



MONTEREY COUNTY

# ZERO EMISSIONS SHARED MOBILITY STUDY

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Prepared for The County of Monterey by Mobycon Inc.

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# PREFACE

**Building a transportation system that works for everyone is as much about community and belonging as it is about vehicles and infrastructure. The Zero Emissions Shared Mobility Study is rooted in the simple but powerful idea that how we move through our communities reflects how we care for one another.**

This plan was developed during a time of both opportunity and challenge. Across Monterey County, workers in the hospitality and agricultural industries form the backbone of our regional economy. Many of these individuals and families, some long established, others newly arrived, face real barriers to mobility. Language, cost, geography, and fear of exposure all shape the ways people move. For some community members, uncertainty surrounding immigration enforcement and mistrust of government have created understandable hesitation to participate in public processes or use shared transportation options.

We recognize that mobility is personal. The freedom to move independently, to make one's own choices, to feel safe, to go where opportunity leads, is a value deeply held in every community. Yet we also know that our shared future depends on finding new ways to connect. Shifting toward shared, zero-emission transportation is both an environmental imperative and a social one. When we share rides, embrace active transportation, and reimagine public spaces as places of welcome rather than fear, we strengthen the very fabric of our community.

This Study helps support a future where every person can move freely, safely, and sustainably. It recommends investment in infrastructure, for partnerships with trusted community organizations and for programs that empower individuals to choose low-carbon mobility without sacrificing security or dignity.

By supporting our neighbors, expanding opportunity, and creating safer, more connected ways to travel, we are building a foundation of trust, resilience, and shared prosperity for all who call this region home.



# 1. INTRODUCTION

## FUTURE MOBILITY OF MONTEREY COUNTY

Monterey County is growing and over the next 25 years, the Monterey Peninsula population is expected to increase by 21%, Salinas by 2.3%, and South County communities by 6.9%, according to AMBAG's 2026 Regional Growth Forecast.<sup>1</sup> Communities already feel the pressure of change with increases in traffic congestion and parking constraints. With continued population growth in Monterey County population centers, we must make the vision for a safe and sustainable transportation system a reality. To absorb this growth in a sustainable fashion, new transportation options are needed.

## ZERO EMISSIONS SHARED MOBILITY

Zero Emissions Shared Mobility refers to transportation options that allow people to travel without relying on individually owned, gasoline-powered cars. It combines two concepts:

**Zero Emissions**, which refers to transportation modes and technologies that do not produce tailpipe emissions of greenhouse gases or air pollutants during operation. This typically includes electric vehicles (EVs) powered by renewable energy sources, as well as active transportation modes like walking and bicycling. In planning, this emphasizes a shift away from internal combustion engines and fossil fuels toward electrification, clean energy integration, and supporting infrastructure like EV charging stations.

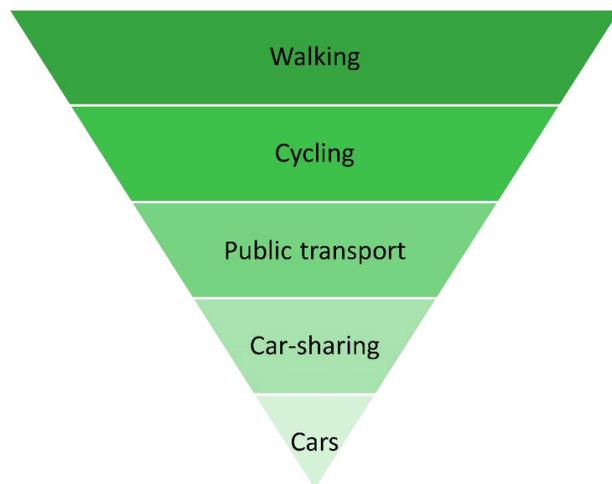
**Shared Mobility** describes transportation services that are shared among users, allowing multiple people to access a vehicle or ride without owning it individually. This includes a broad range of modes such as public transit, carshare, micromobility (e.g., bikeshare and scooter-share), ride sourcing (e.g., Uber/Lyft), vanpools, and micro transit. From a planning perspective, shared mobility is both a service model and a strategy to reduce congestion, parking demand, and vehicle miles traveled (VMT), while supporting multimodal integration.

Zero Emissions Shared Mobility reduces the need for individual vehicle ownership and can help reduce traffic, save money, and cut down on pollution. This Study evaluates how these approaches can expand access, reduce emissions, and improve everyday mobility for communities across Monterey County.

# WHY SHARED MOBILITY MATTERS FOR A ZERO-EMISSIONS FUTURE

Across North America, municipalities are using a Green Transportation Hierarchy to describe their transportation framework (Figure 1). This hierarchy prioritizes active transportation and shared mobility towards the top, where single-occupancy vehicles would traditionally be.

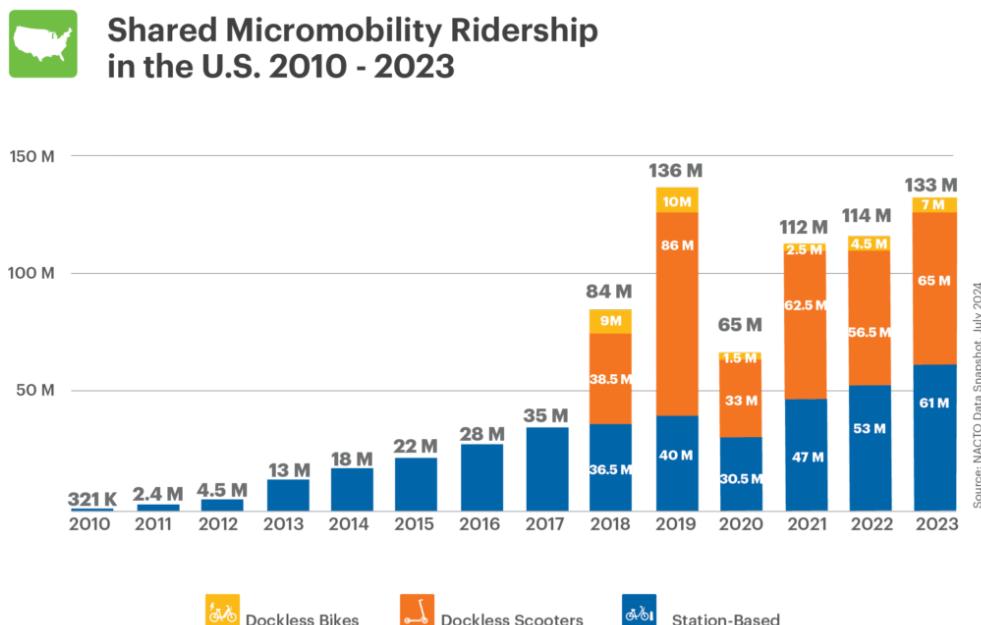
Active transportation refers to human-powered modes of travel that rely primarily on physical activity for movement. This includes walking, bicycling, using wheelchairs, skateboarding, operating non-motorized or low speed micromobility devices, and public transit. It may also include electric-assist bikes and scooters when used to replace car trips. While some active transportation modes like personally owned bikes and scooters does not fall under “shared mobility” by definition, it does play a critical supporting role in a Zero Emissions Shared Mobility framework.



**Figure 1. Green Transportation Hierarchy**

Source: Bradshaw 1992

According to the National Association of City Transportation Officials (NACTO) 2023 Shared Micromobility Report, shared micromobility is growing in the United States. U.S. micromobility ridership (including bikeshare and scooter-share) has climbed from 320,000 trips in 2010 to over 130 million trips in 2023, showing strong public demand for convenient, low-carbon alternatives (Figure 2).



**Figure 2. Growth of shared micromobility in the U.S.**

Source: NACTO Shared Micromobility Report 2023

# SHARED MOBILITY REDUCES THE COST BURDEN OF CAR OWNERSHIP

According to the American Automobile Association's 2025 "Your Driving Costs" study, the average annual cost of owning and operating a new vehicle is approximately \$11,557.<sup>2</sup> Shared mobility can reduce the burden of car ownership for families in Monterey County. For low-income households, this burden is even more significant. If someone earns around \$35,000 per year, owning a car can consume over one-third of their entire annual income. Replacing even part of these trips with micromobility can free up thousands of dollars annually, that can instead go toward rent, groceries, childcare, or savings.

## SHARED MOBILITY AND TRIP CHAINING

Trip chaining refers to the completion of trips by using multiple modes of travel. This may mean walking or bicycling to and from a transit station, then using a bus or rail line to complete a longer trip.

Recognizing the role individual travel modes plays in trip-making can guide decision making about trip chaining. For example, a short trip of  $\frac{1}{4}$  mile may

be feasible entirely by walking, but a trip of 2 miles becomes less attractive. Longer distances become more feasible when combining walking or biking with transit. By focusing on trip chaining, agencies may be encouraged to invest in network improvements near transit hubs, increasing the opportunity for people to travel long distances without relying on automobiles.

## MODAL PREFERENCES BY TRIP LENGTH

When planning for trip chaining, it is important to understand the relationship between modal preferences and trip distances. Different modes are better suited for different trips, and combining modes can help facilitate travel over various distances.

Figure 3 shows travel mode share by trip distance in the Netherlands. This illustrates trip making potential in a community with a robust infrastructure system for multimodal travel. Travel behavior research consistently shows that people choose different modes based on the length of their trip. The chart illustrates this dynamic clearly:

- Walking dominates very short trips.
- Bicycling becomes highly competitive for short to medium distances.
- Transit becomes useful as trips extend beyond a comfortable bicycling range.
- Cars increasingly dominate as distance increases.

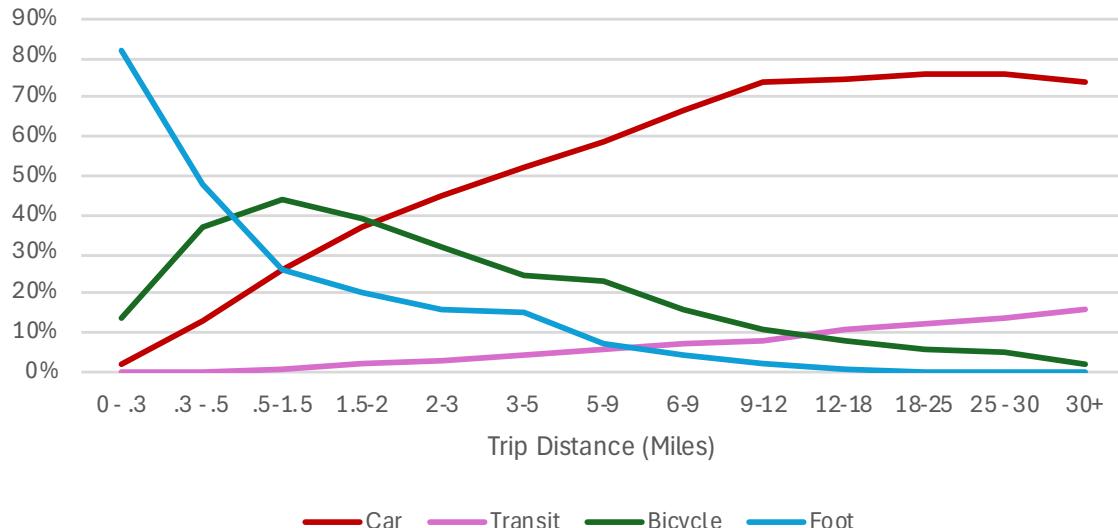


Figure 3. Travel mode share by trip distance in the Netherlands from Statistics Netherlands, 2022, National Travel Survey.

Walking and biking trips are suitable for short distance trips, and cars and transit becomes the preferred mode for trips over 3 miles. Based on these figures, Table 1 infers the suitability for each mode at different scales of a transportation network in response to these shifting trip distances.

**Table 1. Suitability of travel modes by network scale and trip distances**

	<b>Regional (10-15 miles)</b>	<b>City (3-10 miles)</b>	<b>District (1-3 miles)</b>	<b>Local (.1- .5 miles)</b>
<b>Walk</b>	Paired with transit	Paired with transit	Effective for shorter trips up to 1 mile	Effective
<b>Bike</b>	Paired with transit	Effective for shorter trips up to 5 miles	Effective	Effective
<b>E-Bike</b>	Effective	Effective	Effective	Effective, depending on parking access
<b>Transit</b>	Effective, when shielded from congestion	Effective, when shielded from congestion	Effective	Ineffective
<b>Car</b>	Effective, depending on congestion	Effective, depending on congestion	Ineffective, depending on parking access	Ineffective

## BUILDING ACTIVE TRANSPORTATION INFRASTRUCTURE TO SUPPORT SHARED MICROMOBILITY

Shared micromobility services—such as shared bikes, e-bikes, and scooters—can expand access to jobs, services, and transit, but only when paired with an active transportation network that meets a high bar for safety, comfort, and connectivity. To support true mode shift, transportation infrastructure investments must be designed for people of all ages and abilities, not just confident or experienced riders.

Two documents guide active transportation related infrastructure and policy investment across Monterey County:

### **2024 Complete Streets Policy (AMBAG)**

The 2024 AMBAG Complete Streets Policy establishes a regionwide commitment to planning, designing, operating, and maintaining a multimodal

transportation system that safely and comfortably serves users of all ages, abilities, and travel modes across the Monterey Bay region. It applies broadly to transportation projects receiving AMBAG funding, encourages local jurisdictions to incrementally transform the regional street network into a safer, more connected, and people-centered system.

### **2018 Monterey County Active Transportation Plan (TAMC)**

The 2018 Monterey County Active Transportation Plan provides a countywide blueprint for making walking and bicycling a safe, convenient, and integral part of daily life for residents and visitors of all ages and abilities. Prepared in accordance with California's Active Transportation Program guidelines, the plan assesses existing conditions, safety needs, and equity considerations, and identifies nearly 600 miles of proposed bikeway and pedestrian improvements across all jurisdictions in the County.

To fully realize this vision, jurisdictions should prioritize implementation of the Monterey County Active Transportation Plan and actively confirm

that facility selection decisions align with All Ages and Abilities principles. Both plans emphasize that providing nominal facilities is not sufficient; infrastructure must be evaluated based on whether it creates low-stress conditions appropriate for a broad spectrum of users, not just the “average” or most confident rider.

Jurisdictions are encouraged to use nationally recognized guidance, particularly from the FHWA Bikeway Selection Guide 2023 and the AASHTO Guide for the Development of Bicycle Facilities to inform future project development and to validate when higher-quality treatments are warranted based on motor vehicle speeds, volumes, and context.

# **ZERO EMISSIONS SHARED MOBILITY PLANNING AT ALL LEVELS**

Monterey County and partners are constantly planning for a transportation future with more options, fewer emissions, and more sustainable modes. Through the Sustainability Program, the County aims to support a healthy and vibrant economic, social and environmental future for the residents of Monterey County.

Efforts to support Zero Emissions Shared Mobility have been in place since 2010. The Monterey County General Plan has called for reducing greenhouse gasses (OS-10.11), the expansion of rail transit to offer more ways of getting around (C-8.3), transit-oriented development to new residents can use transit for everyday life. (LU-2.4; C-8.4), and streets designed for shared and low impact vehicles (C-3.5; C-9.2).

## **California agencies are leading the way in greenhouse gas reduction from transportation.**

State of California legislation and executive orders have set goals for carbon neutrality, improving air quality, and supporting the health and economic resiliency of urban and rural communities, particularly low-income and disadvantaged communities.

The California Air Resources Board’s (CARB) Innovative Clean Transit (ICT) Regulation (2019) requires all public transit agencies in the state to gradually transition to 100-percent zero-emission bus fleets by 2040. Funding programs provide resources for local jurisdictions and agencies to advance these initiatives.

Caltrans Active Transportation Plan (2021) for District 5 provides guidance for developing safe, connected walking and biking networks that support mode shift and reduced greenhouse gas emissions from transportation.

## North County Solutions / Soluciones para el norte del condado

Choose which solutions may work best for North County.

Elija qué soluciones pueden funcionar mejor en el norte del condado.

- Green circle: Love it / Me encanta
- Red circle: Not for me / No es lo mío

### Safe, shaded bike routes Ciclovías seguras y sombreadas



Safe, shaded bike routes connecting Castroville, Pajaro, and Watsonville.

Rutas seguras y sombreadas para bicicletas que conectan Castroville, Pajaro y Watsonville.

Bike route  
Royal Bike  
Shade canopy

### Expanded regional transit links Conexiones de transporte público regional ampliadas



Expanded regional transit links to Santa Cruz and the South Bay by rail or bus.

Ampliar el número de conexiones de transporte público regional (tren o autobús) hacia Santa Cruz y South Bay.

### Community car-share programs Programas comunitarios de uso compartido de vehículos



Community car share programs with affordable EV charging stations at local hubs.

Programas comunitarios de uso compartido con estaciones de carga para vehículos eléctricos asequibles en los hubs locales.

### Bike and scooter share Compartir bicicletas y patines



Shared micromobility options (scooters and bikes) in Watsonville and Pajaro for short, on-demand trips.

Opciones de micromovilidad compartida (patinetes y bicicletas) en Watsonville y Pajaro para viajes cortos a demanda.

### Community Bike Libraries Bibliotecas comunitarias de bicicletas



Community bike libraries to make it easier for people to use bicycles.

Bibliotecas comunitarias de bicicletas para que sea más fácil para las personas usar bicicletas.

### Main Street and bridge improvements Mejoras en la calle principal y en los puentes



Main Street and bridge improvements to make walking and biking better in Watsonville.

Mejoras en la calle principal y en los puentes para que caminar y andar en bicicleta en Watsonville sea más fácil.

### Trail gap closures Cierre de tramo



Trail gap closures between Marina to complete the trail.

Cierre de tramo entre Castroville y Watsonville para completar la trayectoria.

# 2. OUTREACH & ENGAGEMENT

To develop actionable shared mobility recommendations for Monterey County, the project team centered the planning process on listening to and learning from residents, workers, and community partners. Engagement activities included advisory committees, focus groups, community forums, surveys, and pop-ups, providing critical insight into how people in Monterey County currently move, the barriers they face, and what shared mobility options would make a meaningful difference in their daily lives.

## HOW WE ENGAGED

### ADVISORY COMMITTEES

The Technical Advisory Committee (TAC) brought together representatives from regional and local agencies, city and county staff, and transportation advocacy groups. Their role was to ground the project in on-the-ground operational realities and help identify opportunities within the existing transportation system. The first TAC meeting in July 2025 introduced partners to the study and invited them to share historical context, barriers to shared mobility, and ideas for potential solutions. The second meeting in October 2025 focused on reviewing network gaps and discussing early concepts for a zero-emission shared mobility system. The final meeting in December 2025 provided an opportunity to review and refine draft recommendations.

TAC participants included:

- Monterey Salinas Transit
- Transportation Agency for Monterey County
- Association of Monterey Bay Area Governments
- Monterey County Housing Community Development
- Caltrans
- Santa Cruz County Regional Transportation Commission

- CSU Monterey Bay
- City of Salinas
- City of Monterey
- Ecology Action
- CalVans

The Stakeholder Advisory Group (SAG) included local community-based organizations, regional transportation and public health partners, environmental justice advocates, and economic development groups. In July 2025, SAG members helped identify key populations to engage and surfaced mobility gaps experienced in their communities. The October 2025 meeting provided an update on engagement findings and emerging themes. The final SAG meeting in December 2025 ensured that the study's recommendations align with community priorities and lived experiences.

SAG participants included:

- Monterey County Office of the Agricultural Commissioner
- Monterey County Office of Education
- Monterey Bay Climate Adaptation Action Network
- MILPA Collective
- Regeneración
- Monterey Peninsula Chamber of Commerce
- Pajaro Valley Action Project

## FOCUS GROUPS AND BRIEFING MEETINGS

The team conducted five small-group listening sessions between August and November 2025 with key community groups, including agricultural workers, youth leadership organizations, climate advocates, and mobility-focused nonprofits (Figure 4).

Organizations and leaders engaged through these sessions included: the Monterey County Farm Bureau; the Latino Equity, Advocacy, and Policy (LEAP) Institute/Green Raiteros; Regeneración Pajaro Valley Climate Action; MILPA Collective; Monterey Bay Aquarium. Across these conversations, participants shared a wide range of perspectives on mobility needs, service gaps, and opportunities for shared mobility solutions that reflect local contexts.

In November 2025 five briefing meetings were held with County Supervisors Luis Alejo (D-1), Glenn Church (D-2), Christopher Lopez (D-3), Wendy Root-Askew (D-4), and Kate Daniels (D-5).



Figure 4. Community Listening Session

## SURVEYS

Two countywide surveys deepened understanding of mobility needs:

- **Community Survey (329 responses)** Captured baseline mobility behaviors and attitudes toward shared mobility options.
- **Proposed Solutions Survey (145 responses)** Gathered reactions to specific recommendations.

## MOBILITY FORUMS

Two rounds of in-person public forums allowed Monterey County residents to react to existing conditions and later to proposed concepts:

- **Round 1 – Possibilities & Needs** (August 13–14, 2025) Held at libraries in Castroville, Marina, and King City, this round engaged participants to share their transportation needs and offer education about shared mobility. It also included site visits across King City, Greenfield, Soledad, Gonzales, Monterey, Salinas, and Pajaro.
- **Round 2 – Recommendations & Prioritization** (November 6, 2025) Held at the Castroville Library, this forum asked residents to validate and prioritize shared mobility recommendations.

