

Ohio Electric Vehicle  
**INFRASTRUCTURE  
DEPLOYMENT PLAN**



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**Table 1: Abbreviations and Acronyms**

Abbreviation / Acronym	Definition
AEP	American Electric Power
AADT	Annual Average Daily Traffic
AFC	Alternative Fuel Corridors
AFV	Alternative Fuel Vehicle
BIL	Bipartisan Infrastructure Law
BMV	Bureau of Motor Vehicles
BEV	Battery Electric Vehicles
CAM	Cathode Active Materials
CCS	Combined Charging System
CFR	Code of Federal Regulations
CNG	Compressed Natural Gas
DAC	Disadvantaged Community
DAS	Department of Administrative Services
DCFC	Direct Current Fast Charger
DOE	Department of Energy
EDC	Electric Distribution Companies
PHEV	Plug-in Hybrid Electric Vehicles
EPA	Environmental Protection Agency
EV	Electric Vehicle
EVSE	Electric Vehicle Supply Equipment
FCV	Fuel Cell Vehicles
FHWA	Federal Highway Administration
ICE	Internal Combustion Engine
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
MORPC	Mid-Ohio Regional Planning Organization
NEPA	National Environmental Policy Act
NEVI	National Electric Vehicle Infrastructure
NRDC	Natural Resources Defense Council, Inc.
NRTL	Nationally Recognized Testing Laboratory
MPO	Metropolitan Planning Organization
OCPP	Open Charge Point Protocol
ODOT	Ohio Department of Transportation
OEC	Ohio Environmental Council
OEM	Original Equipment Manufacturer
OWT	Governor's Office of Workforce Transformation
RTPO	Rural Transportation Planning Organization
RFP	Request for Proposals
R.C.	Revised Code
REC	Rural Electric Cooperative
SSO	Standard Service Offering
STIP	Statewide Transportation Improvement Program
TIP	Transportation Improvement Program
US DOE	United States Department of Energy
US DOT	United States Department of Transportation
VW	Volkswagen

Source: DriveOhio

# Chapter 1 Introduction

**National Electric Vehicle Infrastructure (NEVI) Formula Program:** As part of the Bipartisan Infrastructure Law (BIL), the new NEVI Formula Program intends to make historic investments, \$7.5 billion, in electric vehicle (EV) charging infrastructure that will put the United States on a path to a nationwide network of 500,000 EV chargers by 2030 and ensure a convenient, reliable, affordable, and equitable charging experience for all users. The \$7.5 billion has been further subdivided between a \$5 billion formula program and \$2.5 billion discretionary grant program split evenly between corridor charging (\$1.25 billion) and community charging (\$1.25 billion). For the \$5 billion formula program each state is required to submit an EV Infrastructure Deployment Plan (Plan) that describes how the State intends to use its apportioned NEVI funds in accordance with guidance from the Federal Highway Administration (FHWA).



**Figure 1: Alternative Fuel Corridors in Ohio**

Source: DriveOhio

**Ohio NEVI Formula Funding:** Once the plan is approved by FHWA, Ohio will receive \$20.7 million annually over the next five years to create an EV charging network across the state. Funds must initially be used to deploy EV charging stations to cover 1,854 miles of Ohio's FHWA Designated Alternative Fuel Corridors (AFCs). The USDOT Secretary will certify corridors "fully build out" once they determine they are completed to NEVI compliant standards but will not declare any corridors complete in the first year of the program. Once Ohio's AFCs are declared by FHWA to be "fully built out" Ohio can use the remaining NEVI Formula funds for publicly available Electric Vehicle Supply Equipment (EVSE) Charging Stations.

**ODOT EV Resources:** Since mid-2019 the Ohio Department of Transportation (ODOT) has supported the EV transition through education, state level, local, and industry outreach, data analysis and sharing, and strategy development. The outcomes of some of these efforts are available at [www.drive.ohio.gov](http://www.drive.ohio.gov):

- [DriveOhio 2020 Electric Vehicle Charging Study](#)
- [DriveOhio 2021 Freight Electrification Study](#)
- [Ohio Alternative Fuel Vehicle Registration Dashboard](#)

**Ohio NEVI Plan Purpose:** The Ohio NEVI Plan will serve as the foundational guiding document that facilitates administration of Ohio's portions of the federal NEVI formula funding program. ODOT's NEVI Plan seeks to ensure Ohio's full participation in building a national EV charging network by creating EV charging corridor stations across the state and in coordination with all adjacent states.

**Ohio NEVI Plan Development Process:** The Ohio NEVI Plan development was led by ODOT's DriveOhio Program staff in coordination with numerous partners and stakeholders. These NEVI plan development and input partners included state agencies, Metropolitan Planning Organizations (MPOs), Rural Transportation Planning Organizations (RTPOs), Clean Fuels Ohio (Ohio's US DOE Clean Cities Coalition), utilities, and numerous public stakeholders representing the majority of the FHWA recommended stakeholder groups from the February 10, 2022, guidance. The Ohio NEVI Plan presented below reflects input ODOT received to date from these stakeholders, and as described in various chapters of this plan, anticipates continued engagement with these partners after receiving Joint Office approval throughout the five years of NEVI funding disbursement and EVSE deployment. Ohio's NEVI Plan will be updated annually to reflect ongoing refinement of the Plan.

**Ohio NEVI Plan Vision:** ODOT's vision for the NEVI Plan is to develop a comprehensive framework to enable EV travel across the state and spur economic development. The network will give drivers initial confidence and flexibility when driving Ohio's roads for personal, professional, or recreational purposes, regardless of distance traveled, location, or weather conditions.

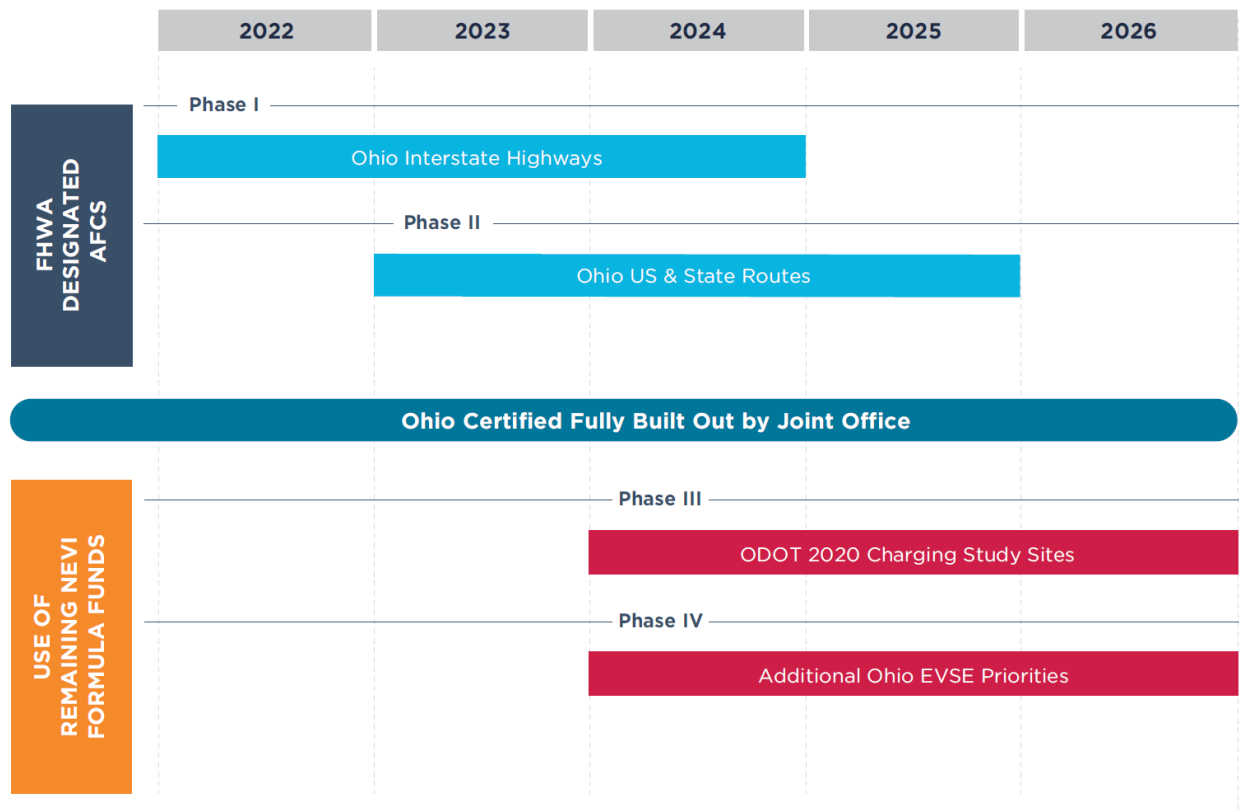
**Ohio NEVI Plan Goals:** ODOT's goals for the NEVI Plan, in accordance with FHWA guidance, will focus on building out FHWA Designated AFCs for at least the first year, then broaden to meet additional needs in subsequent years. ODOT's key NEVI Plan goals are summarized below:

- Goal #1: Comprehensive EVSE Planning: Create an EVSE charging plan that ensures a convenient, reliable, affordable, and equitable charging experience for Ohio motorists.
- Goal #2: Program Implementation & Administration: Utilize NEVI funds to catalyze the Ohio market through third party partnerships to own and operate EVSE that creates a convenient, reliable, affordable, and equitable charging experience for Ohio motorists.

- Goal #3: Data Gathering & Evaluation: Ensure Ohio gathers relevant data on NEVI funded EVSE Charging stations to ensure that the network meets FHWA standards of access, reliability, and convenience.

## 1.1 State Plan Timeline for EV Infrastructure Deployment, Development and Adoption

After the Joint Office certifies Ohio’s AFCs as “fully built out” to NEVI compliant standards, ODOT will seek to expand NEVI formula funded EVSE deployments. Ohio’s NEVI Formula Funding is therefore expected to disburse in the phases shown in **Figure 2**.



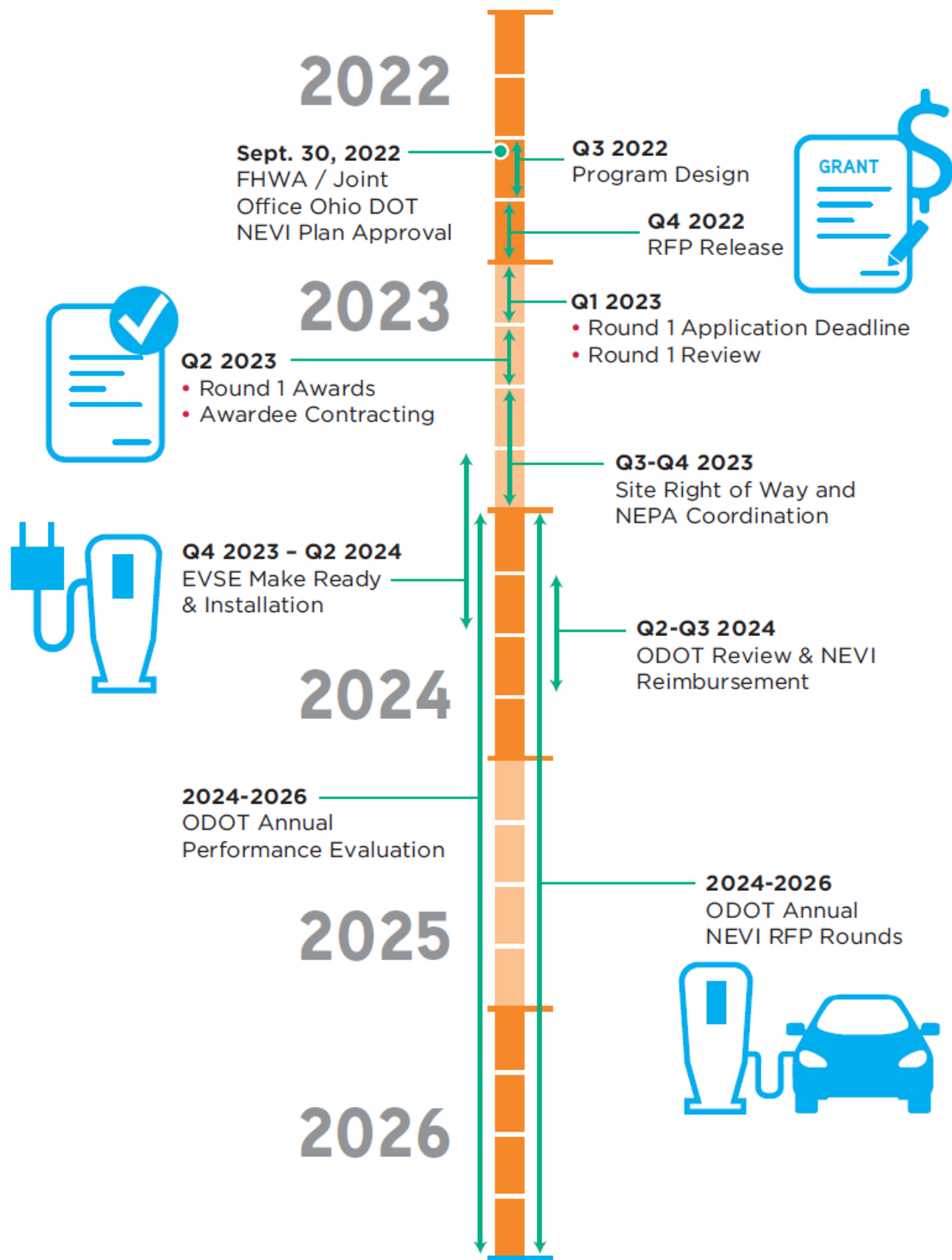
**Figure 2: Timeline for NEVI Deployment**

Source: DriveOhio

In light of this three-phase approach, ODOT anticipates the milestones shown in **Figure 3** for the administration of Ohio’s NEVI Formula funding. Similar milestones would be repeated in subsequent phases of the program, through 2026, as the program progresses.

ODOT will continue to work with the Joint Office, FHWA Division Office, Ohio State Agencies, and stakeholders as described in the sections below to continue to gain needed feedback, input, and make updates to this timeline and plan throughout the five year NEVI formula funding program performance period.





**Figure 3: Anticipated Ohio NEVI Milestones**

Source: DriveOhio

## Chapter 2 State Agency Coordination

ODOT has actively engaged intra-departmental divisions in planning and directly coordinated with the Ohio Governor’s Office and multiple state agencies as described throughout this section. ODOT intends for this chapter to capture the roles and interests of the various entities, detail the engagement activities to date, and summarize these partners’ roles, interests, and impacts on the NEVI planning and deployment processes. The three categories for state level partner engagement are: 1) Internal ODOT Division Coordination; 2) State Agency Coordination; and 3) Ohio Governor’s Office of Workforce Transformation.

### Goals for Internal ODOT Division and State Agency Coordination:

- Identify how EV deployment will impact ODOT divisions and operations
- Establish roles and technical support needed for each division for EVSE deployment
- Integrate division personnel in NEVI Plan development, review, and annual updates
- Identify ongoing engagement activities for NEVI five-year deployment
- Provide technical content for ongoing collaboration and NEVI program management

### Summary of Internal ODOT Coordination:

**Table 2** Summarizes internal roles and engagement activities at ODOT by office.

**Table 2: Internal Roles at ODOT**

Office	Role & Engagement Activities
Alternative Project Delivery	Advise on procurement options.
Budget & Forecasting	Review 5-year spending plan.
Chief Legal Council	Provide guidance on options for match funds and Title 23 implementations for NEVI.
DriveOhio	NEVI lead. Advise on workforce efforts.
Statewide Planning & Research	Provide connection to other statewide plans, including coordination with MPOs.
Traffic Operations	Provide traffic data including trends.
Transit	Advise on state transit programs and assist with transit agency coordination.
Opportunity, Diversity, and Inclusion (ODI)	Advise on ODI aspects of NEVI planning & deployment.
Environmental Services	Advise on and support environmental clearance of EVSE sites.
Real Estate	Advise on and support real estate procurement and delivery process.

Source: DriveOhio

### Summary of State Agency and Governor’s Office Coordination

In January of 2020, ODOT Director Marchbanks brought together his peers from several state agencies to inform them about the Electric Vehicle Charging Study ODOT was working on and ask for their support in EV planning. Over the course of the next several months representatives from these agencies met regularly to define what role they would each play in advancing the electric vehicle ecosystem in Ohio. In preparation for the NEVI Plan ODOT has updated their state agency partners.

**Table 3** summarizes their roles, interests, impacts, and engagement activities – specific to NEVI – by agency.

Table 3: Ohio EV Charging Collaborators

Agency	Roles	Interests and Impacts
	Mapping, Planning, Program Management (Contracting, right of way, NEPA, Procure, Inspection, Disbursement, Reporting)	Five-year program management of all program aspects
	Utility Coordination, Direction, Regulation	Biggest impacts are whether EVSE site hosts can charge fees per kW dispensed & if utilities can own/operate an EVSE network
	Vendor prequalification, Contracting, Procurement, State Bid list	State term contract for EVSE equipment, opportunities for ODOT and DAS to collaborate on possible NEVI EVSE vendor prequalification work
	Road Tax / Gas Tax impacts of EVs	Discussion of how a significant shift to EVs impact revenue
	Tourism, state parks, destination charging locations	Discussed whether ODNR has key property or locations for EVSE on AFCs or beyond
	Economic development impacts. Additional assistance to developers / site hosts	Synergies with NEVI program and existing state economic development goals, programs, and NEVI investments
	Regulator: methods of sale, signage, measure, inspection of energy sold as motor fuel	Discussed standard requirements, type of measurement, types of fees, types of signage, funding for inspectors
	Workforce development office coordinating all state workforce development policies, program, and financial assistance	Discussed how NEVI Plan directly aligns with goals of Governor's Office of workforce Transformation as described in <b>Chapter 11</b>
	Ohio EPA has run the VW Settlement program for Ohio, \$11.5M of which was allocated to EVSE	Discussed Ohio EPA's VW grant program decision, selection criteria, contract contents, and process for administering Direct Current Fast Charging (DCFC) awards to sites in Ohio

Source: DriveOhio

ODOT, as the lead Ohio Agency for the NEVI Program Formula funding, will continue to actively engage and coordinate with both intra-departmental divisions and state agency partners as described throughout this section.

# Chapter 3 Public Engagement

As shared in **Chapter 1**, the Ohio NEVI Plan development was led by ODOT's DriveOhio program staff in coordination with numerous partners and stakeholders. These NEVI Plan development and input partners include MPOs, RTPOs, Clean Fuels Ohio, utilities, and numerous public stakeholders representing the majority of the FHWA recommended stakeholder groups from the Feb. 10, 2022, guidance. This chapter reflects input ODOT received to date and anticipates continued engagement that will be captured in annual NEVI Plan updates.

**NEVI Planning Public Engagement Objectives:** The following objectives will support ODOT's Public Engagement plan and approach:

- Identify and involve key FHWA-mandated stakeholder groups in the plan's development.
- Engage stakeholders on preferred EVSE locations, charging preferences, costs, and future use of EVs.
- Engage stakeholders to ensure EV charging infrastructure achieves equitable and fair distribution.
- Ensure public education and participation opportunities are provided.
- Establish continuous public participation opportunities throughout the five-year NEVI deployments.

## 3.1 Stakeholders Involved in Plan Development

Public Engagement Stakeholders & Audiences: ODOT will seek to engage the following stakeholder groups and audiences to satisfy the NEVI Formula Program requirements. A preliminary list of stakeholder groups is listed below and will be continuously updated.

- State Agency Coordination: Ohio Environmental Protection Agency (Ohio EPA), Ohio Department of Agriculture Weights & Measures, Public Utilities Commission of Ohio, and the Governor's Office of Workforce Transformation, etc. (Detailed in Chapter 2 Above).
- Planning Partner Engagement: Adjacent states, MPOs, RTPOs, Council of Governments.
- Technical Partner Engagement: Investor-owned Utilities, Cooperative Utilities, Municipal Utilities, industry representatives from EVSE companies.
- Stakeholder Organization Engagement: Identify and involve FHWA-mandated stakeholder groups in the Plan's development to include local governmental entities, labor organizations, representatives of the transportation and freight logistics industries, state public transportation agencies, and urban, rural, and disadvantaged communities.
- Equity Community Engagement: Underrepresented or disadvantaged communities, community-based organizations, air quality, rural, and equity-based stakeholder groups.
- General Public Engagement: General public engagement including registered motorists with emphasis on current and prospective EV owning motorists.

**Phased Stakeholder Engagement Plan:** The public engagement process will incorporate strategies that allow ODOT representatives to engage stakeholders in phases that will build upon each other to

both grow the content of the state’s NEVI Plan as well as incorporate the public feedback received. **Table 4** summarizes ODOT’s phased approach.

**Table 4: Phased Stakeholder Agreement**

Phased Stakeholder Engagement		
Phase / Timeframe	Audience Group:	Purpose / Description
<b>Phase I:</b> April – May 2022	State, Planning, & Technical Partners	Technical Coordination
<b>Phase II:</b> May – June 2022	Stakeholder Organizations	Organizational Feedback
<b>Phase III:</b> May – August 1, 2022	General Public, Equity Communities	Public Engagement on Plan
<b>NEVI Plan Due: Aug. 1, 2022</b>	<b>US DOT FHWA</b>	<b>Federal Submission</b>
<b>US DOT Approval: Sept. 30, 2022</b>	<b>US DOT FHWA</b>	<b>Federal Approval</b>
<b>Phase IV:</b> October 2023 - 2026	All Stakeholder Groups	Annual Plan Updates

Source: DriveOhio

Informed by previous stakeholder engagement conducted as part of Ohio’s other statewide EV planning efforts, stakeholder engagement underway now, and the goals of this plan, ODOT is developing a plan for stakeholder engagement that will be part of Phase IV. This includes items such as more detailed outreach to potential bidders on the areas that will be part of the competitive procurement and Title 23 requirements and processes that may not be familiar to the expected set of bidders.

### 3.2 Public Outreach

The public involvement process will incorporate strategies that allow for electronic communication, media relations, and other strategies to inform and involve stakeholders and interested parties. Most outreach opportunities will be conducted virtually to facilitate efficient engagement. Alternative engagement strategies will be used to comply with the Americans with Disabilities Act of 1990 and measures to ensure input from traditionally underrepresented communities as defined in Title VI of the Civil Rights Act of 1964 (Title VI).

**PHASE I: Direct Meetings with Neighboring States, Planning Partners, & Technical Partners:** As detailed above and below, ODOT staff has and will continue to meet directly with neighboring state agency leadership counterparts on progress and plans and receive their input on border regions. Further, ODOT will coordinate with Ohio’s regional transportation planning agencies, utilities, and other technical partners such as site hosts and EVSE companies to understand potential EVSE deployment challenges and assess existing best practices and solutions. An [online stakeholder mapping tool](#) has been created to disseminate spatial information about the NEVI plan.

In general, each of the meetings, whether in small group or 1-1 format, were designed to cover the following core topics and questions:

- Provide educational content of federal requirements and ODOT’s Plan
- Solicit input from stakeholders on benefits and impacts
- Understand opportunities for collaboration and leveraging other relevant initiatives
- Provide and receive technical content for planning

**Table 5** provides more details on the dates of each of these meetings as well as more specifics on key topics and questions pertaining to each individual stakeholder group.

