

Regional Shared Micromobility Analysis

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Executive Summary

Introduction

What is shared micromobility?

Shared micromobility is an umbrella term for a service that provides a public point-to-point transportation using “shared-use fleets of small, fully or partially human-powered vehicles such as bikes, e-bikes and e-scooters. These vehicles are generally rented through a mobile app or kiosk, are picked up and dropped off in the public right-of-way”.¹

In the Sacramento region, there are several examples of shared micromobility programs, including the current Lime bikeshare and e-scooters service, a privately managed program, and a number of dockless shared e-scooters services.

Purpose of the Study

The study was initiated to support Sacramento Area Council of Governments’ evaluation of potential operating models and financial scenarios to understand the potential for a regional micromobility system.

This report is designed to be readily accessible and referenced for decision making by SACOG, the Policy Steering Committee, the Board of Directors, the Project Steering Committee, comprised of representatives from SACOG, the City of Sacramento, the City of West Sacramento, the City of Davis, and UC Davis and potential future member jurisdictions and key stakeholders involved in SACOG’s decision making process.

While there are a number of other considerations to take into account when planning a regional shared micromobility program, the report was commissioned to focus on the expected levels of demand and financial impact of different operating models and should be considered as the first stage of ongoing discussions. The study commenced in advance of the shared micromobility procurement in Davis and UC Davis which is in progress at the time of developing this report.

Program Vision

SACOG intends to leverage a regional shared micromobility program to:

- Improve access to education, employment and/or shops/facilities by a sustainable mode;
- Increase use of shared micromobility to replace short distance car trips;
- Increases uptake of cycling amongst different user groups by providing access to e-bikes;
- Increase the provision of an alternate sustainable mode of travel in equity zones;
- Improve active and healthy lifestyles; and
- Contribute to VMT reduction goals.

Shared Micromobility in the Region

Over the last decade, shared micromobility has helped change how people get around in communities across the US. Services like bikeshare and e-scooters allow for convenient point-to-

¹[NACTO, 2019, Guidelines for Regulating Shared Micromobility](#)

point transportation and are an environmentally friendly alternative to driving. The first bikeshare program in the Sacramento region was launched by SACOG and city partners in 2018 (after a small 100-bike preview system in 2017) with e-bikes owned and operated by Social Bicycles Inc (SoBi). Over time, the program agreement was amended to accommodate evolving business models, market consolidation, and changes in user demand. This resulted in a public-private partnership led by SACOG under which SoBi and then JUMP/Uber and finally Lime (in May 2020) owned and operated the bikeshare system.

Over the last five years, the shared micromobility industry has continued to see rapid change with a proliferation of shared e-scooters providers. The original bikeshare agreement was amended further in December 2020 to facilitate the return of bikes in Sacramento and West Sacramento after Lime halted operations due to Covid-19.²

The ridership evolution from 2019 and September 2022 shows that pre Covid-19, shared e-bikes saw higher levels of demand than e-scooters, peaking in Summer 2019 at over 140,000 trips per month. Demand for Lime e-bikes started to decline after the user fees increased in September 2019. From the August 2020 relaunch, levels of demand for both e-bikes and e-scooters has grown slowly, with monthly trips for e-scooters higher than for e-bikes. At the time of this study analysis (September 2022), riders in the Sacramento region took a total of 10,679 e-bike trips and 24,506 e-scooter trips. On average, approximately 302 e-bikes and 387 e-scooters were available each day. Each e-scooter generated approximately 2.1 trips per day while each e-bike served 1.2 trips per day.

Market Assessment

The study focuses on answering a fundamental question for SACOG: under what conditions and operating model options would a regional shared micromobility program be viable? To help answer this and prepare a financial analysis, the study team alongside SACOG and the PMT members identified five peer systems for review (see Table 1), with a focus on regional or countywide systems that operate in or across multiple jurisdictions, which are the most applicable to a future system in Sacramento region and interviewed their program managers.