## COMMUNITY POP-UPS

To meet residents where they already gather, the team hosted pop-ups at local farmers markets (Alisal, Castroville/North County, and Carmel), community events such as the Monterey Bay Business Expo, and along the Monterey Peninsula Recreational Trail. These activities engaged Spanish-speaking residents, waterfront employees, and families from North County.



Figure 5. Community pop-up at Fisherman's Wharf

# WHAT WE HEARD

Across engagement activities, community members consistently emphasized limited travel choices and an over-reliance on driving. 89% of survey respondents reported driving alone as their primary mode. Barriers to using existing services included long travel times, infrequent service, and schedules that do not align with work hours, especially for hospitality and shift workers.

## CONNECTIVITY & SERVICE GAPS

Participants highlighted the lack of reliable connections between communities, particularly in North and South County, where reduced transit service has made it harder to reach essential services such as healthcare and groceries. South County residents also pointed to transit stop conditions (lack of shade, seating, lighting, and clear signage), low-frequency transit service, and poor walking/biking conditions as deterrents to active or shared transportation. People also frequently travel across city lines for employment:

- 92% of survey respondents travel to other cities in the County
- 87% of these trips are made by driving alone
- Salinas emerged as the major employment hub, with 65% of respondents working there but only 36% living there.

While some employers and local transit agencies offer shuttle services for employees, the lack of after-hours transportation was highlighted as a key barrier for communities, especially in the hospitality sector.

## FAMILIARITY WITH SHARED MOBILITY

About half of the survey respondents have used public transit (48%) or rideshare (49%). Usage of other shared modes like vanpool (6%) was much lower. Vanpools are used primarily by agricultural workers, and TAC member CalVans noted that many

residents are unaware that vanpool services are available to the public.

In some communities, people expressed hesitation about shared micromobility due to negative experiences in larger cities, though biking remains a common and well-liked mode within many Monterey County neighborhoods. Many participants said they want to learn more about MST's bus system (36%) and bikeshare (21%).

## SHARED MOBILITY OPPORTUNITIES IDENTIFIED

People across the County expressed strong support for shared mobility, particularly for its ability to improve local connectivity and reduce congestion.

On the Monterey Peninsula, residents highlighted the need for better connections between employee parking areas and major employers, such as the Monterey Bay Aquarium. They also showed strong interest in late-night and weekend microtransit, shared e-bikes and scooters, and improvements to the Coastal Recreation Trail and the broader bike network.

In agricultural communities, participants noted that shared mobility could help address long travel times in areas served by only one or two transit stops. Popular ideas included flexible shuttles, a "101 Bike Highway," and employer-coordinated vanpools. In Greenfield, residents pointed to opportunities to build on existing community spaces, such as the Greenfield Community Science Workshop, as hubs for mobility education.

North County respondents were interested in infrastructure improvements such as Main Street, bridge, and trail gap closures between Castroville and Marina.

Big Sur participants showed a preference for non-automotive travel options, such as a Scenic Corridor Shuttle, and viewed carpool incentives less favorably due to concerns about increased congestion.



# 3. EXISTING CONDITIONS

## PLANNING CONTEXT

The Zero Emissions Shared Mobility Study is informed by the foundational policies and plans adopted and currently underway by the County of Monterey, Transportation Agency for Monterey County (TAMC), Association of Monterey Bay Area Governments (AMBAG), Monterey-Salinas Transit (MST), and cities within the County. These efforts reflect a broader policy commitment to creating a healthier, more equitable region by expanding access to safe, affordable, and zero-emissions transportation options.

## TRANSPORTATION PLANS ACROSS MONTEREY COUNTY

### Monterey County Bicycle Sharing Feasibility and Implementation Plan, TAMC (2013)

The plan recommends locations, program management, costs, maintenance, and marketing to implement bike share for active transportation. As of 2025, Monterey County doesn't have a county-wide bike-share program, however this plan provides early groundwork for a future shared mobility ecosystem.

### Active Transportation Plan for Monterey County, TAMC (2018)

The plan includes goals, objectives, policies, and programs aimed at increasing the proportion of trips made by biking and walking. For several cities in the County, the plan conducts a needs analysis, and identifies proposed bicycle and pedestrian facilities, project costs, and potential funding sources. Prioritizing safer streets and first/last-mile connectivity are essential for micromobility to flourish.

Updates to the TAMC's Active Transportation Plan are underway.

### Monterey-Salinas Transit District Innovative Clean Transit (ICT) Rollout Plan, MST (2021)

The ICT Rollout Plan assists the planning, design, construction, acquisition, and implementation of zero emission technology to support MST's transition from diesel and gasoline-powered vehicles to zero emission by 2040. The Plan signals a long-term regional commitment to electrification and zero emissions mobility.

### Monterey County Regional Transportation Plan (RTP), TAMC (2022)

This 20-year blueprint lays out transportation improvements in the County, including goals, policies, and financial forecasts for North Monterey County Gateways, Salinas Valley/US 101 Corridor, and the Coastal Corridor/State Route 1. By outlining corridor-level improvements and prioritizing investments in transit, active transportation, and safety, the RTP provides the infrastructure backbone needed to support and scale zero-emission shared mobility options.

Updates to TAMC's Regional Transportation Plan are underway.

## **Moving Forward Monterey Bay 2045 Metropolitan Transportation Plan / Sustainable Community Strategy, AMBAG (2022)**

This long-range plan adopted by AMBAG guides transportation and land use decisions for San Benito, Santa Cruz, and Monterey counties through 2045. The plan outlines policies, strategies, and investments to maintain, manage, and improve the region's transportation network, including roads, transit, and active transportation.

Moving Forward Monterey Bay 2045 highlights active transportation as a core component of the strategic expansion of the transportation system. Specific regional projects and efforts include the Monterey Bay Sanctuary Scenic Trail, Carmel to Pebble Beach Bicycle Facility, Bicycle sharing, lockers, bus shelters, wayfinding signs, sidewalk enhancements, and the Fort Ord Regional Trail and Greenway. The 2045 Regional Bicycle Network is also depicted, showing a notable increase in the regional active transportation network (Figure 6).

Updates to the AMBAG Metropolitan Transportation Plan are underway.

## **Monterey County Vision Zero Action Plan, TAMC (ongoing)**

The Vision Zero plan will identify new or improved local policies and programs to prioritize region-wide safety. The plan will create individual safety plans for the cities and rural areas, and consider all roads, including city streets, county roads, and state highways. The focus on safer, people-centered streets directly supports the viability of zero-emission shared mobility by creating roadway conditions where shared micromobility and first/last-mile trips can occur safely and comfortably.

## **Safe Routes Monterey, TAMC (ongoing)**

Monterey County's Safe Routes to School (SRTS) program offers tools, programming, and resources to schools, guardians, and communities aimed at improving safety and traffic around our schools. Their

efforts are focused on reducing traffic around schools and improving safety for kids during their school commute. The Salinas SRTS Plan and Salinas Valley SRTS Plan have been adopted and include proposed pedestrian and bikeway improvements. The North County SRTS planning process is underway. As part of the process, the community will have the opportunity to test new street designs and provide input on whether changes should become permanent. The final plan is expected to be adopted by the County of Monterey in 2026.

## **Monterey County General Plan (2010)**

The Monterey County General Plan establishes the County's long-range vision and policy framework to guide growth and development in unincorporated areas. The Plan includes eight elements, including the Circulation and Conservation elements that address transportation and environmental sustainability. The Circulation Element provides policy direction for planning and managing a safe, efficient, and multimodal transportation system, and explicitly encourages strategies that reduce reliance on single-occupant vehicles and VMT. It promotes land use patterns and transportation alternatives—such as public transit, bicycling, and carpooling—that support reduced automobile dependence and improved mobility options countywide.

## **Monterey County Community Climate Action and Adaptation Plan (CCAAP)**

Monterey County is developing CCAAP to reduce greenhouse gas emissions and strengthen resilience to climate impacts. The CCAAP will establish emissions reduction targets, identify actions across key sectors like transportation and track progress over time. Developed with input from residents, businesses, and stakeholders, the plan complements regional climate efforts led by the AMBAG and local jurisdictions across the County. The Zero Emission Mobility Study supports the CCAAP by providing an assessment of transportation-related mobility strategies that can contribute to emissions reductions.



**Figure 6. Regional Bicycle Network**

Source: AMBAG Moving Forward Monterey 2045, Figure 2-3

# EXISTING NETWORKS, MODES, PEOPLE

The project team conducted an analysis of Monterey County's existing transportation patterns (including trip distances, modal shares, and the availability of existing services). We also examined demographic and socioeconomic factors that affect the likelihood of using transit and shared mobility options, including employment density, household income, and vehicle ownership.

Public transportation in Monterey County offers an inclusive, sustainable, and affordable mobility option, with services that accommodate all residents. Current services support people with disabilities, who have access to paratransit when fixed-route services fall short. The system primarily serves 9-to-5 commuters traveling within and between towns, with limited service beyond urban areas or outside standard commuting hours. Most intercity buses stop running by early evening, and intra-town service continues at reduced frequencies, making public transit less suitable for non-traditional commuting patterns or other daily needs.

A considerable bicycle network exists in the more urbanized parts of the region. While gaps in connectivity remain, particularly in striped bike lanes along the street network, efforts to plan and fund bikeway improvements and supportive facilities are ongoing. The Fort Ord Regional Trail and Greenway (FORTAG) system advances a vision of 30-mile regional network of connected and protected shared use pathways.

## EXISTING MODES

Most people in Monterey County rely on driving alone, but transit, walking, and carpooling to get to their jobs, especially in retail, hospitality, and agriculture.

An analysis of American Community Survey (ACS) 1-Year Estimates for Commute Mode Share for Monterey County (2023) found that on average:



**81% OF COMMUTERS TRAVEL ALONE BY CAR**



**IT TAKES ~40-59 MINUTES TO GET TO WORK BY TRANSIT**



**IT TAKES ~20-24 MINUTES TO GET TO WORK BY BIKE**



**IT TAKES ~15-19 MINUTES TO WALK TO WORK**



**AGRICULTURAL WORKERS CARPOOL MORE THAN OTHER INDUSTRIES**



**TRANSIT TRIPS ARE COMMON IN RETAIL & HOSPITALITY**

These findings suggest that improving access to shorter, more direct shared mobility options would help support many sectors of Monterey County's economy. Longer commute times and high car dependency suggest a need for affordable, time-efficient alternatives, such as vanpools or on-demand options for rural or shift-based work.

# DEMOCRAPHICS

## Zero Car Households<sup>3</sup>

Approximately 4% of the population (roughly 17,000 households) do not have access to a private vehicle. These households rely heavily on public transit, walking, biking, and shared mobility options to meet daily needs. Renters make up the majority of car-free households.

*Source: U.S. Census Bureau, 2019-2023 American Community Survey 5-Year Estimates, Tenure by Vehicles Available*

## Low Income Households<sup>4</sup>

Approximately 14% of residents in Monterey County (roughly 1 in 7 residents) are low-income and make less than \$35,000 annually. For people earning under \$35,000 per year, car ownership may be financially out of reach or require major tradeoffs (e.g., skipping medical care, reducing food spending). This creates strong dependence on public transit, carpooling, and biking and walking and makes shared mobility options a more affordable alternative.

*Source: U.S. Census Bureau, 2019-2023 American Community Survey 5-Year Estimates, Income in the Past 12 Months*

## People with Disabilities<sup>5</sup>

About 9% of the County (roughly 39,500 people) have a disability. Many of these individuals cannot walk long distances, bike, or drive, making flexible and accessible mobility options essential. Reliable door-to-door services, accessible shared mobility vehicles, micro transit, and improved first- and last-mile connections are critical to supporting their daily travel needs.

*Source: U.S. Census Bureau, 2019-2023 American Community Survey 5-Year Estimates, Disability Characteristics*

## Youth and Young Adults<sup>6</sup>

Children, teens, and young adults make up a substantial share of Monterey County's population. Approximately about 25% of residents are under the age of 18, and roughly 36% are under the age of 25. These age groups are less likely to have access to a private vehicle due to legal driving restrictions, cost, or household vehicle availability, and often depend on others or on non-automobile travel options to meet daily needs. Safe, reliable shared mobility options—such as e-bikes, e-scooters, neighborhood shuttles, and mobility hubs—can expand independent access to schools, jobs, recreation, and social activities, particularly in areas with limited transit service or long distances between destinations.

## Older Adults and Seniors<sup>7</sup>

Older adults represent a significant and growing portion of Monterey County's population. 20% of residents are age 60 or older, and approximately 15% are age 65 and over. As people age, driving may become less safe or less feasible due to physical, cognitive, or financial constraints, increasing reliance on alternative transportation options. Shared mobility services when designed with accessibility, simplicity, and comfort can help older adults maintain independence and access essential destinations such as healthcare, groceries, and community services.

*Source: U.S. Census Bureau, 2019-2023 American Community Survey 5-Year Estimates, Age and Sex*

# MAJOR TRANSPORTATION PROJECTS COMING SOON

Upcoming transportation projects are poised to transform the way people can get around Monterey County. These projects enhance and complete existing transportation networks, unlock new travel potential and strengthen the foundations for a shared mobility future. The Zero Emissions Shared Mobility Study expands on this ongoing transformation. By expanding the collections of transportation services, this Study supports a future where residents have a range of safe, comfortable, and reliable transportation choices.

## **SURF! Busway and Bus Rapid Transit Project** led by Monterey-Salinas Transit (MST)

A fully funded, six-mile dedicated busway and rapid transit corridor between Marina and Sand City/Seaside that will deliver fast, reliable, zero-emission transit service along the Highway 1 corridor. More information at: [mst.org/about-mst/planning-development/surf/](http://mst.org/about-mst/planning-development/surf/)

## **Monterey County Rail Extension Project** led by the Transportation Agency for Monterey County (TAMC)

A multi-phase rail program extending passenger rail service to Salinas and future stations in Pajaro and Castroville, creating new regional mobility hubs and a clean commuting alternative to US-101. More information at: [www.tamcmonterey.org/monterey-county-rail-extension](http://www.tamcmonterey.org/monterey-county-rail-extension)

## **FORTAG Regional Trail & Greenway** led by TAMC

A 28-mile network of paved bike and pedestrian trails linking former Fort Ord communities to key destinations through safe, car-free active transportation corridors. More information at: [www.tamcmonterey.org/fort-ord-regional-trail-greenway](http://www.tamcmonterey.org/fort-ord-regional-trail-greenway)

**ParkIT! for Parks** led by California State Parks and partners-

A coordinated visitor access system that shifts coastal recreation trips to shared shuttles and off-highway parking hubs to reduce congestion and environmental impacts along the Big Sur and Point Lobos corridor. More information at: [parkitforparks.com](http://parkitforparks.com)

## **King City Multimodal Transportation Center** led by City of King City

A new rail and bus hub in downtown King City that will bring Amtrak service to South Monterey County and expand multimodal connectivity across the Salinas Valley. More information at [tamcmonterey.org/king-city-multimodal-transportation-center](http://tamcmonterey.org/king-city-multimodal-transportation-center)

## **Salinas Rapid Bus & Transit Center Relocation Study** (emerging project) led by MST

A planning effort evaluating a new high-capacity Rapid Bus corridor and a modernized Salinas Transit Center to improve transit speed, reliability, and multimodal access in Monterey County's largest city. More information at: [mst.org/about-mst/planning-development/east-alisal-brt-and-stc-relocation-study/](http://mst.org/about-mst/planning-development/east-alisal-brt-and-stc-relocation-study/)

These projects are mapped in **Figure 7**.

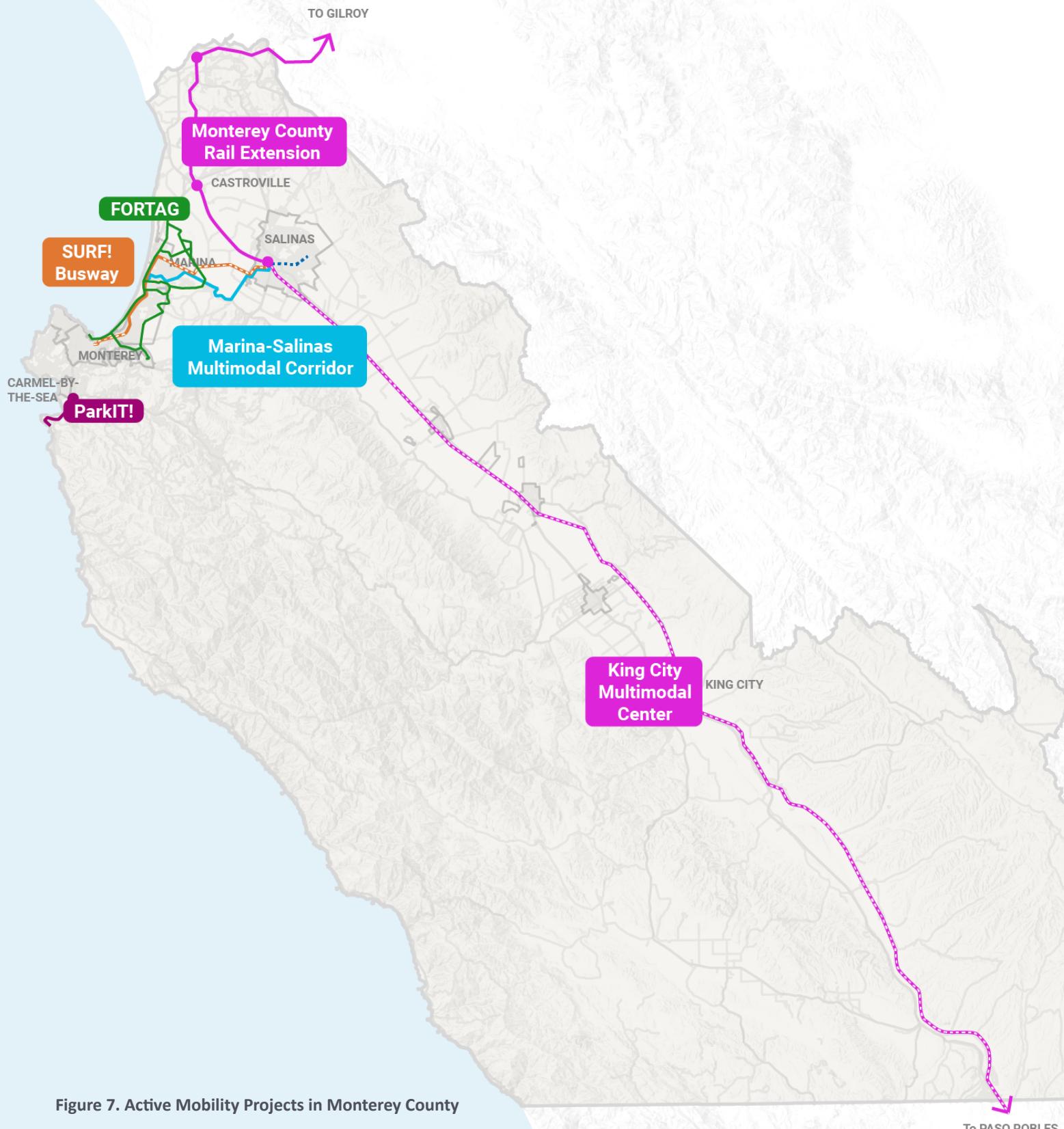


Figure 7. Active Mobility Projects in Monterey County



# 4. ZERO EMISSIONS SHARED MOBILITY

## SHARED MOBILITY IN MONTEREY COUNTY

Shared mobility is already woven into daily life in Monterey County, connecting residents, workers, students, and visitors through a wide range of services that complement, and sometimes substitute for, personal car use. From public transit and vanpools to volunteer rideshare services, and private bike rentals, these options provide essential mobility in a large and diverse region. As these services evolve and electrify, they represent promising pathways for reducing transportation emissions.

### PUBLIC TRANSIT

Public transit, including buses, trains, and demand-responsive services, forms the backbone of shared mobility in Monterey County, providing essential connections between cities, job centers, schools, health services, and major destinations. Monterey-Salinas Transit (MST) is the region's primary transit provider, offering a diverse portfolio of services.

#### MST Fixed-Route Bus Service

MST operates an extensive fixed-route bus network that connects Salinas, Monterey, Seaside, Marina, Del Rey Oaks, Sand City, Carmel, Pacific Grove, and South County communities such as Soledad, Greenfield, and King City. These routes support access to major destinations and provide a vital alternative to car travel. MST service starts as early as 5am and extends to around 10pm on weekdays. One-way circulators in Gonzales, Soledad, Greenfield, and King City support in-town trips in South County.

#### Monterey Trolley

MST operates the free Monterey Trolley, a seasonal shuttle circulating between downtown Monterey, waterfront destinations, public parking garages, Fisherman's Wharf, Cannery Row, and the Monterey Bay Aquarium. Funded by the City of Monterey and the Monterey Bay Aquarium, the Trolley runs daily from 10 a.m. to 6 p.m. from Memorial Day weekend through Labor Day, with vehicles arriving every 10–15 minutes.

#### Amtrak

For longer-distance travel, residents can access Amtrak's Coast Starlight rail service and Amtrak Thruway Bus connections from stations in Marina and Salinas, providing convenient links to the Bay Area, Central Valley, Southern California, and destinations throughout the Pacific Northwest. In addition, privately operated fixed-route transit such as FlixBus (formerly Greyhound) offers intercity bus service along the Central Coast. These services extend the region's mobility options beyond Monterey County and offer an alternative to driving for intercity and statewide travel.

