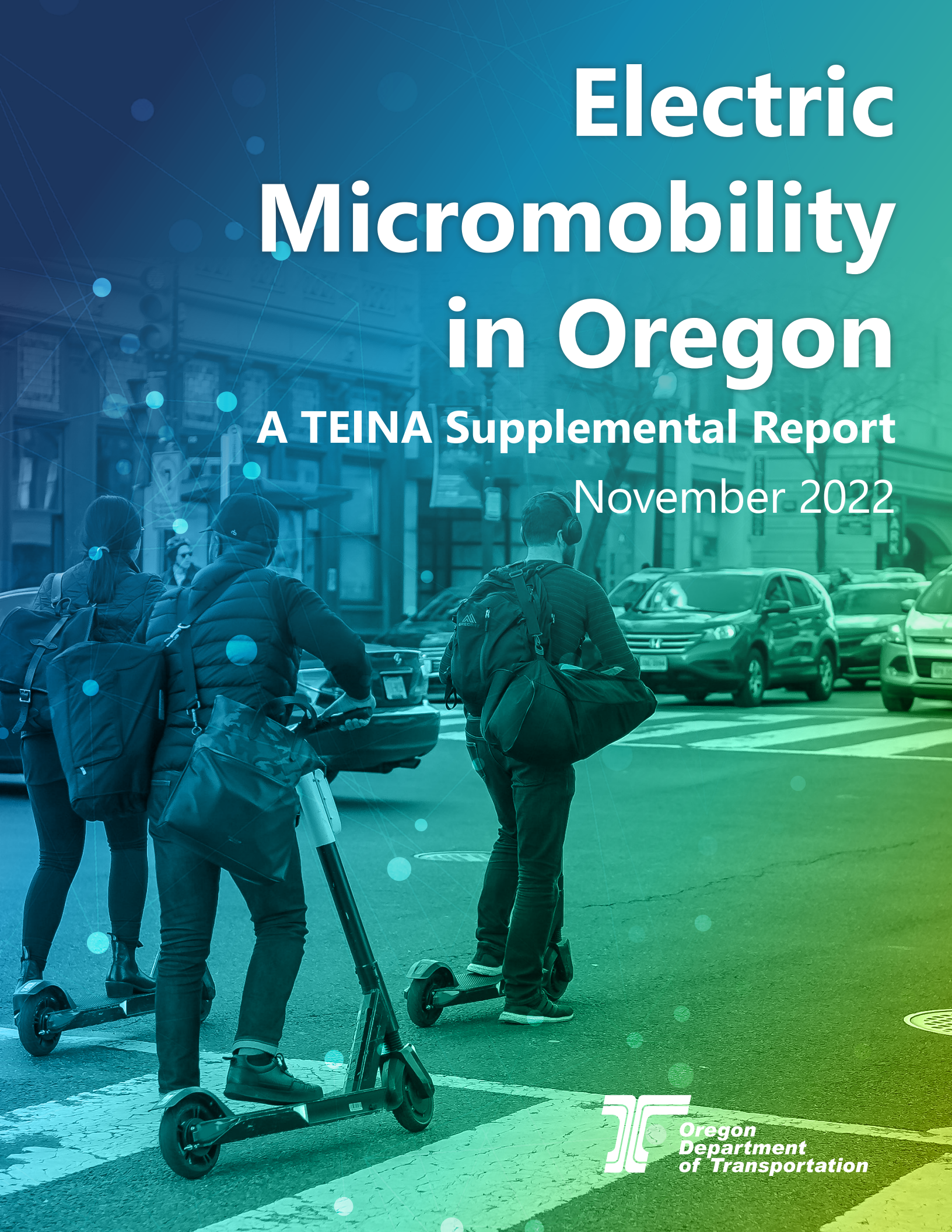
Electric Micromobility in Oregon

A TEINA Supplemental Report

November 2022



Oregon Department of Transportation

Foreword

This report was produced by the Oregon Department of Transportation's Climate Office under the guidance and direction of Jillian DiMedio, senior transportation electrification analyst; Suzanne Carlson, Climate Office director; and Mary Brazell, transportation electrification program manager.