**Table 5: Planning & Technical Partner Engagement to Date**

Type	Relevance for NEVI Planning	Meeting Topics and Discussion Questions	Meetings/Dates
<b>Neighboring States</b>	Connect and sync state plans to ensure no gaps at state shared borders	How can ODOT coordinate with other states to ensure no gaps along the borders and ensure efficient use of NEVI funds?	- MDOT: 4/27 - KYTC: 4/26 - INDOT: 4/29 - WV DOT: 4/29 - PennDOT: 5/10
<b>MPOs/RTPOs</b>	Regional transportation planning, equity planning, stakeholder engagement, management of regional US DOT “attributable funding”	How can ODOT align NEVI Plan with regional EVSE plans and priorities? What equity-based planning and engagement suggestions do MPOs/RTPOs have? How can they support general public outreach and engagement?	- OARC: 4/22 - AMATS: 5/24 - NOACA: 5/24 - TMACOG: 5/25 - MORPC: 5/25 - Eastgate: 5/25 - MVRPC: 5/25 - Buckeye Hills: 5/25 - OKI: 4/7; 6/8
<b>Utilities</b>	Electric Power supply, local customer design, rate/tariffs, demand management, possible EVSE owner/operators	How best can utilities assist customers with assessing grid power availability / site upgrade costs needed for NEVI EVSE? Do utilities see major supply issues (transformer availability, etc.) that should be taken into account? Are utilities interested in owning and operating EVSE, if allowed? Are they considering special Rate / Tariff design for EVSE? What are they evaluating regarding grid/load management for EVSE?	- Duke: 4/7 - AEP: 2/18 - AES: 2/28 - First Energy: 2/28 - Co-Op Assn.: 2/28 - NOPEC: 3/15 - SOPEC: <b>TBD</b> - AMP: <b>TBD</b>
<b>EVSE Vendors &amp; Site Hosts</b>	EVSE hardware, Software, Networking vendors; Maintenance Services; EVSE Site hosts; EVSE Ownership and Operations, etc.	How aware are these vendors of NEVI requirements generally? Do they expect to bid on state NEVI procurements? Can they abide by NEVI requirements? Do they foresee issues with participation? What are expected costs for deployment and O&M? What assumptions are they making in their break-even analysis? What challenges do they foresee?	- ChargePoint: 4/22 - Sheetz: 4/14 - Electrada: 4/29 - Eaton: 4/6 - Applegreen: 4/6 - Shell ReCharge: 5/16 - EVgo: 5/19 - Blink: 5/19 - Electrify America: 5/24 - 7-Eleven: 5/24
<b>Labor Organizations</b>	Ensure fair labor practices, safety, equity, prevailing wage, and workforce development / training opportunities	Are there enough certified electricians in the state for EVSE installation at NEVI scale? Ongoing Maintenance? Workforce development & training programs to help with electrician pipeline. Does the state need more or upgraded training centers or curriculum?	- EVITP: 5/3 - PowerConnect: 5/3 - IBEW: <b>TBD</b> - BlueGreen Alliance: <b>TBD</b> - National Center for Urban Solutions – <b>update</b>
<b>Technical Training Centers and Universities</b>	Workforce development, career and vocational training for EV related jobs in Ohio.	Discussion of the programs and resources currently available and needed for EV workforce development programs in Ohio.	- Youngstown State: <b>TBD</b> - Stark State: <b>TBD</b> - Columbus State: <b>TBD</b>

Source: DriveOhio

**PHASE II: Stakeholder Organizations:** ODOT staff has and will continue to engage with FHWA NEVI guidance specified stakeholder organizations (i.e., local governments, labor, transit agencies, industry, etc.) in relevant group meetings and individual meetings. In general, each of the meetings, whether in small group or 1-1 format, were designed to cover the same high-level topics as PHASE I:

## Chapter 3: Public Engagement

- Provide educational content of federal requirements and ODOT’s Plan
- Solicit input from stakeholders on benefits and impacts
- Understand opportunities for collaboration and leveraging other relevant initiatives
- Provide and receive technical content for planning

**Table 6** provides more details on the dates of each of these meetings as well as more specifics on key topics and questions pertaining to each individual stakeholder group.

**Table 6: Stakeholder, Equity, & General Public Engagement Activities to Date**

Type	Relevance for NEVI Planning	Meeting Topics and Discussion Questions	Meetings/Dates
<b>Local Governments</b>	Stakeholders of MPOs and contributors to above	How can ODOT align NEVI Plan with local government EVSE plans and priorities? Do local governments want to participate in equity-based planning and engagement? Do local governments / jurisdictions having authority want to help streamline local zoning, code, permitting, EV Make Ready requirements?	Hosted 90 min. webinar through Ohio’s Local Technical Assistance Program (LTAP) for 100+ on 5/17/2022 with 60 minutes of presentations and 30 minutes of Q&A.
<b>Freight &amp; Logistics</b>	Need for EVSE as they electrify on key freight corridors	How fast do major freight companies plan to electrify? Do freight companies plan to use public EVSE? What key design requirements need to be considered for freight EVSE – ingress / egress? Power? Etc.? Are there key freight corridors to prioritize? Intermodal hubs?	Numerous meetings mid-2021 with truck stop owners / operators, national and Ohio-based fleets, OEMs, and workforce representatives
<b>Transportation Agencies</b>	Connect public transit systems to overall state electrification plan to ensure equity and access for citizens who rely on public transit	How can ODOT align NEVI Plan with transit Electrification plans? Park & rides? And mobility priorities? Do transit agencies want to participate in equity-based planning and engagement?	Late May thru end of July, 2022
<b>Clean Fuels Ohio Statewide Electrification Committee</b>	Membership comprised of 134 organizations	Key industry and organizational stakeholders with direct NEVI relevance and experience with EV and EVSE projects. Members include EV original equipment manufacturers (OEMs), EVSE OEMs, utilities, nonprofits, etc.	June 22, 2022
<b>Power a Clean Future Ohio / Ohio Climate and Clean Energy Coalition</b>	Coalition of Ohio Environmental Orgs (Sierra Club, Natural Resources Defense Council (NRDC), Ohio Environmental Defense Council (OEC), etc.) and Local Govts. that have carbon reduction plans	Environmental organizations are on the FHWA list of recommended public engagement audiences, and this would be an opportunity to address the main groups at once.	June 29, 2023

Source: DriveOhio

### **Phase III: General Public, Equity Communities**

**Program Webpage:** ODOT has created, and will continue to update, a program-specific webpage <https://drive.ohio.gov/electric> and [public online mapping tool](#) for site specific feedback. This webpage is designed to keep stakeholders and other interested parties informed and offer an opportunity to provide feedback and input. ODOT will continue to update and build out this page

## Chapter 3: Public Engagement

with additional resources, reports, EV registration data, recorded presentations, and other informational materials as they become available.

**Listening Sessions:** ODOT is partnering with several Ohio MPOs and RTPOs and Clean Fuels Ohio to host in-person listening sessions across the state. The MPOs and RTPOs are helping to get the word out to the local communities and assisting with meeting space. Clean Fuels Ohio is handling the meeting coordination and supporting the content review.

**Virtual Public Meetings:** ODOT has partnered with Clean Fuels Ohio and their Drive Electric Ohio program to engage various segments of the general public and interested stakeholder organizations as described in **Table 7**. Primarily accomplished through virtual public meetings and information sessions to date, ODOT’s goal is to keep stakeholders and other interested parties informed and offer an opportunity to provide feedback and input. Fact sheet, presentation, and other materials from these engagements have and will continue to inform ODOT’s NEVI Plan, as well as be made available on ODOT’s NEVI website.

**Table 7: General Public Information Sessions to Date**

Type	Location / Relevance	Interests and Impacts	Meetings/Dates
Urban Community Resident <b>Listening Sessions</b>	1. Cleveland 2. Columbus 3. Cincinnati 4. Dayton	Clean Fuels Ohio has agreements with these communities, local community-based orgs, and local disadvantaged community residents to host a series of Transportation Electrification Equity listening sessions and can utilize July sessions for NEVI	<b><u>Throughout July 2022</u></b>
Rural Community Resident <b>Listening Sessions</b>	1. Rural NE Ohio 2. Appalachia	Ensure locations, power availability, and quantity are designed to meet rural specific needs. How can sites be “right sized” for the amount of charging based on utility power availability? EV adoption? EVSE Demand? Etc.?	<b><u>Throughout July 2022</u></b>
Drive Electric Ohio Regional EV Owner Chapters (6) <b>Virtual Public Meetings</b>	1. Northeast Ohio 2. Northwest Ohio 3. Columbus 4. Southeast Ohio 5. Dayton 6. Cincinnati	EV Owners / Enthusiasts –some of the most interested Ohio general public motorists. Will have personal interests and opinions on NEVI and EVSE locations.	1. 6/15 2. 6/13 3. 6/15 4. 6/13 5. 6/14 6. 6/14
<b>Public Information Webinar</b>	Public information session to provide general information on NEVI Plan	Inform the public on NEVI Formula program, ODOT NEVI Plan high level vision and goals, and record to post on state NEVI website.	Update with final meeting date / time.

Source: DriveOhio

The Ohio NEVI Public Engagement Plan and activities presented above reflect input ODOT received to date from various stakeholders. ODOT intends to continue engagement with these partners after receiving Joint Office Plan approval and throughout the annual Plan update processes.

### **Potential Future Engagement Topics**

Future engagement with state agencies and stakeholder organizations may be sought by ODOT on the following topics:

- FHWA approved NEVI Year 1 Plan
- AFC station siting preferences within NEVI compliant parameters



## Chapter 3: Public Engagement

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- Future AFC designations
- ODOT's draft NEVI EVSE procurement / contracting drafts
- Non-AFC, regional, or local EVSE charging needs and priorities
- Equity-based charging needs and solutions
- Freight and logistics EVSE charging needs

# Chapter 4 Plan Vision and Goals

**Ohio NEVI Plan Vision:** ODOT's vision for the NEVI Plan is to develop a comprehensive framework to enable EV travel across the state and spur economic development. The network will give drivers confidence and flexibility when driving Ohio's roads for personal, professional, or recreational purposes, regardless of distance traveled, location, or weather conditions.

**Ohio NEVI Plan Goals:** ODOT's goals for the NEVI Plan, in accordance with FHWA guidance, will focus on building out FHWA Designated AFCs, then seek to expand to regional and local routes of significance, equity-based destination charging, and freight charging locations. ODOT's key NEVI Plan goals are summarized below:

**Goal #1: Comprehensive EVSE Planning:** Create an EVSE charging plan that ensures a convenient, reliable, affordable, and equitable charging experience for Ohio motorists.

- **Objective 1.1: Strategic Statewide Planning:** Create a balanced plan with detail and flexibility as the market evolves.
- **Objective 1.2: Equitable EVSE Locations:** Ensure fair, equitable, and accessible distribution of EVSE in Ohio.
- **Objective 1.3: Statewide EVSE Network:** Enable convenient, effective, and fast charging for EV motorists traveling within Ohio.

**Goal #2: Program Implementation & Administration:** Utilize NEVI funds to accelerate the Ohio market through third party partnerships to own and operate EVSE that creates a convenient, reliable, affordable, and equitable charging experience for Ohio motorists.

- **Objective 2.1: Third Party Partnerships:** Catalyze the Ohio market through third party (non-state) partnerships of EVSE site hosts, owners, and operators.
- **Objective 2.2: Bidder Inclusive Design:** Encourage all eligible entities for maximum NEVI bid participation.
- **Objective 2.3: Efficient, Effective Deployments:** Ensure efficiency, effectiveness, and fiscal responsibility of NEVI Funds administration.

**Goal #3: Data Gathering & Evaluation:** Ensure Ohio gathers relevant data on NEVI funded EVSE charging stations to ensure that the network meets FHWA standards of access, reliability, and convenience.

- **Objective 3.1: EVSE Data Gathering:** Gather data on NEVI funded EVSE detailing uptime, unique sessions of EV users, and energy usage data.
- **Objective 3.2: Maximize EVSE Compliance:** Maximize EVSE uptime, reliability, security, and NEVI compliance through contracts, reporting requirements, and program management.
- **Objective 3.3: Evaluation & Refinement:** Perform evaluations and refine additional NEVI EVSE investments.

### Program Results & Outcomes:

- **Quantifiable Target: Enable Distance and Intercity Travel:** 90% of Ohio residents live within 25 miles of NEVI Compliant Chargers

## Chapter 4: Plan Vision and Goals

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As described above, ODOT's overall timeline for the NEVI Plan will initially focus on building out FHWA Designated AFCs. After the Joint Office has certified Ohio's AFCs as "fully built out" to NEVI compliant standards, ODOT will expand NEVI formula funded EVSE deployments. Ohio's NEVI Formula Funding is therefore expected to disburse in the phases as shown in **Figure 2**. Depending on how ODOT plans for future NEVI funds to be allocated, Phase III may be subdivided.

## Chapter 5 Contracting

The federal BIL (Pub. L. 117058) included authorization for a new \$5 billion NEVI Formula Program. From the guidance released by the US DOT on February 10, 2022, it is clear that the federal government seeks aggressive public and private investment into the national EV charging station network.

The analysis in **Table 8** elaborates on the existing federal and Ohio laws that would impact projects under the BIL NEVI programs. In general, as with other US DOT projects, Title 23 requirements will generally apply to these projects and funds.

**Table 8: NEVI Contracting: Key Federal Laws**

Pertinent Federal Law	Relevance to ODOT and NEVI Formula funds
<b>MPO, TIP, and STIP Regulations</b>	Typically, a transportation project funded with federal DOT dollars in a metropolitan area (MPO) will be placed on a Transportation Improvement Program (TIP) or State Transportation Improvement Program (STIP) developed in cooperation with the MPOs. Federal NEVI guidance indicates that there is an expectation of consultation with MPOs (and other entities) as the NEVI Plan is developed and as funds are sought. The MPO, TIP, and STIP regulations require communication and coordination. Part of their charge is to address air quality and part of the NEVI directive is to address this environmental concern as well as climate change and resilience. It would thus be important to not only include the respective MPOs in the NEVI Plan development, but also determine if they intend to sponsor projects themselves or if their respective members seek to obtain NEVI dollars and grants as they are eligible under the law as an “eligible entity” for NEVI Community Grants. <b>(23 U.S.C. 134 and 135, 49 U.S.C. 5303 and 5304)</b>
<b>Clean Air Act</b>	A major impetus for the NEVI program is an attempt to address greenhouse gases and climate change. The below sections of federal law require compliance with plans to reduce greenhouse gas emissions for projects funded with federal aid dollars. Coordination with MPOs will help address legal and permitting issues under these statutes. <b>(In non-attainment and maintenance areas, sections 174 and 176 (c) and (d) of the 1990 Clean Air Act, as amended (42 U.S.C. 7504, 7506 (c) and (d)), and 40 CFR part 93)</b>
<b>NEPA</b>	NEVI projects should anticipate some level of NEPA coordination. ODOT has been delegated authority by the Federal Highway Administration to approve most levels of NEPA documentation. Permitting agencies like EPA and the Army Corps of Engineers will need to be engaged in coordination should any project impact resources under their jurisdiction. <b>(40 CFR Parts 1500-1508)</b>
<b>Uniform Relocation Assistance and Real Property Acquisition Policies Act</b>	The intent of this code section is to have those whose properties are impacted by a federal-aid project receive consistent treatment and are compensated equitably for any loss of their property interests. This code would be applicable if a property interest is being acquired by ODOT or via an ODOT proxy like a local government receiving these NEVI project dollars. If private partners offer to lease their land as part of a charging station P3 package the “Uniform Act” should not apply. However, if additional right of way was needed to run electric or communication lines for a project, then the Act would apply, and the NEVI project would be subject to these acquisition rules. Ohio government entities would also have to follow Ohio Revised Code Chapter 163 for such takings. <b>(42 U.S.C. 4601)</b>
<b>Federal Acquisition Regulations</b>	The FAR mandates that extensive federal rules be followed when spending federal dollars. 48 CFR Chapter 12 applies specifically to the Department of Transportation. The FAR seeks to mandate levels of competition, transparency, accountability, and use of federal terms and conditions for these contracts. It will likely apply to NEVI program contracts. Should ODOT follow its normal competitive bidding practices there should be no conflicts with FAR compliance. ODOT has experts in their accounting divisions that know the FAR regulation intimately. <b>48 CFR Parts 1 through 53</b>
<b>Title 23, Chapter 1 of the Code of Federal Regulations</b>	This chapter of federal law is the overall federal-aid highway section. It brings together the requirements to comply with many of the aforementioned laws and dictates requirements like prevailing wage, maintenance, relocation requirements, parkland preservation, hazard elimination, scenic byways, etc.

Pertinent Federal Law	Relevance to ODOT and NEVI Formula funds
<b>Build America and Buy America</b>	The BIL adds to both Buy America and Buy American under at new Title IX section (page 866-884 of the BIL). ODOT understands the Joint Office will be releasing additional guidance pertaining to these requirements in the final agency NEVI rulemaking.

Source: DriveOhio

The analysis in **Table 9** elaborates on the existing Ohio laws that would impact projects under the BIL NEVI programs. The Ohio Revised Code (R.C.) Sections under Chapter 55 that could apply to ODOT’s procurement activities for NEVI project implementation are R.C. §§ 5501.311 and .312 (leasing), 5501.70 et seq. (P3), 5513 et seq. (purchasing – low bid, direct selection, or multiple award), 5517.011 (design-build), 5525 et seq. (low-bid construction), and 5526 et seq. (consulting services).

**Table 9: NEVI Contracting: Key Ohio Laws**

Pertaining Ohio Law	Relevance to ODOT and NEVI Formula funds
<b>Private Funding or In-Kind Contributions</b>	For projects that will involve some type of P3 scenario that will have a private company contribute dollars or land to install, operate and maintain a NEVI system, ODOT could use its authority under R.C. §§ 5501.311 and .312 (leasing) or 5501.70 et seq. (P3). ODOT can accept (under R.C. 5501.31 and 5501.70) private contributions to a portion of the cost of a facility as well as land or other personal property (R.C. 5501.77 and R.C. 5501.33). Concurrence from the FHWA should be obtained prior to accepting an in-kind contribution if working on federal-aid highways. R.C. §§ 5501.311 and .312 or 5501.70 et seq. are likely the enabling statutes more suited to promote this program.
<b>Materials and Goods</b>	To buy materials or goods or NEVI equipment or traffic signs, ODOT can use its purchasing authority under R.C. 5513 et seq. R.C. Chapter 5513 permits ODOT to buy material through a low bid process, through a direct selection with appropriate criteria, and through a multiple award process where every bidder who provides a responsive bid is placed “on contract,” and then ODOT can select which product it wants to choose based on the circumstances.
<b>Services</b>	R.C. Section 5526 et seq. allows ODOT to procure professional services for any “professional service that is determined by the director of transportation or any other designated officials of the department to be necessary for the provision of transportation services or to provide assistance to the department in furtherance of its statutory duties and powers.” This law is broad and professional services contemplated under it could facilitate planning, design, and acquisition of NEVI facilities. Section 5526.01(C)(8) allows for “[a]ny other professional service that is determined by the director of transportation or any other designated officials of the department to be necessary for the provision of transportation services or to provide assistance to the department in furtherance of its statutory duties and powers.”
<b>Construction</b>	Construction only projects can be procured through R.C. §§ 5501.312(A)(5) (construction + leasing), 5501.70 et seq. (P3), 5517.011 (design-build), and 5525 et seq. (low-bid construction). ODOT could build any transportation facility, but projects with a private funding contribution component may be limited to procurement under R.C. R.C. §§ 5501.312(A)(5) (construction + leasing) or 5501.70 et seq. (P3).
<b>DAS OIT: R.C. 125.18</b>	As the entity responsible for statewide information technology consistency, the Ohio Department of Administrative Services Office of Information Technology (DASOIT) is responsible for IT related procurement per Ohio R.C. 125.18. As ODOT takes steps toward a NEVI program that may require data acquisition and usage ODOT will engage DAS to make sure they are comfortable with the systems ODOT intends to interface with.

Source: DriveOhio

**Contracting and Procurement Process Objectives:** In light of all the federal and state legal provisions above, ODOT has assembled the following list detailing the various categories of consideration for NEVI procurement and contract design. ODOT staff are actively assembling agency past precedents, best practices, and updated legal and subject matter expert input on the best contracting and procurement solutions that will meet Joint Office and ODOT NEVI goals.

As detailed in **Chapter 4** above, goals #2 and #3 that ODOT has established for the NEVI program speak directly to the agency vision for and expected outcomes of the NEVI formula funding procurement and contracting process. These goals are shown in **Table 10**.

**Table 10: NEVI Contracting: Key Ohio NEVI Procurement Objectives**

Goal	Relevance to ODOT and NEVI Formula funds
<b>Non-state land, in locations that are publicly accessible</b>	ODOT does not intend to fund EVSE to be sited on state owned land, rather ODOT will seek to deploy NEVI Formula funds to build out EVSE on third party property. ODOT intends to be inclusive in its program design to allow for both privately owned, leased, and publicly owned lands (such as municipal, county, or other local jurisdiction-controlled property) that meets federal NEVI program requirements, and all state Plan goals.
<b>Define Eligible and Priority Locations</b>	As detailed in Chapter 7.2, ODOT has defined the gaps in Ohio's AFC system which needs to be filled for the state to be certified "fully built out" under the NEVI program. ODOT has further worked to prioritize interchanges best suited to maximize NEVI compliance as well as achieve state goals. ODOT has defined 1-mile driving distance polygons for these interchanges to provide prospective NEVI funding applicants clear understanding of eligible location "zones."
<b>Third Party (non-state) Owner / Operators</b>	As described previously in <b>Objective 2.1</b> , one of ODOT's key goals is to catalyze the Ohio market through third party (non-state) partnerships of EVSE site hosts, owners, and operators. ODOT does not intend for the state DOT to own and operate charging stations; rather, the agency will seek third party owner operators.
<b>Vendor / Business Model Inclusive Program Design</b>	ODOT intends to structure its procurement process, to the greatest extent possible, to be vendor and business model inclusive, allowing for EVSE at existing fueling stations, restaurants, retail locations, and other sites that meet NEVI's requirements and have amenities. In addition, ODOT intends to allow for participation of the various EVSE company business models in the market.
<b>Vendor Prequalification</b>	ODOT intends to ensure, at the minimum, that EVSE hardware, software, and network company vendors, as well as EVSE installers and maintainers, meet the current industry best practice standards for reliability, safety, training, and compliance.
<b>Competitive Procurement Program</b>	ODOT intends to create a competitive procurement program, both with minimum eligibility requirements as well as ranked scoring criteria to determine the final NEVI funded locations in Ohio.
<b>ODOT Responsible for NEPA</b>	ODOT intends to facilitate the National Environmental Policy Act (NEPA) and other environmental reviews for award applicants to ease the cost and administrative burden and maximize the consistency and quality of NEPA work.
<b>Contracts Binding Awarded Parties</b>	ODOT intends to "flow down" a series federal and state requirements to all third parties awarded funds through NEVI. These contractual terms and conditions will define the obligations NEVI funded EVSE owner / operators must meet on all relevant issues, including but not limited to accessibility, uptime, cybersecurity, safety, reliability, data gathering, reporting, and labor compliance.
<b>Data Gathering &amp; Reporting</b>	As described above, ODOT intends to contractually require data gathering and reporting from NEVI awarded EVSE owner / operators for the agency to ensure compliance and provide visibility.

Source: DriveOhio

**Contracting and Procurement Process Next Steps:** The following steps for ODOT's upcoming competitive procurements of EVSE have been communicated to stakeholders.

1. **Advertise RFP:** ODOT advertises the procurement opportunity within an identified geography. Only EV charging companies or property owners who will self-manage a station will be part of this first round of opportunities to apply for NEVI funding to install, own, and operate compliant EV chargers.
2. **Prepare Bid:** Bidders will identify specific sites for EV charger installation within the general eligible locations provided by ODOT and will need to coordinate with the utility company on power availability and site readiness prior to submitting a proposal with a bid.
  - a. Bids should assume forecasted risk and resulting revenue from five years of operation and maintenance as required by the NEVI Proposed rules.

