



# Oregon

Tina Kotek, Governor

Department of Transportation

Office of the Director  
355 Capitol St NE  
Salem, OR 97301

August 1, 2023

To the Joint Office of Energy and Transportation:

Thank you for your leadership and management of the National Electric Vehicle Infrastructure (NEVI) program and overall transportation electrification efforts.

Along with this letter, I respectfully submit the Oregon Department of Transportation's (ODOT's) FY 2024 NEVI Plan – Oregon National Electric Vehicle Infrastructure Plan – for your review and approval. As specified by the Joint Office of Energy and Transportation, this plan is an update of our FY 2022 – 2023 plan submitted on July 15, 2022.

Oregon's NEVI Plan and overall NEVI strategy has been developed collaboratively by ODOT and the Oregon Department of Energy and informed by feedback from hundreds of stakeholders. The Plan addresses each of the requirements set forth by your office and includes updates on FY 2022 -2023 implementation as well as ODOT's deployment approach for FY 2024. In addition to restating ODOT's five-year deployment strategy, the plan summarizes ODOT's envisioned contracting mechanisms, highlighting upcoming milestones in implementation, and details ODOT's past, ongoing and planned public outreach efforts, including a Community Engagement Outcomes Report outlining the lessons learned from early stakeholder engagement and how we will continue to engage diverse stakeholders and meet Justice40 goals, ensuring a minimum of 40% of the NEVI benefits accrue to disadvantaged communities.

Oregon is "all in" on transportation electrification and is supporting a rapid scale-up of EV charging infrastructure throughout the state. ODOT is committed to investing in charging infrastructure over and above the NEVI program, providing over \$100 million total toward EV charging infrastructure over the next several years, and recently launched a Community Charging Rebates Program to facilitate development of Level 2 charging in public venues and multi-family housing, prioritizing rural and disadvantaged communities. Oregon is well-positioned to build out charging infrastructure and target the highest-need locations, addressing charging deserts in rural, underserved and disadvantaged communities. The NEVI funding for public fast-charging stations along EV Alternative Fuel Corridors is an important next step in meeting identified needs, and ODOT looks forward to continuing to work with your office on implementation of this program.

ODOT appreciates the ongoing guidance in Plan development provided by your office. We look forward to continued collaboration to achieve our vision of creating a network of EV charging stations to increase Oregonians' confidence that EV charging will be as ubiquitous and convenient as fueling with gasoline.

Respectfully,

Kris Strickler  
Director



# Oregon

Tina Kotek, Governor



July 24, 2023

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To the Joint Office of Energy and Transportation:

The Oregon Department of Energy (ODOE) is proud to support the Oregon Department of Transportation's (ODOT) update to its National Electric Vehicle Infrastructure Program State Plan. ODOE's mission is to help Oregonians make informed decisions and maintain a resilient and affordable energy system. We advance solutions to shape an equitable clean energy transition, protect the environment and public health, and responsibly balance energy needs and impacts for current and future generations. The transportation sector accounts for about 40 percent of Oregon's harmful greenhouse emissions, so strengthening the state's electric transportation infrastructure can help reduce those emissions and support our mission to protect the environment and public health. ODOT's plan builds on long-standing collaborative work between our agencies to identify electric vehicle charging needs across the state and ensure equitable access to EVs and their many benefits.

Oregon is a leader in electric vehicle adoption and has supported access to EV charging for over a decade. In 2009, ODOE and ODOT partnered on a successful application for Transportation Investment Generating Economic Recovery (TIGER) grants and used the funds to establish the West Coast Electric Highway EV charging station network along Interstate 5. This work, in collaboration with California and Washington, built a charging corridor for EV drivers from Mexico to Canada. This history of partnership and collaboration continues as our two agencies work together on EV program and policy development. Our agencies collaborate to support Oregon's *Every Mile Counts* initiative to reduce greenhouse gas emission in the transportation sector, and zero-emission vehicles are a critical piece of the state's transportation climate strategy.

Today the need for transportation electrification cannot be overstated. Oregon has witnessed first-hand the devastating effects of climate change, from damaging wildfires, lingering drought conditions, and deadly heat waves. With the state's electricity providers moving toward 100 percent clean energy goals, now is the time to invest in bolstering EV adoption. Currently about 2 percent of registered passenger vehicles in Oregon are electric vehicles, and adoption levels are expected to climb sharply in the next 5 to 10 years. The Oregon Environmental Quality Commission recently adopted California's Advanced Clean Cars II rule, which requires more zero-emission vehicles to be available in Oregon and bans the sale of new internal combustion engine vehicles by 2035. Significant investments in electric vehicle charging infrastructure are crucial to meet the growing number of EVs on Oregon roads. ODOT's plan is a major step in supporting this clean transportation system future, and ODOE is pleased to support it.

Sincerely,

Janine Benner, Director  
Oregon Department of Energy



# Oregon National Electric Vehicle Infrastructure Plan – FY 2024 Update

August 2023



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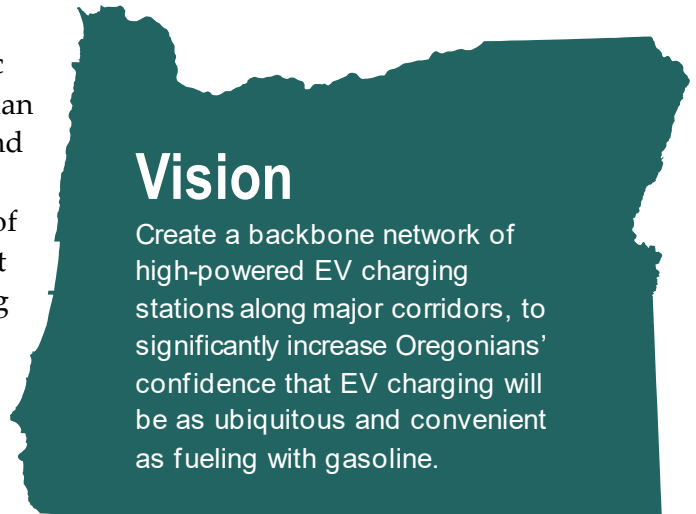
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# Executive Summary

The Oregon Department of Transportation (ODOT) is pleased to submit this FY 2024 Oregon National Electric Vehicle Infrastructure (NEVI) State Plan Update (State Plan Update or Plan Update) to the Joint Office of Energy and Transportation (JOET). This Plan Update, developed collaboratively by ODOT and the Oregon Department of Energy (ODOE), addresses each of the requirements set forth by JOET to secure Oregon's portion of the funding allocated to states through the National EV Infrastructure (NEVI) program, and includes updates on FY 2022- FY 2023 implementation as well as ODOT's deployment approach for FY 2024.



Oregon is all in on transportation electrification and is supporting a rapid scale-up of EV charging infrastructure in the state. ODOT is committed to charging infrastructure over and above the NEVI funds-plus-match, providing over \$100 million total toward EV charging infrastructure. Oregon is well-positioned to build out charging infrastructure and target the highest-need locations because of its recent Transportation Electrification Infrastructure Needs Analysis (TEINA) report, submitted in July 2021. The NEVI funding for public fast-charging stations along alternative fuel corridors is an important next step to meeting identified needs, and ODOT looks forward to working with JOET to complete its planning and begin implementation of this program.

## Plan Summary

ODOT's vision for the NEVI program is to create a backbone network of high-powered EV charging stations along major corridors to significantly increase Oregonians' confidence that EV charging will be as ubiquitous and convenient as fueling with gasoline.

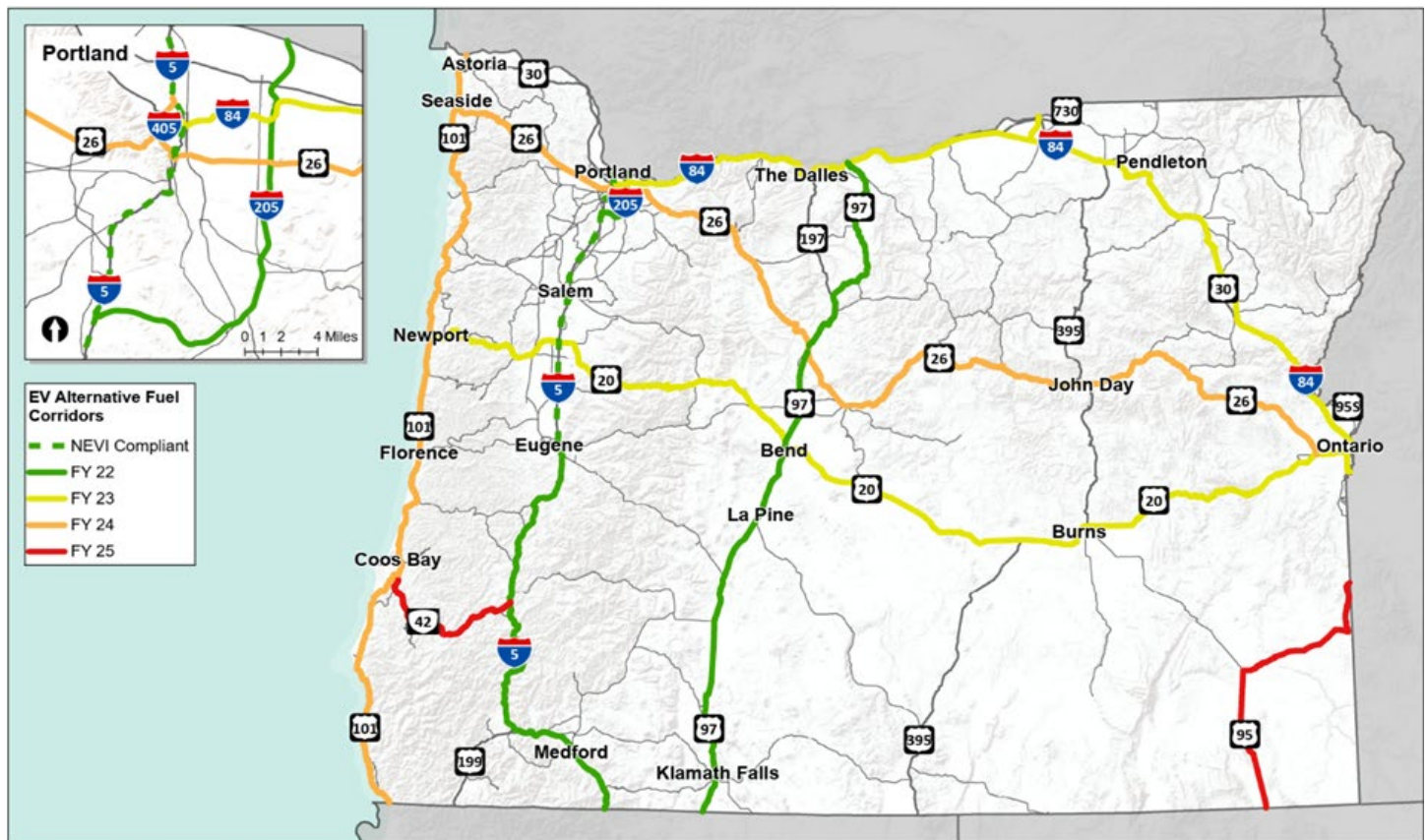
This Plan Update lays out how ODOT will use NEVI funding to achieve the above vision. In addition to restating ODOT's five-year deployment strategy, the plan summarizes ODOT's envisioned contracting mechanisms, upcoming milestones in implementation, and ODOT's past, ongoing, and planned public outreach efforts. This includes a Community Engagement Outcomes Report outlining lessons learned from early stakeholder engagement and how we will continue to engage diverse stakeholders and meet Justice40 goals, ensuring a minimum of 40% of the NEVI benefits accrue to disadvantaged communities.

# Guiding Principles

ODOT's charging infrastructure deployment strategy is based on several guiding principles, which align with the goals articulated in both TEINA and the NEVI program. With NEVI funding, ODOT aims to:

Achieve <b>geographic balance</b> between urban and rural charging needs to develop infrastructure across the entire state.	Provide <b>charging access</b> to all Oregonians, including disadvantaged community (DAC) populations.	Focus on <b>high-traffic corridors</b> to the extent practicable.	Leverage <b>existing and planned EV charging infrastructure</b> .	Emphasize <b>connectivity with neighboring states</b> to establish an interstate charging network.
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Figure 1: Planned Implementation Year for Electric Vehicle Alternative Fuel Corridors



# Overarching Strategy

With FY 2022 funding ODOT aims to build out I-5, US 97, and I-205. I-5 is one of the most critical, high-traffic routes in the state, and US 97 is a key route through central Oregon that carries high traffic volumes and serves both urban and rural areas. I-205 serves high traffic volumes in the Portland metropolitan area and travels through or adjacent to numerous disadvantaged communities (DACs).

FY 2023 funding will focus on I-84, I-82, and US 20, all of which are high volume routes that provide for east-west travel. I-84 provides service to numerous DACs and accommodates a high proportion of long-distance trips. I-82 connects directly with I-84 and enhances Oregon's connectivity with Washington. US 20 is a route of strategic statewide importance and a freight corridor that will provide additional rural EV charging coverage across the central part of Oregon.

With FY 2024 funding Oregon anticipates build out of US 26, US 101, and I-405. Build out of US 26 and US 101 will represent completion of the remaining seven designated Alternative Fuel Corridors (AFCs) approved during Rounds 1 – 5. US 26 will add additional coverage to Central Oregon, and completion of US 101 will bolster the existing DC Fast Charging (DCFC) infrastructure along Oregon's coast. Completion of I-405 will support the high traffic volumes and DAC populations it serves in the Portland metropolitan area.

ODOT envisions using FY 2025 and FY 2026 funding for completion of US 95 and OR 42, both of which are approved EV AFCs from Round 6. More broadly, ODOT intends to reserve funding for these later years to either develop additional EV AFCs that have yet to be proposed, and/or to build redundancy in charging stations along the other AFCs to strengthen the overall network and accommodate increasing EV traffic in the coming years.

Over the course of the five-year NEVI program, ODOT anticipates using the \$65 million in total funding (Federal funds and 20% non-Federal match) to develop and/or upgrade approximately 65 DCFC stations across Oregon's roadways, totaling a minimum of 260 DCFC ports (doubling Oregon's public DCFC ports).

## Contracting Mechanisms

ODOT has broad authority to use the Oregon Innovative Partnerships Program (OIPP) to develop public-private partnerships (P3s) for a full range of transportation projects. OIPP procurements offer many benefits over traditional contracting, including the ability to select projects based on best value rather than lowest cost, the ability to customize Requests for Proposals (RFPs) to meet the needs of a particular project, and maximum flexibility to change an agreement to accommodate unanticipated events. Therefore, ODOT is working to enter P3s with one EV Service Providers (EVSPs) per corridor to design, develop, operate and maintain fast charging stations funded through NEVI. ODOT has chosen to pursue a Design-Build P3 contracting approach and has received a Special Experimental Project – No. 14 Exemption for additional flexibility in contracting to best utilize the Oregon Innovative Partnerships Program state procedures and contracting tools.

Figure 2: Process for Developing DCFC Along Alternative Fuel Corridors



## Deployment Approach

ODOT's deployment approach will be consistently grounded in the following five overarching objectives and is expected to evolve and adapt throughout the five-year NEVI program in response to experience gained and lessons learned.



**Partner with private sector.** ODOT will not own, install, maintain, or operate any of the EV charging stations deployed with NEVI funds while leveraging private sector expertise.



**Target reliability.** Public confidence in the reliability of EV charging infrastructure is one of the most significant factors in accelerating EV adoption. NEVI requires the achievement of a greater than 97% uptime.



**Develop/design competitive corridor RFPs.** ODOT intends to issue corridor-specific competitive RFPs in concert with the strategy described above.



**Expand coverage.** ODOT is committed to prioritizing equity while transitioning the state's transportation system to be powered by electricity. Through NEVI and complementary state programs, access to EV charging will expand across socioeconomic and geographic areas throughout the state, potentially adding new EV AFCs. ODOT will also work with the private sector to intentionally develop sites that serve both highway traffic and local EV charging needs, maximizing utilization and economic development opportunities, where practical.



**Build new *and* upgrade existing.** ODOT will maximize the benefits of the five-year NEVI program funding by building new charging infrastructure where needed, aiming to exceed the minimum standards where possible, and upgrading existing infrastructure facilities to meet NEVI standards where practical.

# Public Outreach

Stakeholder engagement was a key part of the earlier [Transportation Electrification Infrastructure Needs Analysis \(TEINA\)](#) process and included a diverse 17-member Advisory Group; four public Advisory Group meetings; 12 stakeholder listening sessions; and a project-dedicated web page. ODOT has used this extensive input as the starting point for an expanded and more comprehensive stakeholder engagement effort supporting the five-year program. Combined with lessons learned from FY22 deployment, this public process will continue to help ODOT to refine annual updates of this plan through the duration of the NEVI program.

Added elements of the expanded stakeholder engagement process for the NEVI program include:

- Introductory and follow-up webinars providing both background material and updates.
- A NEVI-specific web page that includes detailed responses to frequently asked questions.
- Public opinions and insights obtained from four surveys conducted via the web page, supplemented by an interactive map displaying the public’s selected charging locations.
- Stakeholder engagement sessions with five targeted groups – EV drivers; EV charging companies; cities and counties; utilities; and environmental justice and advocacy groups.
- Community meetings in advance of building out NEVI-funded fast chargers along the electric AFCs. These meetings were held in Winter 2023 for first-year corridors (I-5, I-205 and US 97) and included discussion with local communities to explore priority benefits and appropriate metrics to ensure Justice40 goals are met or exceeded. Additional community meetings will be planned prior to build-out for each corridor.

Stakeholder input was incorporated as ODOT developed the FY 2022 State Plan and updates have been made to the FY 2024 State Plan Update to incorporate feedback received in the last year, most notably in the Community Engagement Outcomes Report. As this Plan Update, and future updates, continue the creation of a living State Plan document, new input will be integrated as outreach to new groups takes place and additional perspective is heard.

Figure 3: Stakeholder Outreach Opportunities

**Key Activities**

- Community meetings along corridors
  - Engage with communities prior to each year’s corridor build out
  - First year build out: communities along I-5, US 97, and I-205
  - Listen to learn EV community goals, prioritize desired benefits
  - Work with EV charging providers to match goals with opportunities along corridors
- Webinars
- Guest speaking engagements
- Targeted Information Sessions
  - Specific outreach to voices who haven't yet been heard
- Reporting back – What we hear and how it impacts activities



The NEVI funding for public DCFC stations is an important next step in helping Oregon achieve its ambitious zero emission vehicle adoption goals, providing funding to develop a critical backbone of DCFC stations along key highway corridors. ODOT, and its partner agency the ODOE, look forward to continued collaboration with JOET as ODOT continues its planning and advances implementation of the NEVI program.

# Introduction

The Bipartisan Infrastructure Law was established on November 15, 2021. Among other programs, this legislation – also known as the Infrastructure Investment and Jobs Act (IIJA) – established a \$5 billion National Electric Vehicle Infrastructure (NEVI) Formula Program, an initial step towards developing a nationwide network of 500,000 electric vehicle (EV) chargers by 2030.

To secure Oregon’s FY 2024 NEVI program funding, the Oregon Department of Transportation (ODOT) respectfully submits its second annual Oregon National Electric Vehicle Infrastructure Plan Update (State Plan Update or Plan Update) to the Joint Office of Energy and Transportation (JOET). The Plan Update reiterates ODOT’s guiding principles and overarching strategy, provides updates on contracting mechanisms and milestones, and outlines a more detailed deployment approach for DC fast charging (DCFC) stations funded with FY 2024 funding through the NEVI program.

Oregon is committed to transitioning its transportation system to be powered by electricity, and ODOT is supporting a rapid scale-up of EV charging infrastructure in the state. Drivers need equitable, convenient, and reliable access to public EV chargers in order to take advantage of electric vehicles, and more public charging will help give Oregonians the confidence that an EV will get them where they need to go just as reliably as a vehicle powered by gasoline or diesel. EVs can also offer significant cost reductions for vehicle operation - fueling an EV can cost 80% less than a similar gasoline vehicle. This can help reduce the transportation energy burden on low-income Oregonians.

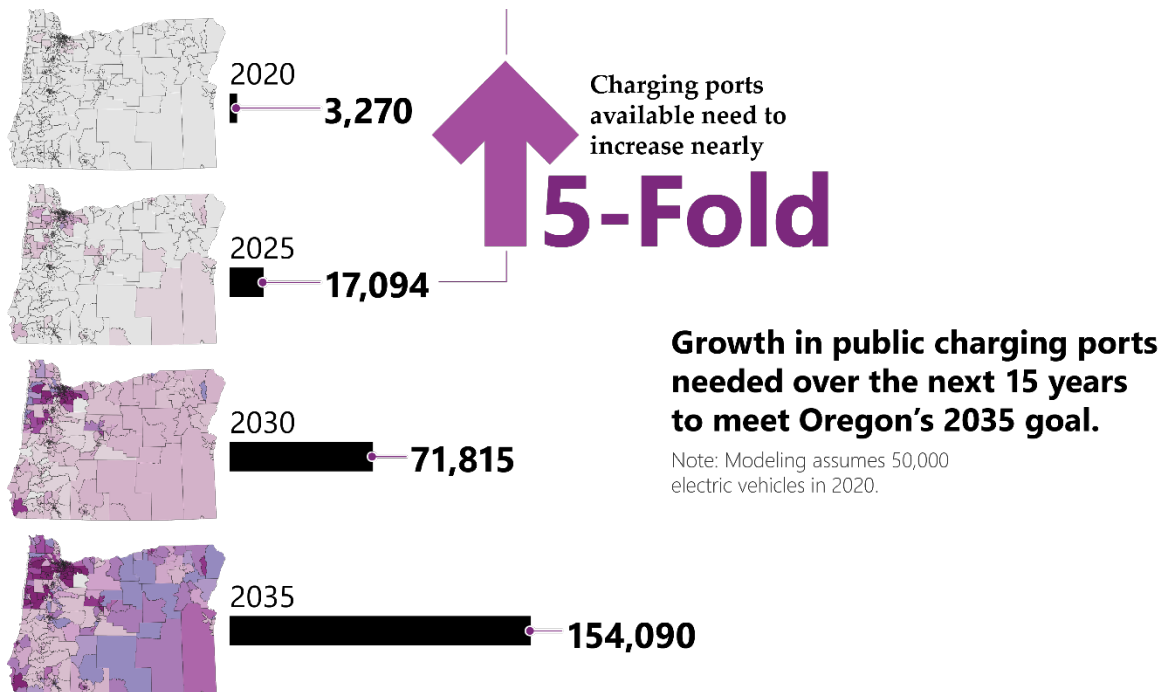
Transportation electrification affords many benefits, including reductions in tailpipe emissions and the associated public health benefits, decreased greenhouse gas emissions (GHGs) and the related climate benefits – in Oregon, transportation is responsible for about 40% of total GHGs – and the opportunity to take advantage of reliable, domestically produced electricity rather than relying on petroleum-based fuels.

Oregon is all in on transportation electrification and ODOT is committing additional dollars to charging infrastructure over and above the NEVI funds-plus-match, providing over \$100 million total toward EV charging infrastructure. ODOT’s funding plans will better support a transition to EVs, by focusing infrastructure along highways, on major roads, and within communities. The NEVI funding constitutes approximately two-thirds of this commitment at approximately \$65 million, including local match. The remaining third – over \$35 million – will be largely used to close EV infrastructure gaps beyond the areas supported by NEVI funding. Specifically, ODOT plans to support additional charging sites in rural and urban areas, underserved communities, and at apartment complexes, allowing more Oregonians to charge their vehicles where they live, work, and play.

## Transportation Electrification Infrastructure Needs Analysis

Oregon is well-positioned for this funding and will be able to target the highest-need locations based on a recent ODOT study that assessed statewide charging needs to meet aggressive state Zero Emission Vehicle (ZEV) adoption goals. In 2020 - 2021, ODOT conducted a [Transportation Electrification Infrastructure Needs Analysis \(TEINA\)](#), aiming to identify the required EV charging needs for different vehicle types and use cases in order to meet the state’s ZEV goals. Throughout the eight-month study, ODOT continuously engaged with stakeholders and the general public. The study – which explored these charging needs for nine use cases over 15 years – found that, relative to 2020 levels, Oregon needs a 5-fold increase in public charging ports by 2025, and a more than 40-fold increase by 2035 in the “business as usual” scenario.

Figure 4: Anticipated Growth in Public EV Charging Needs in Oregon, 2020 – 2035



The NEVI funding for public DCFC stations is an important next step in meeting some of these needs, and ODOT and the Oregon Department of Energy look forward to working with the JOET as the planning and implementation of this program is completed.

## State Plan Milestones for EV Infrastructure Deployment, Development and Adoption

Oregon's State Plan was developed primarily by ODOT, in close collaboration with the Oregon Department of Energy (ODOE). Final State Plan approval and adoption will be authorized by the ODOT Director.

The following key milestones for FY 2024:

- August 1<sup>st</sup>: Oregon's NEVI State Plan due to the Federal Highway Administration (FHWA) and JOET
- September 30<sup>th</sup>: Anticipated date of FHWA approvals of State Plans
- Summer 2024: ODOT issuance of initial public-private partnership (P3) Requests for Proposals (RFP) for FY 2024 corridors
- Winter 2024: ODOT selection of FY 2024 contractor(s)
- Spring 2025: Initiation of FY 2024 charging station build out.
- Ongoing: Community workshops along Alternative Fuel Corridors prior to build out.
- Ongoing: Online Open House & Surveys prior to the drafting of each AFCs associated RFP

Longer term anticipated plan timing:

- Review of previous years' findings (Program Evaluation)
- Annual community and stakeholder engagement along future corridors and check in on existing corridors.
- Annual issuance of future years' P3 RFPs (Fall or Spring of each year)
- Annual initiation of future years' charging builds out (Winter to Spring of each year)
- Annual *Community Engagement Outcomes* report Annual updates to the Oregon NEVI State Plan

# Updates from Prior Plan

The following chapters include the most significant updates from ODOT's FY 2022 State Plan:

- **Public Engagement**, specifically the inclusion of a Community Engagement Outcomes Report, that details engagement activities conducted, and lessons learned since the submission ODOT's FY 2022 State Plan, as well as updates on Tribal engagement, utility engagement and plans for site-specific public engagement (Pages 14-21).
- **Contracting**, including updated milestones through FY 2024 and new sections outlining the status of the contracting process, scoring methodologies utilized and a plan for compliance with Federal requirements (Pages 28-32).
- **EV Charging Infrastructure Deployment**, specifically a new section detailing ODOT's strategy for FY 2024 funding implementation, including planned charging stations along FY 2024 corridors (I-405, US 101 and US 26) (Pages 49-62).
- **Implementation**, specifically the section on Strategies to Promote Strong Labor, Safety, Training, and Installation Standards (Pages 67-68).
- **Discretionary Exceptions**, which has been updated to reflect exceptions requested for FY 2024 corridors (Page 80-82).



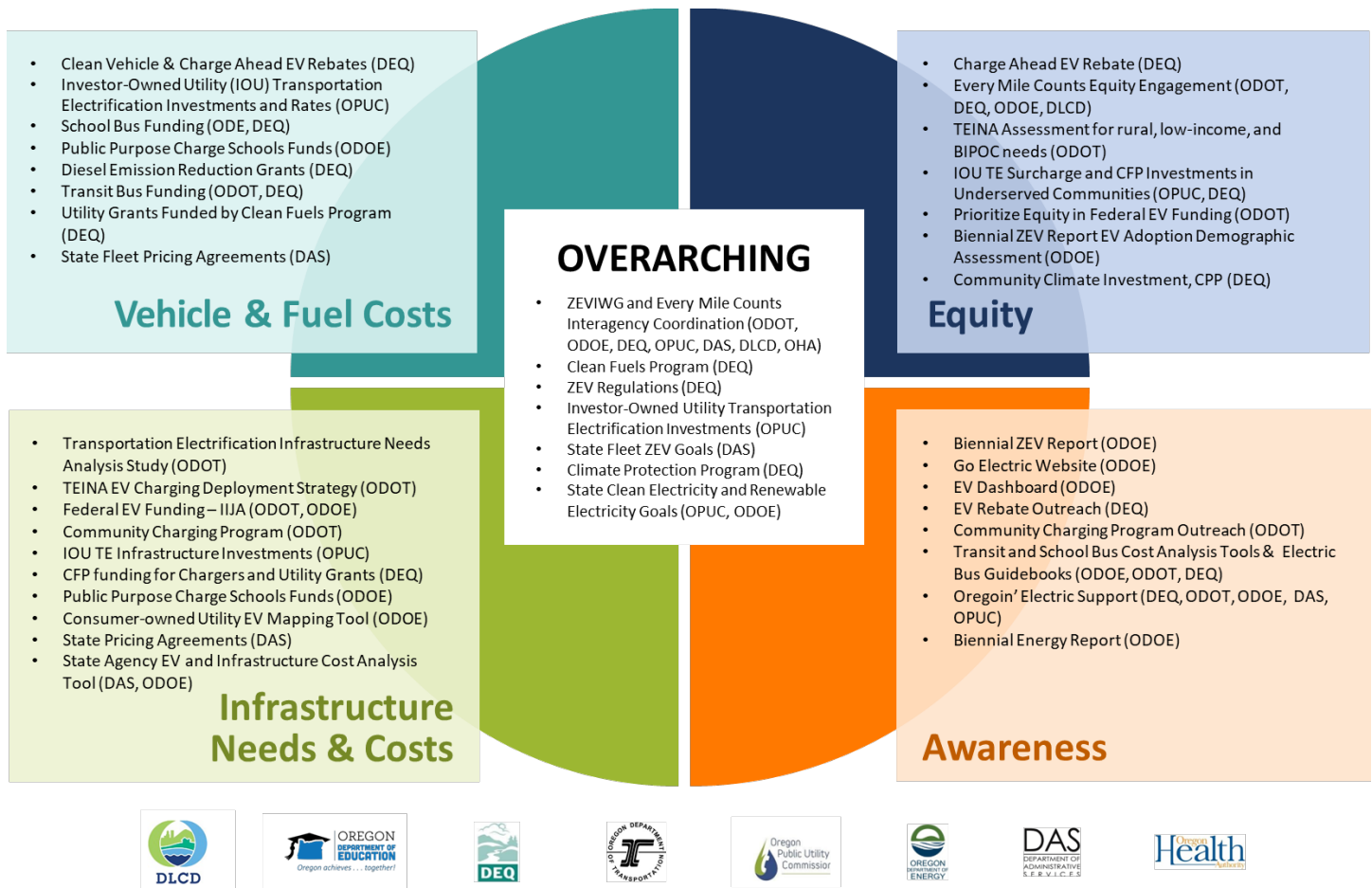
# State Agency Coordination

In November 2017, Governor Kate Brown issued Executive Order 17-21 (E.O. 17-21). This order established a statewide goal for adoption of zero-emission vehicles (ZEVs) by 2020, coordinated transportation electrification efforts across state agencies, and identified barriers to ZEV adoption through stakeholder engagement. To implement E.O. 17-21, the Zero Emission Vehicle Interagency Working Group (ZEVIWG) was convened and includes ODOT, ODOE, the Oregon Department of Environmental Quality (DEQ), the Oregon Public Utility Commission (OPUC) and the Department of Administrative Services (DAS). Other state agencies, such as the Oregon Health Authority and Oregon Department of Education, join in ZEVIWG efforts to support specific goals. These agencies have worked closely for years and continue to do so to coordinate, leverage, and implement actions to electrify the transportation system. Specifically:

- ODOT plays a lead convening role to ensure that the state's agencies collaborate on transportation electrification efforts and is primarily responsible for public investments in charging infrastructure.
- ODOE produces key reports, studies, and tools on electrification and shares information with the public as part of their specialization as data and analysis experts for both EVs and electricity.
- OPUC serves as the regulator and influencer of the state's investor-owned electric utilities, overseeing the development of their transportation electrification plans through its deep technical expertise around energy and public utility service provision.
- DEQ provides the vast majority of the regulations and policies driving Oregon's transition to cleaner vehicles and fuels. These include ZEV mandates for light, medium- and heavy-duty vehicles and ZEV purchase incentives and outreach programs; the Clean Fuels Program (CFP) which is focused on reducing the carbon intensity of Oregon's transportation fuels and provides incentives for utility, fleet, and infrastructure investments; several grant and rebate programs that can fund EVs and infrastructure; and the Climate Protection Program which sets a declining cap of GHG emissions.
- DAS provides guidance and undertakes vehicle procurement, fuel purchase, and parking development for much of the Oregon state agency fleets. The agency enables the state to lead by example in transportation electrification and serves as a critical enabler of ZEV adoption for state agencies and employees.

In addition to the ZEVIWG, collaboration among state agencies also takes place through the Every Mile Counts multi-agency partnership to decarbonize the transportation sector, and other overarching efforts (Figure 5). Specifically, agencies work individually and collectively to address the primary barriers to transportation electrification: infrastructure needs and costs, vehicle and fuel costs, and awareness and equity.

Figure 5: Interagency Actions Addressing Barriers to Zero Emission Vehicle Adoption



As the agency primarily responsible for public ZEV charging infrastructure, ODOT led efforts to develop the NEVI State Plan, relying on input and guidance from its ZEVIWG partners. During monthly ZEVIWG meetings, ODOT regularly updated partner agencies on NEVI development and progress moderating discussions around how to leverage other agency efforts – such as DEQ’s CFP, OPUC’s oversight of utility transportation electrification programs, and ODOE’s energy resiliency efforts – to develop a more comprehensive NEVI strategy. This collaboration has resulted in complementary initiatives being pursued by partner agencies, including development of supportive infrastructure provisions under DEQ’s Clean Fuels Program and the potential to leverage ODOE funding. In addition, ZEVIWG partner agencies participated in NEVI public webinars and targeted stakeholder engagement information/listening sessions. Throughout the development of ODOT’s inaugural NEVI State Plan, ODOE served as a key advisor, participated in weekly NEVI planning meetings, and provided critical input in the review of the draft State Plan.

ODOT will continue to rely on the ZEVIWG as the primary forum for cross-agency collaboration and guidance throughout the NEVI program. ODOT will also reach out to engage with additional state agencies, as needed. Specifically, ODOT will work with the Oregon Bureau of Labor and Industries and Building Codes Division on workforce development and standards, the Oregon Department of Agriculture, Weights and Measures division on several measurement and other standards, as well as Travel Oregon, Business Oregon, the Travel Information Council (on signage) and other agencies as we engage with stakeholders and communities to build out infrastructure across the state.

For information on U.S.-made EVSE, see Strategies for Prioritizing U.S.-made EVSE (Page 68).

# Public Engagement

Oregon’s public engagement to identify the state’s EV charging infrastructure needs began 2 years ago, when ODOT initiated the Transportation Electrification Infrastructure Needs Analysis (TEINA). In 2020, Governor Brown directed ODOT to study Oregon's need for greater EV charging infrastructure to meet state EV goals, reduce GHGs and speed the state's transition to a wide array of electric transportation modes.

Stakeholder engagement was a key part of the TEINA study process and included a diverse 17-member Advisory Group; four public Advisory Group meetings; 12 Stakeholder listening sessions; and a web page. Throughout this study, ODOT relied on the ODOE as a policy advisor. The resulting study identified EV charging gaps in rural, urban, and underserved areas. TEINA highlighted the need to focus public investment on Black, indigenous, and people of color (BIPOC) as well as underserved, rural, and disadvantaged communities. TEINA also identified a set of goals and recommended strategies.<sup>1</sup>

Figure 6: Key Themes from TEINA Outreach



Since then, ODOT has expanded on its previous outreach efforts to inform the NEVI State Plan and its implementation throughout the course of the program to accomplish the following key objectives:

- Engage a diverse range of stakeholders recognizing that the distribution of EV charging infrastructure must target locations and benefits to rural areas, underserved and overburdened communities, and disadvantaged communities, including relevant suppliers and contractors.
- Establish a menu of engagement opportunities, with a focus on lowering the barriers to participation for disadvantaged communities, so all stakeholders can provide meaningful feedback on NEVI plans.
- Listen and respond promptly to stakeholders so they understand how their participation has influenced decisions.
- Monitor the effectiveness of the stakeholder engagement activities and revise the process as necessary.

## NEVI State Plan Stakeholder Engagement

To directly inform the FY 2022 and FY 2023 NEVI State Plan, ODOT hosted a public, introductory webinar on April 4<sup>th</sup>, 2022, with over 250 participants. In June of 2022, ODOT conducted five 90-minute information-sharing and listening sessions targeted to EV drivers; cities and counties; utilities; EV service providers

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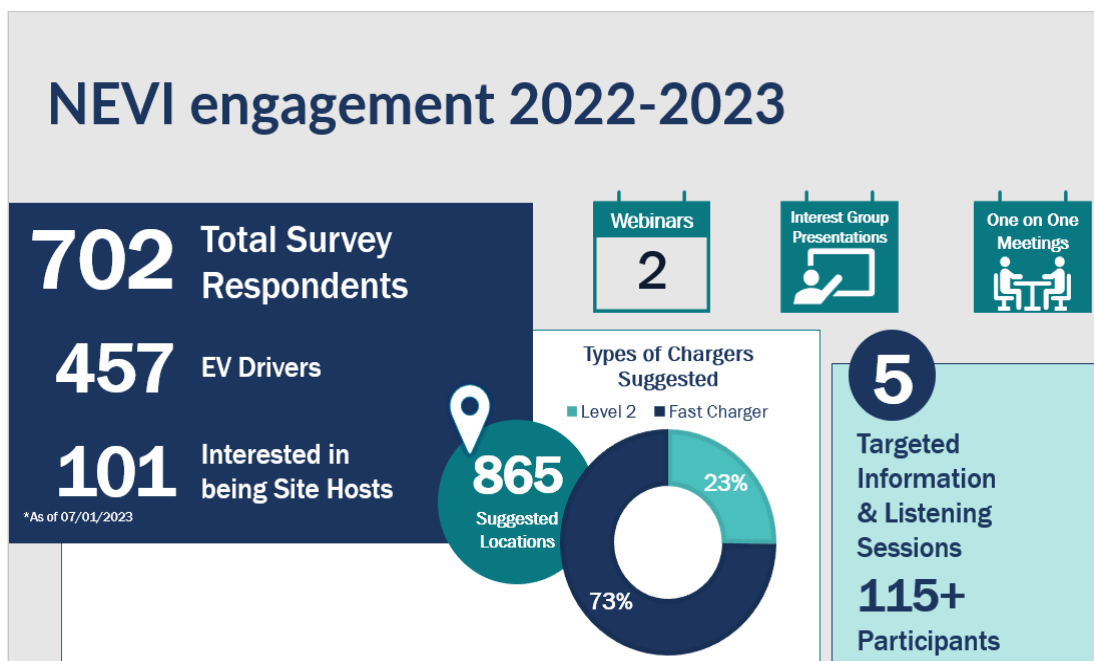
<sup>1</sup> The TEINA study and supporting materials can be found on ODOT’s website here: <https://www.oregon.gov/odot/Programs/Pages/TEINA.aspx>.

(EVSPs); and environmental, environmental justice, other equity and EV advocates. Each information/listening session had 25 to 35 participants. ODOT also established a NEVI web page that includes detailed FAQ responses to commonly asked questions raised during outreach efforts, background material, and opportunities for the public to share opinions and insights via four surveys (EV Drivers; Non-EV Drivers; EV Charging Site Hosts; Interested in becoming an EV Site Host). The web page also features interactive maps that allow the public to identify their preferred locations for EV charging stations. ODOT has also engaged extensively with numerous disciplines within its own agency and partner agencies. A second public webinar, with over 150 participants, was held on June 27<sup>th</sup>, 2022, to present an overview of the Draft State Plan and provide an opportunity for feedback on key plan concepts.

In addition, from February 2022 through July 2023, ODOT has engaged in dozens of conversations with a diverse range of companies, organizations, cities, utilities, and interest groups, and has presented to several stakeholder groups, such as the League of Oregon Cities, the Emerald Valley EV Association, 350 Deschutes, Travel Oregon and other tourism events, EVS 36, Forth’s Roadmap conference, and the Columbia Willamette Clean Cities Coalition.

Most recently, between January and March of 2023, ODOT hosted a series of in-person and virtual community meetings along each of its AFCs to be developed with FY 2022 funding. In addition, ODOT hosted an online open house with three surveys (one for each EV AFC to be developed) between January and March of 2023. Beyond these community engagement activities, ODOT’s Climate Office hosted two Tribal Workshops (addressed in more detail in the Tribal Engagement section below). A summary of each of the online open house and survey engagement opportunities and what ODOT learned throughout its stakeholder engagement can be found in the Community Engagement Outcomes Report.

Figure 7: Updated NEVI State Plan Outreach Statistics: 2022-2023



## What We Have Heard

Conversations with state and local agencies, private sector companies, EV driver representatives, transportation providers, utility and power companies, labor organizations, equity focused and environmental

advocacy groups, community-based organizations, and the public have helped shaped ODOT’s overall NEVI strategy and its annual State Plans. Some of the key themes shared by different stakeholders are presented in the graphic below.

Figure 8: Key Themes from NEVI State Plan Outreach



Based on feedback, ODOT will be flexible toward its aspirational goal to include one 350 kW charger in the four required at NEVI charging stations; ODOT will continue to seek one higher-powered charger (above 150 kW, for one of the four chargers) but not specifically require 350 kW. ODOT will also focus outreach efforts to identify EV charging companies with staying power and experience and will work with selected charging companies to consider geography and climate (as well as other key community interests) when finalizing station siting. In addition, ODOT will work with its private sector partners to prioritize the construction of DCFC stations with a pull-through design in certain communities to better enable access for larger EVs and those pulling trailers.

Throughout ODOT’s stakeholder engagement efforts, individuals, businesses, and local governments continuously emphasized the importance of physical security features, including adequate lighting, security cameras, and emergency telephones in areas with limited cellular access. Through its competitive RFP, ODOT will look to identify EVSPs that provide detailed plans that promote both physical and cyber security at these stations. More information on what ODOT has heard throughout its stakeholder engagement efforts can be found in the detailed Community Engagement Outcomes Report below.

ODOT recognizes that more cities and counties wish to benefit from NEVI charging stations and is taking a measured approach to adding EV Alternative Fuel Corridors (AFCs) (to reflect costs and state needs). ODOT will factor key concerns about workforce development and affordable pricing at DCFC stations into contracting provisions. ODOT and selected EV charging companies will work with utilities along each corridor to enable advanced planning for needed upgrades. By publicizing which routes ODOT aims to develop each year, utilities along each corridor will be better able to anticipate potential needs and prepare for the addition of NEVI charging stations.

## What’s Next

ODOT will continue to engage with stakeholders along each corridor through an inclusive process that lowers participation barriers.

A detailed stakeholder engagement strategy can be found in [Appendix A: Stakeholder Engagement Plan](#). It outlines a variety of virtual and in-person engagement activities in communities along the corridors with a focus of engaging those whose voices have been less prevalent to date, including tribes and Justice40 DACs. Key activities include fact sheets (translated into appropriate languages based on target audience and area

demographics), community meetings, webinars, listening sessions, tribal consultations as appropriate, and guest speaking engagements. To maximize participation, ODOT will work with trusted partners including ODOT regional offices, Metropolitan Planning Organizations (MPOs), social service and non-profit leaders, Tribal representatives and community liaisons/interpreters. Additionally, the NEVI web page will continue to be updated with FAQs in response to commonly asked questions, background material, and opportunities for the public to share opinions and insights via surveys and interactive maps. Meeting summaries and documentation regarding how feedback has been incorporated into the decision-making process will be completed in a timely manner and posted on the web page.

Through these planned activities, including corridor-specific community meetings, ODOT will work with DACs to identify which benefits of the NEVI program are most important to them. ODOT will share information with utility companies and the selected EV charging companies who will install, operate, and maintain the EV infrastructure so they can be better partners in achieving Justice40 goals. ODOT's collective outreach efforts will continue to inform the equitable and fair distribution of EV charging infrastructure so all Oregonians benefit from transportation electrification.

## Community Engagement Outcomes Report

In ODOT's FY 2022- FY 2023 NEVI State Plan, approved in September of 2022, ODOT committed to incorporating a balance of virtual and in-person community engagement opportunities to address differing needs such as workhours, childcare concerns, or mobility constraints. Between February and March of 2023, the ODOT Climate Office hosted a series of nine in-person and virtual community meetings along the AFCs ODOT selected for FY 2022 funding (I-205, US 97, and southern I-5 from Eugene CA border). ODOT hosted two community meetings along I-205, three community meetings along I-5, and four community meetings along US 97. Six were held in communities identified as disadvantaged using the Electric Vehicle Charging Justice40 Map, and one was held on federally recognized tribal land. Using the Oregon Office of Rural Health's definitions for urban, rural and frontier areas, five of these community meetings were held in rural areas, and four in urban areas.<sup>2</sup>

The purpose of these community meetings was to inform the public about the NEVI program and its impact on the State of Oregon; to understand what concerns the public has about EV infrastructure projects coming to their community; and to learn what the public would like to see incorporated in the development of these charging stations. ODOT worked with its Office of Equity and Civil rights to engage with a diverse range of stakeholders from EV representatives, environmental justice groups, utilities, equity focused groups, and government entities. ODOT emphasized that community input would be used to guide the writing of ODOT's competitive RFP for each of the year one corridors. To provide adequate time for participation, ODOT reserved each meeting space for two hours and kept the formal presentation to twenty minutes or less. In addition, ODOT provided maps with which the public could interact by identifying challenges such as existing charging deserts, areas with limited cell service, areas that play an important role in emergency evacuation, areas with an elevated risk of snow or wildfires, and other key information. Name and contact information was requested so that ODOT could follow up with information to questions that were unable to be answered during the community meeting.

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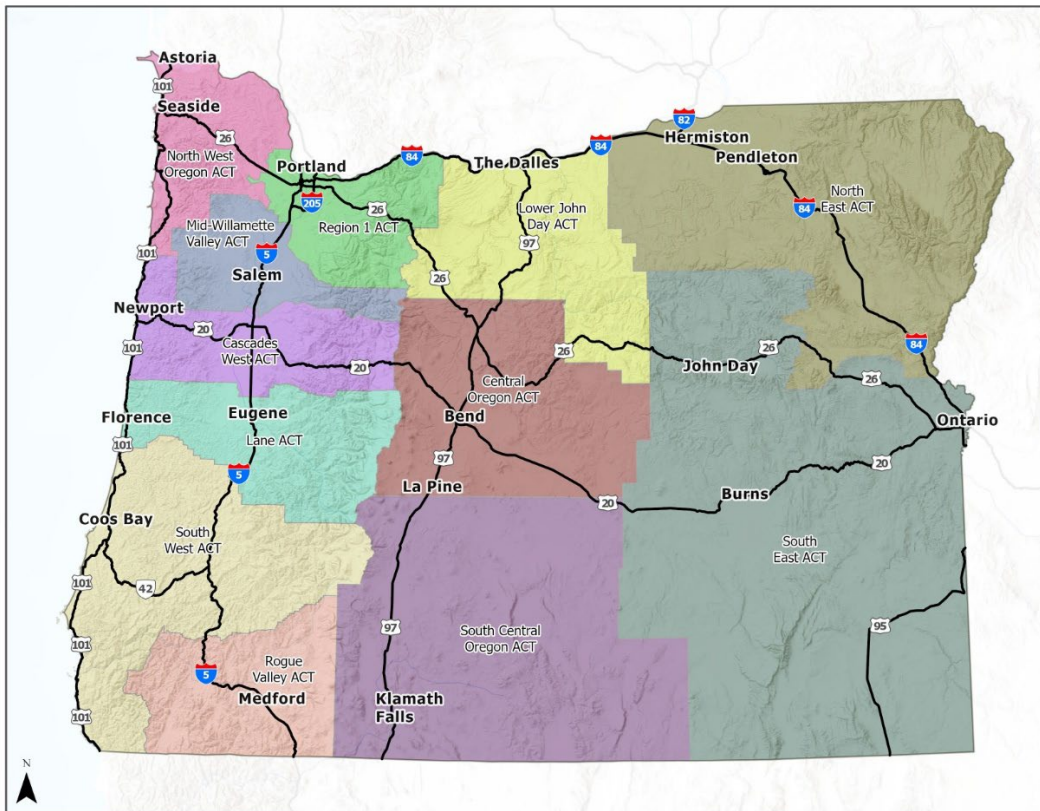
<sup>2</sup> Oregon Office of Rural Health's Defined Urban, Rural and Frontier Areas Map can be found here: <https://www.ohsu.edu/media/881>

In addition to the community meetings, ODOT hosted an [online open house](#) with an associated survey between January 18<sup>th</sup> and March 3<sup>rd</sup>, 2023. This online open house provided an alternative pathway for those unable to make one of the nine in person and virtual community meetings. This online open house was announced via a GovDelivery notice, and ODOT relied upon its existing relationships with local governments, transit agencies, environmental justice organizations, utilities, and advocacy organizations, such as the Columbia Willamette Clean Cities Coalition and Forth, to advertise the online open house to the broadest possible audience. In addition, ODOT's Office of Equity and Civil rights provided a list of community-based organizations that represent disadvantaged communities. The online open house included an individual survey for each of ODOT's three EV AFCs (US 97, I-205, and I-5 South of Eugene) identified for FY 2022 funding, ensuring that survey results could be analyzed for each corridor. Survey participants were provided the option to rank each question on a scale of very important, important, somewhat important, not important, and no opinion. Survey participants were also able to write in answers.

Between February 6<sup>th</sup> and March 14<sup>th</sup>, 2023, ODOT presented information on the NEVI program to each Area Commission on Transportation (ACT) that represents an EV AFC identified for FY 2022 funding (see Figure 9 for a map of ACTs in Oregon). ACTs are advisory groups chartered by the Oregon Transportation Commission (OTC) that work to solve regional and local transportation issues affecting the statewide transportation system. They are typically composed of representatives from utilities, municipal governments, chambers of commerce, local employers and environmental justice and other community-based organizations. Additionally, they work directly with local organizations dealing with transportation-related issues. ODOT presented to the Region 1 ACT, the Lower John Day ACT, the Lane ACT, the Central Oregon ACT, the Southwest ACT, and the Rogue Valley ACT. ACT membership typically consists of local government officials, transit agencies, and active transportation, environmental justice, and equity focused stakeholders. ACT meetings are open to the general public to attend and ODOT worked with each ACT to ensure the NEVI program was advertised on the agenda.

Aside from these three community engagement activities, ODOT engaged in dozens of conversations and presentations with a diverse range of companies, organizations, cities, utilities, and interest groups, including presentations to 350Deschutes; Forth Roadmap; Travel Oregon and tourism conferences; and at the Columbia Willamette Clean Cities Coalition Annual Stakeholder Workshop. Additionally, ODOT was a panelist on a webinar hosted by the Joint Office for Energy and Transportation on Community Engagement in Transportation on April 11<sup>th</sup>, 2023.

Figure 9: Oregon Area Commissions on Transportation and Electric AFCs



### Outcomes:

ODOT gained valuable information about the needs, concerns, and preferences of the communities in which these charging stations will be located. Additionally, ODOT received valuable feedback related to its overall stakeholder engagement strategy. For example, the in-person community meetings were not well attended, but the virtual community meetings often had three to four times the number of people in attendance.

There were several factors that resulted in lower than expected in-person attendance, one of which was the weather. Several meeting locations received significant late season snowfall, making it challenging to attend in-person meetings. ODOT heard from its staff in the regions, and from its invited stakeholders, and transitioned to virtual community meetings at the request of the invitees.

In addition, ODOT received feedback from some community members that they were hesitant to attend these community meetings related to NEVI because of the perceived lack of flexibility in the NEVI program. In particular, ODOT heard that the requirement that stations be spaced no further than 50 miles from another creditable station, and that they must be built within one mile of an interstate exit or highway intersection, led to concerns that attending a meeting specific to NEVI would not effect programmatic change.

ODOT recognizes that time spent engaging with the community is valuable, and that many of these stakeholder groups are already being asked to engage on many other topics. In response, ODOT plans to alter its community engagement strategy by attending existing community meetings, rather than holding community meetings specific to the NEVI program. In addition, ODOT plans to use these opportunities to engage with the public on several transportation electrification related issues, rather than providing information specific to the NEVI program only. For example, meetings can cover the federal government's annual Charging and Fueling Infrastructure discretionary grants and ODOT's ongoing Community Charging Rebates Program to facilitate the installation of Level 2 chargers.



One concern raised was that it is often difficult to find real-time information on charger availability and uptime. Attendees and respondents stated that information provided by the EVSP was often inaccurate, leaving them to rely upon third party applications (or word of mouth) when considering where to charge their vehicle. In the online open house survey, 95% of respondents indicated that considering a partner with a proven track record of reliability, uptime, and responsiveness was important to give EV drivers more confidence their vehicle can get them where they need to go. Based on this feedback, ODOT aims to partner with an EVSP that provides a detailed maintenance plan that promotes uptime, reliability, and responsiveness, and ODOT will look for information outlining a detailed history of past projects that demonstrate how the EVSP responded to equipment outages.

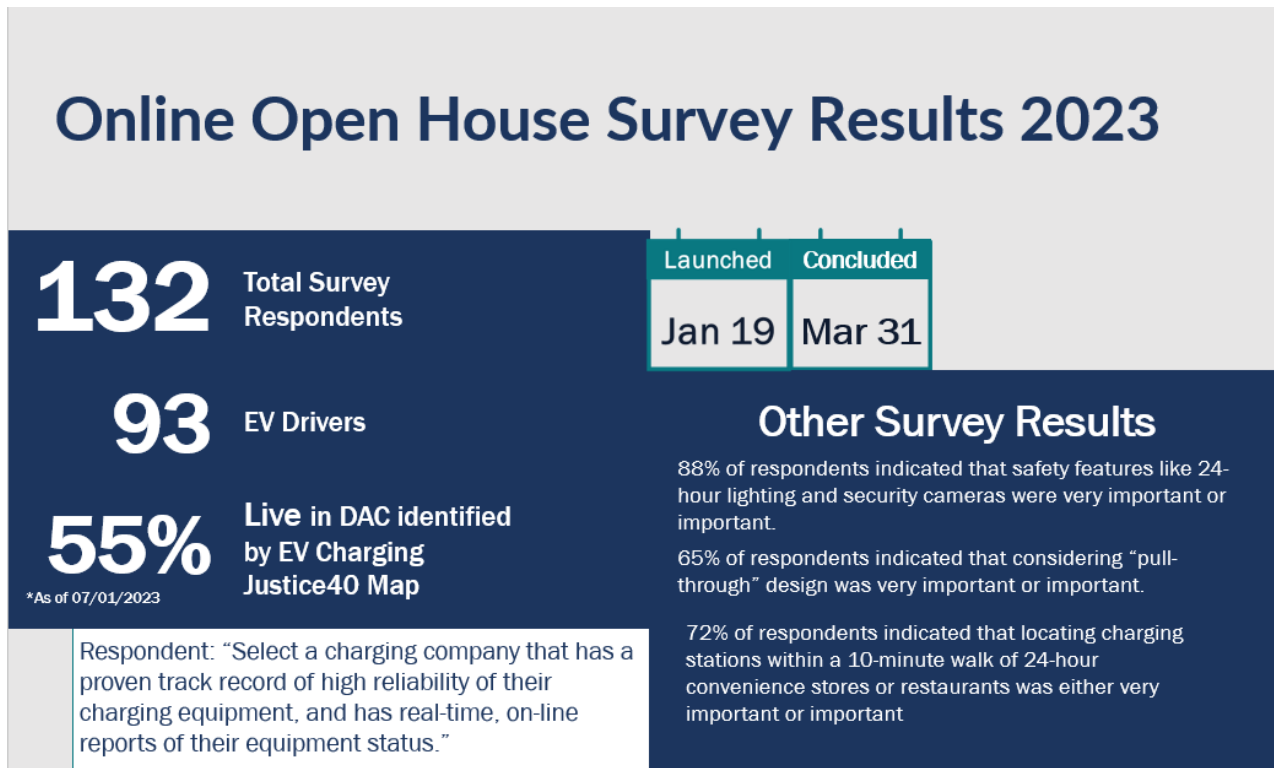
About 55% of respondents live within a disadvantaged community as identified by the EV Charging Justice40 mapping tool. ODOT received 132 unique survey responses to its three surveys associated with the online open house. Roughly 70% of survey respondents were current EV drivers, which is in line with past EV surveys ODOT has published.

These responses will enable ODOT to include community requests when writing its competitive RFPs. For example, 92% of survey respondents indicated that physical security is a critically important factor in station design. Users indicated that physical security is sometimes an afterthought at charging stations, and that more must be done to ensure the safety of drivers when charging at all hours. Around 88% of survey respondents indicated that the best way to do this is to provide adequate lighting and/or security cameras. Several users also commented that co-locating charging stations at (or within a 10-minute walk) of existing businesses that are open 24 hours was a desired safety and design feature. Other respondents commented that in areas with limited cell service, it may be desirable to have an emergency call box.