The consultant project team that helped produce this report included representatives from Kittelson & Associates and Forth: from Kittelson, Wayne Kittelson, project manager, and Susan Mah, senior graphic designer and from Forth, Barrett Brown and Jeff Allen. They were joined by John MacArthur, sustainable transportation program manager at the Transportation Research and Education Center (TREC) at Portland State University.

The project team would like to thank the Portland Bureau of Transportation for its generous feedback and helpful suggestions for this report. Please note that the bureau was not asked to and has not formally endorsed the content of this report.

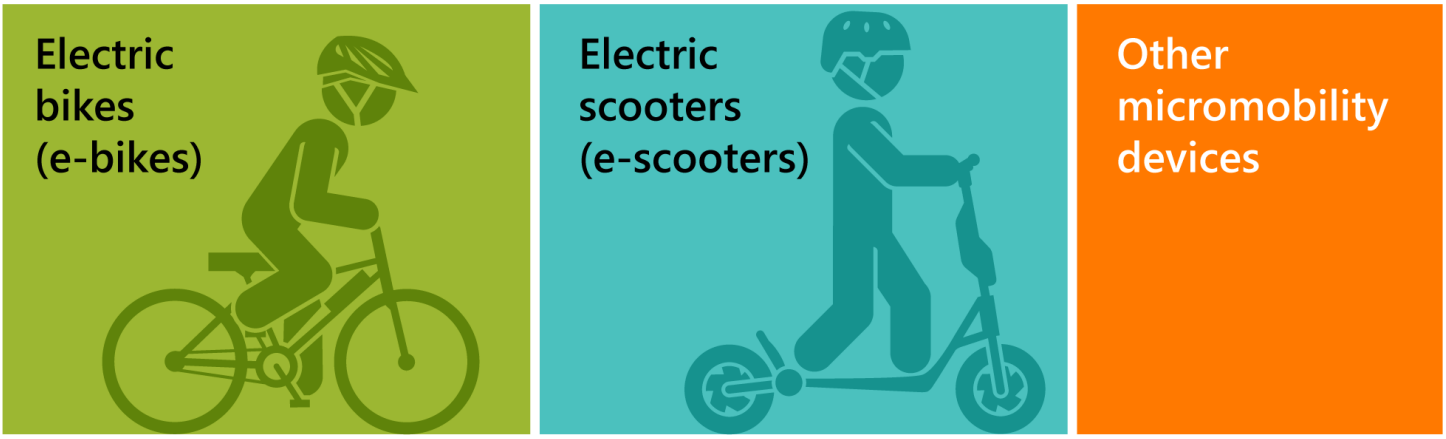
Executive Summary

About this Report

This report provides actionable strategies and best practices for the Oregon Department of Transportation (ODOT) to facilitate e-micromobility growth. It extends ODOT's work on the 2021 Transportation Electrification Infrastructure Needs Analysis (TEINA) project, which reported on electric vehicle charging infrastructure needs for light-duty, medium-duty, and heavy-duty vehicles in Oregon through 2035. (For more on TEINA, visit https://www.oregon.gov/odot/Programs/Pages/TEINA.aspx.)

What is E-Micromobility?

Electric micromobility, or e-micromobility, refers to small mobility devices that can travel up to 30 mph and are powered (at least in part) by electric drive trains. E-micromobility devices can serve a wide range of user needs, from commuting to freight delivery. This report classifies e-micromobility devices by three categories:

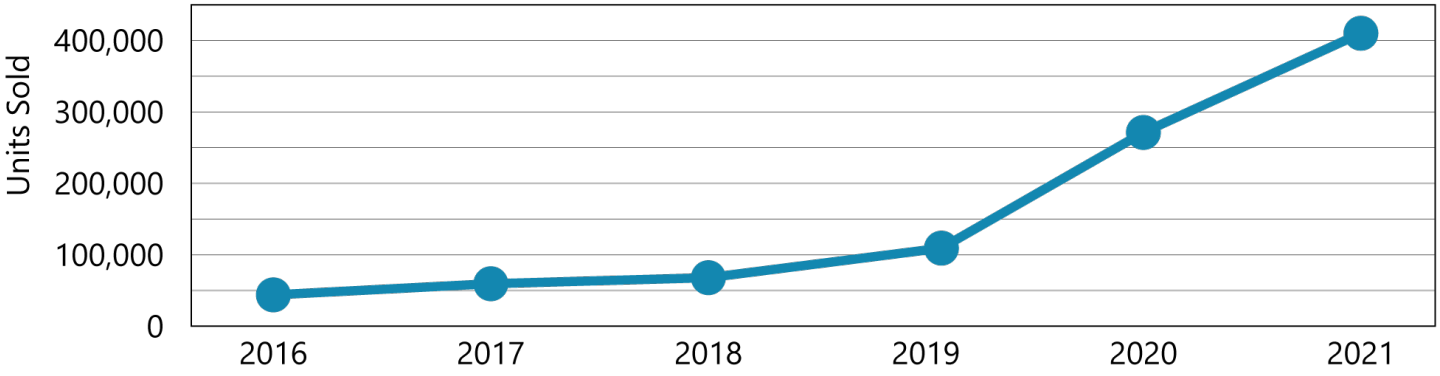


E-micromobility devices can be privately owned or rented through sharing programs. Although they can take many forms, shared programs are typically a fleet of e-micromobility devices available for public use and accessible within the right-of-way.

E-Micromobility Today & Tomorrow

The e- micromobility industry has grown and evolved dramatically over the past ten years. In 2021, the US e-bike market was valued at $800 million, and economists expect it to grow to $1.62 billion by 2027. In 2021, it was reported that over 400,000 e-bikes were sold in the United States (see Figure 1). That figure likely represents roughly one third of all units sold in the United States. The remainder of sales not represented in this data are through online independent bicycle dealers, third party online sales, or direct-to-consumer sales (Mordor Intelligence, n.d.). On 2021 unit sales alone, e-bikes outsold electric cars (Boudway, 2021). These trends suggest a large market for e-bikes as they shift from a novelty or recreational vehicle to a viable and reliable mode for regular travel.

Figure 1. Recent Growth of E-Bike Use



Source: NPD Group, 2022

Benefits

E-micromobility can offer numerous benefits to individuals and communities by:

Overcoming Barriers to Adoption

While e-micromobility use is increasing rapidly, it still faces many barriers. The major barriers are related to safe infrastructure, education and awareness, cost, data, equity, and administration and policy.

Infrastructure

The largest barrier to e-micromobility (and all forms of micromobility) is the lack of safe and connected infrastructure, including travel lanes and facilities; secure parking; charging facilities; and integration into the broader transportation system.

How Oregon Can Prepare

- Revisit current standards and guidelines for allocating right of way for different road users.
- Increase secure parking by setting minimum standards for new private developments and by developing secure public parking facilities near transit hubs.
- Promote charging access by developing public charging at mobility and delivery hubs and alongside electric car charging installations where applicable.
- Promote coordination and integration between shared e-micromobility systems and transit agencies.

Cost

Purchasing or renting an e-micromobility device can cost less than a personal vehicle, but costs are often high enough that they remain a barrier for many consumers. Rebates, financing, and other financial incentives can make e-micromobility more accessible.

How Oregon Can Prepare

- Create a rebate or similar purchase incentive for e-micromobility devices that is graduated based on vehicle cost and household income.
- Create a purchase incentive for businesses that buy e-cargo bikes and trikes for delivering goods or services.
- Consider offering a comprehensive suite of incentives for residents with lower incomes who replace an older car with an e-micromobility device, transit ridership, or membership to combined services such as e-bike share, transit and car share.
- Help ensure that shared e-micromobility companies provide reduced subscription rates for historically underserved customers, and that they promote those plans in culturally competent ways that go beyond system apps.

Education & Awareness

Many people do not know or have misgivings about the availability and capabilities of e-micromobility devices. Some consumers may think of these devices are a fun weekend ride but do not see them as viable options for everyday travel.

How Oregon Can Prepare

- Support brand-neutral and culturally-competent opportunities for outreach, engagement, education, safety, and test rides. This should be based on feedback from communities directly to properly prioritize their needs.
- Fund and promote e-micromobility device lending libraries.