- b. Vendors should provide 20% match. This could include funding from other non-NEVI sources, such as utility programs, if those are available.
  - c. ODOT will prequalify systems and components for bid.
  - d. ODOT will create a prequalification for construction contractors.
  - e. Bidders will be responsible for coordination all permits and verifying site compliance with other regulations such as the ADA.
3. **Evaluate Bid:** ODOT evaluates bids based on low bid, qualifications, or best-value – a combination of price and qualifications – and makes contract awards contingent on environmental and real estate clearance. The type (low bid, qualifications-based, or best-value) of evaluation will be determined and communicated to participants in the request for proposals (RFP) if not before.
4. **Complete Title 23 Requirements:** ODOT has NEPA assignment and will perform the environmental review of the property offered in the proposals to comply with NEPA.<sup>1</sup> After environmental clearance the bidder executes a federally-compliant real estate agreement with the property owner. If the property owner is the bidder, they would transfer property interest to ODOT upon award for the duration of the project. If the bidder was not the property owner, the bidder would be expected to have secured a legal interest to the property, compliant with federal regulations, which could be transferred or assigned to ODOT if the bidder is awarded the project.
5. **Execute Contract:** After NEPA and real estate clearance are completed the final terms of the contract will be negotiated, if applicable, and the contract will be executed.
6. **Deploy EV Chargers:** Selected companies will perform site work, install equipment, connect to power service, test, and commission the EVSEs. ODOT will review the deployment activities for compliance with items such as the Davis-Bacon Act and minority-owned businesses, Veteran-owned businesses, woman-owned businesses, and/or businesses owned by economically disadvantaged individuals' participation.
7. **Operate and Maintain EV Chargers:** ODOT's procurement will include operations and maintenance for up to five years. Selected companies will provide specified data that ODOT will communicate via a dashboard and part of program monitoring and compliance. Depending upon the contract structure and the ability for profit sharing, ODOT will make periodic payments to the selected companies for up to five years after contract award.

ODOT will also continue to monitor the US DOT FHWA's NEVI Rulemaking process, currently available as a "Notice of Proposed Rulemaking" (NPRM) and out for public comment.

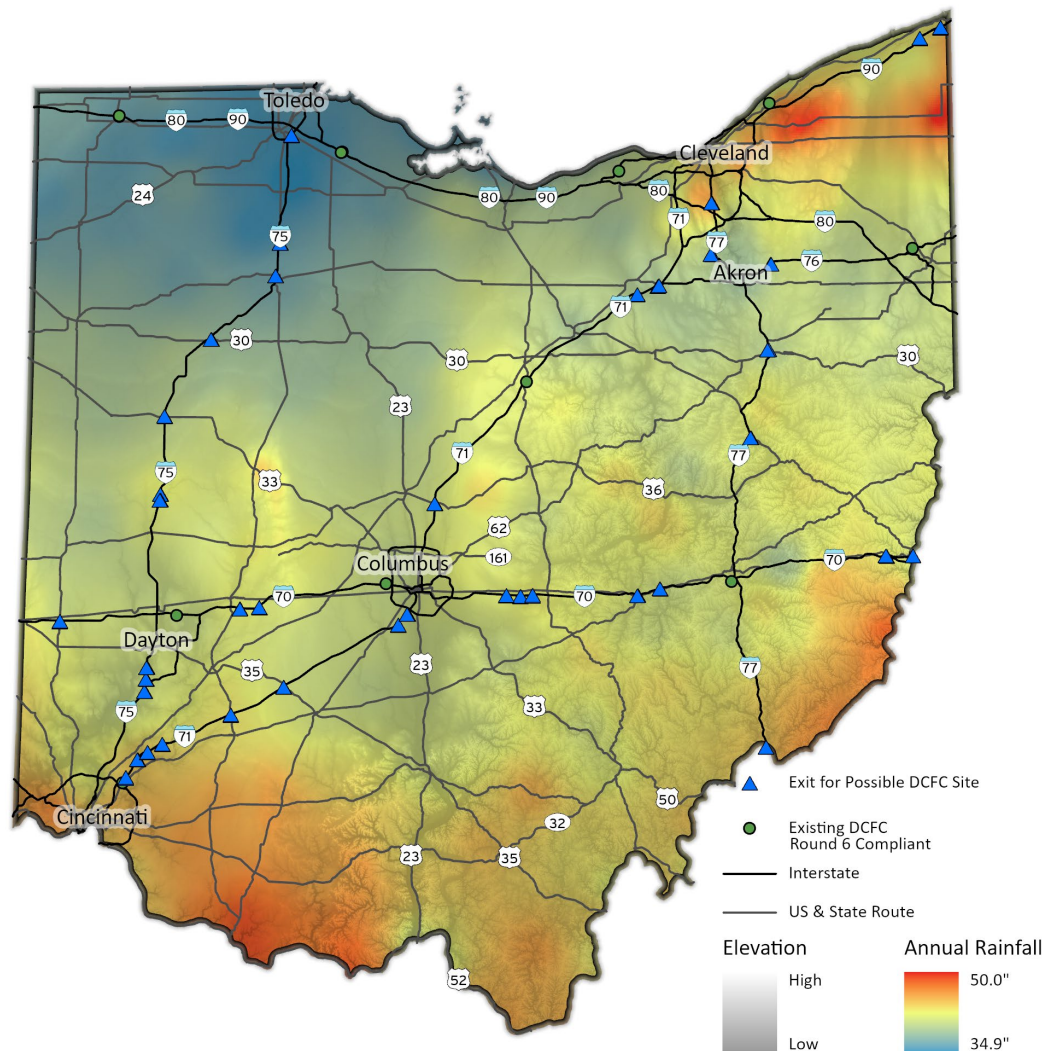
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<sup>1</sup> <https://www.transportation.ohio.gov/programs/nepa-odot/nepa-assignment-documentation>

## Chapter 6 Existing and Future Conditions Analysis

This section provides an overview of Ohio’s geography, terrain, and climate including current and future temperature, precipitation, and land use patterns, as well as provides details on Ohio’s EV and EVSE related industry and market conditions such as EV ownership, EV availability, electric grid capacity, and electric utilities that service the state.

### 6.1 State Geography, Terrain, Climate and Land Use Patterns



**Figure 4: Rainfall and Topography in Ohio**

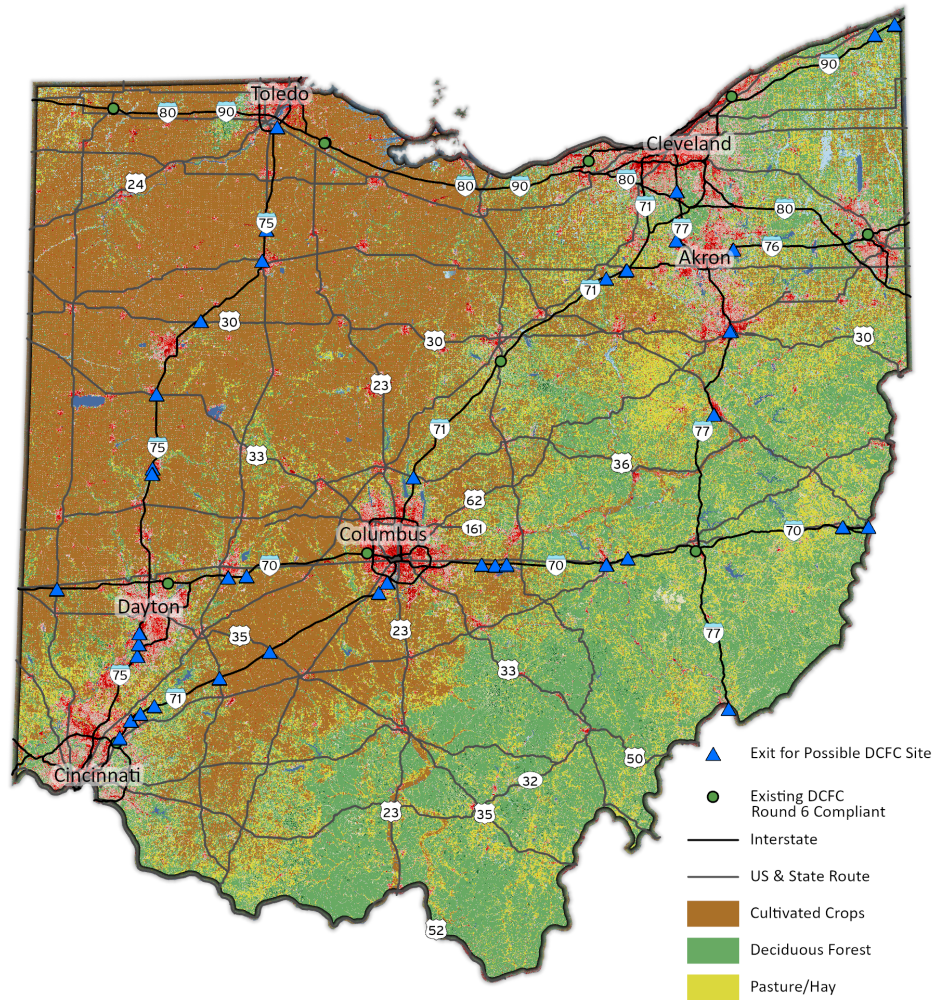
Source: <https://apps.ohiodnr.gov/gims/>; PRISM Climate Group, Oregon State University, <https://prism.oregonstate.edu>, data created November 2021, accessed 20 May 2022.

Ohio is a relatively flat state with moderate amounts of rainfall throughout. The south and east portions of the state, coinciding with the northwestern portion of Appalachia, have low, rolling hills and many rivers, while the rest of the state is plains. The state is nearly half cultivated crops and pastureland, and 28.52% deciduous forest. Winter lows are typically around 19°F while summer



## Chapter 6: Existing and Future Conditions Analysis

highs are around 86°F.<sup>2</sup> Ohio has six major metro areas and the 4th largest interstate highway system in the country. The state is bordered along the northern edge by Lake Erie and to the south by the Ohio River.



**Figure 5: Land Cover in Ohio**

Source: Dewitz, J., and U.S. Geological Survey, 2021, National Land Cover Database (NLCD) 2019 Products (ver. 2.0, June 2021); U.S. Geological Survey data release, <https://doi.org/10.5066/P9KZCM54>

**Table 13: Land Cover Classification in Ohio**

Land Cover Classification	Percentage of Ohio Land
Cultivated Crops	36.46%
Deciduous Forest	28.52%
Hay / Pasture	12.79%
Developed, Open Space	6.18%
Developed, Low Intensity	5.08%
All Others	10.97%

<sup>2</sup> PRISM Climate Group, Oregon State University, <https://prism.oregonstate.edu>, data created November 2021, accessed 20 May 2022.

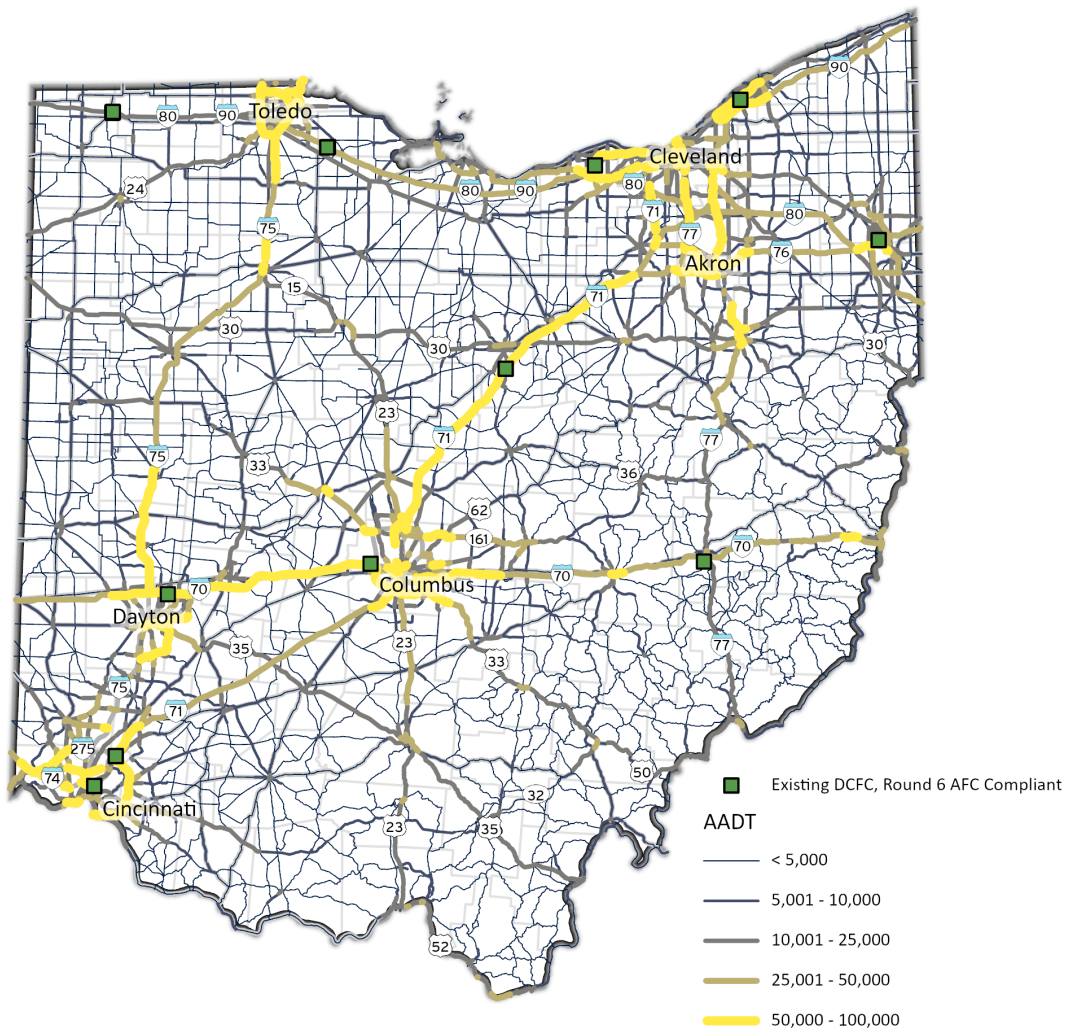
## Chapter 6: Existing and Future Conditions Analysis

Source: Dewitz, J., and U.S. Geological Survey, 2021, National Land Cover Database (NLCD) 2019 Products (ver. 2.0, June 2021); U.S. Geological Survey data release, <https://doi.org/10.5066/P9KZCM54>

ODOT has reviewed all relevant data on weather, climate, precipitation, and land use patterns in Ohio and taken this data into account in the planning for EVSE stations that will be deployed throughout the state as part of the NEVI program. ODOT will continue to monitor these data for any changes of significance that will impact major travel and driving patterns throughout the state or change the methods or locations where NEVI funded EVSE charging stations should be deployed.

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

With the mission to provide safe and easy movement of people and goods, ODOT supports the state highway system and promotes transportation initiatives statewide. Figure 6 depicts the variation in Annual Average Daily Traffic (AADT) volumes by roadway across Ohio. Ohio's AFCs all have an AADT of 10,000 or more.



**Figure 6: Ohio's Annual Average Daily Traffic Volumes**

Source: ODOT

## Chapter 6: Existing and Future Conditions Analysis

As a more than \$3 billion per year enterprise, ODOT invests the bulk of its resources in system preservation through maintenance, construction, and snow and ice operations. ODOT's regional district offices and Central Office divisions work together to fulfill the department's mission of providing safe and easy movement of people and goods from place to place.

**ODOT EV Planning Leadership:** ODOT has been working on EV and EVSE planning for the past several years, and Ohio's NEVI Plan builds on two recent in-depth ODOT studies on EV corridor charging and freight electrification: the 2020 Electric Vehicle Charging Study and the 2021 Freight Electrification Study (see **Figure 7**).

**2020 Electric Vehicle Charging Study:** ODOT released this study to assess needs for EV charging, primarily along Ohio's highway corridors. Corridor charging requires relatively high-power DCFC stations that can rapidly deliver significant added range to EVs at locations that are easily and quickly accessed by motorists. The report identifies DCFC gaps in Interstate, U.S. Highway and State Route corridors and identifies options to fill them. Most of the recommended DCFC locations relied on private commercial site hosts. The analysis differed from NEVI in that the number (1) and power level (50 kW) assumed to fill each gap were lower. There were also recommendations for Level 2 chargers at major attractions, state parks and some state facilities. Some of the Level 2 sites were filled, in cooperation with the Ohio EPA and ODNR using VW funds.



**Figure 7: Drive Ohio Electrification Reports**

Source: DriveOhio

**2021 Freight Electrification Study:** DriveOhio released a study outlining the path forward for commercial electrification in August of 2021. The study details existing practices and the future framework needed to facilitate the freight and logistics industries transition to EVs. To evaluate the current state of play, freight vehicles were grouped into categories – terminal and off-road; last-mile delivery; local freight and drayage; and regional and long-haul – and feedback was collected from industry early adopters.

ODOT's NEVI Plan builds on the best practices, data, and public engagement work initiated in these two previous leading studies, ensuring that Ohio's NEVI Plan best aligns with Ohio's long-term needs. ODOT is collaborating with its internal divisions and external stakeholders throughout the NEVI planning and implementation process to ensure the highest quality data resources are brought to bear and coordinated throughout the performance period of the NEVI funds. To this end, ODOT is utilizing the expert staff and data available from several offices as noted in **Table 2: Internal Roles at ODOT**.

### 6.3 Ohio EV and EVSE Market Conditions

As described above, ODOT has provided leading studies on Ohio's passenger vehicle market and freight electrification potential. For each of these reports, ODOT assessed Ohio market conditions with regard to current and future EV model availability, EV adoption trends, and interviewed numerous key players in state and national EV and EVSE industries for benchmarking purposes. In addition, JobsOhio, with support from the National Resources Defense Council, Inc. (NRDC), commissioned a statewide study to understand Ohio's key advantages to attract new investment in the battery supply chain ecosystem to support Ohio's continued economic growth in the automotive supply chain sectors (see **Figure 8**).

Ohio's vast history in the automotive industry and automotive supply chain, as well as its overall proximity to resources, manufacturers, and end markets, are two key factors making the state an ideal location for lithium battery and EV manufacturers. The state's commitment to innovation makes it a natural fit for the emerging EV supply chain and manufacturing opportunities. Ohio's commitment to clean manufacturing, with renewable energy and solar energy, also makes it a prime choice for lithium-ion battery and EV manufacturing.

Ohio is a premier link in the automotive supply chain. Greater than 90% of the state's exports go to the internal combustion engine (ICE) supply chain. This presents a significant risk to Ohio's economic future as OEMs shift away from the ICE supply chain and invest in an EV future. As such, Ohio has a unique opportunity to lead in building a supply chain that capitalizes on the fast growth in EVs.

Building upon the state's success in attracting the GM-LG Chem Lordstown battery plant investment, the JobsOhio report's recommended next step for Ohio is to attract an investment in cathode active materials (CAM), one of the main components of a lithium-ion battery. This investment would provide the largest jobs and taxable revenue opportunity for the state and would lead to the establishment of the first lithium-ion battery supply chain hub in the USA.

ODOT has also worked with the Ohio Bureau of Motor Vehicles (BMV) to develop an alternative fuel vehicle (AFV) registration dashboard (see **Figure 9** and **Figure 10**). The dashboard tracks and publishes EV market adoption trends for the state of Ohio.<sup>3</sup> The passenger car fuel types tracked include battery electric vehicles (BEV), plug-in hybrid electric vehicles (PHEV), fuel cell vehicles (FCV), and compressed natural gas (CNG).



**Figure 8: Electrification Benchmarking Report**

Source: JobsOhio

<sup>3</sup> <https://drive.ohio.gov/about-driveohio/resources/ohio-alt-fuel-vehicle-reg-dashboard>

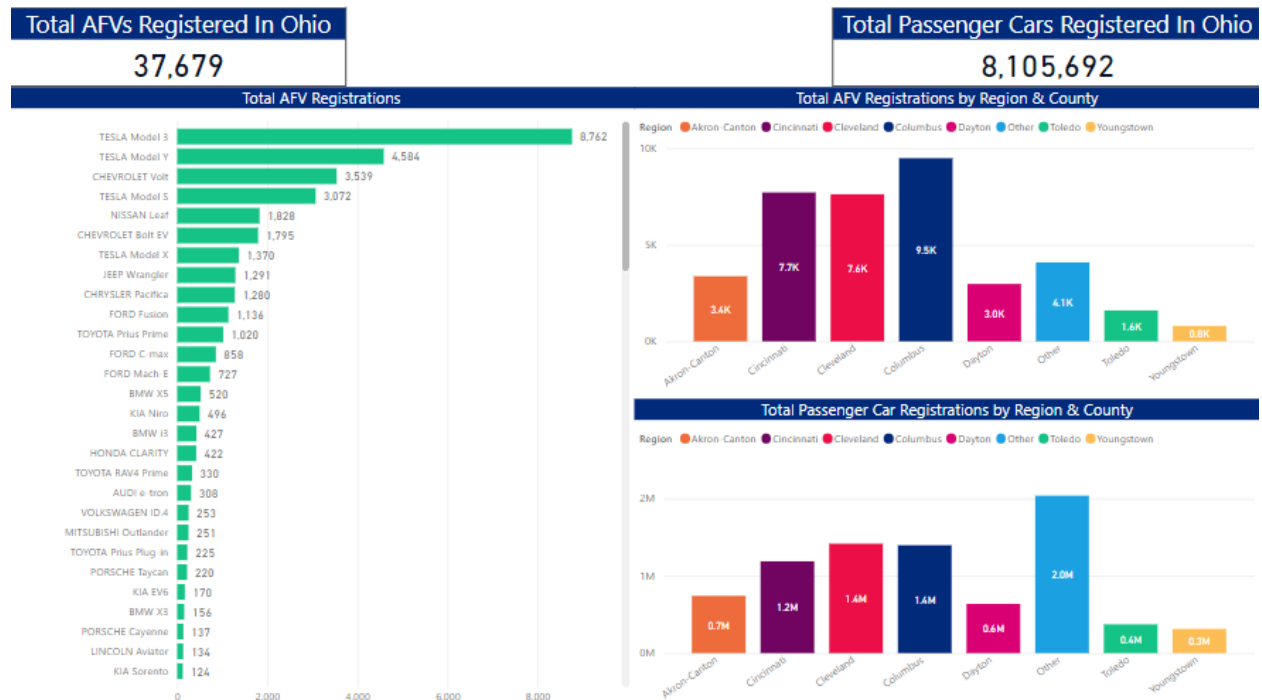
## Chapter 6: Existing and Future Conditions Analysis



**Figure 9: New AFC Registration by Month in Ohio**

Source: [DriveOhio](#)

The dashboard is updated monthly to provide MPOs, RTPOs, municipalities, and other interested parties relevant data for planning purposes. Page 8 of the dashboard visualizes total and alternative fuel commercial truck registrations. Anonymized data sets are also available for download.



**Figure 10: Total EV Registrations in Ohio**

Source: DriveOhio

For the NEVI formula funding program, prospective EVSE site hosts and owner/operators can access the data in this dashboard, and sort the data by region, county, city, five-digit zip code, vehicle model type, or fuel type. This dashboard will help prospective NEVI third party owner-operators assess local market conditions and long-term viability of charging at prospective locations. ODOT will continue to make this information available throughout the duration of the Ohio NEVI program.

### 6.4 Ohio Utilities, Electric Grid, and Capacity

Ohio is part of a regional electric market served by PJM Interconnection — the regional transmission operator. The region includes 13 states and the District of Columbia wherein PJM is responsible for maintaining the reliability of the grid, developing regional transmission expansion plans, and administering wholesale energy capacity, and ancillary services markets.

