Welcome to the TEINA Advisory Group Meeting #6

December 15, 2022

Oregon Department of Transportation

Welcome to the TEINA Advisory Group Meeting #6

To maximize our time together, please:

Type your name in the chat box to "sign-in" to the meeting.

Note that meetings will be recorded for note taking purposes.

Mute phones when not speaking to help reduce excess background noise.

During conversations, please feel free to use the chat box to ask questions.

Please use the Raise Hand feature to provide verbal comments

Public Attendees

Time is reserved at the end for public comments and questions.

Please feel free to add questions in the chat at anytime.

Agenda

- Welcome
- ZEV Charging Infrastructure Deployment Strategy and Tools
  - Plan Purpose
  - Overview of Implementation Guidance & Resources
    - Best Practices for Designing & Deploying EV Charging
    - Planning Support Tools
    - Estimating Costs
    - Phased Implementation Plan
- Public Comment
- Updates and Next Steps

Welcome – Advisory Group Members

Amanda Pietz, *ODOT*
Suzanne Carlson, *ODOT*
Greg Alderson, *PGE*
Thomas Ashley, *Shell Recharge Solutions*
Philip Barnhart, *Emerald Valley EV Assoc.*
Chris Chandler, *Central Lincoln PUD*
Marie Dodds, *AAA*
Judge Liz Farrar, *Gilliam County*
Ingrid Fish, *City of Portland*
Stu Green, *City of Ashland*

Jamie Hall, *General Motors*
Zach Henkin, *Center for Sustainable Energy*
Joe Hull, *Mid-State Electric Cooperative*
Juan Serpa Muñoz, *Eugene W&E Board*
Vee Paykar, *Climate Solutions*
Cory Scott, *PacifiCorp*
Jairaj Singh, *Unite Oregon*
Charlie Tracy, *Oregon Trail Electric Co-op*
Dexter Turner, *OpConnect*

Welcome - Project Team

Amanda Pietz, ODOT

Suzanne Carlson, ODOT

Mary Brazell, *ODOT*

Jillian DiMedio, *ODOT*

Matt Noble, *ODOT*

Jessica Reichers, *ODOE*

Wayne Kittelson, *Kittelson*

Chris Bame, *Kittelson*

Wende Wilber, *Kittelson*

Ben Shapiro, *RMI*

Aradhana Gahlaut, *RMI*

Deployment Strategy Objectives & Audience

Purpose

*Provide **resources and actionable guidance** to facilitate the **local development of EV charging infrastructure***

Audiences

Primary: Local agencies & government leaders; electric utilities; community-based organizations

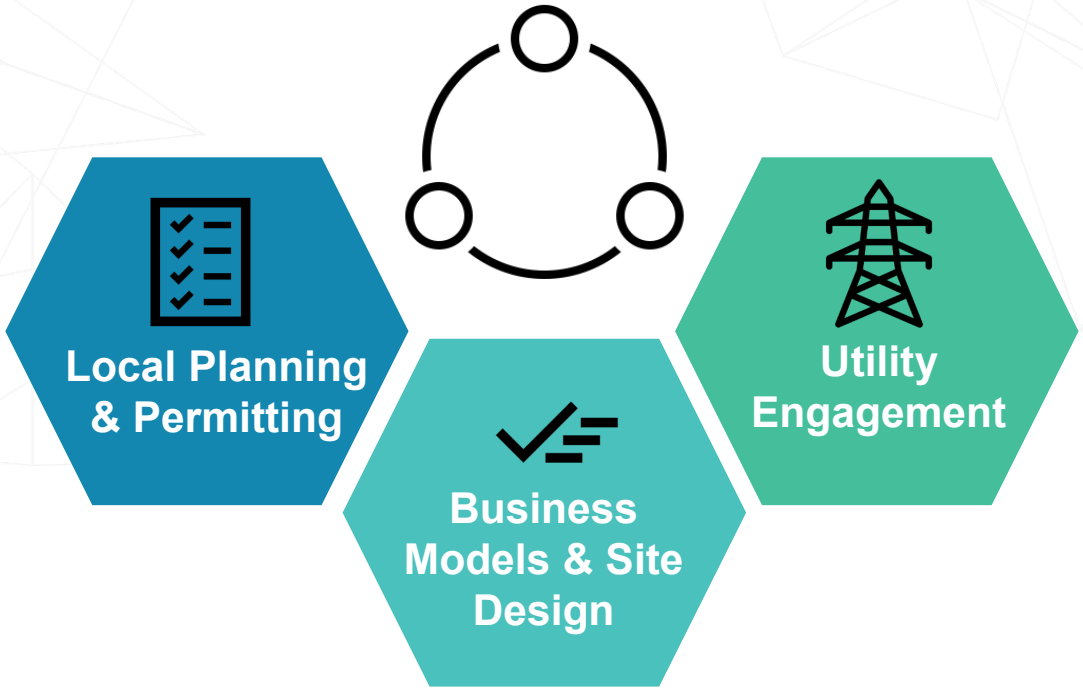
Secondary: Oregon state agencies; Electric Vehicle Service Providers (EVSPs); EV and/or environmental advocates

