocking sidewalks, curb ramps, and other features in the right-of-way. Efficient and effective parking management is a critical aspect of a dockless program.

Some operators provide hybrid systems with bikes that have both docked and dockless capability. This means that users can return a bike even if a dock is full or too far away.

Left: Dockless bikeshare (foreground) next to docked bikeshare (background). Right: Dockless e-scooters.

Bike Library

Bike libraries lend bicycles to riders for short-term use. Users sign a bike out from a central location and return it when finished. Bike libraries operate similarly to brick-and-mortar bike rental stores but often offer bikes for free or very low cost. Bike libraries are often run by community-based organizations and non-profits, public libraries, or by private organizations like bike shops or employers. Bike libraries operated out of public libraries can often use the same check-out system and are often free to anyone with a library card.

A bike library in Golden, Colorado.

Bike library operators who do not otherwise provide bikes for rental should ensure that they meet the necessary liability and insurance requirements (e.g., liability waivers, membership terms, safety checks, etc.).

Bike libraries require a staffed physical location for pick-up and drop-off, a fleet of bikes (that are often refurbished), regular maintenance, and a check-out process. As bike libraries usually operate out of only one or two physical locations, they should be conveniently located based on demand and use (e.g., near transit or areas with limited access to other transportation options).

Operational Models

Shared micromobility programs use a variety of operational models and leverage different funding sources to initiate and sustain their programs. The way a shared micromobility system is structured has a direct impact on how costs are covered, revenues are generated, and fees are assessed. This section describes the various operational models used for shared micromobility systems; the strength and weaknesses of each model are summarized in Table 5. The table is organized from highest level of effort from the public agency to lowest level of effort.

Table 5: Shared Micromobility Operational Model Summary

Operational Model	Strengths	Weaknesses
Publicly owned and operated	▪ Full control over program decisions ▪ Ensures public transparency, accountability, and alignment with public service goals	▪ Public agency assumes all risk, liability, and financial responsibility ▪ Requires staff capacity to oversee and operate the program
Publicly owned and privately operated	▪ Public agency maintains control over program decisions ▪ Public agency does not need to create internal capacity to operate the program ▪ Potential opportunities for financial partnerships with the private sector (e.g., fee-for-service, revenue-sharing, etc.).	▪ Public agency assumes the most risk, liability, and financial responsibility ▪ Incentivizing operators can increase performance ▪ Industry volatility for private operators could disrupt operations
Non-profit owned and operated	▪ Non-profit organizations can be more flexible and nimbler than public agencies ▪ Non-profits have access to both public and private funding sources, unlike private operators	▪ Non-profit leadership and motivation may change over time ▪ Fundraising is variable and requires substantial time and effort
Privately owned and operated	▪ Significantly less start-up cost compared to public ownership (both in capital and labor costs) ▪ Public agency does not need to create internal capacity to operate the program ▪ Public agency disperses some or all risk, liability, and financial responsibility to the private sector ▪ Private sector can access and adapt to new technology and industry trends	▪ Requires private sector interest ▪ Public agency has less control over program decisions than in publicly owned models ▪ Third-party operators may need to be incentivized to meet minimum service levels ▪ Limited public agency control over system branding ▪ Industry volatility for private operators could disrupt operations

Publicly Owned And Operated

In this model, the public agency owns all assets (i.e., infrastructure and equipment including bikes, docks/stations, software) and carries all financial risk. The public agency also operates the system (i.e., performs maintenance, bicycle deployment/rebalancing, customer service, marketing, promotions, etc.) using either its own employees or in partnership with another government agency. This model tends to have a more stable and predictable funding structure. These systems may be operated by a private vendor under a fee-for-service contract, where the public agency pays the vendor to operate the system. This model allows cities to retain control over pricing, service coverage, and equity programs, but it also means the public sector is responsible for covering any operational shortfalls. To help close funding gaps, these systems often pursue sponsorships, which are more attractive when

the public agency controls branding and can offer prominent visibility across the fleet and stations. There are very few publicly owned and operated shared micromobility systems in North America.

Publicly Owned and Privately Operated

Like the publicly owned and operated model, in this model the public agency owns all assets and carries the financial risk for the program. However, the public agency contracts with a private or non-profit operator for day-to-day operations. In this model, cost and revenue responsibilities are typically negotiated through agreements or RFPs, and funding can come from a mix of user fees, public subsidies, and sponsorships.