Table 1.1: Market Assessment List

Program	Program Location	Operating Model
Nice Ride	Minneapolis, MN	City bikeshare program. Non-profit administrator (Nice Ride), operated by private operator (Lyft). E-scooter agreements are separate.
RideKC Bike	Kansas City, MI	Regional bikeshare program. Non-profit administrator/operator (BikeWalkKC). BikeWalkKC piloted a joint program for both e-scooters/e-bikes in 2020/21.
Divvy	Chicago, IL	Regional bikeshare program covering Chicago and two adjacent suburbs. Publicly administered and owned (CDOT), operated by private operator (Lyft). E-scooters as part of system separate agreements.

² [SACOG Regional Bike Share Policy Steering Committee Meeting: Agenda Item No 2020-December-2 \(December 2, 2020\)](#)

Program	Program Location	Operating Model
Capital Bikeshare	Washington D.C.	Regional bikeshare program. Publicly administered (DDOT), operated by private-operator (Lyft). E-scooters agreements are separate.
MetroBike	Austin, TX	City bikeshare program. Publicly administered / non-profit operator. E-scooters agreements are separate.

The study team also proceed to collect information from the private sector to inform the potential approach to procuring the services, maintaining a sustainable and adaptive system, and understanding recent/forthcoming innovation as well as validated some key assumptions from the financial analysis. Through discussions with SACOG and the PMT groups, the study team interviewed the following operators: BCycle, Drop Mobility, Lime, Lyft and Superpedestrian. While each operator has a unique operating experience, there was significant overlap in the responses regarding the key success factors and limiting factors for a shared micromobility program. Table 2 summarized the results:

Table 1.2: Summary of Key Success Factors and Limiting Factors

Key Success Factors	Key Limiting Factors
- One operator per mode type - At least ~1,000-2,000 vehicles split between at most two operators. - Exclusive long-term contracts (minimum three years, ideally five years)	- Two or more operators - Contracts shorter than three years - Availability of funding

Operating models for a regional program

A shared micromobility program in cities can be delivered in different ways, depending on who funds, and by extension owns the assets including the vehicles, on-street infrastructure, and who manages and operates the program/s. Through workshops with SACOG and the PMT members and in the light of the market assessment, the report presents an overview of potential operating models alongside their core benefits and limitations and relevant for a potential regional program.

Each model comes with different benefits and drawbacks, therefore selection of a preferred model depends on both the models ability to meet the long term policy objectives for the program/s (see 2.1 and 2.2) and the financial deliverability of the model. Table 5.2 presents the benefits and drawbacks of each model.

Table 1.3: Summary of the benefits and drawback of each operating models

Models	Potential Benefits for public sector	Risks to public sector
1. Public sector owned and operated	- Potential to design and develop a program/s that best meets long term policy objectives such as VMT or GHG reductions or equity goals (given funding availability) - Potential to be cost-efficient compared to Option 2³ (eliminating the operator's cost mark-ups) - Full control on program operations	- High level of initial investment into capital costs required - Revenue risk (if ridership income does not cover operating costs, which is quite likely) - Lack of previous shared micromobility experience - Risk of break in the continuity of the service if the team is replaced after local election
2. Public sector owned, private operator(s)	- Potential to design and develop a program/s that best meets long term policy objectives such as VMT or GHG reductions or equity goals (given funding availability) - Potential to change operator/s on non-delivery - Jurisdictions manage the program characteristics - Operational efficiency (based on set KPIs) - Experience from operator valuable to grow usage	- High level of initial investment into capital costs required - Potential revenue risk (depending on agreement with private operator/s) - Potentially higher operating costs compared to Model 1 - Operator(s) brings in experience, flexibility as well as agility to the program - Expansions and variations to be agreed with the operator(s)
3. Private sector owned and operated	- Quick to implement - Limited upfront investment from jurisdictions - Cater to high demand areas	- Limited opportunity to meet public policy objectives such as VMT/GHG reductions and equity goals. - Threats to long term viability and sustainability owing to high private sector involvement (profit maximizing objective) - Limited/no control over the pricing - Limited/no control over locations and operations

The PMT members and SACOG them agreed on model(s) to take forward as potential scenarios for a detailed financial analysis a potential scenario.