In addition, 65% of respondents stated spaces large enough for a truck pulling a trailer, boat, or RV are an important design feature. The RV Industry Association estimates that the RV industry represents an economic impact of over \$4 billion in Oregon, and while primarily intended for use by light duty electric vehicles, factoring in pull-through design at selected sites will help to future proof these stations and support drivers of different vehicle classes. Several commenters also indicated the importance of providing charging opportunities for all types of e-mobility at charging sites such as 120v outlets for electric scooters, e-bikes, and wheelchairs. Additionally, 75% of respondents to the survey for US 97 indicated that connecting a rural or smaller community to the greater EV charging network was either very important or important.

ODOT continuously emphasized that the goal of its community engagement was to directly inform the writing of its RFPs, and ODOT feels confident that the information collected throughout its community engagement will enable ODOT and its private partner(s) to better provide the public with an equitable, convenient, reliable, and affordable charging experience that better reflects the needs of the communities in which these chargers will be located.

Figure 10: Selected Online Open House Survey Results (2023)



## Tribal Engagement

Oregon has nine federally recognized Tribes: Burns Paiute Tribe, Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians, Coquille Tribe, Cow Creek Band of Umpqua Tribe of Indians, Confederated Tribes of the Grand Ronde Community of Oregon, The Klamath Tribes, Confederated Tribes of Siletz, Confederated Tribes of the Umatilla Indian Reservation, and Confederated Tribes of the Warm Springs Indian Reservation.

On April 28, 2023, ODOT’s Transportation Electrification team participated in a multi-agency Economic Development and Community Services State-Tribal Cluster all-day meeting with members of federally recognized Tribes and other Tribes. This broad exchange of information with Oregon Tribes included agency presentations and interactive discussions. ODOT’s Transportation Electrification team explained its overall programs and discussed funding opportunities available to Tribes, and avenues for engagement with ODOT in the NEVI program, ODOT’s Community Charging Rebates Program (to assist in deployment of Level 2 chargers), federal Charging and Fueling Infrastructure grants, and ODOT-administered federal Carbon Reduction Program grants. Opportunities where Tribes are explicitly eligible to submit grant and project applications were highlighted. ODOT encouraged members of Tribes interested in learning more about transportation electrification opportunities to join the upcoming ODOT Climate Office Tribal Workshop. On May 31st, 2023, the ODOT Climate Office hosted an all-day tribal workshop to enhance government-to-government working relationships and foster collaboration. During the workshop, participants discussed opportunities and the practical applications and barriers preventing successful implementation. Twenty-four Tribal members were present, representing 14 Tribes including all nine federally recognized Tribes in Oregon.

In addition to sharing funding opportunities, including the Charging and Fueling Infrastructure (CFI) Discretionary Grant Program, the Carbon Reduction Program, the Oregon Community Charging Rebates Program, the NEVI program, and other state and federal funding opportunities for which Tribes are an eligible

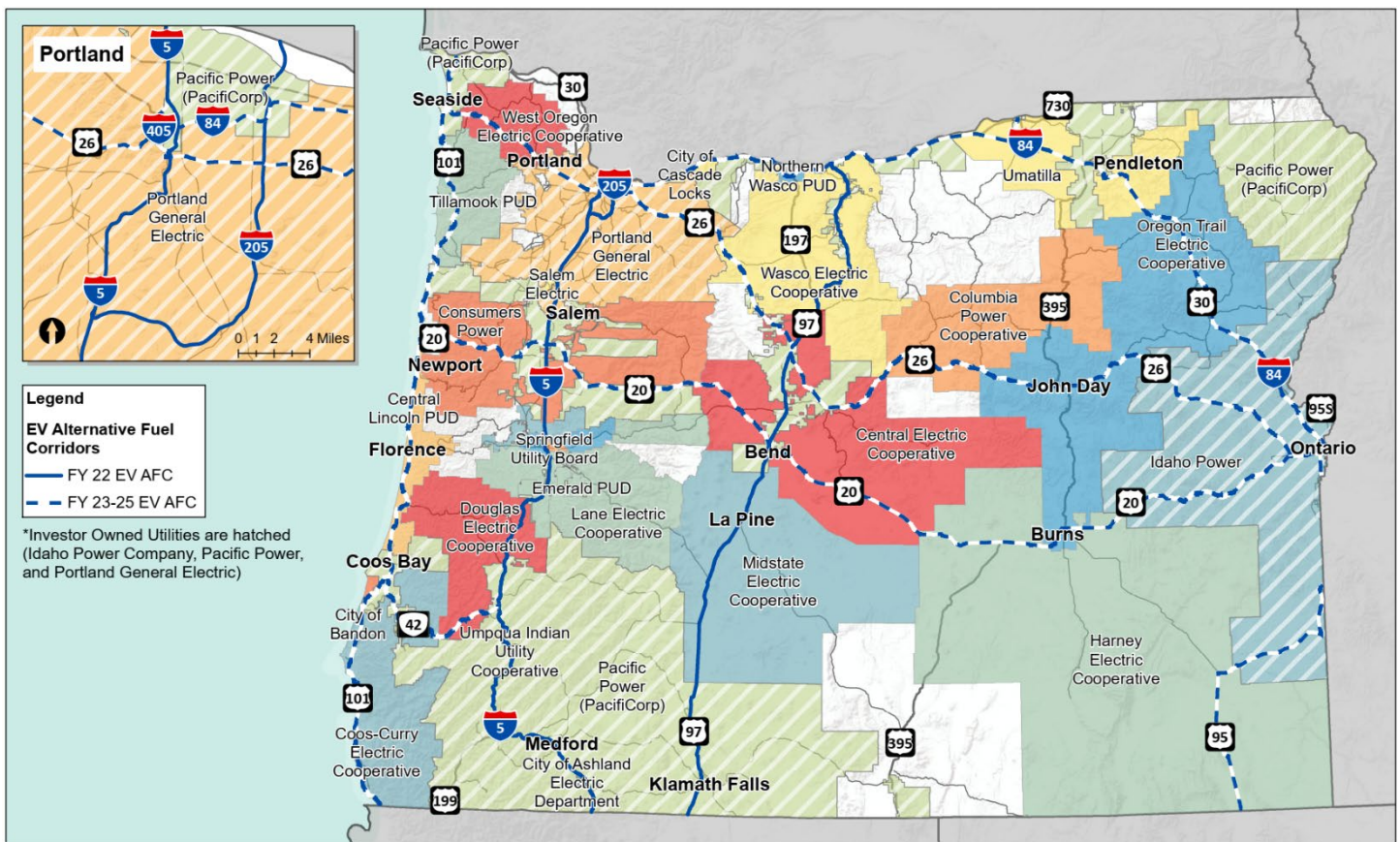
recipient, ODOT learned about obstacles the Tribes are facing when developing charging and fueling infrastructure. Examples of these obstacles include the challenge of installing ZEV infrastructure in locations that are either off-grid or have limited access to the grid, the ability to maintain ZEV infrastructure in remote areas in accordance with federal and state requirements for minimum uptime, and workforce development challenges related to the operation and maintenance of ZEV infrastructure.

The Climate Office hosted a follow-up conversation with Tribal representatives on July 12, 2023, and is currently exploring strategies to address obstacles brought to ODOT’s attention by the Tribes.

## Utility Engagement

As noted in the Existing and Future Conditions Analysis, there are three investor-owned and 37 consumer- or publicly owned electric utilities across Oregon. The following map (Figure 10) shows Oregon electric utility service territories along with Oregon’s EV Alternative Fuel Corridors.

Figure 11: Electric Utilities in Oregon



FY 2024 EV Alternative Fuel Corridors include US 101, starting in the north at the Washington border and heading south to California’s border; US 26, traversing west-east across the state from Seaside to the Idaho border; and Interstate 405 in the greater Portland area. Each of these three FY 2024 corridors are served, in part, by one or more of the state’s three investor-owned utilities (IOUs) -- Portland General Electric (PGE), Pacific Power, and Idaho Power. In addition, these routes are served by several publicly-owned utilities – including: (i) on US 101, Tillamook PUD, Central Lincoln PUD, City of Bandon, and Coos-Curry PUD; (ii) on US 26, West Oregon Electric Coop, Columbia Power Coop, and Oregon Trail Coop; and I-405 is served solely by Pacific Power and PGE.

ODOT began discussions with utilities about transportation electrification charging infrastructure as part of our 2020 – 2021 Transportation Electrification Infrastructure Needs Analysis (TEINA) study (see page 6; Introduction); five members of TEINA’s 17-member Advisory Group were representatives from IOUs, public utility districts, municipal utilities and cooperatives. We have since pursued more in-depth discussions with many of these utilities, focusing initially on the areas where early year (FY 2022 and FY 2023) NEVI funding deployment is planned while also beginning conversations with all utilities in the interest of streamlining DCFC deployment across all AFCs. An individual stakeholder engagement session with utilities was held as part of the development of Oregon’s FY 2022 NEVI State Plan, and we plan further outreach with utilities along each corridor throughout 2023 – 2024.

In May 2022, ODOT issued a Request For Information (RFI) to all utilities in Oregon, requesting details on the availability of three-phase power, electrical distribution system capacity in their service territories (and specifically along current electric AFCs), interconnection timelines and staffing plans, and the availability of funding programs to potentially count towards the 20% non-Federal match (see [Appendix C: Utility Request for Information](#)). ODOT has received a strong and generally enthusiastic response, although most utilities have cautioned that supply chain issues and – for some – interconnection timelines will be challenges when deploying NEVI-funded stations in their service territories. ODOT plans to update this RFI to better enable capacity mapping, as we get closer in time to NEVI investments on each corridor. In its 2021 Biennial Zero Emission Vehicle report, Oregon Department of Energy found that there was general consensus among electric utilities that the electrical supply for future EV adoption is not of great concern; however, there is more focus on the challenges posed to ensure that the distribution system can meet transportation electrification needs.

During 2022 – 2023, ODOT participated in public engagement processes for the state’s investor-owned utilities’ Transportation Electrification Plan proposals which are required by Oregon’s Public Utility Commission (OPUC). ODOT worked closely with the Oregon PUC as they developed guidance for each IOU’s Transportation Electrification Plan, as the OPUC required the IOUs to rely on ODOT’s TEINA study to set upper bounds for certain types of allowable ratepayer funded investments in their Plans to support EV charging infrastructure. Recent state legislation requires 50% of a specific new funding stream for transportation electrification (by investor-owned utilities) to be focused on disadvantaged communities. ODOT is closely monitoring the types of investments that IOUs are proposing for disadvantaged communities, and all proposed investments that will benefit EV charging installations across the state, such as make-readies/customer-side-of-the-meter assistance; charging support for fleet EV adoption; programs to assist installation of EV charging at multi-family housing venues; grid planning and resilience; plans for greening the electrical grid; and other programs that might benefit NEVI installations. ODOT makes suggestions during these public engagement sessions to guide IOU programs and funding to complement NEVI programs.

Additionally, ODOT is in touch with the trade associations representing consumer-owned utilities, including the Oregon Rural Electric Coop Association, Oregon Municipal Electric Utilities Association, and the Oregon People’s Utility District Association, to further collaboration on EV charging issues. ODOT consults with Forth and the Bonneville Environmental Foundation, to leverage their work with many of the state’s publicly owned utilities to prepare for EV charging infrastructure activities.

In June 2023, ODOT launched a Community Charging Rebates Program to provide cash incentives to support the installation of Level 2 charging stations in public venues and multi-family housing, prioritizing rural and disadvantaged communities. ODOT collaborated closely with IOUs and other electric utilities that offer complementary grants, rebates, or support for Level 2 investments, further strengthening our working relationships and understanding of utility EV charging infrastructure support programs.

ODOT consults with the Alliance for Transportation Electrification and the Electric Power Research Institute to leverage their EV charging infrastructure programs and work with public utility commissions. ODOT has an excellent working relationship with the Oregon PUC, through our Zero Emission Vehicle Infrastructure Working Group (ZEVIWG) and other outreach.

ODOT collaborates with the Oregon Department of Energy (ODOE) through the ZEVIWG as well, and they are key partners in utility collaboration on EV charging infrastructure. ODOE will be developing an Oregon energy strategy soon that will identify energy-focused pathways to achieve Oregon's greenhouse gas reduction and clean electricity goals. ODOT and other state agencies will serve in an advisory capacity throughout the development of the energy strategy, including technical advice and input on energy strategy recommendations. See State Agency Coordination for more information on how the key state agencies collaborate on transportation electrification.

## Site Specific Public Engagement

As part of ODOT's stakeholder engagement strategy for the FY 2022 – FY2023 NEVI State Plan approved in September 2022, ODOT created a NEVI-specific webpage that provided opportunities for the public to share opinions and insights via four separate surveys. One of these surveys asked respondents to state whether they were interested in being a potential site host of a NEVI station. To date ODOT has received over 700 responses to this survey, with more than 90 respondents indicating their interest in serving as a site host. As ODOT moves forward with its contracting and procurement strategy, this list of potential site hosts will be shared with the private sector partners identified through the Request for Qualifications (RFQ) process.

For both new stations and those upgraded to meet NEVI requirements, the contracted EVSP(s) will be responsible for identifying site hosts and securing sufficient station locations along each corridor to meet NEVI built out specifications. ODOT will collaborate with the EVSPs to ensure that community interests are reflected to the greatest extent possible in project siting. For additional detail on site host attributes and location amenities that ODOT will encourage, refer to Appendix D: Technical Specifications and Requirements for Operations, West Coast Electric Highway Upgrade RFP. During its NEVI solicitation process, ODOT will require EVSPs to plan for engagement with the community in ways that highlight the importance of equity considerations. ODOT may ask its selected partner to hold community meetings or workshops to better identify and understand the needs of the communities in which these stations will be sited.

# Plan Vision and Goals

ODOT's vision for the NEVI program funding is to create a backbone network of high-powered EV charging stations along major corridors and significantly increase Oregonians' confidence that EV charging will be as ubiquitous and convenient as fueling with gasoline.

## Oregon's Five-year NEVI Action Plan and Goals

**In the first three years:** Fully build out NEVI-creditable EV charging stations on the first seven electric Alternative Fuel Corridors (AFCs) approved by FHWA during Rounds 1 - 5, to achieve a backbone network along all interstates and major US highways in Oregon (connecting Oregon with other states via their EV AFCs).

**In the following 2 years:**

- Fully build out NEVI-creditable EV charging stations on additional electric AFCs (approved in Round 6, 2022 and beyond)
- Pursue additional investments (as needs arise) to:
  - Increase coverage (more stations in between 50-mile intervals).
  - Increase redundancy at stations (build out future proof options).
  - Upgrade current stations to be NEVI-compliant.
  - Focus on freight, inter-modal, and e-mobility hubs.

**Throughout the program:** Ensure the EV charging network is reliable, user-friendly, safe, consistent, affordable, and accessible.

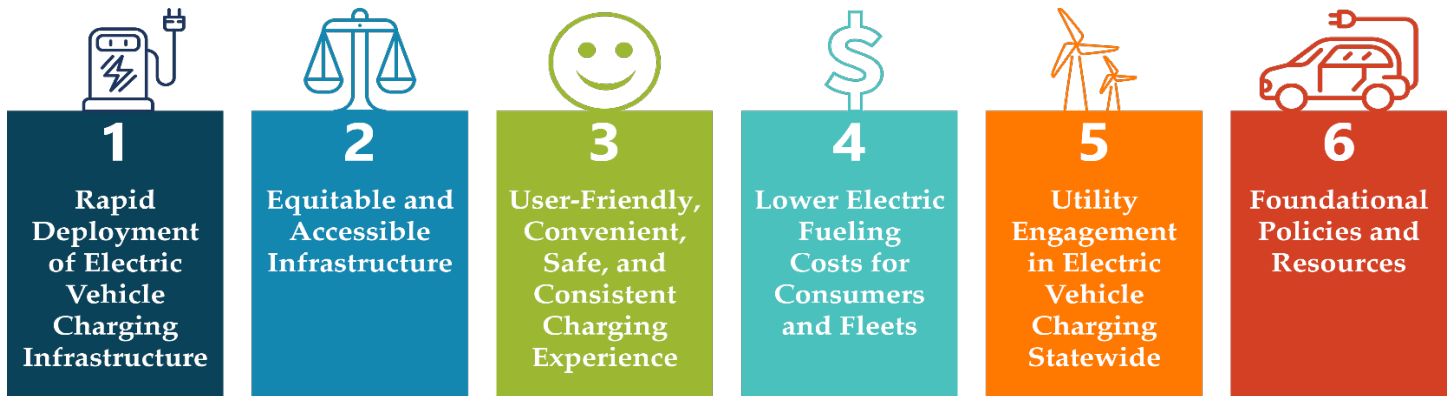
**Throughout the program:** Center equity by meeting or exceeding the Justice40 requirements and promoting workforce development.

## Oregon's Overall EV Infrastructure Goals

ODOT articulated six EV infrastructure development goals as part of the June 2021 Transportation Electrification Infrastructure Needs Analysis (TEINA). These goals will help to guide ODOT's planning and

implementation of the NEVI program, contributing to consistent, high-quality charging opportunities and experiences for Oregonian drivers.

Figure 12: ODOT's EV Infrastructure Goals



NEVI Federal funding aligns with TEINA goals to present a unique opportunity that furthers Oregon’s efforts to develop widespread, equitable, convenient, affordable, and reliable EV charging options for Oregonians.

NEVI funding will support Oregon’s development of charging infrastructure along key travel corridors, which serve both long-distance and local traffic. Additionally, the NEVI station technical requirements and specifications, reliability, and data collection requirements build on Oregon’s existing West Coast Electric Highway (WCEH) network requirements, through which ODOT has been expanding DCFC coverage and access for years, as part of an interconnected DCFC network with Washington and California.

## Guiding Principles for NEVI Funding

### Focus on Light-duty Charging

ODOT will prioritize building a statewide EV charging network for light-duty vehicles with NEVI funds in accordance with Federal guidance and to support the US goal of reaching 500,000 public charging stations along national highways.

### Center Equity

ODOT will work with community members, EV charging company partners, and other stakeholders to ensure program delivery fulfills the spirit and intent of the Justice40 Initiative. This will require a minimum 40% of all program benefits to accrue to disadvantaged communities.

### Future-proof Sites

Oregon aims to exceed Federal standards by designing stations with three fast chargers of a minimum 150 kW power level, while encouraging that at least one charger provides a higher power level *above* 150 kW (and up to 350 kW). Goals include future-proofing each station for two

additional higher-powered chargers (greater than 150 kW and up to 350 kW). Oregon’s NEVI charging stations will be designed to meet or exceed Federal standards, with the goal of better enabling both today and tomorrow’s EVs to charge quickly and better accommodate powering up medium-duty vehicles such as large pick-up trucks and delivery vans. To that end, ODOT is requiring a minimum proportion of NEVI stations along certain corridors to incorporate pull-through station designs. In addition, ODOT intends to include 110-volt outlets where feasible, to accommodate needs for electric service on site for repair, electric micro-mobility devices such as e-bikes and e-scooters, and electric wheelchairs. .

### **Partner with the Private Sector**

ODOT will work through public-private partnerships to engage private sector companies to install, upgrade, operate, and maintain charging stations. ODOT will manage the distribution of funds and the project selection, assuring that the infrastructure is appropriately built to meet (or exceed) all required NEVI standards.

### **Upgrade Existing Stations**

ODOT aims to leverage the significant investments Oregon has already made in fast charging stations by considering the creation of grant proposals, in later years, to upgrade existing stations on select routes over time. Only a handful of Oregon's existing charging stations meet NEVI standards.

### **Target Reliability**

ODOT will focus on funding partners with a

proven track record for building, operating, and maintaining charging stations. These partners will have high levels of reliability and staying power in the market. ODOT will ensure that private sector partners plan to collaborate with ODOT to engage with communities and achieve Justice40 goals.

### **Expand Coverage**

ODOT will build out the initial seven EV AFCs designated by FHWA in Rounds 1 - 5, to create a backbone network in Oregon and will expand to additional routes (approved in Round 6) and other areas to enhance geographic coverage and connectivity. With NEVI funding as a foundation, EV charging can make substantial progress toward the goal of being as ubiquitous and as convenient as fueling with gasoline along ODOT's EV AFCs.



# Contracting

## Contracting Overview

ODOT's contracting approach is influenced by its experience successfully developing the West Coast Electric Highway (WCEH) network of DCFC stations across several of Oregon's highways. ODOT will rely on this experience – including lessons learned and necessary improvements – as it replicates many elements of that successful and innovative public-private partnership.

ODOT is pursuing an approach to build out NEVI stations along entire corridors in both urban and rural areas, including in DACs. ODOT will also be exploring options to encourage selective upgrades, where feasible and appropriate. Given the critical need to provide *reliable* DCFCs, ODOT will also require that contracted EVSP's operations and maintenance plans focus explicitly on maintaining uptime and ensuring the resiliency of NEVI-funded stations, through required service level agreements (SLAs) and/or other mechanisms. ODOT will evaluate the effectiveness of early year contracting strategies and will change the contracting approach to improve outcomes if necessary.

ODOT's contracting approach will incentivize and encourage deployment of EVSE in areas less likely to receive private market attention in the absence of public funding, such as rural and/or underserved communities. Additionally, ODOT will work with contracted EVSPs to encourage station development at sites that can serve highway traffic while also providing needed charging capacity for local EV drivers, such as at neighborhood commercial centers within 1 mile of the highway exit, where appropriate. This approach can meet the NEVI program's minimum standards while providing economic development opportunities for local businesses. It also promotes personal safety by locating EV chargers in higher-trafficked, better lit areas.

Oregon has a toolkit of innovative incentives to create an attractive environment for EV charging companies to maximize the NEVI funding and develop a robust EV charging network that meets the needs of Oregon's drivers. Examples of innovative incentives and approaches could include:

- The Oregon Department of Environmental Quality (DEQ) manages the state's Clean Fuels Program (CFP), which incentivizes EVSPs to provide transportation fuel that is lower in carbon intensity than the program's annual targets. Of import for NEVI development, DEQ has adopted an advance crediting option for charging infrastructure investments made using NEVI funds, effectively serving as a form of financing for station developers. This could be especially useful in rural areas, where lower initial utilization is anticipated, alleviating some private sector concern about longer payback periods.
- ODOT is having similar discussions with state agencies regarding developing DCFC stations with onsite solar and storage to increase resiliency. For example, the DEQ's CFP (mentioned above) provides additional incentives for fueling EV charging with renewable energy. The Oregon Department of Energy is exploring opportunities to increase resiliency. Other sources of Federal funding via the IIJA or Federal competitive grants may offer additional opportunities to leverage NEVI funding to incorporate solar and other resiliency options. ODOT will continue to collaborate with its partner agencies to ensure the best use of NEVI funding.
- State utility programs may also create additional opportunities to leverage investments, particularly in underserved areas, due to Oregon laws prioritizing 50% of a specific new funding stream for transportation electrification (by investor-owned utilities) to be focused on disadvantaged communities.

ODOT is actively meeting with investor-owned utilities, discussing potential leveraging opportunities for communication, education, and outreach, as well as siting of stations and ways to benefit from utility programs.

- ODOT will work with private sector partners to explore anticipated demand at different potential DCFC sites and EVSPs may consider the use of existing and forecast traffic data, potential EV adoption rates, and other supporting information. ODOT will explore dedicating a portion of NEVI funding to operations and maintenance support, particularly for stations located where relatively low demand is anticipated in the near term.

## Contracting Strategy

In 2003, the Oregon Legislative Assembly granted ODOT the authority to form public-private partnerships (P3)<sup>3</sup> to maximize innovation in project design, financing, or delivery of transportation projects. Under the oversight of the Oregon Transportation Commission, ODOT has broad authority to use the Oregon Innovative Partnerships Program (OIPP) to develop P3s for a full range of transportation projects.

Over the past 19 years, ODOT has used this program to advance innovative projects, including the West Coast Electric Highway (WCEH, 2010), an extensive network of public DCFC and Level 2 EVSE charging stations along the West Coast from British Columbia to the California-Mexico border. Additional OIPP examples include the nation's first Road Use Charge pilot (2015) successfully launched as a sustainable alternative to the gas tax, and the nation's first system-wide Connected Vehicle Ecosystem (2018), which is now in its pre-pilot phase.

OIPP procurements offer many benefits over traditional contracting, including the ability to select projects based on best value rather than lowest cost, customize RFPs to meet the needs of a particular project, and maximize flexibility to change agreements so they accommodate unanticipated events.

To capitalize on the benefits offered by OIPP, ODOT plans to enter a P3 with a selected EVSP(s) to both develop and operate DCFC stations funded through NEVI. ODOT's Climate Office will lead this effort with significant collaboration from the Office of Innovative Funding, building on experience deploying DCFC for the WCEH. ODOT is pursuing a Design-Build P3 approach and has received approval from FHWA Division Office for a Special Experimental Program – No. 14 Exemption, to better utilize state programs and procedures in NEVI contracting. ODOT's Design-Build P3 approach incorporates a two-step Request for Qualifications (RFQ) – Request for Proposals (RFP) process. ODOT issued its RFQ process in June 2023, with responses due July 6, 2023. ODOT's FY 2022 RFPs for NEVI corridor development are expected to be issued later in 2023.

Additional contracting strategies include:

- Exploring options for developing competitive RFPs; how best to incentivize investment in rural and disadvantaged communities; and inclusion of 110V outlets for electric micro-mobility devices such as e-bikes and e-scooters.
- Highlighting the financial value of Oregon's CFP and other benefits that accrue to EVSPs from investments in Oregon.

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<sup>3</sup> Oregon Revised Statutes, ORS 376.8005–367.824; Oregon Administrative Rules, OAR 731-040-0005 – OAR 731-070-0300.

- Initially awarding NEVI program funding to private EVSP partners through an annual, competitive bidding process that preserves ODOT’s flexibility to change vendors and/or update contractual requirements for subsequent program years over the course of the program.
- Developing a strategy that will encourage EVSPs to consider not only building new DCFC stations but also upgrading existing, non-NEVI-compliant sites where it is cost-effective and strategic to do so.

The annual public-private partnership option was chosen for ODOT’s initial contracting efforts, to ensure build out of entire corridors (or segments of corridors) without the risk of EVSPs “cherry picking” stations most attractive to the private sector for development; maximize ODOT’s flexibility and control over project details; drive consistency in station development; and streamline the deployment process. ODOT will re-examine processes after evaluating the results in the first year(s) RFPs and initial investments, learnings from other states, and other factors which may influence the direction of its contracting and/or deployment strategy.

## Design Considerations

Contracted EVSPs will be required to develop stations that incorporate specific NEVI guidance, the minimum standards rulemaking requirements, and Oregon’s EV charging goals (articulated above). Examples of requirements and Oregon encouragements are likely to include:

- **Future-proofing** of sites (where feasible) by including conduit, wiring and/or other make-ready components. Oregon aims to include in each NEVI station future-proofing that allows for a minimum of two additional higher-powered ports (> 150 kW, up to 350 kW).
- **Bi-directional interoperability:** networking of chargers and compliance with NEVI-required Open Charge Point Protocol (OCPP) (or more recent); capability to switch networks without technological, contractual or other unreasonable restrictions, in accordance with NEVI guidance, and ISO 15118 Plug and Charge standards.
- **Roaming and network flexibility:** compliance with NEVI-required Open Charge Point Interface (OCPI) to enable universal roaming, in accordance with NEVI guidance via the proposed rulemaking.
- **Vehicle to grid integration:** use of OpenADR version 2.0 (or similar mechanisms) to enable participation in utility managed charging and similar programs.
- **Combined Charging Standard (CCS) ports (at a minimum), with consideration given to selective inclusion of CHAdeMO or NACS ports** at sites to ensure that both new and existing EV drivers of all vehicle models benefit from NEVI funds.
- **Remote start capability.**
- **Incentives to promote the inclusion of 110V outlets for electric service on site** and serve electric micro-mobility, such as e-scooters and e-bikes and wheelchairs.
- **Selective encouragement/requirement of pull-through site designs,** where feasible and appropriate, to better enable access for certain types of vehicles.
- **Use of U.S.-made EVSE and other equipment, where possible (see discussion in Implementation chapter)**
- **Close proximity to numerous amenities,** where possible, such as modern, sanitary bathroom facilities, access to drinking water, shelter, lighting, snack food, dining, shopping, and/or entertainment and recreation options. ODOT plans to encourage superior amenities through its scoring criteria and award of points, as part of the P3 RFP.

For additional detail on numerous development and design considerations likely to be included in RFPs for EVSP partners, please see the Technical Specifications included as part of the WCEH upgrade RFP, issued by

ODOT in 2020 (included here as [Appendix D: Technical Specs and Requirements for Operations, West Coast Electric Highway Upgrade RFP](#)).

In the interest of interstate connectivity and consistency in charging experience, ODOT is also actively considering other neighboring states' plans and standards as well as NEVI guidance that stations be situated no further than 25 miles from the border or terminus, to better synchronize interoperability in the region and connectivity among our EV AFCs. ODOT collaborates through the Pacific Coast Collaborative's ZEV Infrastructure Working Group, American Association of State Highway and Transportation Officials (AASHTO) EV working groups, and independent conversations with colleagues in neighboring states.

## Involvement of Local Communities and Businesses

EVSP contracts will encourage public engagement, in collaboration with ODOT, to ensure that the perspective of communities and local businesses are considered when DCFC stations are developed or upgraded. ODOT plans to conduct community meetings along each Corridor as it approaches each year's AFC build out. The findings and the relationships developed in these workshops (along with the site-host volunteers identified through ODOT's NEVI interactive web page) will help form the basis of engagement that the selected EVSP will continue. ODOT will work with selected EVSPs to incorporate the state's goals for engagement into the process. ODOT's expectations include that the selected EVSP:

- Host public meetings to both share program plans and listen to local concerns.
- Focus attention to support economic development efforts, such as the use of local contractors for certain site development services, where possible.
- Engage with communities regarding options for achieving Justice40 goals.

Engagement activities with these communities are discussed further in the **Public Engagement** chapter.

## Updated Key Milestones for FY 2022 – FY 2024 Funding

The following Gantt chart describes ODOT's updated timeline for FY 2022 and FY 2023 funding and the anticipated timeline for the FY 2024 funding, including development of the State Plan, public engagement and the contractor solicitation and selection process.

Several key milestones to highlight include:

- August 1<sup>st</sup>: Oregon's NEVI State Plan due to JOET/ FHWA.
- September 30<sup>th</sup>: Anticipated date of JOET/FHWA approval of Oregon's State Plan.
- Fall 2023: ODOT issuance of RFPs for FY 2022 corridors (I-5, I-205, and US 97).
- Winter 2023/24: ODOT selection of FY 2022 partner(s) and negotiation of contracts.
- Early - Mid 2024: Initiation of FY 2022 charging station build out.
- Summer 2024: ODOT issuance of RFPs for FY 2023 corridors (I-84, I-82 and US 20).
- Fall 2024: ODOT selection of FY 2023 partner(s) and negotiation of contracts.
- Fall 2024/Winter 2024/25: Initiation of FY23 charging station build out.
- Late Fall /Winter 2024/25: ODOT issuance of RFPs for FY 2024 corridors (US 101, US 26, I-405).
- Winter/Spring 2025: ODOT selection of FY 2024 partner(s) and negotiation of contracts.
- Spring /Summer 2025: Initiation of FY 2024 charging station build out.
- Ongoing: community meetings along Alternative Fuel Corridors prior to build out.



On July 3, 2023, FHWA Associate Administrator for Infrastructure Hari Kalla issued a memo re: Electric Vehicle Charging Infrastructure Procurement Methods under Special Experimental Project No. 14 (SEP-14). After internal ODOT review and discussion with our FHWA Division Office, it was determined that pursuit of the SEP-14 Exemption would add flexibility to ODOTs proposed contracting strategy and use of our state-authorized Oregon Innovative Partnerships Program to implement the NEVI program. On July 18, 2023, ODOT submitted its SEP-14 Exemption proposal to our FHWA Division Office to use state procurement policies and procedures to deliver the National Electric Vehicle Infrastructure (NEVI) program. ODOT's SEP-14 Exemption proposal was approved by FHWA Division Office on July 24, 2023.

## Awarded Contracts

As of August 1, 2023, ODOT has not awarded any contracts for the development of DCFC stations funded by the NEVI program. As highlighted above, ODOT is currently reviewing qualifications submitted in response to our Request for Qualifications under our two-step Design-Build P3 contracting process, and will soon publish three RFPs, one each for the three EV Alternative Fuel Corridors using FY 2022 NEVI funding. ODOT anticipates that by early 2024, it will have awarded three contracts for the development of NEVI DCFC stations along US 97, I-205, and I-5 South of Eugene.

## Scoring Methodologies Used

The Oregon Department of Transportation has a long history of implementing successful EV charging programs. The West Coast Electric Highway (WCEH) is an extensive network of public electric vehicle DC and Level 2 charging stations along the West Coast from British Columbia to the California-Mexico border. ODOT will replicate its successful rollout of the WCEH project and again use the OIPP P3 program to develop eleven individual RFPs, one for each existing EV AFC, under the NEVI program.

ODOT has experience in designing RFPs and in scoring proposals for the development of DCFC stations. For the WCEH, ODOT developed a point scoring methodology that consisted of five main categories with several subcategories. The five main categories for the WCEH RFP were:

1. Understanding Of Requested Services
2. Project Team, Qualifications, & Ability to Meet Schedule
3. Meeting Technical Specifications for DCFC and Level 2 EVSE and Requirements for Operation
4. Added Value
5. Cost Proposal

ODOT diligently evaluated all proposals for the WCEH project and successfully partnered with an EVSP for the development of 44 DCFC and Level 2 charging stations in Oregon, all of which have since been upgraded and remain in use by EV drivers throughout the State of Oregon today.

On June 2<sup>nd</sup>, 2023, ODOT released its RFQ, the first step of its two-step contracting process. The RFQ closed on July 6<sup>th</sup>, 2023, and ODOT is currently evaluating each proposal on merit to prequalify vendors who will then be enabled to participate in the broader RFP process. Proposers to the RFQ will be evaluated against the following categories:

1. Introduction Letter
2. Qualifications

3. Experience
4. Financial Structure and Capacity

Once ODOT has identified a set of qualified potential partners, these partners will then be invited to participate in the RFP process. As of the writing of the FY 2024 NEVI State Plan Update, ODOT is still finalizing its scoring methodology for FY 2022 corridors.

An overview of ODOT’s tentatively planned Scoring Methodology is provided below:

- Each Proposal meeting all responsiveness requirements will be independently evaluated by members of an Evaluation Panel.
- Evaluators will assign a score for each evaluation criterion (preliminary criterion listed below), up to the maximum points available listed for each scored item.
- ODOT’s Procurement single point of contact for the RFP may request further clarification to assist the Evaluation Panel in gaining additional understanding of a Proposal. A response to a clarification request must be to clarify or explain portions of the Proposal and may not contain new information not included in the original Proposal.
- Proposal scoring will be based on criteria for each section outlined below. The proposer will be asked to describe how they meet the requirements that are specified in the RFP as related to the scoring criteria.
- A minimum Match Share of cash/in-kind in the amount of 20% of the Total Allowable Project Cost is required for this project per NEVI requirements.
- The Evaluation Scoring Criteria will include the following categories:
  - Understanding of Requested Services
  - Project Team Qualifications and Ability to Meet Schedule
  - Meeting Technical Specifications and Requirements for Operations of NEVI DCFC chargers and stations
  - Added Value (including supplemental cash and in-kind contributions)
  - Cost Proposal

ODOT will utilize its experience from the successful development (and upgrade) of the WCEH when refining its point scoring methodology for each RFP associated with the NEVI program. The scoring methodology for each RFP may vary slightly to enable ODOT to incorporate feedback it received during stakeholder engagement efforts along individual corridors, plus additional aspects of NEVI stations that ODOT seeks to encourage along each corridor. Once completed, ODOT could submit an addendum to this updated NEVI state plan for FY 2024 outlining its point scoring methodology for FY 2022 corridors., if desired.

## Plan for Compliance with Federal Requirements

The Oregon Department of Transportation is responsible for ensuring that all newly constructed or upgraded charging stations funded through the NEVI program comply with Title 23 U.S.C., 23 CFR 680 (National Electric Vehicle Infrastructure Standards and Requirements), and all applicable requirements under 2 CFR 200. ODOT will utilize the “Contract Provisions for Federal-aid Construction and Service Contracts Required by FHWA or Other Agencies” checklist provided by our FHWA Division Office to ensure requirements are noted in the Request for Proposals and P3 contracts, which are then reviewed by our FHWA Division Office and reviewed and approved by the Oregon Department of Justice for legal sufficiency, to establish the basis for compliance with Title 23 regulations.

To ensure that the contracted EVSP complies with all requirements under Title 23 CFR 680, ODOT has created an Exhibit to the RFP detailing the technical specifications and requirements for operation for NEVI- funded DCFC infrastructure. This checklist also includes all requirements specific to Oregon, and the proposer will be asked to address all elements of the checklist upon submission of their proposal. As outlined in the section above, a vendor’s ability to meet the required technical specifications and requirements of operation was the most highly valued category considered when scoring WCEH proposals. ODOT will diligently vet all proposals to ensure compliance with federal requirements in the proposals and establish plans through its P3 contracts (currently under development) to monitor compliance throughout the five-year period of performance for NEVI infrastructure projects.

On July 24th, ODOT’s SEP-14 exemption proposal was approved by the FHWA Division Office. ODOT will work with FHWA Division Office to ensure compliance with Federal requirements, within the contracting framework that the SEP-14 Exemption provisions allow.



# Existing and Future Conditions Analysis

## Overview of Existing and Future Conditions

Oregon has varied terrain, climate, population density, and associated transportation patterns. This chapter highlights key areas relevant to the NEVI program. Specifically, the following sections discuss Oregon's highway network and electric AFCs; the state's geography, terrain, and climate; land use patterns; travel patterns, public transportation needs, and freight considerations; electric utility companies; and current EV adoption. Additional information and analyses are provided in [Appendix B: Stakeholder Survey Results](#).

## Oregon's Highway Network and Electric Alternative Fuel Corridor Designations

Oregon's highway network is composed of Interstates, Principal Arterials, Minor Arterials, Collectors, and Local Roads, per Federal highway designations.<sup>4</sup> Collectively these routes provide convenient access to most areas of the state.

The FHWA has established a National Alternative Fuels Corridor program to create a national network of highways that support electric vehicle charging, as well as hydrogen, propane, and natural gas fueling. Funding for DCFC stations to support electric AFCs will be largely administered through the NEVI formula program, as well as through the Charging and Fueling Infrastructure competitive grant program (Section 11401 Grants for Charging and Fueling Infrastructure) that was established in 2023. A NEVI-creditable Electric Alternative Fuel Corridor will have EV charging infrastructure installed every 50 miles along the corridor, located within 1 travel mile of the highway.

In Oregon, there are eleven highways designated as Electric Alternative Fuel Corridors through FHWA's AFC Rounds 1 - 6, seven that run north-south and four that run east-west. ODOT did not propose additional highways as part of FHWA's most recent Round 7 nomination cycle (2023).

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<sup>4</sup> Interstates are high-speed, multi-lane, limited access highways that are designed for long-distance travel. Principal Arterials are highways that connect cities across the state, including US Highways and Oregon State Highways. Minor Arterials, Collectors, and Local Roads are roadways that connect smaller population centers, support intracity travel, and provide access to destinations.

The following table describes many of the primary highways in Oregon, including Electric AFC designation status.

Table 1: Oregon’s Highway Network: Interstates and Principal Arterials

Highway	Electric Alternative Fuel Corridor	Description
<b>Interstates</b>		
I-5	Current	Sole NS interstate, connects CA and WA; heavily travelled corridor by light duty and freight vehicles; a large portion of Oregon’s population lives along the corridor
I-84	Current	Sole EW interstate, parallels the Columbia River from Portland to ID border
I-82	Current	Connects I-84 to Washington, in eastern Oregon
I-205	Current	Loop freeway around Portland through the eastern portion of the Portland metropolitan area traversing disadvantaged communities; connects to WA
I-405	Current	Western portion of the freeway loop formed with I-5 around the Portland City Center
I-105		Short freeway connects downtown Eugene to I-5
<b>Principal Arterials (examples, not exhaustive)</b>		
<i>North-South US Highways</i>		
US 101	Current	NS highway along the Oregon Coast; provides the sole regional connection to many small towns and tourist destinations along the coast; connects CA and WA
US 97	Current	NS highway through central Oregon, paralleling the I-5 corridor, but on the east side of the Cascade Mountain range; connects CA and WA
US 95	Current	Route in SE corner of the state, connects McDermitt (Nevada border) to Jordan Valley (near ID border)
US 199		Route in SW corner of Oregon, crosses the Coastal Mountain Range to connect US 101 and coastal areas (Crescent City, CA) to the I-5 corridor (Grants Pass, OR)
US 395		NS highway through eastern Oregon
US 197		NS highway branching off from US 97 north of Madras, paralleling US 97 but offering a more direct connection to The Dalles and I-84 west of The Dalles
<i>East-West US Highways</i>		
US 26	Current	EW highway across Oregon; connects the Oregon Coast to the Portland metropolitan area and Bend; traverses eastward to Idaho
US 20	Current	EW highway across Oregon; connects the Oregon Coast to Massachusetts, traversing the Corvallis/Albany area and Bend, in Oregon; provides a less mountainous connection between Central Oregon and Idaho compared to US 26
US 30		EW highway follows the Columbia River between Astoria (Oregon Coast) and Portland, parallel to the US 26 corridor; disparate segments signed as US 30 provide alternate routes to I-84 in a few locations
<i>Intercity Oregon Highways</i>		
OR 42	Current	EW highway connects Winston and greater Roseburg area to Southport and greater Coos Bay area (US 101 and I-5, both EV Alternative Fuel Corridors)
OR 126		EW highway parallels US 20, to the south, across the Coastal Range before intersecting with US 20 in the Cascade Range
OR 22		EW highway parallels US 20, to the north, across the Coastal Range before intersecting with US 20 in the Cascade Range
OR 217		NS highway through the western suburbs of the Portland metropolitan area that connects between I-5 and US 26
OR 99		NS highway that parallels the I-5 corridor intermittently throughout the state; splits into OR 99W and OR 99E north of Eugene both of which connect many communities along the I-5 corridor

The first map below shows the U.S. and State highway classification system across Oregon, while the second highlights Electric Alternative Fuel Corridors.

Figure 14: Highway Designations

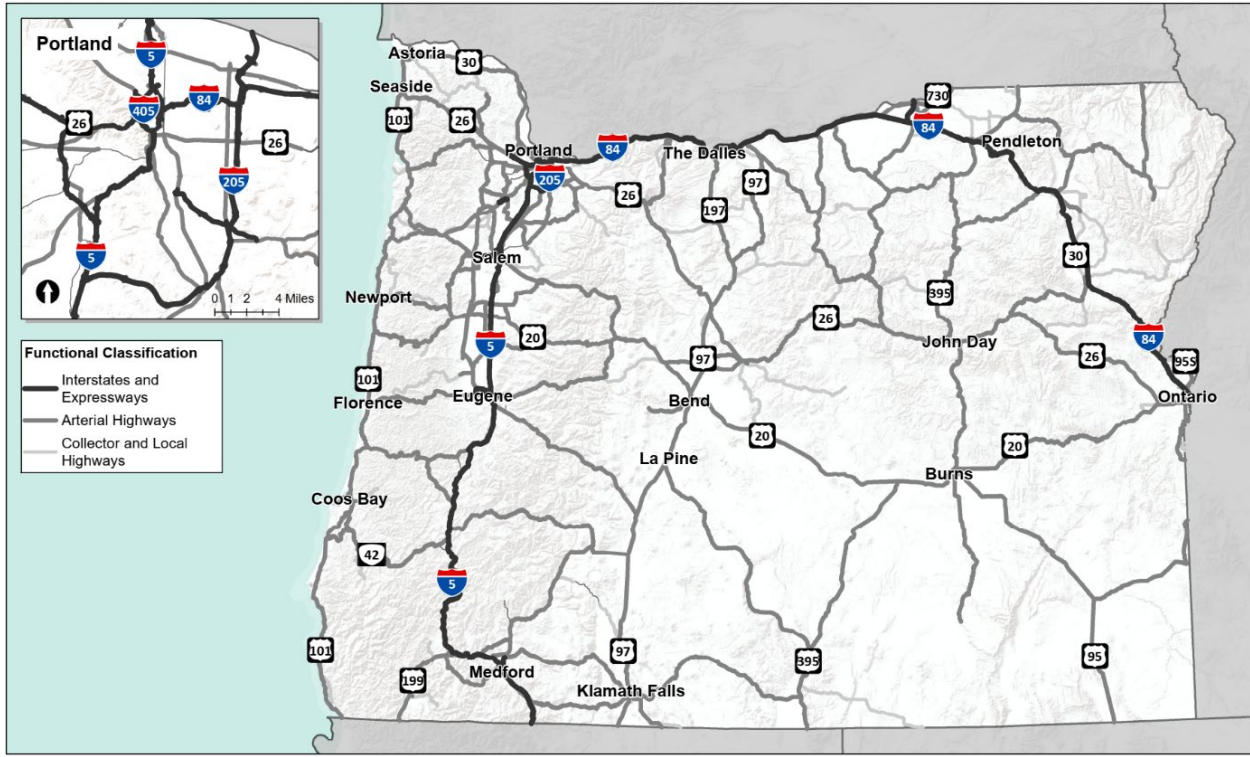
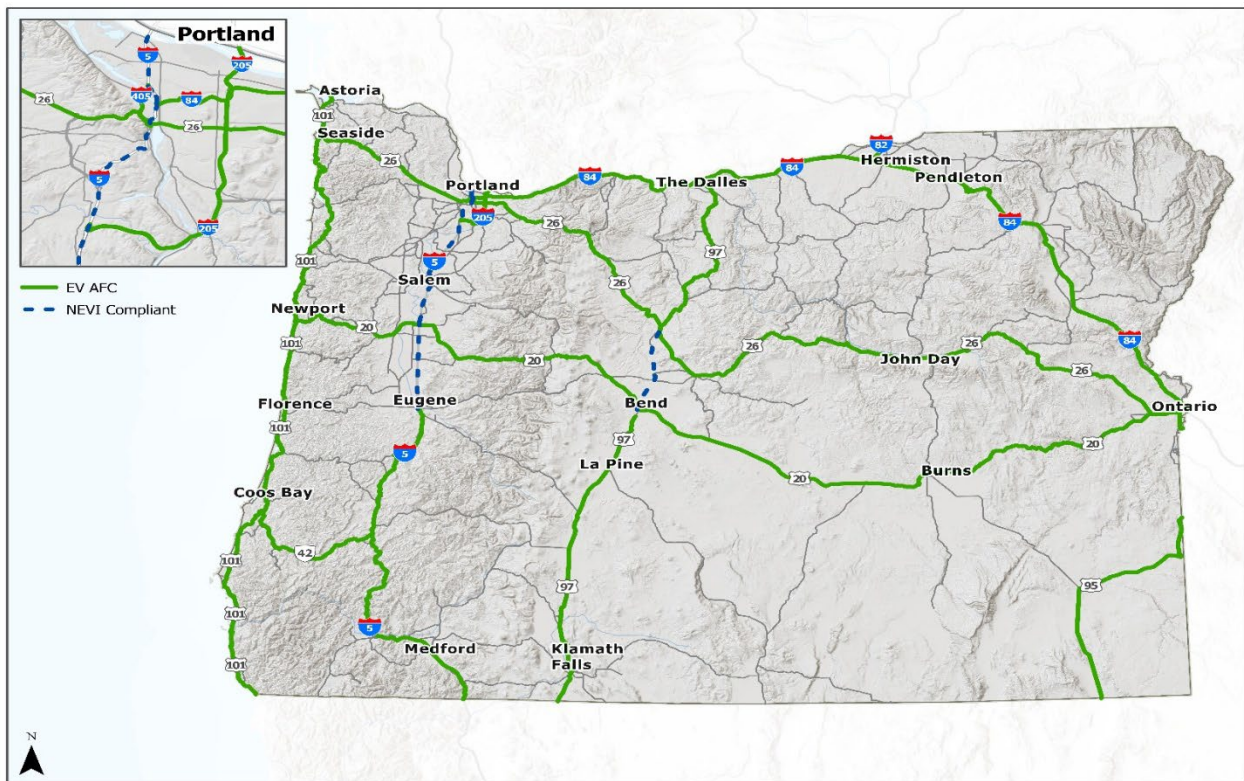


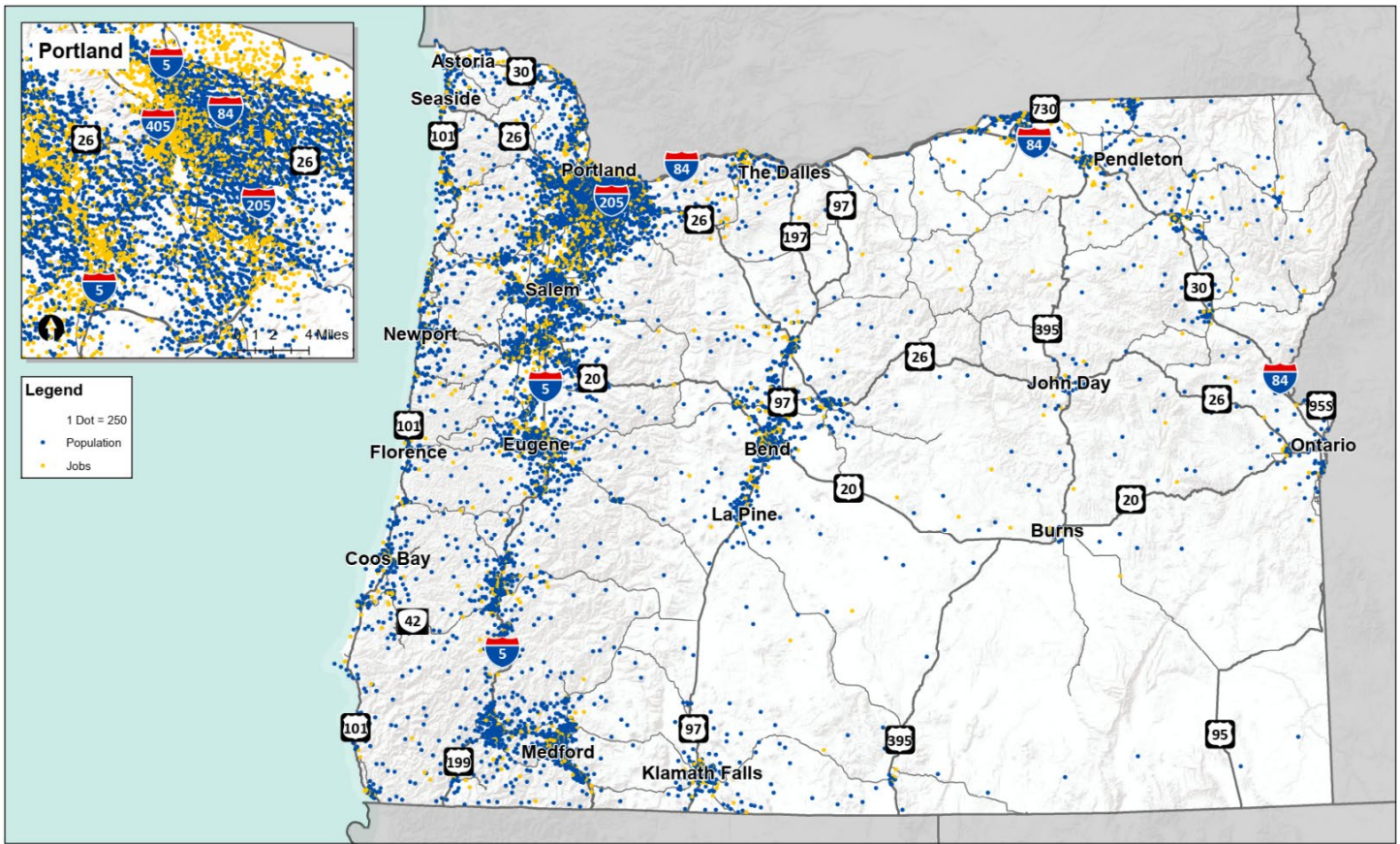
Figure 15: Current EV Alternative Fuel Corridors



# Land Use Patterns

Oregon’s population is primarily located in the Willamette Lowland along the I-5 corridor and the Willamette River. Major metropolitan areas along the corridor include Medford, Eugene, Salem, and Portland. The distribution of population and employment across the state is shown in Figure 15 below. Commercial and industrial land use patterns largely mirror this population density, with the largest concentrations in the Portland area and along the I-5 corridor. [Appendix E: Additional Supporting Analysis](#) provides additional maps of these land use patterns.

Figure 16: Oregon Population and Employment Distribution



## State Geography, Terrain, and Climate

Oregon is a diverse state with varying geography, terrain, and climate. When planning for NEVI-funded stations, ODOT will consider local and regional conditions to ensure that stations are deployed with local needs and challenges in mind, such as steep roadways or extreme temperatures, both of which can reduce the EV efficiency.

Oregon’s geography of the state is defined by six major regions. The Cascade Mountains run north to south through the state and include Mount Hood, Oregon’s highest point. East of the Cascade Mountains Oregon is divided into the Columbia Plateau and the Basin and Range Region. Eastern Oregon is more arid than the western portion of the state. West of the Cascade Mountains Oregon is divided into the Coast Range, Willamette Lowland, and Klamath Mountains. The Willamette Lowland is a narrow area where many

Oregonians live. The Coast Range separates the Willamette Lowland from the Pacific Ocean. The Klamath Mountains are a rugged forested range in the southwest of the state.

Roadways traversing the state east to west are likely to cross one or more of these geographies. These steep and high elevation terrains may present additional considerations for EV operation and charging infrastructure.

## Climate

The Western Regional Climate Center (WRCC) is a partnership of State and Federal science, weather, and climate-focused agencies that collects monthly temperature, rainfall, and snowfall data at a wide variety of locations across the western United States. ODOT has used data collected at these sites to assess snowfall and temperature patterns across the state, which will help inform station siting and design considerations.

## Snowfall

The highest snowfall occurs throughout the Cascade Mountains, around Klamath Falls, and in northeast Oregon. [Appendix E: Additional Supporting Analysis](#) shows average January snowfall throughout the state.<sup>5</sup>

Findings related to NEVI planning include:

- Stations located along US 97 are likely to need the most snow removal and management efforts, most notably from Bend to Klamath Falls.
- I-84, US 26, and US 20 may also require some snow removal and management, as they traverse the Cascade Mountains and Eastern Oregon, which tends to have higher levels of snowfall.
- Stations located along I-5 and US 101 are not expected to be commonly impacted by snowfall, with the exception of I-5 around Sexton Summit north of Grants Pass.

## Temperature

Batteries in EVs function less efficiently under very hot or very cold conditions. Temperatures west of the Cascade Mountains tend to be moderate with average low temperatures above freezing and highs in the 80° F range. Temperatures east of the Cascades tend to be more extreme with low temperatures below 20 F and high temperatures above 90° F. The average temperatures of the coldest and hottest months across the state are shown in [Appendix E: Additional Supporting Analysis](#).

Findings related to NEVI planning include:

- I-84, US 26, and US 20 cross the Cascade Mountains and travel across Eastern Oregon, which tends to have more extreme temperatures than other areas.
- US 97 connects La Pine, Chemult, and Klamath Falls, all of which have average low temperatures below 17 degrees F during the coldest month of the year.
- US 101 and I-5 experience relatively moderate temperatures, except for the Sexton Summit area and the Rogue Valley/Medford area of I-5.

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<sup>5</sup> January has the highest average snowfall across all 160 Western Regional Climate Center sites assessed in this analysis and represents the conditions during peak snow removal activity.

## Climate Impact

ODOT completed a corridor risk analysis for climate hazards including coastal erosion, inland flooding, wildfire, hot days, snow days, freeze/thaw conditions, and heavy precipitation. This risk analysis identified the extent to which different highway corridors are impacted by these hazards. ODOT's [Climate Hazard Risk Map](#) allows for exploration of multiple hazard layers, superimposed over highways and other transportation assets. ODOT will consider these climate impacts and associated risks while working with contractors to plan for NEVI station siting, including how EV charging infrastructure can help to prepare corridors and local communities for the effects of a changing climate.

## Road Grade

To identify areas where the intervals between stations might need to be shorter to account for additional energy expended climbing inclines and/or locations where additional ports might be valuable to meet larger energy needs, ODOT has analyzed the slope of different segments of the Electric Alternative Fuel Corridors. ODOT does not expect slope to play a major role in siting EV charging stations for corridors to be developed with FY 2022 or FY 2024 NEVI funding given the relatively mild average slope. [Appendix E: Additional Supporting Analysis](#) provides additional details on this analysis, which may be expanded to explore segments of future year Electric AFCs that might merit additional consideration based on road grade considerations.