# CARSHARING & VANPOOLS

Carsharing provides short-term access to a vehicle without the financial burden of ownership, helping residents make essential trips, reduce transportation costs, and rely less on privately owned vehicles. In Monterey County, several programs, each tailored to different users and trip types, offer shared mobility options that help close transportation gaps.

## CalVans Vanpool

CalVans is a public transit agency that operates one of the largest vanpool programs in the region, primarily supporting agricultural workers who face limited transportation options and non-traditional work hours. The agency manages more than 300 vanpools in Monterey County and partners with 150 agricultural employers, providing reliable, coordinated transportation to job sites across the region. In 2023, CalVans added Ford E-Transit electric vans to its fleet and is currently testing electric operations, an important step toward lowering emissions, especially along highly traveled corridors like US-101. A new general-use vanpool (not agriculture-based) recently began operating between San Jose, Soledad, and Salinas, signaling expanded interest beyond farmworker trips.



Figure 8. Farmworkers use CalVans to travel to work

## Green Raiteros

Green Raiteros is a community-based electric ridesharing program created by Latino Equity Advocacy and Policy (LEAP) Institute. The EV fleet includes four used Tesla Model Y vehicles and two wheelchair-accessible vans. Trips are open to all community members, regardless of income. Riders can book one day in advance by phone or request immediate service through the app when drivers are available. The program uses a “pay-what-you-can” model for shared trips, making rides accessible for low-income residents, seniors, people with disabilities, and essential workers. Key barriers to expansion include locating EV charging space, and sustainable long-term funding.

## MST Commute with Enterprise

MST partners with Commute with Enterprise to offer a subsidized vanpool program designed for workers commuting medium to long distances. Employer groups or cohorts of coworkers can lease a van, share driving responsibilities, and divide costs after applying MST’s substantial \$450 monthly per-vanpool subsidy. MST has over 40 active vanpools. Enterprise provides the vehicle, maintenance, insurance, and roadside assistance, reducing administrative burden for riders. This model primarily supports predictable commute trips and offers a lower-cost alternative to single-occupant vehicle travel.

## Zipcar at CSUMB

Zipcar provides round-trip carsharing at CSUMB, offering short-term vehicle access for students, faculty, and staff. Members reserve vehicles through the Zipcar app, and gas and insurance are included in the hourly or daily rate. Cars must be returned to the same on-campus location. The service is primarily used for errands, shopping trips, regional travel, and appointments, bridging transportation gaps for people who do not own cars on campus.

# RIDE-SOURCING

Private and public ride services operate throughout Monterey County and provide flexible, on-demand trip-making for residents, workers, students, and visitors. These services are often used for late-night trips, medical appointments, airport travel, and other needs not easily met by fixed-route transit.

## Private Rideshare Services

Private rideshare options such as Lyft, Uber, and taxi services operate throughout Monterey County and provide flexible, on-demand trip-making. These services are often used for late-night trips, medical appointments, airport travel, and other needs not easily met by fixed-route transit.

## MST Taxi Voucher Program

MST offers a Taxi Voucher Program that provides subsidized, same-day taxi rides for seniors, people with disabilities, and residents with limited incomes. The voucher program helps fill urgent or short-notice mobility needs and improves access to essential destinations.

## TAMC Commute Alternatives Emergency Guaranteed Ride Home

TAMC's Commute Alternatives Emergency Guaranteed Ride Home program provides registered carpoolers, transit riders, vanpoolers, bicyclists, and walkers with reimbursement up to \$60 for a taxi, ride-share, or rental car in cases due to illness, crisis, or unexpected overtime required by their employer on a day they use an alternative mode of transportation. Participants are allowed one reimbursement per month while enrolled in the Emergency Ride Home/ Commute Alternatives program. The program is available to anyone who lives or works in Monterey County and uses alternative transportation at least once per week. Participants register in advance through TAMC and their employer. These emergency ride-home options help remove barriers to choosing sustainable modes by offering a safety net for unplanned situations.

## Independent Transportation Network (ITN) Monterey County

Independent Transportation Network (ITN) Monterey County is a non-profit organization providing transportation for seniors and people with visual impairments. It offers transportation using private cars driven by trained drivers, available 24/7. They offer personalized support for riders who may be unable to use fixed-route transit or paratransit.

# SHUTTLES

Shuttle services in Monterey County provide door-to-door transportation for older adults, people with disabilities, and communities with specific mobility needs. These services fill important gaps in the regional network by offering direct access to key destinations that may not be well-served by traditional fixed-route transit.



Figure 9. MST On-Demand Shuttle

## MST Senior Shuttles

MST provides specialized transportation tailored to older adults through its Senior Shuttles, a fixed-route service providing direct access and minimizing transfers to destinations identified as highly desirable (i.e., shopping areas, medical facilities, senior living communities). These routes include Line 91 (Monterey-Pacific Meadows), 94 (Carmel-Sand City), 95 (Williams Ranch-Northridge), and 96 (Salinas-Airport Business Center).

## MST RIDES ADA Paratransit

MST RIDES ADA Paratransit provides door-to-door, shared-ride service for individuals with disabilities who cannot use fixed-route buses. Operating within  $\frac{3}{4}$  mile of MST bus routes throughout the Monterey Peninsula, Salinas Valley, and Watsonville Transit Center, RIDES supports reservations up to seven days out and offers trip times comparable to fixed-route travel, as required by the ADA.

# MICROMOBILITY

Micromobility options, such as e-scooters, bikeshare, and e-bike rentals, offer convenient, zero-emission travel for short trips and first/last-mile connections. Although shared micromobility is limited today, a combination of campus programs, private rentals, and emerging community-led initiatives demonstrates growing interest in expanding these options across Monterey County.

### Electric scooter share

Shared e-scooters are available in Monterey County only on the California State University Monterey Bay (CSUMB) campus through the Spin program. Spin provides electric scooters for students, faculty, staff, and visitors as part of the campus mobility system. Outside of CSUMB, there is currently no active scooter-share service in the County. Several past pilots faced challenges: Marina's 2019 pilot ended after mixed community reactions; Lime withdrew from the Peninsula after its contract with Marina was not renewed; and the City of Carmel banned shared devices due to narrow sidewalks and safety concerns. TAMC developed Dockless Shared Mobility Best Practices and a Sample Ordinance in 2019 to help local jurisdictions regulate shared bikes and scooters, but few operators have re-entered the local market.

### Bikeshare

Monterey County does not currently have a countywide or city-based bikeshare system. Several efforts were explored, including Monterey's approved 2016 citywide bikeshare program and Seaside's

2018 dockless bikeshare pilot, but were never fully implemented or sustained. A Countywide Bike Sharing Feasibility Study in 2013 identified potential opportunities and barriers, and the cities of Marina, Monterey, Pacific Grove, Salinas, and Seaside have expressed interest in adopting policies for dockless bike and scooter programs, with support from TAMC. Despite these efforts, operational, regulatory, and funding barriers have prevented the launch of ongoing bikeshare services.

### LEAP's Green Cruiser Program

LEAP is introducing the Green Cruiser program to expand low-cost, e-micromobility options for families, elders, and individuals with mobility challenges living in the Pajaro and Watsonville area. The program will offer 10 electric bikes and 10 electric tricycles in a bike library format, allowing residents to borrow devices for short-distance trips, such as crossing the Pajaro/Watsonville bridge for grocery shopping, errands, or appointments. Rentals cost \$20 per week and include up to 20 miles of use, making the service affordable for residents with limited access to transportation. LEAP cites examples from other small agricultural communities, such as Huron to show how high-quality infrastructure and e-micromobility access can strongly support farmworkers, families, and rural communities.

### Private Bike Shop Rentals

A robust private bike rental market supports tourism and recreational riders throughout the Monterey Peninsula. Offering 4-hour, 8-hour, or multi-day rentals of bicycles and e-bikes, these shops serve visitors exploring the coastline, Big Sur, and local attractions. These rentals are primarily used for leisure and sightseeing, which differs from the short, on-demand trips that a shared bikeshare system could provide for local errands and quick connections.

**Table 2. Summary of Shared Mobility Services in Monterey County**

Mode	Service	Provider	Who It Serves
<b>Public Transit</b>	Fixed-Route Bus Service	MST	General public, workers, students, visitors
	Monterey Trolley (Seasonal)	MST	Visitors, residents
	Amtrak (Rail + Thruway Bus)	Amtrak	Long-distance travelers, commuters
<b>Carsharing / Vanpools</b>	CalVans Vanpool	CalVans	Agricultural workers, long-distance commuters, students
	Green Raiteros	LEAP Institute	Low-income residents, seniors, people with disabilities, Pajaro-Watsonville community
	MST Commute with Enterprise	MST + Enterprise	Long-distance commuters, employer groups
	Carshare at CSUMB	Zipcar	CSUMB students, faculty, staff
<b>Ride Sourcing / On-Demand</b>	Uber, Lyft, Taxi Providers	Private companies	General public; workers; visitors
	Emergency Ride Home (Commute Alternatives)	TAMC	Commuters using transit, carpool, vanpool, walking, biking
	Independent Transportation Network (ITN)	ITN Monterey County	Seniors, adults with visual impairments
<b>Shuttles &amp; Paratransit</b>	Senior Shuttles	MST	Older adults
	RIDES ADA Paratransit	MST	People with disabilities unable to use fixed-route transit
<b>Micromobility</b>	Scooter Share at CSUMB	Spin	CSUMB students, faculty, staff, visitors
	Bikeshare	N/A (no active system)	N/A (no active system)
	Private Bicycle Rentals	Various	Visitors, families, recreational riders
	Green Cruiser Program	LEAP Institute	Pajaro + Watsonville residents; families; elders; people with mobility challenges

# SHARED MOBILITY OPPORTUNITY AND POTENTIAL

Monterey County's transportation landscape is shaped by diverse geographies, distinct community needs, and the daily realities of residents who rely on a wide range of travel options to access work, school, services, and essential destinations. While the region benefits from strong transit anchors, established vanpool networks, and emerging community-based mobility programs, significant gaps remain, particularly for short trips, off-peak travel, cross-jurisdictional connections, and neighborhoods with limited access to safe walking, biking, or transit options. Understanding these challenges is essential to identifying where shared mobility solutions can meaningfully improve access, reduce costs, close first/last-mile gaps, and offer reliable alternatives to driving.

This section synthesizes findings from community engagement, data analysis, and on-the-ground

observations to highlight where current mobility services fall short and where new or expanded shared mobility options could provide the greatest benefit.

## PROPENSITY TO USE SHARED MOBILITY

An analysis of population density and shared mobility demand (interpreted by factors including zero-car households, disability, elderly, young, and low-income areas) identified block groups in Monterey where the propensity to use shared mobility is strong. Areas with higher index scores (4–5) should be prioritized for shared mobility improvements, as they represent the greatest unmet need. Many of these high-scoring areas also have moderate to high population density, which increases the feasibility of providing shared services. Focusing investment in these areas helps advance transportation equity, ensuring that those with the fewest travel options have more reliable, accessible alternatives. The context in Monterey is that many people work in low-density areas (e.g., agricultural fields), where transit is not an efficient way to move people from their home to their workplace.

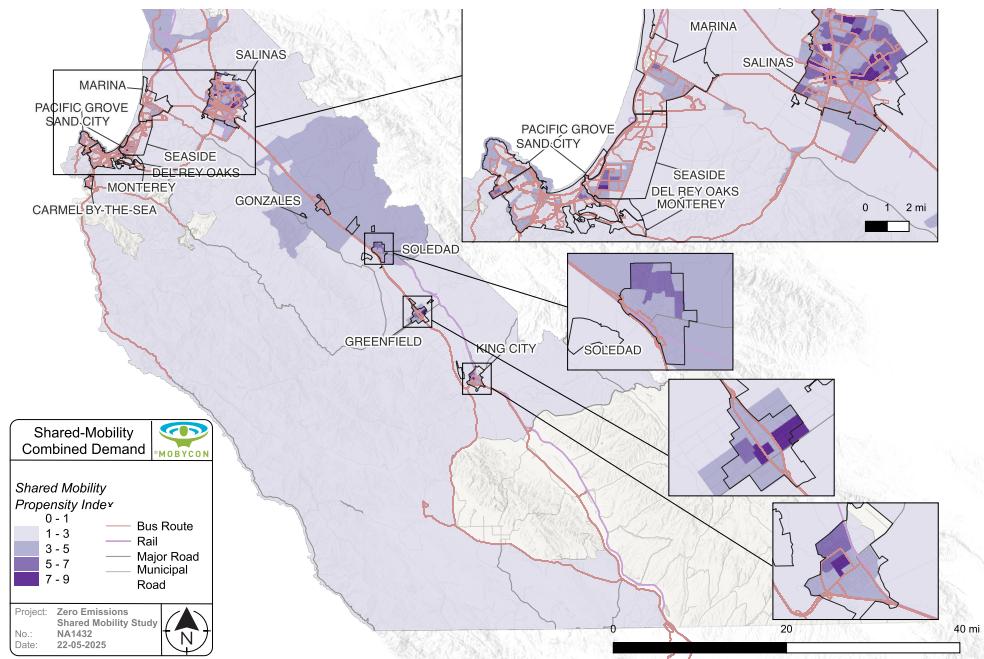


Figure 14. Shared Mobility Demand in Monterey County

## MICROTRANSIT IN LOW DENSITY AREAS

Public agencies have been experimenting with microtransit as a complement or substitute for low-performing bus lines in low density areas. These services confirm that there is genuine demand for more convenient transit options in spread-out areas – especially among riders who may find traditional bus service too slow, infrequent, or inaccessible.

But, despite its aspiration, microtransit has struggled to offer a competitive cost per passenger when compared to traditional service. In practice, on-demand shuttles tend to carry even fewer passengers per hour than a low-frequency fixed-route bus, driving the subsidy per ride to very high levels.

Microtransit makes the most sense as a coverage tool for “last resort” mobility in places where regular buses just don’t work at all. Even then, it should be deployed with realistic expectations: a smaller passenger van replacing a large bus may save some money, but it will still likely require a subsidy far higher per trip than the transit system’s average. Microtransit can successfully extend the reach of transit for a small volume of trips, but it has not proven capable of delivering large-scale ridership gains or efficiencies.

Ultimately, the decision comes down to what an agency values more: coverage and convenience for the few, or greater efficiency in serving the many. Each community must carefully weigh the benefits against the costs when considering microtransit as the new mobility solution for low-density areas.

# TRANSPORTATION GAP ASSESSMENT

## MONTEREY PENINSULA

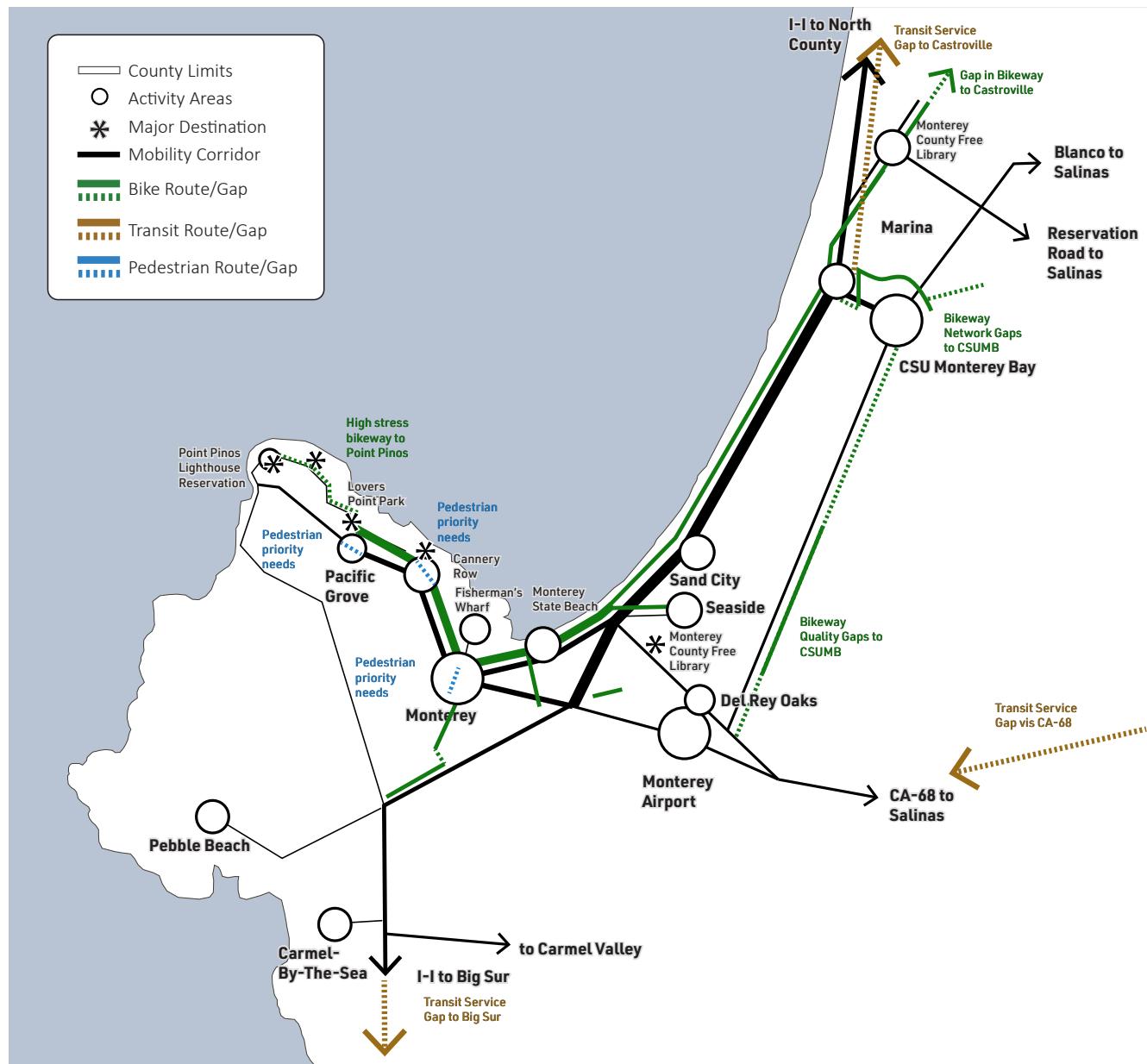


Figure 10. Transportation gap assessment of Monterey Peninsula

In the Monterey Peninsula, mobility is constrained by a fragmented network, disconnected street grids, and limited safe walking and biking routes connecting residential areas to key destinations like Cannery Row, CSUMB, and the Presidio. Despite being the region's most urbanized area, the Peninsula lacks reliable connections to neighboring counties, leaving both residents and visitors dependent on cars and contributing to congestion along Highway 1 and bottlenecks around tourist corridors. Hospitality and service workers face additional barriers because most transit service is still oriented around weekday 9–5 schedules, not the late-night or early-morning shifts that define the local economy.

## SOUTH COUNTY CORRIDOR

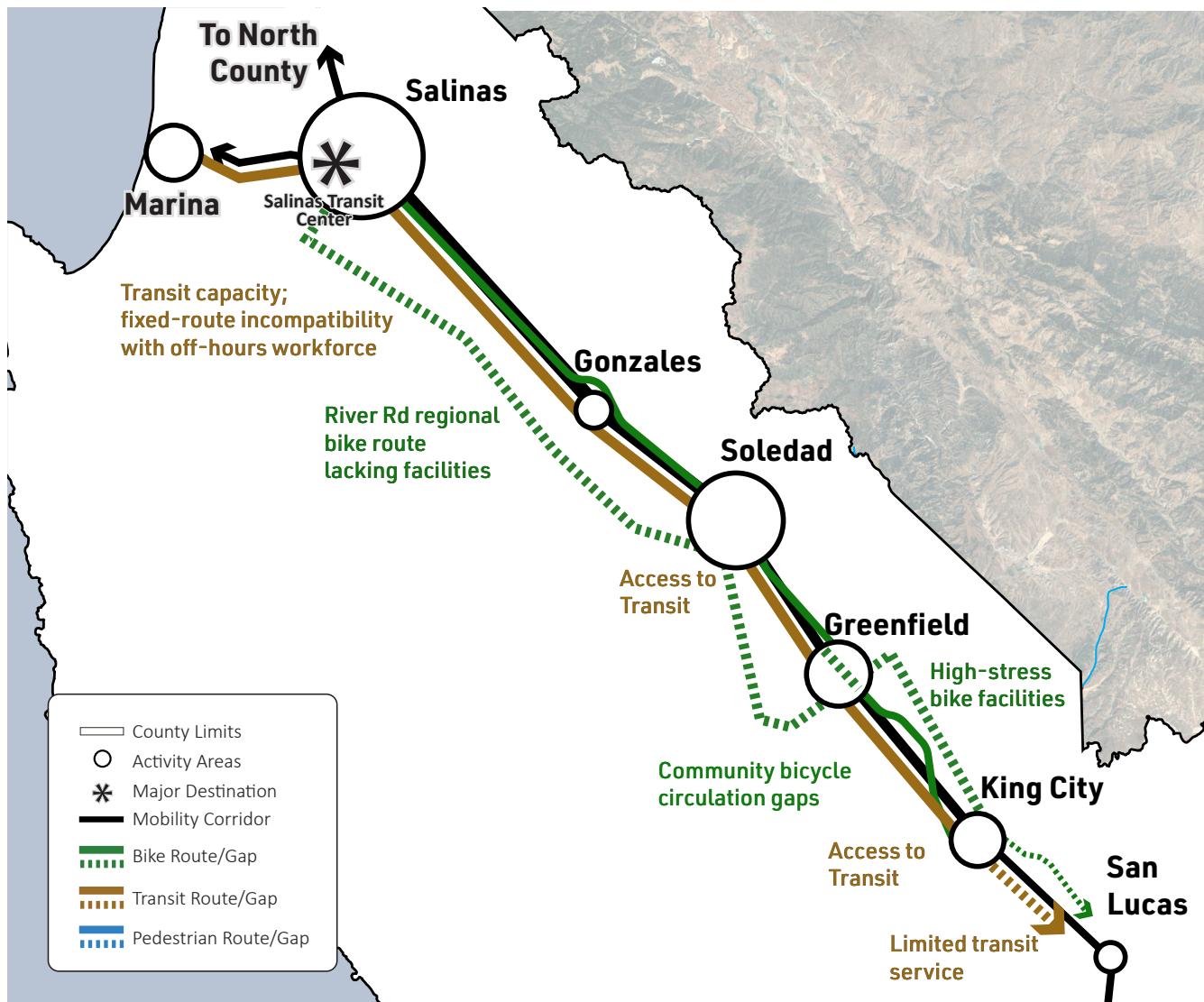


Figure 11. Transportation gap assessment of South County Corridor

In South County, mobility challenges are shaped by the realities of agricultural work. Communities along U.S. 101 depend heavily on CalVans and local circulators, yet the fixed-route transit model is not flexible enough to match the seasonal, location-shifting nature of farm labor. Bus routes along the 101 corridor operate at or near capacity, yet safety policies prevent standing passengers, leaving riders behind during peak periods. Workers often must travel long distances to fields that are dispersed and off the existing transit network, and employers frequently relocate crews with little notice. Limited transit capacity, infrequent service, and one-way loop circulators make everyday trips long, especially for errands, groceries, and medical care. Safety is also a significant challenge: rural roads often lack bike facilities, and dirt and debris from fields routinely spill into bike lanes, creating hazardous conditions for cyclists.