Data

To evaluate and improve e-micromobility services, government agencies and system operators need to access and use the rich data generated by shared e-micromobility systems. In using this data, agencies and operators must protect system users' privacy.

How Oregon Can Prepare

- Ensure that shared e-micromobility providers share key data (and do so utilizing open source standards) with local governments, agencies, and regulators.
- Establish, publish, and follow clear standards to ensure that all users' personally identifiable information is protected.

Equity

E-micromobility has the potential to expand equitable mobility access for historically underserved communities. But the barriers to expanding use of this technology are generally even greater for these community members. To ensure equitable access to e-micromobility, agency and operator interventions must be intentional and targeted.

How Oregon Can Prepare

- Take a "targeted universalism" approach by designing programs and policies around those with the greatest barriers to e-micromobility access.
- Design incentives for operating shared e-micromobility systems to align with equity outcomes by setting clearly-defined program goals, targeting data collection, and evaluating programs with transparency.
- Include micromobility in universal basic mobility programs.
- Implement system designs that do not create access barriers, such as those related to age, mobility limitations, smartphone and credit card requirements, or language.

Administrative & Policy Issues

E-micromobility is a new and rapidly evolving transportation mode. Legal and regulatory definitions vary widely, and this inconsistency creates confusion and uncertainty among consumers. Small and mid-sized cities often lack the resources, information, and expertise necessary to plan, coordinate, launch, and manage successful and equitable shared e-micromobility programs at scale. Funding shared e-micromobility systems is also a major challenge.

How Oregon Can Prepare

- Clarify vehicle definitions and categories, and consider joining other states in adopting the three-class classification system for e-bikes.
- Develop a clear definition and approach for commercial electric cargo bicycles that is flexible enough to allow the use of specialty vehicles (e.g., form factors, configurations, and motor capabilities), such as e-trikes.
- Pursue and leverage federal funding for shared e-micromobility programs through existing programs, and advocate for dedicated funding streams.
- Work with a non-profit operator such as Cascadia Mobility to help communities such as Corvallis, Gresham, Bend, Eugene, and Salem develop and implement coordinated shared e-micromobility equipment, operations, and financial plans.
- Use pilot programs to create and test zero-emission delivery zones

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City of Denver E-Bike Rebate Program

E-bikes use rechargeable batteries and can travel up to 28 mph. When you use an e-bike to get around, you can: save thousands of dollars per year on fuel and maintenance by replacing daily care trips, bike greater distances and across harder terrain, and reduce your carbon footprint while running errands or commuting

Program funds are collected by a **voter-approved sales tax** intended to address climate topics. In Denver, a limited number of e-bike rebate vouches are available every other month on predetermined dates. These vouchers are an upfront discount on the sale price of an e-bike from a participating bike shop

According to the City of Denver, **4,734 e-bike rebates were redeemed** in 2022. **2,330 of the rebates went to income-qualified residents**. A survey found that e-bikes have become a new means of transportation to move around the city. According to that survey administered by the city:

- E-bike users on average rode 26 miles a week with 22 of those miles replacing car trips. E-bikes in this program replace, on average, over 100,000 vehicle miles every week.
- **Income-qualified residents ride their e-bikes 50% more miles than standard rebate recipients**
- 76% of respondents are using their cars less often
- 96% said the voucher made a difference in their choice to buy an e-bike

There are three types of rebate vouchers available:

- **Standard Rebate:** As a Denver resident that is 16 years of age or older, you can save up to **$300** on the sale of an e-bike.
- **Income-Qualified Rebate:** If you meet the city's income-qualified requirements, you can save up to **$1,200** on the sale of an e-bike.
    - To meet the income-qualified requirement, your household income needs to be below 60% of the state of Colorado's median income or below 200% of the relevant federal poverty level, or below 80% of area median income.
- **Adaptive Rebate:** If you are a person with a disability, you may be eligible to save up to $1,400 on the sale of an adaptive e-bike. There are a limited number of adaptive rebates and a separate application process.

If you qualify, then you must create an account to submit your name, contact information, address, and upload proof of residency.

Electric Bikes (E-Bikes) - City and County of Denver (denvergov.org)

Denver e-bike rebate program returns on Jan. 31 | FOX31 Denver (kdvr.com)