# State Travel Patterns, Public Transportation Needs, Freight and Other Supply Chain Needs

## Annual Average Daily Traffic

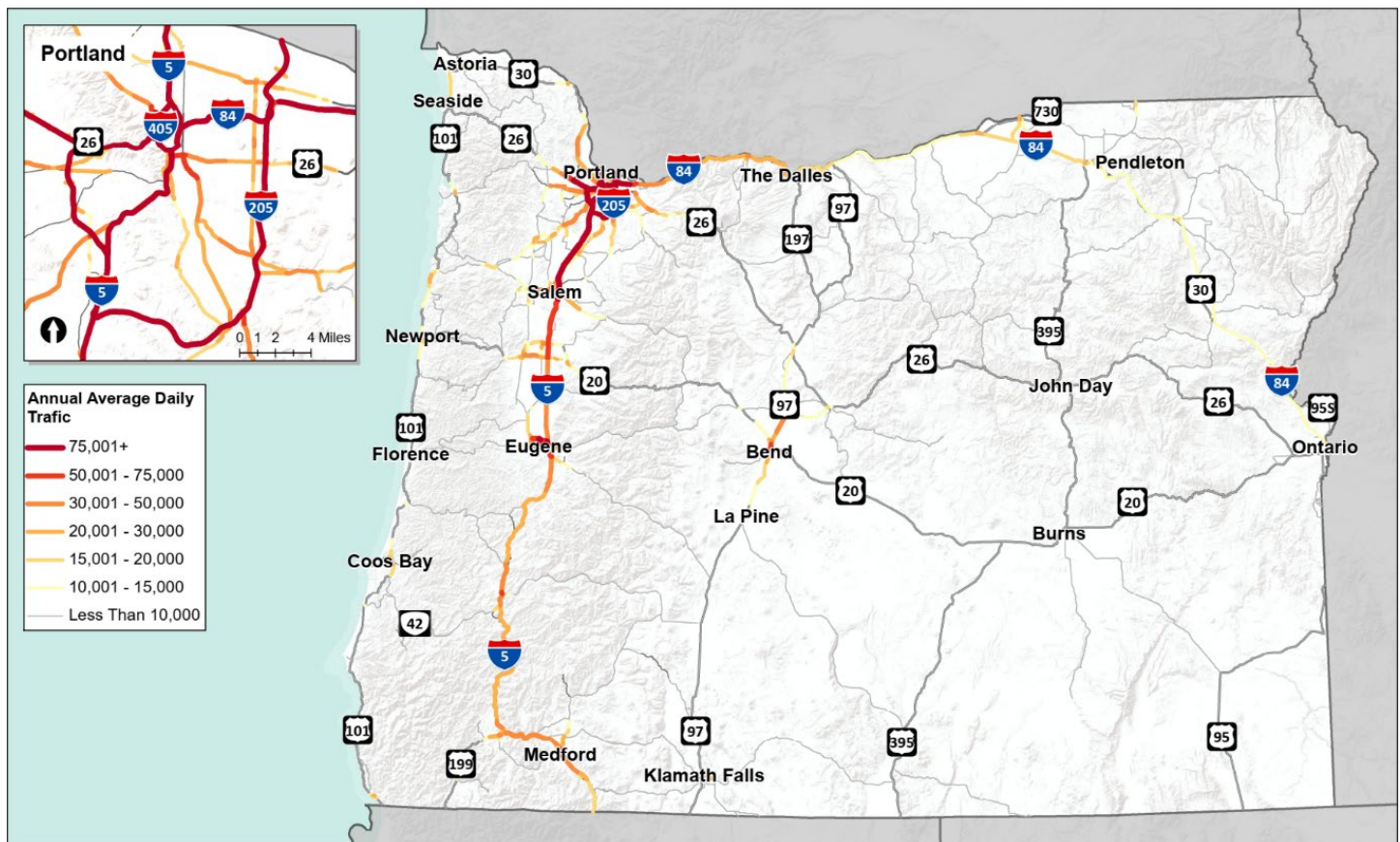
Annual average daily traffic (AADT) measures yearly vehicular traffic along a roadway segment (conveyed as a daily average) and is used to estimate typical traffic levels.

The highest traffic volumes in the state surround the metropolitan areas. The highways with more than 75,000 daily vehicles are primarily located in and around the Portland metropolitan area, with two segments near Eugene. Other highway segments with more than 50,000 daily vehicles are located within Oregon's other largest metropolitan areas, including Salem, Roseburg, Medford, and Bend.

Findings related to NEVI planning include:

- The I-5 corridor has the highest continuous AADT along the length of the corridor.
- I-84 also has a relatively high continuous AADT, although it is considerably smaller than I-5.
- I-205 and I-405 are exclusively in the Portland area and have very high AADT.
- Where AFCs travel through population centers, AADT increases. Of note is the section of US 97 between Bend and Redmond, along which AADT is significantly higher than the rest of the corridor.

Figure 17: Annual Average Daily Traffic



## Heavy Vehicle Volumes

While NEVI funding is primarily focused on light-duty vehicle (LDV) charging, ODOT is considering how best to plan for electrified medium- and heavy-duty vehicles as well as highlighted in the non-LDV use cases analyzed in the 2021 TEINA report: local commercial and industrial vehicles, heavy-duty freight trucks, and both transit and school buses. One way NEVI funding can help address future charging needs of these vehicles is by designing stations to include pull-throughs to accommodate larger vehicles, such as the lighter and/or smaller end of the MD classes. In the Oregon Freight Plan, it is noted that the U.S. EPA estimates that long-duration idling of trucks in the United States consumes more than 1 billion gallons of diesel fuel annually and electrifying truck parking spaces is identified as one of the five types of verified idling reduction technologies.

The Oregon Freight Plan, most recently updated in 2023, defines the I-5, I-84, US 20, and US 97 corridors as strategically significant for major freight dependent industries. About 70% of industry outputs in ton-miles travel along I-5 and I-84. The build out of these corridors with LDV charging over the next several years will help lay the groundwork for the larger capacity charging needs these vehicles are likely to require in the coming years. Additional truck parking is needed along many freight corridors, and it may prove opportune to locate charging in, or close to, truck parking where feasible. [Appendix E: Additional Supporting Analysis](#) includes a map of heavy vehicle AADT by highway segment across the state.

Analysis of heavy vehicle AADT highlights that:

- I-5, I-84, I-405, and I-205 have portions of the corridor with 10,000+ daily heavy vehicle trips.

- In the Portland metropolitan area, there is more heavy vehicle traffic on I-5 than I205. Nearly all of I-5 from Portland south to Roseburg sees 7,500+ daily heavy vehicles, whereas only a small handful of short segments on I-84 between Portland and east toward Boardman meet this threshold.
- I-84 has the highest heavy vehicle AADT of east-west routes across the state.
- US 26, OR 22 in the Santiam River canyon, and OR 58 have the highest heavy vehicle AADT across the Cascade Mountains. East of Bend, there are more heavy vehicles on US 20 than on US 26.
- US 101 has relatively low heavy vehicle AADT.

## Public Transport

There are 64 distinct transit providers in Oregon. These include public and private services, local transit, intercity bus, rail service, trams, and streetcar. Transit service includes intracity and intercity trips. The frequency of intercity routes throughout Oregon is shown in [Appendix E: Additional Supporting Analysis](#). These routes are important regional connections for people living throughout the state.

Findings related to Alternative Fuel Corridors (AFCs):

- Intercity transit routes travel along most of the AFCs.
- The most frequent intercity transit routes travel along the I5 corridor between Eugene and Portland.
- Sections of US 101 are frequently served by intercity transit routes.
- As transit buses electrify in the coming years, charging infrastructure to support these routes will be needed largely in the same areas of high LDV traffic volumes.

[Appendix E: Additional Supporting Analysis](#) includes a map of intercity transit routes and frequency in Oregon.

## Long-distance Trip Estimates

Using ODOT's Statewide Integrated Model (SWIM)<sup>6</sup>, ODOT has estimated the number of long-distance trips (50+ miles) made by LDVs on corridors throughout Oregon.

Findings related to NEVI planning:

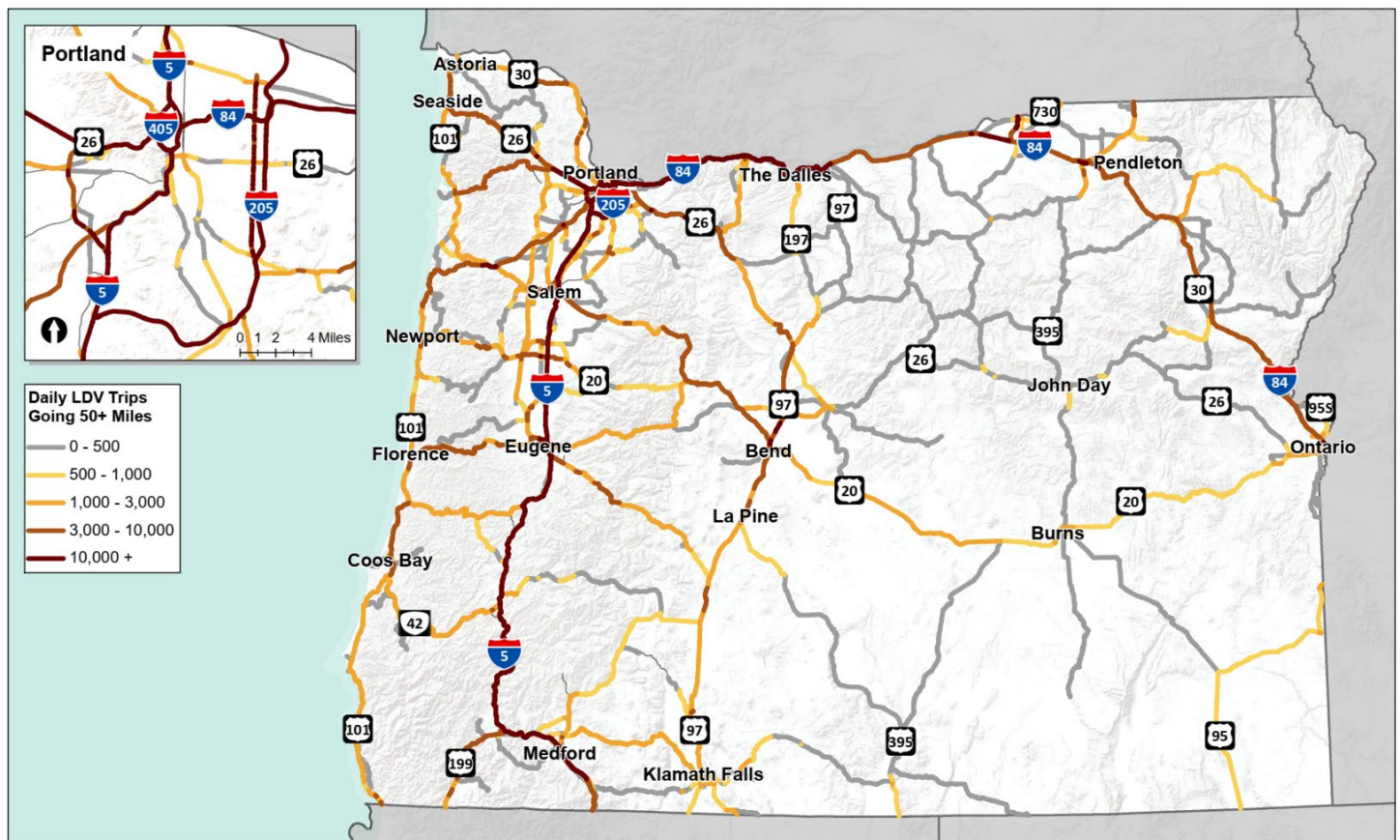
- I5 has the greatest portion of long distance LDV travel in Oregon, representing 40% of statewide long distance vehicle miles traveled (VMT).
- I84 has the second greatest portion of long distance LDV travel in Oregon, with 20% of statewide long distance VMT occurring along the corridor.
- Considering I-82's short corridor length, it has a similar rate of long-distance travel to I-84.
- US 26 west of Bend and US 97 have more long-distance travel along them than US 101 and US 20.
- East of Bend, there is more long-distance travel occurring along US 20 than US 26.

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<sup>6</sup> SWIM is an ODOT data-driven forecast model designed to represent the Oregon economy with respect to land-use and transportation by simulating the activity and market exchanges made by people and businesses. Further technical details on the ODOT SWIM model can be found on the technical wiki here: <https://github.com/tlumip/tlumip/wiki>.



Figure 18: Long Distance Trips

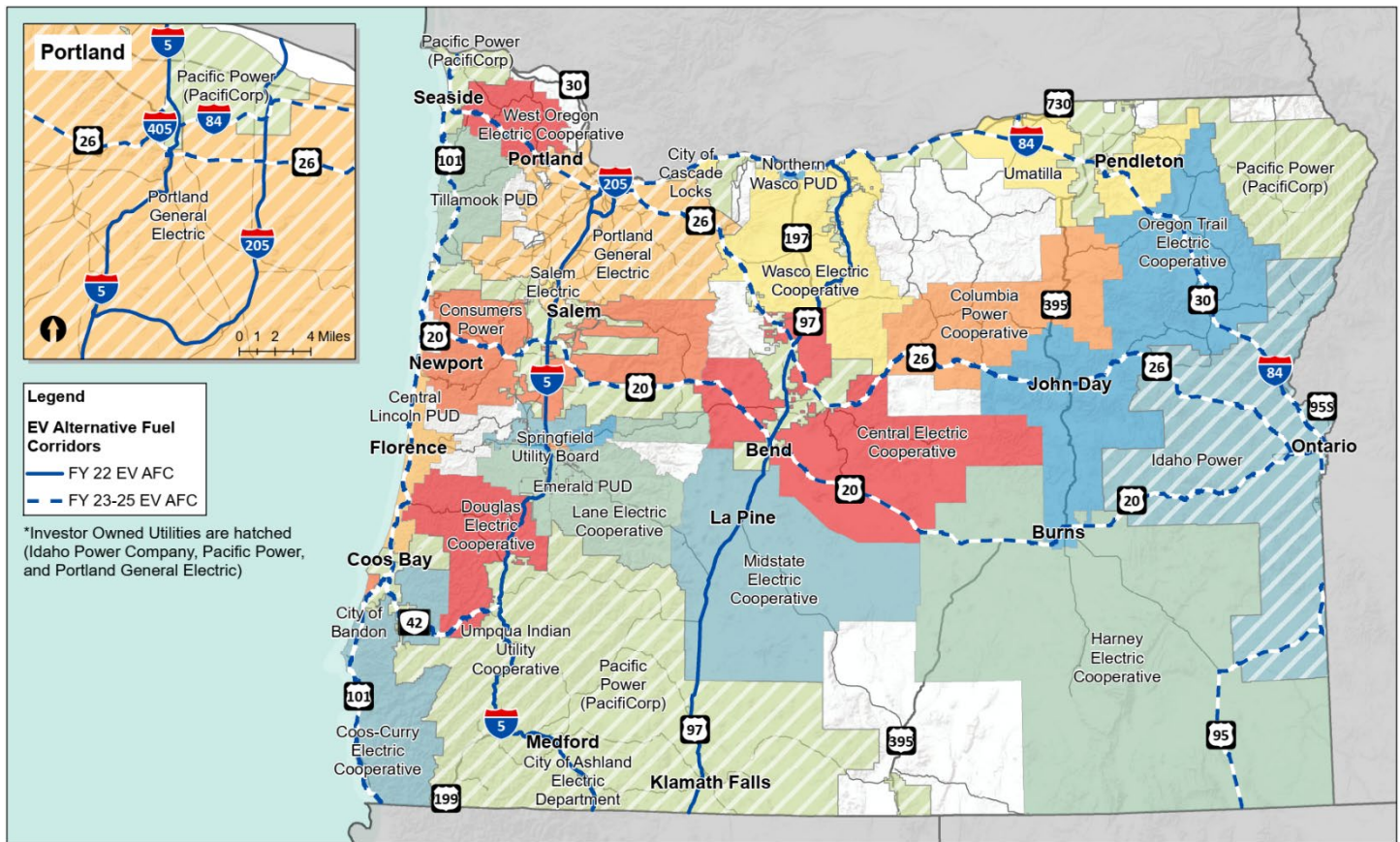


## Electric Utilities

Across Oregon there are three investor-owned and 37 consumer- or publicly owned electric utilities. The following map shows utility service territories along with EV Alternative Fuel Corridors. ODOT is coordinating with many of these utilities, focusing initially on the areas where early year NEVI funding deployment is planned while also beginning conversations with all utilities in the interest of streamlining DCFC deployment across all AFCs, and potentially other roads once these priority corridors are built out.

In May 2022, ODOT issued a request for information to all utilities in Oregon, requesting details on the availability of three-phase power, electrical capacity in their service territories (and specifically along current or nominated electric AFCs), interconnection timelines and staffing plans, and the availability of funding programs to potentially count towards the 20% non-Federal match (see [Appendix C: Utility Request for Information](#)). ODOT has received a strong and generally enthusiastic response, although most utilities have cautioned that supply chain issues and – for some – interconnection timelines will be challenges to overcome when deploying NEVI-funded stations in their service territories.

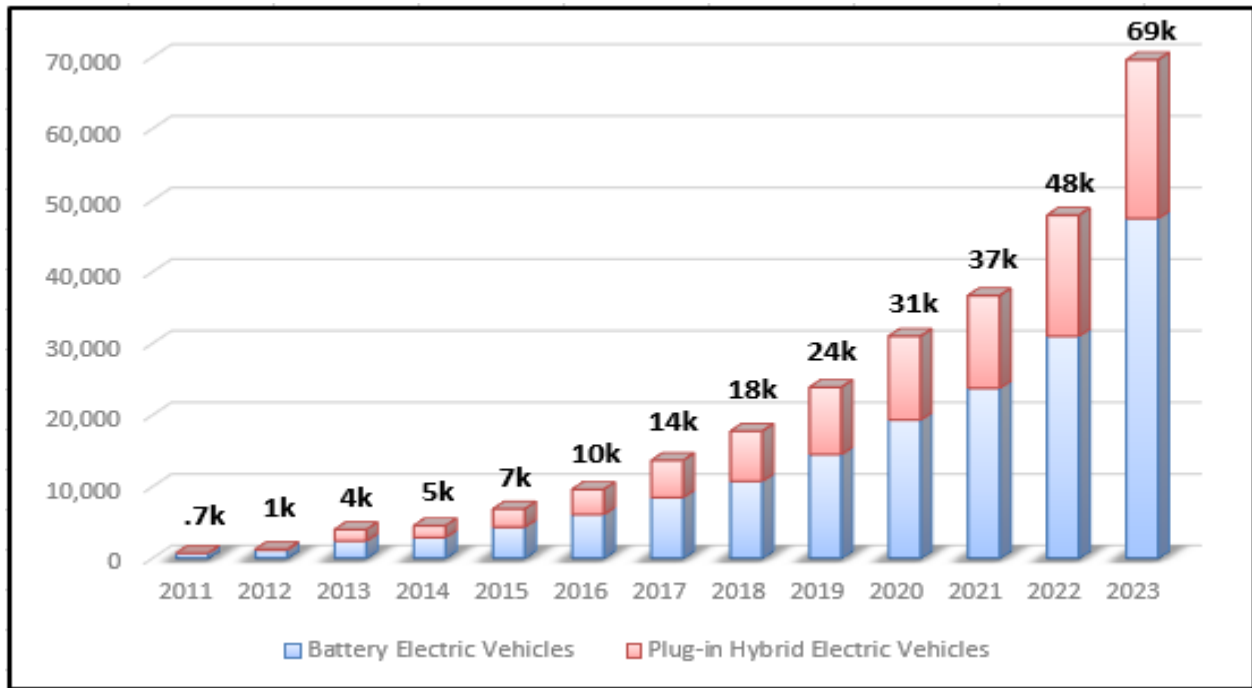
Figure 19: Oregon Electric Utilities



## EV Adoption

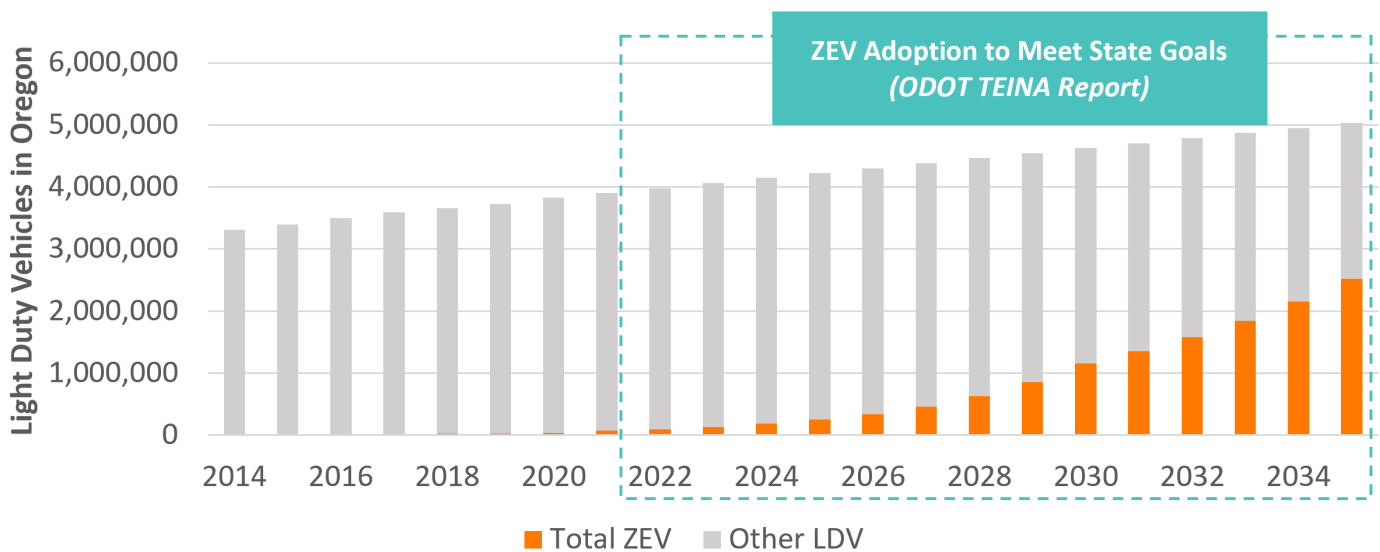
As of April 2023, there were approximately 69,500 ZEVs registered in Oregon, with over 47,000 Battery Electric Vehicles (BEVs) and over 22,000 Plug-in Hybrid Electric Vehicles (PHEVs). Further information on current EV registrations in Oregon can be found through the Oregon Department of Energy (ODO) [EV Dashboard](#). Although this represents just under 2% of the total light duty vehicles registered in Oregon, the state has greater than 10% of new LDV sales that are ZEVs (ZEVs include both BEVs and PHEVs). The historical EV ownership in Oregon is shown in Figure 19.

Figure 20: Annual Light-Duty EV Registrations in Oregon



The State of Oregon has set goals that result in approximately 50% of registered LDVs in the state producing zero tailpipe emissions by 2035. The expected growth in EV ownership required to reach this level of ZEV adoption is shown in Figure 20.

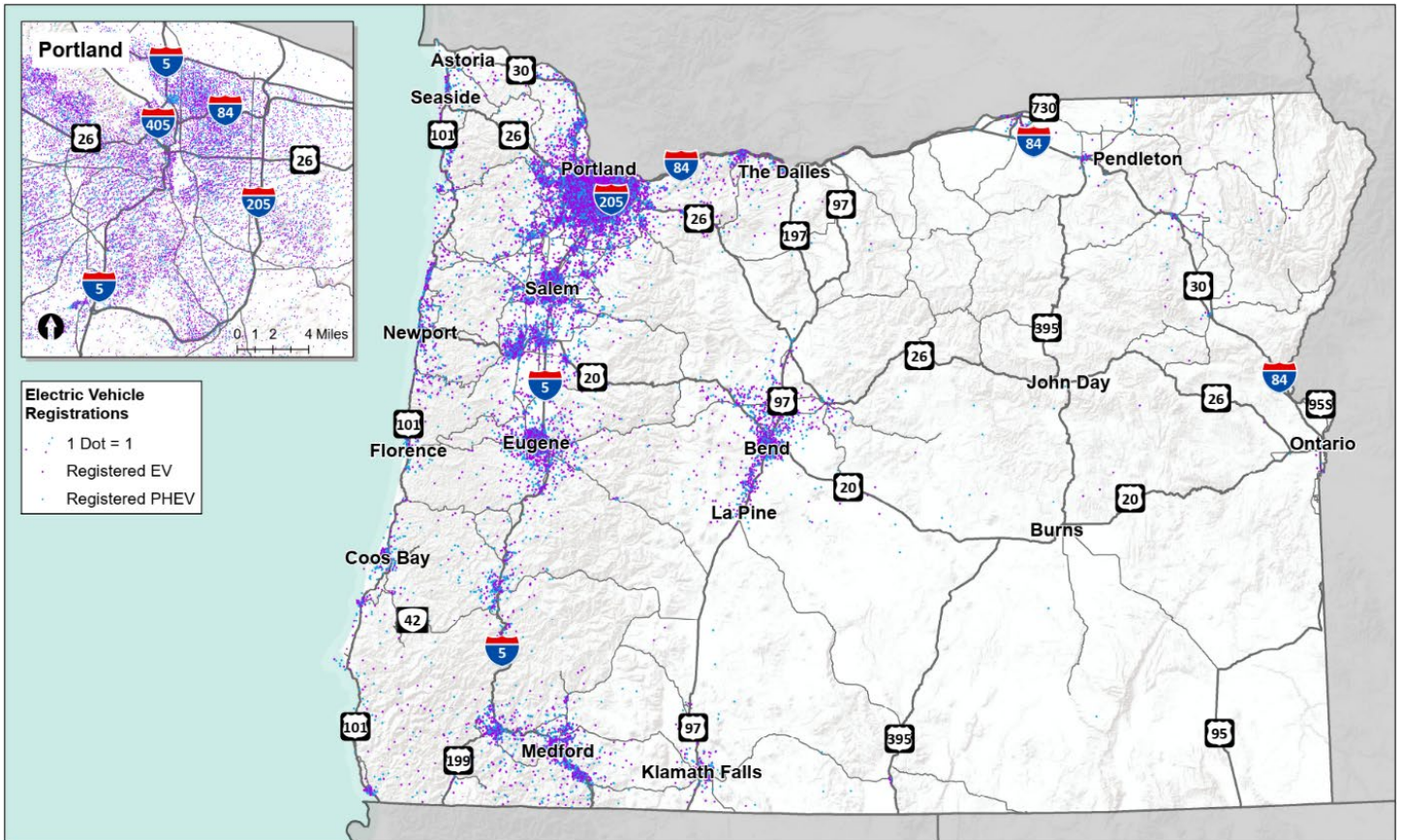
Figure 21: EV Adoption in Oregon Relative to All Light Duty Vehicles



In addition, in December 2022, the Environmental Quality Commission adopted the Advanced Clean Cars II (ACC II) program, requiring that every new light-duty vehicle sold in Oregon be a zero-emission vehicle by 2035.

EV registrations are clustered in population centers. According to ODOE's *Biennial Zero Emission Vehicle Report*, the greatest concentration of registered EVs is in the Portland metropolitan area, although other population centers throughout the state have pockets of concentrated EVs. Rural areas comprise about 30% of the population but only 12% of EV registrations. The distribution of EVs throughout the state is shown in Figure 21.

Figure 22: EV Registrations in Oregon\*

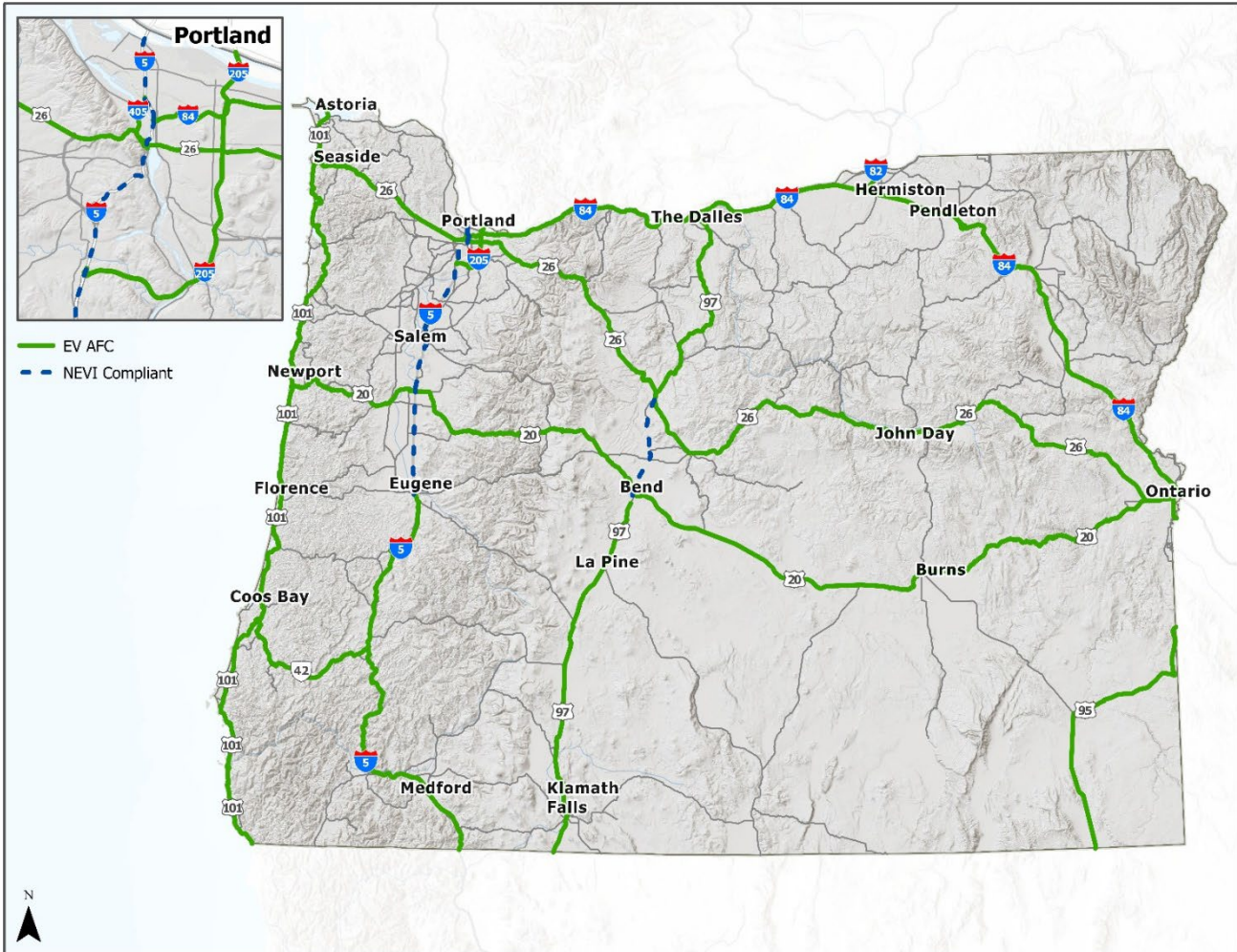


\*For updated data on EV registrations in Oregon, see Figure 19

# AFC - Corridor Networks

The following map shows Oregon’s EV Alternative Fuel Corridors.

Figure 23: Electric Alternative Fuel Corridors by Status



## Existing Locations of Charging Infrastructure Along AFCs

Please see table of existing charging locations along the eleven electric AFCs approved by FHWA in Rounds 1-6 in [Appendix F: Existing Public EV Charging](#) on Round 1-6 Electric Alternative Fuel Corridors.

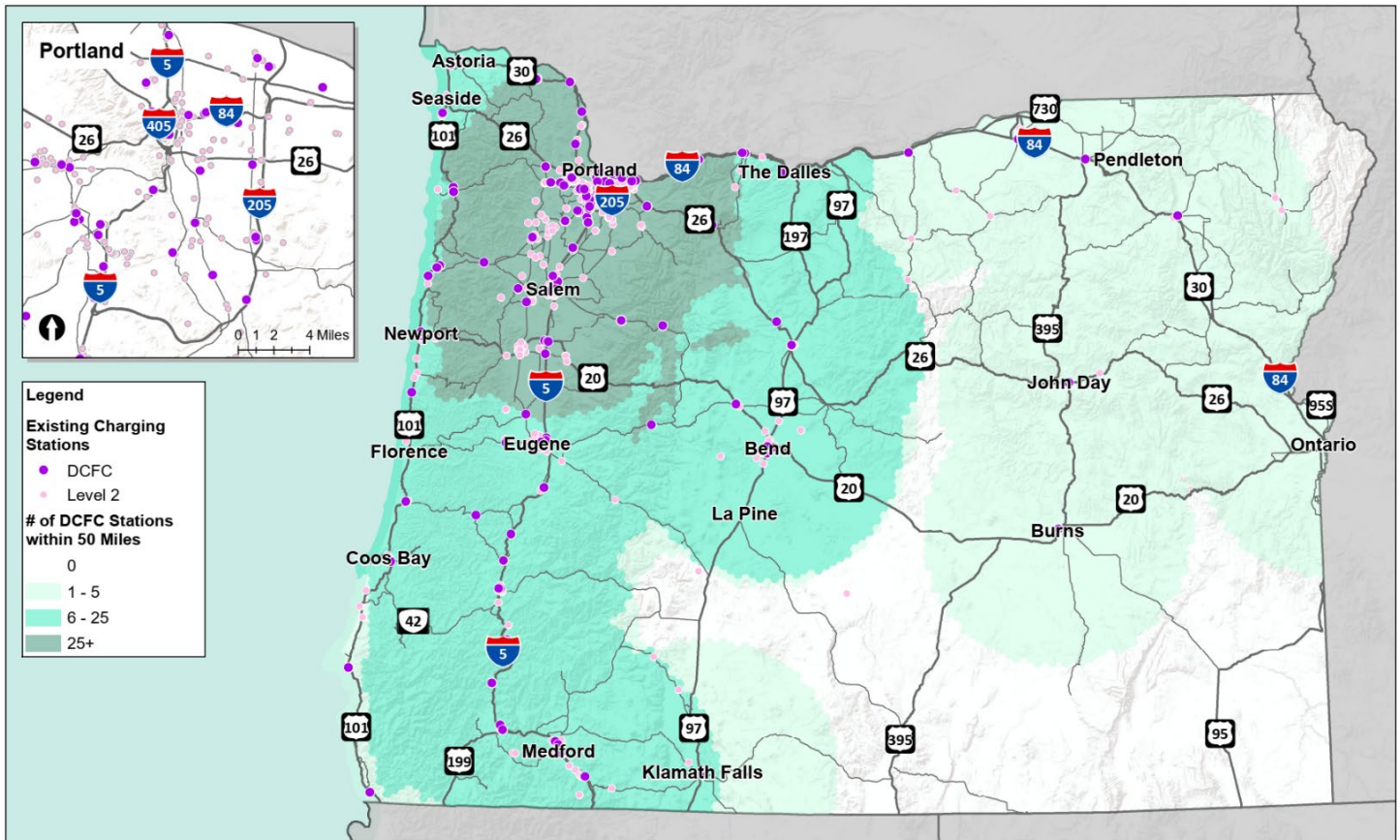
## Existing Distribution of Charging Infrastructure

Oregon currently has EV charging infrastructure throughout the state, although its distribution is not uniform. As highlighted in the 2021 TEINA study, “charging deserts” lacking sufficient infrastructure exist, both along rural corridors and in rural communities as well as in densely populated urban areas.

Oregon has previously worked collaboratively with California, Washington, and private partners to develop the West Coast Electric Highway (WCEH), a network of EV fast charging stations spanning from Mexico to Canada. There are 47 existing WCEH stations in Oregon, the majority of which (35) are along Oregon’s AFCs. A map of the existing charging infrastructure, including WCEH sites, is included in Figure 23 below.

DCFCs are concentrated in the Willamette Valley (along I-5 between Eugene and Portland). There is a relatively high density of fast chargers around Portland, and a moderate density of fast chargers along the southern portion of I-5 and west of US 97. There are a few fast chargers located east of US 97; however, population density in that part of the state is considerably lower.

Figure 24: Existing Public Charging Infrastructure\*



\*See Appendix F for updated data on EV charging stations in Oregon

## Disadvantaged Communities

For discussion of existing conditions relative to equity and disadvantaged communities, please see the **Equity Considerations** chapter.

## Known Risks and Challenges

ODOT perceives numerous challenges to DCFC station deployments and will work with partner agencies and stakeholders such as local communities, utilities, and EVSPs, to mitigate risks and to meet all necessary NEVI program requirements.

## Development Timeline

ODOT believes that it will be challenging to reach DCFC operations within six months of procurement, as encouraged by the NEVI guidance. There are open questions regarding how such a timeline will intersect – and potentially conflict – with National Environmental Policy Act (NEPA) requirements. Local permitting and zoning timelines also pose risks to project development. On the utility side, necessary electrical upgrades and

interconnection processes may also make it challenging to deploy the stations needed on the timelines desired. ODOT is working with utilities to identify locations with excess grid capacity to mitigate this issue.

## Supply Chain

Utilities in Oregon consistently report that supply chain issues are causing unprecedented delays in sourcing components such as transformers, switch gear, and other electrical equipment necessary to support DCFC station developments. ODOT has also heard from EVSPs that meeting the Build America, Buy America (BABA) and related Made in America requirements may not be feasible based on current domestic manufacturing capabilities. Despite these challenges, ODOT will work with utilities, EVSPs, and other stakeholders to ensure that the NEVI plan meets all necessary NEVI program and Title 23 requirements.

## Cost

ODOT has estimated costs for the build out of its Alternative Fuel Corridors. However, each DCFC station developed (or upgraded) will have specific requirements—for example, utility upgrades—which may exceed the level of costs currently being forecasted. This may be especially true given the significant supply chain issues (see above) and inflation. To the extent that costs increase significantly, Oregon will not be able to stretch the NEVI funding as far as it would like to, resulting in fewer stations and/or ports developed throughout the state.

## Workforce Considerations

The NEVI program represents a significant opportunity for workforce development. However, there may be insufficient qualified labor to complete these deployments, especially when considering certification requirements. ODOT is engaged in discussions with utilities and unions regarding the statewide status of local certified workforce and workforce development needs.

## Equity Considerations

ODOT is committed to the equitable deployment of publicly accessible charging infrastructure throughout the state. However, achieving this deployment—and doing so in a way that truly centers the voices of historically disadvantaged and/or underserved communities—requires dedication, resources, and time.

ODOT recognizes that successfully sharing the benefits offered by the NEVI program and avoiding many of the challenges perpetuated by the existing transportation system is no small feat. As described in the **Public Engagement and Equity Considerations** chapters, ODOT has been and will continue engaging with communities from across the state to understand needs and challenges from the local perspective. Existing known disparities in EV adoption include:

- Adoption rates are lower in rural areas of Oregon. Only 12% of ZEVs in the state are registered in rural areas, despite these areas representing a third of Oregon’s population.
- Adoption rates are lower for lower-income families. EV ownership correlates strongly with income level, with significantly lower adoption rates for counties with households averaging under \$45,000 per year.
- Adoption rates are significantly lower for people living in multi-unit dwellings. There are about 7.3 EVs registered per 1,000 Oregonians in census block group areas where less than 50% of dwellings are single family homes. In contrast, there are nearly 20 EVs per 1,000 people in areas where there are only single-family homes.

# EV Charging Infrastructure Deployment

## Overview and Guiding Principles

ODOT's charging infrastructure deployment strategy is based upon several guiding principles that align with the goals articulated in both TEINA and the NEVI program. Through NEVI funding ODOT aims to:

- Achieve **geographic balance** between urban and rural charging needs to develop infrastructure across the entire state.
- Provide charging access in areas with larger **disadvantaged community** (DAC) populations.
- Provide charging for **high-traffic corridors** first, where possible (balanced with other principles).
- **Leverage existing** and/or planned EV charging infrastructure.
- Emphasize **connectivity with neighboring states** to establish an interstate charging network.

Over the course of the five-year NEVI program, ODOT anticipates using the \$65 million in total funding (NEVI and 20% non-Federal match) to develop and/or upgrade approximately 65 DCFC stations across Oregon's roadways, totaling a minimum of 260 DCFC ports (doubling the number of DCFC ports in the state), plus ideally future-proofing for later installation of an additional 130 ports.

## Current Prioritization Strategy

With FY22 funding ODOT aims to build out I-5, completing one of the most critical, high-traffic routes in the state, while also building out US 97, a key route through central Oregon that carries high traffic volumes relative to other rural areas. ODOT will also develop I-205 in the Portland metropolitan area because of its high traffic volumes and route through numerous DACs. ODOT has conducted analysis of approximate station locations along these routes—including sites that may be upgraded—and will work with contracted EVSPs to determine specific sites once the P3 contracts are awarded.

FY23 funding will focus on east-west routes, given that FY22 funding predominantly focuses on north-south routes. I-84 will be built out given its high traffic volumes, relatively large DAC density along the route, and relatively high proportion of long-distance trips. ODOT will build out I-82 simultaneously because of its proximity to I-84, connection to Washington state, and potential for shared infrastructure between the routes. It will also develop US 20 to provide additional rural EV charging coverage through central Oregon. ODOT has begun detailed analyses of these routes to identify approximate station locations considering factors such as population centers, DACs along the route, anticipated electric grid capacity, road grade, and local commercial activity. ODOT will continue to refine planning efforts as we get closer to build out of these corridors, including soliciting additional input from local communities.

FY24 funding will target completing the EV AFCs approved in Rounds 1 – 5, providing additional central Oregon coverage through development of US 26 and bolstering the existing DCFC infrastructure along the coastal US 101. ODOT will balance these more rural corridors by building out I-405 in the Portland metropolitan area, which has high traffic volumes and a relatively large DAC population.

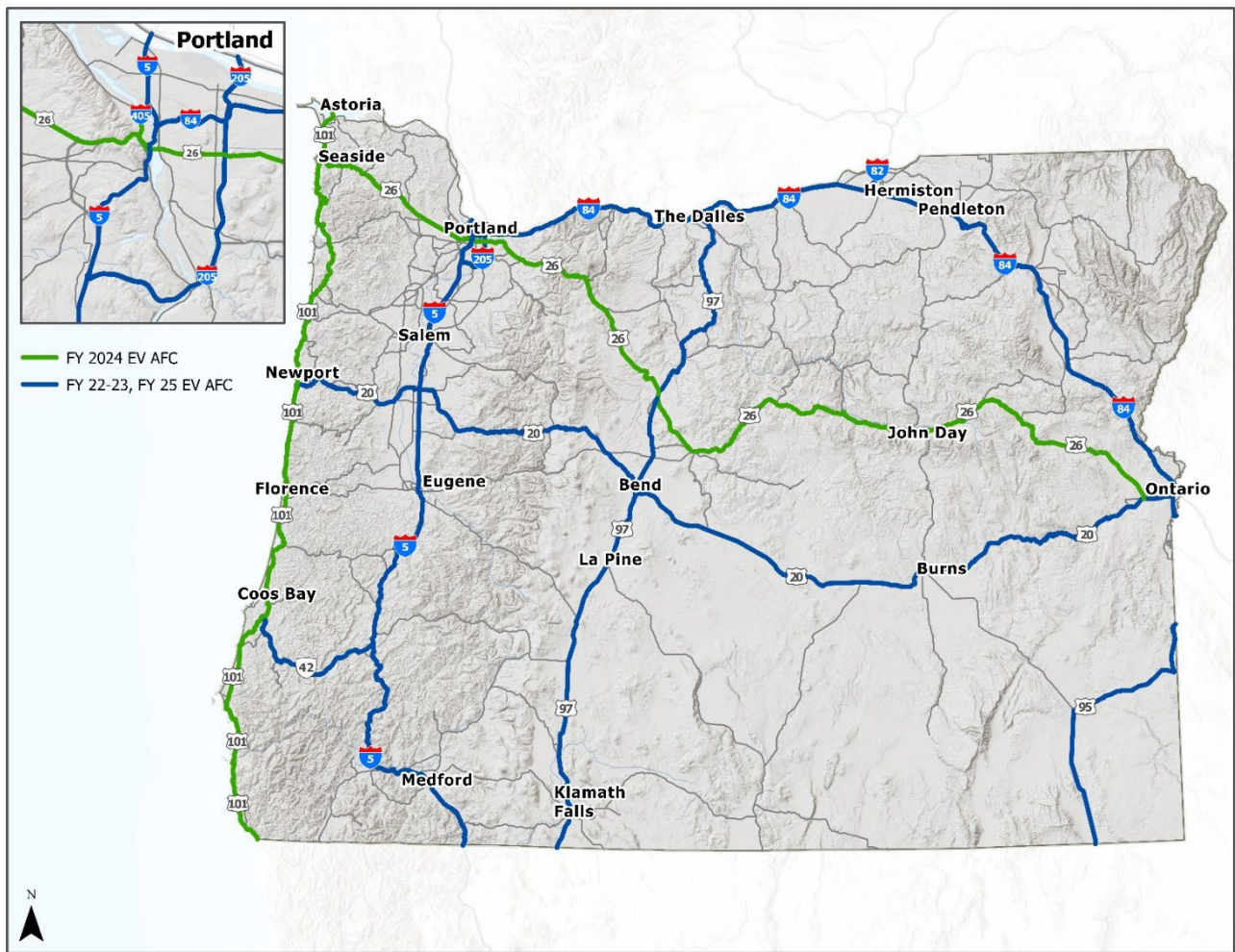


Funding for FY25 and FY26 will be used to complete the EV AFCs approved in Round 6 (2022), US 95 and OR-42. ODOT is currently reserving funding for these later years to either develop additional EV AFCs that have yet to be proposed, and/or to build redundancy in charging stations along the other AFCs to strengthen the overall network and accommodate increasing EV traffic in the coming years.

Figure 25: Proposed DCFC Prioritization by Year and EV AFC



Figure 26: FY 2024 NEVI Corridors



## Policy Support

Please see discussion of state, regional, and local policy in the following chapter for an overview of how ODOT and other agencies in Oregon are working together to support transportation electrification and overcome barriers to the deployment of supportive infrastructure.

# Funding Sources

Per NEVI guidance, the total Federal cost-share shall not exceed 80%. ODOT expects the 20% non-Federal funding to potentially come from a combination of sources, with primary funding coming from the private-sector partner(s) ODOT will contract with through a P3. ODOT intends to include RFP selection criteria that awards additional points to private-sector providers who commit to funding a larger share of total project costs, to use the NEVI funding as a true catalyst for private sector engagement.

Additional potential sources of funding include:

- **Oregon’s electric utilities**, many of which have committed substantial funding for transportation electrification (e.g., through line extension programs and dedicated transportation electrification programs). Where and if appropriate, this may be used to provide a portion of the non-Federal match requirement.
- **Local governments** may also contribute financially or in-kind (e.g., by providing real estate and/or serving as site hosts for stations) towards station development, although ODOT expects this to be a less common source of match funding.
- **State funds.** In the event that ODOT has difficulty attracting EVSPs to invest in NEVI charging stations along its EV Alternative Fuel Corridors, **ODOT** may consider seeking state funds to reduce private sector contribution at specific sites or along specific corridors, in order to attract and sustain EVSPs with long-term staying power and alleviate concerns about low utilization of stations in the near term.
- Additionally, while not eligible for non-Federal match, ODOT will consider how best to maximize the value of NEVI funding by combining it with other Federal programs where eligible.

## FY 2024 Infrastructure Deployments/Upgrades

For the third year of NEVI funding, ODOT will focus on building out EV Alternative Fuel Corridors US 101 and US 26 (approved in Rounds 1 – 5 of FHWA’s AFC nomination process), as well as the I-405 EV Alternative Fuel Corridor (approved in Round 6 applications). These corridors jointly meet many of the considerations ODOT has put forth for the broader deployment strategy.

ODOT anticipates developing approximately 16 stations for the third year of NEVI funding. Some of these sites may be upgrades to existing DCFC stations, while others will be new stations.<sup>7</sup> Details of these stations—as well as seven existing, NEVI-compliant locations—are provided in the table below and the following map. While some sites do not currently have Federal approval for being NEVI-creditable stations, ODOT’s analysis and planning is based on the assumption that the sites meeting NEVI power level requirements will have a path toward becoming NEVI creditable, and thus count toward a built-out NEVI corridor.

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<sup>7</sup> Station upgrades are expected to require less funding than the \$800,000 estimate included in this table.

Table 2: Charging Station Locations in Oregon

State EV Charging Location Unique ID	Route (note AFC)	Location	New (N) or Existing (E)	Anticipated EV Network (if known)	Utility Territories	Anticipated Station Ownership (if known)	Estimated FY24 Funding Amount
I-405.01	I-405	Portland	N		PGE	Private	\$800,000
US 101.01	US 101	Warrenton*	E	Electrify America	Pacific Power	Private	
US 101.02	US 101	Rockaway Beach	N		Tillamook PUD	Private	\$800,000
US 101.03	US 101	Cloverdale	N		Tillamook PUD	Private	\$800,000
US 101.04	US 101	Newport*	E	Electrify America	Central Lincoln PUD	Private	
US 101.05	US 101	Florence	N/E	EV Charging Solutions	Central Lincoln PUD	Private	\$800,000
US 101.06	US 101	North Bend*	E	Electrify America	Pacific Power	Private	
US 101.07	US 101	Bandon	N/E		City of Bandon	Private	\$800,000
US 101.08	US 101	Gold Beach	N/E		Coos-Curry Electric Cooperative	Private	\$800,000
US 101.09	US 101	Brookings*	N/E		Coos-Curry Electric Cooperative	Private	\$800,000
US 26.01	US 26	Elsie	N		West Oregon Electric Cooperative	Private	\$800,000
US 26.02	US 26	Hillsboro+	E	Electrify America	PGE	Private	
US 26.03	US 26	Beaverton*	E	Electrify America	PGE	Private	
US 26.04	US 26	Portland*	E	EVgo	PGE	Private	
US 26.05	US 26	Sandy*	E	Electrify America	PGE	Private	
US 26.06	US 26	Government Camp	N/E	EV Charging Solutions	PGE	Private	\$800,000
US 26.07	US 26	Warm Springs	N/E	EV Charging Solutions	Pacific Power	Private	\$800,000
US 26.08	US 26	Madras+	E	Electrify America	Pacific Power	Private	
US 26.09	US 26	Prineville	N		Pacific Power	Private	\$800,000
US 26.10	US 26	Mitchell	N		Columbia Power Cooperative	Private	\$800,000
US 26.11	US 26	Dayville	N		Oregon Trail Electric Cooperative	Private	\$800,000

State EV Charging Location Unique ID	Route (note AFC)	Location	New (N) or Existing (E)	Anticipated EV Network (if known)	Utility Territories	Anticipated Station Ownership (if known)	Estimated FY24 Funding Amount
US 26.12	US 26	John Day	N		Oregon Trail Electric Cooperative	Private	\$800,000
US 26.13	US 26	Unity	N		Idaho Power	Private	\$800,000
US 26.14	US 26	Vale	N		Idaho Power	Private	\$800,000

\*These sites do not currently have Federal approval for being NEVI creditable; ODOT’s analysis assumes that existing sites meeting the NEVI power level requirements will have a path toward becoming NEVI creditable and thus count toward a built-out corridor.

+These stations are currently under construction; ODOT expects them to be NEVI creditable once such a path is provided for existing stations

## Rationale for FY 2024 Deployment

With FY 2024 funding, ODOT aims to build US 26, US 101 and I-405., providing additional central Oregon coverage through development of US 26 as well as bolstering the existing DCFC infrastructure along the coastal US 101. ODOT will balance these more rural corridors by building out I-405 in the Portland metropolitan area, which has high traffic volumes and a relatively large DAC population.

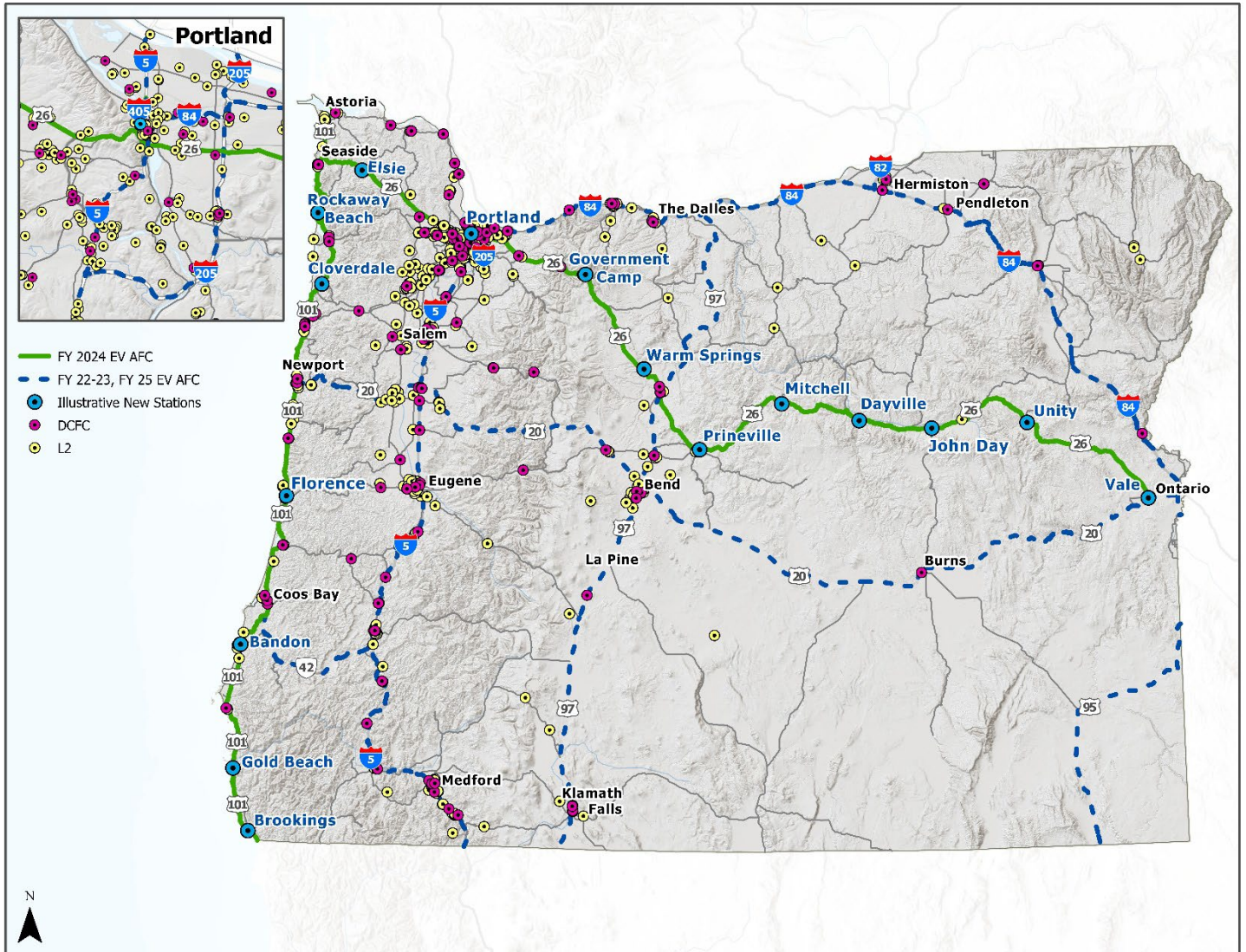
US 26 provides an important link to Idaho in the rural, central part of Oregon. ODOT plans to prioritize the neighboring US 20 over US 26 in FY 2023; we expect that additional, NEVI-creditable public DCFC will be developed along US 26 in the next year or two, separate from the NEVI funding. In its Cycle 2 and Cycle 3 National ZEV Investment Plan, Electrify America indicated that additional stations would be built along US 26 (and US 101); typically, Electrify America stations meet NEVI guidance, and ODOT anticipates that there will be a path forward for Electrify America stations to become NEVI-creditable stations. If so, there may be a cost-saving opportunity in waiting to build out the US 26 corridor, enabling the use of NEVI funds for other charging locations.

US 101 is an important north-south route along Oregon’s coast, which also links California to Washington. While US 101 receives substantial tourist traffic, ODOT is prioritizing the much higher-traffic, long-distance inland I-5 for full build out with earlier fiscal year funding. There may also be incremental NEVI-creditable DCFC built along this route through Electrify America’s Cycle 3 plan, potentially providing cost savings if the deployment of NEVI funds occurs in a later year of the program.