Per Ohio law, the Public Utilities Commission of Ohio (PUCO), regulates providers of all kinds of utility services, including electricity utilities within the state of Ohio. The PUCO's mission is to assure all residential and business consumers have access to adequate, safe and reliable utility services at fair prices, while facilitating an environment that provides competitive choices.

According to the PUCO, each year, PJM procures enough electric supply resources (capacity) to ensure reliability three years ahead. The reliability target includes an excess reserve margin to address unforeseen widespread outages. PJM's most recent projections indicated a 21.5% reserve margin beginning June 1, 2021, and a 19.9% reserve margin beginning June 1, 2022.

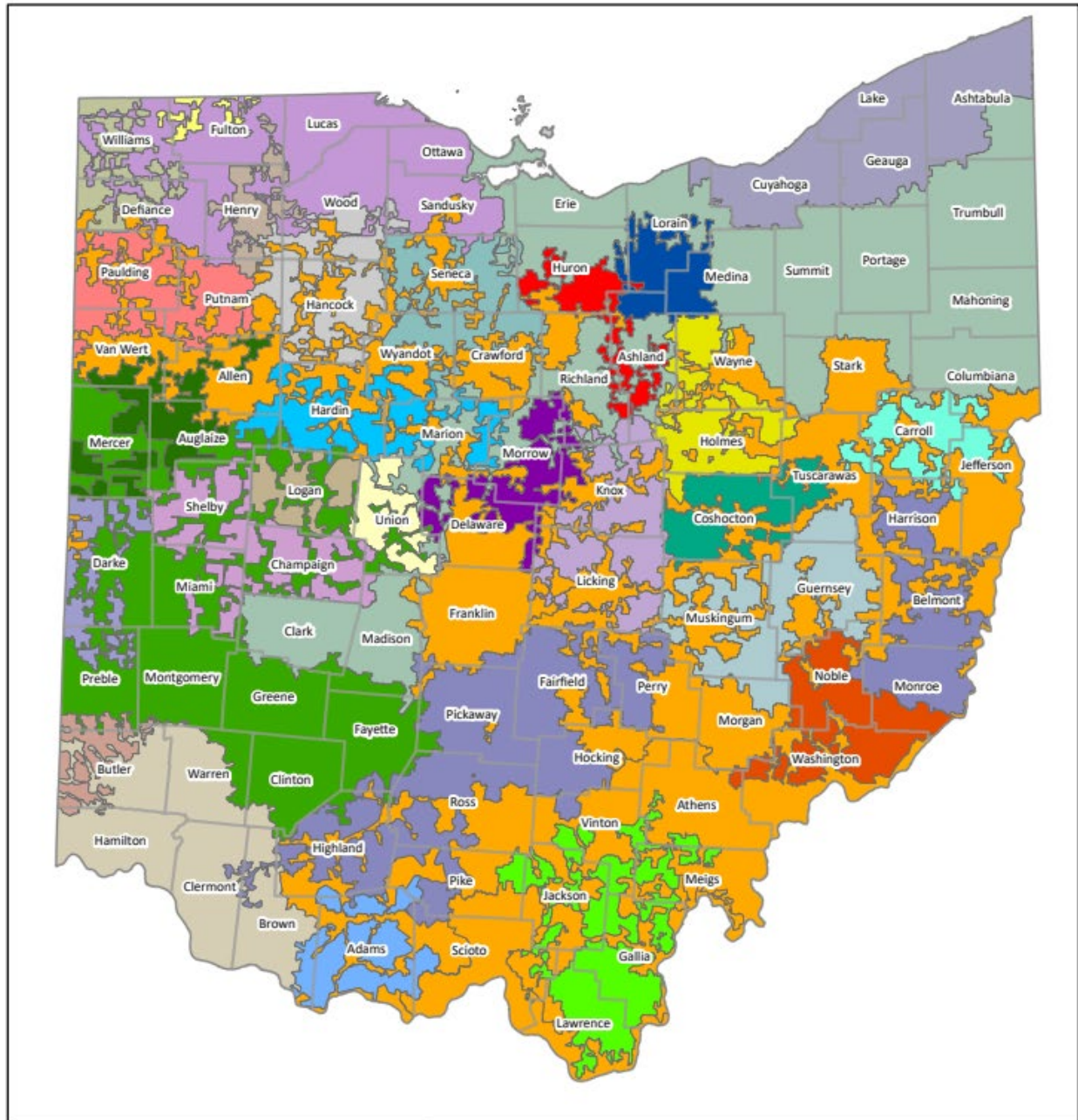
For purposes of meeting the PUCO's statutory load forecasting requirement for fiscal year 2021, the PUCO expects Ohio's peak load, or maximum electric demand, to increase minimally by a total of 4.1% over the 20-year horizon (2019-2039). This is equivalent to a 0.21% electric demand increase per year. Ohio consumed 145.5 million MWh of electricity in 2019 and is forecasted to consume 151.8 million MWh in 2039.<sup>4</sup>

**Table 11** and **Figure 11** summarize Ohio's electric utility actors and service areas.

**Table 11: Ohio's Utility Actors**

Type	Description
<b>PUCO</b>	PUCO oversees the utilities and retailers in Ohio's deregulated electricity market. PUCO sets rules for the electric distribution companies to transmit and distribute electricity to ALL of Ohio's energy customers fairly. PUCO also approves these utilities <a href="#">Standard Service Offer (SSO)</a> for customers who do not actively choose a retail electricity supplier. PUCO also helps organize and oversee utility auctions that determine retail generation service rates in that utility's service zone.
<b>Investor Owned</b>	Ohio's Electric Distribution Companies (EDC's, sometimes called "poles and wires" companies) are the original local utility companies. In recent times, these local utilities have been acquired by four national energy companies: 1) <a href="#">Duke Energy</a> ; 2) <a href="#">American Electric Power (AEP)</a> : Operates as Ohio Power Company in two service zones: Columbus Southern Power and Ohio Power; 3) <a href="#">First Energy Companies</a> : which include Ohio Edison, Toledo Edison, and The Illuminating Company (Cleveland); and 4) AES: Also known as <a href="#">AES Ohio</a> serving the greater Dayton region.
<b>Rural Cooperative</b>	<a href="#">Ohio's Rural Electric Cooperatives (REC)</a> are generally referred to as "unregulated utilities" because PUCO does not govern them. With a few exceptions, state statutes and rules governing utilities do not apply to these companies. There are <a href="#">25 RECs</a> serving rural residents across Ohio.
<b>Municipal</b>	A Municipal electric utility means a recognized municipal political jurisdiction (i.e., City, township, etc.) that owns or operates facilities to generate, transmit, or distribute electricity to local customers. Currently, at least 90 municipalities in Ohio own and operate utilities.

<sup>4</sup> <https://puco.ohio.gov/static/emplibrary/files/reports/Annual%2BReport%2BFY%2B2021.pdf>



Electric Service Areas

- |                        |                             |                               |                          |                          |
|------------------------|-----------------------------|-------------------------------|--------------------------|--------------------------|
| Adams Rural Electric   | Darke Rural Electric        | Licking Rural Electrification | North Western Electric   | Tricounty Rural Electric |
| AEP Ohio               | Duke Energy Ohio            | Logan County Electric         | Ohio Edison              | Union Rural Electric     |
| AES Ohio               | Firelands Electric          | Lorain-Medina Rural Electric  | Paulling-Putnam Electric | Washington Electric      |
| Buckeye Rural Electric | Frontier Power              | Mid-Ohio Energy               | Pioneer Electric         |                          |
| Butler Rural Electric  | Guernsey-Muskingum Electric | Midwest Electric              | South Central Power      |                          |
| Carroll Electric       | Hancock-Wood Electric       | Midwest Energy Cooperative    | The Illuminating Company |                          |
| Consolidated Electric  | Holmes-Wayne Electric       | North Central Electric        | Toledo Edison            |                          |

Figure 11: Electric Utility Service Areas in Ohio

Source: Public Utilities Commission of Ohio

## Chapter 6: Existing and Future Conditions Analysis

Beyond Ohio's regional transmission operator, PJM Interconnection, Ohio is serviced by 32 distinct operating utilities that provide the local power transmission to customers and maintain the local grid infrastructure. While these operating utilities transmit the electricity to local customers, with electric choice in Ohio, customers may choose the electric supplier that provides the generation of their electricity. If a customer chooses a new electric supplier, the customer's local electric utility will continue to deliver the electricity to that customer's home or business. Electric suppliers must be certified by the PUCO before they can sell electricity to residential customers. Certification is an ongoing, thorough process to make sure each supplier is qualified to provide electricity in Ohio.

For the purposes of the NEVI formula funding program, prospective EVSE site hosts, installers, owners, and operators will primarily be working under rules set by the PUCO and directly working with local electric operating utilities. Ohio's electric operating utilities are broadly broken down into the following distinct categories, each with their own specific capacities and regulations.

As **Chapter 2** introduced, ODOT has ongoing coordination with the PUCO and the state's operating utilities and will continue to do so throughout the NEVI Program implementation period.

### 6.5 AFC - Corridor Networks

**Ohio's Federally Designated AFCs:** ODOT has worked with statewide stakeholders, including Ohio's US DOE designated Clean Cities Coalition, Clean Fuels Ohio, and MPO partners to receive formal FHWA designation of 15 EV AFCs through FHWA's past five rounds of AFC Nominations as detailed in **Figure 12**. Sixteen miles of I-74 in the Cincinnati were nominated as part of Round 6.

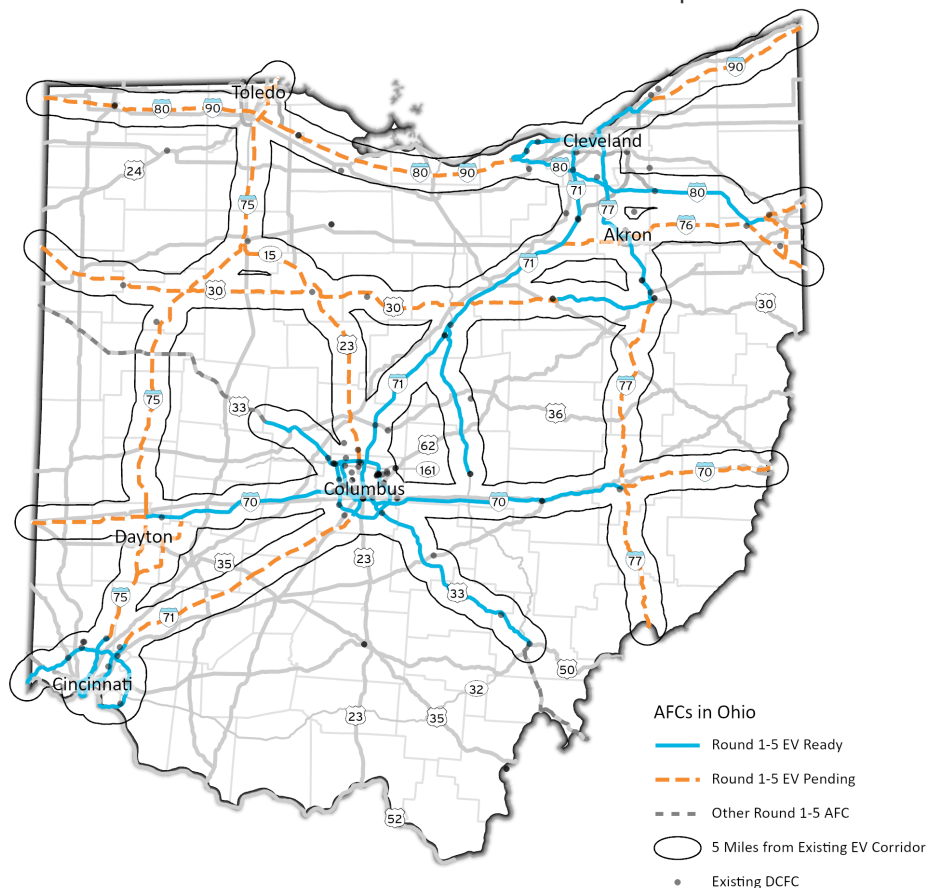


Figure 12: AFCs in Ohio



As detailed in **Figure 12**, Ohio has nominated and received formal FHWA designation of 15 EV AFCs through FHWA's past five rounds of AFC Nominations. As of FHWA's AFC Round 5 criteria, Ohio's 15 corridors were designated as detailed in **Table 12**.

**Table 12: Summary of AFC Mileage in Ohio**

AFC EV Route	Mileage	AFC Status
I-270	55.3	Ready
I-275	55.6	Ready
I-675	25.3	Pending
I-680	16.5	Pending
I-70	225.6	Pending/Ready
I-71	246.0	Pending/Ready
I-75	214.2	Pending/Ready
I-76	81.3	Pending/Ready
I-77	160.2	Pending/Ready
I-80	237.3	Pending/Ready
I-90	101.1	Pending/Ready
OH-13	47.5	Ready
US-23	83.7	Pending
US-30	186.9	Pending/Ready
US-33	117.9	Ready
<b>Grand Total</b>	<b>1,854.4</b>	

Source: DriveOhio

Due to FHWA's new, upgraded AFC Round 6 minimum requirements in 2022, none of Ohio's currently designated corridors shown in **Table 12** currently meet all of the following standards:

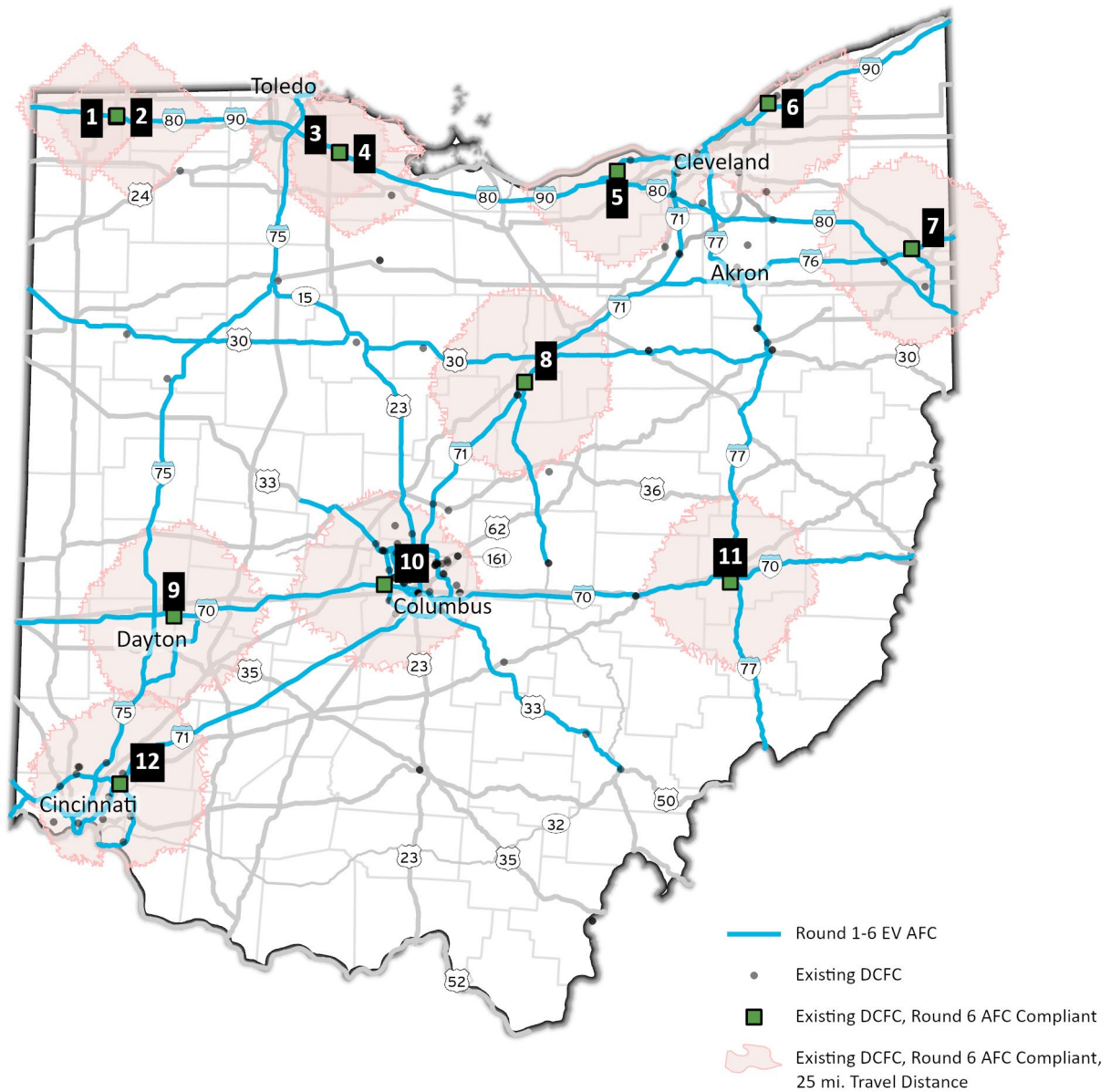
- Charging infrastructure installed every 50 miles along the State's portions of the Interstate Highway System within 1 travel mile of the Interstate exit.
- At least four 150kW DCFCs with Combined Charging System (CCS) ports capable of simultaneously DC charging four EVs.
- EV charging infrastructure with minimum station power capability at or above 600kW and supports at least 150kW per port simultaneously across four ports for charging.

This Plan is designed to address how all 15 Ohio Designated AFC's will be fully built out to the FHWA and NEVI Formula funds requirements above.

### 6.6 Existing Locations of Charging Infrastructure Along AFCs

While none of Ohio's 15 FHWA Designated AFCs are fully built out to NEVI compliant standards, Ohio currently has 217 publicly available DCFC ports (CCS and CHAdeMO), with 12 locations fully meeting NEVI compliant standards, as well as 1,650 publicly available L2 EVSE ports (J1772)<sup>5</sup>. The table and figure below detail the locations of the state's existing EVSE infrastructure in more detail.

<sup>5</sup> <https://afdc.energy.gov/stations/#/find/nearest>



**Figure 13: Existing Locations of Charging Infrastructure Along AFCs**

Source: DriveOhio

In support of **Figure 13**, ODOT has provided a table of existing DCFC in the state with information on Unique ID, charging speed, AFC corridor location, address, number of connectors, and the EVSE network on which the charger is hosted. **Table 13** details a summary of the NEVI compliant EVSE locations already existing in Ohio.

**Table 13: Existing NEVI Compliant DCFC Details**

ID	Charger Power (# of ports x kW)	Route	Location	# of CCS Ports	EV Network
1	2x150, 2x350	Turnpike	Tiffin River Service Plaza 21747 CO RD M-50 West Unity, OH 43570	4	Electrify America

ID	Charger Power (# of ports x kW)	Route	Location	# of CCS Ports	EV Network
2	2x150, 2x350	Turnpike	Indian Meadow Service Plaza 21738 CO RD M-50 West Unity, OH 43570	4	Electrify America
3	2x150, 2x350	Turnpike	Wyandot Service Plaza 6410 CO RD 165 Genoa, OH 43430	4	Electrify America
4	2x150, 2x350	Turnpike	Blue Heron Service Plaza 6164 CO RD 165 Genoa, OH 43430	4	Electrify America
5	2x150, 2x350	I-90	Sheffield Crossing Station 5231 Detroit Rd Sheffield, OH 44054	4	Electrify America
6	2x150, 2x350	I-90	Sheetz 394 7777 Reynolds Rd. Mentor, OH 44060	4	Electrify America
7	2x150, 2x350	I-80	Sheetz 248 2721 Salt Springs Road Girard, OH 44420	4	Electrify America
8	2x150, 2x350	I-71	Walmart 5471 2485 Possum Run Rd Mansfield, OH 44903	4	Electrify America
9	4x150, 2x350	I-70	Walmart 1495 7680 Brandt Pike Huber Heights, OH 45424	6	Electrify America
10	6x150, 2x350	I-70	Walmart 2426 5200 West Point Plaza Columbus, OH 43228	8	Electrify America
11	2x150, 2x350	I-70	Walmart 3262 61205 Southgate Rd Cambridge, OH 43725	4	Electrify America
12	8x150, 2x350	I-275	Harpers Station 11315 Montgomery Road Cincinnati, OH 45249	10	Electrify America

Source: [https://hepgis.fhwa.dot.gov/fhwagis/ViewMap.aspx?map=Highway+Information%7CElectric+Vehicle+\(EV-Round+1,2,3,4+and+5\)#](https://hepgis.fhwa.dot.gov/fhwagis/ViewMap.aspx?map=Highway+Information%7CElectric+Vehicle+(EV-Round+1,2,3,4+and+5)#); accessed 5/22/2022.

## 6.7 Known Risks and Challenges

While numerous EVSE are operating throughout Ohio currently, ODOT acknowledges there will be key risks and challenges to deploying the NEVI program. In addition to state specific consideration of deploying \$20.7 million per year in additional EV charging over the next several years, ODOT also recognizes there will be additional unique challenges such as global supply chain details as the entire US works to deploy \$7.5B in new EVSE charging infrastructure. **Table 14** details the high-level known risks and challenges ODOT is tracking.