The consensus was to test a public sector led model where public sector owned and operate a service, a hybrid model where the bikeshare program would be public sector led and the shared e-scooters program would be privately led and a private sector led model where private sector owned and operate the program with a strong oversight from the public sector.

³ With proper training of resources, and gradual increase in experience of operating the system, the costs of operations and maintenance can be minimised for this option if the public sector directly manages the system, thereby eliminating operator profits/mark-up on costs.

The three tailored models tested for the financial analysis are summarized in the table below:

Table 1.4: Models considered in the financial analysis

Models considered for financial analysis	e-bike program	e-scooter program
Model A: Public Sector led	1. Public sector owned and operated	1. Public sector owned and operated
Model B: Hybrid model	1. Public sector owned and operated	2. Private sector owned and operated
Model C: Private sector led	3. Private sector owned and operated	3. Private sector owned and operated

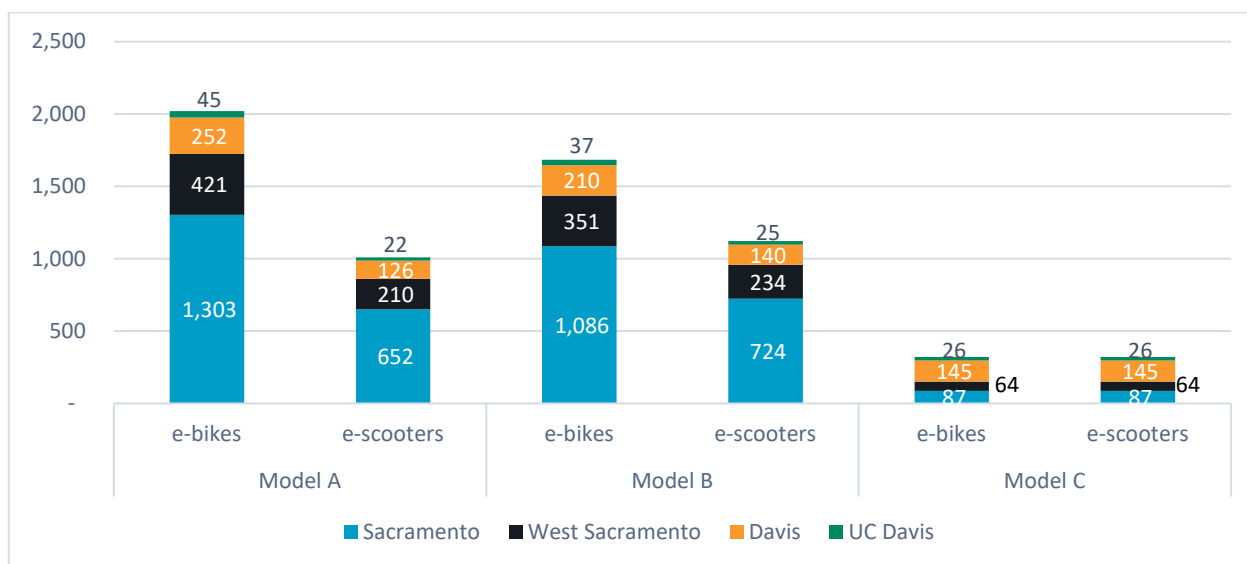
Financial Analysis

The financial analysis aims to identify the financial implications of the three different pre-selected operating models including: set-up costs, annual operating costs, demand, annual revenue and resulting operating profit or loss.

The report provides the methodology and assumptions approach that were used to develop a separate spreadsheet-based tool that SACOG and the PMT members can use to understand the financial implications of different choices made for the delivery (and management) of the program/s and how they translate into in terms of potential profit or loss. All assumptions can be adjusted in the tool.