I-405 in the Portland metropolitan area will balance these more rural corridors, as it serves high traffic volumes over its largely urban route. As a short route, I-405 also presents a good opportunity for completion alongside two considerably longer corridors like US 101 and US 26. ODOT is considering partnering with others to bring additional funding to the site on I-405, potentially creating a multi-modal hub that incorporates a NEVI-creditable station.

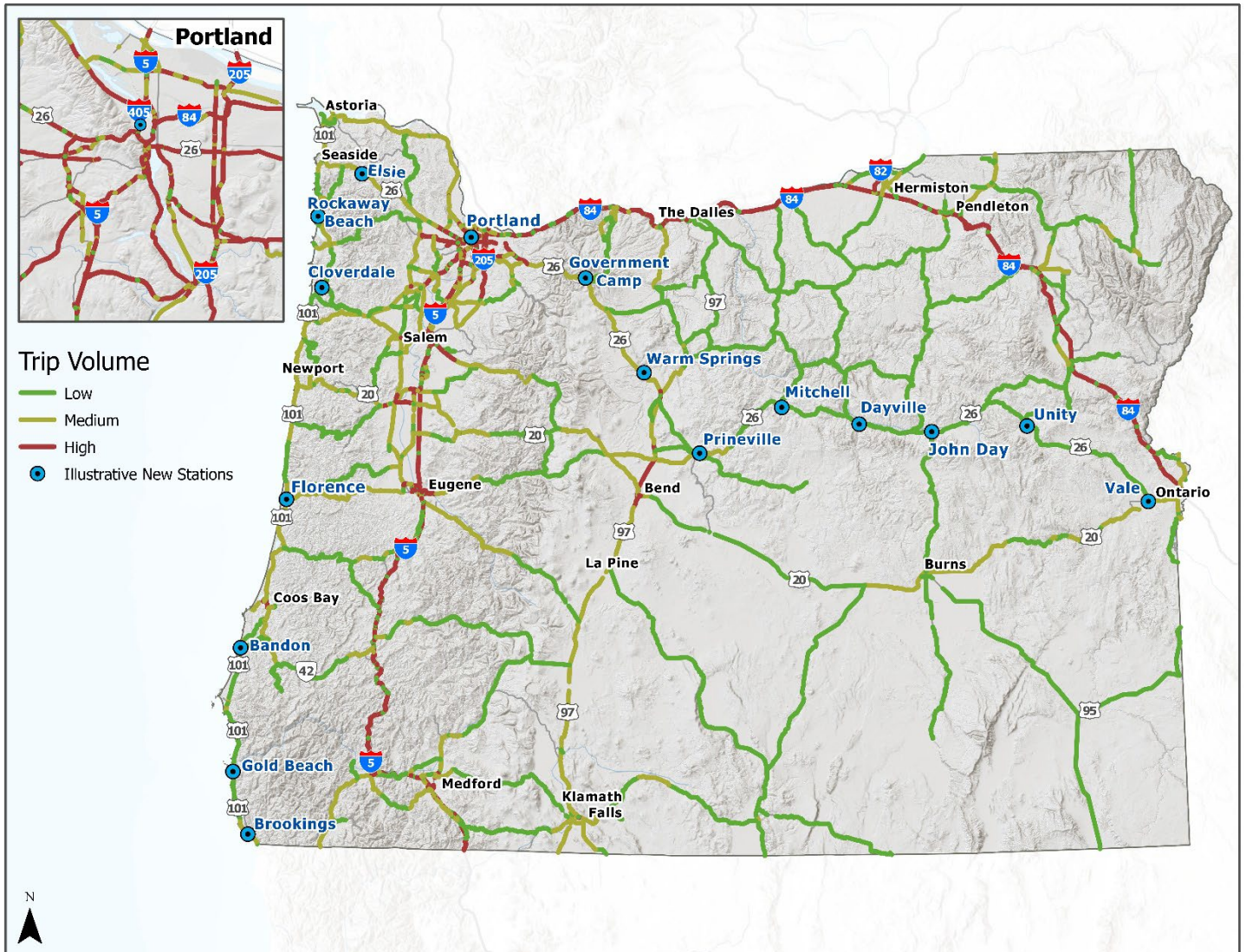
As shown in Figure 27, many of the existing chargers on FY 2024 corridors are located along US 101 and near I-405 in the Portland Metro. Fast chargers are located approximately every 50 miles along US 101, as this is part of Oregon’s West Coast Electric Highway, but these chargers are not up to NEVI standards. There are very little L2 or DCFC along US 26. The proposed new or upgraded stations (blue) fill in DCFC availability gaps on these Alternative Fuel Corridors, while increasing overall charging density on Oregon’s major highways.

Figure 27: Existing Level 2 and Fast Chargers along Electric AFCs



ODOT has also considered the volume of trips at these station locations to ensure that they serve areas with high travel demand. Proposed new and upgraded stations are primarily located on or close to highway segments with high trip volumes that also connect population centers.

Figure 28: Trip Volumes and Proposed FY24 Station Locations



## Upgrades of Corridor Pending Designations to Corridor Ready Designations

Please see the map of current electric Alternative Fuel Corridors (AFC) (Figure 29). The addition of these new DCFC stations using the FY 2024 funding will make all three corridors compliant with NEVI requirements.

## Increases of Capacity/Redundancy along Existing AFC

EV charging in Oregon is concentrated largely in the Portland, Salem, and Bend metropolitan areas. Smaller urban areas along US 101 such as Seaside, Newport, and Coos Bay offer interspersed areas of charging access. East and West of Portland, there are limited options to charge along US 26 in smaller community areas such as Madras and Prineville, but there are significant gaps in the charging infrastructure network along the Eastern portion of US 26. There are existing options to charge along I-405 in Portland, but redundancy is needed to support high traffic volumes. FY 2024 funding and deployment plans will help to bolster capacity along these routes and provide much-needed charging along both key rural and urban corridors.

# FY22-26 Infrastructure Deployments

ODOT anticipates building out electric AFCs approved in Rounds 1 – 5 using funding from FY 2023 and FY 2024, reserving funds beyond that for recently approved electric AFCs (Round 6), capacity redundancy improvements, and potentially other public roads to be proposed in future rounds of AFC nominations. Beyond the proposed deployments using FY 2022 funding, ODOT has determined approximate, potential locations for new or upgraded DCFC stations along the other electric AFCs, in the interest of estimating project costs to inform its multi-year strategy and corridor prioritization. ODOT will continue to refine its analyses of these routes, including incorporating additional local community input on siting locations as deployment nears. Feedback received through community meetings will be an important component of this planning process. More information on infrastructure deployment can be found in the section titled “Planning Toward a Fully Built Out Determination.”

## FY 2022 Deployment

US 97 is a key route through central Oregon that carries high traffic volumes relative to other rural areas and links to both California and Washington. However, there is currently a lack of DCFC stations to support traffic along the route. Building out this corridor will provide charging options in a part of the state that the private market is unlikely to sufficiently develop, independently, in the near future. The 2021 TEINA study highlighted the need for additional charging access in rural parts of the state. Representatives of rural areas and EVSPs highlighted US 97 as a prominent route with meaningful gaps in charging infrastructure. Additionally, US 97 continues south as an approved EV AFC in California, and to the north, Washington proposed US 97 in Round 7 to be s an EV AFC.

Based on the location of commercial activity along US 97 and anticipated station utilization rates, ODOT sought a single discretionary exception on this corridor for the interval between proposed stations in Biggs Junction and Shaniko. The distance is approximately 56 miles. This exception request was approved by FHWA through its approval of ODOT’s FY 2022 NEVI State Plan.

Developing the southern portion of I-5, from Eugene south to the California border, will provide essential EV charging services along one of the most critical, high-traffic routes in the state. As with US 97, I-5 provides an important link to both California and Washington, and additional DCFC stations along its southern portion will provide a backbone of rapid EV charging that connects the three West Coast states. I-5 is also a strong candidate for development because the northern portion is already NEVI compliant (assuming stations that meet the power level station configuration prove to be considered NEVI-creditable), allowing ODOT to build out the full corridor without requiring new stations every 50 miles along its northern length. Additionally, the southern section of I-5 has several existing, non-NEVI compliant stations that may prove cost-effective to upgrade instead of developing new stations.

ODOT will also direct the development of DCFC stations along I-205 in the Portland metropolitan area, prioritizing this highway given its high traffic volumes and route through numerous DACs. Given its exclusively urban nature, I-205 is also a short route, requiring minimal investment to build out while potentially providing significant benefits given its high traffic. I-205 also connects to Washington state.

## FY 2023 Deployment

With FY 2023 funding ODOT will prioritize east-west routes, given that its FY 2022 approach predominantly focuses on north-south corridors. Additionally, since FY 2023 funding became available along with FY 2022

funding, ODOT will move forward with the development of these routes shortly following the FY 2022 corridors detailed above.

FY 2023 funding will be used to build out I-84. This is the highest-traffic east-west route in Oregon, linking the Portland metropolitan area to Idaho along the Columbia River Gorge. It also has a large proportion of long-distance VMT compared to other Alternative Fuel Corridors. Additionally, relative to other east-west routes I-84 has a large density of DAC populations, making it an important corridor to develop from an equity perspective.

ODOT plans to build out I-82 simultaneously given its proximity to I-84 and potential for shared infrastructure at their junction. This route also provides an important link to Washington, promoting interstate connectivity and linking to the high-traffic I-84. Additionally, I-82 will be a relatively low-cost corridor to complete given its short length, making it a good candidate for inclusion along with longer routes aligned with ODOT's approach to (where possible) developing entire corridors within a given fiscal year's funding allocation.

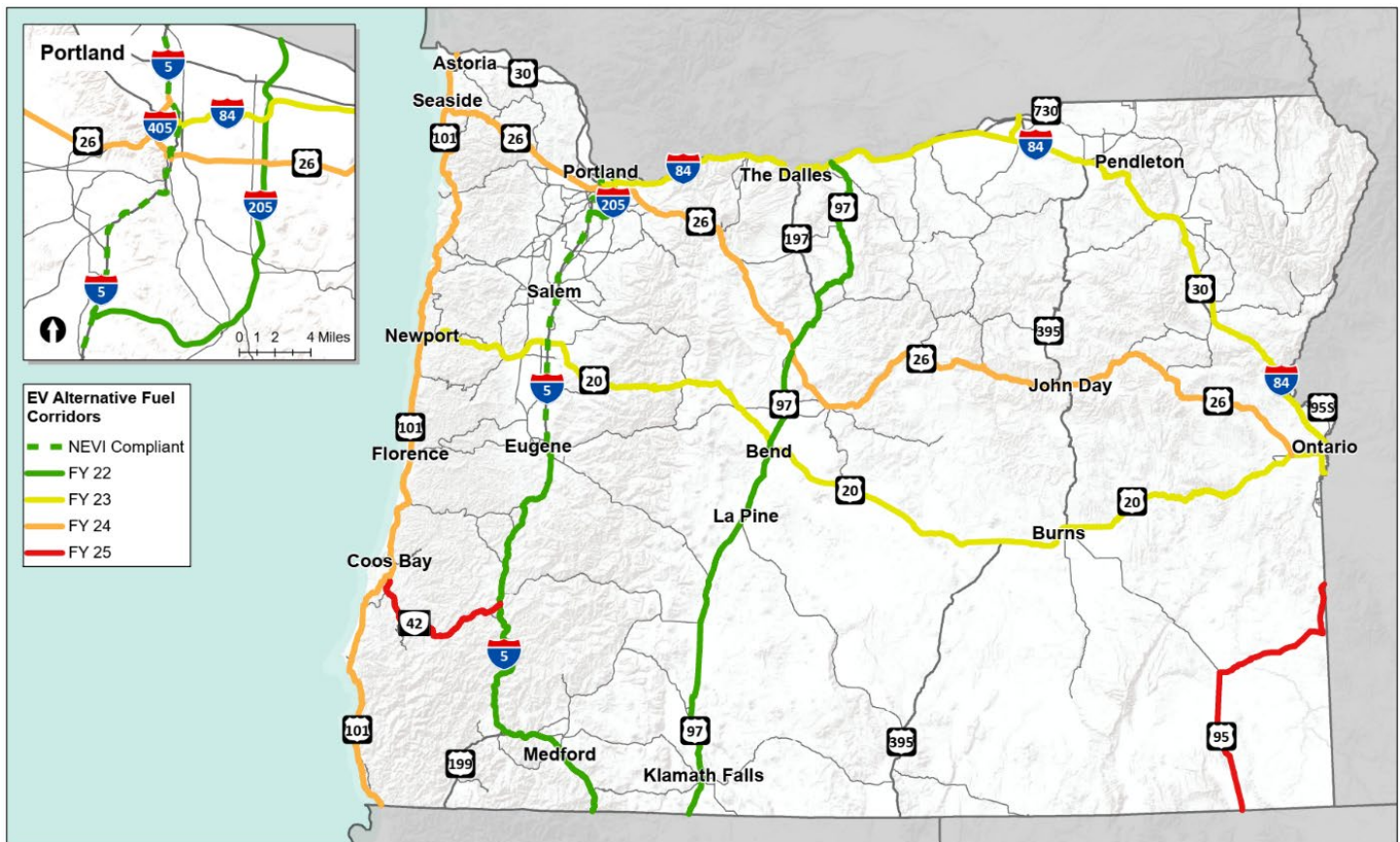
ODOT will also develop US 20 using FY 2023 funding to provide an east-west rural route through Central Oregon, similar to how FY 2022 funding will be used to develop a central, north-south rural route (US 97). US 20 is an important freight route, a key link to Idaho and exhibits higher traffic volumes in Eastern Oregon than neighboring US 26 (east of Bend, US 26 has approximately half of the AADT that US 20 exhibits in that part of the state).

## **FY2025-2026 Deployment**

With FY 2025 and FY 2026 funding, ODOT will complete the remaining EV Alternative Fuel Corridors approved in Round 6 (2022), US 95, and OR 42. ODOT is currently reserving funding for these later years to either develop additional EV AFCs that have yet to be proposed and/or to build redundancy in charging stations along the other AFCs to strengthen the overall network and accommodate increasing EV traffic in the coming years. Other goals may also evolve.



Figure 29: Planned Implementation Year for EV AFCs (FY22-FY25)

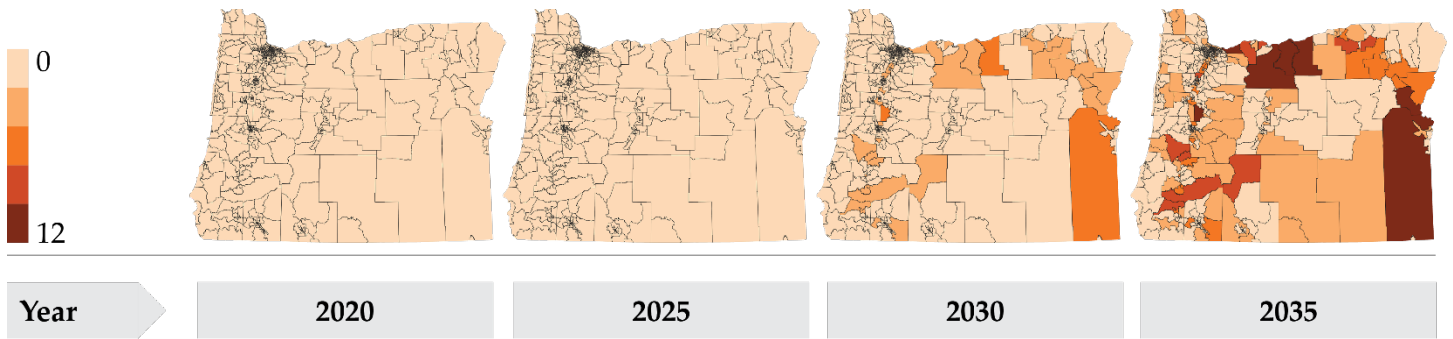


## Electric Vehicle Freight Considerations

In the initial years of NEVI program, ODOT will focus primarily on LDV charging infrastructure to support anticipated growth in the electric passenger vehicle market. However, recognizing the importance of developing EVSE for larger and heavier EVs (as analyzed and discussed extensively in the TEINA study), the planned infrastructure build out is also expected to support medium-duty vehicle traffic.

Existing and proposed EV AFCs in Oregon are also important strategic freight corridors, including I-5, US 97, US 20, and I-84. The I-5 corridor is a prime rail and highway freight corridor. Additionally, the M-5 marine highway runs parallel to the Oregon coast, providing additional freight linkages through US 101, I-5, and US 26. As demand for medium- and heavy-duty EV charging grows (see, for example, anticipated long-haul trucking charging needs over time, from TEINA, below) ODOT will seek to identify funding for EV charging and fueling infrastructure to support growing medium and heavy-duty ZEV traffic. In June 2023, ODOT submitted two federal Charging and Fueling Infrastructure (CFI) competitive grant proposals, to support both medium- and heavy-duty EVs along key freight routes of I-5 and I-84 corridors. The I-5 CFI grant proposal was submitted with Washington and California, to establish medium and heavy-duty charging every 100 miles along this route, from Mexico to Canada. ODOT's I-84 CFI proposal would establish two different types of medium and heavy-duty charging along this east-west, second-most-heavy-freight-traffic route in the state.

Figure 30: DCFC Charging Ports Needed in Long-Haul Trucking Use Case

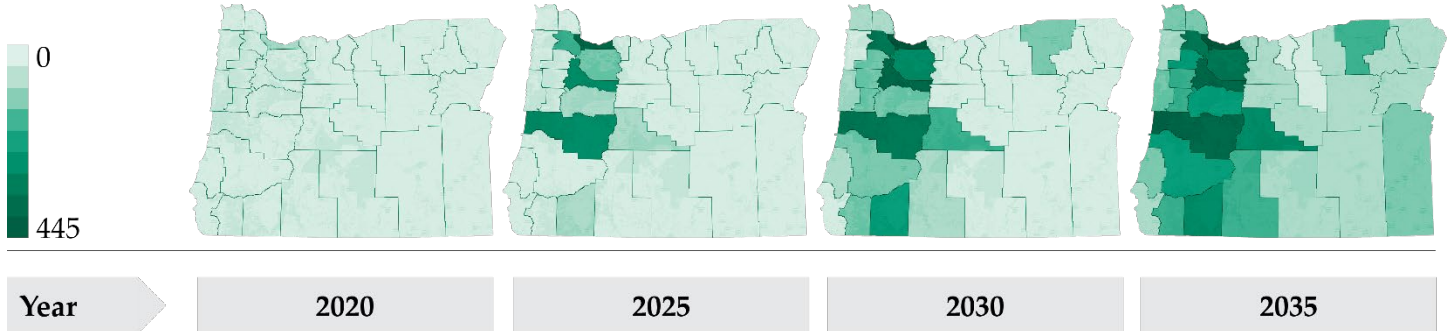


## Public Transportation Considerations

As with freight considerations, electrified public transit will be an important part of Oregon’s future transportation system; however, it is not the focus of the initial NEVI funding (see **Existing Conditions** chapter for discussion of current routes).

ODOT explored transit bus electrification in the recent TEINA study, estimating DCFC charging needs over time (Figure 30). It is anticipated that the majority of public transit charging will take place at transit agency-owned depots, as well as through limited on-route chargers. As described above, ODOT is considering pursuing additional partners and funding for a multi-modal hub that incorporates a NEVI-compliant station along I-405 in Portland.

Figure 31: DCFC Charging Ports Needed in Transit Bus Use Case



## State, Regional, and Local Policy

### Barriers and Challenges

Streamlined deployment of DCFC in Oregon will require overcoming a variety of policy barriers. Zoning, permitting, and general knowledge about DCFC stations pose a challenge in many jurisdictions, and can make it difficult to quickly scale up EV infrastructure deployment. Many processes are jurisdiction-specific and not geared towards these types of infrastructure developments, given the nascency of the industry. Other barriers, such as development timelines, supply chain constraints, and costs, are discussed earlier in the **Known Risks and Challenges** section of the previous chapter.

## Overcoming Hurdles and Working with Local Jurisdictions

ODOT will continue to work with local agencies and municipalities to streamline permitting and related issues and ensure that public DCFC (and other EVSE) are deployed where and when needed to meet the State's EV adoption goals. ODOT and the Zero Emission Vehicle Interagency Working Group (ZEWIWG) are currently working on guidance documents to disseminate information and best practices.

In community meetings in the lead-up to each AFC, ODOT will focus on both education and best practices. The Oregon Department of Environmental Quality (DEQ), as well as Oregon's investor-owned utilities, have been conducting education and outreach on EVs, EV rebates, and EV charging infrastructure. Statewide efforts on EVs and EV infrastructure deployment education, awareness and outreach are being publicized through the Oregon Department of Energy's (ODOE) website [goelectric.oregon.gov](https://goelectric.oregon.gov) (recently updated through a public input process). Numerous state agencies and other public and private partners contribute information through [Oregon's Electric](#), a website developed through a P3, the EV Collaborative, using funds from the Clean Fuels Program.

Additionally, state policies are helping to support transportation electrification, including:

- DEQ Clean Fuels Program
- DEQ Climate Protection Program
- DEQ Clean Vehicle Rebate Program
- DEQ Low Emission and Zero Emission Vehicle Programs including the Advanced Clean Truck (ACT) and Advanced Clean Cars II (ACC II) rules.
- DEQ grant programs such as the Diesel Emission Mitigation grant, the Diesel Emission Reduction Act grant, and the Congestion Mitigation for Air Quality.
- Oregon Public Utilities Commission requirements for, and support of, transportation electrification programs
- ODOE data, analyses, and efforts to enhance resilience, including the Biennial ZEV report and the Biennial Energy Report, as well as the upcoming Oregon Energy Strategy
- ODOT analyses and development of publicly funded EV charging infrastructure, including support of public Level 2 charging stations through its Community Charging Rebates (CCR) program.
- The Oregon Transportation Plan, updated in July 2023, that requires all investments to be evaluated through a climate, equity, and safety lens.

Refer to the **State Agency Coordination** chapter for additional details on specific entities, initiatives, and policies that ODOT and others are collaborating on to support transportation electrification.

## Planning Towards a Fully Built Out Determination

As of August 1, 2023, Oregon has eleven EV alternative fuel corridors that must be developed to achieve fully built-out status. With FY 2022 funding, ODOT will build out US 97, I-205, and I-5 south of Eugene. With FY 2023 funding, ODOT build out US 20, I-84, and I-82. With FY 2024 funding, ODOT will build out US 101, US 26, and I-405. With FY 2025 funding, ODOT will develop US 95 and OR 42. To reach fully built out status, ODOT estimates it will need 47 new NEVI stations along its 11 electric AFCs and intends to complete them through FY2025 funding. Table 3 below provides a breakdown of estimated stations by corridor and year of NEVI funding. It is important to note that ODOT is adopting a prudent wait-and-see approach to future NEVI investments beyond these 11 AFCs, to see how supply chain and inflation have impacted costs in the time since ODOT's original estimates were prepared. With any remaining funding, ODOT intends to add

redundancy at existing stations or continue to expand coverage through the designation of additional electric Alternative Fuel Corridors.

Table 3: ODOT’s Plan for a Fully Built Out Determination

Year	Corridor	Length (mi)	Upgrade/New Station
Year 1	I-5	308	3
	I-205	37	2
	US 97	288	6
Year 2	I-84	376	5
	I-82	11	1
	US 20	449	9
Year 3	I-405	3	1
	US 101	350	6
	US 26	453	9
Year 4	US 95	120	3
	OR 42	70	2

ODOT recognizes that for a State to be considered fully built out, every designated AFC for EV charging must meet the following criteria:

- Stations are spaced along all designated EV AFCs at a maximum distance of 50 miles apart and within 1 mile of the designated roadway, except where exceptions have been granted, and that all creditable stations must:
  - be publicly accessible.
  - include at least four 150kW DCFCs with CCS ports.
  - be capable of simultaneously charging four EVs at 150kW or above at each port, with a minimum station power capability at or above 600kW.
  - Meet the minimum standards and requirements as described in 23 CFR 680.104, 23 CFR 106(b), 23 CFR 680.106(c), 23 CFR 680.106(d), 23 CFR 680.106(e), 23 CFR 680.106(f), 23 CFR 680.106(g), 23 CFR 680.106(h), 23 CFR 680.106(i), 23 CFR 680.106(k), 23 CFR 680.106(l), 23 CFR 680.108, 23 CFR 680.110, 23 CFR 680.114, and 23 CFR 680.116
- Any point along the corridor must be connected via an AFC to a station in each logical direction so that the gap is no more than 50 miles.
- All creditable stations are operational.
- All corridor termini must have a station located within 25 miles.
  - If the continuation of the corridor is not designated as an AFC by the adjacent state, then this corridor should be considered a terminus at the state border (e.g., there must be a station located within 25 miles of the state border.)
  - If a designated corridor extends beyond a state’s border into an adjacent state, the 50-mile spacing must be maintained along the designated corridor (e.g., one state may have a station greater than 25 miles from their border if the adjacent state has a station along that same corridor less than 25 miles from their border in a manner that maintains the overall 50-mile spacing). If a designated corridor changes names or highway designation along the corridor, this is not considered a corridor terminus.

It is likely that additional stations will be constructed (either by the private sector or a government entity) between the time when ODOT submits its state plan for approval and when stations are developed using NEVI funds. ODOT will rely upon its existing relationships with EVSPs, ODOT specific GIS maps related to EV infrastructure, and mapping tools provided by JOET, to analyze existing conditions prior to issuing each corridor-specific RFP. Upon completion of this plan, ODOT plans to submit a letter to the FHWA requesting fully built out certification.

# Implementation

As described in the **Contracting** chapter, ODOT plans to enter a Design-Build P3 with one or multiple EVSPs to both develop and operate DCFC stations, building on its experience deploying DCFC for the West Coast Electric Highway (WCEH) through a similar collaboration. ODOT's SEP-14 Exemption will better enable it to rely on existing state practices and procedures, through its Oregon Innovative Partnership Program. With ODOT guidance, EVSP partners will have primary responsibility for implementation of services required to provide EV charging at stations deployed as part of the NEVI program.

In the development stage ODOT will work with EVSP partners to ensure that stations are designed and constructed to promote strong labor, safety, training, and installation standards; promote resiliency; and account for local weather conditions (e.g., snow removal plans). Additionally, EV charging company partners will collaborate with ODOT to build strong community engagement, identify desired benefits, and match community goals with charging opportunities. On an ongoing basis, EVSP partners will be required to provide timely and efficient operation and maintenance of charging stations, equipment, and related infrastructure, as well as safe and secure data collection and reporting. The following sections describe ODOT's strategy for addressing each of these critical elements, which constitute its public DCFC implementation plan for Oregon's EV AFCs.

As part of separate, ongoing work that builds on our 2021 TEINA report, ODOT is currently developing a Zero Emission Vehicle Infrastructure Deployment Guide. This guide and its accompanying tools are intended to serve as a "one stop shop" for local planners and decision makers as they prepare their communities for the ZEV transition and plan for EV charging infrastructure. This guidance document includes best practices on site design and deployment; planning level cost information for equipment and installation; information about available funding sources tools for estimating needed charging infrastructure by specific geographic areas within the state (e.g., county level, or utility service territory); interactive GIS mapping tools that enable planning according to specific attributes in a geographic area (such as proportion of renters vs home owners) to aid planners in equitable siting of charging infrastructure in their communities; an overview of the many players in this space and their roles and responsibilities; strategic considerations; and much more. ODOT aims to release this implementation plan in fall 2023. It will complement and align with this updated NEVI State Plan.

## Strategies for EVSE Operations & Maintenance

EV adoption has been hampered by the inconsistent reliability of EVSE at public charging stations, some of which remain out of service for days or weeks/months at a time. This highlights the critical importance of ensuring that stations developed through the NEVI program are consistently and continuously monitored and serviced to maintain reliability and resilience, which will promote confidence in the national charging network this program aims to produce.

There are numerous considerations for how to ensure this reliability, some of which relate to upfront development and design choices (e.g., equipment specifications, software protocols and standards, redundancy) and some of which relate to ongoing contractual service requirements (e.g., maximum response times, contingency plans, required service level agreements). The former category is discussed in the **Contracting** chapter; below, the primary contractual service requirements are outlined.

ODOT will select private sector partners with proven track records who have the greatest chance of remaining well-positioned to operate and maintain reliable, resilient DCFC stations. Additionally, ODOT is exploring providing some level of operating support to these partners, especially for stations in low utilization areas.

As part of its P3 RFPs, ODOT will require five-year operations and maintenance contracts from selected vendors, including service level agreements. ODOT plans to include performance-based stipulations in its contracting, withholding a portion of payment until reliability requirements are met (on an ongoing basis). Additionally, ODOT has learned from its experience with the WCEH that contingencies must be in place for transfer of ownership and operation. NEVI funded stations are anticipated to remain in operation for up to 10 years (or longer) and contracts are being carefully designed to ensure continued operation and a smooth transition in the event of ownership and/or operational changes.

## **Ongoing Contractual Service Requirements**

EVSPs will be required to provide open access to all EV drivers, regardless of network subscription or membership options the EVSP may choose to offer. ODOT will also require EVSPs to offer convenient, non-exclusive non-preferential payment options, including contactless major credit cards and debit cards, a 24-7 customer service phone line, and mobile payment options. Clear payment and operating instructions will be required along with multilingual access. EVSPs will also be encouraged to incorporate EMV chip readers at stations to ensure more equitable payment access, and to employ local labor for both ongoing maintenance and initial construction activities (see additional detail in final section of this chapter)

## **Reliability Requirements**

As outlined in the minimum standards guidance released by FHWA, charging ports at NEVI-funded stations will need to meet a minimum “uptime” requirement of greater than 97%. Uptime will be measured based on 24/7/365 access to stations, as these investments are meant to serve as a critical backbone for EV infrastructure. ODOT will use the uptime formula included in § 680.116(b) of the final minimum standards rule.

Also in line with the final rule, ODOT will require EVSPs to default to free charging in the event of internet failure to ensure that stations are useful regardless of upstream communication issues. This may prove important during emergencies.

## **Operating Assistance**

Following NEVI guidance, ODOT is considering providing operating assistance for low-utilization station locations to ensure that a comprehensive DCFC network can be built along Oregon’s highway corridors, including in areas where charging demand is likely to develop relatively slowly. Details of this arrangement will be determined as RFPs and contracts are developed, and more specific site locations are proposed by contracted EVSPs.

The Clean Fuels Program (CFP) operated by Oregon’s Department of Environmental Quality (DEQ) provides an incentive for EVSPs by awarding monetizable credits to providers of clean transportation fuels. According to Oregon’s DEQ, CFP credits are worth, on average, between 8 and 15 cents per kilowatt hour of electricity dispensed for a utility using the statewide grid mix electricity, and 14 – 21 cents per kilowatt hour for a Bonneville Power Authority-served utility due to its lower carbon content. This revenue stream may cover most if not all of the electricity cost and may even become a new source of revenue to the charger owner. When renewable energy is used for EV charging, credit revenues can be even higher.

While the existing Clean Fuels Program provides a significant incentive for charging station operators, DEQ will allow DCFC stations that are developed through the NEVI program to receive credits at the beginning of a project that could be used to offset additional costs (see overview of Advance Crediting [here](#)).

## Strategies for Identifying Electric Vehicle Charger Service Providers and Station Owners

### Identifying EVSPs

As discussed in the **Contracting** chapter, ODOT will enter a Design-Build P3 with one or multiple EVSPs that have proven track records of delivering high-quality, reliable DCFC stations on-time and on-budget, and who have sufficient capital reserves as a backstop. Throughout ODOT's public listening sessions, participants have been clear that finding providers who can continuously and reliably operate stations – rather than having the stations change hands between providers – should be a key criterion. ODOT has also learned from its experience with the WCEH and will focus its NEVI contracting to avoid the subpar customer experience that results from changes in ownership and operation. ODOT is currently engaging with EVSPs and promoting interest in the NEVI program opportunity through several channels, including direct outreach and issuance of surveys.

### EVSP Selection

The EVSP(s) contracted as a partner in each Design-Build P3 will be identified through a competitive best value RFP process. Oregon has a two-step process in place, first requesting Statements of Qualifications from potential partners, and vetting these to create a Pool of Partners. RFPs will only be sent to the vetted Partnership Pool of EVSPs. Through the RFP selection criteria, ODOT will ensure that the selected private partner has the experience, capabilities, and motivation to develop sites in or near disadvantaged communities. This means working directly with these communities to ensure that project planning, development, and implementation consider and are responsive to locally identified benefits, needs and concerns. Per the minimum standards guidance from JOET, ODOT will select EVSPs who support workforce development and training opportunities, including paying union/prevaling wages and ensuring its workforce is certified and/or licensed through accredited EVSE-focused programs.

For both new and existing stations that will be upgraded to meet NEVI requirements, the contracted EVSP(s) will be responsible for identifying site hosts and securing station locations. ODOT will also collaborate with the EVSPs to ensure that community interests are reflected as much as possible in siting. ODOT is also soliciting input from prospective site hosts through its public engagement efforts and has received responses from 90 parties interested in hosting a DCFC station through its interactive website. This information on ODOT's website will be shared with the vetted EVSPs selected to be in the Partnership Pool. ODOT will remain directly involved in approving all proposed station locations to ensure that specific sites align with the strategy described in the **EV Charging Infrastructure Deployment** chapter. For additional detail on recommended site host attributes ODOT will work with EVSP partners to achieve, refer to the Technical Specifications appendix (Attachment C) included as part of the WCEH upgrade RFP, included here in [Appendix D: Technical Specs and Requirements for Operations, West Coast Electric Highway Upgrade RFP](#).



# Strategies for EVSE Data Collection & Sharing

ODOT will follow Federal guidance and industry best practices regarding public charging data collection, privacy, and sharing, including regular data reporting on a quarterly and annual basis. As a starting point ODOT will leverage the standards already created for contracted EVSPs through the WCEH upgrade. ODOT will modify this as necessary to comply with the minimum standards outlined by FHWA in the final rule. In addition, ODOT is closely monitoring the newly created Electric Vehicle Charging Analytics and Reporting Tool (EV-ChART) expected to launch in early 2024. ODOT is reviewing the Format and Preparation Guidance provided by JOET in May of 2023 and recognizes that EV-ChART is intended to assess reliability, future planning and policy, grid impacts, and equity related performance metrics. ODOT plans to utilize EV-ChART to meet the requirements of 23 CFR 608.112(a)-(c).

Examples of the types of data collection to be required include:

- kWh usage by site and separately for DCFC ports and any Level 2 EVSE
- Reports on reliability and uptime, at both the station- and charger-level (see **Strategies for EVSE Operations & Maintenance** section above for additional detail)
- Frequency of payment type usage (e.g., mobile app vs. credit card)
- Outage information (time, duration, cause, response time)
- Average cost of electricity, potentially by time-of-use period

In addition to reporting of these and related metrics, ODOT will work with contracted EVSPs to develop a *Community Engagement Outcomes Report* as according to FHWA guidance. This will describe engagement activities and learnings, including specific outreach to and input from DACs and how it informs planning.

## Strategies to Address Resilience, Emergency Evacuation, Snow Removal/Seasonal Needs

In a growing EV market, it is important that major highway corridors have sufficient charging capacity to support corridor rescue and recovery efforts in the event of natural disasters, including the increasingly frequent and devastating wildfires occurring throughout the Western U.S. As included in the ODOT Round 4 nomination for AFCs, US 97 and US 26 serve as designated lifeline routes in the event of a Cascadia Subduction Zone earthquake. US 97 is a Tier 1 Lifeline Route and will connect Central Oregon's Redmond Municipal Airport with the most populated areas of the western part of the state's Willamette Valley. US 26 is designated a Tier 3 Lifeline Route and will provide redundancy to increase the capacity of the highway system as the region recovers. The western segment between I-205 (Portland area) and US 101 (Pacific Coast), along with two other east-west highway corridors connecting I-5 and US 101, will allow faster and more reliable access to coastal communities.

Considering Oregon's mountainous areas, stations located along routes that cover high elevations and/or passes are expected to need frequent snow removal and management (e.g., some stations along US-97). Stations located along other routes, such as I-5 and US 101, are not expected to be regularly impacted by snowfall (with some exceptions, such as the section of I-5 north of Grants Pass). Snow removal and management services will be required for EVSPs partnering with ODOT and developing stations in areas with significant levels of snow. Responsibility for management will be explicitly addressed in RFPs and eventual contracts, and failure to provide timely snow removal may result in financial penalties or withholding of NEVI funds.

As in the WCEH RFP (see [Appendix D: Technical Specs and Requirements for Operations, West Coast Electric Highway Upgrade RFP](#) for technical specifications from that solicitation), ODOT will require that EVSPs submit a detailed operations and maintenance plan (requiring ODOT approval) demonstrating how they will ensure station reliability and resilience (e.g., minimum response times, regular inspection and maintenance requirements, expectations re: snow removal and addressing other weather-related issues, etc.).

## Strategies to Promote Strong Labor, Safety, Training, and Installation Standards

ODOT will contract with reputable firms that have proven track records of success in safety, training, installation, and labor practices. ODOT will require these entities to adhere to the minimum standards articulated by FHWA in its final NEVI rule.

The NEVI program presents a particularly valuable workforce development opportunity to foster DCFC station electrical and construction skills, for which there is a growing need. ODOT will require contracted EVSPs to adhere to the training and certification requirements outlined in the NEVI minimum standards guidance and Oregon state law and will work with these firms to maximize the creation of workforce development opportunities for local communities. Additionally, ODOT may explore using NEVI and/or other Federal funding to directly support workforce development opportunities, such as apprenticeship programs or community college pathways that could support NEVI station and other EVSE deployment. ODOT will also work with contracted EVSPs to channel station development expenditures into local businesses and communities as much as possible.

ODOT has begun conversations internally, and with investor-owned utilities and other organizations, to learn more about their electric transportation and clean energy workforce efforts. These include the National Governor's Association pilot on pre-apprenticeship and apprenticeship programs, and Oregon's recent \$200 million investment for Future Ready Oregon for education, training, skill development and career resources for an equitable, diverse, and trained EV and charging infrastructure workforce. For example:

- ODOT is currently supporting workforce development with Surface Transportation funds and is working with the National Governor's Association Center for Best Practices and three other states in a pilot program to use funds from the Infrastructure Investment and Jobs Act to scale pre-apprenticeship and apprenticeship programs, incorporating Oregon's aim to leverage Federal investments in broadband access and electric vehicle adoption.
- Pacific Power is supporting a Klamath Community College program for workforce training on EV systems and infrastructure support; additionally, the utility is supporting the Blueprint Foundation to provide EV-related hands-on learning for future black and indigenous professionals and their communities related to EVs and EV charging infrastructure.
- In 2022, Portland General Electric, in coordination with the Governor's Office, launched a statewide coalition, the Oregon Clean Energy Workforce Coalition (OCEWC or the Coalition). The Coalition's mission is to collectively build the clean energy workforce pipeline needed to meet the current and future demands for a clean energy workforce through a process that is intentional about engagement with historically underrepresented populations in the energy sector, including women and people of color, and provides equitable opportunities for all Oregonians.

- The Coalition is continuing to work on its Strategic Action Plan for 2023-2024, which focuses on six areas: education; equity and inclusion; communication; career pathways; program development; and coalitions structure.
- ODOT has been active in this Coalition’s main committee and the Transportation Electrification Subcommittee. The Coalition is convened by PGE and has grown to include over 50 representatives from organizations spanning industry; training and education providers; labor; community-based organizations and non-profits; workforce and economic development organizations; state and local government agencies; and federally recognized Tribes.
  - The OCEWC and its members have won grants from the US Department of Labor Pathway Home (for implementing workforce re-entry programs in all 12 prisons in Oregon); the US Department of Energy Resilient and Efficient Building Codes (partners Earth Advantage and New Buildings Institute to advance energy efficient and resilient building practices); and the US Department of Energy Advancing Equity through Workforce Partnerships (for electrical apprenticeship, training and placement resources).
- In addition, OCEWC and its members are pursuing funding through the Quality Green Jobs Regional Challenge; Department of Labor Critical Sector Jobs Quality Program; the Joint Office of Energy and Transportation Ride and Drive Electric proposal opportunity (Oregon Tradeswomen proposals to support apprenticeship program and EVITP training to support EV charging jobs); and the Department of Labor Pathways to Infrastructure Jobs Grants Program.
- In addition, Portland General Electric has offered support to several community colleges for EV and EV charging infrastructure-related programs (Portland Community College, Clackamas Community College, and Mt. Hood Community College). PGE is also supporting the non-profit Oregon Environmental Council’s partnership with local auto service industry members to provide training and access to EVs through exposure via loaner cars, infrastructure development, and education. PGE is developing in-house infrastructure trainings and certifications in consultation with IBEW 125 and IBEW 48 as well as undertaken a statewide transportation electrification workforce needs assessment.
- ODOT is a member of the Columbia Willamette Clean Cities (CWCC) coalition, which supports training for maintenance and repair of several types of alternate fuel vehicles and fueling stations and demonstrates best practices through webinars. CWCC provides High-Voltage and High-Pressure training for mechanics to transition them into technicians and has access to electric school bus-related training and other curriculum.
- Additionally, ODOT has begun conversations with IBEW Local 48, to better understand electrical contractor licensing requirements and apprenticeship opportunities (for union and non-union electricians), and to explore the EVITP program. Oregon recently adopted a law that requires EVITP-trained electricians and apprentices to work on state-funded EV charging infrastructure programs. We will continue these collaborations on workforce development initiatives.

## Strategies for Prioritizing U.S.-made EVSE

ODOT will comply with all relevant requirements and regulations from the Build America, Buy America (BABA) Act, and the National Electric Vehicle Infrastructure Rules and Requirements published February 28<sup>th</sup>, 2023. ODOT anticipates that the newly created Made in America Office (MIAO) of the Office of Management and Budget will be a key partner in promulgating additional guidance and information on these topics.

Based on discussions ODOT has had with EVSPs and other industry stakeholders, it is anticipated that some of the BABA requirements may be challenging to comply with, in the near term, due to both supply chain and domestic manufacturing constraints. Oregon will not be the only state to deal with these issues, and ODOT looks forward to working with the MIAO to ensure that its State Plan and that of other states can be implemented in a timely fashion, with any necessary exceptions are well understood, documented, and approved by the Federal government.

# Civil Rights

ODOT will stipulate within its contracting requirements that all components of the NEVI State Plan implementation will follow Federal, state, and local laws, regulations, and statutes to ensure compliance with the Americans with Disabilities Act (ADA), Title VI of the Civil Rights Act of 1964, and Section 504 of the Rehabilitation Act.

The ADA prohibits discrimination against persons with qualified disabilities regarding the usability and/or participation of all programs, services, activities, or benefits offered by ODOT. To address EV charging-specific considerations for ADA compliance, ODOT has been working on guidance for ADA accessibility of EV charging installations over several years.

Oregon does not have a specific statute addressing ADA compliance at EV charging stations. While ODOT has developed draft guidelines on the requisite number of accessible EV charging spaces, accessible routes between spaces, minimum dimensions, and the interaction between accessible parking spaces and accessible EV charging stations, the US Access Board has recently provided guidance on ADA accommodations at EV charging stations. ODOT is now requiring its NEVI contractors to evaluate and incorporate guidance identified by the US Access Board in July 2022, in their design recommendations for accessible electric vehicle charging stations.

- Hence, NEVI charging stations in Oregon will adhere to the guidance provided in this U.S. Access Board, [Guide to ADA Accessibility Standards](#) document with respect to spacing and striping.
- The US Access Board EV charging station ADA guidance may be used in future in order to qualify for EV charging signage in Oregon.
- The US Access Board issued an Advance Notice of Proposed Rulemaking for Self-Service Transaction Machines (September 2022), and ODOT will follow the progress of this rulemaking to determine whether, and how, it may apply to EV charging stations.

ODOT plans to rely on the US Access Board's guidance along with future guidance from JOET, in accordance with the ADA, to ensure ADA compliance at NEVI-funded charging stations.

ODOT will also ensure that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any program or activity, including the NEVI program. ODOT will comply with all Title VI requirements in its implementation of the NEVI program.

# Equity Considerations

ODOT is committed to providing equitable charging access for all Oregonians. The inclusion of Justice40 requirements in NEVI reinforces the work and commitments the state has already made. For example:

- ODOT's TEINA study explicitly included disadvantaged communities as one of its nine use cases, laying the foundation to provide charging for these communities.<sup>8</sup> By 2025, TEINA estimates that 100 additional DCFC ports will be required in DACs to put Oregon on track towards providing the same per capita charging access as non-DACs by 2035.
- In 2021, ODOT developed a [Statewide Equity Index](#), using American Community Survey data on age, race/ethnicity, ability, income and language, to map disparity in Oregon. ODOT divisions use the map to apply a social equity lens to ODOT investments.
- On June 13<sup>th</sup>, 2023, ODOT launched its Level 2 Community Charging Rebates program (CCR). This program reserves 70% of funding for rural and disadvantaged communities. ODOT contracted with the nonprofit Forth to provide education, outreach and technical assistance to increase awareness and reduce barriers to access.
- Between February and March of 2023, ODOT held a series of nine community meetings related to NEVI along I-205, I-5, and US 97. Of these 9 community meetings, 6 were held in communities identified as disadvantaged by the Electric Vehicle Charging Justice40 Map.

This chapter describes the current distribution of charging infrastructure relative to disadvantaged communities (DACs), using several different definitions of DACs. This chapter also discusses how ODOT anticipates working with DACs and EV equity proponents to a) identify which benefits to prioritize, and b) develop a Justice40 framework to measure progress and ensure that the communities ODOT aims to serve receive these priority benefits through the NEVI program and other ODOT equity-focused initiatives.

## Current Charging Infrastructure in DACs

For the purposes of this discussion and an evaluation of the equity of EV charging infrastructure deployment, the following definitions of DACs are used.

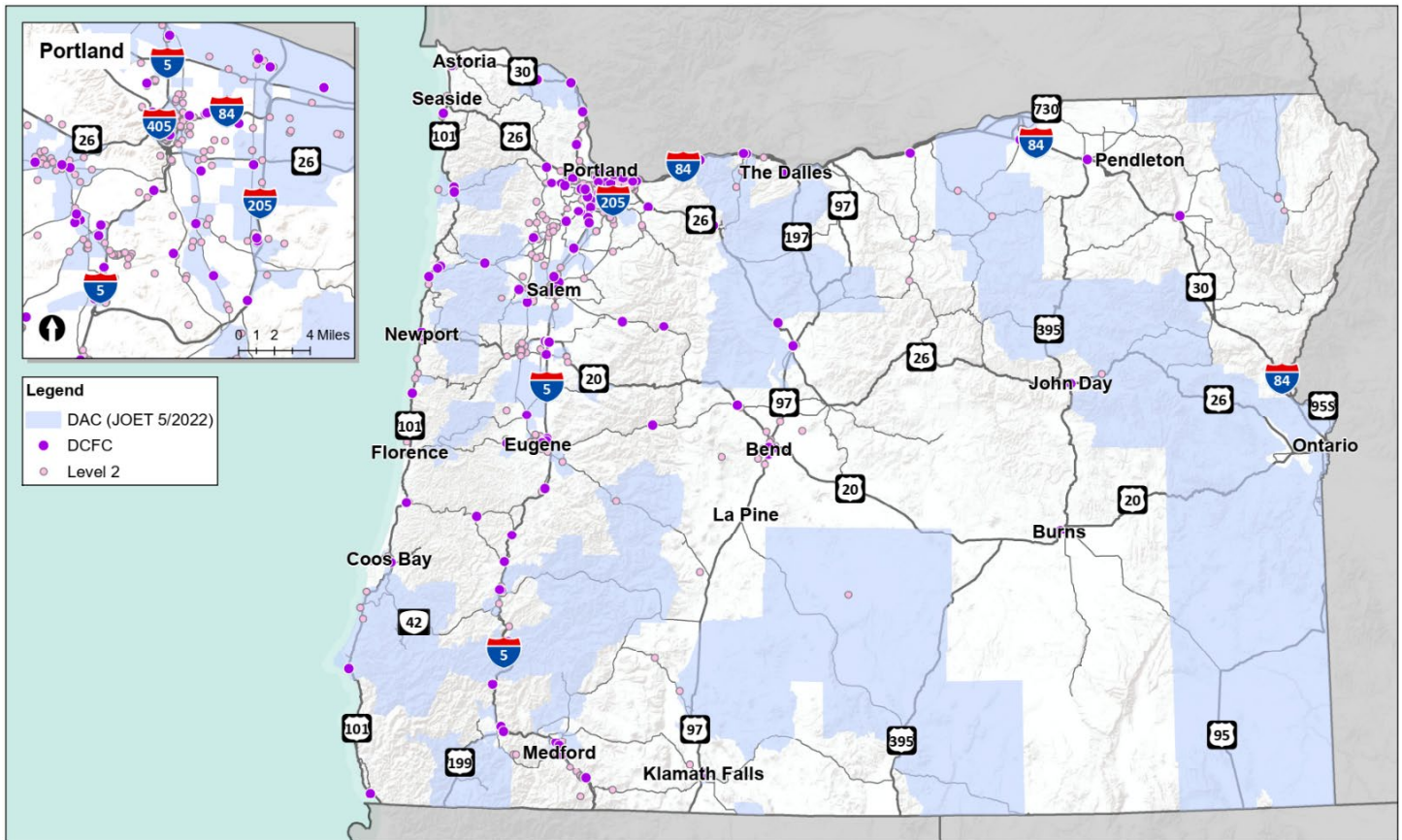
- **Joint Office of Energy and Transportation (JOET, USDOT/USDOE):** Consistent with Justice40 guidance, USDOT and USDOE developed a joint definition of DACs which was updated on May 17, 2022. Further information about the criteria is available from the USDOT and USDOE via Argonne National Lab [here](#). **This definition will be used for complying with Justice40 requirements.**
- **ODOT:** As an additional equity lens beyond the official JOET guidance, ODOT is considering Areas of High Disparity identified using ODOT's Statewide Equity Index (see above). This alternate definition complements the JOET-based equity considerations, and could potentially be used, for example, to help decide between two otherwise similar potential station locations. ODOT's DAC definition will not be used for measuring Justice40 benefits; rather we will rely on the JOET definition for measuring benefits.

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<sup>8</sup> Note that the DAC definition in TEINA is distinct from that used by the Justice40 initiative; see TEINA study for details.

The following map shows DACs (using the JOET definition) with existing public charging station locations in Oregon, including both DCFC and Level 2, highlighting that many DACs are outside of urban areas and currently underserved by charging infrastructure.

Figure 32: Disadvantaged Communities (DAC) in Oregon\*



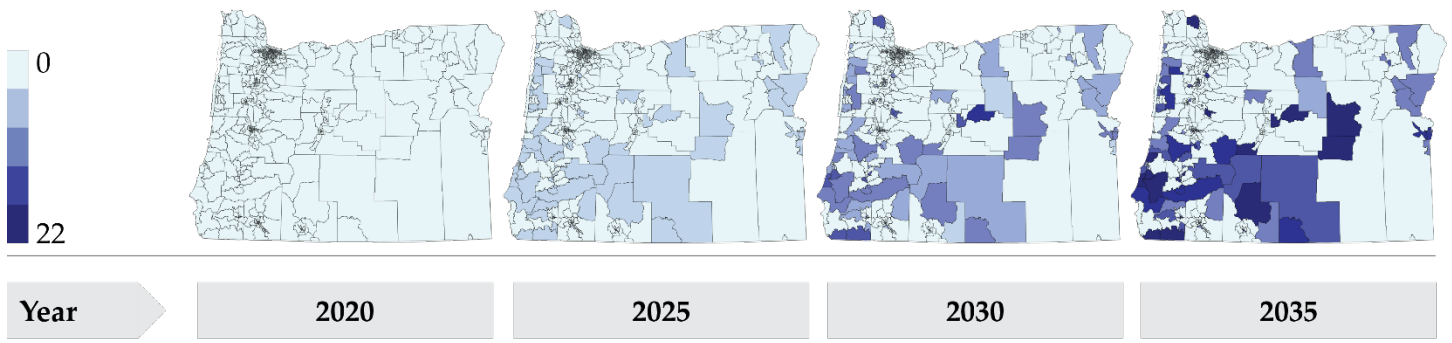
\*See Appendix F for updated data on EVSE in Oregon.

The TEINA study found that vehicle registrations in Oregon are currently 26% lower in disadvantaged communities than non-disadvantaged communities and highlighted the large number of incremental charging ports that will be required in DACs across the state, as shown in the following maps highlighting DCFC needs (although other charging power levels are also required; see TEINA study for additional details).

Figure 33: Total DCFC Charging Ports Needed in Disadvantaged Communities

## Total DCFC Charging Ports Needed in Disadvantaged Communities

*Business as Usual Optimized Scenario*



## Identification and Outreach to DACs in the State

ODOT is committed to not only providing EV charging access to disadvantaged communities but also to ensuring that the voices and needs of these communities are included in the planning and decision-making process from an early stage. The 2021 TEINA study included a significant stakeholder outreach component, which explicitly included engagement with representatives of historically underserved communities. This engagement is ongoing as part of the public outreach ODOT conducted to solicit input on its inaugural State Plan. A summary of ODOT’s stakeholder engagement efforts related to FY 2022 funding can be found in the Community Engagement Outcomes Report.

As part of ODOT’s ongoing DAC-focused engagement, ODOT will develop questions targeted to specific audiences and meeting formats framed around the topics of equity, accessibility, economics and affordability, and geography to obtain meaningful input on potential benefits and burdens. A key engagement point will be in advance of each Alternative Fuel Corridor build out. DAC outreach and inclusion plans are described in further detail in the **Public Engagement** chapter along with the full Stakeholder Engagement Plan included as [Appendix A: Stakeholder Engagement Plan](#).

Some of the groups will include Federally recognized tribes, the NAACP, EV Equity, Unite Oregon, and the Asian Pacific American Network of Oregon, among others. ODOT will continue to engage with local communities, including through the AFC outreach described above. During these engagements ODOT aims to identify which benefits are of highest priority to the communities, and what methods and metrics will help ensure NEVI funding is providing these benefits to DACs.

## Process to Identify, Quantify, & Measure Benefits to DACs

ODOT expects many NEVI program benefits, not the least of which is increased access to EV charging for more Oregonians. As EV charging becomes more available and convenient, broader swaths of the population will perceive EV ownership to be feasible, spurring EV adoption. Additional benefits could include increased



investment and workforce development opportunities in disadvantaged communities as well as reduced exposure to transportation-related emissions, which will have significant public health benefits over time.<sup>9</sup>

## Proposed Approach

To ensure that a minimum 40% of benefits from this program accrue to DACs, ODOT will work with JOET and others to propose and craft how best to define the benefits to be tracked, based on priorities communicated through DAC engagement. ODOT will explore avenues to measure and monitor DAC benefits.

Examples of the draft DAC benefit metrics and/or methods are included below<sup>10</sup> and are tied to the overarching goals of universal access, affordability, reliability, and customer experience. ODOT expects this to be an iterative, and potentially imprecise process, as there may not be good data to measure clear accomplishment of Justice40 benefits. Importantly, for the metrics that ODOT and DACs align upon to track Justice40 benefit accrual, ODOT will seek to establish a baseline from which to measure progress.

Table 4: Tracking Benefits in Disadvantaged Communities

Category	Potential Metrics and/or Data
Direct Impacts	<ul style="list-style-type: none"> <li>• Proximity of DCFC stations to DACs</li> <li>• DCFC per capita</li> <li>• Reliability and utilization of charging stations</li> <li>• Location of investment</li> <li>• Jobs created in rural or disadvantaged communities (permanent vs. temporary)</li> <li>• Businesses in DACs within a certain proximity of DCFC (increased opportunity for commercial activity before, during, or after charging sessions)</li> <li>• Estimates of reduced tailpipe emissions from charging at NEVI-funded stations (e.g., NO<sub>x</sub>, PM<sub>2.5</sub>)</li> </ul>
Indirect Metrics	<ul style="list-style-type: none"> <li>• Per-capita EV ownership</li> <li>• Level 2 charging per-capita (as a proxy for assessing whether DCFC being sited in areas that need it most, while recognizing that DCFC serves a different need and dwell time than Level 2 charging)</li> <li>• Transportation energy burden in DACs, to the extent that data is available to determine this metric.</li> <li>• Responses from DACs to online open house surveys, and in person/virtual community meeting and surveys</li> </ul>

<sup>9</sup> See, for example, a recent report by the American Lung Association on the benefits of transportation electrification: [Zeroing in on Healthy Air](#).

<sup>10</sup> Note that there is overlap between these potential metrics of interest for DAC benefit estimation and the potential metrics articulated in the **Program Evaluation** chapter, which may be used to track overall program effectiveness.

# Labor and Workforce Considerations

The NEVI program provides an important opportunity for job creation, training, and investment in communities across the country. ODOT will ensure that annually contracted EVSPs responsibly work with local communities to share the workforce development and investment benefits afforded by NEVI funding.