Today's focus

Table of Contents (draft)

Best Practices for Planning, Design & Deployment of EV Charging

Best Practice Focus Areas



- Categories encompass critical areas – and common knowledge gaps – for EVSE deployment
- Deployment strategy aims to serve as a useful guide – balancing breadth and depth

Examples of Local Planning & Permitting Policies

- Update local plans to **include EVSE**
  - E.g., climate action plans, transportation improvement plans
- Develop **EV Readiness plan**
  - Current status (EV adoption and EVSE); local needs and goals; key actions or policies
- Set **goals for public charging ports**
  - TEINA study provides baseline
- **Directly deploy** EV charging
  - E.g., libraries, community centers
- **Streamline permitting process**
  - E.g., online approval for home EVSE installations, expedited inspections
- Adopt **EV Ready building codes**
  - Minimum # or % of parking spaces in new bldgs. w/charging or elec. capacity
- Provide **guidance, education & outreach**
  - Increase awareness
  - Details on local processes

Local Planning & Permitting

Different EV Charging Business Models

- Appropriate business model depends on various factors
  - Location, intended users, etc.
- Two primary business models
  - **Owner-operator**
  - **Third-party owner-operator**
- Additional considerations
  - E.g., charging access; pricing / payment, etc.

Key roles involved in EVSE deployments

	Electricity Provider	EVSE Operator	EVSE Owner	Site Host
Utility	⚡	⚡	⚡	
Charging Network Provider		⚡	⚡	
Property Owner		⚡	⚡	⚡
Tenant		⚡	⚡	⚡

Table adapted from U.S. Department of Transportation.

Site Design Considerations

Design Component	Considerations and Implications
Deployment Size	• Number of drivers / visitors • Level of demand for EV charging
Future-proofing	• Future anticipated demand • Ensure durability of investments
Physical Design	• Parking locations, traffic circulation, location of electrical equipment, etc. • Include charging for micromobility (e-bikes & e-scooters)
Networking	• Managed charging opportunities • Data collection
Signage	• Clear signage critical for ensuring use of EVSE • Consistency helpful for driver recognition
Accessibility	• Provide access for drivers of all types (e.g., ADA)

Engage Electric Utility Early and Often

- Important to understand utility **considerations** and **timelines**
- Most utilities require similar info from prospective site hosts
  - Providing early helps **avoid bottlenecks**
- Oregon utilities offer various **incentives and support programs** for EV charging
  - E.g., "**make-ready**" incentives

Typical project information required by utilities

- **Site plans**, including location of electrical equipment
- Expected **number and power level of EVSE**
- Current **electrical panel size** and service voltage/phase
- Electrical **single line diagrams**
- Anticipated **new electrical load** from EV charging
- Preference for combined or separate **meter for EV load**