**Table 14: Known Risks and Challenges**

Risk / Challenge	Action	Support Needed
<b>Safety</b>	Ensure workforce is trained to work on high-powered electrical equipment and EVSE equipment specifically. Consider requiring Electric Vehicle Infrastructure Training Program (EVITP) certification.	<ul style="list-style-type: none"> <li>EVITP or similar</li> </ul>

## Chapter 6: Existing and Future Conditions Analysis

Risk / Challenge	Action	Support Needed
<b>Available Power</b> <ul style="list-style-type: none"> <li>Transformers</li> <li>Infrastructure capacity</li> <li>Reliability</li> <li>Peak demand load management</li> </ul>	During the planning phase, any siting study information and potential locations must be coordinated with the local utility company for these items. Demand management is a vital consideration to ensure enough power is available and not too costly. Equipment availability such as transformers is important to start discussing during the planning phase.	<ul style="list-style-type: none"> <li>Utility Company</li> <li>Charger Vendors</li> <li>Equipment Operator</li> </ul>
<b>Policy</b> <ul style="list-style-type: none"> <li>EV only space requirements</li> <li>ADA EV space requirements</li> <li>Code requirements</li> </ul>	Parking spaces, especially in garages are expensive. State and local agencies need to consider code changes that may eliminate disincentives to install EVSE. Additionally, state and local (Title II) agencies must adhere to ADA regulations when deploying chargers. "EV Ready" codes for future expansion should also be considered.	<ul style="list-style-type: none"> <li>Design Engineering</li> <li>State and Local Agencies</li> <li>Equipment Operator</li> <li>Property Owner</li> </ul>
<b>Location Viability, Permitting/Agreements</b> <ul style="list-style-type: none"> <li>Lack of space for EVSE</li> <li>Right of Way</li> <li>Leased property</li> <li>Private property</li> <li>Tow vehicle access</li> </ul>	Certain constraints and requirements may exist for various properties. Permitting and agreements must be concise, however all parties should be flexible when permissible to enable successful charger deployment. It is important to note that electric vehicles will be used to tow cars, RVs, and other trailers, so space must be made available to pull in and through to charge without unhooking their loads or backing out of the charging space into traffic.	<ul style="list-style-type: none"> <li>Design Engineering</li> <li>State and Local Agencies</li> <li>Equipment Operator</li> <li>Property Owner</li> </ul>
<b>Compatible Cable Plugs</b>	Although the EV industry is moving toward a single plug standard, currently, multiple connectors exist for DCFs. It is important that other connections are considered as these are deployed.	<ul style="list-style-type: none"> <li>Charger Vendors</li> </ul>
<b>Communication Link Reliability</b> <ul style="list-style-type: none"> <li>Payment</li> <li>Monitoring</li> </ul>	Connectivity is important for chargers to work. A loss of connection keeps chargers out of service. Equipment must be monitored by operator and equipment returned to service without delay.	<ul style="list-style-type: none"> <li>Charger Vendors</li> <li>Communications Company</li> <li>Equipment Operator</li> </ul>
<b>Cybersecurity</b>	Cyberattacks are always a risk with technology. Credit card information must be protected. Viruses spreading between automobiles, chargers, and others connected.	<ul style="list-style-type: none"> <li>Operators</li> <li>Charger Vendors</li> <li>Network Integrators</li> </ul>
<b>Damage</b> <ul style="list-style-type: none"> <li>Vandalism</li> <li>Cords</li> <li>Vehicle crash</li> </ul>	Specifications for equipment protection such as curbs, bollards, retractable cords, vandal proof chargers. Chargers can be out of service if cords are driven over, or other damage occurs.	<ul style="list-style-type: none"> <li>Design Engineering</li> <li>Vendors</li> <li>Equipment Operator</li> <li>Property Owner</li> </ul>
<b>Matching Funds</b>	Bids are not received for stations in underserved, rural, or Appalachian communities. Mitigate by considering grouping sites with varying levels of attractiveness so the overall 20% match is sustainable and/or provide O&M (including power costs) as part of funding package.	<ul style="list-style-type: none"> <li>Joint Office</li> </ul>
<b>Business Model Viability</b> <ul style="list-style-type: none"> <li>Loss of profitability</li> <li>Demand charges</li> <li>Lack of use</li> </ul>	Costly "demand charges" occur during peak use, and when charges get minimal use over time. Siting studies and strong public engagement efforts are an important mitigation factor. Research and implement equipment where available rates/tariffs are in place and ensure demand management software is implemented.	<ul style="list-style-type: none"> <li>Design Engineering</li> <li>Utility Company</li> <li>Vendors</li> </ul>
<b>Weather</b> <ul style="list-style-type: none"> <li>Lightning</li> <li>Water / Flooding</li> </ul>	Inclement weather may prevent charger usage by damage or limiting access, so ensure chargers and charging EV's are located out of flood prone areas.	<ul style="list-style-type: none"> <li>Design Engineering</li> <li>Charger Vendors</li> </ul>
<b>Supply Chain</b> <ul style="list-style-type: none"> <li>Utility equipment delays</li> <li>EVSE equipment delays</li> <li>Electrical contractor capacity</li> <li>Permitting delays</li> </ul>	Due to the impacts of the pandemic, utility and EVSE equipment are currently facing production and delivery delays, which are only expected to worsen as 50 states seek to deploy NEVI compliant infrastructure simultaneously. ODOT will seek to work with key partners to mitigate delays to the extent possible.	<ul style="list-style-type: none"> <li>Utility Coordination</li> <li>EVSE Vendor Coordination</li> <li>Local Contractor Coordination</li> <li>Local Jurisdiction Coordination</li> </ul>

## Chapter 6: Existing and Future Conditions Analysis

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Risk / Challenge	Action	Support Needed
<b>Federal Rulemaking</b>	State issues procurement in advance of proposed rulemaking creating conflicts with how vendors are implementing charging stations and Joint Office rules.	<ul style="list-style-type: none"><li>• Joint Office</li><li>• Charger Vendors</li></ul>

Source: DriveOhio

ODOT will continue to monitor risks and challenges associated with NEVI formula funding and make updates to this Plan as more information is available on these topics.

## Chapter 7 EV Charging Infrastructure Deployment

This chapter discusses the overarching strategy for ODOT's NEVI EV charging infrastructure installations and associated policies to meet ODOT's vision and goals.

### 7.1 Funding Sources

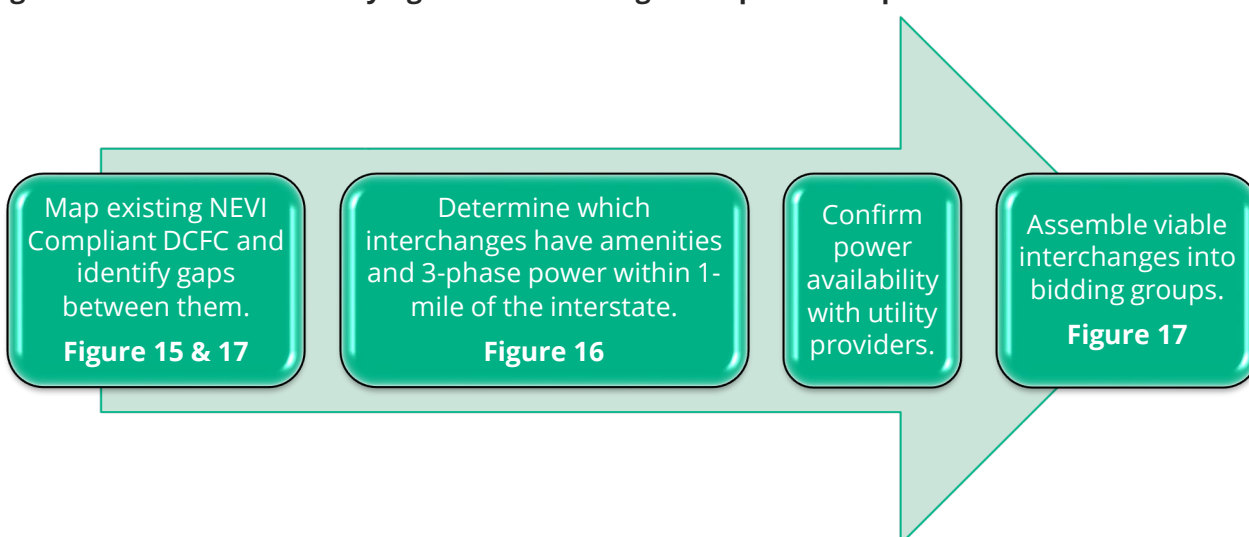
Ohio is allocated \$20.7 million annually in NEVI Formula funds to create an EV charging network across the state, which will cover build-out of Ohio's AFCs and allow ODOT to address additional priorities as their program evolves. Federal funding will cover up to 80% of the program funding. ODOT will seek to have vendors or site hosts bidding on the projects provide the required 20% match. As of this writing it is unclear if VW settlements funds will be eligible to be used as state match. Utility program funds may also be used as match when available. ODOT is open to covering operations and maintenance costs, including utility fees in the overall project cost and using their federal allocation to cover 80% of these costs.

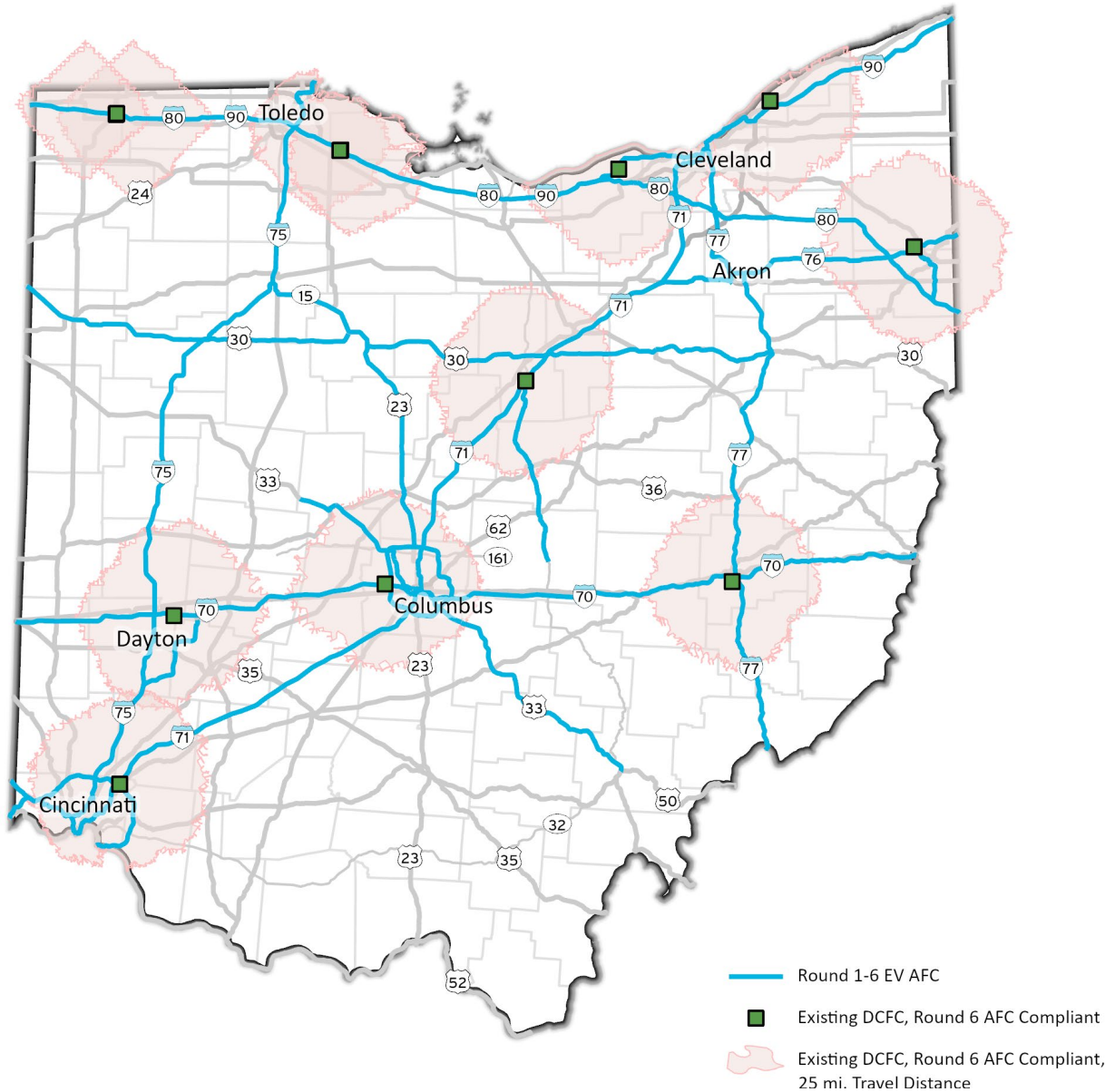
### 7.2 2022 Infrastructure Deployments/Upgrades

ODOT has analyzed their AFC system to determine viable locations for new NEVI compliant EVSE installations as well as identified existing locations of NEVI compliant EVSE and other existing EVSE chargers that might be upgraded to meet minimum NEVI Formula Program standards. The following subsections include information about how NEVI funded EVSE deployments will be built out to "corridor ready" status, and address needs for upgrades, redundancy, increases in capacity, freight movement, public transit needs, and local, state, and federal policy considerations over the five-year administration of NEVI Formula funding.

ODOT has followed the process identified in **Figure 14** to determine how to group interchanges for procurement. ODOT will aim to install NEVI compliant chargers at one interchange identified within each of the groups of interchanges as part of Phase I. ODOT is still evaluating options for grouping multiple installation locations in a single contract award.

**Figure 14: Process for Identifying DCFC Interchange Groups for Competitive Procurement**





**Figure 15: Existing NEVI Compliant DCFC Locations along AFCS**

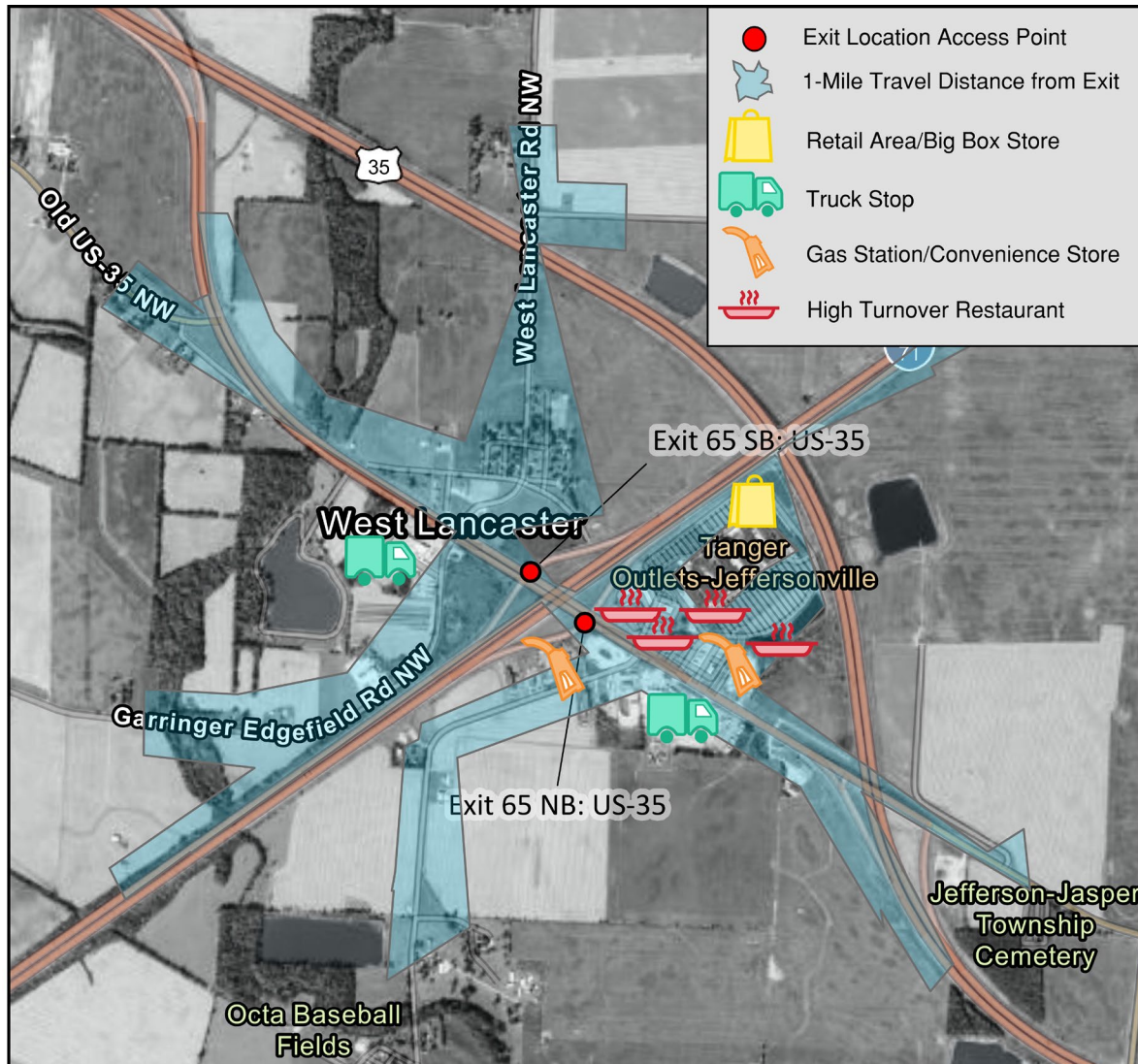
Source: DriveOhio

**Figure 16** displays a sample of the site review conducted to assess if interchange areas had sufficient amenities and power to provide viable site options. If any of the following were true, the site was deemed viable and provided as a candidate site to the appropriate utility company or companies.

- There is 1 or more truck stops
- There is 1 or more retail centers or big box stores
- There is a combined total of 3 or more gas station/convenience stores or high turnover restaurants with at least one of each.

## Chapter 7: EV Charging Infrastructure Deployment

The utility companies either confirmed the sites are viable or noted capacity constraints that would add costs.



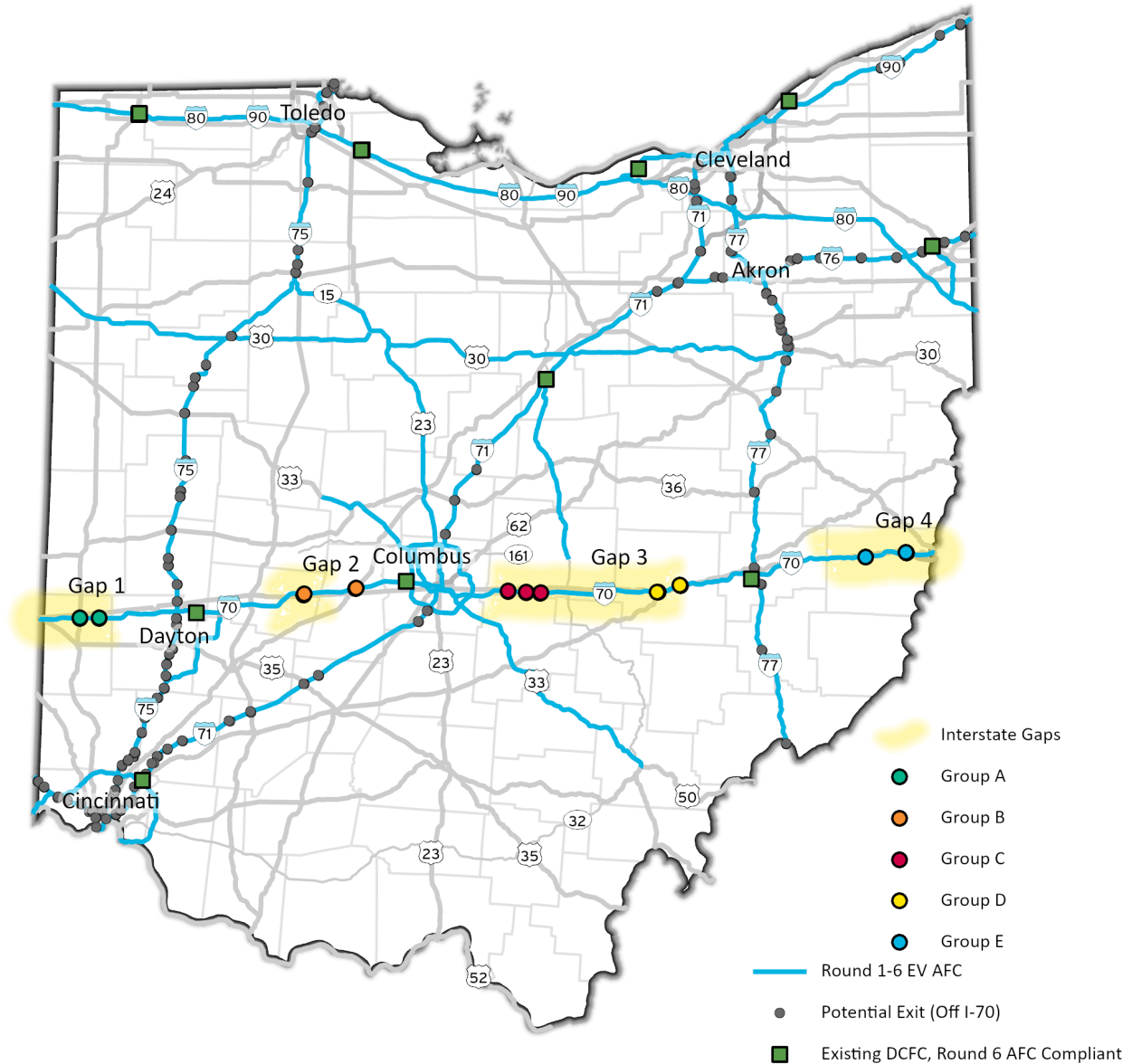
**Figure 16: Example Analysis of Exit**

Source: DriveOhio

**Figure 17** depicts the gaps originally identified along I-70. To fill the gaps ODOT needs to add NEVI compliant charging installations in five places, represented by Groups. The groupings of exits that can fill each gap are indicated by color.

Along I-70 there are eleven options for where the chargers can go including two options each for Gaps 1, 2, 4 and the eastern section of Gap 3 and three options for the western section of Gap 3. Groups were chosen to maintain the minimum required 50-mile spacing regardless of which exit within the group is selected. Gap 3 is long enough that two groups are needed and any combination of exits from Groups C and D will fill Gap 3.





**Figure 17: Charging Gaps and Groups Along I-70**

Source: DriveOhio

ODOT will deploy four 150 kW chargers at any one of the locations within each group to fulfill NEVI requirements for those facilities. To conserve space, **Table 15** only includes one interchange location in each group. EV Network and station ownership will depend on bids, so those columns were not included.

**Table 15: Charging Deployment Location Details**

Unique ID	Route	Location	Utility Territories	FY22 Funding Amount	FY23-FY26 Funding Amount
I-70_GrpA_Ex010	I-70 (Rounds 1-5 Pending)	Exit 10	AES Ohio	NEVI/EVSE Owner	80% NEVI; 20% EVSE Owner