## NORTH COUNTY

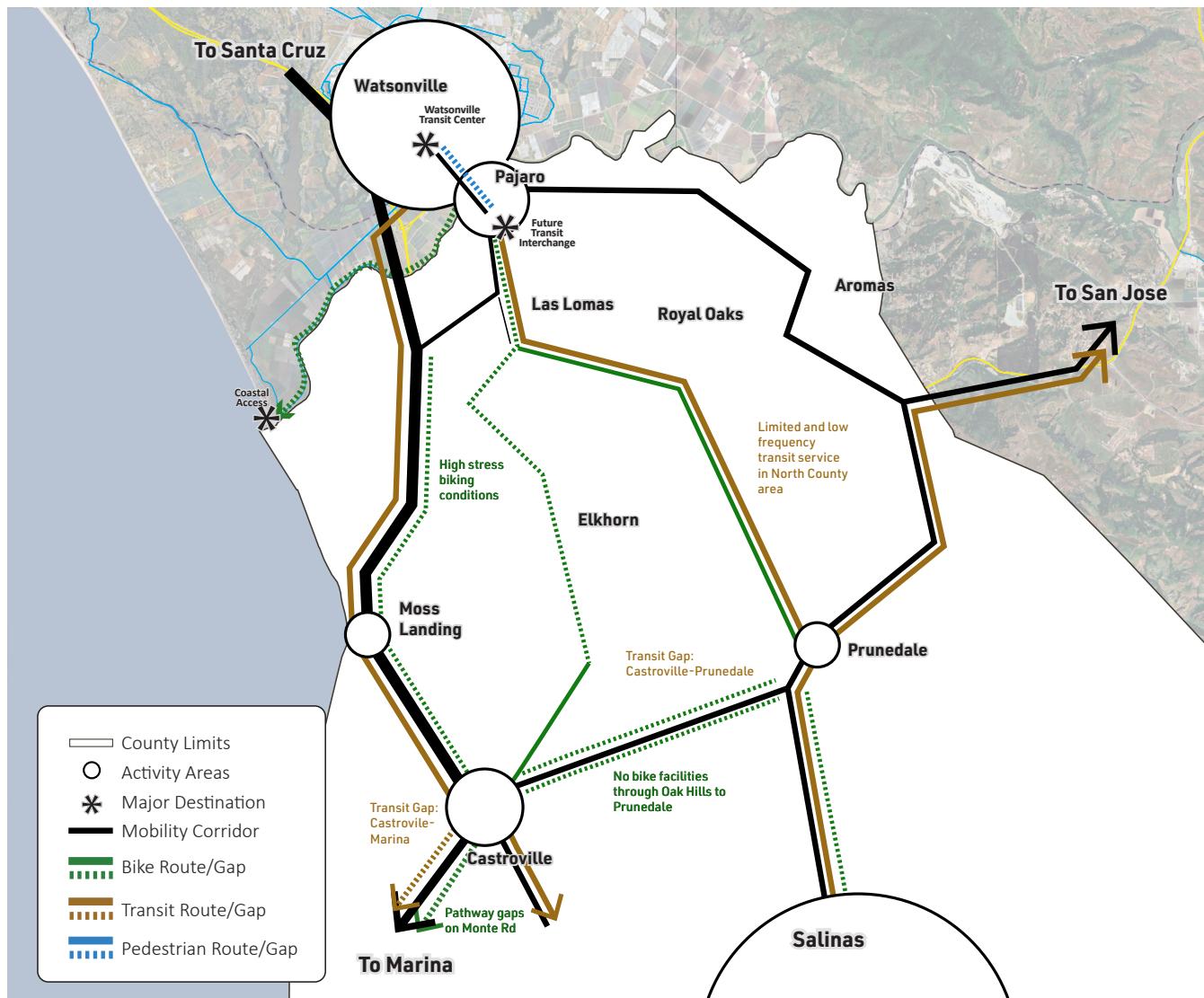


Figure 12. Transportation gap assessment of North County

North County is a gateway to Santa Cruz, Gilroy, and the Bay Area. The region experiences heavy travel demand but lacks coherent multimodal connections. High winds, limited shade, and truck traffic make active transportation uncomfortable and risky, while missing bike and pedestrian links including major gaps around Castroville and the Pajaro–Watsonville bridge makes first/last-mile trips particularly difficult. A single bridge connects Pajaro to Watsonville, but large, auto-oriented intersections at both ends create barriers for residents walking or biking to the transit center, grocery stores, and schools.

# BIG SUR

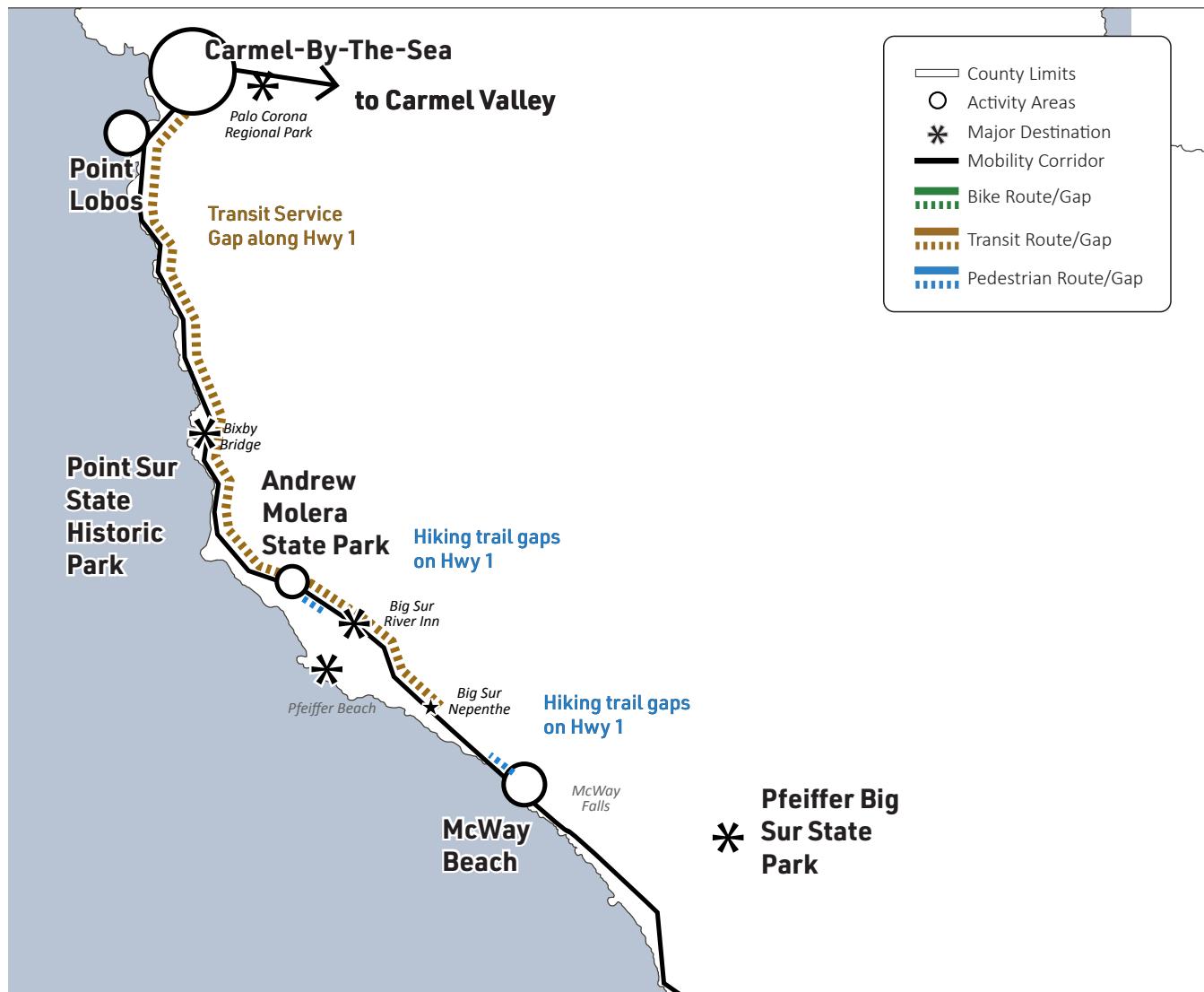


Figure 13. Transportation gap assessment of Big Sur

In Big Sur, Highway 1 is the only continuous travel corridor, and limited parking combined with high visitor volumes leads to congestion, informal shoulder parking, and safety issues near trailheads and beaches. Transit previously served the corridor but was discontinued, leaving no non-auto options for reaching parks or popular viewpoints. Steep terrain, narrow shoulders, and long distances without services make walking and biking unrealistic for most people, and there is little physical space to build separated pathways or alternative routes. Where feasible, targeted investments in safe walking facilities should be made to improve pedestrian safety and access in high-use areas.

# 5. RECOMMENDATIONS

The Zero Emissions Shared Mobility Study presents a unified vision for a cleaner, more affordable, and more connected transportation future, where residents, workers, and visitors can move reliably without depending on personal vehicles. Each recommendation strengthens the others, forming a countywide ecosystem of mobility options that expands access, supports essential industries, and advances climate action.

These recommendations are not funded or secured but offer a concept for future consideration.

The proposed zero emissions shared mobility projects (mapped out in Figure 15) chart a future in which zero-emission mobility is convenient, affordable, and readily available.

At the center of this vision is a network of Mobility Hubs for EV Fleets at strategic locations that provide the charging, amenities, and infrastructure shared mobility services need to grow. These hubs unlock electrified expansion for programs like Green Raiteros, CalVans, MST Commute with Enterprise, and future community car share. They also serve as the connection points to future micromobility, walking, transit, and the broader zero-emission mobility network. Mobility hubs would support everyday short trips and first- and last-mile access with the following new services:

- Shared Micromobility Services in Monterey Peninsula cities, Salinas, and Pajaro
- Community E-Bike Libraries to serve smaller communities in North and South County
- Community EV Car Share to fill a critical mobility gap for longer or more complex trips, providing access to clean vehicles without the financial burden of owning a car
- Expansion of the Monterey Trolley service to promote free, easy, clean transit at the peninsula,
- Creation of a Big Sur shuttle to provide non-car access to nature

These projects align with mobility needs identified through stakeholder and community engagement, including:

- Expanding mobility choices for low-income, rural, and underserved communities
- Reducing greenhouse gas emissions and vehicle miles traveled
- Supporting agriculture, hospitality, and tourism workforces with future electrification
- Improving connections to jobs, schools, services, and nature

## California Environmental Quality Act (CEQA)

Where project proposals involve small infrastructure installations (bike parking, micro-mobility stations, mobility hubs), CEQA review is typically straightforward and can often be completed through categorical exemptions or streamlined analysis. Because CEQA now evaluates VMT instead of congestion, zero emissions shared mobility projects generally show beneficial transportation impacts.

The Zero Emissions Shared Mobility Study is a non-binding planning document, but future implementation steps should undergo site-specific CEQA review as needed.

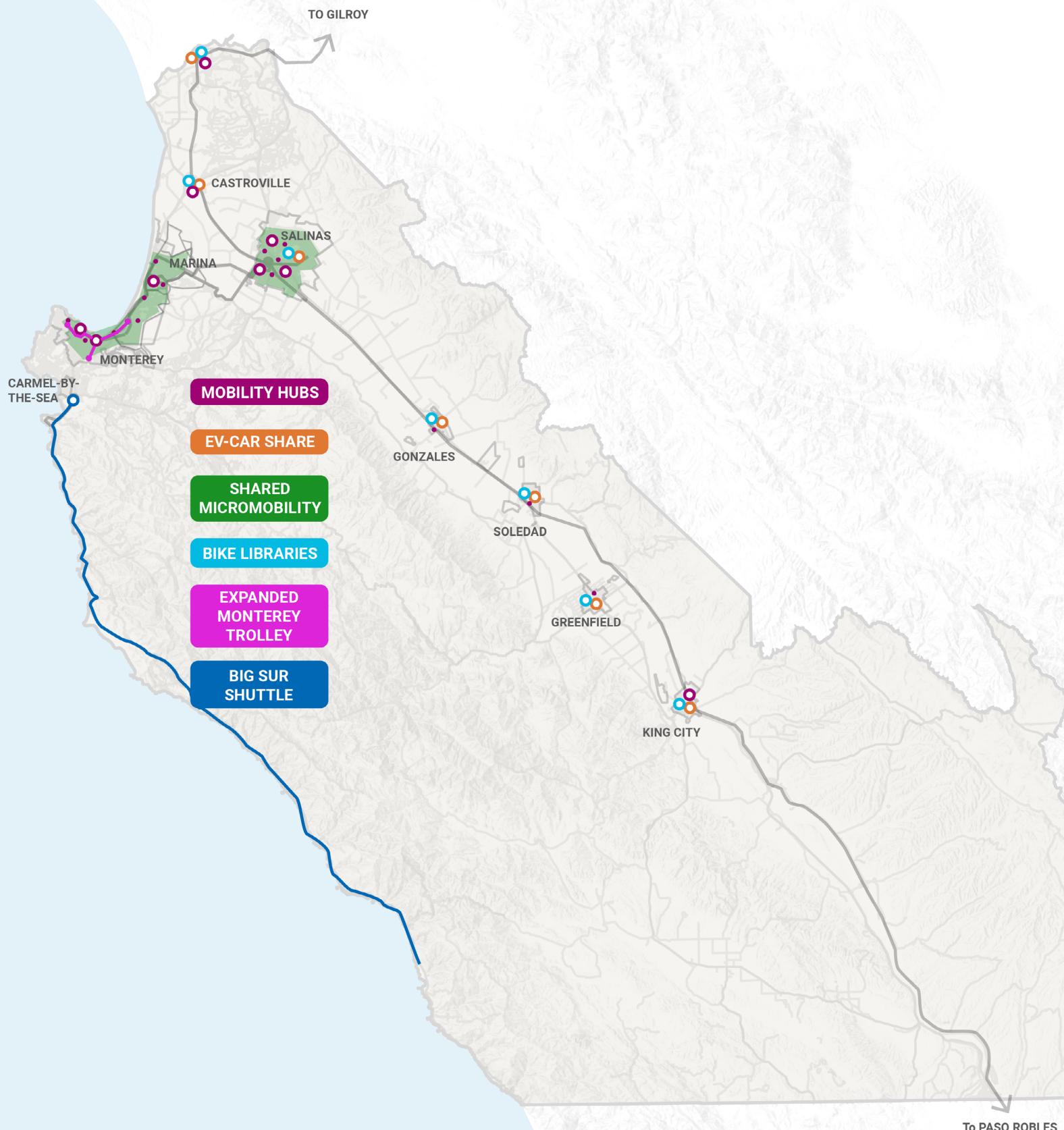


Figure 15. Proposed Zero Emissions Shared Mobility Projects



# MOBILITY HUBS FOR EV FLEETS

## ZERO EMISSIONS SHARED MOBILITY PROPOSAL

**Mobility hubs are designated locations where multiple shared mobility services, amenities, and transportation modes come together in one coordinated space. They function as “mobility centers” that support easy transfers between transit, shared EV cars, vanpool fleets, e-bikes, and walking.**

**These hubs will support electrification and expansion of today's shared mobility services, and set the stage for those to come.**

### WHY IS THIS NEEDED?

Current ride services, including Green Raiteros, CalVans, MST Commute with Enterprise, and future community car share services, cannot electrify and expand without dedicated, reliable charging access. Current charging availability is limited, creating operational challenges for volunteer drivers, shift workers, and rural-serving fleets. Mobility hubs provide a reliable, centralized solution and, during engagement were cited consistently as an opportunity to support providers.

A countywide network of hubs of a variety of scales can strengthen Monterey County's existing shared mobility options while preparing for future zero-emission fleets. Mobility hubs can exist in a variety of scales, land use contexts, and available services.

### Potential Mobility Hub Framework



**Major Hub**

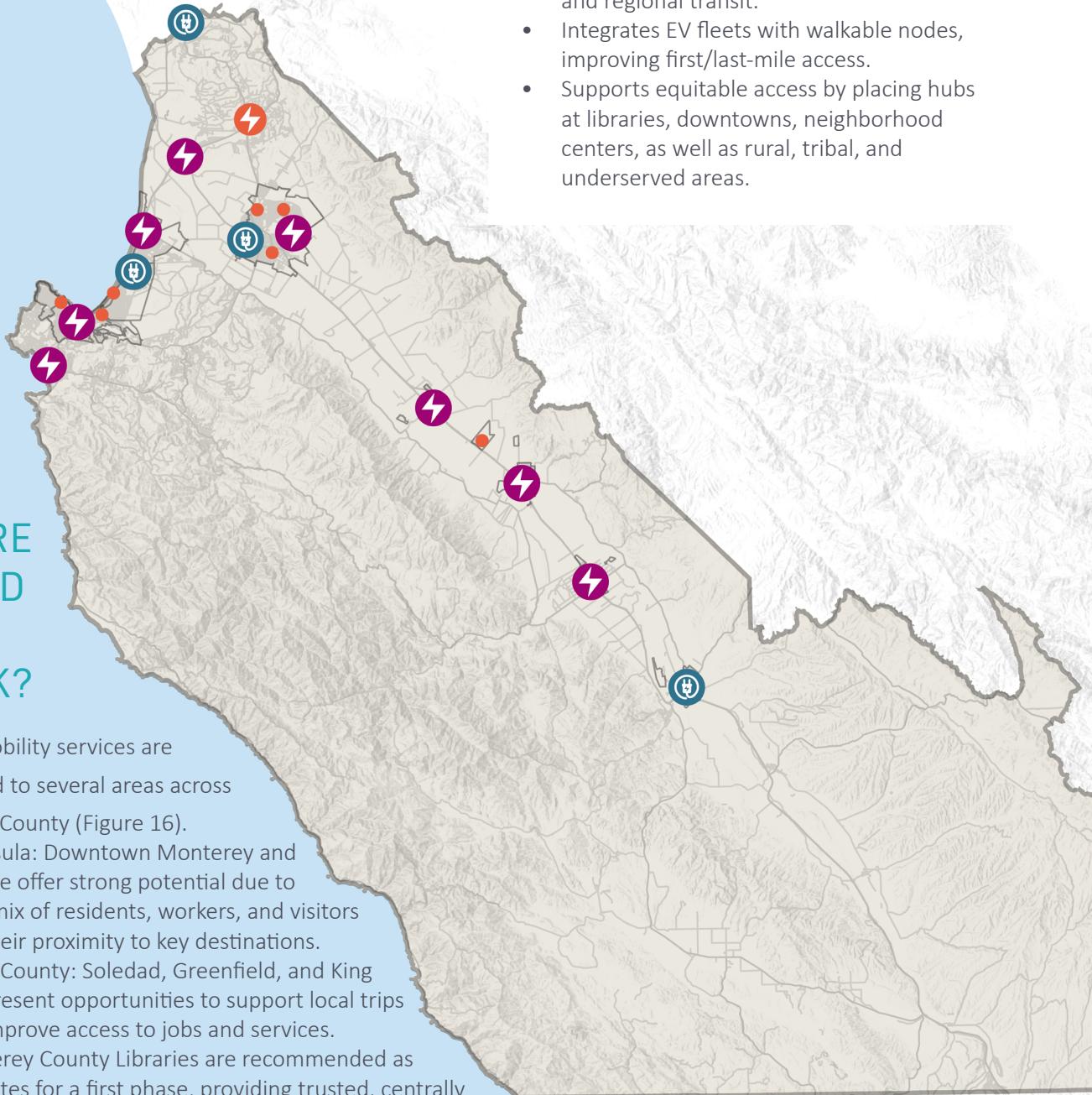


**Mid-Sized Hub**



**Minor Hub**

Monterey County



## PROJECT BENEFITS

- Provides reliable charging for fleets serving seniors, farmworkers, students, and medically vulnerable residents.
- Supports mode shift toward zero-emission travel.
- Creates mobility anchors where residents can connect to jobs, education, services, and regional transit.
- Integrates EV fleets with walkable nodes, improving first/last-mile access.
- Supports equitable access by placing hubs at libraries, downtowns, neighborhood centers, as well as rural, tribal, and underserved areas.