Utility Engagement

Planning Level Cost Estimates

Key Components of EVSE Costs

- **Charging Equipment (EVSE)**
  - Charging pedestal and related accessories, e.g., wires, plug, etc.
  - Can include data / network contract costs
- **Installation & Grid Upgrades**
  - Labor (e.g., excavation, pedestal mounting, wiring) and contracting
  - Laying conduit and electrical wiring
  - Electrical system upgrades, e.g., new transformer

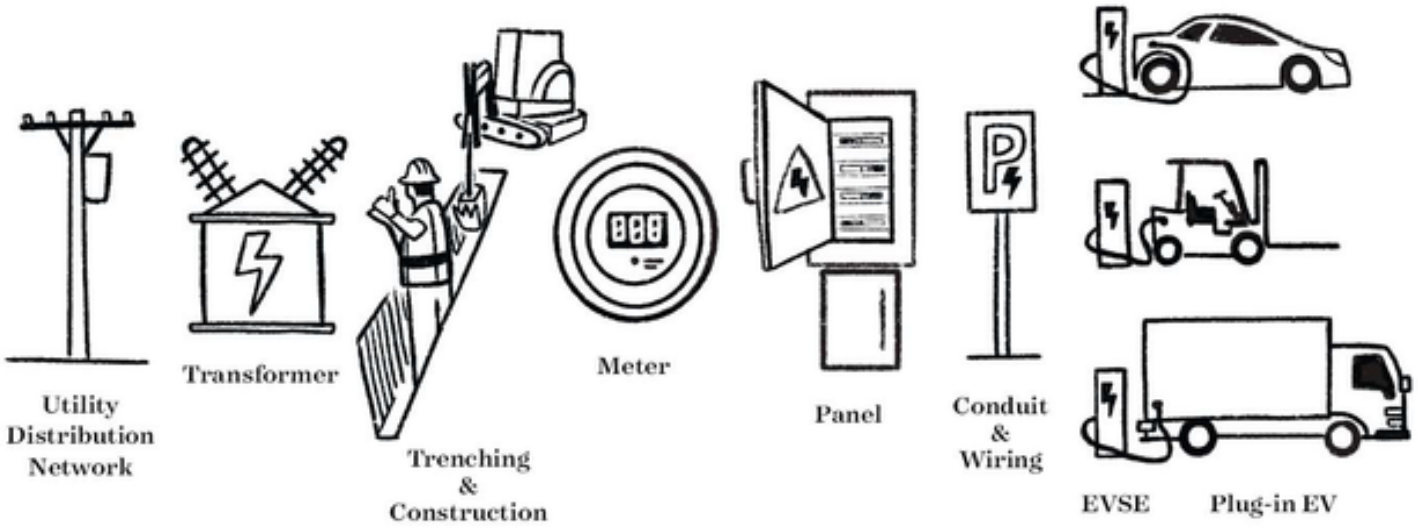


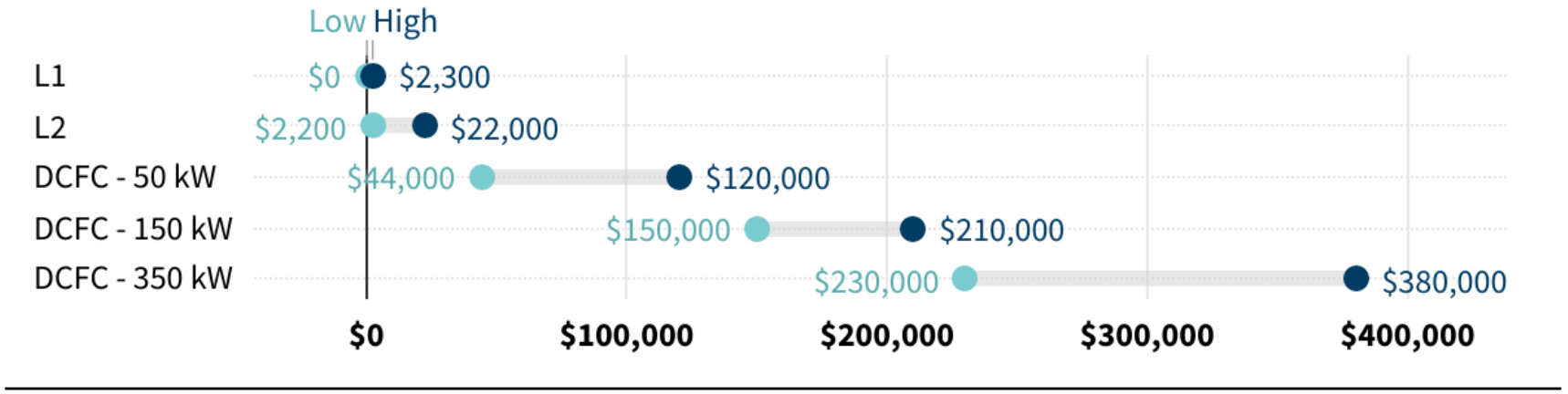
Image credit: NRDC

EVSE Deployment Cost Estimates

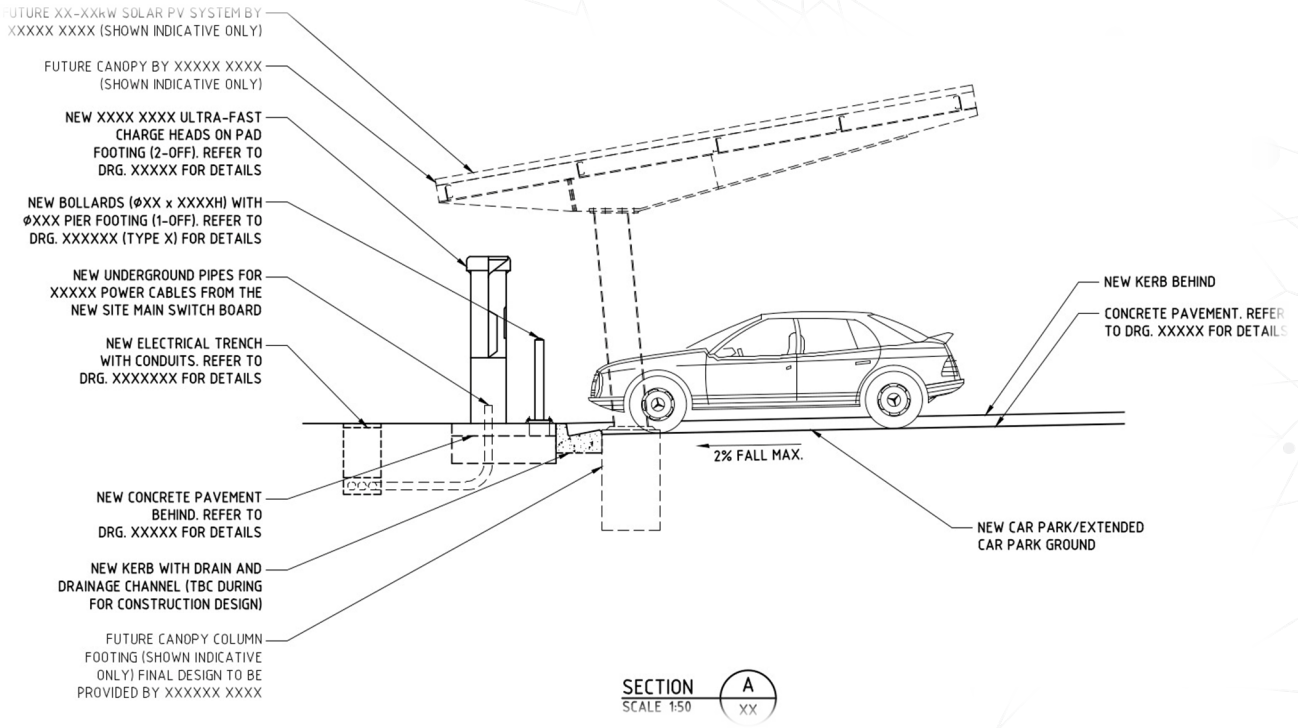
- Cost ranges informed by:
  - Literature review (RMI, ICCT, and NREL)
  - Input from industry experts in Oregon
  - Recent economic and market conditions