## Chapter 7: EV Charging Infrastructure Deployment

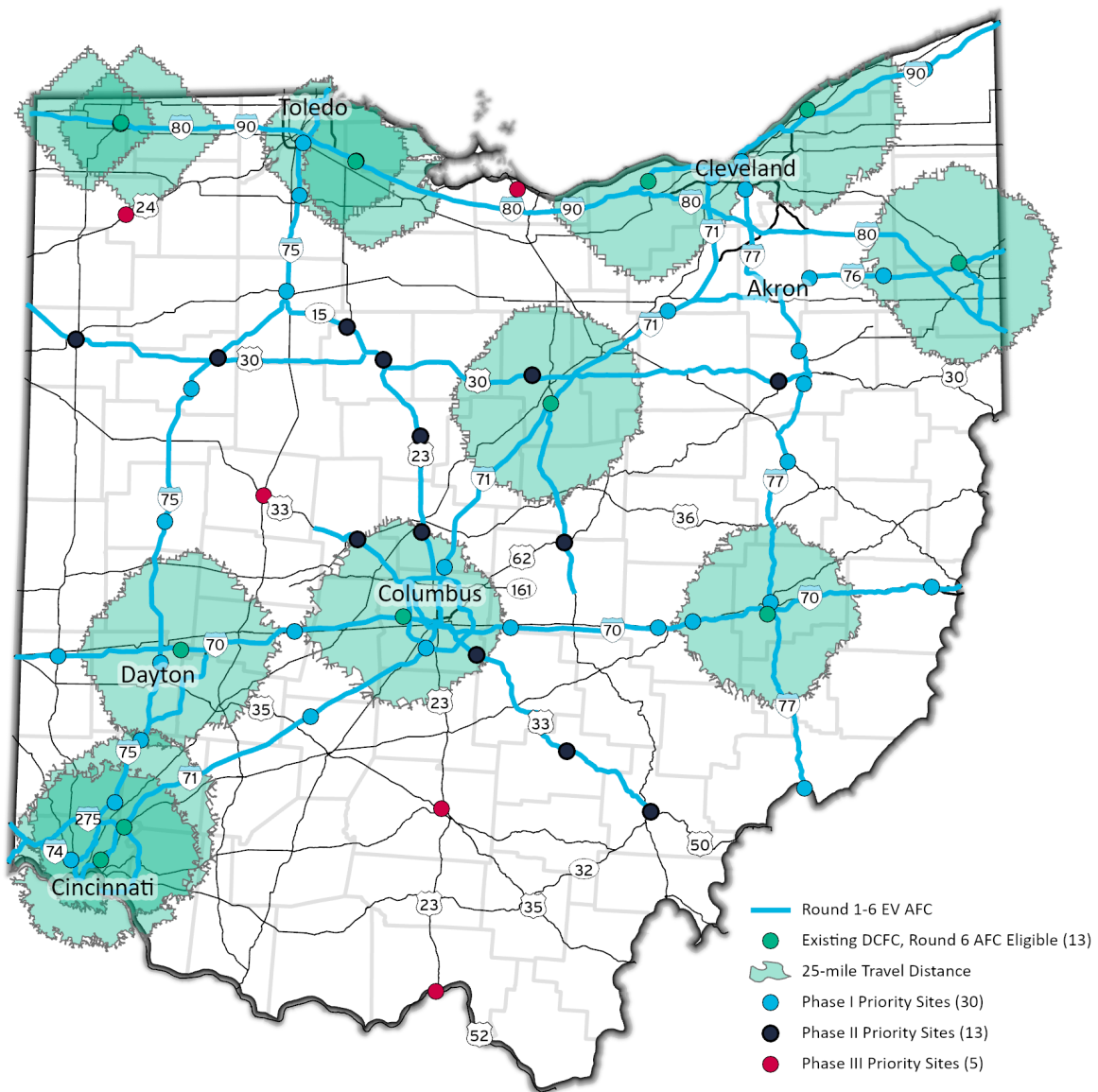
Unique ID	Route	Location	Utility Territories	FY22 Funding Amount	FY23-FY26 Funding Amount
I-70_GrpB_Ex066	I-70 (Rounds 1-5 Pending)	Exit 66	Ohio Edison	NEVI/EVSE Owner	80% NEVI; 20% EVSE Owner
I-70_GrpC_Ex118	I-70 (Rounds 1-5 Pending)	Exit 118	Ohio Edison	"	"
I-70_GrpD_Ex160	I-70 (Rounds 1-5 Pending)	Exit 160	Ohio Edison	"	"
I-70_GrpE_Ex218	I-70 (Rounds 1-5 Pending)	Exit 218	Ohio Edison	"	"
I-71_GrpA_Ex008A	I-71 (Rounds 1-5 Pending)	Exit 8A	Duke Energy	"	"
I-71_GrpB_Ex028	I-71 (Rounds 1-5 Pending)	Exit 28	Duke Energy	"	"
I-71_GrpC_Ex069	I-71 (Rounds 1-5 Pending)	Exit 69	AES Ohio	"	"
I-71_GrpD_Ex100	I-71 (Rounds 1-5 Pending)	Exit 100	Columbus Southern Power	"	"
I-71_GrpE_Ex121	I-71 (Rounds 1-5 Pending)	Exit 121	Columbus Southern Power	"	"
I-71_GrpF_Ex204	I-71 (Rounds 1-5 Pending)	Exit 204	Lorain-Medina Rural Electric	"	"
I-71_GrpG_Ex240	I-71 (Rounds 1-5 Pending)	Exit 240	The Illuminating Company	"	"
I-74_GrpA_Ex011	I-74 (Round 6 Nomination)	Exit 11	Duke Energy Ohio	"	"
I-75_GrpA_Ex022	I-75 (Rounds 1-5 Pending)	Exit 22	Duke Energy	"	"
I-75_GrpB_Ex038	I-75 (Rounds 1-5 Pending)	Exit 38	Duke Energy	"	"
I-75_GrpC_Ex058	I-75 (Rounds 1-5 Pending)	Exit 58	AES Ohio	"	"
I-75_GrpD_Ex092	I-75 (Rounds 1-5 Pending)	Exit 92	AES Ohio	"	"
I-75_GrpE_Ex125	I-75 (Rounds 1-5 Pending)	Exit 125	AEP Ohio	"	"
I-75_GrpF_Ex159	I-75 (Rounds 1-5 Pending)	Exit 159	AEP Ohio	"	"
I-75_GrpG_Ex181	I-75 (Rounds 1-5 Pending)	Exit 181	Toledo Edison	"	"
I-75_GrpH_Ex193	I-75 (Rounds 1-5 Pending)	Exit 193	Toledo Edison	"	"
I-76_GrpA_Ex031	I-76 (Rounds 1-5 Pending)	Exit 31	Ohio Edison	"	"
I-76_GrpB_Ex048	I-76 (Rounds 1-5 Pending)	Exit 48	Ohio Edison	"	"
I-77_GrpA_Ex001	I-77 (Rounds 1-5 Pending)	Exit 1	Columbus Southern Power	"	"
I-77_GrpB_Ex046	I-77 (Rounds 1-5 Pending)	Exit 46	AEP Ohio	"	"
I-77_GrpC_Ex081	I-77 (Rounds 1-5 Pending)	Exit 81	AEP Ohio	NEVI/EVSE Owner	80% NEVI; 20% EVSE Owner
I-77_GrpD_Ex101	I-77 (Rounds 1-5 Pending)	Exit 101	AEP Ohio	"	"

## Chapter 7: EV Charging Infrastructure Deployment

Unique ID	Route	Location	Utility Territories	FY22 Funding Amount	FY23-FY26 Funding Amount
I-77_GrpE_Ex109	I-77 (Rounds 1-5 Pending)	Exit 109	AEP Ohio	"	"
I-77_GrpF_Ex155	I-77 (Rounds 1-5 Pending)	Exit 155	The Illuminating Company	"	"
I-90_GrpA_Ex223	I-90 (Rounds 1-5 Pending)	Exit 223	The Illuminating Company	"	"

Source: DriveOhio

The above discussion aligns with Phase I. Following Phase I, Phase II will address the remaining AFCs located on U.S. and State Routes. Preliminary locations are indicated in **Figure 18**.



**Figure 18: Preliminary Phase I, II, and III NEVI Compliant Charging Locations**

## Chapter 7: EV Charging Infrastructure Deployment

Once the USDOT Secretary has certified Ohio's AFCs as "fully built out", ODOT is interested in adding charging at some of the remaining gaps previously prioritized in their 2020 Electric Vehicle Charging Study. These general target locations include the following, which are also show in **Figure 18**:

- OH-2 intersection with US-250, Sandusky, OH
- US-23 intersection with Charleston Pike, Chillicothe, OH
- US-23 intersection with US-52, Portsmouth, OH
- US-24 intersection with N. Clinton St., Defiance, OH
- US-33 intersection with US-68, Bellefontaine, OH

Other sites will likely be included at additional U.S. and State Routes as part of Phase III. These will be identified as planning moves forward.

**Table 16** shows how building out each phase with NEVI compliant charging sites will make progress towards ODOT stated outcome of "90% of Ohio Residents live within 25 miles of NEVI Compliant Chargers."

**Table 16: Ohio Population Reached by Chargers**

Population within 25 miles of...		
Existing Charging	8,008,091	69%
+ Phase I Sites	10,594,587	91%
+ Phase II Sites	11,101,116	95%
+ 5 key Phase III Sites	11,324,807	97%
= Total Population Covered	11,641,879	100%

Source: DriveOhio

### 7.2.1 Upgrades of Corridor Pending Designations to Corridor Ready Designations

As noted earlier, Ohio has no AFCs that currently meet the new FHWA Round 6 and NEVI compliant standards. To be fully built Ohio needs to install chargers at a minimum of 42 locations. As **Table 17** indicates, this will cover the 15 currently designated AFCs. The 16<sup>th</sup> AFC is the Ohio Turnpike Infrastructure Commission (OTIC). As OTIC would have to be federalized if it accepted federal funds the OTIC has been making strides to build out their facility without federal funds.

Based on charging vendor outreach, it was assumed that the average cost to build a new NEVI compliant site would range from \$600,000 to \$1.2 million depending on site attractiveness (i.e., expected revenue or competition in bidding), the cost of upgrading power service, and any other site or charger specific infrastructure needs (i.e., use of solar or storage). For planning purposes, we are using \$1 million per NEVI-compliant site.

**Table 17: Range of Estimated Buildout Costs by Route**

Ex. AFC Route	# NEVI Compliant Charging Sites	Groups of Chargers (that fill Gaps)	Options to Fill Gaps	Min. Build-out \$
I-70	3	6	17	\$6,000,000
I-71	2	5	22	\$5,000,000
*I-74	0	1	6	\$1,000,000
I-75	0	8	56	\$8,000,000
I-76	0	2	11	\$2,000,000

## Chapter 7: EV Charging Infrastructure Deployment

Ex. AFC Route	# NEVI Compliant Charging Sites	Groups of Chargers (that fill Gaps)	Options to Fill Gaps	Min. Build-out \$
I-77	1	7	31	\$7,000,000
**I-80	4	-	-	Ohio Turnpike
I-90	2	1	4	\$1,000,000
SR-13	0	1	2	\$1,000,000
SR-15	0	1	1	\$1,000,000
US-23	0	3	8	\$3,000,000
US-30	0	4	12	\$4,000,000
US-33	0	3	16	\$3,000,000
***I-270	0	-	-	-
***I-275	1	-	-	-
***I-675	0	-	-	-
***I-680	0	-	-	-
<b>17 AFCs (I-74 Round 6 pending)</b>	<b>13</b>	<b>42</b>	<b>186</b>	<b>\$42,000,000</b>

\* I-74 was nominated as an EV AFC in Round 6. Official designation is pending.

\*\*Due to constraints with Turnpike Toll Roads receiving federal funding, ODOT will not seek to site NEVI locations on the Turnpike portions of I-80 in Ohio.

\*\*\*These are metropolitan "outer belt" portions of the Interstate, primarily used for local travel and connecting to other major Interstates for distance travel. ODOT will seek to prioritize locations that serve both outer belts and connecting Interstates in its prioritization system further detailed below.

Source: DriveOhio

ODOT also evaluated the cost of building out a NEVI compliant site at all the viable interchanges identified as part of their initial site review. At \$1 million per site this would cost \$186,000,000 with an 80% federal share of \$148,800,000 and 20% match of \$37,200,000 from the bidding owner/operator.

**Chapter 5** of this Plan provides details on the current understanding of how ODOT will go to bid, procure, and contract with third party EVSE owner-operators as the mechanism to disburse NEVI funds to achieve this Plan's goals.

ODOT estimates that pending final bids and costs from third party NEVI-funded EVSE owner operators, ODOT will be able to reach NEVI "fully built out" designation with a spend ranging from \$30M – \$50M, leaving significant funds to solve for additional state priorities such as additional nominated AFCs in future rounds, remaining US and State Routes, increasing the number of chargers at existing sites, other significant routes, additional equity based locations, state tourist attractions, and freight corridors. Ohio's NEVI Formula Funding is therefore expected to disburse in the phases described in **Figure 2**.

### 7.2.2 Increases of Capacity / Redundancy along Existing AFC

As **Table 17** in **Section 7.2.1** and the following discussion indicates that the NEVI formula funding ODOT will administer is sufficient to cover the costs of a spectrum of "fully built out" approaches. As described in detail in **Chapter 4** and **Chapter 5**, ODOT's goal is to utilize NEVI Formula funds to catalyze the Ohio market to ensure a robust network of NEVI compliant EVSE owned and operated by non-state, public, and private parties including businesses of various kinds.

While ODOT has evaluated the scope and cost of building out NEVI compliant charging installations at every viable interchange outside of existing coverage areas, there is no intention to build Ohio's AFCs out to that level of redundancy for two reasons. First, building out to that level of redundancy

is likely unnecessary given levels of demand and future demand. Second, building that many stations on the AFCs would likely lead to dividing charging sessions too thinly across multiple locations making it hard for EVSE owner-operators to maintain the level of EVSE utilization needed to sustain healthy business models.

Therefore, ODOT's NEVI Plan seeks to strike an appropriate balance of ODOT assessed priority locations to fill gaps and competitive procurement and a funding awards process that will allow the market to decide the appropriate level of redundancy for Ohio's AFCs.

### 7.2.3 EV Freight Considerations

DriveOhio's August 2021 Freight Electrification Report outlines Ohio's path forward for commercial vehicle electrification. The Report details existing practices and the future framework needed to facilitate the freight and logistics industries transition to EVs. Collectively, UPS, FedEx, DHL, Bimbo Bakeries, PITT Ohio, Firefly Transportation Services (now Lazer Spot Inc.), and R&L Carriers cite increased safety, reduced carbon emissions, driver preference, and a competitive edge and job creation as reasons to electrify their fleet operations.

As described in **Chapter 1**, ODOT plans to evaluate opportunities to utilize NEVI formula funding remaining after building out the State's AFCs. One option being considered is funding EVSE projects that will support freight electrification.

### 7.2.4 Public Transportation Considerations

ODOT's NEVI Plan's first focus is fully building out Ohio's FHWA designated AFCs as described in detail above, however ODOT plans to continue to evaluate opportunities to support transit electrification and connect transit riders to other transportation electrification and mobility options in future years of the NEVI program. ODOT plans to make updates to its NEVI Plan annually and will include updates to its Public Transit Electrification plans pending further guidance from the Joint Office and FHWA.

ODOT will be in a strong position to make such updates to its NEVI Plan and coordinate with the state's transit agencies. ODOT Transit staff coordinate several programs that ensure funding, participation and quality assurance for Ohio's urban and rural transit riders throughout the state. ODOT is in a unique position to work with state, local and federal government agencies as well as initiatives, projects, and programs outside of government but relevant to Ohioans who depend on transit initiatives to get them where they need to go. ODOT does this through the operation and administration of the following programs, services, and resources related to statewide transit, as shown in **Table 18**.

**Table 18: ODOT Transit Activities**

ODOT Transit Activities	Description
<b>Transit Vehicle Contracts and Disposition</b>	Transit agencies can coordinate the purchase of vehicles through ODOT's Cooperative Purchasing Program.
<b>Technical Assistance Reviews</b>	ODOT reviews and ensures that Rural and Specialized Transit Programs are complying with federal laws.
<b>Transit STIP</b>	Transit Transportation Improvement Program is a coordination of transit projects for the Statewide Transportation Improvement Plan.
<b>Coordinating Transit Data</b>	Training support on new tools to improve coordination of ODOT's Ellis project management system and Transit STIP/TIP data.

ODOT Transit Activities	Description
<b>Transit Asset Management</b>	Improving asset management practices of transit capital assets in order to maintain a “State of Good Repair.”
<b>State Safety Oversight</b>	Fulfilling a federal requirement to ensure states have and implement a State Safety and Security Oversight program for its rail transit system.
<b>Public Transportation Agency Safety Plans</b>	ODOT assists with the statewide implementation of this federal program ensuring safety requirements are met.
<b>Mobility Ohio</b>	A multi-agency effort to improve Ohio's health and human services transportation network while mitigating fraud.
<b>Coordinated Transit Plans</b>	ODOT maintains the most up-to-date Coordinated Plans.
<b>Transit Project Coordination</b>	ODOT provides direct coordination between Ohio's transit agencies, Metropolitan Planning Organizations, and the state of Ohio.
<b>Transportation Plans</b>	ODOT Identifies community resources for transportation and mobility in an effort to understand gaps and unmet needs.
<b>Civil Rights &amp; Compliance</b>	ODOT ensures Transit compliance with federal civil rights laws and regulations as it applies to transit funding and applicable programs.
<b>ODOT Transit Website</b>	More information on all of the above can be found on ODOT's transit website: <a href="https://www.transportation.ohio.gov/programs/transit/transit-coordination-resources/transit-coordination-compliance-oversight-resources">https://www.transportation.ohio.gov/programs/transit/transit-coordination-resources/transit-coordination-compliance-oversight-resources</a>

Source: ODOT

As stated above, ODOT plans to make updates to its NEVI Plan annually and will include updates to its Public Transit Electrification plans pending further guidance from the Joint Office and FHWA.

### 7.3 FY23-26 Infrastructure Deployments

ODOT will initially focus on building out FHWA Designated AFCs. After the USDOT Secretary has certified Ohio's AFCs as “fully built out” to NEVI compliant standards, ODOT will seek to expand NEVI formula funded EVSE deployments to additional priority areas. In general, the expected annual federal allocation and matching funds will follow the values noted in **Table 19**.

**Table 19. Expected Y2-Y5 Annual Federal and Matching Funds**

Source of funding	Federal Funding	Matching Funding
Program Management	\$1,000,000   4.8%	
EVSE Deployment & O&M \$	\$19,739,853   95.2%	\$5,184,963   100%
Annual Total	\$20,739,853*	\$5,184,963
<b>Total %</b>	<b>80%</b>	<b>20%</b>

Source: DriveOhio; Bipartisan Infrastructure Law

### 7.4 State, Regional, and Local Policy

To deliver the recommendations in this Plan and continue progress towards supporting ODOT's NEVI goals, ODOT plans to continue coordinating around state, regional, and local policy with various stakeholders defined in **Chapter 2**. ODOT plans to perform the following activities listed in the state column in **Table 20** and work with the MPOs/RTPOs so they can work with their member agencies on the following items:

**Table 20: ODOT Planned Charging Activities**

State	MPO/RTPOs	County/City
Plan EV corridor charging: gap identification, power supply analyses, priority locations for private sites.	Identify gaps in regional DCFC charging network, based on shared mobility services and fleets.	Develop community-based EV charging plan addressing multi-unit dwelling, workplaces, public and fleet charging.
Ensure NEVI funded partners identify and provide necessary levels of non-federal matching funds for Ohio's NEVI Formula Program.	Help identify private or government site hosts to fill DCFC gaps.	Identify priority locations (government, private); set goals for development.
Maintain and publicize to Ohio agencies EV chargers that are on the states universal term contract list.	Identify additional L2 locations based on traffic flows and site characteristics.	Enact local policies such as "right to charge," "make ready" building codes for new builds and renovations, charging facilities in rights of way, others.
Draft EV charging policies such as state building code for parking garages to facilitate minimum % of "make ready" wiring.	Facilitate project partnerships with utilities, charger providers and installers to develop facilities.	
Develop template for local EV charging planning.	Consider establishing EV charging incentives.	
Develop sample standard EVSE plan sheets and specifications.		

Source: DriveOhio

In addition to the activities above, ODOT and its DriveOhio team are committed to continuing to:

- Socialize this Plan with other state agencies, adjacent states, MPOs, utilities and other key stakeholders.
- Conduct outreach to highest priority sites, identify site hosts interested in applying for funding, and publicize NEVI and other EVSE funding opportunities.
- ODOT will try to establish a point of contact at each investor-owned utility and Ohio's Electric Cooperatives and facilitate more detailed conversations between these organizations and the site hosts to ensure the cost of providing power and the rates are not prohibitive and the process can move forward efficiently.
- Continue to update this Plan including further development and refining of more detailed cost models and schedules based on ownership decisions.
- Facilitate efforts noted in **Table 20** to help Ohio agencies target the most impactful EV readiness activities. The state can further develop this framework to support their constituents.



## Chapter 8 Implementation

As described in **Chapter 5**, ODOT plans to comply with all federal and state legal provisions, and to achieve the state’s NEVI Plan goals, ODOT plans to develop a competitive procurement program to award and disburse NEVI Formula funds. To effectively manage such a procurement program, ODOT will perform the activities shown in **Table 21**.

**Table 21: Program Management Activities**

Activity	Description
<b>Ohio NEVI Competitive Procurements</b>	Create a Request for Proposals (RFP) for third party (non-state) applicants interested in receiving NEVI funding to install, own, and operate NEVI compliant EVSE in Ohio.
<b>Contracting with Awarded Parties</b>	Develop a detailed contract for third parties awarded NEVI funding, flowing down federal and state legal terms and conditions to the final EVSE site owner-operators awarded NEVI funds.
<b>Program Management</b>	Establish a robust NEVI Management Program at ODOT to ensure third parties awarded NEVI Formula funds are meeting federal and state compliance requirements and achieving the state and federal goals of the NEVI program.

Source: DriveOhio

As detailed in activity two above, ODOT’s contracts for the third parties awarded NEVI funding will be designed to flow down both federal and state legal terms and conditions to the final EVSE site owners and operators awarded NEVI Formula funds. These terms and conditions will include terms for operations and maintenance; obligations for station owners; financial match requirements; data collection processes; strategies to address seasonal, resiliency, and emergency needs; and strategies to promote strong labor, safety, training, and installation standards.

### 8.1 Strategies for EVSE Operations & Maintenance

ODOT’s RFP, Awards, and Contracts with Third Parties for NEVI Formula funds will seek to ensure the standards shown in **Table 22** for NEVI funded EVSE operations and maintenance are met.

**Table 22: Operations and Maintenance Standards**

Activity	Description
<b>Continuous Operation</b>	Charging stations must support continuous operations even when network connectivity is not available or consumer cell phone service is not available (i.e., “default on” with loss of network).
<b>Accept New Users</b>	Charging stations must be accessible to “walk up” consumers. This means that consumers must be able to initiate a charge session without a prior membership or network interaction in a simple process.
<b>Accessibility</b>	Charging stations and network system must provide 24/7 customer service and support.
<b>Uptime</b>	Any operating network system must be capable of network uptime of 98% or greater.
<b>Networked</b>	Any operating network system must proactively monitor charging stations for maintenance needs and notify/dispatch for corrective action as issues are identified.
<b>Performance</b>	Chargers must be capable of operating without any decrease in performance over an ambient temperature range of minus 22 to 122 degrees Fahrenheit with a relative humidity of up to 95%.

### 8.2 Strategies for Identifying EV Charger Service Providers and Station Owners

ODOT’s RFP, Awards, and Contracts with Third Parties for NEVI Formula funds will seek to ensure the standards shown in **Table 23** are met in regard to EVSE vendors. ODOT is working closely with the Ohio EPA who has provided data on the parties that bid on their recent DCFC Volkswagen (VW) Mitigation Grant funding opportunity. ODOT will inform these applicants of the NEVI opportunity.

**Table 23: Vendor Standards**

Activity	Description
<b>Prequalify Vendors</b>	ODOT will seek to prequalify EVSE vendors as well as ensure certified electrical contractors are used in the operations and maintenance of EVSE equipment.
<b>DAS Contracts</b>	The Ohio Dept. of Administrative Services currently has pre-bid EVSE available for purchase through the state term contract: <a href="https://ohiobuys.ohio.gov/page.aspx/en/ctr/contract_manage_public/8243">https://ohiobuys.ohio.gov/page.aspx/en/ctr/contract_manage_public/8243</a>

Source: As noted

### 8.3 Strategies for EVSE Data Collection & Sharing

ODOT’s RFP, Awards, and Contracts with Third Parties for NEVI Formula funds will seek to ensure the standards shown in **Table 24** for NEVI funded EVSE data collection and sharing are met.

**Table 24: Data Collection and Sharing Standards**

Activity	Description
<b>Open Network (OCPP)</b>	Charging stations must be capable of utilizing Open Charge Point Protocol (OCPP) V1.6 or newer for communications to various network back-ends (i.e., the system must be able to “default” to OCPP for basic functionality).
<b>Network Interoperability</b>	Charging stations must be connected to an operating network and must have the ability to switch between OCPP networks.
<b>Roaming Enabled</b>	Any operating network system for a charging station must follow network “roaming” best practices established by the Open Charge Point Interface (OCPI) protocol.
<b>Open to New Users</b>	Point of sale and supporting network use of an open protocol to allow subscribers of other EV charging networks to access the charging station.
<b>Multiple Pay Options</b>	Multiple payment options for drivers such as pay-per-use and subscription methods, and the ability to accept credit and debit cards.
<b>Transparent Pricing</b>	Clear, simple, and real-time pricing and fee information displayed on device, payment screen and physical signage that meets the requirements of is O.A.C. 901:6-5-02(H).
<b>Payment Security</b>	All pay equipment must possess the capabilities to ensure credit card transactions are compliant with the latest PCI and PA-DSS standards.
<b>Cyber Security</b>	The awardee must use commercially reasonable Cybersecurity standards to protect sensitive and/or confidential data both in transit and at rest, as detailed further in <b>Chapter 12</b> .

In addition to the above standards, ODOT intends to require NEVI funded EVSE owners to provide charging station usage reports. Charging Station Usage reports will likely be required for a period of at least 5 complete calendar years. The reporting information submitted will identify aggregate utilization data for the previous reporting period, and for each NEVI compliant EVSE funded by ODOT, information required in the report may include (but is not limited to) the following list:

**Charging Station Usage Report Scope**

1. Location: Site name, EVSE ID number, address, city, zip, county
2. Operational uptime (percentage)
3. Number of charge events
4. Number of unique vehicles
5. Average charge time per event (minutes)
6. Average kW per charge event
7. Total kW consumed

For each charging location, the following additional summary information may be required for chargers funded by ODOT’s procurement program.