Figure 16. Potential Mobility Hub Network

## SCALES OF MOBILITY HUBS

Mobility hubs will form the backbone of Monterey County's Zero Emission Shared Mobility network, creating a connected multimodal system that supports how people already move today while preparing for future transit, walking, biking, and shared use EV fleet options. Multiple scales provide a range of amenities matched to different activity levels and contexts, from major regional hubs at high-volume transit nodes, mid-sized hubs at transit-oriented development (TOD) areas, to minor hubs connecting parks, and small-scale mini hubs along the County's many recreational trails. Together, the hubs create access points where people can easily transfer between modes, charge shared vehicles, access information, and complete first- and last-mile trips.

### MAJOR HUBS

Major hubs anchor the regional transportation system at the largest scale. These locations already host high volumes of riders and will support the next generation of zero-emission transit, including rail, SURF! Bus Rapid Transit, and electric shuttle fleets. These hubs integrate secure bike parking, carpool fleet charging, ridehail (Lyft/Uber), electric charging, and space for future community car-share programs, offering a full suite of multimodal services where regional and local trips converge.

### MID-SIZED HUBS

Mid-sized hubs connect neighborhoods, campuses, employment centers, parks, and key commercial destinations, and act as intermediate nodes that support bike and scooter share, EV charging, wayfinding, and high-frequency transit. These locations help distribute mobility options outward from the regional system, ensuring that both dense and dispersed communities have access to shared modes. Designed for medium levels of activity and mode transfers.

### MINOR HUBS

Minor hubs are small-scale hubs focused on walkability and micromobility. Common near schools, parks, or small commercial nodes, it supports local transit stops and first-/last-mile connections with amenities like bike parking, lighting and safety features, seating areas, and wayfinding. Transit service may be limited or absent. These hubs help residents with short local trips while linking them to mid-sized and major hubs for longer journeys.

Minor hubs are a good scale for quick-build implementation for lower cost deployment.

### MINI HUBS

Mini Hubs are hyper-local points that support walking, biking, and recreational access. Found along trails, in green spaces, or at neighborhood corners, it includes simple infrastructure such as bike racks, bike fix-it stations, seating, or signage, and connects users to the broader network. Mini hubs could also serve as tactical local projects, such as parking lot conversions into public space areas that bring multiple modes together for community gatherings.

These hubs would be designed to work together as a countywide network of connected, reliable, zero-emission zones. As the backbone of the zero emissions shared mobility network, mobility hubs enable people to make multimodal trips without needing a personal car, improving access, reducing emissions, and supporting the County's sustainable transportation goals.

# MOBILITY HUB TYPOLOGIES

**Table 3** lists preliminary recommendations for Mobility Hub locations of all scales across the County.

**Table 3. Mobility Hub Typologies for Monterey County**

Mobility Hub Type & Features	Monterey Peninsula	North County	South County Corridor	Big Sur
<b>Major Hub</b>  Primary regional transit nodes; high-volume activity; integrates rail, bus, EV charging, secure bike parking, and multimodal wayfinding.	Monterey Transit Plaza; Sand City Transit Station;	Marina Transit Exchange; Salinas Transit Center; Future Rail Stations (Pajaro/Watsonville, Castroville)	Salinas Transit Center	Not suitable at this scale
<b>Mid-Sized Hub</b>  Connects neighborhoods to major destinations; supports moderate transit, bike/scooter share, EV charging, wayfinding, seating, and shelters.	Carmel Rancho; MST JAZZ Line Stops	CSUMB; Pajaro Station; Moss Landing & Prunedale Park & Ride; VA DOD Clinic; New SURF! Stop at Palm Ave & Del Monte Blvd; Fort Ord Dunes State Park; Dunes Monterey Bay Master Plan	Northridge Mall; Soledad Mission Shopping Center; near Greenfield Library; King City Multimodal Center	Park-IT pickup/dropoff locations (Sea Lion Point, Piney Woods, Bird Island)
<b>Minor Hub</b>  Small hubs focused on walkability, micromobility, and short trips; often near parks, libraries, schools, and local commercial areas. Includes bike racks, lighting, benches, and basic transit access.	Monterey County Libraries; Carmel-by-the-Sea commercial areas	Monterey County Libraries; City parks; Community centers	Monterey County Libraries; Salinas Valley Health; Circulator stops; Parks; Community centers	Point Lobos State Natural Reserve
<b>Mini Hub</b>  Hyper-local mobility points; minimal amenities such as bike racks, bike fix-it stations, signage, seating. Located along trails, green spaces, schools, farmworker access points, and recreation areas.	Cannery Row; Monterey Bay Aquarium; Lighthouse District; 17-Mile Drive multimodal access points	Schools and sports fields; Beach Range Road Trail extensions; FORTAG Network	Schools, sports centers; Farmworker access points; Caltrans Recreational Trail	Big Sur trailheads: Pfeiffer Big Sur, Andrew Molera, Julia Pfeiffer Burns, Garrapata, Limekiln

# MOBILITY HUB PROJECT PRECEDENTS

## CULDESAC TEMPE – TEMPE, ARIZONA

Culdesac Tempe is a car-free neighborhood developed in partnership with the City of Tempe that integrates a private-sector mobility hub directly into its site design. Located near light rail and bus routes, the 17-acre mixed-use community prioritizes walking, biking, and shared mobility instead of private car ownership. The development offers residents seamless access to transit, rideshare, e-scooters, bike share, and on-site amenities, supported by a dedicated mobility manager and app-based travel credits. This hub model illustrates how private development can deliver comprehensive multimodal access while promoting sustainable, transit-oriented lifestyles.

### **Inspiration for Monterey County:**

Recognition that new developments and increased density can unlock new mobility options and challenge assumptions about VMT, parking requirements and congestion.

## BURLINGAME STATION – BURLINGAME, CALIFORNIA

The Burlingame Avenue transit hub offers connections between Caltrain, SamTrans and multiple free shuttles that take riders around Burlingame. There is also secure bicycle parking, access to Spin bikeshare bikes and electric vehicle charging stations at this station. The project was a collaboration between MTC, Caltrans, and the City of Burlingame. MTC provided federal grant funds through the Regional Mobility Hubs program, which is working to improve the rider experience, including the recent upgrades at Burlingame station.

**Inspiration for Monterey County:** A similar approach could be applied in Monterey County, for example, at future SURF! Busway stations or at Plaza de Monterey, to create pedestrian-oriented “third spaces” that encourage social mixing, improve comfort, and strengthen multimodal connections.

## MOBILITY HUB PILOT – MINNEAPOLIS, MINNESOTA

Minneapolis’s mobility hub program was an action taken as part of the city’s Transportation Action Plan and the Vision Zero initiative. They improved intersections at dozens of locations by adding neighborhood-scale mobility hubs, using low-cost materials that install quickly. Mobility Hub Ambassadors activated and maintained hub sites by performing light maintenance, connecting users with low-cost mobility programs, and serving as a friendly, consistent presence. Grant funding was provided by The Energy Foundation, through the American Cities Climate Challenge and the Carbon Neutral Cities Alliance.

**Inspiration for Monterey County:** Use of quick-build, low-cost materials allows deployment of smaller scaled mobility hubs quickly. This can build community awareness and support and lay a foundation for a larger scale deployment project.

# COST ESTIMATE

Table 4. Planning-level cost estimates for Mobility Hubs

	Scope and Included Elements	Planning-Level Costs Range
<b>Major</b>	<ul style="list-style-type: none"> <li>Site &amp; civil: reconfigured bus bays/layover areas, sidewalks/crosswalk upgrades, small plaza, drainage, lighting.</li> <li>Transit: large shelters or station canopies, real-time information, off-board fare equipment, wayfinding, bike/ped access improvements.</li> <li>Active/micromobility: secure bike parking (cages/lockers), high-capacity racks, micromobility docks/corrals, bike fix-it stations.</li> <li>EV &amp; fleets: ~6–12 Level 2 ports plus 2–6 DC fast chargers for vanpools, shuttle/commuter fleets and ridehail EVs; conduit for future expansion; utility service upgrades/transformer work.</li> <li>Digital/ITS: multimodal information displays, Wi-Fi, security cameras, back-end integration.</li> </ul>	<p>~\$5M–\$20M per hub (standalone project).</p> <p>Incremental mobility hub implementation at an existing transit center might reasonably fall in the \$2M–\$7M range.</p>
<b>Mid-sized</b>	<ul style="list-style-type: none"> <li>Site &amp; civil: curb extensions, reconfigured parking, pedestrian safety treatments, limited grading/drainage, lighting.</li> <li>Transit: upgraded stops with shelters, seating, real-time info at 1–2 stops.</li> <li>Active/micromobility: multiple bike racks, 1–2 small secure bike rooms/lockers, micromobility docks/corrals, bike fix-it station.</li> <li>EV &amp; fleets: ~4–8 Level 2 ports, optional 1–2 DC fast chargers; basic utility upgrades and panels.</li> <li>Digital/ITS: wayfinding to major destinations, basic hub-level signage/branding, sometimes a small info totem or screen.</li> </ul>	~\$500k–\$2M per hub.
<b>Minor</b>	<ul style="list-style-type: none"> <li>Site &amp; civil: 1–2 curb extensions, striping, accessible corner upgrades, crosswalks, lighting upgrades, possible small pad or parklet elements.</li> <li>Transit: one enhanced stop or pair of stops with shelter, seating, and basic real-time info if feasible.</li> <li>Active/micromobility: bike racks, scooter parking/corrals, bike fix-it station.</li> <li>EV: 2–4 Level 2 charging ports (shared EV or public), minimal utility work.</li> <li>Digital/branding: wayfinding panel, hub identity signage.</li> <li>Tactical materials: planters, paint, movable furniture for pilots.</li> </ul>	<p>~\$150k–\$600k per hub.</p> <p>Implementation with quick build tools on existing properties may allow for lower cost construction.</p>
<b>Mini</b>	<ul style="list-style-type: none"> <li>ITE &amp; civil: minimal paving/striping, possible small pad or parklet elements, lighting if needed.</li> <li>Active/micromobility: 1–2 bike racks, scooter parking, bike fix-it station.</li> <li>Amenities: bench or simple seating, shade structure (optional), signage/wayfinding.</li> <li>EV: typically none, or 1–2 Level 2 ports if paired with an existing parking lot.</li> <li>Tactical materials: planters, paint, movable furniture for pilots.</li> </ul>	<p>~\$25k–\$150k per hub.</p> <p>Lower end reflects simple “sign-and-post” hubs; upper end reflects small but permanent treatments with lighting and furnishings.</p>

## COST ESTIMATE DETAILS

Table 4 provides order-of-magnitude planning estimates per mobility hub, in 2025 dollars, excluding land acquisition. The cost ranges assume:

- Lower end = upgrading an existing transit stop/parking area with modest civil work.
- Upper end = more transformative reconfiguration (curb, pavement, utilities, full hub “kit of parts”)

The planning-level cost estimates presented for Mobility Hubs in this Study are rough order-of-magnitude estimates prepared for conceptual planning and comparison purposes only. They are based on:

- Published cost ranges and pilot program budgets from the following US mobility hub and EV charging studies:<sup>8</sup>
  - Metropolitan Transportation Commission Mobility Hub Implementation Playbook
  - North Carolina Department of Transportation Youngsville Mobility Hub Feasibility Study
  - Bend Metropolitan Planning Organization Bend Mobility Hubs Feasibility Study & Pilot Project Development
  - California Air Resources Board Policy Brief: Mobility Hubs, and
- Generalized unit cost information for site improvements, transit amenities, bicycle and pedestrian facilities, and EV charging infrastructure.

These estimates are not the result of detailed engineering, site surveys, or utility design for specific locations in Monterey County. Actual project costs may vary significantly due to:

- Site-specific conditions (grading, soil, drainage, contamination)
- Right-of-way and land acquisition needs
- Availability and cost of electrical power and required utility upgrades
- Choice of equipment vendors and technology (especially for EV charging and digital systems)
- Construction market conditions, labor/material escalation, and procurement approach
- Project phasing, bundling with other capital projects (e.g., BRT or rail investments), and final scope decisions

All costs should be refined during subsequent phases of project development, including preliminary engineering, utility coordination, and site-specific design. For grant applications or capital programming, more detailed engineer’s estimates should be prepared for each candidate mobility hub location.

## ESTIMATED AVOIDED VEHICLE TRIPS AND MILES TRAVELED

Mobility Hubs for EV Fleets reduce vehicle miles traveled indirectly by enabling mode shift, reducing car ownership, and shortening auto access trips, rather than by directly replacing trips. A 2025 California Air Resources Board policy review finds that while mobility hubs are widely promoted as a VMT reduction strategy, no empirical U.S. studies have yet quantified their direct impact on VMT. Available evidence—primarily from Europe and from U.S. travel-demand modeling—suggests that mobility hubs can reduce driving when implemented in conjunction with frequent transit, shared mobility services, and safe walking and bicycling connections.

This study considers mobility hubs to be VMT reduction enablers, estimating their influence through modest reductions in auto access distance, avoided circulation and parking-related driving, and longer-term reductions in discretionary driving enabled by access to shared EV fleets.

The VMT reduction potential of mobility hubs is realized primarily through their interaction with shared micromobility, EV car share, and frequent transit services, rather than through the hub infrastructure alone. For planning-level VMT estimates, each mobility hub is treated as a unit that reduces a modest amount of auto travel across a large number of users. Using conservative assumptions of 50–150 daily users accessing shared mobility via a hub, 1.0–2.5 auto miles avoided per user, and 300 operating days per year, a single mobility hub is estimated to reduce approximately ~15,000–110,000 annual auto vehicle miles traveled.

# PARTNERSHIP AND IMPLEMENTATION APPROACH

Successful mobility hubs rely on coordinated leadership across public agencies, community partners, and mobility providers. This section outlines partnership roles (Table 5), site selection considerations, early pilot opportunities, and implementation steps to help Monterey County and its partners advance a mobility hub network.

**Table 5. Key Partners for Mobility Hubs**

Key Partners	Role
<b>Libraries and Community Centers</b>	<ul style="list-style-type: none"><li>Provide trusted, community-oriented locations for early pilots</li><li>Support outreach, education, and ongoing stewardship</li><li>Offer indoor space for workshops or safety trainings</li></ul>
<b>Cities and Monterey County</b>	<ul style="list-style-type: none"><li>Lead permitting, site improvements, utilities, curb management, and signage</li><li>Integrate hubs into planning, capital projects, and public right-of-way decisions</li></ul>
<b>Nonprofits and Community Organizations</b>	<ul style="list-style-type: none"><li>Greenfield, Salinas, farmworker-serving groups can guide culturally relevant hub design</li><li>Senior and disability-oriented organizations help ensure ADA accessibility and safety</li><li>CBOs support outreach, feedback loops, and stewardship</li></ul>
<b>Land Developers</b>	<ul style="list-style-type: none"><li>Housing developers supporting multimodal transportation.</li></ul>
<b>Shared Mobility Providers</b>	<ul style="list-style-type: none"><li>Electric car-share vendors, scooter and bike share operators, and fleet charging partners provide equipment, operations, and data</li><li>Private-sector partners can co-invest in EV infrastructure and mobility services</li></ul>

## SITE SELECTION CRITERIA

When identifying hub locations for early pilots, priority should be given to sites that:

- Build on existing or planned active transportation investments
- Are within walking distance of transit, services, or key community destinations
- Have strong interest from local partners (libraries, schools, community centers, CBOs, or cities)
- Offer visibility, safety, and natural foot traffic
- Provide space for expansion as demand grows
- Local zoning and permitting processes should support multimodal infrastructure, including micromobility docks, transit plazas, curbside pick-up/drop-off zones, and EV charging. Integrating mobility hubs into housing, retail, and parks increases visibility and daily use.

## ROLE OF PILOT PROJECTS

Pilot mobility hubs allow cities and the County to test strategies in real-world conditions before making larger capital investments. Pilots help partners evaluate:

- How hub features perform in different land use contexts (campuses, libraries, rural communities, town centers)
- User preferences for usability, including safety, comfort, and desired amenities
- Requirements for charging, maintenance, and operations
- Potential barriers such as visibility, wayfinding, or access gaps
- Early pilots at libraries, community centers, and campuses can build community familiarity, generate momentum, and refine standards for future phases.

## PUBLIC-PRIVATE PARTNERSHIPS

Public and private partners each play a role in advancing and maintaining mobility hubs. These partnerships help secure long-term funding, reduce public costs, and ensure hubs adapt to emerging mobility technologies. Public-private partnership strategies may include:

- Vendor-funded bike/scooter share operations
- Co-investment in charging infrastructure by electric vehicle fleet partners
- Developer contributions through transportation impact fees
- Hub amenities integrated into new affordable housing or mixed-use projects
- Sponsorship or maintenance agreements for lighting, landscaping, or secure bike parking

## FUNDING & PHASING

Implementation should be phased to align with community readiness and available funding.

Funding can come from transportation budgets, state and federal grants, private operators, and local development incentives.

**Phase 1:** Low-cost pilots and tactical installations

**Phase 2:** Permanent hub infrastructure in priority locations

**Phase 3:** Countywide expansion linked to capital projects and rail investments

## NEXT STEPS

Identify locations that represent a mix of geographies and hub types, prioritizing locations with existing multimodal demand or upcoming infrastructure projects, such as:

- A Major Hub at an MST station, such as Salinas Intermodal
- A Mid-Sized Hub to support a new housing development, such as Carmel Valley Village
- A Minor Hub at a library or community center
- A Mini Hub to support ParkIT!

Review and update local codes and guidelines to:

- Allow shared mobility services and charging infrastructure
- Establish curbside management standards
- Require or incentivize mobility hub amenities in new development
- Integrate hubs into citywide and regional transportation plans

Coordination between MST, TAMC, AMBAG, Monterey County, cities, public works, utility providers, fleet/micromobility/shared mobility providers to align:

- Transit stop upgrades
- Power supply for charging systems
- Real-time information systems
- Construction schedules and capital investments





# SHARED MICROMOBILITY SERVICE

## ZERO EMISSIONS SHARED MOBILITY PROPOSAL

Shared micromobility (e.g., e-bikes, adaptive bikes, and e-scooters) offers a flexible travel option for short trips in the dense population centers of Monterey County. This Study proposes establishing a permitted partnership program with one or more vendors to deploy shared micromobility in a managed, context-sensitive way.

### WHY IS THIS NEEDED?

Residents across Monterey County are already using personal e-bikes and e-scooters for commuting, errands, and recreation, indicating a strong market for shared systems. Engagement respondents, including young adults, shift workers, students, and hospitality workers, expressed high interest in having more low-cost, reliable ways to travel without depending on personal vehicles.

The Micromobility Program will introduce updated regulations, designated parking areas, and targeted infrastructure changes to ensure safe operations and address concerns about street clutter, improper parking, and excessive speed.

## PROJECT BENEFITS

- E-bikes reduce emissions by ~90% compared to cars<sup>9</sup> and reduce congestion in high-visitor areas.
- Better access to jobs in hospitality and retail where parking is scarce or expensive.
- Mode shift from shared mobility is real. In Santa Monica's pilot program evaluation, 49% of shared scooter/bike trips replaced a car or ride-hail trip.<sup>10</sup> Portland's first pilot found 34% of locals and 48% of visitors would've otherwise used a car/ride-hail.
- E-scooters/bikes often connect to transit; in several studies ~20–30% of users report pairing with transit on at least some trips.<sup>11</sup>

## WHERE COULD THIS WORK?

- Monterey Peninsula: Fisherman's Wharf, Aquarium, Cannery Row, Recreation Trail
- Salinas (workforce and student trips)
- Pajaro (work with Santa Cruz BCycle)



Potential Shared  
Micromobility



Monterey County

Figure 17. Potential Shared  
Micromobility Service Areas



## COMPLEMENTING LOCAL BIKE RENTAL SHOPS

Traditional bike rental businesses, offering half-, full- or multi-day rentals, often express concern that low-cost, app-based e-bike or scooter systems will undercut their business, particularly when serving tourists or casual riders. While competition concerns are real, shared micromobility and rental shops serve distinct travel needs. Shared micromobility is for spontaneous, short-distance trips (errands, commuting, first/last mile) and Rental shops are better for leisure/tourism, long scenic rides, group outings, and extended use. With thoughtful program design on pricing, service zones, and business engagement, the two can coexist and complement each other. Here are strategies to promote complementary services:

### Time-Based Use Limits

Limit shared micromobility trips to short durations. For example:

- Encourage trips under 30–60 minutes.
- Use pricing structures that make longer use more expensive (e.g., progressive per-minute pricing or hourly caps). The emphasis on short trips leaves room for rental shops to offer better value for half- or full-day rides.