- **Inflation** and **supply chain issues** have led to significant cost increases
  - Increases have been noted in both equipment as well as installation costs
  - Typical costs generally observed closer to high end of ranges

Deployment cost ranges for EVSE of different power levels



Planning and Deployment Approach



Resources and Tools for Infrastructure Planning

Deployment strategy = **one-stop-shop** for:

- Information & Guidance
- Resources
- Planning Tools

to support EV charging planning in Oregon.

Planning support tools

Supportive policies and programs

Funding sources

Tools to Help with Planning: TEINA Dashboard

TEINA Electric Vehicles and Charging Infrastructure Dashboard: Results by Selected Geography

This sheet enables the user to view number of chargers by power level within the selected geography, i.e., at the State, County, Census Tract, and Municipality Level.

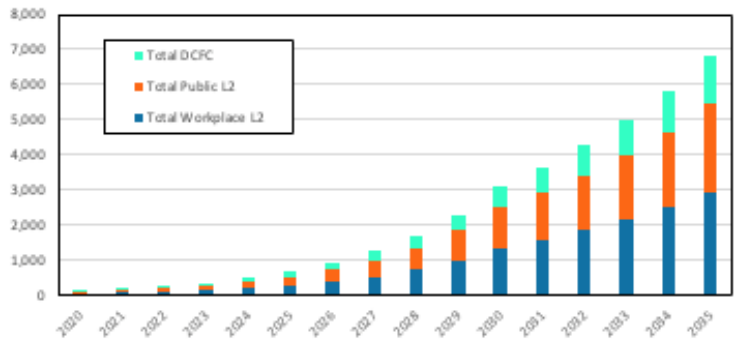
Navigate to: Intro | Glossary | Inputs

1. *Select relevant geography to filter outputs*
   Geography: County
2. *Select area within geography (Oregon for State)*
   County Name: Deschutes

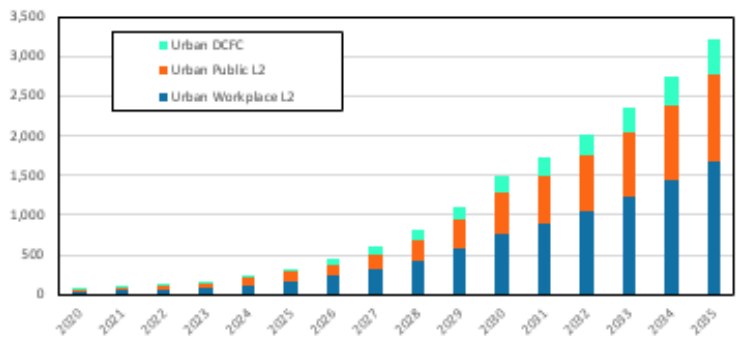
		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Urban	Workplace L2	34	46	64	88	121	167	227	308	418	567	769	898	1,049	1,225	1,431	1,671
	Public L2	24	32	44	60	82	112	152	205	278	377	510	596	696	812	948	1,107
	DCFC	10	13	18	25	34	47	63	84	113	152	204	238	277	323	376	438
Rural	Workplace L2	24	33	46	64	88	122	166	225	306	416	565	660	771	900	1,052	1228
	Public L2	25	35	49	68	95	132	180	244	333	453	616	719	841	982	1,148	1,341
	DCFC	17	24	33	46	64	89	121	165	223	303	412	481	562	656	766	895
DACs	Workplace L2	1	2	2	3	4	5	7	10	14	19	25	29	34	40	47	55
	Public L2	1	1	2	2	3	4	6	8	11	15	20	24	28	33	38	45
	DCFC	0	1	1	1	2	2	3	4	6	8	11	13	15	17	20	24
TNCs	DCFC	0	0	0	0	0	0	1	1	1	2	2	2	2	2	2	2
Total (excl. corridors)	Workplace L2	59	81	112	155	213	295	400	543	737	1,001	1,359	1,587	1,854	2,166	2,529	2,954
	Public L2	50	69	95	130	180	248	337	458	622	844	1,147	1,339	1,564	1,827	2,134	2,493
	DCFC	28	38	52	72	100	138	188	254	343	465	629	733	856	998	1,165	1,359