Non-Profit Owned and Operated

In this model, a non-profit organization owns all bikeshare assets and operates the system, carrying the overall financial risk for the program, although often in partnership with public and private sector partners.

Privately Owned and Operated

In this model, which is the most common shared micromobility operational model for systems in North America, one or more private entities own all shared micromobility assets and operate the system, while the public agency grants permission and oversees the use of the right-of-way through a permit, contract, or other form of partnership agreement. The private operator typically bears the full cost of running the service and relies on user fees and sometimes advertisements to recoup costs. In these cases, agencies usually do not provide direct funding for operations. Instead, they charge permit fees to operators, which can include per-device fees, public right-of-way use fees, or performance-based incentives or penalties. These fees help cities cover administrative costs, infrastructure improvements, and enforcement efforts tied to the system – fee types are detailed in Table 6.

Table 6: Typical Fee Types for Privately Owned and Operated Systems

Fee	Description	Average Fee[17]
Application fee	Due every time an operator applies for the program or renews their permit. This fee is mostly used to pay for staff time to process the application and varies significantly between jurisdictions.	$3,554
Annual fee	A one-time, upfront fee that may be a fixed amount or assessed based on the number of vehicles deployed. This fee varies significantly between jurisdictions.	$11,937
Per-trip or per-device fee	Ongoing fees that are often assessed monthly or quarterly depending on deployment or usage. Best practice is increasingly moving away from per device fees and towards per trip fees (usually $0.10 - $0.20 per trip) that are proportional to usage and incentivize both operators and agencies to support and promote the program.	$0.17

[17] North American Bikeshare and Scootershare Association (NABSA) (2024): *5th Annual Shared Micromobility State of the Industry Report*.

Security deposit or bond	Some cities require operators to pay an upfront security deposit that is held in reserve until needed to pay for any city services, such as impounding vehicles or other issues.	N/A

Procurement

There are several ways that service can be initiated for programs involving private companies or non-profits:

- **Permit**: This is the most common form of regulation for bikeshare and scootershare programs in the United States. In this model, a permit process is established for vendors to apply to operate bikeshare and/or scootershare in the public right-of-way. The jurisdiction reviews applications and selects one or more vendors to provide service. There are typically fees associated with the permits that go towards paying for City staff time and other resources to oversee the program. Permits are often for a set period and may be renewed or the application process restarted at the end of the period. The terms of the permit can be revised at the end of a permit period and incorporated into the new application process. The permit mechanism can take a significant amount of upfront time to draft and be approved by Council, but reduces time needed for evaluation and contracting, which can streamline service. A permit process may have less flexibility for vendors to propose new, value-added, or innovative terms of service.
- **Request for Proposals (RFP)**: An RFP solicits proposals from vendors interested in operating a shared micromobility program. RFPs outline what funding and resources the jurisdiction and its partners are bringing to the program and what is expected of the operator. For traditional bikeshare programs, jurisdictions often included some level of capital funding, sponsorship, and/or other resources. However, most recent RFPs are for shared micromobility operators that are prepared to bring the equipment and operating services at "no cost" or lower cost to the jurisdiction.[18] The benefit of an RFP process is that it allows the jurisdiction to be more flexible in its requirements and provides vendors with more scope to be innovative to stand out from their competitors. Some drawbacks include a longer review and contracting time than other procurement models, as well as not having the ability to communicate back and forth with applicants during the RFP process. Some cities issue Requests for Information (RFI) or Requests for Qualifications (RFQ), that are non-binding proposals and are often used to gather information about whether vendors are interested and what they can provide without (or prior to) releasing an RFP.
- **Direct Contract**: A direct contract is where a jurisdiction enters a contract with a specific vendor and works solely with them to provide bikeshare and/or scootershare services. These often derive from direct communications between a City and a vendor and are relatively quick, streamlined processes. However, they are dependent on local procurement rules as this limits the choices to only the services offered by that particular vendor.
- **Memorandum of Understanding (MOU)**: An MOU is similar to a direct contract, except it has less legally enforceable elements. This is a less common procurement method but allows multiple bikeshare and scootershare vendors to provide service on an expedited timeline with the MOU outlining the service agreement between the jurisdiction and the vendor(s). One benefit of the MOU process is it removes the time needed to create a formal permit process.