ODOT will encourage contracted EVSPs to use local workforce, where possible, and support and/or conduct trainings in line with NEVI requirements, including the detailed standards outlined in the finalized rulemaking from FHWA (see **Strategies to Promote Strong Labor, Safety, Training, and Installation Standards**). ODOT will also ensure that the RFPs issued and EVSPs adhere to ODOT's diversity, Equal Employment Opportunity, and other policies.

# Cybersecurity

Ensuring cybersecurity and integrity of EV charging infrastructure is of paramount importance, with two main areas of concern: 1) securing user physical safety and personal information and 2) protecting operational integrity and connected infrastructure. ODOT will ensure that EVSPs comply with the cybersecurity stipulations in the final National Electric Vehicle Infrastructure Standards and Requirements, published February 28<sup>th</sup>, 2023.

As included in ODOT's previous contracting efforts such as the West Coast Electric Highway Upgrade RFP, ODOT is committed to ensuring that critical transportation infrastructure does not pose a cybersecurity or personal privacy risk to Oregon or the United States. Contracted, third-party EVSPs will own, operate, and maintain the EV charging stations as well as the data produced. They will be required to provide ODOT with anonymized data on a recurring basis. EVSPs will also be required to publish station location, power ratings, and costs to the various sites tracking EV charging stations, including the US Department of Energy Alternative Fuel Data Center and any other mechanisms or sites developed by JOET. EVSPs will be required to provide a contractual cybersecurity plan that demonstrates the cybersecurity maturity of the recipient and its compliance with applicable Oregon, regulatory, and Federal cybersecurity requirements. The plan must also demonstrate how the recipient will maintain and improve cybersecurity throughout the contract period. This will include maintaining compliance with current and future cybersecurity requirements as well as alerting ODOT and the Cybersecurity and Infrastructure Security Agency (CISA) of any known or suspected network or system compromises. On an annual basis, EVSPs must provide evidence that the cybersecurity plan has been properly implemented.

While charging technology, and the cybersecurity systems that protect them, are evolving quickly there are some foundational cybersecurity principles and techniques that public charging infrastructure should adopt, including the following:

- **Boot Security:** Boot security uses embedded manufacturer approved/authenticated hardware devices to authenticate operating system software when an EV charger is "booted" up. If the operating system at the boot stage is not authenticated, the charger will stop the malicious operating system from loading or making changes to the charger.
- **Secure over-the-air Updates:** Secure methods to update software on deployed chargers should be available such as "over the air updates" or updates that can be issued remotely. When the software components on an EV charger are updated, there should be protections in place to authenticate the software update before the update is accepted and implemented. This mitigates the risk of malicious software being loaded onto a device.
- **Secure Communication:** EV chargers communicate sensitive data to a central system on the cloud for their operation and to offer charging services for the EV drivers. The link between the chargers and this central system must be sufficiently secured to ensure the authenticity, confidentiality, and integrity of the data exchanged. This mitigates the risk of man-in-the-middle attack.
- **Secure Customer Information:** EV chargers may store sensitive data, like personally identifiable information or payment information. This sensitive data should be protected and there are a variety of means to do that. Some options include encryption, role-based access, and limiting the amount of information locally stored on an EV charger.

There are a variety of hardware and software techniques for implementing these four principles and mitigating risks of malicious actors gaining access to public charging infrastructure and information. ODOT will ensure alignment with NEVI requirements as well as coordinate with major Federal and industry EVSE players in setting cybersecurity standards within contracting for the state plan.

# Program Evaluation

To evaluate program effectiveness, ODOT will monitor two different categories of metrics—direct and indirect—to be reported on annually in each iteration of the State Plan. ODOT plans to utilize EV-ChART to assist in its program evaluation.

**Direct metrics** evaluate progress in discrete areas that are influenced by NEVI program funding and implementation. Examples of direct metrics are in the following table and may be based on, as appropriate, station installation year, AFC, utility service territory, county, site host type, community type (DAC or not), number of ports by power level, total site power, and EVSP network.

Table 5: Potential Direct Metrics Measured for Program Evaluation

Direct Metrics	Units	Description
New and upgraded stations/ports	No.	New and upgraded DCFC stations and ports funded through NEVI
Total investment	\$	Total capital investments and operating support provided, including NEVI funding and non-Federal match
Average costs	\$/station, \$/port	Average capital investment and operating support, by station and by port
Energy dispensed	MWh	Total energy provided at NEVI-funded stations, annually; kWh, if by station
Reliability	%	Percentage uptime (station, overall NEVI-funded network)
Customer satisfaction	Survey responses	Customer satisfaction surveys issued to understand consumer experience and any areas for improvement / issue resolution
Total charging events	No.	Discrete charging events at NEVI-funded stations
Unique visitors	No.	Unique visitors (drivers) to NEVI-funded stations
Electric miles	Mi.	Estimated mileage provided by NEVI-funded infrastructure
Avoided fossil fuel	Gal.	Estimated gasoline and diesel avoided by charging at NEVI-funded stations
GHG reduction	Metric tons CO <sub>2</sub> e	Estimated greenhouse gas emissions reduction attributable to charging at NEVI-funded stations
Public engagement events	No./type	Events held to solicit input for NEVI-funded station siting, promote the program, or other engagement purposes. Number of participants may be a better metric for some types of community engagement, such as online open houses

**Indirect metrics** assess progress in related, ancillary areas which are influenced by the NEVI program as well as broader transportation electrification trends and initiatives. Examples of indirect metrics are included in the table below.

Table 6: Potential Indirect Metrics for Program Evaluation

Indirect Metric	Units	Description
EV registrations	No.	Total light-duty EV registrations in Oregon, by type (BEV, PHEV)
New vs. used EVs	No.	Light-duty EV registrations in Oregon, by year first registered
YoY EV growth	%	Annual growth in light-duty EV registrations in Oregon, by type
Total public charging available	No.	Total publicly accessible charging ports available, by type and power level

Some of these metrics are already being tracked in Oregon (see, for example, the ODOE [EV Dashboard](#)). ODOT will aim to leverage its own data, as well as that of partner agencies, such as ODOE, DEQ, and OPUC, to develop a robust program evaluation framework that will enable it to track progress and make any necessary changes to its approach to better achieve desired outcomes. ODOT's Climate Office has an existing section that monitors performance, and this team will be engaged in the development and ongoing tracking of such metrics for the NEVI program. In addition to the JOET and EV-ChART, ODOT also envisions that we may work with other stakeholders to develop best practices, including, for example, AASHTO, NASEO, NESCAUM, Atlas Public Policy, REV West, and the Pacific Coast Collaborative, among others.

ODOT will use these direct and indirect metrics to evaluate the effectiveness of its NEVI program implementation on an annual or sub-annual basis. Based on these measures, adjustments may be made to various components of the strategy to ensure that program goals are being met, charging infrastructure is being equitably provided to Oregonians, and funding is being efficiently allocated to achieve the desired outcomes of the NEVI initiative.

# Discretionary Exceptions

ODOT is seeking two discretionary exceptions for FY 2024 funding for the 50-mile station interval requirement: one along southern US 101, for the interval between proposed stations in Bandon and Gold Beach (a distance of 55 miles); and one along eastern US 26 for the interval between proposed stations in Unity and Vale (a distance of 65 miles). These requested exceptions would enable efficient use of Federal NEVI funding by allowing the strategic siting of stations in communities with more commercial activity (US 101) and by permitting a single new station—rather than two new stations—to be developed along a remote stretch of highway with low traffic (US 26) in eastern Oregon.

Table 7: ODOT FY 2024 Requested Discretionary Exceptions

Exception #	Type	Distance of Deviation	Reason for Exception Request
FY24.01	50 miles apart	5 miles (approx.)	Geography
FY24.02	50 miles apart	15 miles (approx.)	Geography

The first area (see Figure 34 below) is along a segment of US 101 that supports the lowest traffic counts of the corridor and already hosts several other fast charging stations, including an 8-charger Tesla station in Bandon and a single-charger West Coast Electric Highway (WCEH) station in Port Orford. In addition, two new fast charging stations are expected to open in the coming years; both EV Charging Solutions (EVCS) and Electrify America have committed to building new stations along southern US 101. (EVCS will open a station in Gold Beach and Electrify America has not publicly released their station location.) The low utilization expected because of minimal traffic and an already high relative access to fast charging stations in this area is the reason ODOT is seeking to an exception to the 50-mile requirement.

Along southern US 101, ODOT is proposing a NEVI station in Bandon, a community 27 miles south of the nearest NEVI-compliant station in North Bend. In addition to being a popular tourist destination along Oregon’s southern coast, Bandon is located at the intersection with OR 42 S, a state highway connecting the coast with the more populous Umpqua River Valley. Bandon does not currently have any publicly accessible fast chargers. The distance between Bandon and Brookings to the south, the location of another NEVI-proposed station (necessary to meet the requirement to locate stations within 25 miles of the corridor terminus/California border), is 83 miles. Accordingly, ODOT is proposing that a single new NEVI station be developed between these points (Bandon to the north and Brookings to the south) to support EV traffic along this route. Based on the location of commercial activity in the area, which is relatively sparse given the rural nature, there are two logical options for this single new NEVI station: Port Orford and Gold Beach. To minimize the deviation from the required 50-mile maximum station interval and because Port Orford already hosts a WCEH station, ODOT proposes Gold Beach as the best candidate location. As shown on the map, Gold Beach is slightly further south than 50 miles from Bandon (55 miles); however, Port Orford is located a similar distance north from Brookings (56 miles). Either choice will lead ODOT to request an exception, and ODOT is recommending the 55-mile exception from Bandon (to the north) and Gold Beach (further south). This results in a distance of 28 miles between Gold Beach and the proposed station at Brookings, 6.3 miles north of the California border, along US 101.

The second area (see Figure 34 below) is along eastern US 26 in an extremely rural area with some of the lowest traffic counts in the state. ODOT anticipates DCFC demand in this area, especially during the first few years of the program, to remain low relative to more densely populated and/or highly trafficked segments.

ODOT is requesting an exception along a 114-mile stretch on US 26 in rural, eastern Oregon between John Day and Vale, so that only one station be sited between these two remote communities.

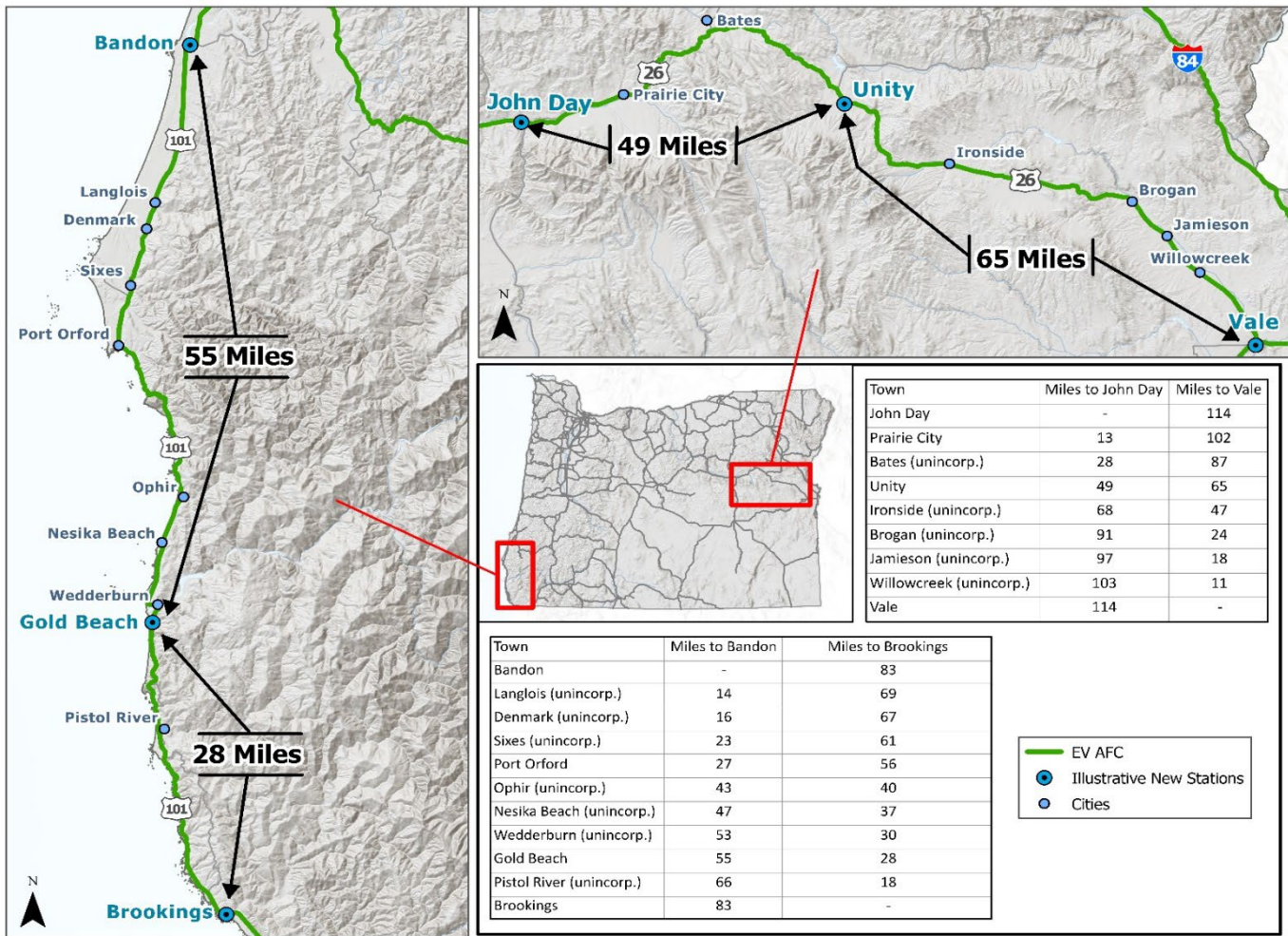
The total distance between the NEVI-proposed stations in John Day and Vale (at the intersection with US 20), is 114 miles. The NEVI Program requires two new stations between these points; ODOT is proposing a single new NEVI station between John Day and Vale instead. There are only two official communities along this stretch of highway – Prairie City and Unity – and they are both very small, as are the many unofficial communities surrounding them (see Table 8 for populations of the communities discussed in this section). Given Prairie City’s proximity to the proposed NEVI station in John Day (13 miles), ODOT proposes locating a single additional NEVI station in Unity, which already hosts a gas station and is closer to the midpoint of this stretch of highway, located 49 miles east from John Day and 65 miles west from Vale. ODOT does not believe that siting two NEVI stations along this rural stretch of highway is an efficient use of NEVI funds. Vale is an attractive NEVI station location because it is within 25 miles of the corridor terminus (at the Idaho border), is located at the intersection with US 20, another electric AFC in Oregon and supports a larger population than other communities along the corridor.

Table 8: Population of Communities Between Exception Points on FY 2024 Corridors

Corridor	Community	Population
US 101	Bandon	3,331
	Langlois (unincorporated)	370
	Denmark (unincorporated)	No information; not included in past census counts
	Sixes (unincorporated)	211
	Port Orford	1,155
	Ophir (unincorporated)	No information; not included in past census counts
	Nesika Beach (unincorporated)	353
	Wedderburn (unincorporated)	383
	Gold Beach	2,365
	Pistol River (unincorporated)	126
	Brookings	6,837
US 26	John Day	1,680
	Prairie City	1,115
	Bates (unincorporated)	No information; not included in past census counts
	Unity	44
	Ironside (unincorporated)	48
	Brogan (unincorporated)	21
	Jamieson (unincorporated)	No information; not included in past census counts
	Willowcreek (unincorporated)	No information; not included in past census counts
	Vale	1,899



Figure 34: Exceptions Locations Map – FY 2024 Corridors



Beyond the exception requests described above, ODOT anticipates potential exceptions required based on grid capacity constraints. ODOT is currently working directly with all utilities whose service territories cover the FY 2024 EV Alternative Fuel Corridors (I-405, US 101, and US 26) to understand grid capacity conditions near potential sites. However, utilities uniformly state that they cannot definitively confirm capacity conditions without knowing precise—rather than approximate—locations for planned DCFC stations. ODOT will continue to evaluate this consideration during RFP development, contracting with EVSPs, and eventual siting decisions.

In addition, all proposed locations for NEVI stations along FY24 corridors are illustrative. ODOT anticipates that the specific location of proposed NEVI stations may change over time as additional public fast charging stations come online and/or as ODOT’s private sector partners work to select site hosts. As such, ODOT’s discretionary exception requests may change. ODOT will work with the JOET if and as circumstances requiring different or additional exceptions are determined through NEVI planning activities and analyses.

# Conclusion

This FY 2024 NEVI State Plan Update lays out how ODOT expects to achieve our vision for the NEVI program funding overall, and specifically for FY 2024 corridors of US 26, US 101, and I-405, to create a critical backbone network of high-powered EV charging stations along major corridors in Oregon. Successfully executing this vision will significantly increase Oregonians' confidence that EV charging will be as ubiquitous and convenient as fueling with gasoline and is a critical component in achieving the state's ambitious ZEV adoption goals. Oregon is all-in on transportation electrification, and this FY 2024 NEVI State Plan Update is a key part of the \$100 million investment ODOT is committing to EV charging infrastructure over the next five years.

ODOT intends for the NEVI State Plan to be a living document that incorporates meaningful feedback from a diverse group of stakeholders. New input will be integrated into subsequent, annual updates to this Plan in the interest of aligning ODOT's approach with desired outcomes, with particular focus on providing the benefits of transportation electrification to disadvantaged communities and other historically underserved or overburdened populations across Oregon.

On behalf of the State of Oregon, ODOT looks forward to working with the FHWA, JOET, partner state agencies, and other states to begin implementing the NEVI program and sharing the benefits of additional EV charging infrastructure with all Oregonians.

# Appendix A:

# Stakeholder Engagement Plan

## Introduction

*More EVs on our roads means fewer emissions, healthier communities, and a better future for Oregon and the planet.*

As part of the Infrastructure Investment and Jobs Act (IIJA), the National Electric Vehicle Infrastructure (NEVI) Formula Program provides funding for electric vehicle (EV) charging infrastructure to ensure a convenient, reliable, affordable, and equitable charging experience for all users. Under this program, each state is required to submit an EV Infrastructure Deployment Plan (NEVI State Plan) by August 1st that describes how the State intends to use its apportioned NEVI Formula Program funds.

This stakeholder engagement plan summarizes the ODOT outreach efforts undertaken to date to inform the NEVI State Plan. It also outlines ODOT's commitment to an equitable and robust engagement strategy for the next five years of NEVI to implement the NEVI State Plan. Together, these outreach efforts will help inform the equitable and fair distribution of EV charging infrastructure so travelers have the confidence that an EV will get them where they need to go, just like a vehicle powered by gasoline or diesel.

## EV Infrastructure Planning and NEVI State Plan Stakeholder Engagement

Oregon's public outreach to identify the state's EV charging infrastructure needs began in 2020 with two ODOT initiatives: the Transportation Electrification Infrastructure Needs Analysis (TEINA) in partnership with Oregon Department of Energy (ODOE) and the Every Mile Counts (EMC) Program in partnership with the Department of Environmental Quality (DEQ), Department of Land Conservation and Development (DLCD) and ODOE. In 2020, Governor Brown directed ODOT to study Oregon's need for greater EV charging infrastructure to meet state EV goals, reduce greenhouse gas emissions and facilitate the state's transition to a wide array of electric transportation modes.

Engaging with a wide range of stakeholders was a key part of the TEINA and EMC efforts. Specifically, TEINA outreach included input from a diverse 17-member Advisory Group (four meetings); 12 Stakeholder Listening sessions; and a web page. Additionally, EMC held two online virtual workshops to have stakeholders share their input on building equity into state agency partnerships and work plans. Twenty-seven individuals from a variety of organizations representing disadvantaged communities, environmental justice, and work at the intersection of equity and climate change participated in these workshops.

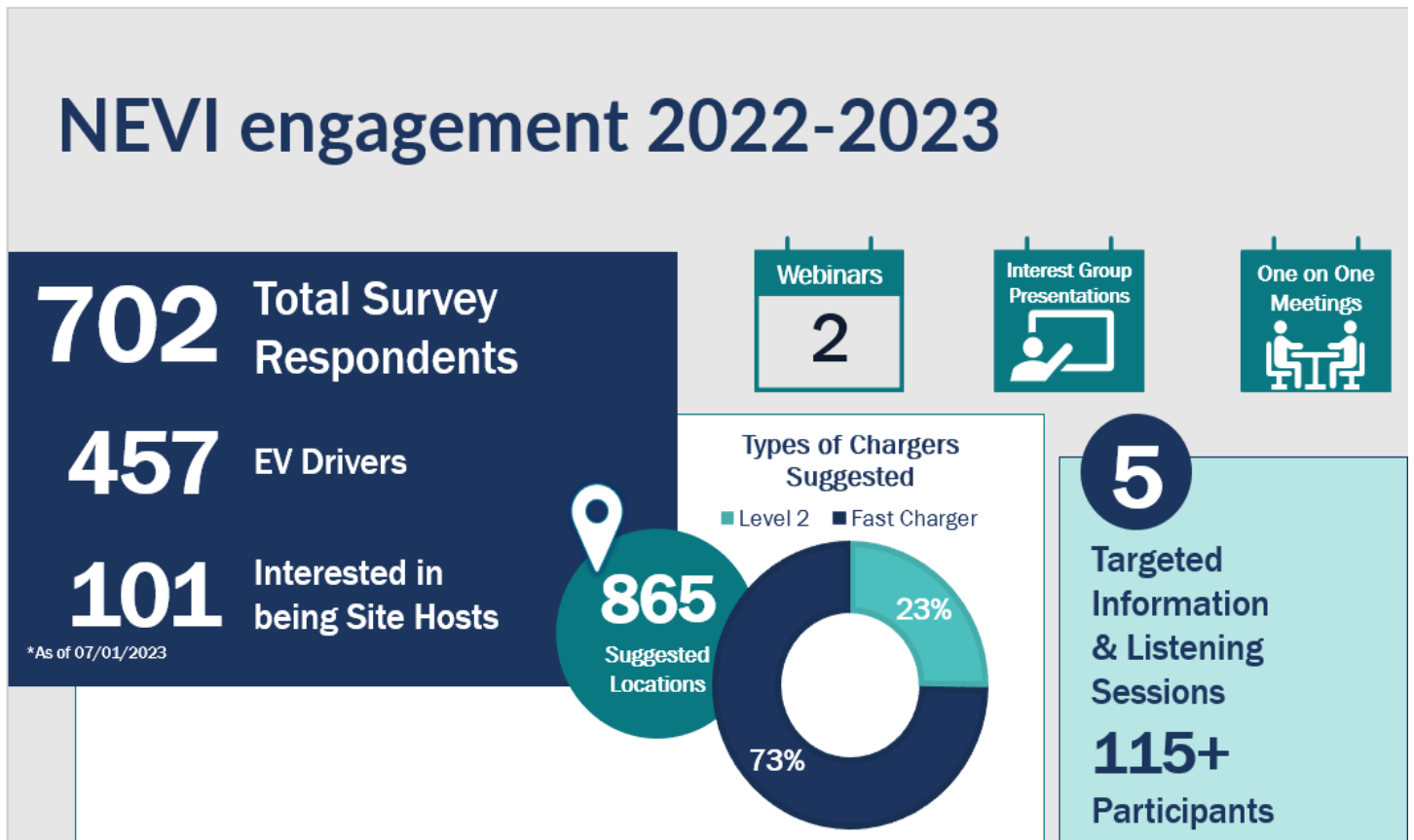
Since the first round of Federal NEVI guidance came out in February 2022, ODOT's goal has been to share information about NEVI and gather feedback from various stakeholder groups including state and local agencies, private sector industries, EV representatives, transportation providers, utility and power companies,

labor organizations, transportation providers, equity focused and environmental advocacy groups, community-based organizations, and the public.

During this time, ODOT has:

- Hosted a public, introductory informational webinar (April 4), with over 250 participants, and a second public webinar (June 27) with over 150 participants to review the State Plan.
  - Over 300 people have responded to the surveys, 2/3 of whom are EV drivers.
  - Nearly 40 cities, communities, companies and organizations have raised their hands to say they are interested in being site hosts for NEVI charging stations.
  - Over 450 potential locations for EV charging have been suggested.
- Engaged in dozens of conversations and presentations with a diverse range of companies, organizations, cities, utilities, and interest groups, including League of Oregon Cities and the Emerald Valley EV Drivers Association.
- Conducted five 90-minute information/listening sessions targeted to EV drivers; cities and counties; utilities; EV service providers (EVSPs); and Environmental, Environmental Justice, other equity and EV advocates. Each information/listening session had 25 to 35 participants.
- Established a NEVI web page that includes detailed FAQs in response to commonly asked questions raised during outreach efforts, background material, and opportunities for the public to share opinions and insights via four surveys (EV Drivers; Non-EV Drivers; EV Charging Site Hosts; Interested in becoming an EV Site Host), and an interactive map allowing the public to identify their preferred locations for EV charging stations.
- Engaged extensively with numerous disciplines within its own agency and partner agencies.
- Hosted nine in person and virtual community meetings along I-205, US 97, and I-5 to inform the public about the NEVI program and solicit feedback to inform the writing and scoring of RFPs.
- Presented to Lower John Day, Lane, Central Oregon, Southwest, Rogue Valley, and Region 1 Area Commissions on Transportation
- Hosted an Online Open House with surveys unique to each of ODOT's three year one corridors.

Figure 35: NEVI State Plan Outreach 2022-2023



### NEVI State Plan Outreach to Date

NEVI-related stakeholder engagement activities have already revealed valuable information that has influenced and been integrated into the current EV State Plan. Six key themes that have emerged from these stakeholder engagement activities are identified in Figure 33.

Figure 36: Key Themes from NEVI State Plan Outreach



### Plan Objectives

The key objectives of the stakeholder engagement plan are as follows:

- Identify and maintain a list of a diverse range of stakeholders recognizing that the distribution of EV charging infrastructure must target locations and benefits to rural areas, underserved and overburdened communities, and disadvantaged communities, including relevant suppliers and contractors.
- Establish a menu of engagement opportunities, with a focus on lowering the barriers to participation to reach disadvantaged communities, so all stakeholders can provide meaningful feedback on NEVI decisions.
- Listen and respond promptly to stakeholders so they understand how their participation has influenced decisions.
- Monitor the effectiveness of the stakeholder engagement activities and revise the process, as necessary.

Outreach will be consistent with:

- Executive Order 14008: Tackling the Energy Crisis at Home and Abroad (2021).
- Interim Justice40 Guidance<sup>22</sup>. Deliver at least 40% of the overall benefits from Federal investments in climate and clean energy to disadvantaged communities.
- Civil Rights. Compliance with State and Federal civil rights laws, including Title VI of the Civil Rights Act and accompanying USDOT regulations, the American with Disabilities Act, and Section 504 of the Rehabilitation Act.
- Labor and Workforce Considerations. Planning for the training, experience level, and diversity of the workforce that is installing and maintaining EV charging infrastructure.

## Stakeholders

Table 1 contains an example list of some of the Oregon stakeholders ODOT expects to engage in the coming months and years, consistent with the stakeholder groups required by Federal guidance issued in February 2022. The information is illustrative and is not an exhaustive listing of all those with whom ODOT will engage over the next five years. It is a starting point. Asterisks identify some of the groups with whom ODOT has already initiated conversations and illustrates the significant amount of work that has already been accomplished.

ODOT understands that the stakeholder engagement process is organic in nature and will evolve as more experience and insights are gained from conversations with stakeholders. Accordingly, a continuously updated list of relevant stakeholder groups and contact information will be maintained.

Table 9: Preliminary List of Oregon Stakeholders

Required NEVI Stakeholder Groups Per FHWA Program Guidance (2/10/22)	Preliminary Example List of OREGON Stakeholders Representative of the Required NEVI Groups <small>*Indicates previous participation in EV Infrastructure planning activities</small>
<b>Public</b>	<b>Public</b>
<b>Government Entities</b> <ul style="list-style-type: none"> <li>• Urban and rural communities</li> <li>• Emergency service providers</li> <li>• Department of Motor Vehicles</li> <li>• Commercial Vehicles</li> <li>• State agencies</li> <li>• Metropolitan Planning Organizations</li> </ul>	<b>State</b> <ul style="list-style-type: none"> <li>• Oregon Department of Transportation*</li> <li>• Oregon Department of Energy*</li> <li>• Oregon Department of Environmental Quality *</li> <li>• Oregon Department of Administrative Services*</li> <li>• Oregon Public Utilities Commission*</li> </ul>

**Required NEVI Stakeholder Groups  
Per FHWA Program Guidance (2/10/22)**

**Preliminary Example List of OREGON Stakeholders Representative of the  
Required NEVI Groups**

\*Indicates previous participation in EV Infrastructure planning activities

- Department of Environmental Quality

**Cities** (League of Oregon Cities\*)

**Counties** (Association of Oregon\*)

**Metropolitan Planning Organizations**

**Utilities and Power Companies**

- Investor-owned electric utilities (IOUs)
- Municipally owned electric utilities
- Electric cooperatives
- Electric public utility districts

- PGE (IOU)\*
- Pacific Power (IOU)\*
- Idaho Power (IOU)\*
- Numerous individual utilities represented by Oregon Municipal Electric Utilities Association, Oregon Rural Electric Cooperative Association, Oregon People’s Utility District Association, and Consumers Power\*

**Federally Recognized Tribes**

- Confederated Tribes of Warm Springs
- Burns Paiute of Harney County
- Klamath Tribes
- Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians
- Confederated Tribes of Siletz Confederated Tribes of Grand Ronde
- Confederated Tribes of the Umatilla Reservation
- Coquille Indian Tribe
- Cow Creek Band of Umpqua Indians
- Burns Paiute Tribe

**Labor Organizations**

- IBEW\*
- Blue Green Alliance\*

**Interest Groups**

- Environmental groups
- Consumer advocates
- Non-profits organizations
- Universities

- Climate Solutions\*
- Bonneville Environmental Foundation\*
- Oregon Environmental Council\*
- Verde\*
- Columbia Willamette Clean Cities\*
- Oregon League of Conservation Voters\*
- NW Energy Coalition\*
- Metro Climate Action Transportation Team\*
- Bend Environmental Center\*
- Forth\*
- Renewable Hydrogen Alliance\*
- TREC Center\*
- Oregon State University, University of Oregon\*

**Equity Focused Groups**

Minority- and women-based organizations

- Unite Oregon\*
- League of Women Voters Oregon\*
- EV Equity\*
- NAACP\*
- Asian Pacific American Network of Oregon\*
- Soul\*

**Required NEVI Stakeholder Groups  
Per FHWA Program Guidance (2/10/22)**

**Preliminary Example List of OREGON Stakeholders Representative of the  
Required NEVI Groups**

\*Indicates previous participation in EV Infrastructure planning activities

- Latino Network
- Community Alliance of Tenants (CAT)

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**Private Sector Industry**

- Gas station owners
- Property managers
- Chambers of commerce
- Small business organizations

- Contracting companies
- Apartment Building Owners\*
- Developers
- Oregon Farm Services

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**EV Representatives**

- EV service providers
- EV equipment manufacturers
- EV car dealers
- EV drivers

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**EV Service Providers**

- Electrify America\*
- ChargePoint \*
- TTS\*
- Uconnect
- Shell Recharge (formerly Greenlots)\*
- SemaConnect\*
- Blink Charging\*
- EVgo\*
- EV Charging Solutions\*
- In Charge Energy / ABB\*

**Manufacturers/Dealerships**

- General Motors\*
- Volkswagen\*
- Tesla\*
- Gladstone Hyundai \*

**Drivers**

- Emerald Valley EV Association\*
- AAA
- Oregon Electric Vehicle Association
- Plug in America\*
- TNC (Uber, Lyft) drivers/owners

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**Transportation Providers**

- Car share/Transportation network companies
- Taxis
- Rental car companies
- Freight industry
- Transit providers
- Port authorities

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**Transit Operators\***

**Freight**

- Oregon Trucking Association\*
- Freight carriers
  - Titan Freight Systems
  - Daimler



# Future NEVI Stakeholder Engagement

ODOT will continue to engage with stakeholders over the next five years along each corridor through an inclusive process that facilitates participation by disadvantaged communities, as defined by Justice40. The Justice40 program requires a minimum of 40% of the broad benefits of NEVI funding to flow to disadvantaged communities. Through meaningful engagement with disadvantaged communities, ODOT can identify what benefits matter the most to them, and match those to opportunities. This information will inform future requests for proposals and be shared with utility companies and the selected EV charging companies who will install, operate and maintain the EV infrastructure so they can be a partner in achieving Justice40 goals.

## Stakeholder Engagement Tools

ODOT will use a variety of virtual and in-person engagement activities including community meetings, listening sessions, and guest speaking engagements with an emphasis on disadvantaged communities and others who have not been active participants to date. Each activity will be designed to lower barriers to participation by considering the needs of community members – all ages, abilities, races, cultures and classes. For example, a challenge with certain cultural groups may be a language barrier, while an opportunity within those same cultural groups may be that they have well-established subgroups that meet regularly with interpreters present so a small group listening session may be the most effective. For each activity, ODOT will consider:

- **Equity.** The allocation of resources (in this case, access to electric vehicles/electric vehicle chargers) will differ for all populations to reach similar outcomes. ODOT will develop questions targeted to specific audiences and meeting formats framed around the following topics to obtain meaningful input on potential benefits and burdens.
- **Accessibility** – location, safety, and convenience of charging. For example, ODOT will solicit feedback on issues such as security cameras and lighting for users who may need EV charging at night, what accommodations may be needed for people with disabilities, what is the tolerance for on-street charging infrastructure for those who live in apartments, etc.
- **Economics/Affordability** – investment in and affordability of charging infrastructure in disadvantaged communities. For example, questions will be asked about small business and minority-owned site locations for EV chargers, can local fleets be electrified to reduce costs to consumers, how can local chargers increase local commerce from travelers with EVs, etc.
- **Geography and Environment** – special contextual conditions that will affect EV performance characteristics. For example, questions may be asked related to challenging sections along remote mountain passes with steep topography and winter conditions, health concerns from emissions, how to improve charging experience in more rural/remote areas, etc.
- **Going to the People.** Whenever possible, it is best to meet where people are already gathering and comfortable such as using community meetings along corridors or attendance at existing community meetings.
- **Authentic engagement.** Finding champions and influencers who can help reach a group in a more effective and authentic way. Not only do they already have personal connections and understand the channels to reach them, but when the message comes from someone within their same group, it is more likely to be well received. This may again lend itself to a small group listening session, speaking engagements or having the trusted champion help administer a survey or post a fact sheet on a local bulletin board.
- **Equitable Engagement Compensation Program.** As part of ODOT’s commitment to social equity, this program builds equitable pathways for Oregonians who could not participate because of an unpaid time barrier. Oregonians who participate may be eligible for compensation for their time.

- **Incorporating a balance of virtual and in-person events.** Providing both meeting types to address differing needs such as workhours, childcare concerns, or mobility constraints.

Engagement tools are presented in Table 2. Activities are intended to rotate along the alternative fuel corridors by years of investment, as shown below. Collectively, these tools provide the flexibility needed to meet the diverse needs of individual stakeholder groups and disadvantaged communities.

Table 2: Stakeholder Engagement Tools

Tool	Description Public materials will be translated based on target audience and area demographics.	Estimated Timeframe
Maintain and update ODOT NEVI website	<a href="https://www.oregon.gov/odot/climate/Pages/NEVI.aspx">https://www.oregon.gov/odot/climate/Pages/NEVI.aspx</a> Introduction to NEVI NEVI Funding ODOT's Goals Engagement Opportunities Documents/ Links to Resources	Update quarterly
Public Notices	Announce advisory group and public meetings	10 days before event
Fact Sheets	Develop informational fact sheets to announce engagement opportunities and provide contact information. Fact sheets should be formatted for both electronic and print delivery.	Prior to each outreach event
Advertise public events	Use press releases, social media, media interviews, and listserv announcements to communicate public events, posting of new information including comment summaries, and general project updates.	Prior to each outreach event
Comment Summaries	After each public outreach event, comment summaries will be prepared and posted to the NEVI website.	Posted to website within two weeks of each outreach event
Community Meetings	Engage with stakeholders to inform them about NEVI program funding and ODOT's role. Solicit feedback from corridor stakeholders to learn more about: <ul style="list-style-type: none"> <li>• Contextual specific needs, challenges, opportunities</li> <li>• What does a successful EV Charging program look like along the corridor and in communities?</li> <li>• How to best address equitable access to charging infrastructure – from planning to installation to operation and for the end users</li> <li>• What are the best ways to implement Justice40 considerations in each community ways to measure benefits?</li> </ul> Community meetings are intended to a local resource specific to corridors and communities.	Along each corridor by year of investment  Community Meetings Initial outreach: Two per year in each identified community Follow up outreach: One per year in each identified community
Webinars	Webinars are intended to be a statewide resource to present updates on EV planning and key themes form regional outreach.	Webinars 2 per year
Small Group Information Sessions	Small group sessions and guest speaking engagements are intended	Small Group Sessions Initial outreach: Four per year by corridor Follow up outreach: Website, fact sheets, webinar
Guest Speaking Engagements – go to existing meetings	to be targeted to voices that have been notably absent: tribes, Justice40 disadvantaged communities, and human service organizations.	Guest Speaking Initial outreach Initial outreach: Two per year by corridor Follow up outreach: Website, fact sheets, webinar
Surveys Interactive Mapping	Continue the interactive mapping and surveys established for the NEVI plan so new participants can weigh in on charging station locations and provide comments.	On-going. Prepare summary reports quarterly

## Implementation Strategies

Outreach efforts will be time intensive and require flexibility. Below are some of the techniques ODOT may use to facilitate these efforts during plan implementation.

- Identify a staff member who will serve as the main contact and primary coordinator to lead the engagement efforts.
- Identify key communities along each corridor for in-person activities.
- Locate ADA accessible meeting venues that are familiar to communities, such as schools and libraries.
- Identify trusted partners that can help with in-person regional workshop coordination and presentations. For example:
  - o ODOT Regional Offices
  - o Metropolitan Planning Organizations
  - o Local EV champions
  - o Social service/Non-Profit leaders
  - o Tribal representatives
  - o Community liaisons/Interpreters
- Develop a “meeting toolkit” that includes a meeting presentation, frequently asked questions and training programs for trusted partners. Materials should incorporate easy to understand language and graphics to facilitate communication.
- Establish a virtual version of the regional meetings to complement the in-person meetings.
- Hold small group sessions and speaking engagements in conjunction with community meetings whenever feasible, and supplement with virtual sessions.

## Monitoring Progress

It is important to measure what matters. ODOT will track the following metrics to continually assess if the outreach program is achieving the desired objectives.

1. **Diverse participation.** After each event, participation will be evaluated to verify target audiences are being reached and what, if any, changes in public notification or engagement tools might be necessary. Example metrics that are expected to be collected include:
  - o Number of participants at an event
  - o Number of organizations represented at an event.
  - o Justice40/target audience participation rate in events
  - o Geographic distribution of participants/comments
  - o Unique visitors to the website
2. **Timely Feedback.** Meeting summaries and documentation regarding how feedback has been incorporated into the decision-making process will be completed in a timely manner.
  - o Comment/response summaries posted on the NEVI website within two weeks of each meeting.
3. **Justice40 Goals.** Identified benefits and burdens (economic, affordability, geographic, accessibility, environmental) are being solicited and incorporated into EV infrastructure planning.
  - o # of responses related to disadvantaged community EV burdens and opportunities
  - o Equity benefit language incorporated into requests for proposals.

## Summary

ODOT is committed to continuing conversations to listen and learn about community EV goals and prioritize desired benefits. The next key steps include going to the communities along the corridor to learn more. This information will inform future requests for proposals and be shared with utility companies and the selected EV charging companies who will install, operate, and maintain the EV infrastructure so they can be a partner in achieving Justice40 goals.

# Appendix B:

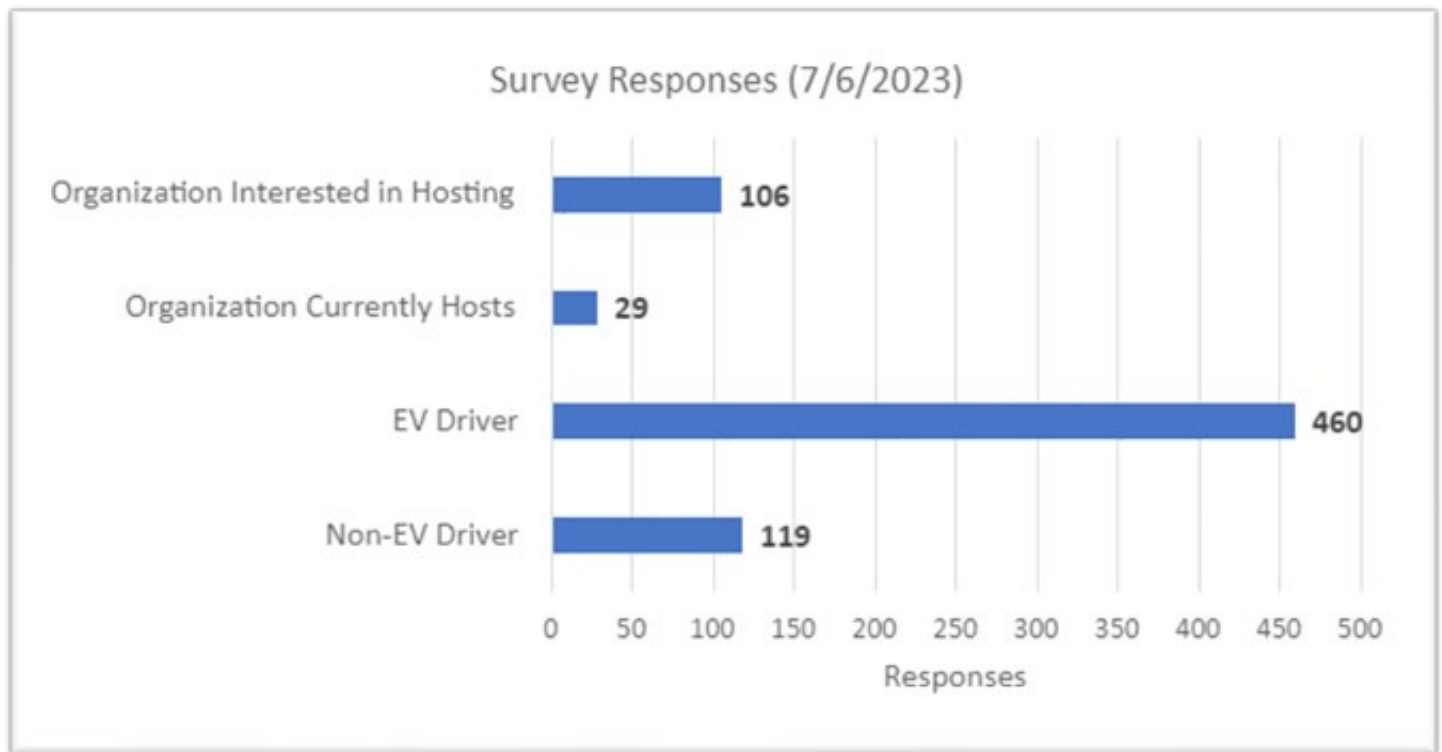
## Stakeholder Survey Results

### Summary

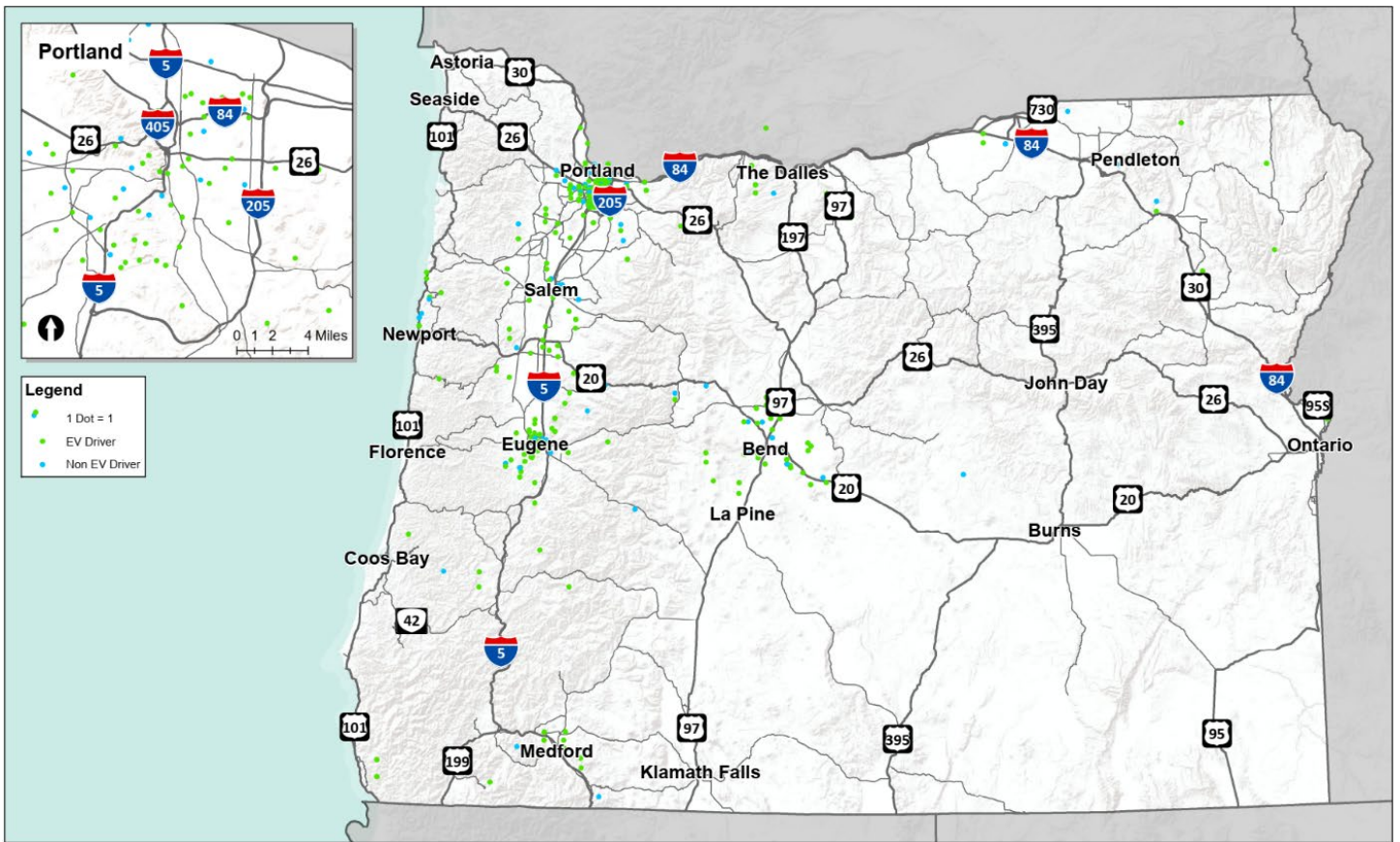
ODOT used two methods to collect survey data.

1. An interactive online map that allowed respondents to suggest locations for installing charging infrastructure throughout the state.
2. Online surveys that allowed respondents to provide feedback on key questions. Four surveys were created for different audiences: EV drivers, non-EV drivers, organizations currently hosting a charging station, and organizations interested in hosting a charging station.

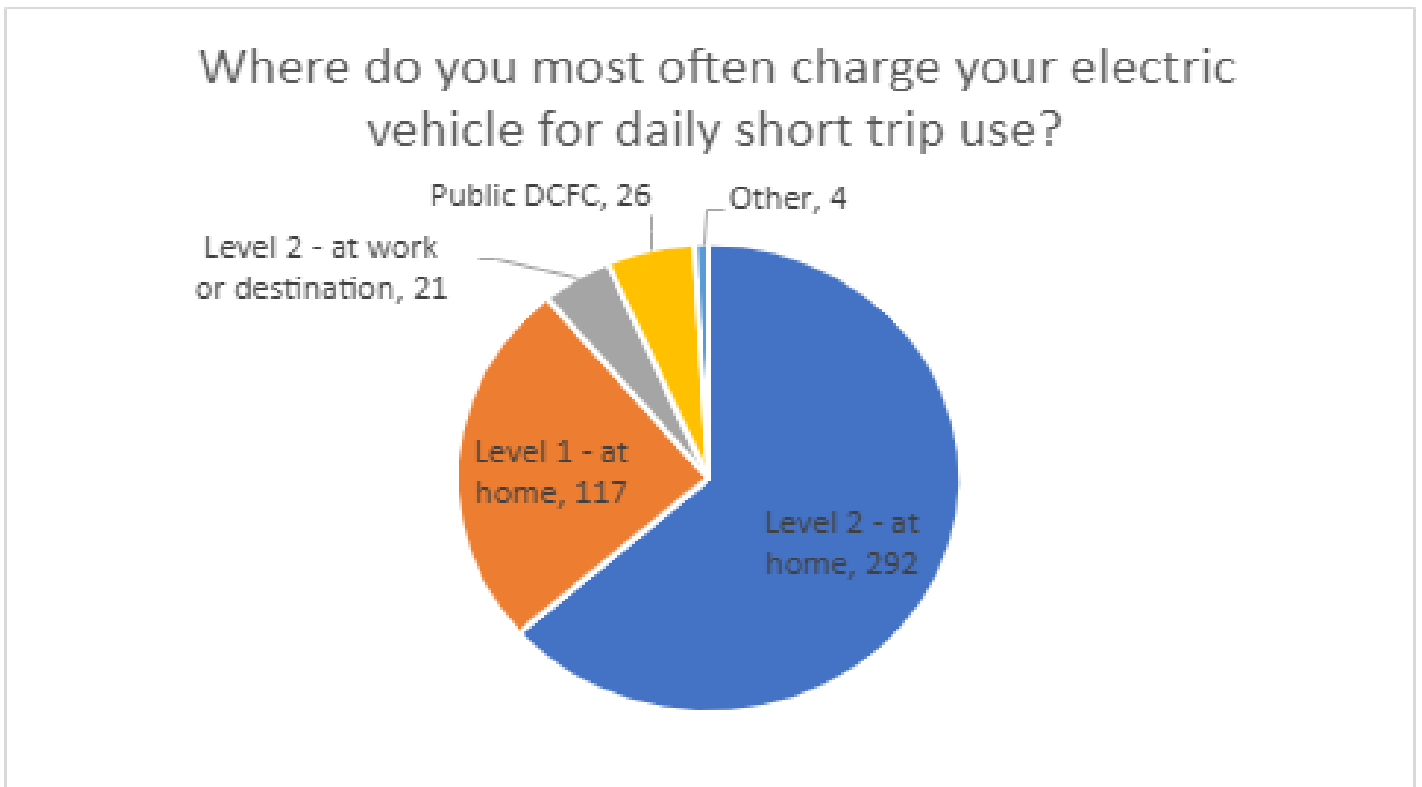
Four targeted surveys were provided to allow community members to respond with their experience and needs related to EV charging infrastructure. The number of survey responses is summarized by respondent type below.

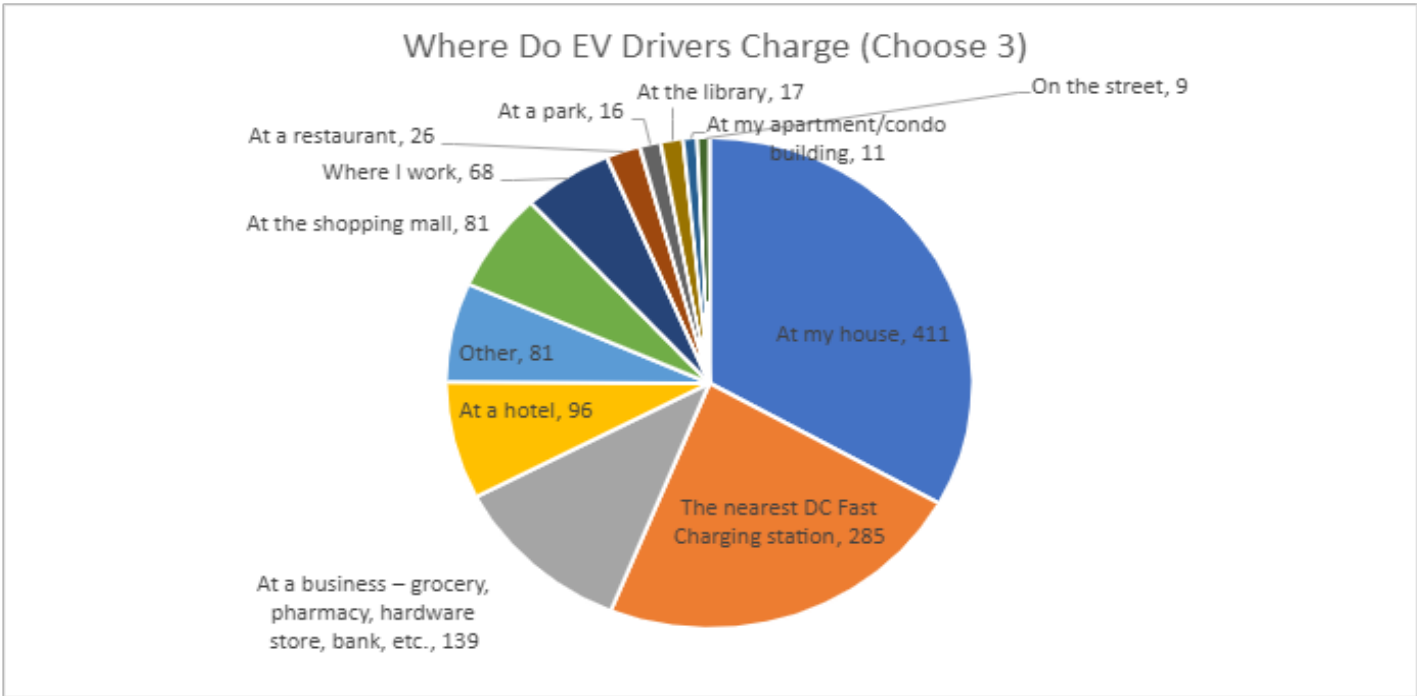


The map below shows the distribution of survey respondents throughout the state (for respondents who provided their home zip code).

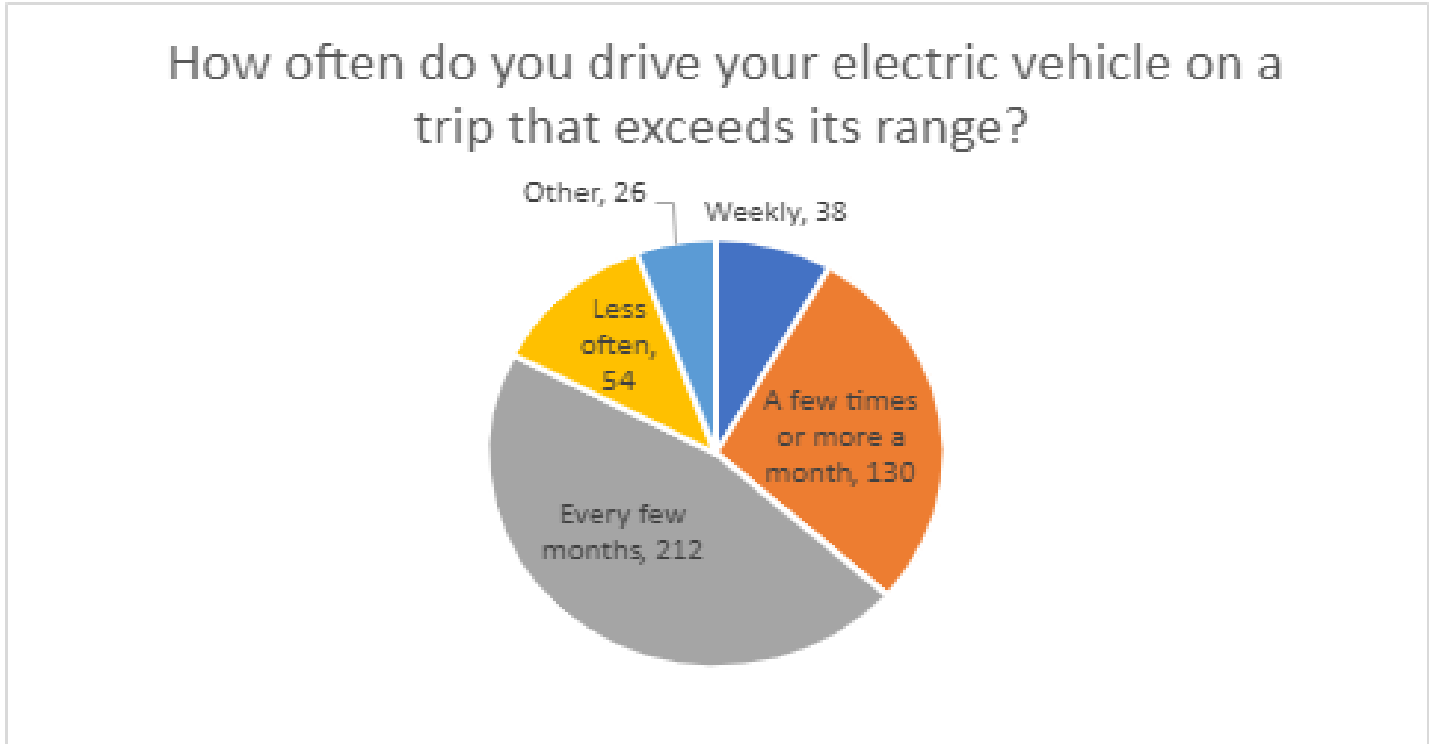


Most of the EV driver survey respondents primarily charge their vehicle at home: 409 of 460 (89%) respondents. EV drivers were also asked to identify the three most common places they charge their vehicles. Other than charging at home, EV drivers commonly charge at nearby fast chargers, chargers at businesses, and chargers at hotels. 68 of 460 respondents (15%) listed their workplace as a common charging location.