Results by Geography: Total and By Light-Duty Use Case

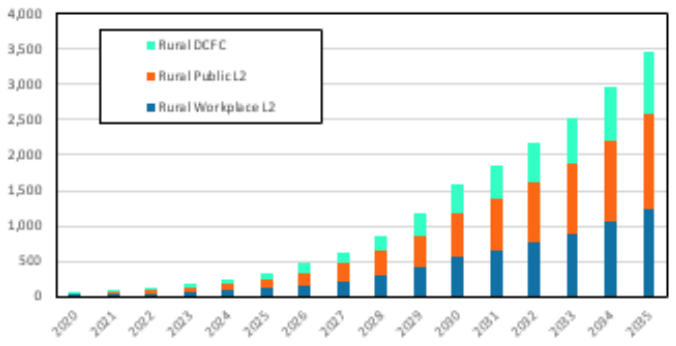
Total Charging Ports - Deschutes County



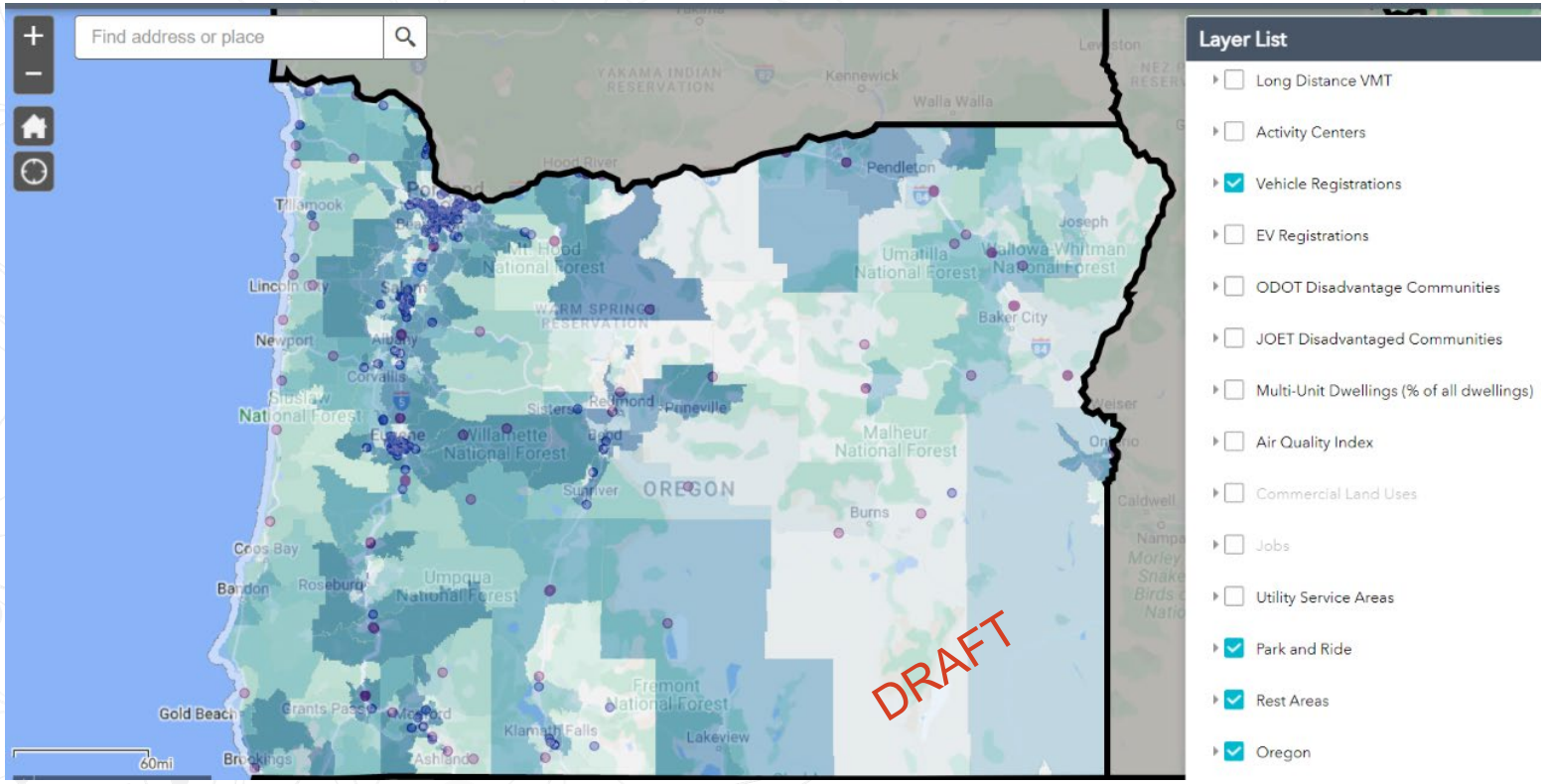
Urban Charging Ports - Deschutes County



Rural Charging Ports - Deschutes County



Tools to Help with Planning: Infrastructure Planning Tool



Note: screenshot of draft tool; subject to change.

This map is intended to help local planners identify EVSE sites to:

- **Address equity**
- Meet TEINA identified needs
- Understand siting priorities

Supporting Programs and Funding

Select Examples

- Federal
  - National EV Infrastructure (NEVI) Program
  - IRA tax credits (including EVSE)
- State
  - **Clean Fuels Program** (DEQ)
  - Community Charging Rebates (ODOT)
  - Data and Educational Resources (ODOE)
- Utility (private and public utilities)
  - EVSE incentives
  - Make-ready programs
  - Line extension allowance

Near-Term Priorities and Shared Responsibility

TEINA Implementation Recommendations

Equity

- Equitable deployment of EVSE
- Priority investment in disadvantaged and rural communities

Urban

- Community charging (L1/L2)
- MFH* and workplace charging
- DCFC hubs (incl. TNCs‡)

Rural

- Charging deserts
- Key tourism destinations
- Low utilization (barrier)

Corridor

- DCFC (incl. smaller corridors)
- Decrease max. station distance over time
- EVSE port redundancy

Fleet

- Depot charging incentives
- Redundancy, resiliency, renewables