**Charging Station Summary Report Scope**

1. Total number of DCFCs
2. Weekly utilization (sessions per week)
3. Average session power (kW)
4. Average charge time per session (hours/session)

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

ODOT’s RFP, Awards, and Contracts with Third Parties for NEVI Formula funds will seek to ensure the standards shown in **Table 25** NEVI funded EVSE resilience, emergency evacuation, and snow removal are met.

**Table 25. Resilience, Emergency Evacuation and Snow Removal Standards**

Category	Standard
<b>Resilience</b>	ODOT is considering the addition of potential scoring criteria that would provide additional prioritization for EVSE owner-operators who add resilience technology to their EVSE sites such as battery storage, backup power generation, or renewable power generation such as solar.
<b>Emergency Evacuation</b>	As an inland, midwestern state, Ohio is not subject to routine weather-related needs for emergency evacuation such as hurricanes or large-scale seasonal floods. However, the Emergency Operations section of ODOT manages and coordinates ODOT’s statewide response to disasters both natural and human made. ODOT directly coordinates with Ohio EMA and is the lead for all emergency support functions related to transportation issues. ODOT is one component in the State Emergency Operations Plan that requires a multi-agency all hazards response to emergencies with emphasis on public safety and keeping our roadways open for traffic. The Interstates and AFCs in this NEVI plan are all part of Ohio’s emergency evacuation routes and building EVSE on these will facilitate EV travel in the event of any emergency or disaster whether natural or human made.
<b>Seasonal Needs</b>	While Ohio can experience seasonally severe weather, the most routine seasonal impact to EVSE will be snowfall and the need for EVSE to be kept clear and accessible during snow events. ODOT will seek to require NEVI funded EVSE stations to maintain minimum uptime and accessibility standards which will include snow removal as part of this contractual obligation.

Source: ODOT

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

ODOT’s RFP, Awards, and Contracts with Third Parties for NEVI Formula funds will seek to ensure the standards shown in **Table 26** for strong labor, safety, training, and installation standards are met.

**Table 26: Labor, Safety, Training, and Installation Standards**

Category	Standard
<b>DBE &amp; Small Business</b>	ODOT understands it is the policy of the Federal Highway Administration (23 CFR 230.107) to require: that all Federal-aid highway construction contracts include specific equal employment opportunity requirements. To support this goal, ODOT runs the Equal Employment Opportunity and On-The-Job Training programs. ODOT will reference its best practices in its EEO and OJT programs to increase opportunities for diverse groups to participating in these NEVI projects.
<b>Prevailing Wage</b>	Prevailing wage laws will be relevant in procurement if labor is part of the contract. ODOT uses Proposal Note #61 to document the contractual requirement for contractors working on Title 23 construction projects to be responsible for paying prevailing wage and ODOT will require Proposal Note #61 to be included in all agreements for NEVI funded EVSE.
<b>EVSE Specific Training</b>	ODOT will encourage certified electricians to upskill further through the EVITP accreditation and is working with Ohio TechCred to enable training reimbursements for electricians who take EVITP.

## Chapter 8: Implementation

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Category	Standard
<b>Certified Electricians</b>	Charging Station installation must be performed in a professional manner in accordance with industry standard best practices and with all state and local government laws and ordinances.
<b>Site Safety Requirements</b>	Charging station installation must include protection from damage to ground and wall-mounted equipment, including protection from vehicle collision (guard posts, wheel stops, curb protection, or wall-mounted barriers).
<b>Hardware Safety Standards</b>	Charging stations must meet relevant technical and / or safety standards, including but not limited to UL 2202, and Code of Federal Regulations, Title 47, Part 15 (47 CFR 15), and must have valid certification(s) from a Nationally Recognized Testing Laboratory (NRTL).
<b>Electrical Enclosure Safety</b>	Charger enclosures must be constructed for use outdoors in accordance with UL 50E Standard for Safety for Enclosures for Electrical Equipment, Environmental Considerations, Type 3R exterior enclosure or equivalent.
<b>Cord Management</b>	Chargers must incorporate a cord management system or method to eliminate potential for cable entanglement, user injury, or connector damage from lying on the ground.
<b>ADA Compliance</b>	Chargers must be ADA compliant.
<b>Fire Department and Public Safety Training</b>	A significant amount of information related to safety training for electric vehicles is provided by the National Fire Protection Association (NFPA). <sup>6</sup> The NFPA is also working to deliver a report due in October 2023 to provide updated training programs and code compliance readiness for EVs. <sup>7</sup> Other than the NFPA, the SAE J2990 document (Hybrid and EV First and Second Responder Recommended Practice, July 2019) provides training and information they must have on hand on when dealing with an electric vehicle thermal event. <sup>8</sup>

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<sup>6</sup> <https://www.nfpa.org/EV>

<sup>7</sup> <https://www.nfpa.org/News-and-Research/Publications-and-media/Press-Room/News-releases/2020/NFPA-receives-Department-of-Energy-award>

<sup>8</sup> <https://www.nfpa.org/Training-and-Events/By-topic/Alternative-Fuel-Vehicle-Safety-Training/Emergency-Response-Guides>.

## Chapter 9 Civil Rights

The State of Ohio and ODOT value and uphold the civil rights laws of Ohio and the United States. These laws and accompanying requirements have long been incorporated into ODOT’s existing procurement process and will be complied with for all NEVI purposes (also understanding additional contractual requirements from US DOT may be included). **Table 27** outlines the state and Federal civil rights laws to which ODOT and their contract recipients will comply.

**Table 27: State and Federal Civil Rights Laws**

Governance	Description
<b>Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d-1) and 49 CFR part 21</b>	Title VI of the Civil Rights Act of 1964 was created to prohibit discrimination based on race, color or national origin in programs and activities that are Federally funded. ODOT will append Form FHWA 1273 to all contracts and require the same for all subcontracts that access federal funds.
<b>23 CFR part 230</b>	This code section requires equal opportunity requirements be included in Federal and Federal-aid highway construction contracts including supportive services. Where applicable, ODOT will comply with this requirement.
<b>23 CFR part 633.102-104</b>	This code section requires language from Form FHWA-1273 be included in all Federal-aid construction contracts (other than Appalachian construction contracts). This form’s language encompasses, among other things, prohibitions on all class discrimination. Where applicable, ODOT will comply with this requirement.
<b>49 CFR part 26 (DBE Program)</b>	23 CFR Section 635.107 directs that state DOTs must comply with 49 CFR part 26 which are the federal DBE regulations. NEVI projects will have a DBE goal associated with them, unless it is deemed that the work is so specialized or limited that there are not ready, willing, and able DBEs in the region that could be available to meet a goal. ODOT will consider whether a reasonable analysis of potential DBEs needs to be made so reasonable goals can be set or shared with potential NEVI project partners.
<b>Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) and 49 CFR parts 27, 37, and 38 and Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794).</b>	According to the FHWA’s website: “The Americans with Disabilities Act *** prohibits discrimination against individuals with disabilities in all areas of public life *** prohibits disability discrimination by State and local government entities [in] public rights-of-way. *** US DOT is charged with ensuring compliance relating to transportation. The FHWA Office of Civil Rights oversees compliance with DOT requirements for highways, streets, and traffic management.” Ohio’s NEVI projects will have ADA review and compliance requirements. The requirements around these sections will be passed through to the contracting entities for compliance.
<b>ORC 4112 Civil Rights Commission and Ohio Administrative Code 4112 Ohio Civil Rights Commission</b>	While Ohio passed the Ohio Civil Rights Act of 1959, the Act only consisted of non-discrimination in employment matters. These code sections create the Ohio Civil Rights Commission and their authority to enforce Ohio and Federal laws against discrimination.

Source: As noted.

Given the expected length of the contracts for the NEVI projects, ODOT’s contracts will provide for routine check-ins to support compliance evaluation and verification. ODOT’s internal Office of Civil Rights Compliance will assist the project team in all aspects of compliance with Civil Rights for this project.<sup>9</sup>

<sup>9</sup> <https://www.transportation.ohio.gov/programs/civil-rights-compliance#page=1>

## Chapter 10 Equity Considerations

NEVI Formula Program funds will be developed through engagement with rural, underserved, and disadvantaged communities in support of the Justice40 Initiative as a part of Executive Order 14008, which has a goal of delivering 40 percent of the benefits of federal investments in climate and clean energy to disadvantaged communities. ODOT has reviewed available US DOT and US DOE definitions of disadvantaged communities and understands that the relevant agency definitions, methods, and tools for identifying these communities, as well as for determining the calculation of benefits, are continuing to evolve with future expected guidance.

Also of note, with Ohio’s manufacturing history, the Governor’s Office of Workforce Transformation (OWT) has been focused on future-proofing Ohio’s economy in this ever-changing global economy. The OWT’s focus on micro-credentialing and incumbent workforce upskilling, positions Ohio well to utilize this program to facility the NEVI workforce equity goals – as discussed later in this section as well as in **Chapter 11**’s discussion on workforce.

Given this, ODOT submits the following preliminary analysis, considerations, and approach for meeting the NEVI Formula Funding goals and Ohio transportation electrification equity needs.

### 10.1 Identification and Outreach to Disadvantaged Communities in the State

ODOT runs a robust Public Involvement (PI) process across numerous projects on a routine basis. ODOT’s PI process is designed to go beyond simply meeting legal requirements. ODOT staff take seriously the job of involving the public in decisions that affect one of our most important assets: Ohio’s transportation system. ODOT’s standard PI process is a collaborative effort between stakeholders, the public, coordinating agencies, transportation officials, and other interested parties.

As described in **Chapter 3** above, ODOT seeks the inclusion of diverse viewpoints to ensure the needs and preferences of relevant communities are considered. Engaging key stakeholders and community members is important to ODOT as it enables transportation officials to make informed decisions based on multiple viewpoints. NEVI, like all transportation projects, requires early and continual PI opportunities during project planning and development in accordance with existing laws and regulations. ODOT’s main goals with Public Involvement include:

- Understanding and meeting essential local community transportation goals
- Designing projects to enhance community cohesion
- Establishing community-based partnerships
- Avoiding disproportionately high and adverse impacts
- Minimizing impacts through early identification

ODOT recognizes that Ohio is home to a diverse population of urban, suburban, and rural communities comprising a wide variety of socio-economic, ethnic, and other demographic categories as briefly summarized in **Table 28**.

**Table 28: Demographic Indicators in Ohio**

Key Indicator	Value
Population	11,780,017
Percent of Overall Population in Poverty	12.6%

Key Indicator	Value
Percent of Black / African American Population	13.1%
Persons 65+	17.5%
Owner-Occupied Housing Rate	66.3%
Mean Travel Time to Work	23.7 min.

Source: <https://www.census.gov/quickfacts/fact/table/OH>

ODOT has begun a comprehensive public engagement process, which seeks to identify and engage both community-based organizations and community residents in rural, underserved, and disadvantaged areas. **Table 29** summarizes the equity focused outreach performed to date and previously presented in Chapter 3 within **Table 6** and **Table 7**. ODOT sees this as the beginning of the process and will seek to continue to engage additional equity stakeholders throughout the five-year NEVI Formula program.

**Table 29: Equity Public Engagement Activities to Date**

Type	Relevance for NEVI Planning	Meeting Topics and Discussion Questions	Meetings/Dates
<b>Transportation Agencies</b>	Connect public transit systems to overall state electrification plan to ensure equity and access for citizens who rely on public transit	How can ODOT align NEVI Plan with transit Electrification plans? Park & rides? And mobility priorities? Do transits want to participate in equity-based planning and engagement?	Late May thru End of July
<b>Power a Clean Future Ohio / Ohio Climate and Clean Energy Coalition</b>	Coalition of Ohio Environmental Orgs (Sierra Club, NRDC, OEC, etc.) and Local Govts. that have carbon reduction plans	Environmental Organizations are on the FHWA list of recommended public engagement audiences, and this would be an opportunity to address the main groups at once.	June 29, 2022
Urban Community Resident <b>Listening Sessions</b>	1. Cleveland 2. Columbus 3. Cincinnati 4. Dayton	Clean Fuels Ohio has agreements with these communities, local community-based orgs, and local disadvantaged community residents to host a series of Transportation Electrification Equity listening sessions and can utilize July sessions for NEVI	<b><u>Throughout July 2022</u></b> Upcoming Meetings being scheduled available for NEVI Presentations
Rural Community Resident <b>Listening Sessions</b>	1. Rural NE Ohio 2. Appalachia	Ensure locations, power availability, and quantity are designed to meet rural specific needs. How can sites be “right sized” for charging based on utility power availability? EV adoption? EVSE Demand? Etc.?	<b><u>Throughout July 2022</u></b>

Source: DriveOhio

In addition to these preliminary engagements, ODOT has reviewed the following tools provided by the US DOE, US DOT, and Joint Office to understand the capabilities and focus of each. This review was helpful in informing additional analysis summarized in the next section.

**Table 30: US Agency Equity Tools Reviewed**

Tool Name	Description
<a href="#">DAC Mapping Tool</a>	Tool from USDOT providing interactive maps of disadvantaged communities
<a href="#">Screening Tool for Equity Analysis of Projects (STEAP)</a>	Mapping tool from the Federal Highway Administration that supports environmental justice screening
<a href="#">Low-Income Energy Affordability Data Tool</a>	Tool from the U.S. Department of Energy that provides estimates of low-income and moderate-income household energy data

Tool Name	Description
<a href="#">Transportation Equity Analysis</a>	Tools and resources from Argonne National Laboratory that support transportation energy equity analysis
<a href="#">Climate and Economic Justice Screening Tool (CEJST)</a>	US DOT tool to help Federal agencies identify disadvantaged communities (DACs) that are marginalized, underserved, and overburdened by pollution as part of the Justice40 Initiative.
<a href="#">Rural EV Toolkit</a>	Resources from the U.S. Department of Transportation to assist rural stakeholders with planning for electric vehicle charging infrastructure

Source: <https://driveelectric.gov/resources/>

## 10.2 Process to Identify, Quantify, and Measure Benefits to DACs

ODOT reviewed the equity tools provided by the US DOE, US DOT, and Joint Office to further identify designated disadvantaged communities as well as reviewed the tool methodologies and additional resources on how to assess the calculation of benefits derived to communities through Ohio's deployment of NEVI funded EVSE in the state. According to USDOT's [DAC Mapping Tool](#), approximately 3.5% of Ohio's land area is located within a DAC. According to the [Argonne tool](#), 12.9% of Ohio's land area is located within a DAC.

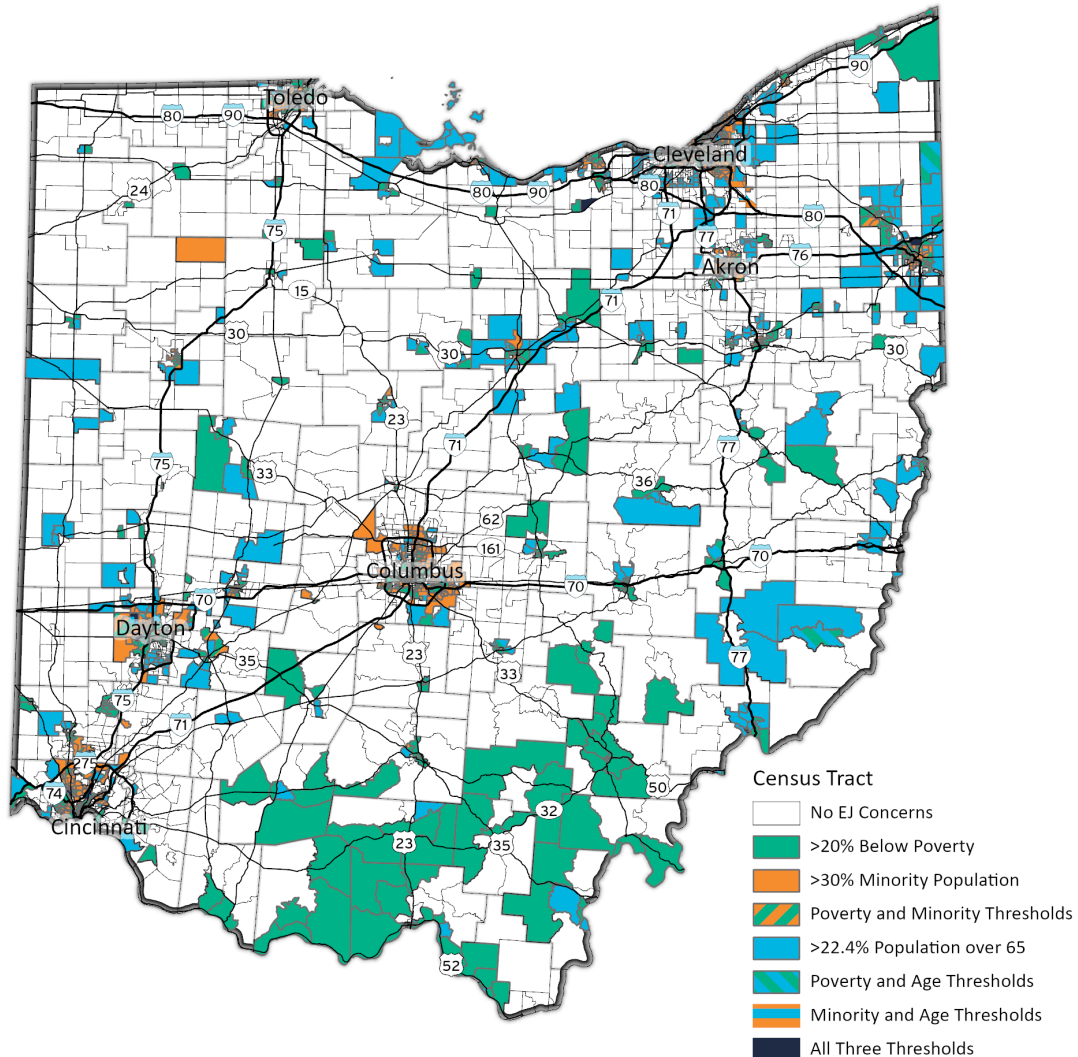


Figure 19: Equity Census Tracts in Ohio



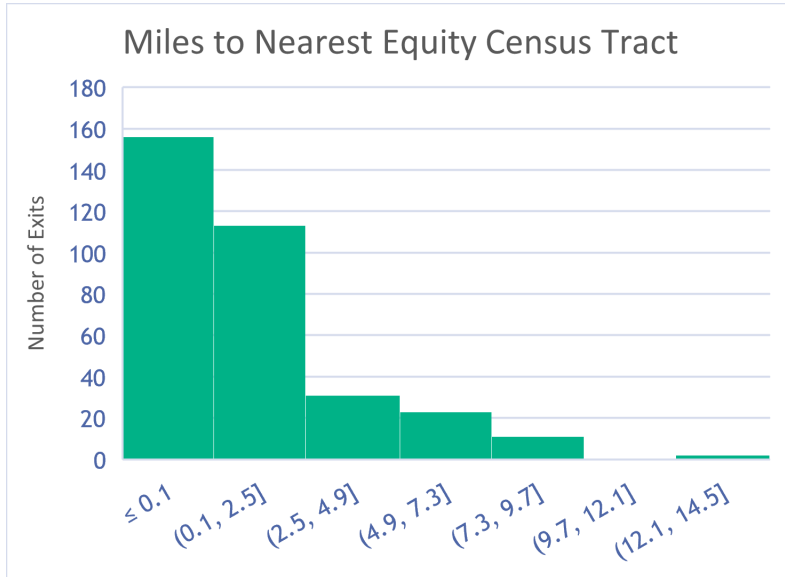


Figure 20: Distance to Equity Census Tract

ODOT mapped several individual equity indicators to get a better understanding of their location and potential impact on the NEVI program. **Figure 19** visualizes the parts of Ohio with high poverty, high minority populations, and census tracts with a population at least one standard deviation above Ohio’s average, which is slightly above the national average. Together these represent 21.5% of Ohio.

Anecdotally in Ohio, there are many people wanting to visit family members or friends in rural locations with their EV and being

worried about having somewhere to charge during the trip.

**Percent of AFC Miles in rural, Appalachian, and non-attainment Counties:**

Ohio is also examining rural, Appalachian, and non-attainment designated counties, see **Figure 21**, to ensure that the benefits of these chargers reach vulnerable populations. Appalachian counties specifically, lag behind the nation in terms of poverty and educational levels.<sup>10</sup> Where the Appalachian Regional Commission designates counties within their area; these designations will be used. Considering this data, 45% of Ohio’s AFC miles run through Rural and Appalachian Counties in Ohio.

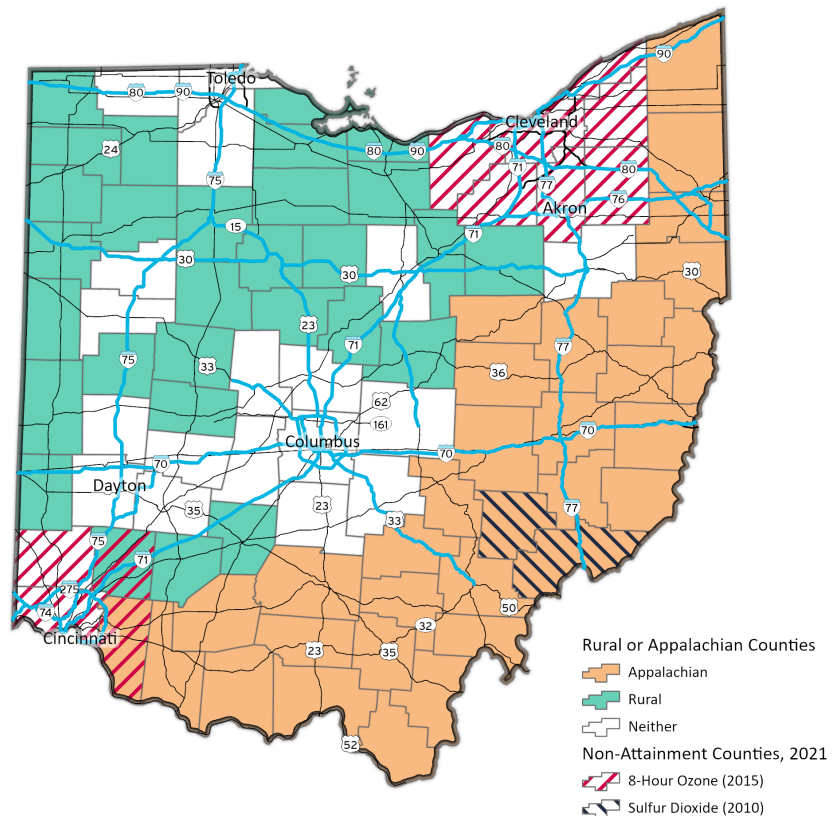


Figure 21: Rural, Appalachian, and Non-Attainment Counties

<sup>10</sup> <https://www.arc.gov/about-the-appalachian-region/>

### 10.3 Benefits to DACs through this Plan

ODOT understands that there are multiple methodologies to calculate and measure benefits to DACs in regard to the NEVI Formula program funding. Considering this, ODOT has performed the following initial assessments of benefits:

- Assessment of percent of AFC miles running through USDOT’s [DAC Mapping Tool](#) identified DACs in Ohio.
- Assessment of percent of AFC miles running through Rural and Appalachian Counties in Ohio.
  - 14% of tracts have more than 20% below the poverty line.
  - 11% of tracts have more than 30% minority population.
  - 24% of AFC miles run through air quality non-attainment counties within Ohio.
- Annual and Final percent of NEVI funded EVSE in federally designated DACs.
- Annual and Final percent of laborers employed by NEVI funded EVSE projects.