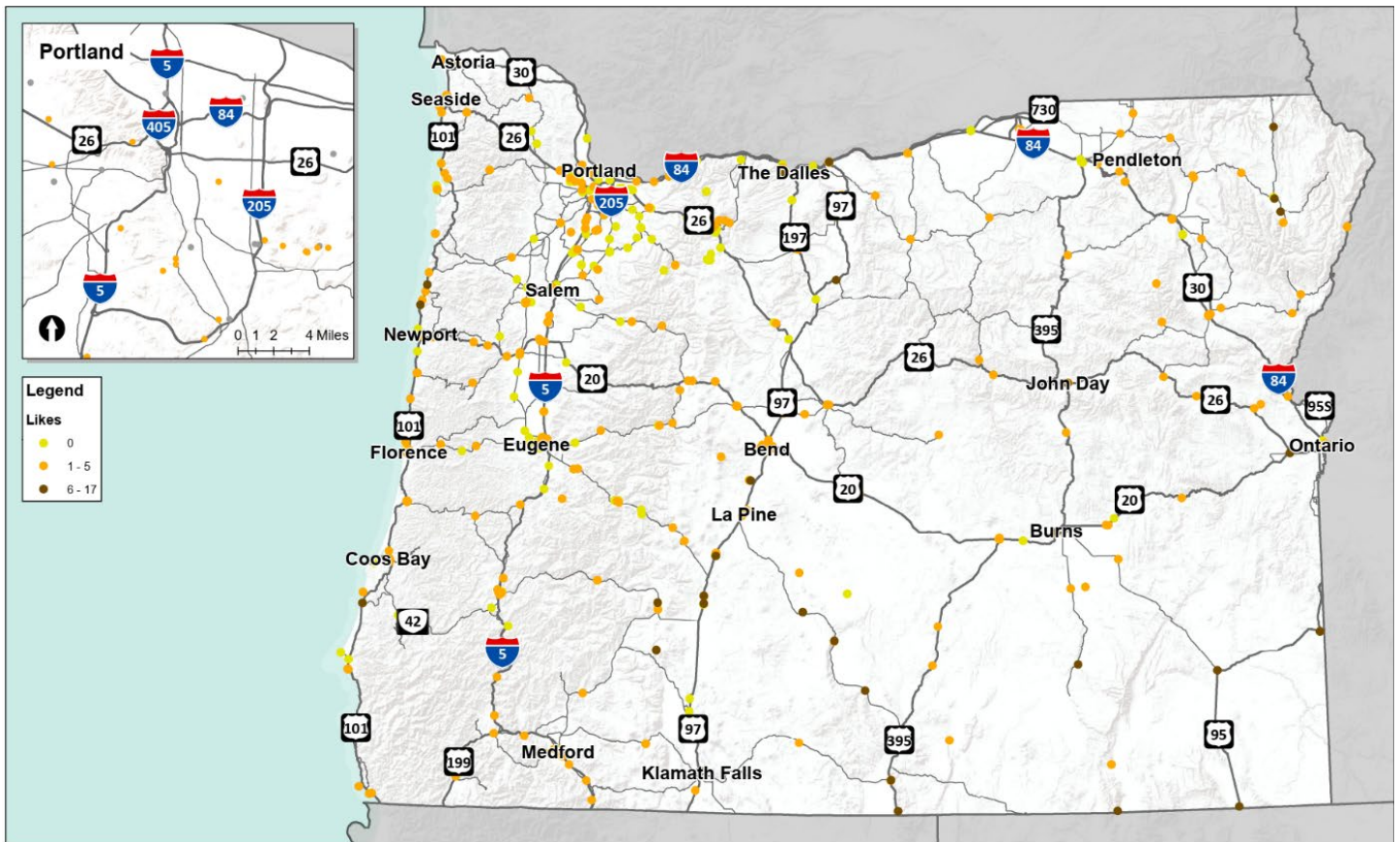




EV drivers typically do not drive their EV on trips exceeding the vehicles range. 38 of 460 (8%%) respondents drive their EV on trips exceeding the vehicles range weekly, while 396 of 460 (86%) respondents drive their EV on trips exceeding the vehicles range less frequently than weekly.



ODOT used an interactive map to collect suggested locations for EV charging infrastructure from community members. The map below shows the suggested charging station locations throughout the state. Locations with a darker dot were 'up voted' or 'liked' by more other respondents.



The suggested charging station locations are summarized by Alternative Fuel Corridor in the table below. The most common reason cited by respondents for a particular location was that it was on a highway, however there are a few corridors with other commonly cited reasons such as being near tourist attractions.

Corridor	Existing Charging Locations	Suggested Charging Locations	Most Common Reason	Second Most Common Reason
I-5	230	45	Highways	Other
US-101	55	48	Tourist	Highways
US-20	46	39	Highways	Other
US-26	105	49	Highways	Community Center
US-97	34	24	Highways	Tourist
I-84	97	39	Highways	Restaurant
I-205	38	6	Other	Grocery
US-95	0	3	Highways	-
OR-42	1	2	Tourist	Highways
I-405	68	1	Work	-
I-82	0	0	-	-
Not Along AFC	358	220	Tourist	Highways



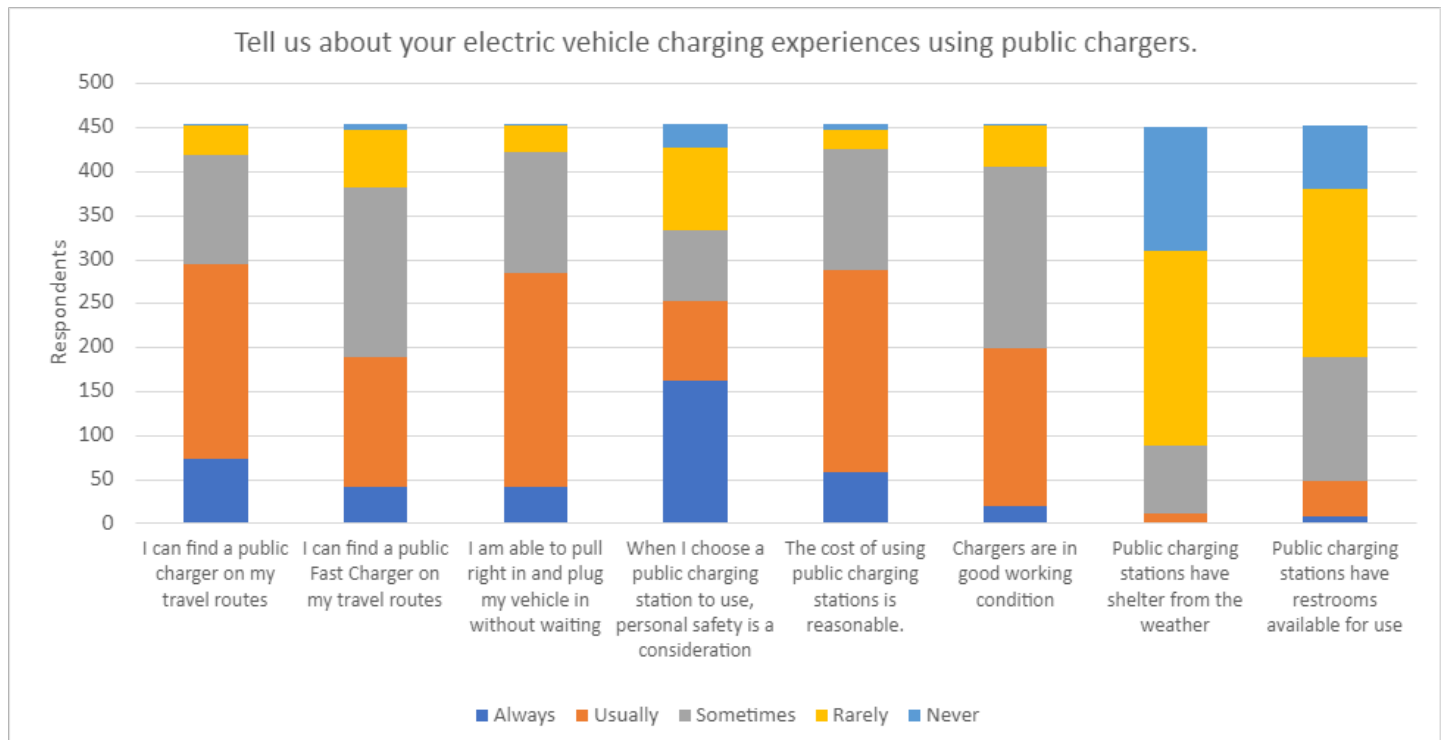
# Top Concerns or Questions

32 organizations interested in hosting a charging station responded with their top concerns about hosting a charging station. Organizations are most commonly concerned about the cost of the station and funding availability (16 of 32 respondents). Organizations are also interested in understanding the responsibility for maintenance, distribution of revenue, and timeline for decision making on station location.

Six organizations who currently host charging stations responded with their experience of hosting charging stations. Respondents have had positive experiences with hosting charging stations, although one respondent noted that procurement took longer than expected and that permitting requirements change from site to site.

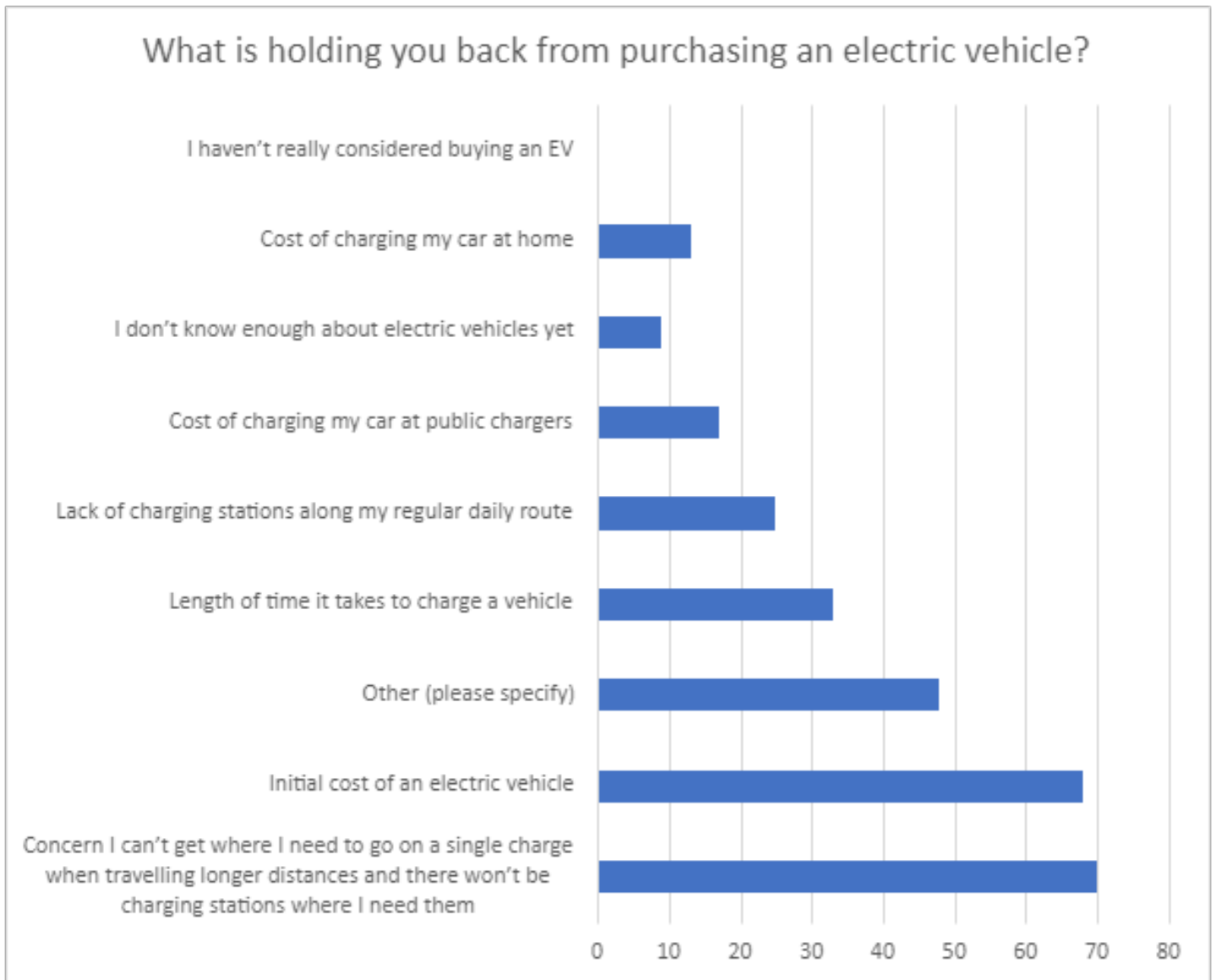
EV drivers were asked to provide their current experience with using public charging stations. Responses are summarized in the bullets below and the following chart.

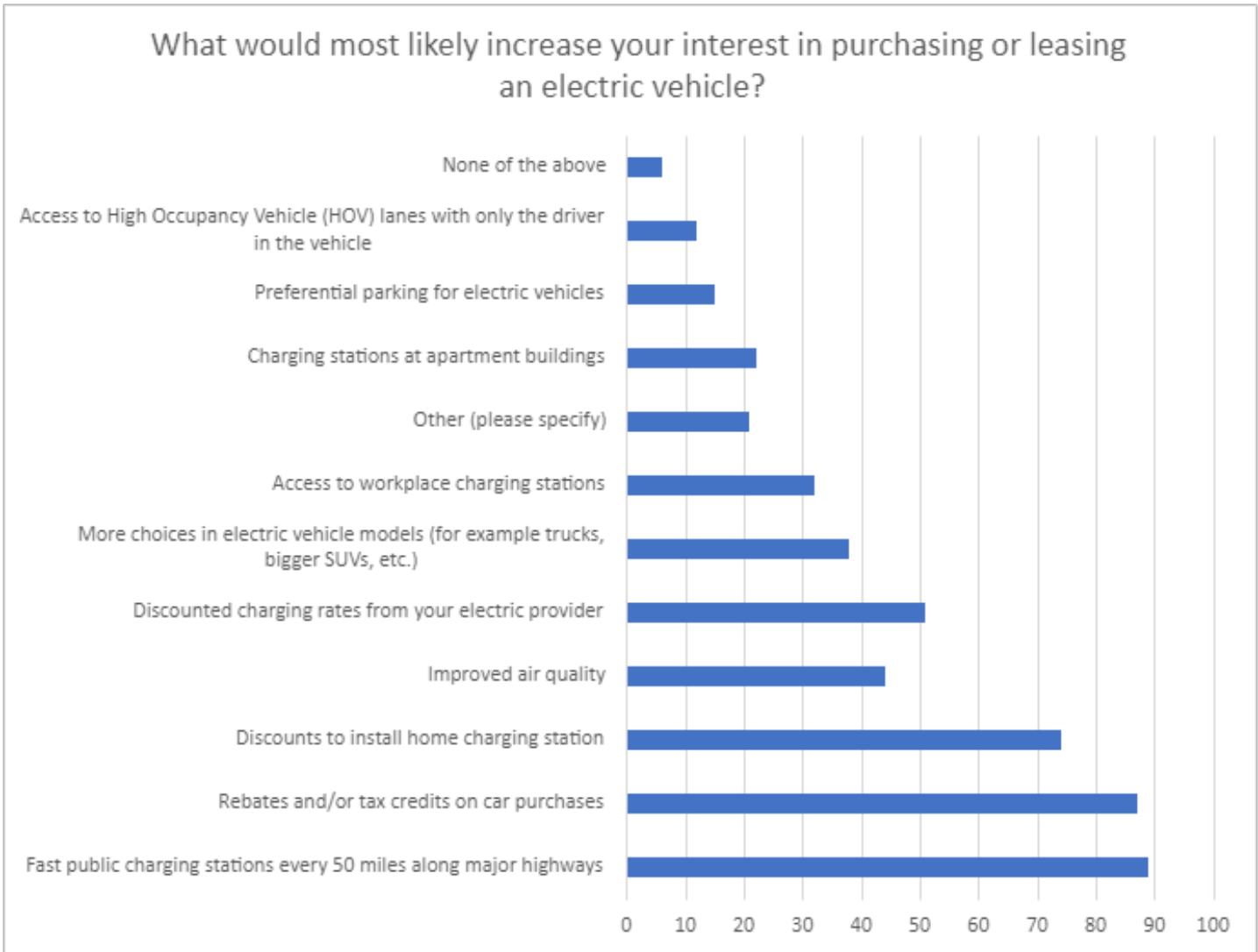
- Public charging stations typically do not have restrooms available for use.
- Public charging stations typically do not have shelter from the weather.
- Public charging stations usually or sometimes have chargers in good working condition.
- About 40% of respondents always consider personal safety when choosing a charging station
- Drivers can usually pull right into the station they are using.
- About 65% of drivers can usually or always find a public charger on their travel routes. A smaller portion of respondents (45%) can usually or always find a public fast charger along their route.



Non-EV drivers were asked to provide what was holding them back from purchasing an EV and what would increase their interest in purchasing an EV. The most common concern was not being able to get where they needed to go. 89 of the 119 (75%) respondents who cited being concerned about being able to get where they needed also identified locating stations every 50 miles along major highways as a way of increasing their interest. Non-EV drivers are also held back by the initial cost of an electric vehicle. Rebates on car purchases

and discounts on installing home charging were both identified as increasing interest in purchasing an EV. The responses of non-EV drivers to these questions are summarized in the charts below.





## Potential Station Hosts

Considering the suggested station locations received through the interactive map, 70 of the 876 locations were suggested by an individual or organization willing to host the station who provided contact information. 37 of these locations are within 1 mile of an EV AFC, summarized in the table below. Considering the first year EV AFC, there are no locations identified by a potential station host that are near the proposed station locations. The locations with potential station hosts will continue to be referenced in the future.

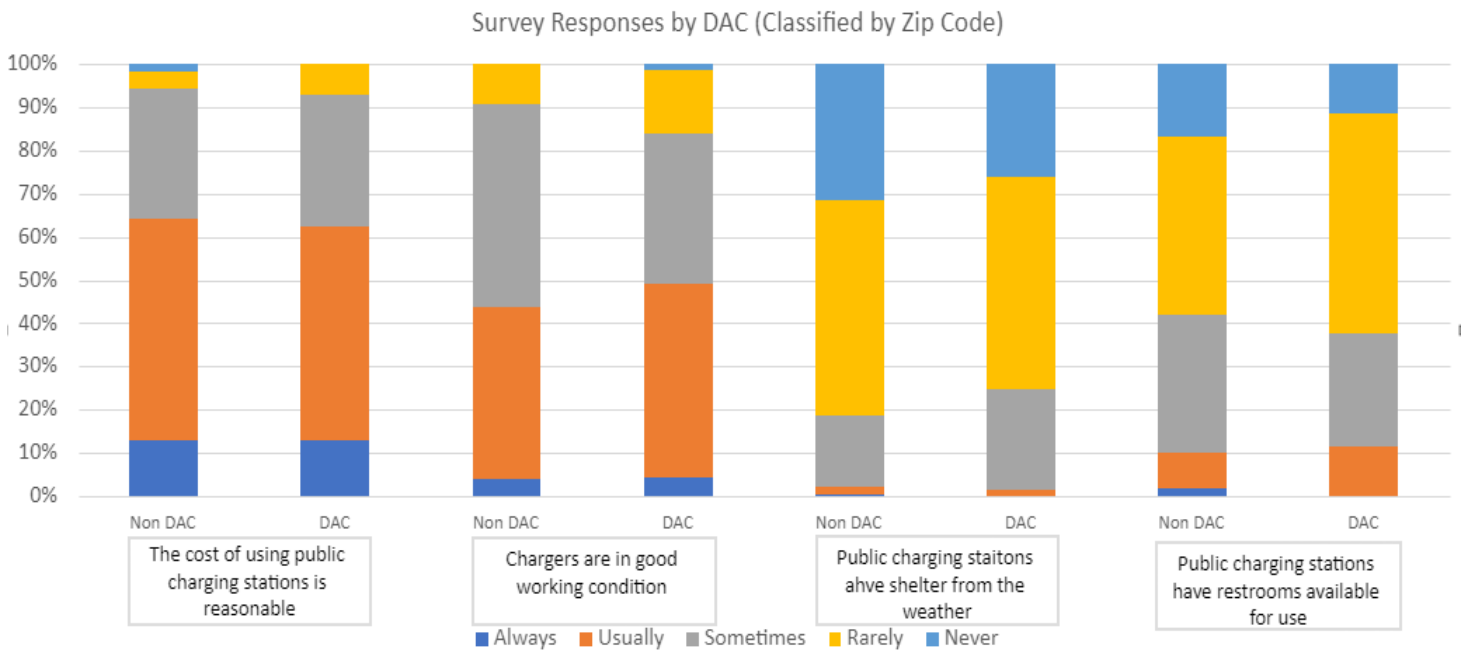
101 organizations responded to the survey for organizations interested in hosting a charging station and provided contact information. 63 of these organizations are located in a city an EV AFC passes through, summarized in the table below. The responding organizations will continue to be considered in the future for locating charging stations on other AFC and for community-based charging.

## Equity

Survey respondents were given the option to provide their home zip code. 442 of 460 EV drivers and 113 of 119 non-EV drivers provided their zip code. Zip codes were classified as being part of a Disadvantaged Community if at least 50% of the zip code overlapped with census tracts identified as disadvantaged in the JOET May 10 definition of DAC. About 22% of the population of Oregon lives in zip codes classified as DAC

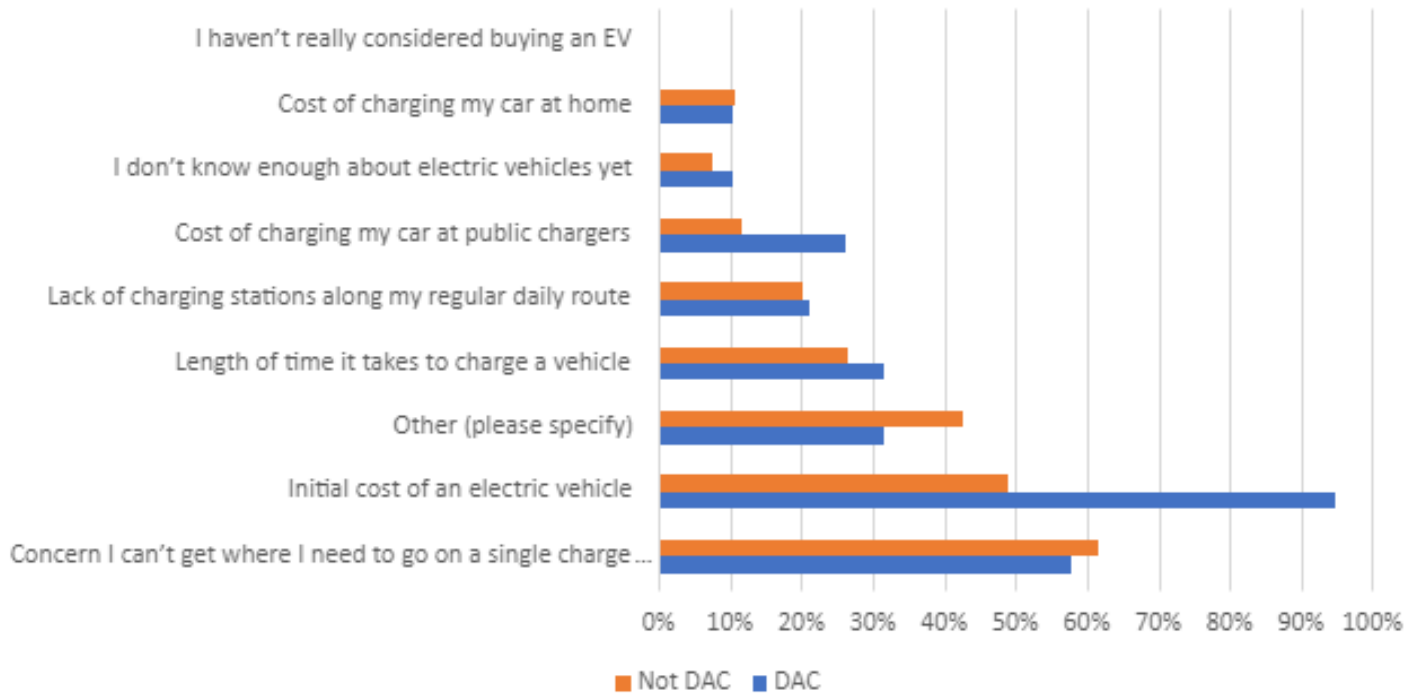
according to this method. 73 of the 442 (17%) EV drivers who provided their home zip code live in zip codes classified as DAC. 19 of 113 (17%) of non-EV drivers who provided their home zip code live in zip codes classified as DAC.

Considering the EV drivers who responded with their experience of using public charging stations, the experience of EV drivers living in zip codes classified as DAC is similar to EV drivers living in other zip codes. The responses are summarized in the figures below.

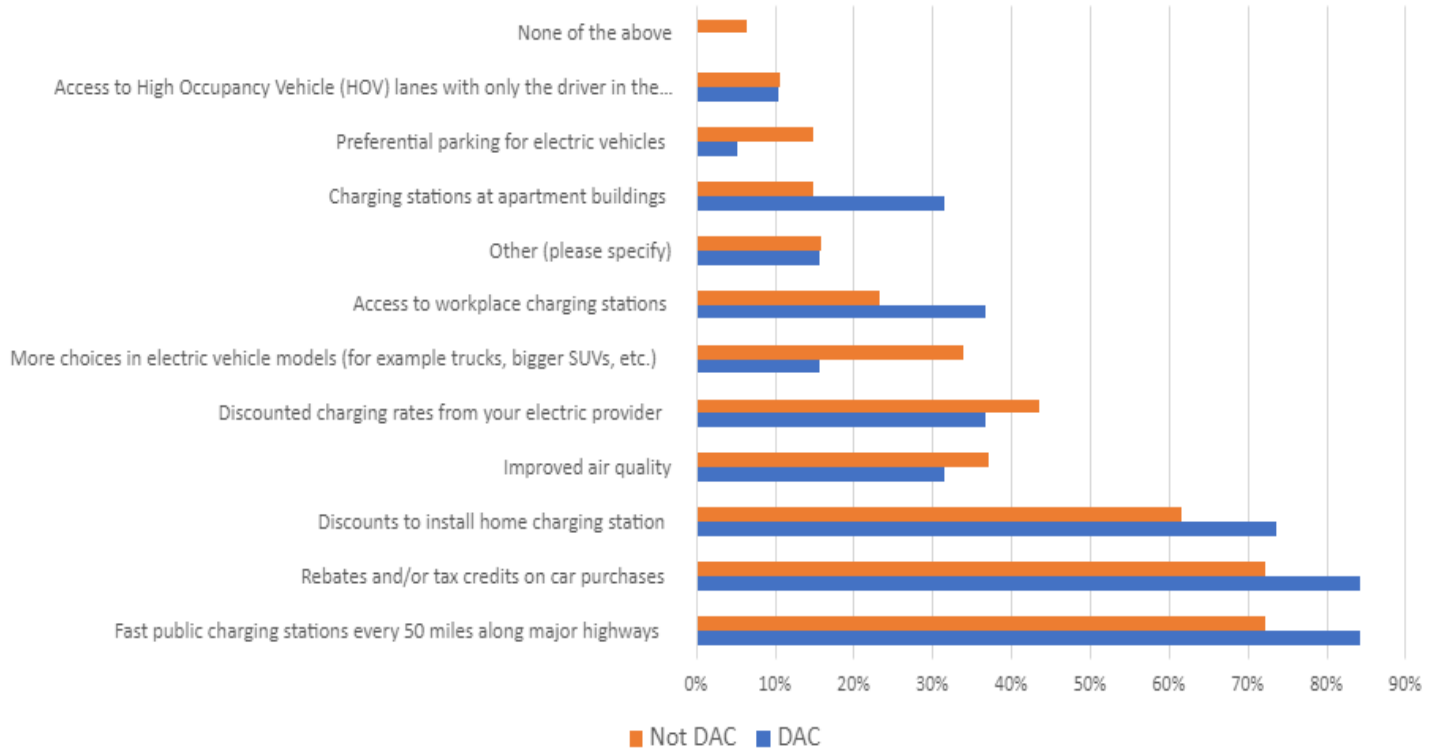


More than 90% of non-EV drivers living in zip codes classified as DAC list the initial cost of an EV as holding them back from purchasing an EV. This is substantially different from non-EV drivers living in other zip codes, 40% of whom list initial cost of an EV as holding them back. Respondents living in zip codes classified as DAC more frequently identified discounts installing home charging, installation of charging stations in apartment buildings, and rebates on car purchases as ways to increase interest in purchasing an EV, than respondents living in other zip codes. The survey includes responses from 12 people living in zip codes classified as DAC, further discussion with communities is needed before extrapolating these results to all DAC.

## What is holding you back from purchasing an electric vehicle?



## What would most likely increase your interest in purchasing or leasing an electric vehicle?



# **Appendix C:**

# **Utility Request for Information**



## Oregon Department of Transportation *Request for Information* from Electric Utilities: Grid Considerations for National EV Infrastructure Development **CONFIDENTIAL**

June 1, 2022

### Introduction

**Request for Information (RFI) topic:** Grid capacity considerations for building out charging infrastructure on Oregon's EV Alternative Fuel Corridors (AFCs), to fulfill the National Electric Vehicle Infrastructure (NEVI) State Plan that the Oregon Department of Transportation (ODOT) is required to develop.

**Recipients of RFI:** Oregon's three investor-owned and 37 consumer- or publicly-owned electric utilities, with priority focus on utilities whose service territories the proposed first-year corridors pass through (utilities whose service areas encompass I-5, I-205, and US 97). We would appreciate responses from all Oregon utilities as well. However, our initial priority concerns center on those utilities whose service areas include the first-year EV Alternative Fuel Corridor build-out.

**Background:** In February 2022 the Federal Highway Administration (FHWA) of the US Department of Transportation (DOT) announced guidelines for a \$5 billion national program (included in the Infrastructure Investment and Jobs Act, November 2021) to provide dedicated funding to states to strategically deploy EV charging infrastructure on designated EV AFCs. DC fast charging (DCFC) stations must be sited at a maximum of 50-mile increments along the AFCs and located within one mile of the highway corridor. ODOT will not build, own, or operate any of the DC fast charging stations, but will facilitate the development of stations by the private sector or others, with federal funding.

The NEVI program specifies that DCFC stations must include a minimum of four high-powered DC fast chargers, each offering at least 150 kW of power, with sufficient station power to fully engage all four DC fast chargers simultaneously (a minimum of 600 kW of power). Oregon aims to exceed this standard, fostering charging stations in many locations that have three 150 kW DC fast chargers, and one 350 kW DC fast charger (a minimum station-level power capability of 800 kW). ODOT aims to encourage "future proofing" of sites so that each offers wiring, and where possible, electrical capacity for two additional 350 kW DC fast chargers (up to 1.5 MW of power at each charging station).

States must submit the first annual deployment and implementation plan by August 1, 2022. RMI, Forth, and Kittelson & Associates are currently engaged with ODOT and ODOE in developing Oregon's State Plan, and a threshold question when considering areas for siting potential stations and station design is the availability of sufficient electrical capacity to support new and/or upgraded DCFC locations along the AFCs.

The Oregon Department of Transportation appreciates the opportunity to inquire about insights and capabilities that Oregon utilities have, and we thank you for your time responding to our questions. ODOT and its NEVI-support team will keep this information confidential and will ask permission first, should we seek to include any specific details in the State Plan.

**Response to this RFI is desired by: Monday, June 13<sup>th</sup>, 2022, to [Jillian.P.DiMedio@odot.oregon.gov](mailto:Jillian.P.DiMedio@odot.oregon.gov)**

Basalt, CO / Boulder, CO / New York, NY / Oakland, CA / Washington, D.C. / Beijing, China

[rmi.org](http://rmi.org) / [303.567.8716](tel:303.567.8716) / [engage@rmi.org](mailto:engage@rmi.org)



## Questions

ODOT and its contractor team are seeking answers to the following questions with respect to the approximate locations of proposed new or upgraded DCFC stations for the NEVI program (see supporting maps showing A) first-year proposed EV Alternative Fuel Corridor possible charging station locations, and B) future-year proposed EV Alternative Fuel Corridors). We are seeking this information to better understand the feasibility and limitations of adding EV charging infrastructure at/near these possible charging station locations, or -- in general -- along the EV Alternative Fuel Corridors that will be built out over the course of the next five years. Please provide as much detail on the following questions as possible, within the constraints of our deadline. There will be further opportunities to discuss and address utility issues surrounding proposed EV charging stations along corridors during Regional Workshops that ODOT will host prior to investments in each corridor, and also once an EV service provider has been selected, and further stakeholder engagement ensues.

### Hosting Capacity for New and/or Upgraded DC Fast Charging Stations

1. For utilities whose territories cover the Year 1 proposed station locations (see first map, below), do you have hosting capacity to support stations of 800 – 1,500 kW capacity at the approximate locations?<sup>1</sup>
  - a. If not, are there locations in near proximity (within 5 miles) that could support this level of new transportation electrification load? Where are they? ODOT would appreciate identification of specific locations within the identified regions that have sufficient capacity and grid-side infrastructure to support charging stations without the need for considerable upgrades.
2. Can you provide hosting capacity maps which highlight areas of excess capacity, and/or similar GIS-based resources showing grid assets (e.g., substations) and ability to accommodate DCFC loads to help with NEVI-planning efforts?
  - a. We are specifically interested in the availability of sufficient electrical capacity to support new or upgraded DCFC stations along Oregon's seven EV AFCs (I-5, I-82, I-84, US 101, US 97, US 20, US 26), and proposed new EV Alternative Fuel Corridors (I-205, I-405, US 95, and OR 42).
3. Are there any barriers or limitations to providing 480-volt, 3-phase power in your service area along the proposed routes?

### Site Evaluation, Interconnection Process, and Timelines

4. Do you have dedicated staff to work with ODOT and contracted EV service providers (EVSPs) on site evaluation, fast-tracking of upgrades (if needed), interconnection processes and related development activities?
5. Who is the appropriate contact person in your organization for future coordination purposes?

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<sup>1</sup> ODOT's planned station design for NEVI-funded DCFC includes three 150 kW chargers, one 350 kW charger, and two make-readies for additional 350 kW chargers. The total station load when fully built out could reach up to 1.5 MW.



6. What is your best estimate of the timeline for interconnecting a new DCFC station with 800 – 1,500 kW capacity in your service territory?

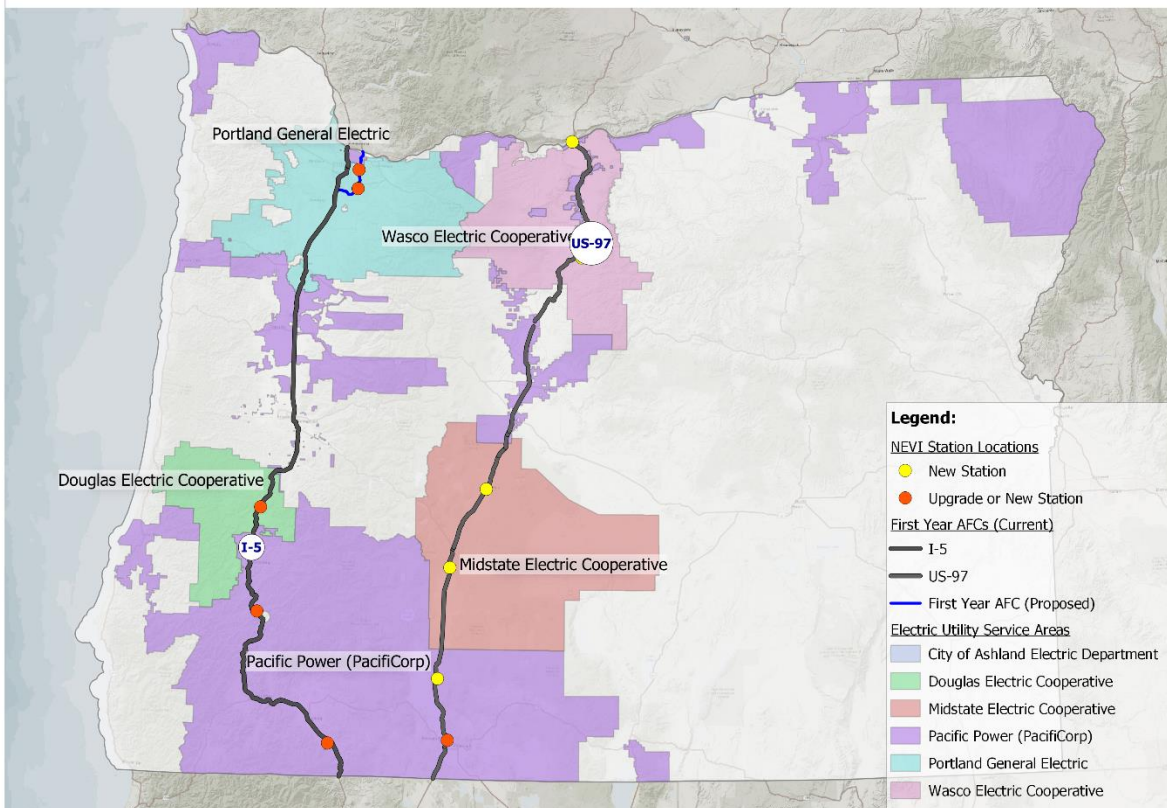
Funding

7. Do you have dedicated funding available to support utility-side and/or customer-side electrical upgrades (e.g., line extension allowances, dedicated transportation electrification programs)? Please provide details, or links to relevant documents.
8. If you are planning to propose programs that might address funding for customer-side or utility-side electrical upgrades needed for EV charging infrastructure, please share broad concepts under consideration, and timeline for when the plans might be pursued.

**ODOT maps for your use, when responding to this Request for Information**

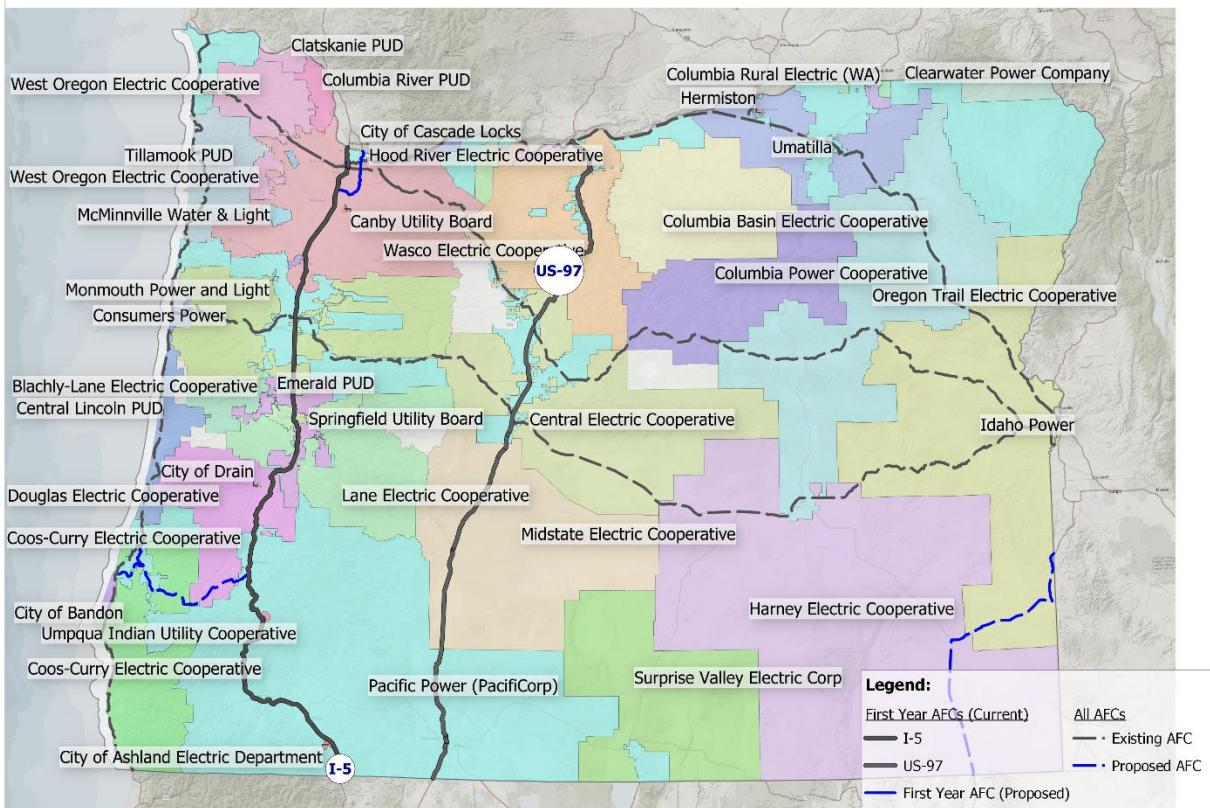
A) Possible locations for proposed stations along these specific EV Alternative Fuel Corridors: I-5, US 97, and I-205, paired with utility service territories.

Proposed Station Locations for First Year of Oregon's NEVI State Plan with Associated Utility Service Areas



B) Seven current EV Alternative Fuel Corridors and four proposed EV AFCs, paired with utility service territories.

Current & Proposed Alternate Fuel Corridors for Oregon's NEVI State Plan with Associated Utility Service Areas



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For questions on this RFI, please contact Ben Shapiro at RMI: [bshapiro@rmi.org](mailto:bshapiro@rmi.org).

# **Appendix D: Technical Specs and Requirements for Operations, West Coast Electric Highway Upgrade RFP**

# Attachment A

## Oregon West Coast Electric Highway

### Technical Specifications for DCFC and Level 2 EVSE and Requirements for Operation

#### ***I. Technical Specifications for DCFC and Level 2 Electric Vehicle Supply Equipment at WCEH charging stations:***

Oregon WCEH charging stations shall meet the following technical requirements:

#### **Equipment and Installation Specifications**

At a minimum, Direct Current Fast Charger (DCFC) and Level 2 Electric Vehicle Supply Equipment (EVSE) charging equipment and installations must fulfill these requirements:

- 1) DCFC and Level 2 EVSE charging stations must be installed in compliance with National Fire Protection Association (NFPA) 70, National Electric Code (NEC) Article 625 and all applicable State and local Electrical Codes currently adopted and enforced within the jurisdiction of installation, including all associated work with circuits, electrical service and meters.
- 2) All new installations and upgrades of EV charging equipment must be performed in a professional manner, in accordance with industry best practices and with all federal, state and local government laws, ordinances, codes and utility requirements.
- 3) EV charging equipment must be networked and shall include at least one of the following two options:
  - a. At least one CHAdeMO DCFC (50 kW power) connector, at least one SAE CCS-1 DCFC (50 kW or higher power rating, but capable of charging at 50 kW) connector and at least one Level 2 EVSE J1772- compliant charger (7.2 kW or higher); or
  - b. At least one dual unit with both CHAdeMO and SAE CCS-1 connectors (capable of 50kW charging or higher) and at least one Level 2 EVSE J1772-compliant charger (7.2 kW or higher);

*NOTE:* DCFC charging equipment must be capable of 50KW shared output, if power is shared among multiple chargers. Level 2 EVSE charging equipment must be capable of 7.2 kW shared output, if power is shared among multiple chargers.
- 4) EV charging stations must use technology that is compatible with most currently available EV models.
- 5) DCFC charging equipment is best supported by 480 volt 3-phase power with adequate transformer capacity to serve the DCFC(s). "Future proofing" the site with adequate transformer capacity and panel for one or more 150 kW DCFC (or higher power) is encouraged; conduit for 150 kW DCFC (or higher power) is required.

- 6) All EV charging station equipment, including kiosks (if any) must be certified to operate outdoors and withstand extreme weather conditions (minimum NEMA 3R or NEMA 4), including temperature extremes, flooding, heavy rains, and high winds.
- 7) EV charging equipment and all display screens should be sturdy enough to withstand most types of vandalism.
- 8) EV charging stations must include user interfaces that are legible in both day and night time conditions, and display screens must be protected from malfunction due to condensation and any local area weather condition. Screens must be readable in bright sunlight and must be shielded to protect against degradation due to UV rays.
- 9) DCFC and Level 2 EVSE charging equipment must include adequate cord length (Level 2 EVSE shall have 18 – 25 feet, and DCFC shall have a minimum of 12 feet); cable coupler that complies with NEC Article 625 protection, and storage for charging cords. DCFC and Level 2 EVSE charging equipment must incorporate a cord management system to minimize the potential for cable entanglement, user injury or connector damage from lying on the ground, and be designed for operator ease-of-use. If included, 110-volt outlets must be GFCI (ground fault circuit interrupter outlets), be weather resistant, have weather-proof in-use covers, and meet National Electric Code requirements.
- 10) DCFC and Level 2 EVSE charging equipment must be protected from vehicle collision and other damage to ground, pedestal or wall-mounted equipment (e.g., by the inclusion of guard posts, wheel stops, curb protection, or wall-mounted barriers).
- 11) EV charging equipment and payment equipment must have a minimum five-year warranty (either from the manufacturer, a third party or the Contractor), including repair and replacement for vandalism.
- 12) All EV charging equipment (DCFC, Level 2 EVSE) must be certified by the Underwriters Laboratories, Inc. (UL) or through another Nationally Recognized Testing Laboratory (NRTL) program to demonstrate compliance with appropriate product safety standards.
- 13) DCFC charging equipment with power levels higher than 50kW must have the ability to be powered down to 50kW so that they are compatible for use by older light-duty EVs.
- 14) Level 2 EVSE charging equipment and its site controllers/gateways (if the Operator's system uses these) shall be 208/240 volt AC, single or multi-port configuration, UL Listed (or certified by another NRTL), suitable for outdoor installations and shall comply with NEMA 3R or NEMA 4 for outdoor use.
- 15) Level 2 EVSE charging equipment shall be Energy Star certified, or must demonstrate and verify that equipment will meet standards that are equivalent to Energy Star certification standards prior to Level 2 EVSE commissioning, and shall be designed and recommended for high traffic, outdoor, commercial charging applications.

### **Interoperability, Universal Roaming, and Vehicle Grid Integration**

- 16) All EV charging station equipment (DCFC and Level 2 EVSE) must be compliant with Open Charge Point Protocol (OCPP) 1.6 (or newer) requirements. The EV charging equipment must be capable of switching networks without requiring the replacement of the DCFC or Level 2 EVSE equipment or other technological, contractual, and/or

other unreasonable restrictions, as noted in the *Requirements for Operation* section of this Attachment.

- 17) EV charging station equipment must enable universal roaming and be in compliance with the Open Charge Point Interface 2.1 (OPCI) as the communications protocol, as specified in the *Requirements for Operation* section of this Attachment.
- 18) EV charging station equipment must be compliant with Open ADR 2.0, as specified in the *Requirements for Operation* section of this Attachment.

#### **Open Access, Payment Options, Remote Diagnostics, and Data Capture**

- 19) EV charging stations must provide Open Access as specified in the *Requirements for Operations* section of this Attachment.
- 20) EV charging stations must provide clear, simple, and real-time pricing information displayed on the device or payment screen, and offer the required payment options specified in the *Requirements for Operation* section of this Attachment.
- 21) All WCEH EV charging equipment must be capable of charging the consumer via a “per kWh” pricing mechanism.
- 22) Operator must maintain appropriate hardware and software that allows for remote diagnostics, “remote start” of the charging equipment, and collecting and reporting of usage data.
- 23) EV charging equipment must be capable of usage data capture as well as cost recovery via payment options specified in the *Requirements for Operation* section of this Attachment.

## ***II. Requirements for Operation of WCEH EV Charging Stations:***

### **General Requirements**

- 1) All WCEH EV charging stations must meet the definition of “public electric vehicle charging station” included in the Definitions section of the Contract.
- 2) The Operator of WCEH EV charging stations shall execute a non-exclusive trademark license agreement with the Washington State Department of Transportation (WSDOT), shall brand WCEH installations using WSDOT Marks for the WCEH, and shall agree to maintain WSDOT Quality Standards as specified in that agreement. See the West Coast Green Highway website for more information: [http://westcoastgreenhighway.com/pdfs/WSDOT\\_LICENSE\\_AGREEMENT\\_WCEH\\_BRANDING.pdf](http://westcoastgreenhighway.com/pdfs/WSDOT_LICENSE_AGREEMENT_WCEH_BRANDING.pdf). NOTE: Should this RFP require WCEH installations to comply with additional provisions that exceed, are additional to, or differ from the minimum requirements specified in the WSDOT non-exclusive trademark license agreement, this RFP’s requirements prevail and must be met.
- 3) The Operator of WCEH EV charging stations shall demonstrate that its proposed EV charging equipment and payment mechanisms are compliant with all Technical Specifications (as described above in the *Technical Specifications* section of this Attachment).

- 4) The Operator of WCEH EV charging stations shall include insurance for stations and station operation.

### **Open Access, Payment Options, Accessibility, and Customer Service Support**

The Operator of WCEH EV charging stations shall ensure:

- 5) **Open Access:** EV charging stations must be accessible by all drivers regardless of network membership or subscriptions, and consumers must not be required to pay a subscription fee or otherwise obtain a membership in any network, club, association, or organization as a condition of using such public EV charging stations; provided, however, that owners and operators of public EV charging stations may have separate price schedules conditional on a subscription or membership.
- 6) **Required Payment Options:** EV charging stations must be accessible (see *Accessibility* requirements below) and support multiple point-of-sale methods for users to pay for EV charging at DCFC charging equipment and Level 2 EVSE charging equipment. At a minimum, all EV charging equipment (or separate, adjacent payment kiosk) at WCEH EV charging stations must support the following pay-per-use options:
  - (i) Payment by use of a Credit card (either Tap-and-Go, Euro MasterCard Visa (EMV) chip, or both) and Debit card, without incurring excessive fees, inconvenience or delays compared to other payment methods;
    - a. At a minimum, the following Credit card and Debit card types must be supported: Visa; MasterCard; and American Express.
    - b. If a Credit card reader device is incorporated, it must be physically located on either the EV charging equipment or at a separate, adjacent kiosk in service of that EV charging equipment, and it must be non-locking and must always permit customers to remove Credit/Debit cards without damage to the card, including during a fault situation or a power failure.
    - c. If a Credit card reader device is incorporated, it shall comply with PCI-DSS Level 1, for security for payment processing.
  - (ii) Provide and display a toll-free number on each DCFC, Level 2 EVSE, and/or kiosk used to service that charging equipment that provides the user with the option to initiate a charging session and make a payment by telephone at any time that the DCFC and/or Level 2 EVSE is operational and publicly available. (See requirements for Customer Service Support, below.)
  - (iii) Provide a mobile payment device physically located on the DCFC EV charging equipment, EVSE or kiosk used to service the EV charging stations.

Operator's point-of-sale methods and supporting network must use an open protocol to allow subscribers of other light-duty EV charging networks to access the charging stations and to access the supporting network in order to obtain information concerning the charging stations.

In addition, if desired, Operator may offer users the option of a subscription and/or membership in proprietary payment plan(s) via a Radio-Frequency Identification (RFID) card and/or mobile app, with separate price schedules.

- 7) **Accessibility:** EV charging stations must be designed to be operational and publicly accessible year-round, 24 hours per day, 7 days per week. Existing stations, or proposed future stations, should not be sited in limited-access venues, such as behind a fence or in a gated parking lot closed to the public after hours. Charging station sites must be on paved surfaces, in spots clearly designated as reserved for EV charging, adequately lit from dusk to dawn, and safe from traffic circulation and ingress/egress points.
- 8) **Customer Service Support:** All WCEH EV charging stations shall include clear use instructions and customer support contact information. A customer service support number shall be provided that is accessible to customers 24 hours a day, 7 days a week, through a toll-free telephone number that is clearly visible and posted on or near the charging equipment or kiosk, to assist customers with difficulties accessing or operating the charging station. Both DCFC and Level 2 EVSE charging equipment must have remote diagnostics and the Operator must have the ability to “remote start” the equipment. Customer service support must be capable of dispatching or otherwise providing services to address operational problems at the charging station. A customer who calls the toll-free number must get immediate assistance, including rebooting the system if necessary.

#### **Up time, Operations, Maintenance and Repair Obligations**

The Operator of WCEH EV charging stations must adhere to the following requirements for up time, Operations, Maintenance and Repair:

- 9) **Up time:** Each connector on each DCFC or Level 2 EVSE charging equipment shall be operational at least 95% of the time (and Operator shall have a specific plan to strive for 99% up time) based on a period of 24-hours a day, 7 days a week. Operator must respond to any issues such as, but not limited to, malfunctions, repairs, or vandalism within 24 hours of the initial notice. For complex issues including, but not limited to, power outages, charging equipment should be repaired within 2 – 5 days. Operator is required to provide quarterly operational reports on the charging network, including up time percentages by station, for each DCFC and Level 2 charging equipment, and reports on downtime causes and resolutions. The reports shall be due by the 10<sup>th</sup> day of the month immediately following the reported quarter.
- 10) **Operations:** Operator, and any successor-in-interest, shall be responsible for operating and maintaining the charging equipment, charging station pedestals and casings, and all ancillary equipment including cables, awnings, canopies, shelters, payment kiosks and informational display kiosks or signage associated with the charging station, in good working order and in compliance with all manufacturer requirements and recommendations for a period of at least five (5) years following the date when all stations in Oregon’s WCEH network covered by the Contract are commissioned and commence operation (incorporating the new, updated equipment specified in the Contract).
- 11) **Operations and Maintenance Plan:** Operator shall submit, for approval, an operations and maintenance plan for all DCFC and Level 2 EVSE charging equipment that ensures Operator is able to comply with the 95% up time requirement (and demonstrates how



Operator will strive to meet the target of 99% up time). Operator shall provide for snow removal to ensure access during inclement weather. Operator shall provide for regular (but not less frequently than quarterly) inspection, cleaning and maintenance of each charging station and all ancillary equipment, and will provide quarterly reports regarding inspection, cleaning and maintenance activities, operating status of chargers, percentage up time and down time, cause for down time and actions to redress the cause of down time. Such reports shall be due by the 10<sup>th</sup> day of the month immediately following the reported quarter.

- 12) **Repair:** Operator shall initiate the process for making any needed repairs immediately, within 24 consecutive hours following notice of a malfunction or other operational issue. For complex issues including, but not limited to, power outages, charging equipment should be repaired within 2 – 5 days. Operator shall develop a report, in a format mutually agreed upon by the parties, that at a minimum includes:
1. Description of the reported problem or issue
  2. Source of report (individual/system)
  3. Date and time reported
  4. Date and time addressed/repaired
  5. Description of the actual problem or issue
  6. Date and time that problem was corrected
  7. Technician's ID

Data shall be provided in a Pivot table format so that common problems/issues can be more easily identified.

### **EV Driver Operational Status Communication and Pricing Transparency Requirements**

The Operator of WCEH EV charging stations must ensure:

- 13) **Operational Status Communication:** Operator shall effectively communicate to EV drivers as they are using a charging station and/or searching for a charging station regarding when an EV charging station is not working. Communication shall be via a mobile app, text alerts, or other similar technology. At a minimum, all EV charging stations are required to display real-time operational status on a smartphone application, either through a network-specific application or a third-party aggregator.
- 14) **Pricing Transparency:** It is expected that EV drivers using these charging stations are offered fair, competitive and reasonable rates. The following pricing information shall be available to drivers in advance of each charging session – through a user interface that is legible both at night and in direct sunlight, or through another form of display at or on the charging station, and via mobile app:
- a. the unit of sale (per kWh, or, if applicable, per session, or per unit of time);
  - b. pricing per unit of sale;
  - c. any additional fees that may be assessed (e.g., parking fees, dwell time fees);  
and
  - d. for both DCFC and Level 2 EVSE charging equipment, the maximum power level of the station (when not sharing power) in kilowatts.