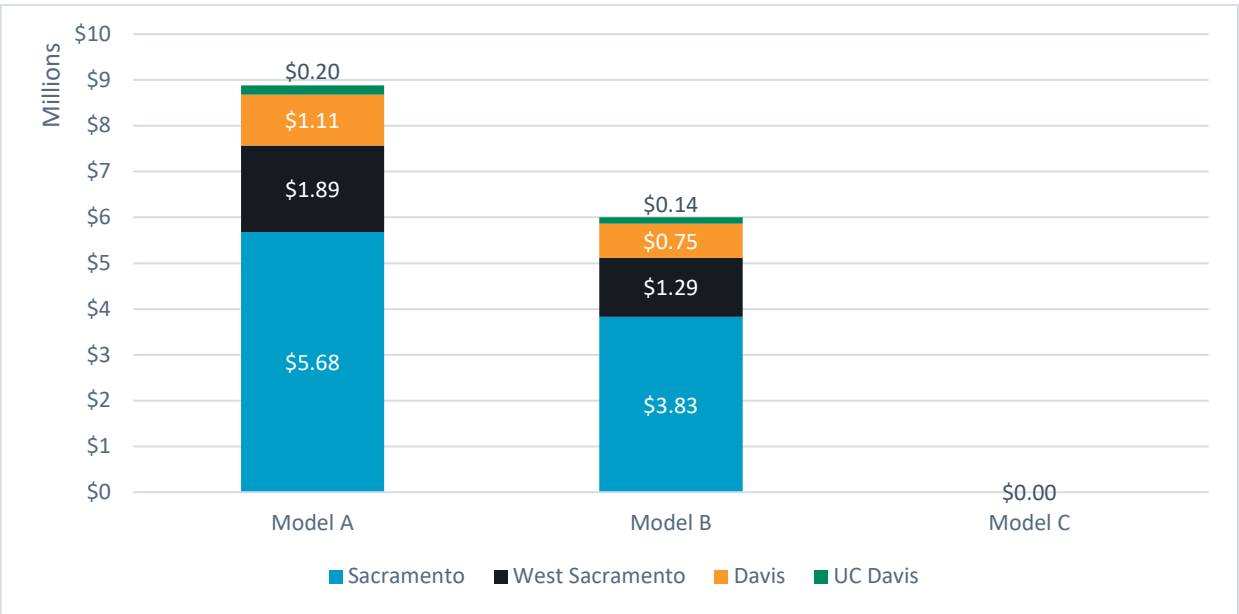
Regarding the potential fleet size by jurisdictions and based on the assumption of a ratio of between 1.5 and 2 e-bikes per e-scooter agreed with the SACOG team, it was calculated that for Model A, 1,010 e-scooters and 2,024 e-bikes will be needed. Similarly, 1,684 e-bikes and 1,123 e-scooters will be needed for Model B and 322 e-bikes and e-scooters for Model C.