[18] Note that there are still costs to the jurisdiction to manage and administer a micromobility program and provide any supporting programs such as educational, promotional, and safety programs.

Public Agency Roles and Responsibilities

Depending on which organizational model is selected, public agency staff time will be required in varying degrees for oversight, implementation, and evaluation of shared micromobility programs and should be considered in developing the program's fee schedule. Many cities launching a shared micromobility program underestimate the level of effort needed to set up and manage the program, and staff time tends to be driven more by the number of vendors than the number of devices.

Multiple city departments are often involved in launching and managing a program, including procurement, contracting, planning, public works, the Mayor's Office, etc. Working with a smaller number of operators can reduce staff time needed to manage the program, foster closer relationships with the operator(s), and increase operator(s) attention on providing customer service rather than competition.

Staff costs can include time for oversight, reviewing permit applications, responding to media and public information requests, data analysis, operator coordination and communications, field checks, Council reporting, and other functions. Other costs can include removing or impounding vehicles, responding to community enquiries and information requests, parking enforcement, and administering programs and activities to promote and support the micromobility program.

Liability

Even if a public agency is not administering its own shared micromobility program, it has a responsibility to ensure legal requirements are met.

Insurance Requirements: Cities should mandate micromobility operators carry comprehensive insurance coverage. This includes general liability, auto liability, and workers' compensation insurance to protect both users and the general public. Such requirements are crucial for ensuring that operators can cover costs associated with accidents, injuries, or damages resulting from their services.[19]

User Agreements and Waivers: Operators often implement user agreements that include waivers of liability. While these can limit operators' legal exposure, cities should review these agreements to ensure they are fair and do not absolve operators of responsibility for negligence or non-compliance with local regulations.

Data Sharing: Implementing data-sharing agreements between operators and cities can aid in tracking incidents and identifying patterns related to safety and liability. More detailed information about data sharing can be found in the *Data Sharing Requirements* section.

Regional and state funding mechanisms and sources

There are a variety of state-level resources that support shared micromobility programs at the planning, launch, and evaluation stages, as well as to support education.

- **California Climate Investments - Clean Mobility Options (CMO):** CMO is a statewide public program that provides up to $1.5 million vouchers to government entities and nonprofits to develop and launch zero-emission mobility projects. The program has a requirement to focus on disadvantaged communities under SB 535 and AB 1550, and most of Fresno's census tracts are eligible as a project area. Bike libraries, bikeshare, and scootershare are all eligible projects, and CMO funds can support planning,

[19] Shaheen, S., & Cohen, A. (2019). Shared Micromoblity Policy Toolkit: Docked and Dockless Bike and Scooter Sharing. *UC Berkeley: Transportation Sustainability Research Center*. http://dx.doi.org/10.7922/G2TH8JW7 Retrieved from https://escholarship.org/uc/item/00k897b5

development and implementation (including outreach and operations). Applicants must have completed a community transportation needs assessment prior to applying for funding.

- **California Transportation Commission – Active Transportation Program (ATP):** ATP funds can be used to support e-bike safety and encouragement programs.
- **Caltrans – Sustainable Transportation Planning Grants:** These grants support planning, studies, and design work to identify and evaluate projects, including conducting outreach or implementing pilot projects. Outreach related to mode shift to electric forms of transportation and data collection/data sharing initiatives are some activities this grant would support.
- **Strategic Growth Council and Department of Conservation – Transformative Climate Communities**: Project development and planning grants can fund community engagement and investments in partner and local staff development for e-bike safety.

Data sharing requirements

Shared micromobility vehicles can produce a wealth of data for cities to monitor the program, adapt regulations, and make informed decisions about the use of the public right-of-way. In addition to regular "static" reports that cities may require of operators for updates on the program, there are two data specifications that provide real-time data and make up the application programming interfaces (APIs) that are most frequently required by agencies:

- **General Bikeshare Feed Specification (GBFS):** originally developed for docked bikeshare systems, this API reports real-time location and battery charge of available dockless vehicles and is often used to develop user apps to find available vehicles. GBFS does not include data on vehicles while in-use or historical data. In 2023, 71% of agencies with shared micromobility programs in North America required GBFS data feeds from operators.[20]
- **Mobility Data Specification (MDS):** in addition to real-time location and battery charge of available dockless vehicles, MDS also includes information about unavailable vehicles and can include real-time and historical data about trip origins, destinations, and some "breadcrumb" data about the routes taken by users recorded by GPS units on the micromobility vehicles. Agencies require MDS feeds less often than GBFS feeds.