## **Interoperability, Universal Roaming, and Vehicle Grid Integration**

The Operator of WCEH EV charging stations must ensure:

- 15) **Interoperability - Ability to change network service providers without having to replace charging equipment:** All EV charging stations must be networked and compliant with Open Charge Point Protocol (OCPP) 1.6 (or newer) requirements, and must be capable of switching networks without technological, contractual, or other unreasonable restrictions. (Systems that are OCPP compliant only at the network level are not permitted).
- 16) **Capability for universal roaming:** To enable universal roaming on all networked WCEH EV charging stations, all DCFC and Level 2 EVSE charging equipment must be in compliance with the Open Charge Point Interface (OPCI) 2.1 or newer as the communications protocol, to enable the back-end network to have the ability to exchange consumer billing data information with other networks. Operator must enable customers to seamlessly access charging stations, regardless of network or vendor, without the need for multiple cards/memberships.
- 17) **Managed Charging Capability and Vehicle Grid Integration:** To enable managed charging and utility-directed demand response programs, the Operator must ensure that network service providers supporting WCEH EV charging stations must be compliant with OpenADR 2.0, a common platform that utilities utilize for demand response programs.

## **Required elements of National Institute of Standards and Technology, Handbook 44, Specifications, Tolerances, and other Technical Requirements for Weighing and Measuring Devices (NIST Handbook 44), Section 3.40. Electric Vehicle Fueling Systems**

The Operator of WCEH EV charging stations must comply with the following NIST Handbook 44 provisions:

- 18) **Identification and Marking:** The following identification and marking requirements must be met:
  - a. The marking information requires that identification shall appear as follows:
    - i. Within 60 cm (24 inches) to 150 cm (60 inches) from ground level; and
    - ii. On a portion of the DCFC or Level 2 EVSE that cannot be readily removed or interchanged (e.g., not on a service access panel).
  - b. Each DCFC or Level 2 EVSE shall have the following information conspicuously, legibly, and indelibly marked:
    - i. Voltage rating;
    - ii. Maximum current deliverable;
    - iii. Type of current (AC or DC or, if capable of both, both shall be listed);
    - iv. Minimum Measured Quantity (MMQ); and
    - v. Temperature limits, if narrower than and within -40 degrees Celsius to + 85 degrees Celsius (- 40 degrees Fahrenheit to +185 degrees Fahrenheit).
  - c. The following abbreviations or symbols may appear on a DCFC or Level 2 EVSE charging system:
    - i. VAC = volts alternating current;

- ii. VDC = volts direct current;
- iii. MDA = maximum deliverable amperes;
- iv. J = joule.

- 19) **Totalizers for DCFC and Level 2 EVSE charging systems:** DCFC and Level 2 EVSE charging stations shall be designed with a non-resettable totalizer for the quantity delivered through each separate measuring device. Totalizer information shall be adequately protected and unalterable. Totalizer information shall be provided by the system and readily available on site or via on site internet access.
- 20) **Minimum Measured Quantity (MMQ):** The minimum measured quantity shall satisfy the conditions and use of the measuring system as follows
- a. Measuring systems shall have a minimum measured quantity not exceeding 2.5 megajoule (MJ) or 0.5 kilowatt-hours (kWh).

### **Reporting Requirements**

The Operator of WCEH EV charging stations must comply with reporting requirements, for a period of at least five (5) years following the commissioning of all EV charging equipment that is upgraded and installed under the Contract:

- 21) **Reporting to the National Renewable Energy Laboratory (NREL) Alternative Fuels Data Center:** The Alternative Fuels Data Center (AFDC) is a resource of the U.S. Department of Energy (DOE) Vehicle Technologies Office (VTO). The AFDC provides tools and resources to aid transportation decision makers, including the Electric Vehicle Charging Station Locator, which holds information on EV charging station locations in the United States and Canada. The Operator will be required to send EV charging station location information to the AFDC monthly, along with other useful information (which can be shared initially, and only updated as needed). Specifically, information to be shared with the AFDC shall include: Charging station name and Station ID (if any); Manufacturer of the DCFC and Level 2 EVSE, along with model names, model numbers and serial numbers; Charging Station address; Geographic coordinates of the station (e.g., latitude and longitude); Phone number to call if user has problems at a station; Access type (public); Access days/times (hours of public operation for the station); Payment methods; Operator, that is, the network service provider for each station; Nature of the composition of pricing charges and unit of measurement for pricing (e.g., \$/kWh, other fees such as a parking fee or demand response pricing options); Date charging station is upgraded or opened; Date a charging station is decommissioned; Power sharing capabilities among ports; Port classification level (which indicates the rate of the battery refuel, e.g., AC Level 2 (3.3 kW – 22 kW), DC Fast Charger (23kW+); Connectors on each DCFC and each Level 2 EVSE (e.g., SAE J1772, SAE CCS-1 J1772, CHAdeMO). An Application Programming Interface with AFDC can be established to port over information every 12 – 24 hours.
- 22) **Reporting to ODOT on Use of the EV Charging Network:** Operator is required to provide periodic operational reports to ODOT on the charging network for a period of five (5) years following the commissioning of all new or upgraded WCEH EV charging stations, including:
- a. kWh usage, by site, separately for each Level 2 EVSE and DCFC;

- b. The number of charging events, by site, separately for each Level 2 EVSE or DCFC;
- c. Information (percentage) concerning how charging sessions were initiated, such as mobile app, credit card, debit card, phone call or other means, for each Level 2 EVSE and DCFC, at each site; and
- d. The up-time percentages by station, for each DCFC and Level 2 EVSE, including reports on downtime causes and resolutions.

Note: Data capture is required on a monthly basis, and ODOT will require a minimum of quarterly reports that denote usage data by month, in a format that is mutually agreed upon among the parties.

**23) Specific Reporting Requirements to ODOT Prior to Installation/Upgrades:** Operator is required to provide the following information at least 45 days prior to the installation or upgrade of any DCFC or Level 2 EVSE:

- a. Current contact information for the Operator installing the DCFC or Level 2 EVSE (including company name, website, name of designated contact person, e-mail of designated contact person; mobile phone number of designated contact person, and current mailing address of designated contact person);
- b. Operator shall provide the following DCFC or Level 2 EVSE Model Certification information and accompanying photographs, for each DCFC or Level 2 EVSE model to be installed: Manufacturer name, model number and serial number; Type of EV charging equipment (Level 2 or DCFC); Nominal voltage; Current supported (amps); Power supported (kilowatts); Number of ports; Number of connectors and connector standard; Type of payment methods and devices installed; Manufacturer website; Operator toll-free number or numbers displayed on DCFC and/or Level 2 EVSE model; DCFC and Level 2 EVSE model photos: front, back, payment mechanisms, fee display (if display is multiple pages, include photos of complete information); kiosk model (if any) photos: front, back, payment mechanisms, and fee display (if display is multiple pages, include photos of complete information), if applicable.

**24) Annual Reporting Requirements to ODOT:** Operator is required to report the following information to ODOT on an annual basis, in a format that is mutually agreed upon by the parties:

- a. Annual inventory of DCFC EV charging equipment and Level 2 EVSE charging equipment, including: Charging station name and Station ID (if any); Manufacturer of the DCFC and Level 2 EVSE, along with model names, model numbers and serial numbers; Charging Station address; Geographic coordinates of the station (e.g., latitude and longitude); Phone number to call if user has problems at a station; Access type (public); Access days/times (hours of public operation for the station); Payment methods; Nature of the composition of pricing charges and unit of measurement for pricing (e.g., \$/kWh, other fees such as a parking fee or demand response pricing options); Date charging station is upgraded or opened; Date a charging station is decommissioned; Power sharing capabilities among ports; Port classification level (which indicates the rate of the battery refuel, e.g., AC Level 2 (3.3 kW – 22 kW), DC Fast

Charger (23kW+); Connectors on each DCFC and each Level 2 EVSE (e.g., SAE J1772, SAE CCS-1 J1772, CHAdeMO);

- b. Documentation of routine inspection, cleaning and maintenance activities of each charging station and all ancillary equipment (undertaken on an annual basis, at a minimum) with accompanying photographs, noting vandalism (if any) and actions to redress;
- c. Operating status of each charger, percentage up-time and down-time, cause for down-time and actions to redress the cause of down-time. A specific description of repairs is to be provided, in a format mutually agreed upon by the parties that at a minimum includes:
  - Description of the reported problem or issue;
  - Source of report (individual/system);
  - Date and time reported;
  - Date and time addressed/repaired;
  - Description of the actual problem or issue;
  - Date and time that problem was corrected;
  - Technician's ID.

Data shall be provided in a Pivot table format so that common problems/issues can be more easily identified.

- d. Anonymized, annual charging session data by payment method. Data shall include information from each WCEH DCFC and Level 2 EVSE charging station installed, and at a minimum will be aggregated statewide, including:
  - i. Total number of charging sessions started with a Credit card;
  - ii. Total number of charging sessions started with a Debit card;
  - iii. Total number of charging sessions started with a mobile payment option;
  - iv. Total number of charging sessions started with a toll-free number;
  - v. Total number of charging sessions started with a membership RFID card or membership mobile app ;
  - vi. Total number of charging sessions started with an application via the Operator;
  - vii. Total number of charging sessions initiated with any other methods of payment.

# **Attachment B**

## **Oregon West Coast Electric Highway**

### **Requirements for Use of WCEH Branding and Logo, found in West Coast Electric Highway Non-Exclusive Trademark License Agreement**



#### **NON-EXCLUSIVE TRADEMARK LICENSE AGREEMENT Attachment B: Requirements for Use of WCEH Branding and Logo**

The states of Washington, Oregon and California, and the Province of British Columbia, are collaborating on deployment of electric vehicle quick-charging stations at key locations throughout the Interstate 5/Highway 99 corridor (Highway) to support interurban, interstate or interregional travel. Consumers who are considering the purchase of an Electric Vehicle (EV) need assurances that charging stations are located where the services are most needed. They expect charging stations to be safe, convenient, reliable, easily identified, simple to use, and any fees collected for the service fairly priced. Finally, consumers expect consistency in their EV charging experience from station to station, regardless of governmental jurisdiction.

For the right for a Licensee to use the trademarks for the West Coast Electric Highway (WCEH) to promote a network of Electric Vehicle Supply Equipment (EVSE) along a Highway corridor, the Licensee must ensure that the following requirements are met:

#### **1. Charging Station Host Sites**

All host sites, whether public or privately owned, must comply with all laws, federal, state, and local electrical and building codes for construction and must be fully licensed to use the equipment in a public accessible venue.

#### **2. Charging Station Locations**

Host sites must be located within three miles of the Highway. Host sites must be easily accessible via a route that can safely and conveniently accommodate electric vehicles of the types, sizes and weights that would be traveling to the facility, entering and leaving the facility, and returning to the Highway.

#### **3. EV Charging Station Accessibility and Availability**

All charging station components must be operational and publicly accessible 24 hours per day, every day of the year. Stations should not be located in locations with limited access or availability such as behind a fence or in a gated parking lot closed to the public after hours. The host sites must have paved parking spaces available to render electric charging services. These

spaces must be adequately lit, and in a location safe from traffic circulation and ingress/egress points.

#### **4. Charging Equipment Offerings**

The charging stations must utilize technology that is compatible with most currently available electric vehicles. Host sites should ideally have 480V 3-phase power available with a transformer that has adequate capacity to provide power to the DC Quick Charger(s).

The equipment must be networked and include at least one CHAdeMO fast charger, one SAE Combined Charging System (CCS) fast charger (or dual unit with both CHAdeMO and SAE CCS), and one J1772-compliant EVSE Level 2 pedestal. The operator must have remote diagnostics and the ability to “remote start” the equipment.

The equipment must be industrial strength and able to withstand extreme weather conditions including rain, snow, and mist. Any screens must be protected from malfunctions due to condensation and should be sturdy to withstand vandalism.

#### **5. Operations and Maintenance**

The Licensee must ensure payment of all operating costs, including but not limited to payment of leases, rents, royalties, licenses, fees, taxes, revenue sharing, utilities, and electric power supply for the charging equipment and supporting elements, such as area lighting.

The Licensee is responsible for maintaining the charging station pedestals, ancillary equipment, and any awnings, canopies, shelters and information display kiosks or signage associated with the charging station. “Maintain,” as used in this agreement shall mean “to provide all needed repairs or desired and approved alteration, as well as to clean the equipment and keep it safe, clean, and presentable.”

The Licensee must address any issues such as but not limited to malfunctions, repairs, or vandalism within 48 hours of the initial notice. For complex issues including but not limited to power outages, the equipment should be repaired in 2-5 days. If the equipment is out of commission for more than two weeks or if the equipment is not operating at least 95% of the time, the operator may forfeit the right to use the West Coast Electric Highway branding.

#### **6. Payment Options**

The charging equipment must support multiple point-of-sale methods, such as pay per use and monthly subscription methods. Subject to equipment and software availability, the Licensee must ensure that the charging station is equipped to accept a credit and/or debit card without incurring any additional fees, inconvenience or delays versus other payment or access control methods. Licensee may offer additional payment mechanisms, such as Radio frequency identification (RFID) cards that are linked to a credit card or payment through mobile apps. The point-of-sale and supporting network must use an open protocol to allow subscribers of other EV charging system networks to access the charging station. The station signage must clearly inform drivers of the prices per unit of measure and applicable charging voltages.

## 7. Customer Service

The Licensee must provide customer support service that is accessible twenty-four hours a day, seven days a week (24/7) via a toll-free telephone number clearly posted near the charging equipment that is available to EV drivers accessing the charging equipment. The customer support service must be capable of providing or dispatching services to address customer concerns at the charging station. The Licensee must have remote diagnostics and the ability to “remote start” the equipment. When someone calls the toll free number due to an issue, that person should get immediate assistance including rebooting the system.

## 8. Highway and On-Site Signage

The vendor must coordinate with the applicable state’s Department of Transportation to have directional signage produced and installed along the Highway. The symbol signs, D9-11b (alternate), must meet MUTCD standards and be placed along the roadways at the exit approaches and on the off-ramps. The vendor shall coordinate with cities and counties on follow-through signage on local roads leading to the charging location. See [www.westcoastgreenhighway.com/evsigns.htm](http://www.westcoastgreenhighway.com/evsigns.htm) for sign specifications.



*Alternate Electric Vehicle Charging Symbol sign (D9-11b Alternate)*

A host site must comply with the policies, procedures and project-related rules concerning signage of the state in which the host site is located, including but not limited to signage and advertising that touches or concerns the electric vehicle charging station, nearby interpretive signage, directional signage, use of logos, advertising, etc.

## 9. Marketing, Media Relations, and Public Outreach

The Licensee must use the West Coast Electric Highway logo and branding in accordance with the style guide for use of the WSDOT Mark(s) as set forth in Exhibit C and online at [www.westcoastgreenhighway.com/evsigns.htm](http://www.westcoastgreenhighway.com/evsigns.htm). The Licensee shall have flexibility in the sizes, quantities and application of the Marks. Co-branding is acceptable.

## 10. Optional Preferred Practices

Although not mandatory to qualify as a West Coast Electric Highway station, the Licensee should attempt to incorporate these desired practices when possible:



- Site stations as close as possible to a Highway exit, preferably within a half mile of a Highway interchange.
- Site stations where restrooms are available to the public at all times of operation. Restrooms must be modern, sanitary and have drinking water. The restrooms and drinking water should be available at no charge or obligation.
- Host sites that offer products and ancillary services to the public while charging are preferred. Consumer options may include amenities such as vending, snacks, fast food and/or full service restaurants within safe walking distance of the charging station; traveler information (tourist, hotels, maps); reading/entertainment in waiting area; and retail shopping.
- Site stations where host sites are open for operations at least 17 consecutive hours (e.g., 6 a.m. to 11 p.m.), each day of the week and where staff is on duty and could render assistance to disabled persons if necessary.
- Site stations where a combination of two or more businesses are located in close proximity to each other and easily accessible on foot from each other's parking lots via pedestrian walkways compliant with the ADA and that do not require crossing a public highway.
- Provide a location offering shelter from inclement weather for drivers to wait while their electric vehicle is charging.
- In mountainous areas where it snows, radiant heating should be used in concrete pads to melt the snow surrounding the equipment.

## **Attachment C**

### **Oregon West Coast Electric Highway**

#### **Recommended Oregon Host Site Attributes and Selection Criteria**

Oregon is working collaboratively, along with Washington, California and the Province of British Columbia, to deploy electric vehicle charging stations with DC fast charging equipment and Level 2 EVSE along key corridors that cross borders, to create a consistent experience for EV drivers along the West Coast Electric Highway (WCEH).

Common expectations for EV charging up and down the West Coast via the WCEH include charging stations being safe, convenient, with equipment that operates reliably, is easily identified, simple to use, with fair, competitive pricing. Consistent and comfortable EV charging experiences for EV drivers as they travel across states or international borders along the West Coast is an important goal of the WCEH.

To achieve this goal of consistent charging experiences, outlined below are recommended attributes for Host Sites for Oregon's West Coast Electric Highway, which will enable the creation of a consistent network of EV charging stations meeting the following requirements:

- **Compliance with laws:** Comply with all laws, federal, state, and local electrical and building codes for construction and be fully licensed to use the equipment in a publicly accessible venue.
- **Location:** As close to a highway as possible, preferably within ½ mile, but at a maximum within 3 miles.
- **Access:** Ideally, sites are open to the public 24 hours per day, 365 days per year, but under no circumstances are sites open less than 17 consecutive hours/day (e.g., 6 am – 11 pm).
- **Siting:** Locations should enable safe ingress and egress, with sufficient space for light-duty EV DCFC and Level 2 EVSE charging, and include parking spaces that are paved, adequately sized, and demonstrate compliance with ADA requirements.
- **Parking Spaces:** Paved parking spaces are required, with adequate lighting from dusk until dawn.
- **Amenities:** Ideally, sites offer EV travelers convenient access to restrooms (available during all hours of operation, if at all possible). Restrooms are expected to be modern and sanitary. In addition, the Host Sites are expected to provide access to drinking water. Ideal locations include access to other amenities such as snack food, dining and shopping options, and/or entertainment and recreation.
- **Shelter:** Where possible, select sites that offer shelter from inclement weather.
- **ADA:** Configure EV charging stations to provide ample room for those with disabilities to enter and exit their EVs comfortably, provide access ramps for wheelchair use, place charging connectors and payment mechanisms at a height that enables comfortable access for those in wheelchairs, to enable EV charging to better achieve ADA goals.

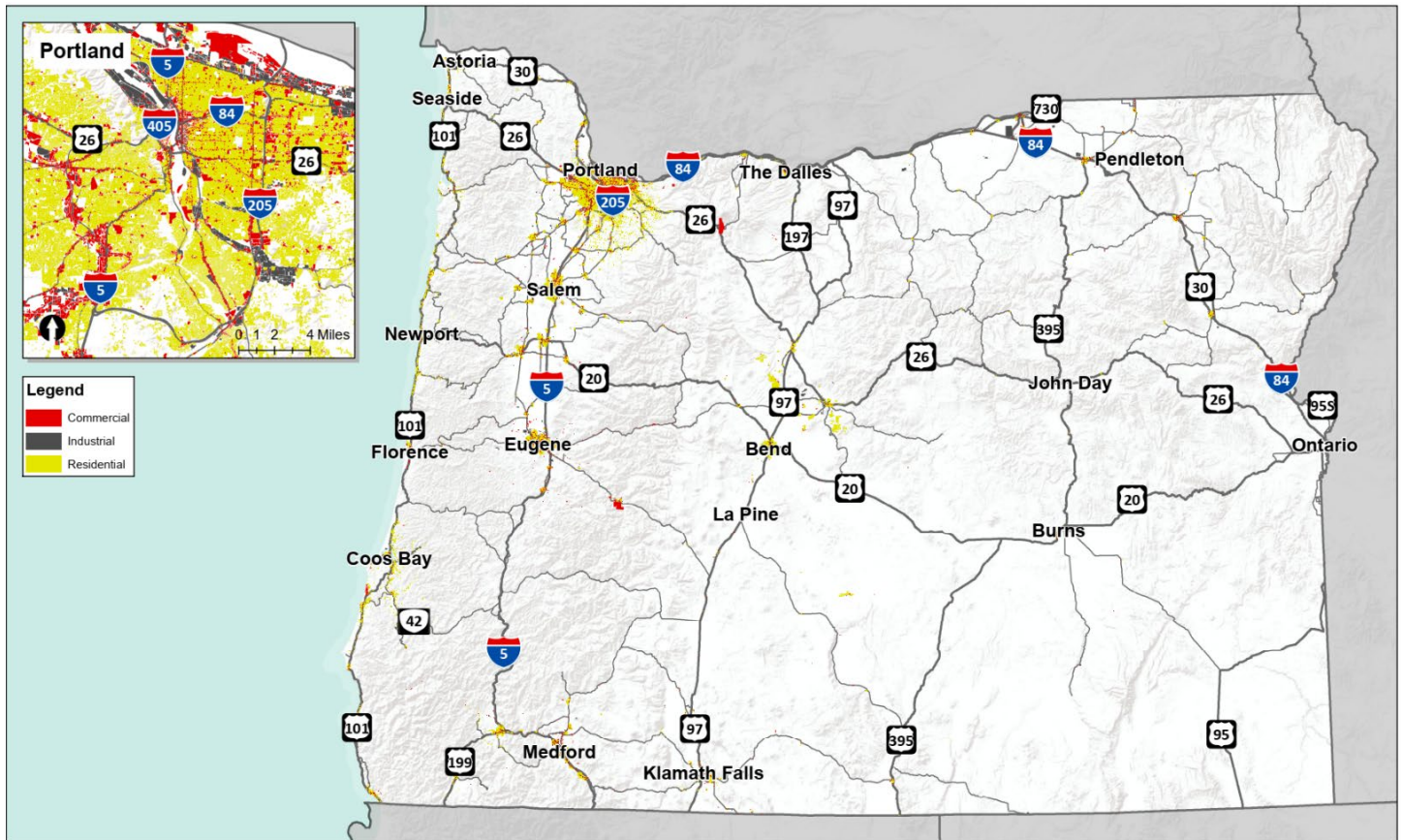
- **Customer support**: Offer clear use instructions and customer support contact information, on the equipment and/or easily accessible at the charging site location, available 24 hours per day, 7 days per week.
- **Reliability**: Be operational at least 95% of the time (striving for 99%).
- **Pricing information**: Provide clear, simple and real-time pricing /fee information prior to the start of an EV charging session. Pricing and fee information should be displayed in an easily readable matter on the charging equipment or a payment screen, and also be displayed on Operator's web page, any proprietary mobile app and public mobile apps, such as PlugShare, Apple/Google Maps and other commonly used public EV charging access sites.
- **Multiple Payment Options**: WCEH stations must offer customers multiple payment options (as specified in Attachment A, *Oregon West Coast Electric Highway Technical Specifications for DCFC and Level 2 EVSE and Requirements for Operation of the Contract*).
- **Signage**: Provide clear signage from the Highway to the EV charging site, and within the charging station Host Site, provide signage to note "EV Charging Only" parking locations.
- **Hosts**: Preference should be given to hosts who seek to attract EV drivers to their locations, and who may provide funding or amenities targeted to the needs of EV drivers.

# Appendix E: Additional Supporting Analysis

## Land Use

Commercial, industrial, and residential parcels throughout Oregon are shown in Figure 33. Oregon's population is primarily located in the Willamette Lowland, along the I-5 corridor. Major metropolitan areas along the corridor include Medford, Eugene, Salem, and Portland. Commercial and industrial land use patterns largely mirror this population density, with the largest concentrations in the Portland area and along the I-5 corridor. Residential parcels are also distributed along US 101, to a greater extent than most other corridors in the State.

Figure 37: Commercial, Industrial, and Residential Land Use



## Weather

### Snowfall

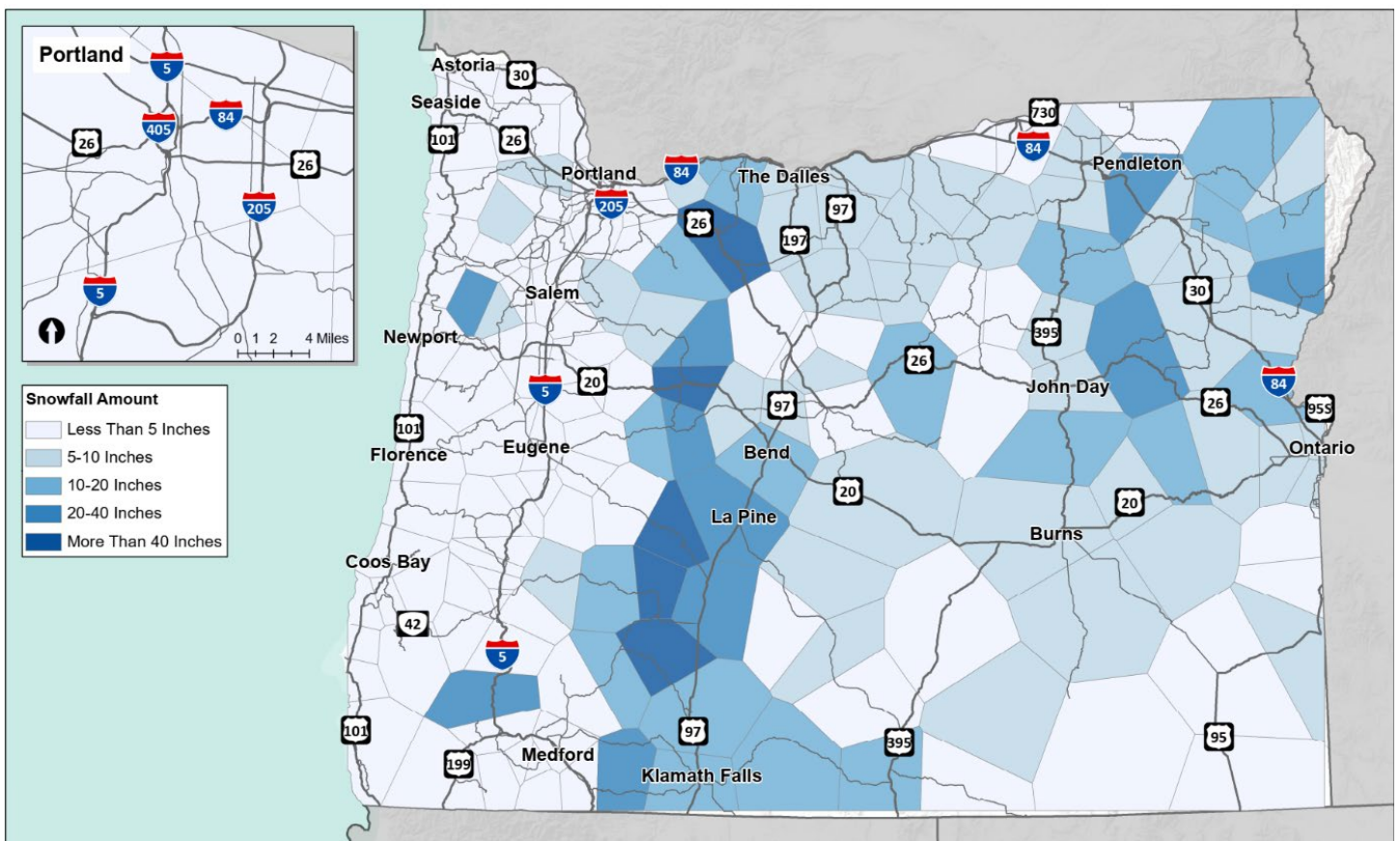
The average January snowfall throughout the State is shown in the following figure. The highest snowfall occurs throughout the Cascade Mountains, around Klamath Falls, and in northeast Oregon.

DCFC stations located along US 97 are expected to need the most snow removal and management efforts compared to the other AFCs. This is most notable along US 97 from Bend to Klamath Falls which has a relatively high level of snowfall.

I-84, US 26, and US 20 cross the Cascade Mountains and travel across Eastern Oregon, which tends to have higher levels of snowfall. Stations located along mountain passes are expected to need snow removal and management. US 26 travels along a route between Bend and Ontario that has more snowfall than US 20, which takes a route south of US 26 between Bend and Ontario.

Stations located along I-5 and US 101 are not expected to be commonly impacted by snowfall. An exception to this is on I-5 around Sexton Summit north of Grants Pass.

Figure 38: Snowfall in Oregon



## Temperature

Batteries in EVs function less efficiently under very hot or very cold conditions. Temperatures west of the Cascade Mountains tend to be moderate with average low temperatures above freezing and highs in the 80s F. Temperatures east of the Cascade Mountains tend to be more extreme with low temperatures below 20 F's and high temperatures about the 90s F.

The average temperature of the coldest and hottest months across the state are shown in Figure 35 and Figure 36, respectively. Several findings emerge which ODOT and contracted EVSPs may consider relative to NEVI planning:

- I-84, US 26, and US 20 cross the Cascade Mountains and travel across Eastern Oregon, which tends to have more extreme temperatures than other areas.
- US 97 connects La Pine, Chemult, and Klamath Falls all of which have average low temperatures below 17 degrees during the coldest month of the year.
- US 101 and I-5 experience relatively moderate temperatures. An exception is on I-5 is the Sexton Summit area north of Grants Pass and the Rogue Valley/Medford area which have average low temperatures below freezing during the coldest month of the year.

Figure 39: Average Low Temperatures in Oregon

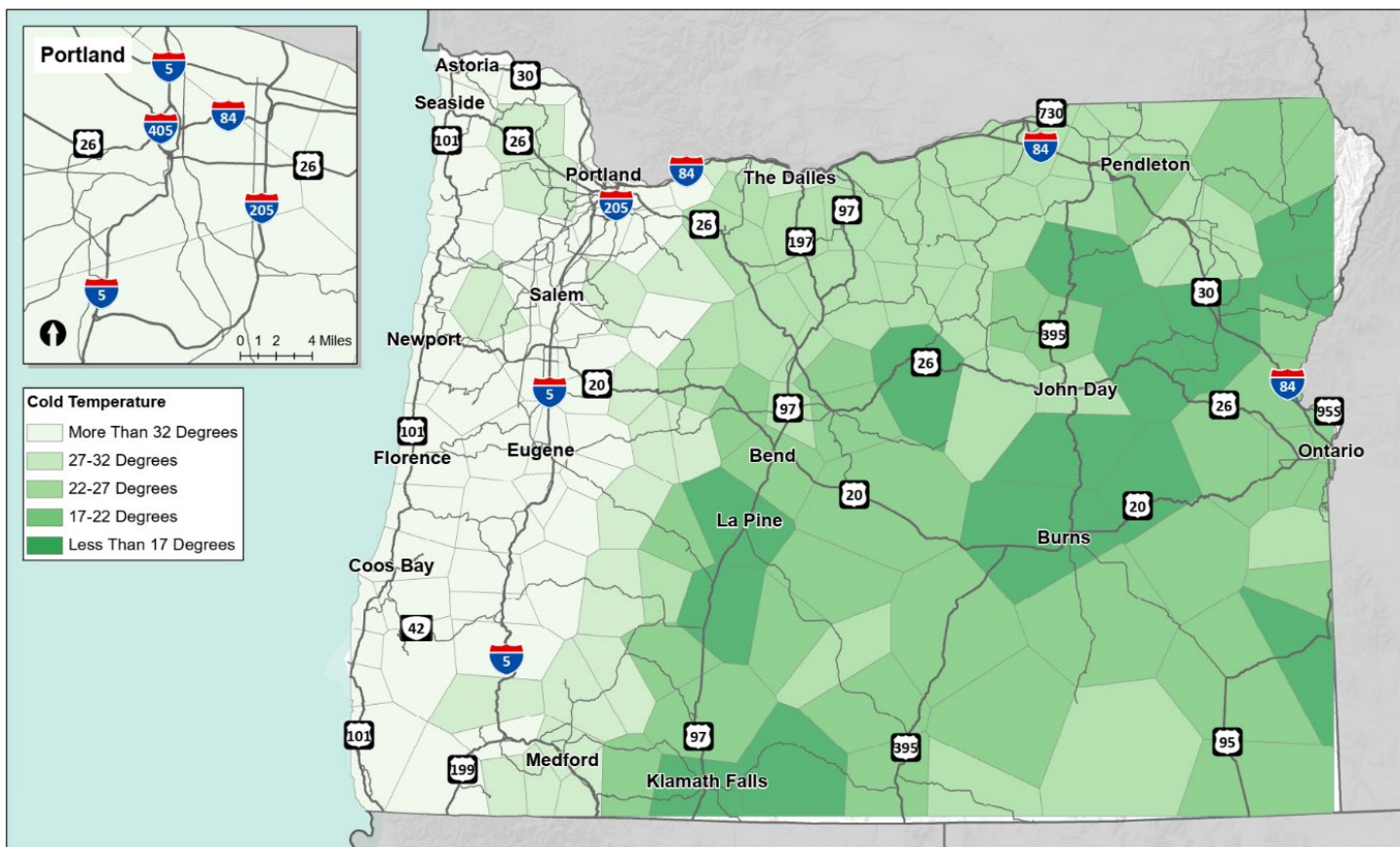
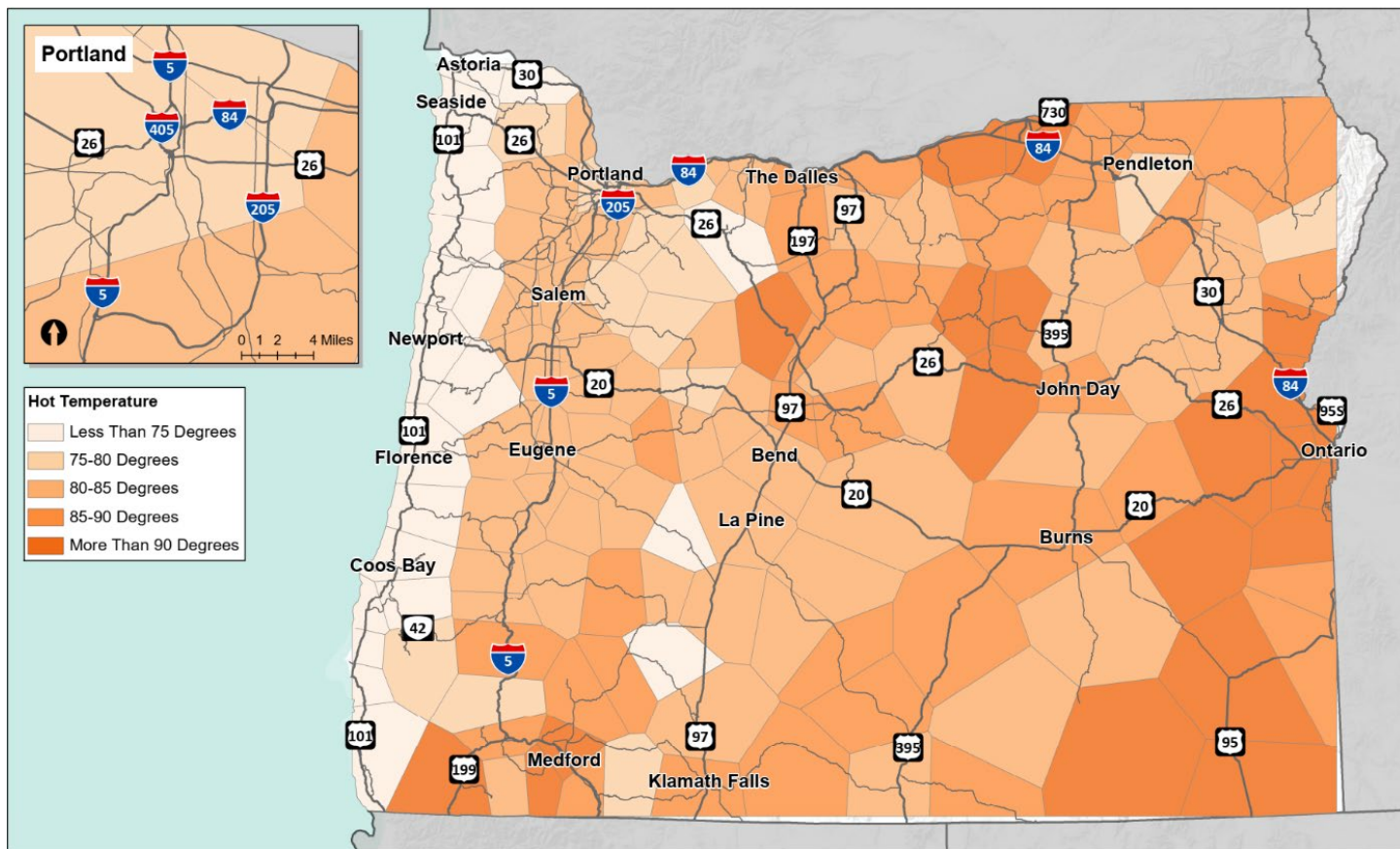


Figure 40: Average High Temperatures in Oregon



## Road Grade

As with vehicles powered by an internal combustion engine, EVs must expend more energy to go uphill.

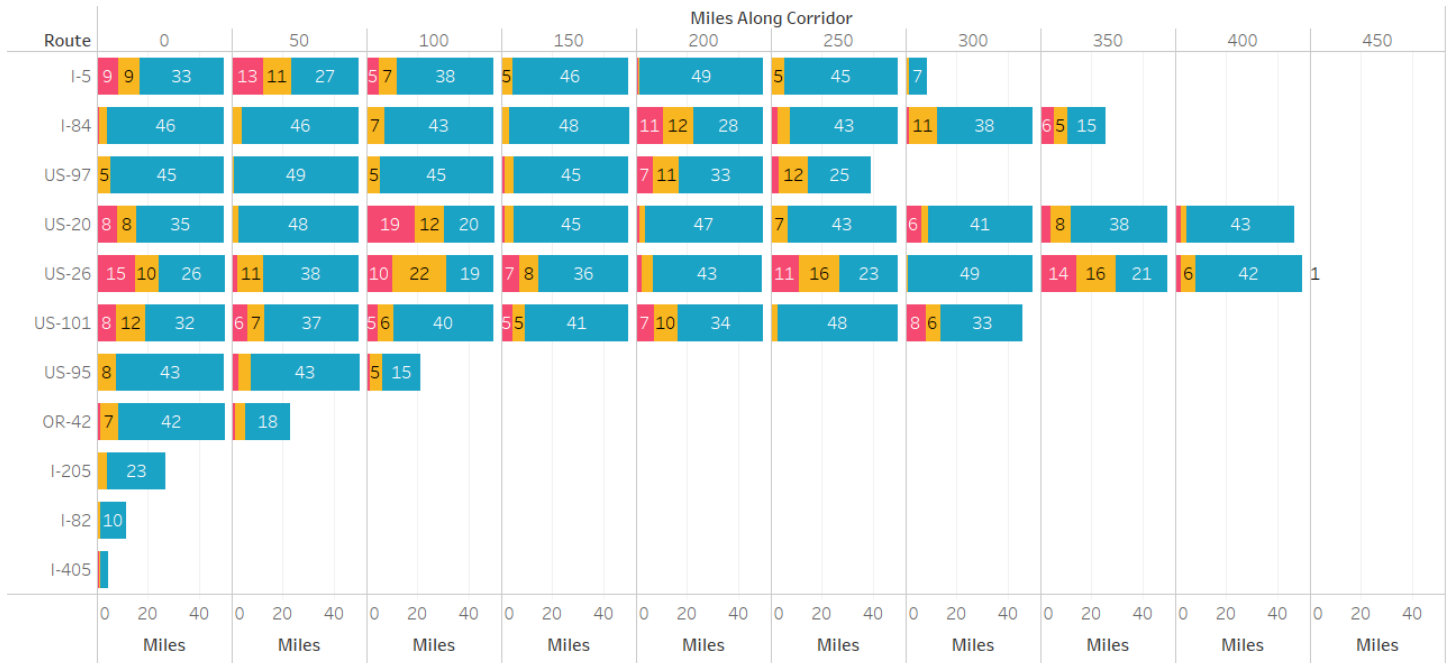
As shown in the table below, as the slope (grade) of the roadway increases, EVs expend larger amounts of energy and can be expected to need to recharge more frequently considering miles travelled. Along portions of corridors with a lot of uphill segments, charging infrastructure may need to be located more frequently or signage may need to inform drivers of upcoming steep inclines.

Slope	Equivalent Miles of Level Ground
0%	1.0
1%	1.2
2%	1.5
3%	1.8
4%	2.0
5%	2.3

To identify areas where the intervals between stations may need to be shorter to account for this, and/or locations where additional ports might be valuable to meet larger energy needs, ODOT has conducted analyses of the slope of different segments of the current EV Alternative Fuel Corridors (AFC). The chart

below summarizes this analysis, highlighting the proportion of each 50-mile segment which falls into different average slope categories.

Miles of Route by Slope Considering 50 mile Segments



Slope (Group) (group)

- 0-2%
- 2-4%
- 4%+

ODOT does not expect slope to play a major role in siting EV charging stations along its FY22 corridors, given the relatively mild average slope, and will continue to assess these considerations for future year deployments along the other existing and newly proposed AFCs. The following table describes steeper sections of AFCs that ODOT will consider when working with contractors in NEVI planning decisions to ensure that the developed network sufficiently meets EV travel needs.

AFC	Section
I-5	California border to Ashland
	Grants Pass to Canyonville
I-84	Pendleton to LaGrande
US 20	Sweet Home to Sisters
US 26	US 101 to Banks
	Sandy to Madras
	Around Mitchell (between Bend and John Day)
	Prairie City to Unity



# Transportation

## Heavy Vehicles

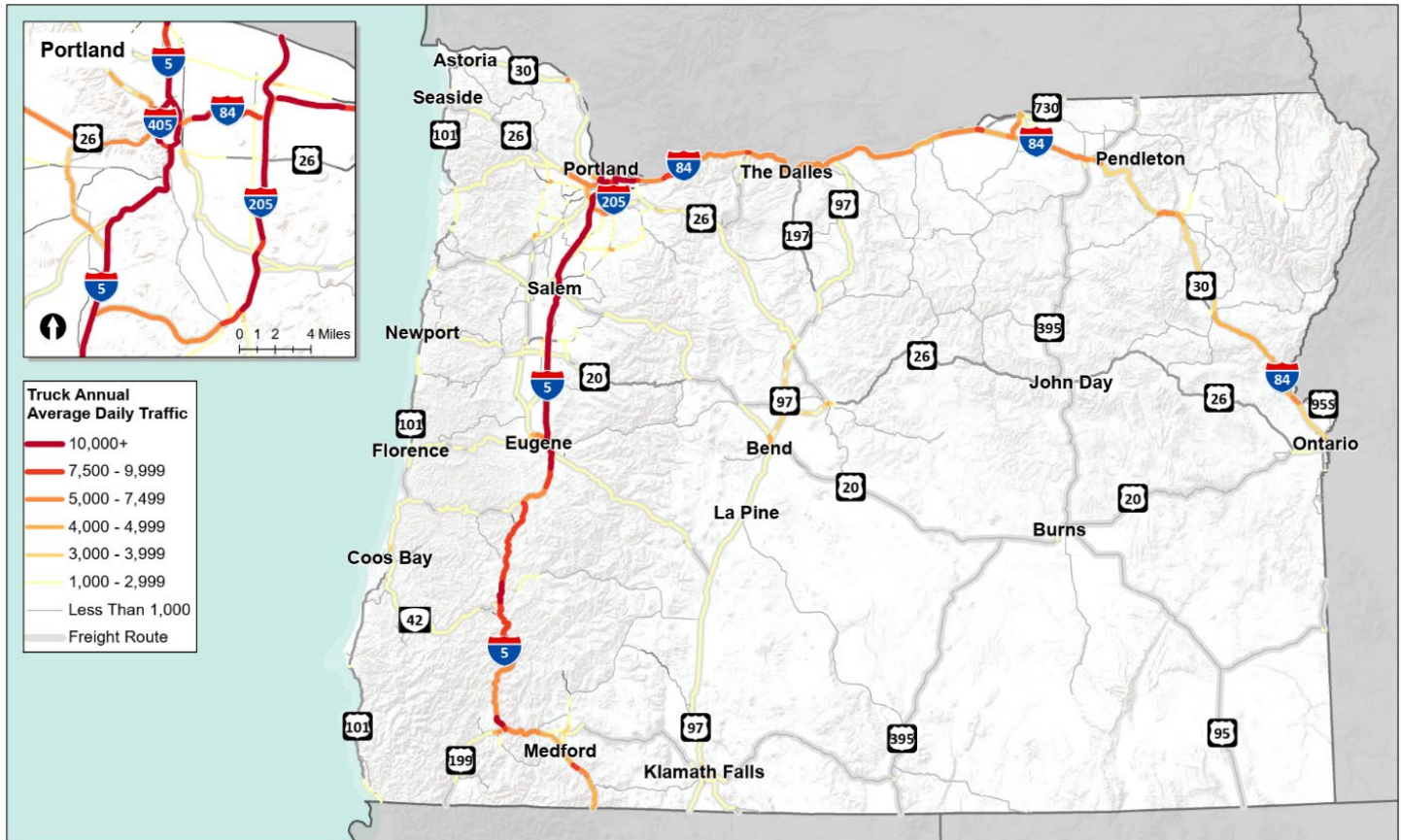
While NEVI funding is primarily focused on LDV charging, ODOT is considering how best to plan for electrified MHD vehicles as well, as highlighted in the non-LDV use cases analyzed in its 2021 TEINA report: local commercial and industrial vehicles, heavy-duty freight trucks, and both transit and school buses. One way in which ODOT envisions NEVI funding helping to address future charging needs of these vehicles is by designing stations to include pull-throughs to accommodate larger vehicles, such as the lighter and/or smaller end of the MD classes.

Additionally, the Oregon Freight Plan, most recently amended in 2017, defines the I-5, I-84, US 20, and US 97 corridors as strategically significant for major freight dependent industries. About 70% of industry outputs in ton-miles travels along I-5 and I-84, as shown in the following map of heavy vehicle AADT by highway segment across the state. The build out of these corridors with LDV charging over the next several years will help to lay the groundwork for the larger capacity charging needs these vehicles are likely to require in the coming years.

In addition to LDV AADT, ODOT also tracks AADT for heavy vehicles across the state, which shows that:

- I5, I-84, I-405, and I205 have portions of the corridor with 10,000+ daily heavy vehicle trips.
- In the Portland metropolitan area, there is more heavy vehicle traffic on I5 than I205. Nearly all of I5 from Portland to Roseburg sees 7,500+ daily heavy vehicles, whereas only a small handful of short segments on I-84 between Portland and Boardman meet this threshold.
- I-84 has the highest heavy vehicle AADT of east-west routes across the State.
- US 26, OR 22 in the Santiam River canyon, and OR 58 have the highest heavy vehicle AADT across the Cascade Mountains. East of Bend, there are more heavy vehicles on US 20 than on US 26.
- US 101 has relatively low heavy vehicle AADT.

Figure 41: Heavy Vehicle AADT



## Public Transit

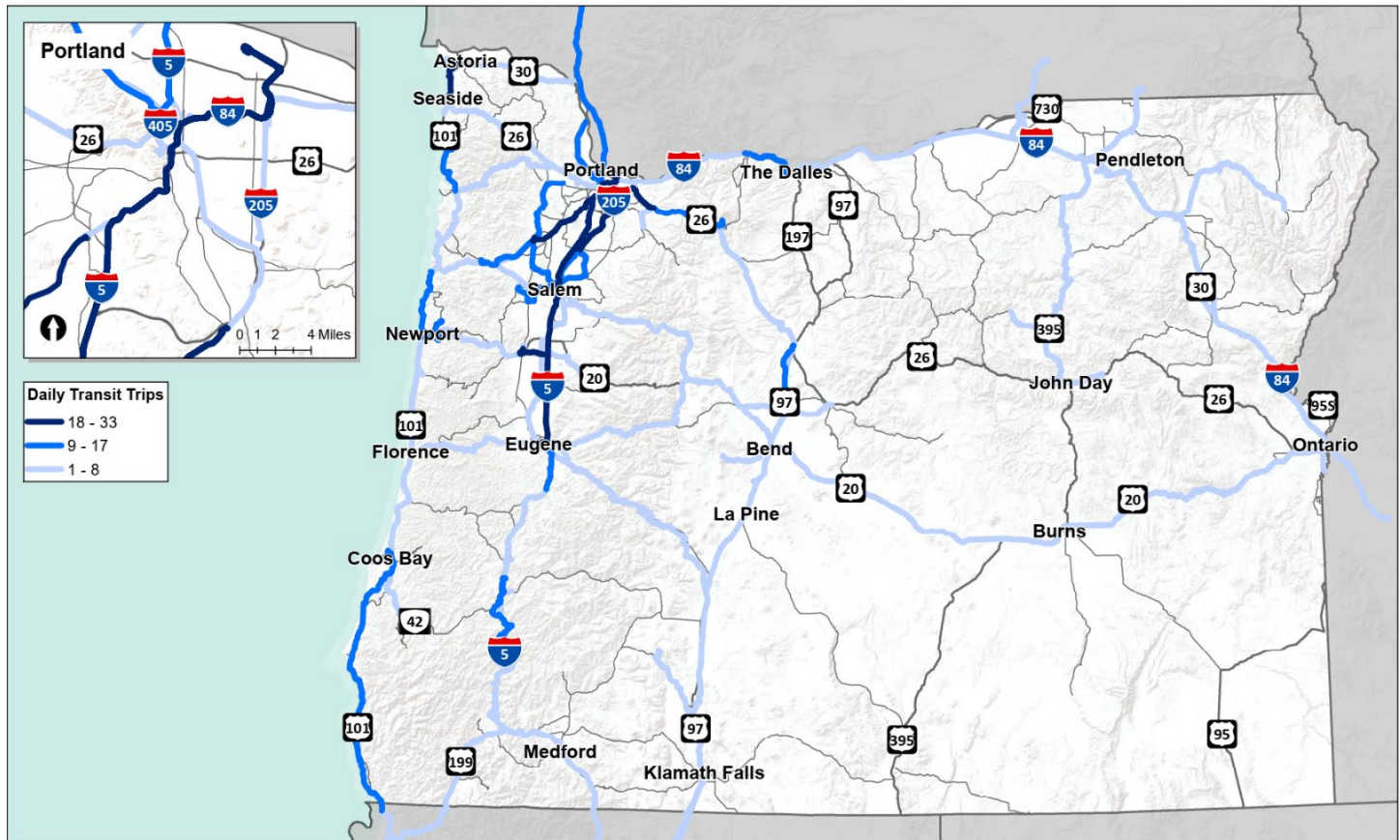
There are 64 distinct transit providers in Oregon. These include public and private services, local transit, intercity bus, rail service, trams, and streetcar. Transit service includes intracity and intercity trips. These routes are important regional connections for people living throughout the state.

Findings related to Alternative Fuel Corridors (AFC):

- Intercity transit routes travel along most of the AFCs.
- The most frequent intercity transit routes travel along the I-5 corridor between Eugene and Portland.
- Sections of US 101 are frequently served by intercity transit routes.
- As transit buses electrify in the coming years, charging infrastructure to support these routes will be needed largely in the same areas of high LDV traffic volumes.

The map below shows intercity transit routes in Oregon, along with their frequency.

Figure 42: Intercity Transit Trips



- Thirty-one providers provide a combination of local and regional service. These include large providers (such as TriMet in Portland, Cherriots in Salem, and Rogue Valley Transportation District in Medford), small community services (such as Woodburn Transit and the Malheur Council on Aging & Community Services in Ontario), and county-based services (such as Tillamook County Transportation District and Yamhill County Transit Area).
- Fourteen providers focus exclusively on intercity service. These providers are a mixture of public (such as the Columbia Gorge Express) and private (such as Bolt Bus). They also operate at various scales, from shorter intercity trips (such as the Florence Yachats Connector) to longer routes (such as the Central Oregon Breeze between Portland and Bend). Additionally, there are four different POINT intercity bus services run by ODOT (NorthWest between Portland and Astoria, Cascades between Portland and Eugene, Eastern between Bend and Ontario, and SouthWest between Klamath Falls and Brookings).
- Twelve providers focus on local shuttle service. These services are varied and serve specific destinations (such as the Washington Park Shuttle), provide service that falls outside of existing service hours for the local transit agency (Swan Island Evening Shuttle), provide connections between community college campuses (CCC Xpress), or connect small communities (Klamath Shuttle and Ride Connection).
- Three Amtrak routes (Cascades, Coast Starlight, and Empire Builder).

The following table provides a snapshot of several Oregon transit agencies pursuing electrification.

Figure 43: Transit Agencies in Oregon Pursuing Electrification (2020)<sup>11</sup>

Transit Agency	TriMet	South Metro Area Regional Transit (SMART)	Lane Transit District	Josephine Community Transit
Service Area	Portland Metropolitan Area	Wilsonville	Lane County	Josephine County and part of Jackson County
Electric Bus Manufacturer	New Flyer	Proterra	BYD/New Flyer*	Gillig retrofit
Number of Electric Buses	5	2	2 (2 year pilot)*	2
Type of Charging	Depot plug-in, en route pantograph	Depot plug-in	Depot plug-in	Depot plug-in, planning for inductive charging at depot

**\*Note:** Lane Transit District has concluded their BYD pilot test and has begun the process to acquire a total of 11 New Flyer battery electric buses that will be added to their fleet.

<sup>11</sup> <https://www.oregon.gov/odot/RPTD/RPTD%20Document%20Library/Transit-Electrification-Guide.pdf>

# Appendix F:

## Existing Public EV Charging on Round 1-5 Electric Alternative Fuel Corridors

The following table shows all 571 existing chargers located within one mile of Oregon’s eleven electric Alternative Fuel Corridors approved by FHWA in Rounds 1-6. Due to intersections between corridors, some locations are attributed to multiple routes. 168 total DCFC locations exist within one mile of electric AFCs, offering 536 ports. Additionally, there are 447 existing public L2 charging locations within one mile of these corridors, offering 990 ports. Of these, Tesla operates 30 DCFC charging stations accounting for 318 of the total DCFC ports (59%). There are also 60 Tesla Destination charging locations, where non-Tesla site hosts provide 168 Level 2 ports (17% of L2 ports along the electric AFCs).