**Percent of AFC Miles in DACs:** While Ohio has 15 AFCs designated, spanning all areas of distance travel for the state, many of Ohio’s DACs lie in communities not immediately adjacent to Ohio’s portions of the federal Interstate Highway System and FHWA designated AFCs. In fact, the percent of total AFC miles running through USDOT Justice40 Map designated DACs is only ~7% of total miles as shown in **Table 31**.

**Table 31: Ohio AFC Miles within a DAC**

Route	Not in DAC		In DAC		Total Miles
	Miles	%	Miles	%	
I-270	48.55	87.85%	6.72	12.15%	55.26
I-275	44.37	79.82%	11.21	20.18%	55.58
I-675	25.31	100.00%	0.00	0.00%	25.31
I-680	9.06	54.78%	7.47	45.22%	16.53
I-70	217.92	96.59%	7.69	3.41%	225.61
I-71	228.89	93.44%	16.14	6.56%	246.02
I-75	192.4	89.84%	21.76	10.16%	214.16
I-76	73.04	89.86%	8.24	10.14%	81.27
I-77	141.04	88.25%	18.79	11.75%	159.82
I-80	234.24	98.80%	2.84	1.20%	237.08
I-90	89.18	88.23%	11.89	11.77%	101.07
SR-13	38.12	80.32%	9.34	19.68%	47.47
US-23	85.53	99.80%	0.17	0.20%	83.69
US-30	185.05	99.02%	1.83	0.98%	186.88
US-33	229.70	95.72%	10.27	4.28%	239.97

## Chapter 10: Equity Considerations

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Route	Not in DAC		In DAC		Total Miles
	Miles	%	Miles	%	
<b>Total</b>	<b>1841.37</b>	<b>93.20%</b>	<b>134.37</b>	<b>6.80%</b>	<b>1975.75</b>

Source: DriveOhio

ODOT will seek to provide two additional assessments of DAC benefits on an annual and overall basis once final NEVI funds are awarded and sites are known.

**Percent of NEVI EVSE in DACs:** The first of these additional equity benefits assessments will be an annual and final calculation of the percent of NEVI funded EVSE sited in federally designated AFCs.

**NEVI EVSE participation from rural, underserved, and disadvantaged residents:** In addition, ODOT will seek to collaborate with partners in the Governor’s Office of Workforce Transformation, JobsOhio, and Department of Administrative Services to develop basic reporting criteria for NEVI funded EVSE projects in Ohio to detail equity-based participation. As each NEVI funded EVSE site will need to be installed and maintained by Ohio workers, ODOT will seek to utilize reporting requirements for NEVI funded partners to capture key information on the companies and employees who are ultimately funded to install and maintain NEVI EVSE and assess the percent of job-related benefits these residents derive from NEVI Formula funds. EV and EVSE workforce development programs focused on job training and certification are also key priorities for the state of Ohio and are discussed further in **Chapter 11**.

## Chapter 11 Labor and Workforce Considerations

### 11.1 Vehicle Electrification | Opportunities and Challenges

EVs are forecasted to be a significant area of growth in the future of the private and commercial motor vehicle markets, and the Bipartisan Infrastructure Law’s \$5 billion in NEVI state Formula funds and additional \$2.5B in competitive grants will only further boost the transportation sector’s electrification transition. As a manufacturing state, Ohio has a competitive advantage to capitalize on these market trends, attract OEM investments, and create new job opportunities in the design, assembly, operations, and maintenance of EVs and EVSE.

While there are a wide variety of career pathways that will be directly and indirectly impacted by vehicle electrification, the following three job categories are especially critical within Ohio’s workforce for the EV and EVSE talent ecosystem, as shown in **Table 32**.

**Table 32: Workforce Considerations by Job Category**

EV & EVSE Workforce	Description of Workforce Category and Key Considerations
<b>EV Supply Equipment (EVSE) Installation &amp; Upgrades</b>	The continued adoption of EVs, and specifically the NEVI formula program, will rely on the installation of accessible EVSE charging infrastructure. As new buildings and parking facilities are constructed, there is an opportunity to install EVSE or EVSE- ready electrical wiring. Installing EVSE provides an economic and workforce development opportunity for electricians and electrical workers. Because Ohio is home to the fifth most electricians in the United States, there is an even greater workforce development incentive here for the state. Through EVSE installation and maintenance, the electric trades will become newly integrated with the automotive sector, generating increased employment opportunities to support this transition, and requiring training new and upskilling existing workers. <b>As of 2021, Ohio is home to 23,890 electricians recognized by the Bureau of Labor Statistics.</b>
<b>EV Maintenance &amp; Repair</b>	Vehicle mechanics and service technicians will need knowledge of EV upkeep, maintenance, service components, and parts to support the transition to vehicle electrification. According to the most recent data from the Bureau of Labor statistics, there are currently at least 27,470 automotive service technician and mechanic jobs in the United States, which underscores the tremendous opportunity for workforce development in this area. Therefore, as EVs flood the commercial and consumer markets over the next decade and onward, automotive technicians will need training and continuing education in EV maintenance. Continuing education and technician training already occur in Ohio; there are post-secondary vocational programs, community colleges, online instructional resources, and automotive-specific institutes or programs that can supplement their current training and continuing education curricula with EV content. By doing this, Ohio’s automotive technicians and mechanics will be prepared for the next generation of EVs.
<b>EV Supply Chain &amp; Manufacturing</b>	Over the next decade, 29 major global automakers are investing at least \$300 billion into EVs. Ohio, a long-time leader in automotive manufacturing, is well-positioned to reap the benefits from EV technology and manufacturing. With existing automotive manufacturing and end-to-end supply-chain infrastructure in the state and Midwest region, Ohio has a competitive advantage and can spearhead the EV transition. The economic impact of EV manufacturing in Ohio alone is projected to create 2,000 jobs, putting \$135 million more dollars (in annual wages) into the Ohio economy. <sup>11</sup>

While there is overwhelming evidence that electrification is the future of the transportation sector, Ohio must be strategic in how it achieves both transportation electrification and related workforce development outcomes. With economic and workforce development as a priority, Ohio EV job

<sup>11</sup> Hopkins, A., Vitolo, T., Wilson, R., Frost, J. (n.d.). A path forward for energy & transportation transformation. Synapes Energy Economics, Inc. <http://www.poweringohio.org/files/2018/11/Powering-Ohio-A-Path-Forward-FINAL.pdf>.

creation and training are at the forefront of this advancement. Additionally, it is important to highlight that EVs represent a technological transition in the automotive industry. For this reason, there are numerous opportunities for economic and workforce development that build upon existing Ohio manufacturing infrastructure, technician maintenance, and methods of training. Ultimately, this means initial progress for transportation electrification is well-underway in Ohio and elsewhere, underscoring the urgency in taking expedient action to capitalize on this automotive transition and its labor and workforce opportunities.

### 11.2 NEVI Formula Program | Certified Electricians

EV infrastructure projects primarily require work by electrical contractors and their employees who are electricians. Ohio requires licensing for electrical contractors who work on commercial projects, but does not require a licensed journeyman electrician to perform electrical work.<sup>12</sup> However, FHWA's June 9, 2022 Notice of Proposed Rulemaking for NEVI minimum standards requires that "with the exception of apprentices, all electricians installing, maintaining, and operating EVSE be certified" through EVITP or if in a state that does not license or certify electricians must provide documentation of a minimum of 8,000 hours of hands-on electrical construction experience.<sup>13</sup>

Ohio is looking to leverage the Electrical Industry Training Centers and International Brotherhood of Electrical Workers to prioritize training in EVSE installation to support ODOT's NEVI Plan. Ohio is working to bring additional EVSE certifications, and reimbursements for those certifications, to electricians through the NEVI recommended EVITP curriculum available nationally, leveraging the Ohio TechCred program available to employers of electrical contractors in Ohio, as described below.

### 11.3 EVITP Certifications | Additional EVSE Specific Training for Certified Electricians

The Electric Vehicle Infrastructure Training Program (EVITP) is a non-profit, national collaborative of Automakers, Utility Companies, EVSE (Charging) Manufacturers, Safety Professionals, Electrical Professionals, and Educators that delivers a comprehensive EV Training and Certification program for experienced electricians. EVITP has been recognized by the Department of Energy, referenced in the Biden Infrastructure Bill, the NEVI Guide to States, and other industry references as a highly regarded EV training program for electricians.

The ability to verify experience and expertise through a nationally recognized EV training and certification program (EVITP)—which requires 8,000 hours of electrical field experience as a minimum requirement for program participation— ensures that consumers in all market segments are working with established, certified electricians. Electricians also gain important EV charging infrastructure and electrical technology skills through the EVITP, which has been deploying training throughout the U.S. and Canada since 2011 with over 6,000+ electricians certified.

An increase in the number of EVITP certified qualified electricians in Ohio and onboarding of new industry talent into Department of Labor recognized apprenticeships, will ensure that Ohio can meet demand today and keep pace with the rapidly growing EV market. EVSE installation and

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<sup>12</sup> <https://www.servicetitan.com/licensing/electrician/ohio>

<sup>13</sup> [https://www.fhwa.dot.gov/environment/alternative\\_fuel\\_corridors/resources/nprm\\_evcharging\\_unofficial.pdf](https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/resources/nprm_evcharging_unofficial.pdf)

maintenance is electrical work. The growth of the EV market will create more career opportunities for electricians in Ohio, as shown in **Table 33**.

**Table 33: Electrician Career Opportunities**

EVITP Ohio Specific Success and Scalability	
<b>EVITP Certified Contractors</b>	In Ohio, over 300 qualified electricians have advanced EVITP certified skills, with hundreds more graduating annually from U.S. Department of Labor recognized apprenticeship programs. Additionally, the EVITP Contractor network in Ohio includes fifty-nine different affiliated contractors who already utilize EVITP trained and certified electricians to perform EV work in all market sectors. Visit <a href="http://www.evitp.org">www.evitp.org</a> to review the complete list of Ohio affiliated contractors.
<b>Focus on Diversity &amp; Inclusion</b>	In 2021, EVITP was asked to partner on the Bloomberg Philanthropy American Cities Climate Challenge in 26 select U.S. markets, including Columbus and Cincinnati, to award Scholarships for EVITP training to qualified electricians, with a focus on 50% of the electricians included in the program represent Women, Black, Indigenous People or People of Color. EVITP strongly supports that the future EV workforce of qualified electricians be accessible and inclusive.
<b>Online, In-Person, &amp; Hybrid Models</b>	EVITP now provides the full 18-hour course material for qualified electricians (8,000+ hours of experience) online through a Computer Mediated Learning LMS platform. Upon successful course completion, qualified electricians take a 2-hour proctored exam at a training partner physical location with a fully online proctored option launching soon. Exams must be passed at 75% for certification.

Source: EVITP

Based on EV infrastructure needs today, Ohio is in a strong position in terms of electrical contractor engagement and electrician readiness. Given the significant growth expected in the EV market in the next few years, significant expansion of EVITP training is warranted for qualified electricians. The good news for Ohio is that the EVITP program is active, scalable, and easy to access for qualified electricians.

## 11.4 Ohio TechCred Program | Reimbursed Training for Credential Programs

Multiple Ohio agencies are collaborating to ensure Ohio’s electricians are eligible to receive national best practice training as described in the EVITP section above. Agency staff from ODOT, the Governor’s Office of Workforce Transformation, and the Department of Development, are coordinating on providing additional financial reimbursement support for EVITP through the state’s existing TechCred program.

The TechCred program helps Ohioans learn new skills and helps employers build a stronger workforce with the skills needed in a technology-infused economy. These technology-focused, credentials take a year or less to complete and prepare current and future employees for the technology jobs Ohio employers need. Ohio’s TechCred Program allows employers who submit successful applications to be reimbursed up to \$2,000 per credential when current or prospective employees complete eligible technology-focused credentials, up to \$180,000 per year. Adding EVITP to the TechCred program is now part of Ohio’s EV workforce strategy.

## 11.5 Governor’s Office of Workforce Transformation | Statewide Workforce Coordination

Ohio is uniquely well resourced in workforce development, with a robust set of successful projects and initiatives helping build and grow a competitive and well-trained workforce for Ohio’s economy. Heading up Ohio’s diverse workforce development programs and resources is the Ohio Governor’s

Office of Workforce Transformation (OWT), directed by Lieutenant Governor Jon Husted, with a mission to connect Ohio's business, training, and education communities to build a dynamically skilled, productive, and purposeful workforce. The Office of Workforce Transformation directly coordinates a series of initiatives to fulfill its mission as described in **Table 34**.

**Table 34: Office of Workforce Transformation Initiatives**

Initiative	Description
<b>Individual Microcredential Assistance Program</b>	The Individual Microcredential Assistance Program (IMAP) helps Ohioans who are low income, partially unemployed, or totally unemployed participate in a training program to receive a credential at no cost.
<b>Strengthening Ohio's Broadband &amp; 5G Workforce</b>	The Governor's Office of Workforce Transformation and BroadbandOhio published a strategic plan that outlines a detailed framework and roadmap to establish a skilled workforce that will implement broadband and 5G.
<b>Industry Sector Partnership Grants</b>	Ohio's Industry Sector Partnership grant program helps fund collaborative efforts between local business, education, training providers, and community stakeholders.
<b>State Approved, Industry Recognized Credentials</b>	Members of the business community can inquire with the Governor's Office of Workforce Transformation about industry-recognized credentials that are approved by the Ohio Department of Education and the Ohio Department of Higher Education.
<b>High School Tech Internship Pilot Program</b>	The High School Tech Internship Pilot Program is an opportunity for Ohio employers to hire high school interns and receive reimbursement for their wages.
<b>TechCred</b>	The TechCred Program will help Ohioans learn new skills and help employers build a stronger workforce with the skills needed in a technology-infused economy.
<b>OhioMeansJobs.com</b>	OhioMeansJobs.com is Ohio's free, online career counseling center that connects businesses to job seekers and provides career services to all Ohioans.
<b>TopJobs</b>	Ohio's Top Jobs List is a customizable, online tool to help guide Ohioans on career pathways that meet their individual needs and goals and allow them to take advantage of employment opportunities available in our state.
<b>Ohio to Work</b>	Career service professionals at Ohio To Work will provide you with free guidance and resources to get you on the path to finding a stable career.
<b>Choose Ohio First</b>	The Choose Ohio First Scholarship is designed to strengthen Ohio's competitiveness within STEM disciplines and STEM education.

Note: More information and resources can be found at: <https://workforce.ohio.gov/initiatives>  
 Source: Ohio Office of Workforce Transformation

In addition, in collaboration with Office of Workforce Transformation (OWT), DriveOhio manages a portfolio of smart mobility workforce development programs, from Pre-K to PhD. As reinforced in Ohio Executive Order 2019-26D, DriveOhio will “coordinate with the Governor’s Office of Workforce Transformation and the Departments of Higher Education, Job and Family Services, and the Department of Development to prepare Ohio’s workforce for the transition of transportation-related jobs that will be needed in the future.” DriveOhio’s workforce development program is strongly committed to diversity and inclusion, reflected through inclusive STEM career outreach programs and community partnerships.

### 11.6 Ohio’s EV Workforce | Strategy and Action Plan

To best position Ohio’s economy and workforce for success and to manage potential risks during the EV transition, the following EV workforce strategy will be implemented (see **Table 35**), under the leadership of the Governor’s Office of Workforce Transformation, with support from a wide variety of state agencies, employers, educators, and workforce development stakeholders across Ohio.

**Table 35: Planned EV Workforce Activities**

EV & EVSE Workforce	Description of Workforce Category and Key Considerations
Conduct an <b>EV Industry and Workforce Needs Assessment</b> , gathering input from key stakeholders including employers, workers, educators, communities, and policymakers.	<p><b>Objectives</b> will include identification and refinement of economic development strategies, manufacturing asset needs, EV workforce skills, and education resource needs.</p> <p><b>Activities</b> will include listening sessions, regional workshops, and action reports.</p> <p><b>Funding</b> sources will include Industry-Sector Partnership grants, local and regional planning resources, and private investment.</p>
Oversee <b>EV Training and Curriculum Development</b> , in response to the findings and recommendations from the Industry and Workforce Needs Assessment	<p><b>Objectives</b> will include development of new and updated curriculum that will address EV workforce skill requirements and education resources identified.</p> <p><b>Activities</b> will include EV curriculum, training course development, and programs.</p> <p><b>Funding</b> sources will include Industry-Sector Partnership grants, Ohio Higher Ed RAPIDS grants, Ohio TechCred (for pilot programs), and private investment.</p>
Manage <b>EV Workforce Program Delivery &amp; Promotion</b> , implementing new and updated training, curriculum, and increasing awareness with Ohio stakeholders	<p><b>Objectives</b> will include up-skilling of incumbent workers and training for emerging workers to develop the new EV skills previously identified.</p> <p><b>Activities</b> will include training, course delivery, and statewide outreach.</p> <p><b>Funding</b> sources will include Ohio TechCred, Ohio Higher Ed RAPIDS grants (if applicable), and private investment.</p>

Source: DriveOhio, Ohio Governor’s Office of Workforce Transformation

As a next step, the Governor’s Office of Workforce Transformation, in collaboration with state agencies and key stakeholders, has initiated an EV Industry and Workforce Needs Assessment during 2022.



# Chapter 12 Cybersecurity

Cybersecurity and personal privacy are fundamental to the State of Ohio and ODOT in order to protect the data collected, managed, and stored through Ohio's contracts. Cybersecurity and personal privacy risk will be a major consideration in how the NEVI program is implemented as this program will involve cybersecurity risks for the EV chargers and the people using them. The State of Ohio's Department of Administrative Services (DAS) and the DAS Office of Information Security and Privacy have longstanding cybersecurity policies and requirements for all state agencies to follow throughout procurement. These policies and requirements are rooted in guidance from the National Institute of Standards and Technology (NIST) and the unique needs of Ohio. DAS will act as a partner and resource to ODOT as final decisions are made on contracting methodologies to ensure the proper cybersecurity considerations are developed into the RFP and into the eventual contract to ensure the ongoing ability to address cybersecurity through the length of the contract.

Given the earlier contractual discussion in **Chapter 5**, cybersecurity responsibility will lie in the hands of the third-party contractors including owning, operating and maintaining the EV chargers and the data they produce. Therefore, prior to contract execution, Supplement S: State Information Security, Privacy and Data Handling Requirements<sup>14</sup> will be attached to each procurement as a requirement for completion by the interested party. This document allows ODOT to understand what data is being collected and how it will be secured, protected and handled throughout the contractual relationship. The document is currently being updated to include the NIST 800-53 Rev. 5<sup>15</sup> updates and overall NIST Framework 1.1. As well, a Privacy Impact Assessment<sup>16</sup> (PIA) may be required depending on the final contractual language per Section 125.18 and Section 1347.15 of the Ohio Revised Code. A PIA focuses in on the privacy impact to the individuals who will use the system, in this case, those who will use the EV chargers. If a PIA is required, the private party will work collaboratively with the ODOT Data Governance and Security team for guidance and completion. Contractual language will also include specific data sharing categories [data will not include personally identifiable information (PII)], a plan for cybersecurity updates throughout the program, notification requirements for security or privacy breaches and a commitment to work together if cybersecurity policies or requirements change in Ohio.

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<sup>14</sup> <https://procure.ohio.gov/static/pdf/23438617202113223PeopleSoft%20Supplement%202.pdf>

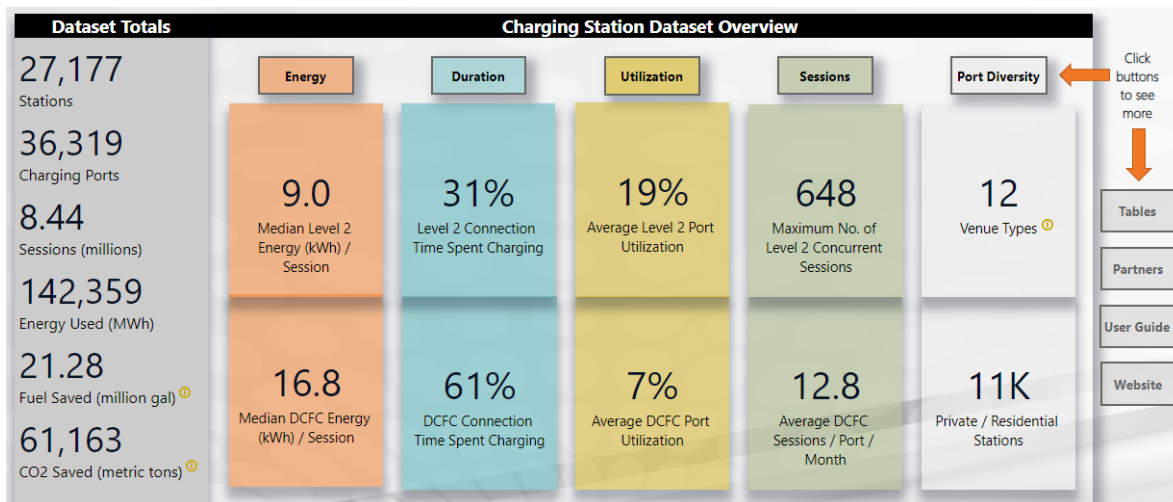
<sup>15</sup> <https://csrc.nist.gov/publications/detail/sp/800-53/rev-5/final>

<sup>16</sup> [https://das.ohio.gov/static/technology-strategy/information-security-privacy/Privacy/Ohio\\_PIA\\_2013.pdf](https://das.ohio.gov/static/technology-strategy/information-security-privacy/Privacy/Ohio_PIA_2013.pdf)

## Chapter 13 Program Evaluation

ODOT intends to require NEVI funded EVSE owners to operate networked EVSE on Open Charge Point Protocol Networks and provide charging station usage reports. The reporting information submitted will identify aggregate utilization data for the previous reporting period, and for each NEVI compliant EVSE funded by ODOT.

ODOT will seek to utilize EVSE report information, detailed in **Section 8.3**, to perform program evaluation. This may include the development of an annual report on the NEVI program progress or the development of an online dashboard, such as developed by Energetics' US DOE funded "EV-WATTS" project as shown in **Figure 22**.



**Figure 22: Energetics "EV-WATTS" Example EVSE Reporting Dashboard**

Source: USDOE

# Chapter 14 Discretionary Exceptions

At this time, ODOT has not identified any requested exceptions from the requirement that charging infrastructure is installed every 50 miles along that State's portion of the Interstate Highway System within 1 travel mile of the Interstate. As ODOT intends to work with third party EVSE applicants for NEVI funding and ultimate award of funds to third party EVSE owner-operators, ODOT will monitor all future Ohio NEVI locations for requested discretionary exemptions and seek to gather all relevant information from prospective site hosts about the need for any such exemptions. In the case a need for a discretionary exemption request arises, ODOT will work to provide all necessary information to the Joint Office for approvals.

## Chapter 15 Next Steps

This initial *Ohio Electric Vehicle Infrastructure Deployment Plan* complies with FHWA's February 10, 2022, NEVI guidance. It defines the initial phases of deployment and will leverage previous EV strategy documents more for future phases (i.e., non-AFC DCFC charger priorities, freight charging).

The plan incorporates stakeholder perspective at all levels to support the Plan's defined goals and outcomes and will continue to do so as each phase is planned and implemented. ODOT will also continue to access how best to support equity communities through the program.

With motor vehicles being one of Ohio's largest export commodities and as the top producer of engines and 2<sup>nd</sup> largest producer of transmissions in North America, the workforce development aspects of this transition are also critical to Ohio.

ODOT's Alternative Fuel Vehicle dashboard summarizes vehicle registration data each month to help stakeholders plan for the coming clean energy transportation transition. ODOT will supplement this dashboard to continue their data driven approach when it comes to charging infrastructure.

ODOT is committed to following and annually updating this Plan as it leverages necessary resources to support NEVI deployment.