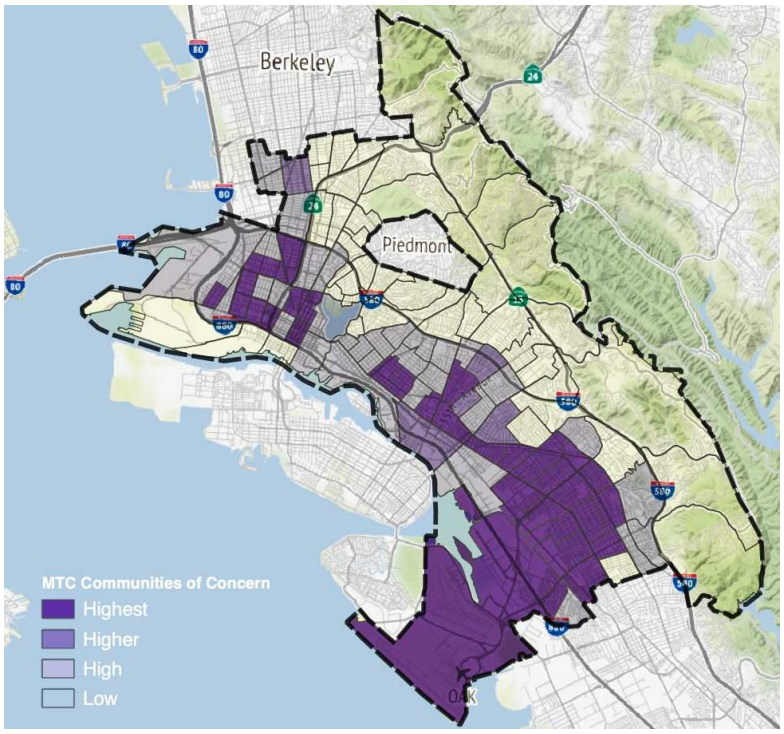
Most agencies depend on third parties for their data needs. For example, the data aggregator Ride Report provides an interactive dashboard that includes live data. The Ride Report contract costs $15,000 per year, which provides an agency independent oversight of their operator and offers immediate access to data, eliminating the need to request information directly from the company each time it's needed.

Equity and accessibility

There are multiple regulatory tools that jurisdictions can use to promote equitable access to shared micromobility. There is significant variation in the deployment of these tools and some jurisdictions request that operators submit an "equity plan" to show how low-income and historically marginalized populations will be engaged in the program. Some techniques to improve access that can be included in city regulation for shared micromobility include:

[20] North American Bikeshare and Scootershare Association (NABSA) (2024): *5th Annual Shared Micromobility State of the Industry Report*.

- **Equitable distribution:** Operators provide and rebalance a certain percentage of vehicles in underserved or defined “equity” zones. Jurisdictions can incentivize operator deployment in underserved areas by reducing fees for trips that start or end in these zones.
- **Discounted pricing**: Operators provide discounted pricing for low-income individuals - often partnering with community-based organizations and/or using already established low-income qualification programs to confirm eligibility. The City of Fresno’s Shared Mobility Ordinance, Section 9-3405 requires that shared mobility operators provide a discount program for low-income individuals.[21]
- **Non-digital/underbanked access:** Operators provide alternative access programs for people who do not have access to a smart phone or the operator’s app or are unbanked/underbanked and need cash or pre-paid card payment options. The City of Fresno’s Shared Mobility Ordinance, Section 9-3405 requires that shared mobility operators accept cash payments.
- **Multilingual access:** Operators provide their apps and communications in different languages.
- **Outreach/engagement with underserved communities:** Operators conduct digital and/or in-person outreach targeting underserved communities. This can include ad/social media campaigns, tabling/pop-up events, and device demonstration events. Jurisdictions should ensure that underserved populations are engaged consistently and meaningfully throughout the program (not just during launch).
- **Access for users with disabilities:** Operators provide adaptive vehicles for users with disabilities or partner with other organizations that provide these services.



The City of Oakland requires 50% of e-scooters to be deployed in “Communities of Concern”.

[21] https://library.municode.com/CA/fresno/codes/code_of_ordinances?nodeId=MUCOFR_CH9REREBUPECO_ART34SHMODE_S9-3405APPEFR