State EV Charging Location Unique ID	Location	Route(s)	EV Network <sup>12</sup>	Number of L2 Charger Connectors	Number of DCFC Charger Connectors
33378	Portland	I-405, I-5, US-26	Non-Networked	2	0
35258	Lincoln City	US-101	ChargePoint Network	2	0
35480	Albany		ChargePoint Network	2	0
36371	Eugene	I-5	Non-Networked	10	0
37170	Hillsboro		ChargePoint Network	2	0
37171	Hillsboro		ChargePoint Network	2	0
37651	Portland	I-405, I-5, US-26	Non-Networked	1	0
39827	Beaverton		Non-Networked	1	0
39828	Bend	US-20	Non-Networked	2	1
39830	Corvallis	US-20	Non-Networked	1	0
39831	Eugene		Non-Networked	1	0
39832	Gladstone	I-205	Non-Networked	1	0
39836	McMinnville		Non-Networked	1	0
39837	Medford		Non-Networked	1	0
39838	Portland	I-84	Non-Networked	1	0
39839	Salem	I-5	Non-Networked	1	1
39840	The Dalles	I-84	Non-Networked	2	1
39841	Wilsonville	I-5	Non-Networked	2	0
40752	Ashland	I-5	Non-Networked	3	0

<sup>12</sup> Note that Sema Connect was recently acquired by Blink Charging

40775	Beaverton		Non-Networked	2	0
40777	Clackamas	I-205	Non-Networked	1	0
41085	Ashland	I-5	Non-Networked	1	0
41758	Beaverton		ChargePoint Network	2	0
47064	Portland	I-5	Non-Networked	1	0
50714	Portland	I-405, I-5, I-84, US-26	OpConnect	2	0
51699	Oregon City		Non-Networked	1	0
53694	Seal Rock	US-101	Non-Networked	1	0
58336	Coos Bay	US-101	ChargePoint Network	1	0
60919	Portland	I-405, I-5, I-84, US-26	ChargePoint Network	2	0
60943	Portland	I-405, I-5, I-84, US-26	ChargePoint Network	2	0
62810	Bend	US-97	ChargePoint Network	2	0
62982	Tigard	I-5	OpConnect	1	2
62983	Tigard		OpConnect	1	2
62985	Salem		OpConnect	1	2
63646	Sandy	US-26	Non-Networked	2	0
64106	Portland		ChargePoint Network	2	0
65854	Banks		EVCS	1	1
65855	Central Point	I-5	EVCS	1	1
65856	Roseburg	I-5	EVCS	1	1
65857	Ashland	I-5	EVCS	1	1
65858	Wolf Creek	I-5	EVCS	1	1
65863	Springfield	I-5	EVCS	1	1
65867	Newport	US-101, US-20	EVCS	1	1
65871	Oakland	I-5	EVCS	1	1
65872	Canyonville	I-5	EVCS	1	1
65927	Portland	I-405, I-5	OpConnect	2	0
65944	Wilsonville	I-5	Non-Networked	3	0
66525	Corvallis	US-20	ChargePoint Network	2	0
66600	Milwaukie		ChargePoint Network	2	0
67164	Independence		ChargePoint Network	2	0
69732	Carlton		Non-Networked	1	0
71432	Portland		OpConnect	7	0
71852	Grants Pass	I-5	ChargePoint Network	0	1
71917	Roseburg	I-5	ChargePoint Network	0	1
72280	Albany	I-5, US-20	ChargePoint Network	0	1
73276	Woodburn	I-5	ChargePoint Network	2	0
73406	Halsey	I-5	EVCS	1	1

73407	Cottage Grove	I-5	EVCS	1	1
73408	Grants Pass	I-5	EVCS	1	1
73409	McKenzie Bridge		EVCS	1	1
73410	Sisters	US-20	EVCS	1	1
73411	Hood River	I-84	EVCS	1	1
73414	Detroit		EVCS	1	1
73416	Astoria	US-101	EVCS	1	1
73417	Newberg		EVCS	1	1
73419	Florence	US-101	EVCS	1	1
73420	Scappoose		EVCS	1	1
73421	McMinnville		EVCS	1	1
73422	Mill City		EVCS	1	1
73423	Welches	US-26	EVCS	2	2
73424	Lincoln City	US-101	EVCS	1	1
73425	Cascade Locks	I-84	EVCS	1	1
73426	Yachats	US-101	EVCS	1	1
73427	Elkton		EVCS	1	1
73428	Warm Springs	US-26	EVCS	1	1
73429	Reedsport	US-101	EVCS	1	1
73430	Monmouth		EVCS	1	1
73432	Grand Ronde		EVCS	1	1
73434	Veneta		EVCS	1	1
73436	Tillamook	US-101	EVCS	1	1
73438	Cannon Beach	US-101	EVCS	1	1
73439	Coos Bay	US-101	EVCS	1	1
73440	Albany	I-5	EVCS	1	1
73441	Redmond	US-97	EVCS	0	1
73442	WESTPORT		EVCS	1	1
73443	The Dalles	I-84	EVCS	1	1
73444	Government Camp	US-26	EVCS	1	1
73472	Grants Pass	I-5	Non-Networked	1	0
73759	Dundee		Non-Networked	1	0
73916	Portland	I-5, I-84	ChargePoint Network	2	0
74212	Madras	US-26, US-97	OpConnect	1	2
74705	Portland	I-405, US-26	ChargePoint Network	2	0

75376	Ashland		ChargePoint Network	2	0
77347	Madras	US-26, US-97	EVCS	1	1
77348	Port Orford	US-101	EVCS	1	1
77349	Woodburn	I-5	EVCS	1	1
77350	Brookings	US-101	EVCS	1	1
77444	Heppner		ChargePoint Network	2	0
78232	Condon		ChargePoint Network	2	0
78953	Portland	I-5, I-84	ChargePoint Network	2	0
79220	Salem	I-5	ChargePoint Network	2	0
81177	Salem		ChargePoint Network	2	0
81378	Portland	I-5, I-84	ChargePoint Network	2	0
82087	Portland	I-405, I-5, I-84, US-26	ChargePoint Network	2	0
82604	Lake Oswego		ChargePoint Network	2	0
85386	Portland	US-26	ChargePoint Network	2	0
85666	Portland	I-5	ChargePoint Network	2	0
86878	Portland	I-405, I-5, I-84, US-26	ChargePoint Network	2	0
86879	Portland	I-405, I-5, I-84, US-26	ChargePoint Network	2	0
86955	Lincoln City	US-101	ChargePoint Network	2	0
87980	Hillsboro		ChargePoint Network	2	0
87981	Hillsboro		ChargePoint Network	2	0
92125	Ashland		Non-Networked	2	0
92126	Ashland		Non-Networked	1	0
92986	Ashland		ChargePoint Network	2	0
93826	Salem		ChargePoint Network	1	0
94702	Christmas Valley		Non-Networked	1	0
95067	Portland	I-5, I-84	Blink Network	2	0
95226	Portland	I-405, I-5	Blink Network	5	0
95284	Salem		Blink Network	3	0
95415	Gresham		Blink Network	2	0
95690	Corvallis		Blink Network	2	0
95750	Portland	I-405, I-5, I-84, US-26	Blink Network	2	0
95805	Salem		Blink Network	2	0
95918	Corvallis	US-20	Blink Network	2	0
95931	Tigard		Blink Network	1	0
95938	Portland	US-26	Blink Network	4	0
95940	Portland	I-84	Blink Network	2	0
95942	Milwaukie		Blink Network	3	0



95943	Oregon City	I-205	Blink Network	4	0
95944	Hillsboro	US-26	Blink Network	2	0
95946	Tigard	I-5	Blink Network	2	0
95947	Portland	I-84	Blink Network	6	0
96083	Salem	I-5	Blink Network	2	0
96150	Beaverton	US-26	Blink Network	1	0
96209	Beaverton		Blink Network	4	0
96295	Falls City		Blink Network	1	0
96393	Carlton		Blink Network	2	0
96542	Oregon City		Blink Network	2	0
96564	Portland	I-405, I-5, I-84, US-26	Blink Network	3	0
96565	Portland	I-405, I-5, I-84, US-26	Blink Network	11	0
96950	Tigard		ChargePoint Network	2	0
97028	Molalla		Blink Network	1	0
98546	Redmond	US-97	Non-Networked	1	0
99177	Portland	I-405, I-5, I-84, US-26	SHELL_RECHARGE	8	0
99778	Tillamook	US-101	SHELL_RECHARGE	1	0
102370	Baker City	I-84	Tesla	0	8
102371	Bend	US-97	Tesla	0	8
102372	Detroit		Tesla	0	6
102373	Grants Pass	I-5	Tesla	0	8
102374	Klamath Falls		Tesla	0	8
102375	Lincoln City	US-101	Tesla	0	8
102377	Pendleton	I-84	Tesla	0	8
102379	Sandy	US-26	Tesla	0	8
102380	Seaside	US-101	Tesla	0	8
102382	Springfield	I-5	Tesla	0	14
102384	Woodburn	I-5	Tesla	0	8
102953	Ashland		Non-Networked	10	0
102954	Ashland		Non-Networked	2	0
103921	Burns	US-20	Non-Networked	1	0
103922	Ashland		Non-Networked	1	0
103947	Amity		Non-Networked	2	0
103959	Cannon Beach	US-101	Non-Networked	1	0
103976	Medford	I-5	Non-Networked	2	0
103994	Sherwood		Non-Networked	1	0
103996	Sisters	US-20	Non-Networked	1	0

103997	Talent	I-5	Non-Networked	2	0
104257	Albany	I-5, US-20	Non-Networked	0	1
104258	Bandon	US-101	Non-Networked	1	0
104260	Newport	US-101, US-20	Non-Networked	1	0
104261	North Bend	US-101	Non-Networked	1	0
104264	Reedsport	US-101	Non-Networked	1	0
104743	Mitchell	US-26	Non-Networked	1	0
105036	Oregon City		Non-Networked	2	0
105037	Oakridge		Non-Networked	2	0
105038	Tillamook	US-101	Non-Networked	6	0
105207	Woodburn	I-5	ChargePoint Network	1	0
105360	Junction City		Non-Networked	2	1
105364	Medford	I-5	Non-Networked	3	1
115344	Ashland		Tesla Destination	2	0
115345	Ashland	I-5	Tesla Destination	2	0
115346	Ashland		Tesla Destination	2	0
115347	Ashland		Tesla Destination	4	0
115348	Bandon		Tesla Destination	3	0
115349	Bandon	US-101	Tesla Destination	2	0
115350	Bend	US-20, US-97	Tesla Destination	3	0
115352	Bend	US-20, US-97	Tesla Destination	2	0
115353	Bend		Tesla Destination	8	0
115354	Bend	US-97	Tesla Destination	3	0
115355	Bend	US-20, US-97	Tesla Destination	2	0
115356	Bend		Tesla Destination	1	0
115357	Bend		Tesla Destination	3	0
115358	Bend		Tesla Destination	2	0
115359	Bend	US-97	Tesla Destination	4	0
115360	Cannon Beach	US-101	Tesla Destination	2	0
115361	Cannon Beach	US-101	Tesla Destination	5	0
115362	Cannon Beach	US-101	Tesla Destination	5	0
115363	Cannon Beach	US-101	Tesla Destination	2	0
115364	Coos Bay	US-101	Tesla Destination	2	0
115365	Corvallis	US-20	Tesla Destination	4	0
115366	Corvallis	US-20	Tesla Destination	3	0
115367	Crater Lake		Tesla Destination	2	0

115368	Dayton		Tesla Destination	2	0
115369	Dayton		Tesla Destination	2	0
115370	Dayton		Tesla Destination	1	0
115371	Depoe Bay	US-101	Tesla Destination	1	0
115372	Dundee		Tesla Destination	1	0
115373	Dundee		Tesla Destination	1	0
115374	Estacada		Tesla Destination	4	0
115375	Florence	US-101	Tesla Destination	4	0
115376	Florence	US-101	Tesla Destination	4	0
115377	Florence		Tesla Destination	6	0
115378	Forest Grove		Tesla Destination	2	0
115379	Fort Klamath		Tesla Destination	1	0
115380	Gleneden Beach	US-101	Tesla Destination	8	0
115381	Hood River	I-84	Tesla Destination	3	0
115382	John Day	US-26	Tesla Destination	1	0
115383	Joseph		Tesla Destination	2	0
115384	Junction City		Tesla Destination	4	0
115385	Klamath Falls		Tesla Destination	2	0
115386	Lake Oswego		Tesla Destination	3	0
115387	Lake Oswego		Tesla Destination	2	0
115389	McMinnville		Tesla Destination	1	0
115390	McMinnville		Tesla Destination	1	0
115391	McMinnville		Tesla Destination	3	0
115392	Medford	I-5	Tesla Destination	3	0
115393	Milwaukie		Tesla Destination	2	0
115394	Newberg		Tesla Destination	2	0
115395	Oceanside		Tesla Destination	3	0
115397	Port Orford	US-101	Tesla Destination	2	0
115398	Portland	I-5, I-84	Tesla Destination	5	0
115399	Portland	I-5	Tesla Destination	5	0
115400	Portland	I-405, I-5, US-26	Tesla Destination	6	0
115401	Portland	I-405, I-5, US-26	Tesla Destination	2	0
115402	Portland	I-5, I-84	Tesla Destination	4	0
115403	Portland	I-405, I-5, US-26	Tesla Destination	3	0
115404	Portland	I-405, I-5, I-84, US-26	Tesla Destination	1	0
115405	Portland	I-405, I-5, I-84, US-26	Tesla Destination	1	0
115406	Portland	I-405, I-5, I-84, US-26	Tesla Destination	2	0

115407	Portland	I-405, I-5, US-26	Tesla Destination	2	0
115408	Portland	I-405, US-26	Tesla Destination	4	0
115409	Portland	I-405, I-5, I-84, US-26	Tesla Destination	2	0
115410	Portland		Tesla Destination	8	0
115411	Portland	I-405, I-5, I-84, US-26	Tesla Destination	6	0
115413	Portland	I-405, I-5, I-84, US-26	Tesla Destination	8	0
115415	Prairie City	US-26	Tesla Destination	2	0
115416	Redmond		Tesla Destination	2	0
115417	Salem	I-5	Tesla Destination	2	0
115418	Salem		Tesla Destination	4	0
115419	Sherwood		Tesla Destination	2	0
115420	Silverton		Tesla Destination	2	0
115421	Sisters	US-20	Tesla Destination	1	0
115422	Springfield		Tesla Destination	1	0
115423	Springfield	I-5	Tesla Destination	1	0
115424	Sutherlin	I-5	Tesla Destination	3	0
115425	Tillamook	US-101	Tesla Destination	2	0
115426	Waldport	US-101	Tesla Destination	5	0
115427	Waldport	US-101	Tesla Destination	3	0
115428	Welches	US-26	Tesla Destination	1	0
115429	Yachats	US-101	Tesla Destination	3	0
115430	Yamhill		Tesla Destination	1	0
117115	Gresham	US-26	Volta	2	0
117116	Happy Valley	I-205	Volta	2	0
117117	Happy Valley	I-205	Volta	2	0
117118	Happy Valley	I-205	Volta	2	0
117119	Happy Valley	I-205	Volta	2	0
117120	Happy Valley	I-205	Volta	2	0
117121	Portland	I-205, I-84	Volta	2	0
117122	Portland		Volta	2	0
117124	Tigard	I-5	Volta	2	0
117125	Tigard	I-5	Volta	2	0
117126	Troutdale	I-84	Volta	2	0
117230	Ione		ChargePoint Network	2	0
117276	Portland	I-405, I-5, US-26	Non-Networked	6	0
117337	Fossil		ChargePoint Network	2	0
120905	Lake Oswego		Blink Network	1	0
121708	Hermiston	I-84	Electrify America	0	4

121710	Island City	I-84	Electrify America	0	4
121713	Albany	I-5, US-20	Electrify America	0	4
121714	Huntington		Electrify America	0	4
121724	Grants Pass	I-5	Electrify America	0	4
122204	Independence		Blink Network	3	0
122244	Bandon	US-101	Tesla	0	8
122262	The Dalles	I-84	Tesla	0	5
122342	Portland		Tesla	0	10
122518	Estacada		Tesla Destination	4	0
122519	Mt Hood		Tesla Destination	2	0
122520	North Bend	US-101	Tesla Destination	2	0
122521	Tolovana Park	US-101	Tesla Destination	4	0
122667	Aloha		Blink Network	3	0
122869	Portland	I-405, I-5, I-84, US-26	Blink Network	6	0
122883	Sherwood		Electrify America	1	3
123368	Eugene		Non-Networked	2	0
123709	Cornelius		Electrify America	1	3
123768	Hood River	I-84	Electrify America	0	4
125761	Bend	US-97	Blink Network	6	0
126266	Rainier		SHELL_RECHARGE	0	1
126267	Clatskanie		SHELL_RECHARGE	0	1
137157	Hillsboro	US-26	Volta	2	0
137158	Hillsboro	US-26	Volta	2	0
137159	Tualatin	I-205, I-5	Volta	2	0
137160	Tualatin	I-205, I-5	Volta	2	0
137163	Hood River		Non-Networked	1	0
137164	Hood River		Tesla Destination	2	0
143409	Canyonville	I-5	ChargePoint Network	2	0
143950	Deer Island		ChargePoint Network	0	1
144214	Tigard		ChargePoint Network	0	1
144961	Beaverton		Blink Network	3	0
145245	Tigard		Volta	2	0
145283	Canby		Non-Networked	2	0
145284	Corvallis	US-20	Non-Networked	2	0
145305	Lake Oswego	I-5	EV Connect	2	0
145308	Lake Oswego	I-5	Non-Networked	4	0
145309	Portland		Tesla Destination	4	0

145310	Portland	I-205	Non-Networked	1	0
145311	Canby		Non-Networked	1	0
145507	Philomath	US-20	ChargePoint Network	2	0
145563	Redmond	US-97	ChargePoint Network	2	0
145623	Lebanon	US-20	Non-Networked	2	0
145624	Woodburn	I-5	Non-Networked	2	0
145625	Cornelius		Non-Networked	2	0
145626	Hillsboro	US-26	Non-Networked	4	0
145631	Lebanon	US-20	Non-Networked	2	0
145632	Hillsboro		Non-Networked	3	0
145688	Bend	US-20	Non-Networked	1	0
145689	Bend	US-97	Non-Networked	2	0
145697	Bend		Non-Networked	1	0
145742	Salem	I-5	ChargePoint Network	2	0
146656	Myrtle Creek	I-5	ChargePoint Network	2	0
146716	Portland		Non-Networked	2	0
146952	Madras		ChargePoint Network	2	0
146954	Madras		ChargePoint Network	2	0
146971	Newport	US-101	ChargePoint Network	2	0
147028	Troutdale	I-84	Electrify America	1	3
147156	Independence		ChargePoint Network	2	0
147224	Ashland		ChargePoint Network	2	0
147631	Roseburg	I-5	ChargePoint Network	2	0
147849	Portland	I-5, I-84	SemaCharge Network	4	0
147850	Portland	I-405, I-5, I-84	SemaCharge Network	10	0
147861	Beaverton		SemaCharge Network	8	0
147862	Hillsboro		SemaCharge Network	4	0
147866	Lake Oswego		SemaCharge Network	1	0
147873	Lake Oswego		SemaCharge Network	2	0
147877	Tigard		SemaCharge Network	1	0
147881	Cornelius		SemaCharge Network	1	0
147889	Sherwood		SemaCharge Network	1	0
147894	Dundee		SemaCharge Network	2	0
147901	Dayton		SemaCharge Network	2	0
147906	McMinnville		SemaCharge Network	1	0
147920	Keizer	I-5	SemaCharge Network	3	0
147937	Dallas		SemaCharge Network	1	0
147939	Salem		SemaCharge Network	1	0

148054	Eugene		SemaCharge Network	2	0
148055	Eugene		SemaCharge Network	3	0
148061	Eugene		SemaCharge Network	2	0
148082	Roseburg	I-5	SemaCharge Network	2	0
149409	Roseburg	I-5	ChargePoint Network	2	0
149416	Corvallis	US-20	ChargePoint Network	2	0
149589	Portland	I-205, US-26	SHELL_RECHARGE	2	4
149657	Lake Oswego		SemaCharge Network	2	0
149740	Salem	I-5	Electrify America	0	4
149769	Madras	US-26, US-97	ChargePoint Network	0	1
150463	Gresham	US-26	Blink Network	1	0
150597	Carlton		Tesla Destination	3	0
150673	Lincoln City	US-101	Tesla Destination	2	0
150690	Gaston		Tesla Destination	2	0
150715	Pacific City		Tesla Destination	2	0
150720	Lake Oswego		Tesla Destination	2	0
150726	Yachats	US-101	Tesla Destination	2	0
150813	Hillsboro		ChargePoint Network	1	0
151796	Hillsboro		Volta	2	0
151797	Hillsboro		Volta	2	0
151800	Portland	I-205	Volta	2	0
151866	Troutdale		Volta	2	0
151867	Milwaukie		Volta	2	0
151868	Gladstone	I-205	Volta	2	0
151869	Portland	US-26	Volta	2	0
151890	Happy Valley	I-205	Volta	0	2
152744	Tigard		Volta	2	0
153217	Beaverton		SemaCharge Network	8	0
153493	The Dalles	I-84	Non-Networked	2	0
154070	Burns	US-20	ChargePoint Network	0	1
154071	Bend	US-20, US-97	ChargePoint Network	0	1
154421	Rickreall		Blink Network	6	0
155109	Salem		SemaCharge Network	1	0
155309	Tigard	I-5	Electrify America	0	8
155346	Hood River	I-84	ChargePoint Network	2	0
155505	Mosier	I-84	Non-Networked	1	0
155516	Bend		Non-Networked	6	0
155570	Eugene		ChargePoint Network	1	0

155572	Hillsboro		ChargePoint Network	2	0
155908	Eugene		Non-Networked	2	0
156080	Otis		ChargePoint Network	0	1
156081	Otis	US-101	ChargePoint Network	0	1
156141	Portland	US-26	ChargePoint Network	1	0
156211	Corvallis	US-20	ChargePoint Network	2	0
156279	Grants Pass		ChargePoint Network	2	0
156604	Beaverton		Blink Network	6	0
157954	Portland	US-26	Non-Networked	2	0
158472	Portland		Blink Network	2	0
158473	Independence		Blink Network	3	0
163343	Portland	I-5	Electrify America	1	3
163460	Newport	US-101	ChargePoint Network	2	0
163461	Newport	US-101, US-20	ChargePoint Network	2	0
163462	Salem	I-5	ChargePoint Network	2	0
164092	Cottage Grove	I-5	SemaCharge Network	2	0
164223	Portland		Blink Network	4	0
164393	Redmond	US-97	EVCS	1	0
164423	Portland	I-405, I-5, I-84	ChargePoint Network	1	0
164640	Eugene	I-5	ChargePoint Network	2	0
164712	Portland	I-405, I-5, I-84, US-26	Blink Network	3	0
165272	Bend	US-20	ChargePoint Network	2	0
165325	Seaside	US-101	SemaCharge Network	4	0
165350	Mt. Hood		Non-Networked	1	0
165358	Gresham		Non-Networked	2	0
165501	The Dalles	I-84	ChargePoint Network	2	0
165568	Lake Oswego		Electrify America	0	4
165584	Salem	I-5	OpConnect	0	2
165589	Portland	I-84	OpConnect	2	0
165591	Portland	I-405, I-5, I-84, US-26	OpConnect	2	0
165593	Portland	I-405, I-5, US-26	OpConnect	2	0
166179	Klamath Falls	US-97	ChargePoint Network	2	0
166180	Klamath Falls	US-97	ChargePoint Network	0	1
166224	Hermiston		ChargePoint Network	2	0
166704	Ontario	I-84	Tesla	0	8
166899	St. Helens		ChargePoint Network	2	0
167141	Gresham	US-26	ChargePoint Network	1	0



167231	Enterprise		ChargePoint Network	2	0
167363	Astoria		SemaCharge Network	4	0
167469	Hillsboro		ChargePoint Network	2	0
167515	Hillsboro		ChargePoint Network	2	0
167617	McMinnville		ChargePoint Network	2	0
168044	Salem		Non-Networked	1	0
168093	Keizer	I-5, OR-42	Blink Network	2	0
168248	North Plains	US-26	Blink Network	2	0
168278	Medford	I-5	Tesla	0	12
168279	Salem	I-5	Tesla	0	12
168280	Beaverton	US-26	Tesla	0	12
168485	Clackamas	I-205	Electrify America	0	3
168512	Portland	I-84	Blink Network	1	0
168632	Sisters	US-20	Tesla Destination	2	0
168823	Clackamas	I-205	Tesla Destination	2	0
169205	Tillamook	US-101	Tesla Destination	2	0
169217	Mitchell	US-26	Tesla Destination	2	0
169413	Woodburn	I-5	Electrify America	0	4
169497	Newberg		Blink Network	2	0
169989	Portland	I-405, I-5, I-84, US-26	OpConnect	4	0
170105	Newberg		Non-Networked	1	0
170106	Newberg		Non-Networked	1	0
170107	St. Helens		Non-Networked	1	0
170127	Portland		Blink Network	3	0
170245	Warrenton		ChargePoint Network	2	0
170359	Sutherlin	I-5	Electrify America	0	4
170453	Beaverton		OpConnect	2	0
170660	Hillsboro		ChargePoint Network	2	0
170922	Portland	I-405, I-5, I-84, US-26	SHELL_RECHARGE	2	1
170955	Bend	US-20, US-97	ChargePoint Network	2	0
171345	Enterprise		ChargePoint Network	2	0
171416	Roseburg	I-5	Blink Network	2	0
171456	Eugene		ChargePoint Network	1	0
171604	Hillsboro		ChargePoint Network	2	0
171610	Hillsboro		ChargePoint Network	2	0
171611	Hillsboro		ChargePoint Network	2	0
171612	Hillsboro		ChargePoint Network	2	0
171613	Hillsboro		ChargePoint Network	2	0

171614	Hillsboro		ChargePoint Network	2	0
171616	Hillsboro		ChargePoint Network	2	0
171617	Hillsboro		ChargePoint Network	2	0
171618	Hillsboro		ChargePoint Network	2	0
171722	Portland	I-405, I-5, I-84, US-26	ChargePoint Network	2	0
171817	Portland		ChargePoint Network	2	0
171887	Portland	I-405, I-5, I-84, US-26	ChargePoint Network	2	0
171989	Salem	I-5	ChargePoint Network	2	0
171990	Salem	I-5	ChargePoint Network	2	0
171991	Salem	I-5	ChargePoint Network	2	0
172057	Portland	I-5	ChargePoint Network	2	0
172062	Portland	I-405, I-5, I-84, US-26	ChargePoint Network	2	0
172063	Portland	I-405, I-5, I-84, US-26	ChargePoint Network	2	0
172233	Portland	I-5, I-84	ChargePoint Network	2	0
172422	Woodburn	I-5	ChargePoint Network	2	0
172651	Portland	I-5, I-84	ChargePoint Network	2	0
172652	Portland	I-5, I-84	ChargePoint Network	2	0
172990	Albany		ChargePoint Network	2	0
172991	Albany		ChargePoint Network	2	0
173115	Ashland		ChargePoint Network	2	0
174368	Deer Island		ChargePoint Network	2	0
174369	Deer Island		ChargePoint Network	0	1
174496	Redmond	US-97	ChargePoint Network	2	0
174511	Salem	I-5	ChargePoint Network	2	0
174512	Salem	I-5	ChargePoint Network	2	0
174513	Salem	I-5	ChargePoint Network	2	0
174514	Salem	I-5	ChargePoint Network	2	0
174515	Salem	I-5	ChargePoint Network	2	0
174516	Salem	I-5	ChargePoint Network	2	0
174565	Independence		ChargePoint Network	2	0
174778	Madras	US-26, US-97	ChargePoint Network	0	1
174779	Madras	US-26, US-97	ChargePoint Network	0	1
174781	Madras	US-26, US-97	ChargePoint Network	2	0
175245	Bend	US-20, US-97	ChargePoint Network	0	1
175246	Bend	US-20, US-97	ChargePoint Network	0	1
175247	Bend	US-20, US-97	ChargePoint Network	2	0
175248	Bend	US-20, US-97	ChargePoint Network	0	1
175527	Hood River	I-84	ChargePoint Network	2	0

175581	Eugene		ChargePoint Network	1	0
175582	Eugene		ChargePoint Network	2	0
175583	Hillsboro		ChargePoint Network	2	0
175637	Otis	US-101	ChargePoint Network	0	1
175638	Otis	US-101	ChargePoint Network	0	1
181176	Klamath Falls	US-97	ChargePoint Network	0	1
181177	Klamath Falls	US-97	ChargePoint Network	0	1
181178	Klamath Falls	US-97	ChargePoint Network	0	1
181536	Hillsboro		ChargePoint Network	2	0
181969	Warrenton		ChargePoint Network	2	0
182150	Hillsboro		ChargePoint Network	2	0
182292	Eugene		ChargePoint Network	1	0
182397	Beaverton		ChargePoint Network	2	0
182467	Portland		ChargePoint Network	2	0
182471	Portland		ChargePoint Network	2	0
182480	Wilsonville	I-5	ChargePoint Network	2	0
182854	Clackamas	I-205	ChargePoint Network	1	0
182855	Clackamas	I-205	ChargePoint Network	1	0
182865	Beaverton		ChargePoint Network	1	0
182867	Beaverton		ChargePoint Network	1	0
182881	Hillsboro		ChargePoint Network	1	0
182883	Hillsboro		ChargePoint Network	1	0
182884	Hillsboro		ChargePoint Network	1	0
182885	Hillsboro		ChargePoint Network	1	0
183044	Sherwood		ChargePoint Network	2	0
183058	Sherwood		ChargePoint Network	2	0
183445	Salem	I-5	ChargePoint Network	2	0
183446	Salem	I-5	ChargePoint Network	2	0
183448	Medford	I-5	ChargePoint Network	2	0
183449	Beaverton	US-26	ChargePoint Network	2	0
183450	Beaverton	US-26	ChargePoint Network	2	0
183531	Eugene		ChargePoint Network	2	0
183537	Eugene		ChargePoint Network	2	0
183538	Eugene		ChargePoint Network	2	0
183539	Eugene		ChargePoint Network	1	0
183648	Mill City		ChargePoint Network	0	1
183650	Eugene	I-5	ChargePoint Network	2	0
183651	Eugene	I-5	ChargePoint Network	2	0

183652	Eugene	I-5	ChargePoint Network	2	0
183653	Eugene	I-5	ChargePoint Network	2	0
183654	Eugene	I-5	ChargePoint Network	1	0
183655	Eugene	I-5	ChargePoint Network	1	0
183667	Mill City		ChargePoint Network	0	1
183668	Mill City		ChargePoint Network	0	1
183670	Wilsonville	I-5	SHELL_RECHARGE	2	3
183737	John Day	US-26	ChargePoint Network	0	1
183879	Portland	I-405, I-5, US-26	Non-Networked	3	0
183927	Astoria		EV Connect	2	1
184137	Wilsonville	I-5	Blink Network	2	0
184220	Mill City		ChargePoint Network	2	0
185141	Mill City		ChargePoint Network	0	1
185314	Portland		OpConnect	1	0
185410	Happy Valley	I-205	Volta	2	0
186307	Roseburg	I-5, OR-42	Blink Network	4	0
186410	Hillsboro	US-26	Blink Network	12	0
186628	Oregon City		ChargePoint Network	2	0
186629	Clackamas	I-205	ChargePoint Network	2	0
186630	Oregon City		ChargePoint Network	2	0
186736	Oregon City		ChargePoint Network	1	0
186737	Oregon City		ChargePoint Network	2	0
186813	Oregon City		ChargePoint Network	2	0
186834	Pendleton	I-84	ChargePoint Network	2	0
186835	Pendleton	I-84	ChargePoint Network	0	1
186860	Newport	US-101	Electrify America	0	4
186907	Hillsboro	US-26	Volta	4	0
187216	Portland	I-405, I-5, I-84	Blink Network	1	0
187292	Bend		Blink Network	9	0
187586	Salem		ChargePoint Network	2	0
187634	Eugene		ChargePoint Network	2	0
187702	Portland		OpConnect	2	0
187749	Portland	I-405, I-5, I-84	Blink Network	7	0
187903	Beaverton		ChargePoint Network	2	0
187904	Beaverton		ChargePoint Network	2	0
187952	Beaverton		Non-Networked	2	1
187953	Lake Oswego		Non-Networked	2	0
187955	Milwaukie		Non-Networked	2	0

189002	Dayton		Tesla Destination	3	0
189149	Portland		ChargePoint Network	2	0
189150	Portland		ChargePoint Network	2	0
189287	Corvallis	US-20	ChargePoint Network	2	0
189288	Corvallis	US-20	ChargePoint Network	2	0
189318	Portland	I-5	SemaCharge Network	4	0
189702	Eugene		SemaCharge Network	2	0
189734	Fort Klamath		ChargePoint Network	2	0
189775	Eugene		Non-Networked	1	0
190100	Warrenton	US-101	Electrify America	0	4
190192	Bend	US-97	Electrify America	0	4
190363	Klamath Falls	US-97	ChargePoint Network	2	0
190549	Halsey		SemaCharge Network	2	0
190708	Portland	I-405, I-5, I-84, US-26	ChargePoint Network	2	0
190724	Oregon City		ChargePoint Network	2	0
190725	Oregon City		ChargePoint Network	2	0
190773	Eugene		ChargePoint Network	1	0
190801	Tillamook	US-101	ChargePoint Network	0	1
190807	Hines	US-20	Tesla	0	8
190817	Milwaukie		Non-Networked	4	0
190853	Hood River	I-84	OpConnect	1	0
190895	Medford	I-5	ChargePoint Network	2	0
190899	Toledo	US-20	ChargePoint Network	2	0
191044	Hood River	I-84	OpConnect	1	0
191401	Toledo	US-20	ChargePoint Network	2	0
191428	Lake Oswego		SemaCharge Network	10	0
191671	Toledo	US-20	ChargePoint Network	2	0
191744	Bend		ChargePoint Network	2	0
192710	Portland	US-26	Blink Network	1	0
192926	Oregon City		Blink Network	2	0
193043	Milwaukee	I-205	Blink Network	2	0
193051	Portland	I-5	ChargePoint Network	2	0
193067	Tillamook	US-101	ChargePoint Network	1	0
193114	Tillamook	US-101	ChargePoint Network	0	1
193228	La Pine		SemaCharge Network	2	0
193260	Hillsboro		SHELL_RECHARGE	2	3
193268	Corvallis	US-20	Blink Network	8	0
193270	Corvallis	US-20	Blink Network	7	0

193376	Elmira		SemaCharge Network	4	0
193445	Lake Oswego	I-5	ChargePoint Network	2	0
193446	Portland	I-405, I-5, US-26	ChargePoint Network	2	0
193503	Clackamas	I-205	ChargePoint Network	2	0
193504	Salem	I-5	ChargePoint Network	2	0
193506	Eugene		ChargePoint Network	2	0
193726	Portland		ChargePoint Network	2	0
193728	Portland		ChargePoint Network	2	0
193812	Portland		SHELL_RECHARGE	0	3
193982	Eugene	I-5	Blink Network	2	0
194099	Portland		ChargePoint Network	2	0
194815	Bend		SemaCharge Network	1	0
194988	Newport	US-101	OpConnect	3	0
194989	Lake Oswego		OpConnect	6	0
195000	Salem		SemaCharge Network	2	0
195062	Bend		SemaCharge Network	2	0
195143	Amity		SemaCharge Network	1	0
195165	Eugene		SemaCharge Network	2	0
195166	Eugene		SemaCharge Network	6	0
195167	Eugene		SemaCharge Network	2	0
195298	Portland	I-205, I-84	SemaCharge Network	1	0
195300	Portland	US-26	SemaCharge Network	2	0
195302	Lake Oswego		SemaCharge Network	4	0
195317	Cottage Grove	I-5	SemaCharge Network	6	0
195420	Portland	I-405, I-5, I-84, US-26	SemaCharge Network	2	0
195421	Hillsboro	US-26	SemaCharge Network	2	0
195499	Portland		SemaCharge Network	6	0
195500	Portland	I-405, I-5, I-84	SemaCharge Network	1	0
195501	Portland	I-5, I-84	SemaCharge Network	2	0
195503	Portland		SemaCharge Network	2	0
195504	Lake Oswego		SemaCharge Network	1	0
195505	Lake Oswego		SemaCharge Network	4	0
195506	Lake Oswego		SemaCharge Network	4	0
195557	Portland	I-405, I-5, US-26	SemaCharge Network	6	0
195559	Beaverton		SemaCharge Network	2	0
195560	Tigard	I-5	SemaCharge Network	2	0
195566	Lebanon	US-20	SemaCharge Network	1	0

195579	Medford	I-5	SemaCharge Network	2	0
195580	Medford		SemaCharge Network	1	0
195849	Bend	US-20	OpConnect	1	0
195939	Tualatin	I-205, I-5	Blink Network	2	0
196129	Hillsboro		ChargePoint Network	2	0
196153	Portland	I-84	Blink Network	1	0
196156	Lake Oswego		SemaCharge Network	4	0
196232	Corvallis		ChargePoint Network	2	0
196234	Corvallis	US-20	ChargePoint Network	2	0
196554	Pleasant Hill		SemaCharge Network	6	0
197086	Bend		SemaCharge Network	2	0
197439	Portland		Non-Networked	4	0
197440	McMinnville		Non-Networked	1	0
197608	Portland	I-405, I-5, I-84, US-26	ChargePoint Network	2	0
197751	Yamhill		Non-Networked	1	0
198005	Myrtle Creek	I-5	Tesla	0	8
199266	Dayton		SemaCharge Network	2	0
199422	Bend	US-20, US-97	ChargePoint Network	2	0
199491	Portland	US-26	ChargePoint Network	2	0
199560	West Linn	I-205	Non-Networked	2	0
200559	Portland	I-5, I-84	ChargePoint Network	2	0
200571	Wilsonville	I-5	ChargePoint Network	2	0
200573	Hermiston		ChargePoint Network	2	0
200587	Eugene		ChargePoint Network	0	1
200955	Hood River	I-84	Tesla	0	8
201424	Portland	I-84	Electrify America	0	4
201789	Salem		Blink Network	5	2
201882	Salem	I-5	SemaCharge Network	2	0
202011	Hillsboro	US-26	Blink Network	2	0
202555	Gresham	US-26	ChargePoint Network	2	0
202556	Gresham	US-26	ChargePoint Network	2	0
202557	Gresham	US-26	ChargePoint Network	2	0
202639	Dallas		EV Connect	0	1
202656	Amity		SemaCharge Network	2	0
204404	Portland	I-405, I-5, I-84, US-26	ChargePoint Network	2	0
204650	Portland	I-5, I-84	SemaCharge Network	1	0
204785	Beaverton		SHELL_RECHARGE	2	3
205019	Forest Grove		ChargePoint Network	2	0

205020	Forest Grove		ChargePoint Network	2	0
205461	Medford		ChargePoint Network	1	0
205567	Troutdale	I-84	Tesla	0	8
205577	Portland	I-405, I-5, US-26	SemaCharge Network	5	0
205653	Eugene		ChargePoint Network	2	0
205864	Forest Grove		ChargePoint Network	2	0
205865	Forest Grove		ChargePoint Network	2	0
205866	Forest Grove		ChargePoint Network	2	0
205953	Rockaway Beach	US-101	ChargePoint Network	2	0
206080	Hillsboro		ChargePoint Network	2	0
206148	Philomath	US-20	ChargePoint Network	2	0
206149	Philomath	US-20	ChargePoint Network	2	0
206608	Newberg		Non-Networked	1	0
206716	Portland		Electrify America	0	4
206832	Tillamook	US-101	ChargePoint Network	1	0
206920	Tigard	I-5	ChargePoint Network	1	0
207106	Portland	US-26	ChargePoint Network	2	0
207124	Portland	I-5	ChargePoint Network	2	0
207181	Medford		ChargePoint Network	0	1
207317	McMinnville		Non-Networked	2	0
207318	Yamhill		Non-Networked	2	0
207319	Newberg		Non-Networked	1	0
207320	Newberg		Non-Networked	2	0
207321	Sherwood		Non-Networked	1	0
207322	Tigard	I-5	Non-Networked	2	0
207323	Portland	I-405, I-5, US-26	Non-Networked	2	0
207324	Portland	I-84	Non-Networked	1	0
207325	Portland	I-205	Non-Networked	1	0
207326	Portland		Non-Networked	4	0
207327	Portland		Non-Networked	1	0
207328	Beaverton	US-26	Non-Networked	2	0
207329	Aloha		Non-Networked	1	0
207456	Beaverton	US-26	ChargePoint Network	2	0
207457	Beaverton	US-26	ChargePoint Network	2	0
207458	Beaverton	US-26	ChargePoint Network	2	0
207480	Cottage Grove	I-5	SemaCharge Network	2	0
207578	Portland	I-5	ChargePoint Network	2	0



207721	Portland	I-5	SemaCharge Network	1	0
207748	Eugene		ChargePoint Network	2	0
211835	St. Helens		ChargePoint Network	0	1
211836	St. Helens		ChargePoint Network	0	1
212640	Portland		Electrify America	0	4
212716	Corvallis	US-20	ChargePoint Network	2	0
213080	Cornelius		Blink Network	2	0
213375	Portland	I-405, I-5	OpConnect	4	0
213378	Portland	I-405, I-5	ChargePoint Network	1	0
213379	Portland	I-405, I-5	ChargePoint Network	1	0
213380	Portland	I-405, I-5	ChargePoint Network	1	0
213381	Portland	I-405, I-5	ChargePoint Network	1	0
213859	Tigard		Blink Network	2	0
214140	milwaukie		SHELL_RECHARGE	2	1
214227	Coos Bay		OpConnect	4	0
214266	Talent	I-5	ChargePoint Network	1	0
214267	Talent	I-5	ChargePoint Network	2	0
214355	Eugene		ChargePoint Network	2	0
214358	Portland	I-84	ChargePoint Network	2	0
214984	Corvallis	US-20	ChargePoint Network	2	0
215020	Scappoose		ChargePoint Network	1	0
215028	Gresham	US-26	ChargePoint Network	2	0
215029	Gresham	US-26	ChargePoint Network	2	0
215030	Gresham	US-26	ChargePoint Network	2	0
218158	Medford	I-5	ChargePoint Network	1	0
218166	Hood River	I-84	ChargePoint Network	2	0
218167	Hood River	I-84	ChargePoint Network	2	0
218485	Forest Grove		ChargePoint Network	2	0
218491	Portland		ChargePoint Network	2	0
218501	Salem		ChargePoint Network	2	0
218502	Salem		ChargePoint Network	2	0
218503	Salem		ChargePoint Network	0	1
218504	Salem		ChargePoint Network	0	1
218514	Eugene		ChargePoint Network	2	0
218525	Eugene		ChargePoint Network	2	0
218526	Eugene		ChargePoint Network	2	0
218606	Klamath Falls	US-97	Non-Networked	2	0
220265	Beaverton	US-26	Electrify America	0	4

220390	Salem		ChargePoint Network	0	1
220689	HARRISBURG	I-5	Tesla	0	8
220806	Prineville	US-26	ChargePoint Network	2	0
221122	Eugene		ChargePoint Network	2	0
221139	Beaverton		ChargePoint Network	1	0
221211	Roseburg	I-5	ChargePoint Network	2	0
221212	Roseburg	I-5	ChargePoint Network	2	0
221266	Sandy	US-26	Electrify America	0	4
221779	Boardman	I-84	Tesla	0	8
222085	Hood River		OpConnect	4	0
222485	Hermiston		ChargePoint Network	2	0
222552	Beaverton		ChargePoint Network	2	0
222553	Beaverton		ChargePoint Network	2	0
222554	Beaverton		ChargePoint Network	2	0
222555	Beaverton		ChargePoint Network	2	0
222563	The Dalles	I-84	ChargePoint Network	2	0
222814	Lake Oswego		Volta	2	0
222878	Beaverton		ChargePoint Network	1	0
223506	Madras	US-26, US-97	Tesla	0	8
223674	Florence	US-101	Non-Networked	2	0
224234	Salem		ChargePoint Network	2	0
224235	Salem		ChargePoint Network	2	0
224236	Salem		ChargePoint Network	2	0
224242	Salem		ChargePoint Network	2	0
224608	Salem		ChargePoint Network	2	0
224609	Salem		ChargePoint Network	2	0
224737	Brookings	US-101	ChargePoint Network	2	0
224800	Beaverton		ChargePoint Network	1	0
224801	Beaverton		ChargePoint Network	1	0
224802	Beaverton		ChargePoint Network	1	0
224803	Beaverton		ChargePoint Network	1	0
225273	Cottage Grove	I-5	SemaCharge Network	2	0
226176	Eugene	I-5	ChargePoint Network	2	0
226181	Dufur		ChargePoint Network	2	0
226627	Eugene	I-5	ChargePoint Network	2	0
226720	Medford	I-5	Blink Network	2	0
226723	Medford	I-5	Blink Network	3	0

226754	Medford	I-5	ChargePoint Network	2	0
226854	Grants Pass		Blink Network	2	0
226855	Grants Pass		Blink Network	2	0
227095	Sisters	US-20	Non-Networked	4	0
227117	Astoria		SemaCharge Network	2	0
227958	Portland	I-5	eVgo Network	1	1
228386	Portland	I-84	eVgo Network	1	1
228389	Portland	I-405	eVgo Network	0	1
228579	Portland		eVgo Network	0	2
228894	Portland	I-405, I-5, US-26	OpConnect	5	0
228924	Medford	I-5	ChargePoint Network	2	0
229093	Tillamook	US-101	Tesla	0	12
230857	Warrenton	US-101	EV Connect	2	0
232956	Silverton		ChargePoint Network	2	0
232957	Silverton		ChargePoint Network	0	1
232958	Silverton		ChargePoint Network	0	1
233275	Florence		Non-Networked	1	0
233314	Maupin		ChargePoint Network	2	0
233444	Medford		ChargePoint Network	2	0
233445	Medford		ChargePoint Network	2	0
234663	Salem	I-5	OpConnect	5	0
234720	Hillsboro		ChargePoint Network	2	0
234721	Hillsboro		ChargePoint Network	2	0
234722	Hillsboro		ChargePoint Network	2	0
234723	Hillsboro		ChargePoint Network	2	0
234724	Hillsboro		ChargePoint Network	2	0
234725	Hillsboro		ChargePoint Network	2	0
235498	McMinnville		ChargePoint Network	2	0
235499	McMinnville		ChargePoint Network	2	0
235727	Beaverton		ChargePoint Network	1	0
235983	Bandon	US-101	FLO	4	0
236007	Hillsboro		ChargePoint Network	2	0
236134	Warrenton	US-101	ChargePoint Network	2	0
236212	Lake Oswego		SemaCharge Network	1	0
236470	Portland		ChargePoint Network	1	0
236471	Portland		ChargePoint Network	1	0
236484	Eugene		ChargePoint Network	2	0
236485	Eugene		ChargePoint Network	2	0

236723	Portland		ChargePoint Network	1	0
236724	Portland		ChargePoint Network	1	0
236725	Portland		ChargePoint Network	1	0
236726	Portland		ChargePoint Network	1	0
236953	Portland	I-405, I-5	OpConnect	2	0
237217	Oakridge		FLO	2	0
237731	Honolulu		OpConnect	6	0
238034	Tigard		Blink Network	1	0
238037	Salem		Blink Network	10	0
238062	Newport	US-101, US-20	Blink Network	2	0
238078	Eugene		Blink Network	2	0
238100	Newport	US-101	Blink Network	2	0
238198	Ashland	I-5	Non-Networked	0	1
238283	Prineville	US-26	RIVIAN_WAYPOINTS	1	0
238284	Prineville	US-26	RIVIAN_WAYPOINTS	1	0
238364	Tigard		OpConnect	10	0
238717	Hillsboro		ChargePoint Network	2	0
238718	Hillsboro		ChargePoint Network	2	0
238865	Salem		ChargePoint Network	1	0
250466	Salem		Blink Network	2	0
250600	Coos Bay	US-101	RIVIAN_ADVENTURE	0	1
250601	Coos Bay	US-101	RIVIAN_ADVENTURE	0	1
250602	Coos Bay	US-101	RIVIAN_ADVENTURE	0	1
250603	Coos Bay	US-101	RIVIAN_ADVENTURE	0	1
250604	Coos Bay	US-101	RIVIAN_ADVENTURE	0	1
250605	Coos Bay	US-101	RIVIAN_ADVENTURE	0	1
250606	Madras	US-26	RIVIAN_ADVENTURE	0	1
250607	Madras	US-26	RIVIAN_ADVENTURE	0	1
250608	Madras	US-26	RIVIAN_ADVENTURE	0	1
250609	Madras	US-26	RIVIAN_ADVENTURE	0	1
250610	Madras	US-26	RIVIAN_ADVENTURE	0	1
250611	Madras	US-26	RIVIAN_ADVENTURE	0	1
250767	Crescent	US-97	RIVIAN_ADVENTURE	0	1
250768	Crescent	US-97	RIVIAN_ADVENTURE	0	1
250769	Crescent	US-97	RIVIAN_ADVENTURE	0	1
250770	Crescent	US-97	RIVIAN_ADVENTURE	0	1
250771	Crescent	US-97	RIVIAN_ADVENTURE	0	1
250772	Crescent	US-97	RIVIAN_ADVENTURE	0	1

250788	Lincoln City	US-101	RIVIAN_ADVENTURE	0	1
250789	Lincoln City	US-101	RIVIAN_ADVENTURE	0	1
250790	Lincoln City	US-101	RIVIAN_ADVENTURE	0	1
250791	Lincoln City	US-101	RIVIAN_ADVENTURE	0	1
250792	Lincoln City	US-101	RIVIAN_ADVENTURE	0	1
250804	Portland	I-84	Blink Network	2	0
250907	Bend	US-20, US-97	Tesla Destination	1	0
250927	Sisters	US-20	Tesla Destination	1	0
250944	Florence	US-101	Tesla Destination	2	0
250959	McMinnville		Tesla Destination	1	0
251000	The Dalles	I-84	Tesla Destination	2	0
251010	Port Orford	US-101	Tesla Destination	1	0
251020	La Grande		Tesla Destination	1	0
251021	La Grande		Tesla Destination	1	0
251035	Newberg		Tesla Destination	2	0
251065	Medford		Tesla Destination	1	0
251144	GLADSTONE	I-205	EV Connect	0	1
252511	Hood River	I-84	Tesla	0	16
252514	Creswell	I-5	Tesla	0	8
252611	Buxton		RIVIAN_WAYPOINTS	1	0
252612	Buxton		RIVIAN_WAYPOINTS	1	0
252613	Buxton		RIVIAN_WAYPOINTS	1	0
252614	Culver		RIVIAN_WAYPOINTS	1	0
252615	Culver		RIVIAN_WAYPOINTS	1	0
252675	Tillamook		RIVIAN_WAYPOINTS	1	0
252676	Reedsport	US-101	RIVIAN_WAYPOINTS	1	0
252677	Reedsport	US-101	RIVIAN_WAYPOINTS	1	0
252678	Tillamook		RIVIAN_WAYPOINTS	1	0
252917	Portland	I-205	ChargePoint Network	1	0
252918	Portland	I-205	ChargePoint Network	1	0
252957	Rainier		ChargePoint Network	2	0
252958	Clatskanie		ChargePoint Network	2	0
252961	Clatskanie		ChargePoint Network	2	0
253263	Wilsonville	I-5	Non-Networked	1	0
253264	Wilsonville	I-5	Non-Networked	4	0
253275	Portland	I-205	Tesla	0	16
253280	Beaverton		Tesla	0	12

253381	Sublimity		RIVIAN_WAYPOINTS	1	0
253382	Sublimity		RIVIAN_WAYPOINTS	1	0
253383	Sublimity		RIVIAN_WAYPOINTS	1	0
253384	Sublimity		RIVIAN_WAYPOINTS	1	0
254094	Portland	I-405, I-5, I-84, US-26	Tesla	0	4
254403	Sutherlin	I-5	Tesla	0	51
254490	Salem		Blink Network	2	0
254562	Klamath Falls	US-97	RIVIAN_ADVENTURE	0	1
254563	Klamath Falls	US-97	RIVIAN_ADVENTURE	0	1
254564	Klamath Falls	US-97	RIVIAN_ADVENTURE	0	1
254565	Klamath Falls	US-97	RIVIAN_ADVENTURE	0	1
254566	Klamath Falls	US-97	RIVIAN_ADVENTURE	0	1
254567	Klamath Falls	US-97	RIVIAN_ADVENTURE	0	1
255077	Hillsboro		Blink Network	1	0
255141	Newberg		Blink Network	2	0
255146	Salem		Blink Network	4	0
255148	Portland	I-405, I-5	Blink Network	2	0
255149	Hood River	I-84	Blink Network	2	0
255169	Tualatin	I-205, I-5	SemaCharge Network	4	0
255196	Lake Oswego	I-5	SemaCharge Network	2	0
255252	Klamath Falls	US-97	ChargePoint Network	2	0
255253	Klamath Falls	US-97	ChargePoint Network	2	0
255265	Vale	US-20, US-26	EV Connect	2	0
255309	Hillsboro		ChargePoint Network	1	0
255321	Klamath Falls	US-97	ChargePoint Network	2	0
255322	Klamath Falls	US-97	ChargePoint Network	2	0
255346	Lincoln City	US-101	RIVIAN_ADVENTURE	0	1
255358	Eugene		ChargePoint Network	2	0
255359	Eugene		ChargePoint Network	2	0
255360	Eugene	I-5	ChargePoint Network	2	0
255361	Eugene	I-5	ChargePoint Network	2	0
255362	Eugene		ChargePoint Network	1	0
255363	Eugene		ChargePoint Network	1	0
255364	Eugene	I-5	ChargePoint Network	2	0
255375	Salem		ChargePoint Network	1	0
255405	Happy Valley	I-205	ChargePoint Network	2	0
255439	Tigard		SemaCharge Network	4	0
255552	Bend	US-20, US-97	EV Connect	4	0

255587	Medford		ChargePoint Network	2	0
255588	Medford		ChargePoint Network	2	0
255589	Medford		ChargePoint Network	2	0
255590	Medford		ChargePoint Network	2	0
255591	Medford		ChargePoint Network	2	0
256329	Portland	I-405, I-5, I-84, US-26	ChargePoint Network	1	0
256369	Lake Oswego		SemaCharge Network	1	0
256682	Salem		ChargePoint Network	2	0
256776	Hermiston		ChargePoint Network	2	0
256939	Ashland	I-5	Non-Networked	4	0
256961	La Grande	I-84	ChargePoint Network	0	1
256976	La Grande	I-84	ChargePoint Network	0	1
256977	La Grande	I-84	ChargePoint Network	0	1
256978	La Grande	I-84	ChargePoint Network	0	1
257082	Hillsboro	US-26	ChargePoint Network	2	0
257083	Hillsboro	US-26	ChargePoint Network	2	0
257084	Hillsboro	US-26	ChargePoint Network	2	0
257225	Portland	I-205, I-84	OpConnect	3	0
257391	Corvallis		Blink Network	3	0
257394	Sandy	US-26	Blink Network	1	0
257455	Portland	I-405, I-5, US-26	Blink Network	1	0
257466	Corvallis		Blink Network	1	0
257508	Salem		Blink Network	2	0
257518	Salem		Blink Network	2	0
257678	Athena		RED_E	0	2
257779	Hillsboro	US-26	ChargePoint Network	2	0
257912	Bandon	US-101	FLO	2	0
257938	Hermiston		ChargePoint Network	0	1
257948	Hermiston		ChargePoint Network	0	1
258262	Newport	US-101	EV Connect	6	0
258304	Hood River	I-84	OpConnect	1	0
258970	Pendleton	I-84	OpConnect	4	0
258977	Portland	I-405, I-5, I-84, US-26	Blink Network	3	0
259032	Lake Oswego		OpConnect	2	0
259472	Hermiston		ChargePoint Network	0	1
259473	Hermiston		ChargePoint Network	0	1
259520	Klamath Falls		ChargePoint Network	2	0
259558	Lebanon	US-20	ChargePoint Network	1	0

259657	Portland	I-205, I-84	eVgo Network	0	4
259706	Portland	I-205, US-26	OpConnect	3	0
259778	Roseburg	I-5	RIVIAN_ADVENTURE	0	1
259779	Roseburg	I-5	RIVIAN_ADVENTURE	0	1
259780	Roseburg	I-5	RIVIAN_ADVENTURE	0	1
259781	Roseburg	I-5	RIVIAN_ADVENTURE	0	1
259782	Roseburg	I-5	RIVIAN_ADVENTURE	0	1
259783	Roseburg	I-5	RIVIAN_ADVENTURE	0	1
259816	Hillsboro	US-26	ChargePoint Network	2	0
259932	Salem	I-5	SemaCharge Network	1	0
260034	Medford	I-5	ChargePoint Network	2	0
260035	Medford	I-5	ChargePoint Network	2	0
260077	McMinnville		SemaCharge Network	1	0
260159	Happy Valley	I-205	RIVIAN_ADVENTURE	0	1
260160	Happy Valley	I-205	RIVIAN_ADVENTURE	0	1
260161	Happy Valley	I-205	RIVIAN_ADVENTURE	0	1
260162	Happy Valley	I-205	RIVIAN_ADVENTURE	0	1
260163	Happy Valley	I-205	RIVIAN_ADVENTURE	0	1
260164	Happy Valley	I-205	RIVIAN_ADVENTURE	0	1
260259	Redmond		ChargePoint Network	2	0
260399	Portland		ChargePoint Network	0	1
260841	Oregon City		Blink Network	2	0
260842	Oregon City		Blink Network	2	0
261044	The Dalles	I-84	ChargePoint Network	2	0
261226	Portland	I-5	OpConnect	6	0
261269	Scappoose		ChargePoint Network	2	0
261353	Portland	I-405, I-5, I-84, US-26	ChargePoint Network	2	0
261354	Portland	I-405, I-5, I-84, US-26	ChargePoint Network	2	0
261470	Scappoose		Tesla	0	4
261475	Portland	I-5	Tesla Destination	2	0
261509	Bandon	US-101	ChargePoint Network	2	0
261784	Sherwood		ChargePoint Network	2	0
261801	Hillsboro		ChargePoint Network	2	0
261802	Hillsboro		ChargePoint Network	2	0
261806	North Bend	US-101	Electrify America	0	6
262256	Salem		SemaCharge Network	1	0
262402	Eugene		Electrify America	0	6
262709	Portland	I-405, I-5, US-26	Blink Network	5	0



262760	Portland	I-5	OpConnect	2	0
262894	Portland	I-405, I-5, US-26	Blink Network	1	0
296728	Salem	I-5	Tesla	0	12
300048	Corvallis	US-20	ChargePoint Network	2	0
301709	Bend	US-20, US-97	Tesla	0	8
301812	Corvallis		ChargePoint Network	2	0
302009	Dufur		Non-Networked	1	0
302096	Portland	US-26	eVgo Network	0	8
302351	Hillsboro		ChargePoint Network	0	1