### Geo-Fencing for Key Tourist Zones

Restrict access to shared micromobility in sensitive areas. For example:

- Geo-fence recreational areas like Big-Sur and the 17-Mile Drive, where shared micromobility is unsuitable and bike shop rentals are most appropriate. This avoids competition in the most lucrative tourism zones.

### Local Business Advisory Panel

Establish an advisory group that includes local bike rental shop owners to:

- Allow them to review deployment maps, pricing models, and system policies before launch.
- Ensure transparency and co-design the rollout so that businesses feel included, not blindsided.

### Permit Fee Revenue Sharing

Use a portion of shared micromobility permit fees to:

- Market local bike rental businesses through joint promotions.
- Create shared bike maps highlighting rental shops and their offerings.

# INNOVATION SINCE THE 2013 BIKE SHARE FEASIBILITY STUDY

In 2013 TAMC developed the Monterey County Bicycle Sharing Feasibility and Implementation Plan to analyze and recommend potential models for bike share systems in the Monterey Peninsula and Salinas. These recommendations were well developed and proposed a vision of enhanced mobility in the region. Since 2013, the industry landscape has evolved in fundamental ways. New technology and business models allow the system to be more flexible, more electric, easier to operate, and more financially feasible.

## CHANGES IN VEHICLE TECHNOLOGY

Electric bikes (e-bikes) are the new standard. In 2013, e-bikes were rare, and technologically immature. Since 2017 e-bikes have become the dominant vehicle in U.S. bikeshare systems. This technology brings integrated GPS and location management, dock-based charging with long battery life, and hill-climbing ability which is critical for cities with topography like Monterey, Pacific Grove and Seaside.

Integrated GPS technology allows for low-cost “virtual parking zones,” facilitating formal fleet management

with lower cost and an expanded service area. E-bike systems would expect ridership to be significantly higher than originally forecasted, with an expanded coverage to include hilly areas and longer distances, reaching more jobs, schools and other destinations.

Electric scooters (e-scooters) have also emerged as a complementary mode to e-bikes. Scooters fill short trips better than bikes (1–1.5 miles), especially for youth and visitors. An e-scooter component could increase overall trip volume, align with tourist demand areas. According to NACTO, e-scooter trips have grown to 63.2% of total shared micromobility ridership in over two years after being introduced.<sup>12</sup>

## CHANGES IN FUNDING AND OPERATIONS MODELS

Monterey Peninsula and Salinas could implement systems with minimal public capital investment if structured properly. In modern systems, operators assume more risk, lowering the burden on host cities and agencies.

With the rise in greenhouse gas (GHG) reduction priorities, modern electrified systems can unlock new funding opportunities unavailable to previous systems. Salinas, with disadvantaged communities and essential worker travel demand, is highly competitive for equity-based funding. The Monterey Peninsula can pair the program with congestion mitigation, tourism management, and GHG reduction goals.



# SHARED MICROMOBILITY SERVICE PRECEDENTS

## SANTA CRUZ BCYCLE – SANTA CRUZ, CA

Santa Cruz BCycle is a dock-based electric bike share program. Members can pick up a bike at any station and return it to that same station or another one when they're done using. The system launched with 400 electric-assist bikes from bike share vendor BCycle. Over 60 are available throughout the City of Santa Cruz and UC Santa Cruz.

**Inspiration for Monterey County:** The dock-based system uses many frequently placed small-scale docks to manage bike parking challenges while allowing for direct access to destinations.

## BAY WHEELS – SAN FRANCISCO BAY AREA

Bay Wheels is a partnership between Metropolitan Transportation Commission, the six local governments, and operated by private company Motivate (a subsidiary of Lyft). The system has 7,000 bicycles (traditional and electric) across 550 stations. Programs for riders with low incomes and the option to pay with cash (instead of cards). Interoperability with regional transit Clipper card allows for easy, familiar access.

**Inspiration for Monterey County:** Interoperability with the transit system/card/account can simplify access and support use as a first- and last-mile solution.

## BIKE SAN JOAQUIN – SAN JOAQUIN COUNTY

Bike San Joaquin is an electric bikeshare program led by the San Joaquin Council of Governments, and operated by private operator Drop Mobility, providing clean, affordable, and reliable transportation options across San Joaquin County. The program supports traditional dock-based bike sharing for 150 minutes of riding per day and a Long-Term Lending option, where bikes are borrowed for 30-days at a time and stored in the user's private residence.

**Inspiration for Monterey County:** Support for both short-trips and long-term lending can respond to community context and needs.

# COST ESTIMATE

Many new bike/scooter-share programs use a public–private partnership model: the city or regional agency handles planning, permitting and initial infrastructure, a private operator owns and manages the fleet and technology, and often a sponsor or advertising revenues help subsidize operations.

In all cases, the public agency fronts startup expenses, such as planning, outreach, street space for docks/signage, etc., and seeks grants or sponsors to fund those. Private operators then deploy fleets of e-bikes and e-scooters and handle ongoing maintenance, while the city typically retains insurance and oversight responsibility. Program funding comes from a mix of sources: grants and public funds for capital costs, corporate sponsors or advertising for subsidies, and user fees.

**Table 6. Sample Shared Micromobility System Costs**

	<b>Category</b>	<b>Description</b>	<b>Unit Cost</b>	<b>Qty</b>	<b>Total</b>
<b>Startup Costs</b>	Planning, Permitting, Outreach	Consulting, community meetings, permit fees, marketing materials			\$ 50,000
	Smart Docking Stations	Smart docking stations	\$ 45,000	10	\$ 450,000
	Dock Installation	Installation of docks	\$ 5,000	10	\$ 50,000
	Virtual Parking Zones	Virtual docks at Corrals	\$ 5,000	10	\$ 50,000
	Technology integration	App/GIS integration			\$ 10,000
	Initial Bike Fleet	80 e-bikes	\$ 3,000	80	\$ 240,000
	Initial Scooter Fleet	60 e-scooters	\$ 1,200	60	\$ 72,000
<b>Total Agency Startup</b>					<b>\$ 922,000</b>
<b>Agency Annual Costs</b>	Insurance and Legal	Liability insurance, legal review fees for contracts			\$ 10,000
	Admin/Contract Oversight	Staff time (~0.5–1.0 FTE) for permit management, compliance			\$ 100,000
	<b>Total Agency Annual Costs</b>				<b>\$ 110,000</b>
	Project Subtotal				<b>\$ 1,032,000</b>
	Contingency 30%	Concept level contingency			\$ 309,600
<b>Project Total</b>					<b>\$ 1,341,060</b>

## COST ESTIMATE DETAILS

A contingency of 30% is included to account for the planning-level nature of this estimate. At this stage of project development, key design details, permitting conditions, and implementation logistics are not yet defined. These project cost estimates were informed by the Mobility Project Implementation Toolkit from Clean Mobility Options, available at <https://cleanmobilityoptions.org/project-implementation-toolkit/>.

## ESTIMATED AVOIDED VEHICLE TRIPS AND MILES TRAVELED

Shared micromobility can reduce VMT by replacing short car and ride-hail trips within the service area boundaries, especially in areas with parking pressure and frequent short-distance travel.

Based on the recommended fleet size (~80 e-bikes and ~60 e-scooters) and planning-level utilization assumptions, a first-phase system could reasonably generate on the order of ~40,000–315,000 annual auto miles avoided, depending on ridership intensity, average trip lengths, and the share of trips that replace driving.

Calculation Assumptions:

- Shared Micromobility Fleet: 140 devices (80 e-bikes + 60 e-scooters)
- Utilization: 2–6 trips/device/day
- Operating days: 300 days/year
- Average replaced auto trip length: 1.5–2.5 miles
- Auto-replacement share: 30%–50%

## PARTNERSHIP AND IMPLEMENTATION APPROACH

We recommend positioning shared micromobility as a regionally coordinated, locally owned, and a non-profit operator-managed system that aligns with Monterey County's broader transportation, equity, and climate goals. Through strategic partnerships, clear governance, and integration with other mobility programs, the system can serve residents, workers, students, and visitors while minimizing risk to local jurisdictions.

A partnership between a public agency lead and non-profit operator can prioritize public benefits while minimizing operational burden on the public agency.

## PROGRAM LEAD

A County-ed or Regional (TAMC) led program can best serve multiple cities, provide regional consistency, and navigate cross jurisdictional boundaries, such as in Pajaro and Watsonville. This model mirrors the San Joaquin Council of Governments' role in the Bike Stockton program.

The Transportation Agency for Monterey County (TAMC) is a natural potential lead because it already manages regional mobility planning, oversees transit integration and has experience with grants and operations contracts. A TAMC-led governance could produce a unified, seamless system across the Peninsula and Salinas.

## FLEET MANAGEMENT

Under a public-private partnership model, the private operator handles the core day-to-day responsibilities. Most modern vendors (e.g., BCycle, Drop Mobility) offer full-service operating packages, minimizing the local agency's operational burden. Typical operator responsibilities include:

- Fleet deployment and balancing
- Maintenance and repairs
- Battery charging or swapping
- Customer service and rider support
- Data reporting and system analytics
- App and payment system operation
- Safety inspections and compliance with County standards





# COMMUNITY E-BIKE LIBRARIES

## ZERO EMISSIONS SHARED MOBILITY PROPOSAL

**Community E-Bike Libraries provide free or low-cost long-term bike lending for residents who need reliable daily transportation but cannot afford to purchase a bicycle. These programs are especially effective in communities where car ownership is costly, transit options are limited, and short local trips are common. The model is intentionally simple, community-centered, and low-cost, making it an ideal early-action, high-impact strategy for expanding zero-emissions mobility.**

### WHY IS THIS NEEDED?

Many residents in North and South County rely on walking, informal rides, or costly vehicle travel for short daily trips—particularly farmworkers, service workers, youth, and families living far from major transit lines. Community input highlighted strong interest in affordable, flexible alternatives that support commuting to work, accessing schools, running errands, and reaching health services.

Community e-bike libraries can also improve accessibility by including disability-friendly bikes, such as seated e-bikes or tricycles for people who may get tired quickly from standing or pedalling. Early pilot programs already demonstrate success; for example, LEAP Institute's Green Cruiser Ride Sharing program in Pajaro offers electric tricycles to community members, expanding mobility options for a wider range of users.



Potential Community  
E-Bike Library



Monterey County

## WHERE COULD THIS WORK?

Community e-bike libraries would be well-suited for areas with shorter local trips and limited access to other mobility options.

Potential locations include South County communities such as Greenfield and Soledad, North County hubs like Castroville and Pajaro, the CSUMB campus, and neighborhoods in Salinas' Alisal District, where e-bikes could expand affordable, convenient travel for residents.

## PROJECT BENEFITS

- Low-cost, high-impact strategy for farmworker communities and towns without commercial micromobility.
- Builds on existing community trust networks.
- A strong early win for zero-emissions transportation access.

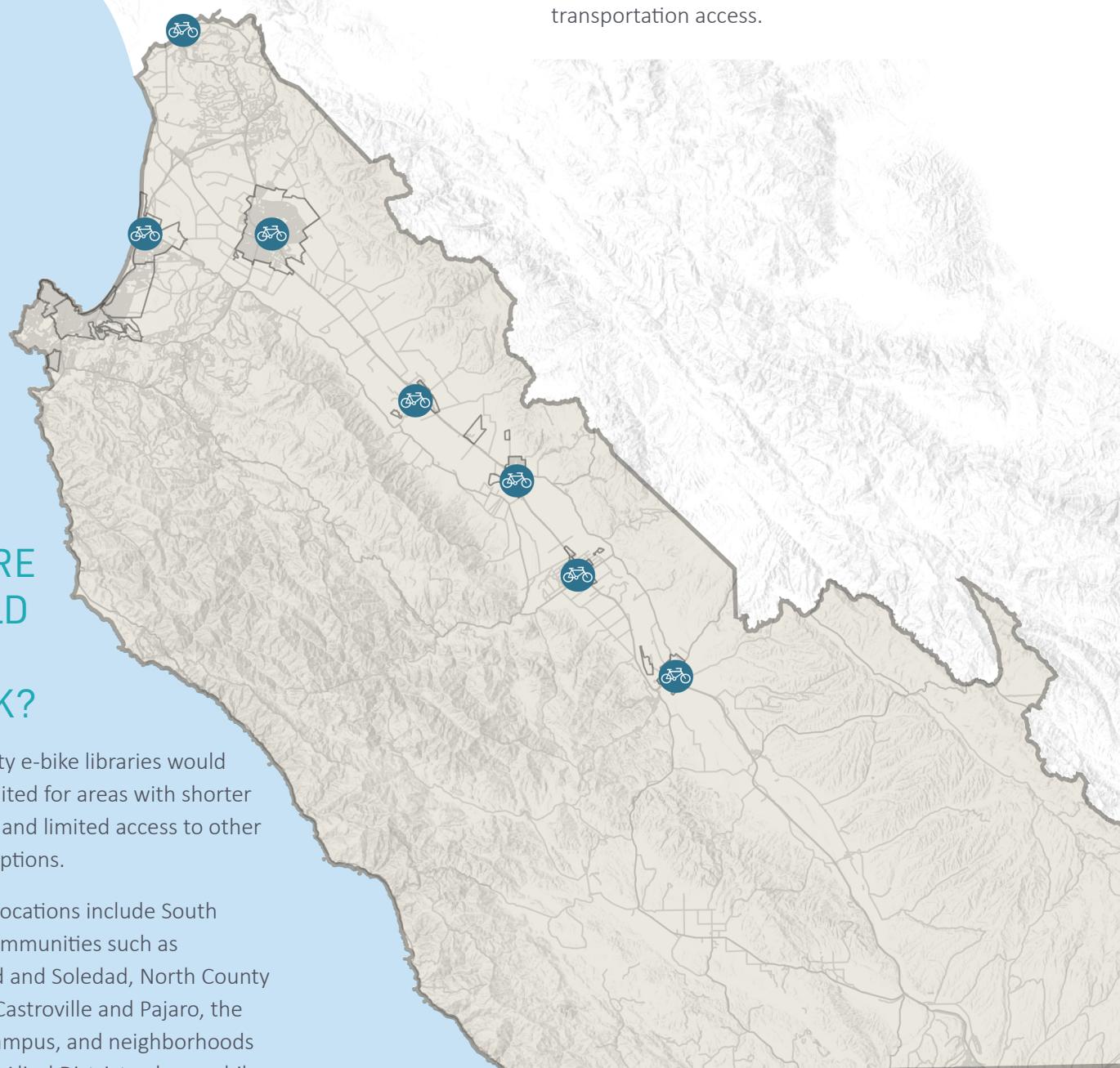


Figure 18. Potential E-Bike Library Locations

## COMMUNITY E-BIKE LIBRARY PRECEDENTS

### CHARLOTTESVILLE E-BIKE LENDING LIBRARY

The Charlottesville E-bike Lending Library is a local nonprofit that lends out e-bikes for community members to try out e-bikes for their everyday use. The fleet of 9 e-bikes and 2 e-cargo bikes of various styles is supplied through purchases and donations. Lending requests are supported by an online form and include free one-week rentals.

**Inspiration for Monterey County:** With the right partner, a grassroots nonprofit model can serve communities at a very low cost.

### SOUTH CENTRAL POWER UP! - LOS ANGELES, CA

The Los Angeles Cleantech Incubator (LACI), in partnership with community organizations, launched an E-bike lending library pilot in South Central Los Angeles in 2024 to expand access to sustainable transportation. The program offers a fleet of 250 e-bikes available to rent for a month at a time available across 7 different locations in the community. Program funding comes from the California Air Resources Board (CARB).

**Inspiration for Monterey County:** This example shows how long-term bike libraries can serve multiple locations as a large-scale solution.

### FORTH E-CARGO BIKE LIBRARY - PORTLAND, OR

FORTH Mobility, an EV-transportation advocacy organization, in partnership with Metropolitan Family Services, a community-based organization, offers e-cargo bikes for free 3-day checkout. The intent is to educate community members about the benefits of e-bikes and the opportunities to try them out hands on. The program has a fleet of five e-cargo bikes of different kinds available. There is no fixed location for this program, and it travels to community events and activities led by community partners to engage with communities. Lending requests are filled via an interest form.

**Inspiration for Monterey County:** A small-scale program can be useful as an educational tool to help people try out e-bikes as a step toward purchasing their own.

# COST ESTIMATE

Table 7. Sample Community E-Bike Library Costs

	Category	Description	Unit Cost	Qty	Total
<b>Equipment Costs</b>	Standard E-Bikes	Mid-range commuter e-bikes	\$ 2,500	4	\$ 10,000
	E-Trikes	Electric tricycles for stability	\$ 4,500	2	\$ 9,000
	E-Cargo Bikes	Longtail or box-style e-cargo bikes	\$ 5,500	2	\$ 11,000
	Helmets & Safety Gear	Helmets, locks, lights, bags	\$ 150	20	\$ 3,000
	Storage Container	Refurbished 20-ft cargo container	\$ 6,000	1	\$ 6,000
	Site Prep + Container Install	Leveling, wiring, security			\$ 12,000
	Charging Infrastructure	Smart chargers, wiring, outlets			\$ 4,000
	Tools & Maintenance Equipment	Bike stand, tools, spares			\$ 3,000
	Signage & Wayfinding	Branding, instructions			\$ 2,500
	<b>Total Equipment</b>				<b>\$60,500</b>
<b>Staffing</b>	Program Coordinator (1.0 FTE)	Manages fleet, checkouts, training			\$ 78,000
	Volunteer Coord. (0.5 FTE)	Community outreach, support			\$ 38,000
	Volunteer/Intern Stipends	Youth stipends and community support			\$ 6,000
	<b>Total Staffing</b>				<b>\$ 122,000</b>
<b>Operations</b>	Bike Maintenance & Repairs	Wear-and-tear, batteries, parts			\$ 6,000
	Container Utilities	Electricity for charging, lights			\$ 1,500
	Insurance	Fleet, property, liability			\$ 7,500
	Software/Admin Tools	Booking system, CRM			\$ 1,800
	Outreach Travel	Fuel for outreach, local trips			\$ 1,200
	Program Supplies	Printing, materials, cleaning			\$ 1,500
	Administration	Admin, HR, fiscal sponsor			\$ 15,000
	<b>Total Operations</b>				<b>\$ 34,500</b>
	Project Subtotal				<b>\$ 217,000</b>
	Contingency (30%)				\$ 65,100
	<b>Project Total</b>	<b>Concept level contingency</b>			<b>\$ 282,100</b>

## COST ESTIMATE DETAILS

The budget in Table 7 represents an E-Bike Library setup with a small fleet of 8 electric bikes: 4 standard e-bikes, 2 e-trikes for riders with stability or mobility needs, and 2 e-cargo bikes. Additional costs cover helmets and safety gear, a refurbished 20-foot shipping container for secure storage and charging, electrical installation, and signage. A contingency of 30% is included to account for the planning-level nature of this estimate.

## ESTIMATED AVOIDED VEHICLE TRIPS AND MILES TRAVELED

Community E-bike Libraries reduce VMT by enabling residents to substitute frequent local car trips for commuting, errands, school trips, and appointments e-bike held for days or weeks at a time. Based on the recommend community-scale fleets of ~8 bikes per location and planning-level assumptions about annual miles ridden per lent bike, a single site could avoid roughly ~5,000–17,000 annual auto miles, while a countywide program scaled to 5–10 sites could avoid approximately ~24,000–172,000 auto miles per year.

### Calculation Assumptions:

- Community E-Bike Fleet: 8 bikes
- Bike Utilization: 1,500–3,500 miles/bike/year (low=modest use; high=frequent commute/errand use)
- Auto-replacement share: 40%–70% replaced trips

## PARTNERSHIP AND IMPLEMENTATION APPROACH

Community E-bike Libraries are most often led by nonprofits with transportation or environmental justice missions. Program leads frequently partner with organizations already serving low-income or immigrant populations. Other partners could be educational institutions or libraries focused on students or youth.

Monterey County would play a key role as a convener, grant administrator, and ensure alignment with county-wide mobility, equity, and climate goals:

- Facilitate regional coordination, ensuring libraries serve high-need communities.
- Support funding applications through letters of support, data sharing, and fiscal sponsorship.

## PARTNERSHIPS

A strong partnership model is central to long-

term success. Community Bike Libraries work best when operated by locally trusted organizations who can help with outreach, user support, and bike maintenance. In more formal settings, the Monterey County Free Library branches can provide consistent staffing, check-out systems, and public visibility. Potential program leads or partners include organizations such as:

- Greenfield Science Workshop
- MILPA
- Green Raiteros / The LEAP Institute
- Monterey County Free Libraries

## FUNDING OPPORTUNITIES

Community e-bike libraries are well-aligned with state and federal funding priorities. Potential sources include:

- California Air Resources Board (CARB): Clean Mobility Options Pilot Program, Sustainable Transportation Equity Project
- Strategic Growth Council (SGC): Transformative Climate Communities
- Federal Transit Administration (FTA): Areas of Persistent Poverty, Transit Enhancements
- California Energy Commission (CEC): Clean Transportation Program
- Local and regional funds: TAMC grants, county sales tax measures, SB1 Local Partnership Program

## INTEGRATION WITH OTHER MOBILITY PROGRAMS

Community e-bike libraries integrate naturally with several other zero emissions shared mobility strategies:

- Shared Micromobility Services: Community E-Bike Libraries can complement shared e-scooter programs by serving residents who don't qualify for or trust commercial services.
- Mobility Hubs: Libraries can be co-located at mobility hubs with parking, charging, and transit.
- Transportation Wallet: Borrowers can receive credits or incentives through a regional Mobility Wallet.
- Workforce Access Programs: E-bikes can support off-hour commuting, especially for agriculture,





# COMMUNITY EV CAR SHARE

## ZERO EMISSIONS SHARED MOBILITY PROPOSAL

**Community-based, zero-emissions car share system where members can reserve EVs for short trips. Vehicle fleets can include cars, trucks and minivans, to support a broad range of activities.**

### WHY IS THIS NEEDED?

Across Monterey County, many households spend a significant portion of their income on car ownership. A car share program provides a low-cost alternative for families who occasionally need a vehicle but cannot afford to own or maintain one. It also supports the County's zero-emissions goals by replacing older, higher-polluting vehicles with clean EVs. This model fills an important gap not well served by fixed-route transit and chained trip-making, which often require a car but do not justify a full household vehicle. Car share is especially promising in rural and suburban communities such as North County and South County, where distances are longer and transit service is limited.