Table 1.5: Fleet size by jurisdiction

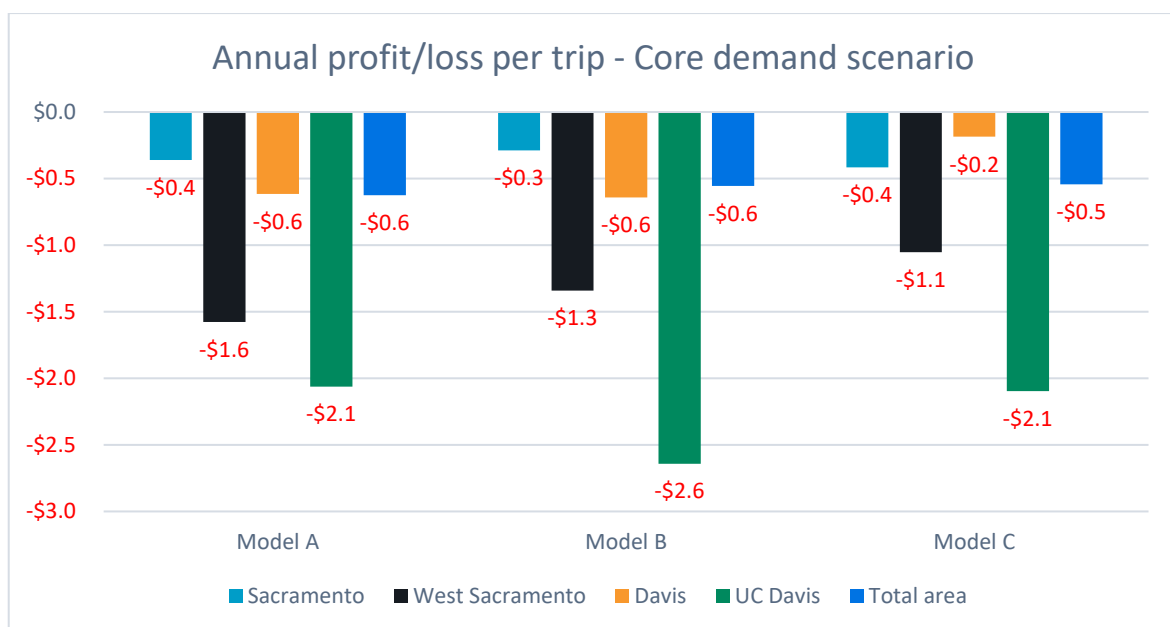


A total capital cost (Year 1) was calculated based on unit cost assumptions). For Model A, the entire cost is incurred by SACOG and partners while for Model B, SACOG and partners incur costs relating to set up of the e-bike program including purchase of vehicles, infrastructure and set-up fees and contingencies. For Model C, the capital cost for e-bikes and e-scooters is incurred by the private operator(s). The capital cost for SACOG and partners is approximately \$8.88 million for Model A and \$6.00 million for Model B.

Table 1.6: Capital costs for the public sector (in millions)



The annual profit or loss per trip is a good benchmark to compare the financial implications of the three models. The lower the overall loss per trip or higher the achievable profit per trip for a model, higher is the overall financial standing or value for money for the model. Based on the consultant team’s assumptions, both Model A and Model B generate a loss of 60 cents per trip, while Model C generates a loss of 50 cents for the public sector for the core demand scenario. If the demand increases, as in the case of High demand scenario, the Model B makes a loss of 10 cents per trip and Model A breaks-even, but Model C still generates a loss of 30 cents per trip for the public sector.

Table 1.7: Annual profit/loss per trip for public sector – Core demand scenario

Source: Steer

Recommendations and next steps

The final part of the report provides draft consultant recommendations for the preferred operating model approach for a future regional shared micromobility program in Sacramento. The recommendations include short term next steps to consider for further operating models' analysis, funding pathways and procurement considerations.

These recommendations should be reviewed based on the following important considerations, which are currently not taken into account in the consultant recommendations including:

- political views;
- availability of funding; and
- individual city preferences (including other jurisdictions beyond the four considered in this report).

Regarding the choice of an operating model for the regional program, and subject to the further assessment, detailed in next steps, the consultant team recommends for SACOG and the jurisdictions to take forward Model B - publicly owned and operated (e-bikes) / privately owned and operated (e-scooters)- for the following reasons:

- Similar fleet type and operational area despite lower capital costs contribution compared to public-led model;
- Seeks a balance between control over program from the public sector and operations experience from the private sector;
- Model B offers the possibility for local jurisdictions to opt in the regional program and expand its operating areas;

- Expected higher e-bike usage due to low user costs and improved coverage/density compared to privately-led model;
- Operational break-even expected to be achievable at High Demand scenario;
- Operational costs and risks shared by operator(s) and public sector (e-bikes);
- Potential to receive revenue share from e-scooter operator when profits made (high demand);
- Potential for not requiring any subsidy payments to e-scooter operator(s); and
- Potential for payments from e-scooter operators to subsidize e-bike program.

In terms of next steps, the study team recommends to:

- Consider the impact of operating model(s) compared to the program objectives, especially in terms of VMT reduction, improvement of active and healthy life, accessibility, mode shift and integration with other modes;
- Extend the financial analysis to a multi-year study to assess cost of operating models over the contract period;
- Adapt financial analysis to allow for additional jurisdictions to be added; and
- Review funding pathways.