* Multi-family housing | ‡Transportation network companies (e.g., Lyft, Uber)

Near-Term Priorities

- Programs and policies for EVSE at **multi-family housing**.
  - Many Oregonians' residences
  - Challenging market segment
- Promote **workplace charging**.
  - Low-cost, long-dwell time non-residential charging
- Develop EVSE in current **charging deserts**.
  - Address gaps in coverage
  - Increase equity
  - Both urban and rural

Shared Responsibility to Reach State Goals

- TEINA study **highlights needs** and **recommends actions**
- Achieving EV and charging goals requires **collaboration**
  - Public support *and* private investment
  - Streamlining processes and clearing bottlenecks
- Many stakeholders must play a role
  - State agencies, local planners, electric utilities
  - EV service providers, automakers, site hosts (e.g., apartment buildings and employers, grocery and convenience stores)
- ZEV Deployment Strategy aims to **catalyze momentum for shared efforts**

It takes a village.

Advisory Group Discussion

Discussion Questions

Initial reactions?

Important factors we've missed?

Insights that ODOT could include?

Public Comments

Use the chat box to ask questions.

Use the Raise Hand feature to provide verbal comments

Updates and Next Steps

- E-Micromobility Study Available January 2023
- Final TEINA 2022- ZEV Charging Infrastructure Deployment Strategy - Q1 2023

Thank you!

Contact: Mary Brazell - Mary.Brazell@odot.oregon.gov