### Potential Community EV Car Share



### Monterey County

## WHERE COULD THIS WORK?

On the Peninsula, Downtown Monterey and Seaside offer strong potential due to their mix of residents, workers, and visitors and their proximity to key destinations.

In South County, Soledad, Greenfield, and King City present opportunities to support local trips and improve access to jobs and services.

As a first phase, Monterey County Libraries are recommended as host sites, providing trusted, centrally located community hubs for launching and testing new mobility options.

## PROJECT BENEFITS

- Fewer private cars on the road: Research shows that each shared car can replace 9 to 13 privately owned vehicles, reducing parking demand, emissions, and household costs.<sup>13,14</sup>
- Serves family and chained trip making behavior not suitable for fixed transit.
- Reduces car ownership costs.
- Provides access for errands, medical appointments, or local trips.
- Flexible model for rural and suburban communities where traditional car share is not viable.

Figure 20. Potential community EV car share locations

# COMMUNITY EV CAR SHARE PRECEDENTS

## OUR COMMUNITY CARSHARE – SACRAMENTO, CA

Our Community CarShare- Pilot EV carshare program led by the Sacramento Metropolitan Air Quality Management District and operated by Zipcar. The program places battery-electric vehicles at 8 sites in disadvantaged neighborhoods, centered around community destinations, transit hubs, and affordable housing sites. They can be reserved for up to 8 hours a day in a 24-hour period and for a total of 24 hours a week. They must be returned to their designated spot. The program provides subsidized access for low income residents to run errands, appointments or local trips.

**Inspiration for Monterey County:** Short term use of a car can unlock trips that are otherwise challenging by transit.

## COLORADO CARSHARE – DENVER, CO

Local mission-driven nonprofit Colorado CarShare operates a carshare service in Denver and other Colorado cities in partnership with host cities. The program offers 21 carshare vehicles in the city of Denver and offers reduced rates for low-income users. With intentional service in low-to-mixed income neighborhoods, Colorado CarShare emphasizes social equity and environmental stewardship.

**Inspiration for Monterey County:** Mission-driven organizations can make great partners when serving low-income neighborhoods where traditional private carshare operators would struggle.

## ¡ADELANTE WATSONVILLE! MÍOCAR – WATSONVILLE, CA

The City of Watsonville, in partnership with Míocar and Ecology Action, has officially launched a new electric vehicle (EV) car sharing program designed to bring affordable, zero-emission mobility to residents across the city. The program offers 8 vehicles at key community locations with city-owned parking lots. The program focuses on removing transportation barriers through bilingual outreach, community partnerships, and culturally relevant mobility solutions.

**Inspiration for Monterey County:** Locating carshare hubs at city-owned parking lots keeps costs low and co-locates with useful government services.

# COST ESTIMATE

Table 8. Community EV Car Share Cost Estimate

	Category	Description	Unit Cost	Qty	Total
<b>Vehicle Purchases</b>	Electric Pickup	e.g. Ford F-150 Lighting	\$ 50,000	1	\$ 50,000
	Hybrid Minivan	e.g. Chrysler Pacifica PHE	\$ 45,000	1	\$ 45,000
	Electric Cars	e.g. Nissan Leaf or Chevy Bolt	\$ 25,000	2	\$ 50,000
	Vehicle Onboarding	To make a vehicle ready	\$ 1,000	4	\$ 4,000
	<b>Total Vehicle Costs</b>				<b>\$ 149,000</b>
<b>Charging Infrastructure</b>	Level-2 Charging Stations	Level-2 Charging Stations	\$ 5,800	2	\$ 11,600
	Charging station installation	Charging station installation	\$ 15,000	2	\$ 30,000
	Charging Network Fees	Charging Network Fees	\$ 240	4	\$ 960
	Station electricity	Station electricity	\$ 960	4	\$ 3,840
	Warranty/Maintenance	Warranty/Maintenance	\$ 275	4	\$ 1,100
	<b>Total Charging Costs</b>				<b>\$ 47,500</b>
<b>Staffing (Annual)</b>	Program Manager	1 Full time employee	\$ 100,000	1	\$ 100,000
	Maintenance Technician		\$ 45,000	1	\$ 45,000
	Customer Support Staff		\$ 30,000	1	\$ 30,000
	<b>Total Staffing Costs</b>				<b>\$ 175,000</b>
<b>Operations</b>	Carsharing Insurance	Annual per car	\$ 3,000.00	4	\$ 12,000
	Vehicle Cleaning		\$ 4,800.00	4	\$ 19,200
	Telematics and platform	Communications software	\$ 1,500.00	4	\$ 6,000
	24/7 member service call center		\$ 15,000.00	1	\$ 15,000
	Marketing and promotion		\$ 1,000.00	1	\$ 1,000
	<b>Total Operations Costs</b>				<b>\$ 53,200</b>
	<b>Project Subtotal</b>				<b>\$ 424,700</b>
	Contingency (30%)	Concept level contingency			\$ 127,410
	<b>Project Total</b>				<b>\$ 552,110</b>

## COST ESTIMATE DETAILS

The cost in Table 8 is an example budget for one community fleet. This may be adjusted for local conditions and scaled up to service multiple cities. Cost estimates are derived from FORTH Mobility's Best Practices for Carsharing Programs.<sup>15</sup> A contingency of 30% is included to account for the planning-level nature of this estimate. At this stage of project development, key design details, permitting conditions, and implementation logistics are not yet defined.

# ESTIMATED AVOIDED VEHICLE TRIPS AND MILES TRAVELED

Community EV Car Share fleets can reduce VMT primarily by enabling households to meet occasional longer or more complex trip needs without maintaining a privately owned vehicle or second vehicle. While many car share miles substitute directly for private vehicle miles, the larger VMT benefit comes from reduced vehicle ownership, fewer discretionary trips, and improved trip-chaining once households no longer default to “car always available.”

For the recommended small-scale fleet (4 vehicles) and conservative planning assumptions about annual utilization and behavioral net-reduction effects, a first-phase program could avoid approximately ~2,000–16,000 annual auto miles.

#### Calculation Assumptions:

- Community EV Fleet: 4 shared vehicles
- Vehicle utilization: 10,000–20,000 miles/vehicle/year (shared fleet mileage)
- Auto-replacement share: 5%–20% of replaced/shifted household travel (conservative planning range). The higher end of this range is more plausible when carshare meaningfully replaces a household vehicle and pricing signals reduce low-value trips.

## PARTNERSHIP AND IMPLEMENTATION APPROACH

A successful Community EV Car Share program requires cooperation among Monterey County, local cities, community-based organizations, and mobility partners. Each plays a distinct role in ensuring the system is trusted, financially viable, and responsive to community needs.

## PROGRAM LEAD

There are several models for program leadership, each with different implications for staffing and cost.

- Public Agency Lead: A public agency (regional or local) directly leads the program, similar to Sacramento’s Metropolitan Air Quality Management District-led Our Community CarShare. This model has strong public oversight, access to grants, alignment with climate goals, but also has higher internal staffing needs.
- Nonprofit or CBO Lead: A mission-driven nonprofit recognizes the benefits of shared mobility and deploys fleets. This model brings high trust with underserved communities, flexible staffing, culturally competent outreach.
- Hybrid Model: County provides funding and oversight; a nonprofit or operator manages operations. This is the most common model, and can be efficient, scalable, and build trust.

## LOCAL PARTNERS

Regardless of the program model, local partnerships are essential for grounding the service within communities. Strong partners include:

- Local governments to host site locations, streamline permitting, and support enforcement.
- Affordable housing providers for EV car share stations, with built-in user base and staff support.
- Community-based organizations as trusted partners for outreach and assist with enrollment.
- Employers & workforce organizations to promote car share for shift workers underserved by transit.
- Utility providers can partner on charger installation and offer EV incentives.

## INTEGRATION WITH OTHER MOBILITY PROGRAMS

A Community EV Car Share program should function as a key pillar within the County’s broader zero emissions shared mobility strategy through:

- Integration with mobility hubs for last-mile transit trips and complementing shared micromobility to provide access to a larger vehicle for bulk shopping and family transport.
- Supporting agricultural & hospitality workers by supplementing employer or vanpool programs for shift workers who need flexible, off-hour access to a vehicle.





## EXPANDED TROLLEY SERVICE

### ZERO EMISSIONS SHARED MOBILITY PROPOSAL

**Expand the Monterey Trolley in two key ways:**

**Year-Round Operations: Extend service beyond the summer to provide reliable, daily mobility for residents, commuters, and off-season visitors.**

**Route Extensions: Extend and add trolley routes to new corners of the peninsula, creating a central transit network for car-free Peninsula travel.**

### WHY IS THIS NEEDED?

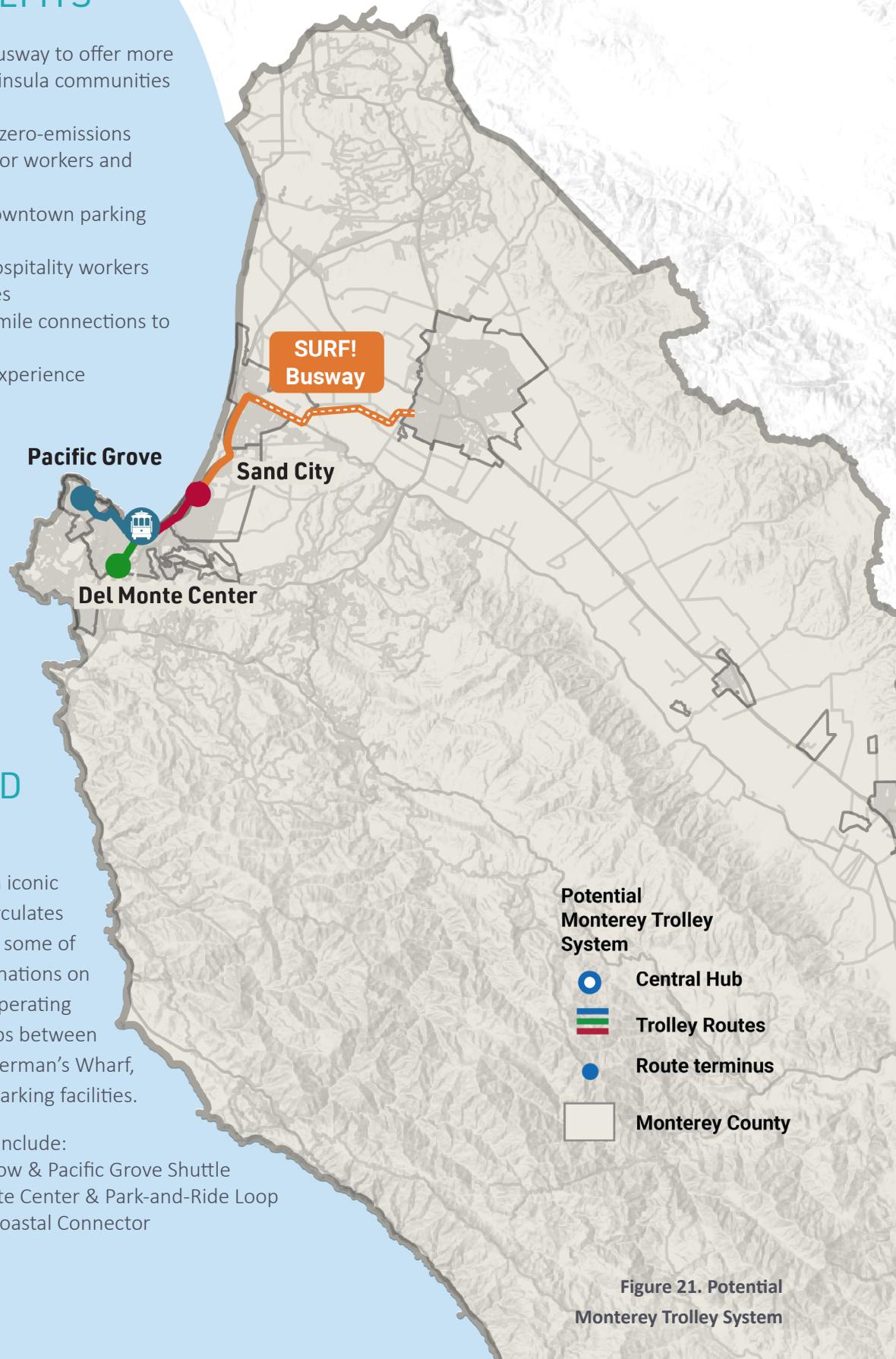
Funded by the City of Monterey and the Monterey Bay Aquarium, the Monterey Trolley service is designed to reduce automobile congestion during the peak tourism season.

Engagement feedback shows strong demand for a more reliable, all-day trolley service:

- Workers in Fisherman's Wharf and the Aquarium expressed interest in longer service spans and more frequent Trolley service.
- Tourism peaks create high parking pressure; an expanded trolley offers a high-visibility car-free option for tourists.
- The trolley can help shift short local trips away from private cars.
- Many of the destinations served by the trolley are within 2 miles, which is ideal for high-frequency circulator service.

## PROJECT BENEFITS

- Builds on the SURF! Busway to offer more connections from Peninsula communities to Salinas
- Provides a low-stress, zero-emissions alternative to driving for workers and visitors
- Reduces congested downtown parking demand
- Supports access for hospitality workers with variable schedules
- Strengthens first/last-mile connections to regional transit
- Enhances the visitor experience



## WHERE WOULD THIS WORK?

The Monterey Trolley is an iconic free transit service that circulates visitors and locals through some of the most high-traffic destinations on the peninsula. Currently operating seasonally, the Trolley loops between downtown Monterey, Fisherman's Wharf, Cannery Row, and major parking facilities.

Expansion improvements include:

- Blue Line – Cannery Row & Pacific Grove Shuttle
- Green Line – Del Monte Center & Park-and-Ride Loop
- Red Line – Sand City Coastal Connector

## EXPANDED TROLLEY SERVICE PRECEDENTS

### CHARLESTON DOWNTOWN AREA SHUTTLE (DASH) – CHARLESTON, SC

The free Downtown Area Shuttle, operated by CARTA (Charleston Area Regional Transportation Authority), features three circulator routes that allow riders to explore the downtown Charleston peninsula, from the Aquarium to the Stadium and Waterfront Park. The fleet started with historic-style trolleys and was replaced with branded modern busses. The DASH routes make up a notable portion of downtown transit ridership and are some of the most productive routes, attributed to no-cost rides and service to high-activity areas. New DASH routes and stops are added to support increased ridership. Funding is provided in part by a half-cent sales tax and private businesses.

**Inspiration for Monterey County:** A distinctly branded multi-line network of shuttles can work with and complement traditional regional transit service.

### SANTA BARBARA MTD DOWNTOWN-WATERFRONT SHUTTLE AND STATE STREET LOOP PILOT – SANTA BARBARA, CA

The Santa Barbara seasonal zero emissions shuttle, operates in the summer months Friday-Sunday at low cost \$.50 per ride. This service is returning after a hiatus since the COVID-19 pandemic. Complementing the Metropolitan Transit District (MTD) Downtown Shuttle is the State Street Loop pilot project, operated by Friends of State street, a local business organization, in collaboration with the City of Santa Barbara. The State Street Loop offers free rides up and down the pedestrianized portion of State Street in small-scale electric shuttle vehicles. These services highlight interagency and business district collaboration to offer useful transit services to the community.

**Inspiration for Monterey County:** Private partnerships may collaborate to operate a stand-alone shuttle service that fills a unique niche.

# COST ESTIMATE

Table 9. Trolley Expansion Cost Estimate

	Category	Description	Unit Cost	Qty	Total
<b>Monterey Trolley Year-Round Operations</b>	Current Service Costs	Costs for Seasonal Service (~100 Days)			\$ 517,000
	Expanded Service Hours	4 vehicles, 8 hours/day, 200 days per year	\$271	6400	\$ 1,734,400
	Expanded Maintenance and Overhead	10% overhead			\$ 173,440
<b>Total Operations Costs for Year-Round Service</b>					<b>\$ 2,424,840</b>
<b>New Trolley Line Expansions (Per Line)</b>	Service Hours	3 vehicles, 8 hrs./day, 300 days	\$ 217	7200	\$ 1,562,400
	Maintenance and Overhead	10% overhead			\$ 156,240
	<b>Subtotal Operations per Line</b>				<b>\$ 1,718,640</b>
	Contingency (30%)	Concept-level contingency			\$ 515,592
<b>Total Operations per Line</b>					<b>\$ 2,234,232</b>
	New Electric Trolleybus	MST Electric Bus	\$ 1,300,000	3	\$ 3,900,000
	<b>Subtotal Capital Cost per Line</b>				<b>\$ 3,900,000</b>
	Contingency (30%)	Concept-level contingency			\$ 1,170,000
	<b>Total Capital Cost per Line</b>				<b>\$ 5,070,000</b>

## COST ESTIMATE DETAILS

The cost estimates presented in Table 9 are concept-level planning estimates, developed to support early discussions and stakeholder engagement around an expanded Monterey Trolley system. They are based on known operating costs from MST, recent vehicle procurement figures, and benchmarking from similar circulator programs in peer communities. While grounded in real-world data, these figures are preliminary and will require refinement through route modeling, service planning, fleet analysis, and infrastructure assessments as the project advances. A contingency of 30% is included to account for the planning-level nature of this estimate. At this stage of project development, key design details, permitting conditions, and implementation logistics are not yet defined.

## ESTIMATED AVOIDED VEHICLE TRIPS AND MILES TRAVELED

Expanding the Monterey Trolley can reduce VMT by shifting short, high-frequency Peninsula trips—workers and visitors traveling between downtown, waterfront destinations, retail, and park-and-ride locations—away from private autos. Because many trolley destinations are within approximately two miles, even modest mode shift produces meaningful VMT benefits. Not all new trolley boardings should be counted as VMT reduction. A portion of ridership will be diverted from existing MST bus service (a transit-to-transit shift) and therefore does not reduce auto VMT.

Using the study's concept-level service hours for year-round expansion and planning-level assumptions about boardings per vehicle-hour, average replaced trip lengths, and the share of riders who would otherwise drive, the year-round expansion could avoid approximately ~29,000–346,000 annual auto miles. Additional new trolley lines could further expand this benefit, on the order of ~22,000–340,000 auto miles per year per line, depending on

service design and ridership performance.

#### Calculation Assumptions:

- Year-round expansion service hours (incremental): ~6,400 vehicle-hours/year
- Boardings per vehicle-hour: 15–40 (circulator productivity range)
- Avg replaced auto trip length: 1.5–3.0 miles
- Auto-replacement share: 20%–45% (higher with parking constraints and visitor markets)

#### Per new trolley line (if implemented):

- Service hours per line concept: ~7,200 vehicle-hours/year
- Boardings/hr: 10–35
- Avg replaced trip length: 1.5–3.0 miles
- Auto-replacement share: 20%–45%

## PARTNERSHIP AND IMPLEMENTATION APPROACH

A vision of a network of trolley lines could include:

- **Blue Line – Cannery Row & Pacific Grove Shuttle** extending the current trolley service westward from Downtown Monterey and Cannery Row into Pacific Grove, linking visitors and locals to scenic coastal parks, shops, Lovers Point Beach, and the Aquarium. Frequent, zero-emission service makes it easy to explore the area without needing a car.
- **Green Line – Del Monte Center & Park-and-Ride Loop** linking Downtown Monterey with Del Monte Shopping Center can serve as a park and ride area. Ideal for shoppers, local employees, and regional visitors, this line provides a fast, free alternative to circling for parking downtown. The route also enhances first-mile/last-mile access for commuters arriving from out of town.
- **Red Line – Sand City Coastal Connector** providing a new eastward trolley connection from Downtown Monterey to Sand City's beachside trails and shops with links to the SURF! Busway.

## LOCAL PARTNERS

Delivering an expanded, year-round Monterey Trolley system will require coordinated partnerships between public agencies, local jurisdictions, and community stakeholders. MST may continue to operate the

service and maintain the fleet, but successful implementation depends on a financial commitment from the cities and organizations that benefit most from enhanced mobility, reduced congestion, and improved visitor access.

Expanded local government participation is necessary for the service to extend beyond the current Monterey city limits. Each city will play a role in cost-sharing for operations on routes serving their areas, support trolley stop infrastructure and participate in marketing, promotion, and service branding.

Businesses and community stakeholders stand to benefit directly from reduced parking demand, improved visitor circulation, and stronger seasonal resilience. Their support may include contributions to service funding through business improvement districts (BIDs), tourism marketing districts (TMDs), or hotel assessments. In-kind marketing or co-promotion of the trolley system along with employee transit incentives can support the success of new lines.

## IMPLEMENTATION STRATEGY

The project proposal can be structured for phased deployment to build on the last. Each phase includes targeted outreach to neighborhood stakeholders, ridership monitoring, and ongoing refinement based on demand and feedback.

### Phase 1: Year-Round Operation of Existing Line

- Extend the current line to 300+ days/year
- Monitor off-season ridership and establish operational benchmarks

### Phase 2: Blue and Green Line Deployment

- Launch PG and Del Monte Center service lines
- Secure fleet expansion, develop partner agreements, and install infrastructure

### Phase 3: Red Line to Sand City

- Complete the network by adding eastward service to Sand City Station and connections to the SURF! Busway
- Finalize cost-sharing model with Sand City and retail partners





# BIG SUR SCENIC CORRIDOR SHUTTLE SERVICE

## ZERO EMISSIONS SHARED MOBILITY PROPOSAL

**A zero-emission alternative for accessing the Big Sur Coastal corridor. Fleets of 30-person shuttle busses would operate from park-and-ride or mobility hub locations, with enhanced shuttle stop areas providing user amenities, and connections to beaches, parks, and visitor destinations. The project would include integrated demand management, designed to reduce vehicle volumes and protect natural resources.**

### WHY IS THIS NEEDED?

Big Sur Scenic Corridor Shuttle offers a transformative solution to one of California's most iconic yet environmentally strained travel corridors. With increasing visitor pressure, limited parking, and no cohesive public transit alternative, the Big Sur coast faces mounting congestion and ecological impacts. This project provides a zero-emission mobility option.

The active ParkIT! shuttle program will serve as a proof of concept, applying the principles of demand management and park and ride shuttles to serve Point Lobos and other popular destinations.

## Potential Big Sur Shuttle

- Terminus
- Shuttle Corridor
- Shuttle Stop
- MST Bus Service
- Monterey County

## WHERE WOULD THIS WORK?

A Big Sur shuttle service would be most effective along the Highway 1 corridor, connecting Monterey to major trailheads and parks—including Garrapata State Park, Andrew Molera State Park, Big Sur Station, McWay Falls, and Ragged Point—to provide safe, sustainable access to key visitor destinations.

## PROJECT BENEFITS

- Reduces congestion and illegal parking along Highway 1.
- Ensures safer access for hikers, hospitality workers, and visitors.



Figure 22. Potential Big Sur Shuttle Service

## SCENIC SHUTTLE PRECEDENTS

### COLUMBIA GORGE EXPRESS - COLUMBIA GORGE, OREGON

The Columbia Gorge Express is a daily shuttle bus service originally operated by the Oregon Department of Transportation (ODOT) and now the Columbia Area Transit (CAT) in partnership with the U.S. Forest Service, offering a car-free way to reach the Columbia River Gorge. The service began as a summer pilot in 2016 and expanded due to high demand, helping manage congestion, parking shortages, and safety issues along the narrow scenic corridor. Climate-controlled buses include Wi-Fi and bike racks, supporting recreation access. The program is funded through state and federal sources, including the Federal Lands Access Program. The service addresses limited transit options, protects sensitive natural areas from illegal parking, and improves visitor mobility.

**Inspiration for Monterey County:** Special transit operation by nontraditional partner agencies is possible to serve unique geographies and destinations. The branded vehicles and high-quality experience offer a class of service not met by traditional transit bus routes.

### YOSEMITE VALLEY SHUTTLE - YOSEMITE, CALIFORNIA

The Yosemite Valley Shuttle is a free, high-frequency system designed to reduce private vehicle use within the park's most visited areas. Operating daily during peak season, the shuttle connects major trailheads, lodges, campgrounds, and visitor destinations with buses arriving every 10-20 minutes. The system provides simple, predictable circulation throughout the Valley floor, easing congestion, reducing parking pressure, and improving safety for pedestrians, cyclists, and wildlife. Its fare-free model and comprehensive coverage make it easy for visitors to leave their cars parked, resulting in a more sustainable and enjoyable visitor experience. The service runs daily during the peak season, with shorter hours in the winter. The Yosemite Valley shuttle is funded by a combination of sources, including grants from the Yosemite Conservancy, which receives support from individual donations, foundations, and corporations. Funding is also provided by the National Park Service, with support generated from park visitor spending and operations, as well as revenue from sources like the sale of Yosemite license plates.

**Inspiration for Monterey County:** Funding from Parks oriented partners is critical for building support, momentum, and priority.

# COST ESTIMATE

Table 10. Big Sur Scenic Corridor Shuttle Cost Estimates

	Site	Description	Unit Cost	Qty	Total
<b>Shuttle Stop Infrastructure (5 Stops)</b>	Marathon Flats Shuttle Parking	Low investment			\$60,000
	Garrapata State Park	High investment			\$400,000
	Andrew Molera State Park	Low investment			\$60,000
	Big Sur Station	Low investment			\$60,000
	McWay Falls	High investment			\$400,000
	Ragged Point	Minimal investment			\$30,000
	<b>Total Stop Costs</b>				<b>\$1,010,000</b>
<b>Transit Equipment</b>	Passenger busses	30+-passenger buses	\$500,000	4	\$2,000,000
	Charging Infrastructure	3 stations	\$80,000	3	\$240,000
	<b>Total Transit Equipment Costs</b>				<b>\$2,240,000</b>
<b>Operations</b>	Seasonal drivers				\$55,000
	Season dispatch				\$20,000
	Maintenance and insurance				\$25,000
	Marketing and Branding				\$25,000
	Administration				\$50,000
	<b>Total Operations Costs</b>				<b>\$275,000</b>
	Project Subtotal				\$3,425,000
	Contingency (30%)	Concept level contingency	\$1,027,500		
	<b>Project Total</b>				<b>\$4,452,500</b>

## COST ESTIMATE DETAILS

To successfully deliver a high-quality, zero-emission visitor experience along the Big Sur Scenic Corridor, two major categories of investment are required: shuttle stop infrastructure improvements and program launch and operating costs.

Site improvements address the lack of transit-supportive infrastructure in Big Sur today, with high-level assumptions about the need for safe bus pullouts, bus stop pads, and ADA access support. High levels of investment may be required if sites are to provide running water and restrooms. Program costs encompass the purchase of electric shuttle vehicles, staffing, charging infrastructure, and seasonal operations required to run an attractive and reliable summer-weekend service.

A contingency of 30% is included to account for the planning-level nature of this estimate. At this stage of project development, key design details, permitting conditions, and implementation logistics are not yet defined.

## ESTIMATED AVOIDED VEHICLE TRIPS AND MILES TRAVELED

A Big Sur Scenic Corridor Shuttle has strong potential to reduce VMT because it replaces long-distance, peak-season vehicle trips on Highway 1 precisely where congestion, illegal parking, and environmental impacts are most acute. Using the recommendation for a 30-person zero-emission shuttles operating from park-and-ride or mobility hub locations and planning-level assumptions about seasonal ridership, trip lengths, and average vehicle occupancy, an initial Big Sur shuttle program could avoid approximately ~90,000-384,000 annual auto miles.

### Calculation Assumptions:

- Fleet size: 4 shuttle buses, ~30 passengers each
- Operating period: 80–140 days per year (seasonal, weekend-heavy)
- Boardings per year: 15,000–40,000 passengers
- Average one-way replaced auto distance: 25-30 miles
- Average automobile occupancy: 2.5 persons per private vehicle
- Auto-replacement share: Assumed that 60-80% of shuttle riders would otherwise have traveled by car

## PARTNERSHIP AND IMPLEMENTATION APPROACH

Delivering the Big Sur Scenic Corridor Shuttle Service will require a strong coalition of public, nonprofit, and private stakeholders aligned around mobility, conservation, and tourism goals.

## PROGRAM LEAD

Monterey-Salinas Transit's (MST) emphasis on serving population centers makes the Big Sur corridor a low-priority for conventional bus service. As such, other lead agency models could be explored. Viable options include:

- California State Parks or U.S. Forest Service: If

the service is framed as a park access solution, a federal or state agency could lead in partnership with a transportation subcontractor.

- Nonprofit Mobility Manager (e.g. Land Trust): A community-based entity could operate or contract out the service, as seen in Columbia Gorge Express.

Monterey County and other partners should work with Caltrans to incorporate Big Sur shuttle concepts into future Coastal Management Plans<sup>16</sup> as part of comprehensive coastal transportation planning.

## FUNDING OPPORTUNITIES

The Big Sur Scenic Corridor Shuttle service aligns with multiple funding streams at the state and federal level:

- The California State Parks “Route to Parks” program supports organizations addressing transportation needs.
- The USDOT “Transit in Parks” program provides funding for capital and planning expenses for alternative transportation systems in and around federally owned or managed lands like National Parks, Forests, and Wildlife Refuges
- California Coastal Conservancy Grants can fund access and trailhead infrastructure in coastal zones
- Philanthropic and NGO Partners, such as National Parks Foundation, REI Co-op, Save the Redwoods League, and other conservation funders may support education, access, and zero-emission goals.

## INTEGRATION WITH OTHER MOBILITY PROGRAMS

The Big Sur Scenic Corridor Shuttle should be designed to integrate and amplify existing mobility efforts, not compete with them:

- ParkIT! Program: Coordinate hub stops at Marathon Flats Shuttle Parking are where ParkIT! serves Point Lobos and Big Sur Scenic Corridor Shuttle serves the broader corridor.
- MST Regional Transit: Link to MST's Monterey Transit Plaza for first/last mile access via regional buses.





# 6. MONITORING & EVALUATION

## SHARED MOBILITY AND DATA PRIVACY

Collecting data from shared mobility services must balance operational needs with privacy protections. Personally identifiable information raises significant privacy concerns. Even data that lacks obvious identifiers can often be re-linked to individuals if it includes detailed GPS tracks or frequent location pings. Best-practice guidelines recommend treating geolocation data as sensitive personal data.

Data-sharing contracts or permit requirements often specify what data must be provided (e.g. trip counts, origins/destinations, vehicle statuses) and how the city will handle that data. Many cities have adopted standard data schemas like the Mobility Data Specification (MDS) for micromobility, which defines trip and vehicle data formats. MDS itself doesn't include personal names or payment info, it focuses on vehicle movements, but it still contains granular location points that could potentially be sensitive. Cities using MDS have therefore developed privacy protocols, often guided by the Open Mobility Foundation's Privacy Guide, to implement access controls, aggregation, and retention limits on this data.

## DATA COLLECTION FOR SHARED MOBILITY

To effectively monitor the adoption of new mobility services, agencies should establish ongoing data collection mechanisms. A combination of automated data feeds and active outreach to the community provides the most comprehensive picture. For automated data, cities typically rely on mobility service provider data. Many jurisdictions mandate that shared mobility operators (e-scooter companies, bike-shares, car-shares, etc.) periodically report usage statistics or provide API access to their data. Utilizing standard formats like MDS (Mobility Data Specification) for dockless micromobility or GBFS (General Bikeshare Feed Specification) for station-based bike-share can streamline this process. Table 11 identifies common data sources for tracking critical shared mobility service data for evaluation and reporting.

**Table 11. Shared Mobility Data Sources**

<b>Data Collection Method</b>	<b>Purpose and Metrics Tracked</b>
<b>Mobility Provider Data (APIs/Feeds) – e.g. Mobility Data Specification (MDS) for scooters, General Bikeshare Feed Specification (GBFS) for bikes, car-share trip logs</b>	Continuous tracking of service usage and performance: trip counts, trip durations, origins/destinations, vehicles deployed, etc. Helps measure adoption rates, peak demand times, and spatial coverage of the service.
<b>User Surveys (of service users)</b>	Captures user demographics, travel behavior changes, and satisfaction. Can ask what mode the shared trip is replacing (mode substitution) and whether the service improves the user's mobility options. Measures direct mobility benefits and mode shift.
<b>General Population Surveys (residents)</b>	Gauges overall awareness and adoption rates in the community, including non-users. Identifies barriers to adoption (cost, lack of smartphone, safety concerns) and public support or opposition. Helps measure equity of adoption across different demographic groups.
<b>Aggregated Location Data &amp; Traffic Analytics (third-party data platforms)</b>	Observes broader travel patterns and mode share changes over time. By analyzing anonymized cellphone or GPS data, agencies can estimate changes in vehicle travel, transit ridership, or biking/walking levels after new services launch. Also helps identify indirect effects (e.g. less driving in areas with many scooter trips).
<b>Intercept Surveys &amp; Field Observation (at mobility hubs or transit centers)</b>	Provides point-of-service feedback and qualitative insights. Intercept surveys ask travelers about their experience, transfer ease, and suggestions. Field observation (counts, audits) measures facility usage (e.g. how many people use a mobility hub in a day, bike rack occupancy) and identifies operational issues.

Using the above data collection methods Monterey County or partners can monitor on an ongoing basis how residents are using new mobility offerings. It's important to establish a regular reporting cycle for this data. Many agencies produce monthly or quarterly dashboards tracking key indicators, such as ridership, new user sign-ups, trip lengths, etc., and an annual summary to evaluate progress toward goals.

# DATA EVALUATION OF MOBILITY IMPACTS

Data evaluation reveals how new mobility services benefit the community and advance policy goals. These evaluations involve calculating the savings and impacts of shared mobility in the areas that are relevant for stakeholders, communities and policymakers. Areas of interest may include mode share shifts and mobility improvements, emission reductions, and changes to space and noise in the urban environment.

## MODE SHIFT AND MOBILITY ENHANCEMENT

A common policy concern for new mobility services is the impact on mode share, to determine if shared mobility services are shifting people out of single-occupant cars into more sustainable modes? Beyond mode percentages, mobility enhancement should be evaluated in terms of how these services improve people's ability to get around. This can be somewhat qualitative but is crucial for understanding benefits.

## BEFORE AND AFTER MEASUREMENTS

To assess this, agencies often compare travel behavior before vs. after the introduction of a service. Many cities track mode split annually as a performance metric – if shared mobility is successful, the expectation is that drive-alone rates will trend downward over time, replaced by a mix of transit, biking, walking, and shared modes. The American Community Survey (ACS) conducts annual surveys on Journey to Work travel behavior, allowing for year-by-year comparisons and trends.

Agencies can also look at more localized data: for example, a regional travel survey in the year after a new mobility program might show a decrease in the percentage of commute trips made by driving alone, correlating with availability of mobility hubs or car-share in the area.

## USER SURVEY

User surveys can also provide insight on the scale and potential for mode shift. Asking "What would you have done if the scooter/bike/etc. was not available?" can reveal if an e-scooter rider would have otherwise driven a car or taken a transit or ride-hail trip. This kind of result is powerful evidence of mode shift. In evaluations, we translate that into mode share impact – e.g. a 10% increase in micromobility mode share alongside a corresponding drop in car mode share for certain trip type.

Key questions include: Are previously underserved groups now more mobile? Have new trips or opportunities been made possible by the service? Surveys and interviews can measure this.

# GREENHOUSE GAS AND POLLUTANT EMISSIONS

Reducing emissions is a major motivation for zero emissions shared mobility initiatives. Calculating greenhouse gas (GHG) savings from new mobility services typically involves estimating how much driving (in fossil-fueled vehicles) has been avoided or replaced.

## VMT BASED REDUCTION MEASURES

The standard approach is to use the reduced VMT (vehicle miles traveled) as the key input. For example, if car-share and micromobility options lead to fewer private car trips, we quantify the total miles of car travel avoided and then multiply by emission factors (e.g. kilograms of CO<sub>2</sub> per mile for an average car).

Data needs include: the number of trips shifted away from cars and the average length of those trips. This direct methodology can be enhanced by using tools like the Environmental Protection Agency (EPA) MOVES model or other emissions calculators that account for local vehicle mixes and speeds to get more precise GHG and even air pollutants like nitrogen oxides (NO<sub>x</sub>), volatile organic compounds (VOC), and co-pollutants (PM<sub>2.5</sub>) reductions.

Using data on mode substitution is crucial for accuracy. If 10% of scooter trips replaced transit rides (which are already low-emission per person), those don't count as GHG savings; but the 50% that replaced car trips do contribute. Evaluations often assume a certain percentage of shared mobility trips replace driving – either derived from local survey findings or from literature averages – to calculate net impact.

Some cities use GHG equivalencies to communicate results to the public (e.g. "the microtransit pilot

reduced carbon emissions by 500 tons annually, equivalent to taking 100 cars off the road").

## AIR QUALITY MEASUREMENTS

In addition to CO<sub>2</sub>, agencies may calculate criteria pollutant reductions (like NO<sub>x</sub>, VOCs, PM) to quantify air quality benefits. The most common method for calculating reduction of air pollution builds on VMT reduction calculations to apply per-mile emission factors for these pollutants.

Alternatively Direct air quality monitoring can use ambient measurements to gauge real-world outcomes. Traditional fixed monitors track regional PM<sub>2.5</sub>/NO<sub>x</sub> levels before and after projects. Increasingly, dense sensor networks (such as PurpleAir or other local low-cost sensors) provide finer spatial coverage. Mobile platforms (instrumented vehicles, bikes or scooters) can map pollution at street scale. For instance, Sacramento's Vehicle Emissions Project deployed a community-driven mobile air-quality network across neighborhoods to assess vehicle-emission impacts.

## SPACE ALLOCATION AND NOISE POLLUTION

New mobility services can also impact the physical and auditory environment. Space allocation refers to how the use of land (especially street and parking space) changes when people shift modes.

## PUBLIC SPACE RECLAIMED

Share mobility services can result in public space reclaimed or better utilized through mobility hubs. A mobility hub often consolidates multiple modes (bike-share docks, scooter corrals, bus stops, EV charging, etc.) in a smaller footprint than if each mode were separately accommodated (and certainly smaller than accommodating the equivalent travel in private cars). An evaluation might document that “X mobility hubs were installed, each converting two car parking spaces into a multimodal zone – a total of Y square feet shifted from car storage to active mobility use.”

## NOISE POLLUTION

While noise wasn't the primary focus of many shared mobility evaluations, noise pollution is increasingly recognized as a potential benefit of a zero emissions shared multimodal future. The logic is clear- more electric vehicles and fewer combustion engines mean a quieter environment. Agencies concerned with community livability may include ambient noise level measurements in their before-and-after studies, or use “soundscape” sensors as part of smart city initiatives. Qualitative surveys can capture perceived noise changes: residents might report that their street feels calmer and quieter after a traffic calming and micromobility project, for example.

# ENDNOTES

- 1 Association of Monterey Bay Area Governments. (2024). 2026 Regional Growth Forecast.
- 2 American Automobile Association. (2025). Your Driving Costs. <https://newsroom.aaa.com/wp-content/uploads/2025/09/UPDATE-AAA-Fact-Sheet-Your-Driving-Cost-9.2025-1.pdf>
- 3 U.S. Census Bureau, Tenure by Vehicles Available (Table B25044), 2019-2023 American Community Survey 5-Year Estimates
- 4 U.S. Census Bureau, Income in the Past 12 Months (Table S1901), 2019-2023 American Community Survey 5-Year Estimates
- 5 U.S. Census Bureau, Disability Characteristics (Table S1810), 2019-2023 American Community Survey 5-Year Estimates
- 6 U.S. Census Bureau, Age and Sex (Table S0101), 2019-2023 American Community Survey 5-Year Estimates
- 7 U.S. Census Bureau, Age and Sex (Table S0101), 2019-2023 American Community Survey 5-Year Estimates
- 8 Cost estimates are based on the following studies: Metropolitan Transportation Commission. Mobility Hub Implementation Playbook. 2021.; N.C. Department of Transportation. Youngsville Mobility Hub Feasibility Study. 2025; Bend Metropolitan Planning Organization. Bend Mobility Hubs Feasibility Study & Pilot Project Development. 2022; California Air Resources Board. Policy Brief: Mobility Hubs. 2025
- U.S. Census Bureau, Age and Sex (Table S0101), 2019-2023 American Community Survey 5-Year Estimates
- U.S. Census Bureau, Age and Sex (Table S0101), 2019-2023 American Community Survey 5-Year Estimates
- 9 “CO<sub>2</sub> emissions comparison: petrol car vs electric car vs e-cargo bike.” Vok Bikes, by Indrek Petjärv, 2025, <<https://vokbikes.com/articles/co2-emissions-comparison-car-vs-e-cargo-bike/>>
- 10 City of Santa Monica. (2019). Looking Back at the Shared Mobility Pilot Program. <https://www.santamonica.gov/blog/looking-back-at-the-shared-mobility-pilot-program>
- 11 Wang, K., Qian, X., Fitch, D. T., Lee, Y., Malik, J., & Circella, G. (2022). What travel modes do shared e-scooters displace? A review of recent research findings.
- 12 National Association of City Transportation Officials (NACTO). (2020). Shared micromobility in the US: 2019
- 13 Martin, Shaheen, and Lidicker, (2010). Impact of carsharing on household vehicle holdings: Results from North American shared-use vehicle survey.
- 14 Martin, E., Shaheen, S. (2016). The impacts of Car2go on vehicle ownership, modal shift, vehicle miles traveled, and greenhouse gas emissions: An analysis of five North American cities.
- 15 FORTH Mobility. (2024). Best Practices for Carsharing Programs.
- 16 Caltrans. Coastal Program. <https://dot.ca.gov/programs/environmental-analysis/coastal-program>

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