MICHIGAN STATE PLAN for

Electric Vehicle Infrastructure Deployment 2023 Update

MDOT Michigan Department of Transportation

VERSION 1.0 **AUGUST 2023**

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Table 1: Acronyms/Abbreviations

Acronyms/Abbreviations	Definitions
AADT	Annual Average Daily Traffic
ACEC	American Council of Engineering Companies
ACS	American Community Survey
ADA	Americans with Disabilities Act of 1990
AFC	Alternative Fuel Corridor
AFDC	Alternative Fuels Data Center
BEV	Battery Electric Vehicle
BIL (also known as IIJA)	Bipartisan Infrastructure Law
CCS	Combined Charging System
CEJST	Climate and Economic Justice Screening Tool
CFME	Council on Future Mobility & Electrification
CFR	Code of Federal Regulations
DAC	Disadvantaged Community
DBOM	Design-Build-Operate-Maintain contract
DCFC	Direct Current Fast Charger
DDA	Downtown Development Authority
DIFS	Michigan Department of Insurance and Financial Services
DNR	Michigan Department of Natural Resources
DOE	U.S. Department of Energy
DOJ	U.S. Department of Justice
DOL	U.S. Department of Labor
EC	Electrification Coalition
EGLE	Michigan Department of Environment, Great Lakes, and Energy
EIBC	Energy Innovation Business Council
EV	Electric vehicle
EVITP	Electric Vehicle Infrastructure Training Program
EVSE	Electric Vehicle Supply Equipment
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FY	Fiscal year
GHG	Greenhouse gas
HHS	U.S. Department of Health & Human Services
IBEW	International Brotherhood of Electrical Workers
IEEE	Institute of Electrical and Electronics Engineers
IIJA (also known as BIL)	Infrastructure Investment and Jobs Act
ISO	International Organization for Standardization
kW	Kilowatt
kWh	Kilowatt hour
LARA	Michigan Department of Licensing and Regulatory Affairs

Acronyms/Abbreviations	Definitions
LDV	Light-duty vehicle
LEO	Michigan Department of Labor and Economic Opportunity
MAASTO	Mid America Association of State Transportation Officials
MAC-EJ	Michigan Advisory Council on Environmental Justice
MBE	Minority Business Enterprise
MDARD	Michigan Department of Agriculture and Rural Development
MDCR	Michigan Department of Civil Rights
MDHHS	Michigan Department of Health and Human Services
MDOT	Michigan Department of Transportation
MEC	Michigan Environmental Council
MEDC	Michigan Economic Development Corporation
MI	Michigan
MIO	Michigan Infrastructure Office
MM2045	Michigan Mobility 2045
MML	Michigan Municipal League
MOU	Memorandum of Understanding
MPA / MACS	Michigan Petroleum Association / Michigan Association of Convenience Stores
MPO	Metropolitan Planning Organization
MPSC	Michigan Public Service Commission
MPTA	Michigan Public Transit Association
MSU	Michigan State University
MTPA	Michigan Transportation Planning Association
MWh	Megawatt hour
NAAQS	National Ambient Air Quality Standards
NACSE	Northwest Alliance for Computational Science & Engineering
NEC	National Electrical Code
NEPA	National Environmental Policy Act
NEVI	National Electric Vehicle Infrastructure
NFPA	National Fire Protection Association
NHS	National Highway System
NOx	Nitrogen oxides
O&M	Operations and maintenance
OASAM	Office of the Assistant Secretary for Administration & Management
OCPI	Open Charge Point Interface
OCPP	Open Charge Point Protocol
O-D	Origin-destination
OEM	Original Equipment Manufacturer
OFME	Office of Future Mobility and Electrification
OMB	Office of Management and Budget
P3	Public-private partnership

Acronyms/Abbreviations	Definitions
PHEV	Plug-In Hybrid Electric Vehicle
PM	Particulate Matter
REV	Regional Electric Vehicle
RFP	Request for Proposals
ROW	Right-of-way
SBA	U.S. Small Business Administration
SBP	Small Business Program
SDB	Small Disadvantaged Business
SEMCA	Southeast Michigan Community Alliance
SEMCOG	Southeast Michigan Council of Governments
SOAR	Strategic Outreach and Attraction Reserve
SOM	State of Michigan
SOQ	Statement of Qualifications
STIP	State Transportation Improvement Program
UAW	International Union, United Automobile, Aerospace and Agricultural Implement Workers of America
UP	Upper Peninsula
UPPCO	Upper Peninsula Power Company
U.S.	United States
U.S.C.	United States Code
USDOT	U.S. Department of Transportation
USGS	U.S. Geological Survey
V2G	Vehicle-to-grid
VSS	Vendor Self-Service
VW	Volkswagen
WBE	Women's Business Enterprise
WIN	Workforce Intelligence Network

Chapter 1 Introduction

The Bipartisan Infrastructure Law (BIL), enacted as the Infrastructure Investment and Jobs Act (IIJA), was signed into law on November 15, 2021. As part of the BIL, five billion dollars are allocated for the National Electric Vehicle Infrastructure (NEVI) Formula Program, which is focused on establishing a network of fast chargers across the country to accelerate the adoption of electric vehicles (EVs), reduce transportation-related greenhouse gas (GHG) emissions, and position United States (U.S.)-based industries for global leadership in the vehicle electrification ecosystem. The NEVI Formula Program is being administered by the Joint Office of Energy and Transportation and will allocate $110 million to the State of Michigan (MI) between fiscal years (FYs) 2022 and 2026 to install four 150 kilowatt (kW)-or-greater chargers at intervals of no more than 50 miles along each of the state's designated Alternative Fuel Corridors (AFCs). Once the AFCs are fully built out and certified by the U.S. Department of Transportation (USDOT) Secretary, the remaining funds become discretionary and can be used on any public road or in other publicly accessible areas.[1]

The *Michigan State Plan for Electric Vehicle Infrastructure Deployment* has been developed through collaboration with several State agencies and alignment with other State plans. It sets the direction for a successful deployment of NEVI Formula Program funding within Michigan. The vision for the plan, as defined in Chapter 4, is to:

> **Develop a safe, equitable, reliable, convenient, and interconnected transportation electrification network that enables the efficient movement of people, improves quality of life, spurs economic growth, protects Michigan's environment, and facilitates data collection.**

Outside of the NEVI Formula Program, Michigan's public and private entities have established various EV charging station incentives to help advance the state's network, including:

- Michigan Department of Environment, Great Lakes, and Energy's (EGLE's) Charge Up Michigan,
- DTE Energy's Charging Forward,
- Consumers Energy's PowerMIDrive,
- Indiana Michigan Power's IM Plugged In,
- Upper Peninsula Power Company's (UPPCO) pilot program, and
- Alpena Power Company's pilot program.[2, 3, 4, 5, 6, 7, 8]

The EV market share in the US had tripled since 2020 and Michigan has the 16th highest EV sales in the country.[9] To prepare for this continued rapid growth, the State is advancing partnerships to create a safer, more equitable and environmentally conscious transportation future for all Michiganders, as highlighted in Chapter 2 and Chapter 3.

1.1 Dates of State Plan for EV Infrastructure Deployment Development and Adoption

Table 2 identifies important NEVI milestones, while Table 3 provides a high-level overview of the annual deployment focus for the NEVI Formula Program. Michigan will build out all AFCs to be fully NEVI-compliant first and then look to add additional charging to those AFC corridors or instrument additional locations from there. The State will continue to monitor supply chain availability, inflation, and technology advancements to determine if adjustments to this plan are necessary.

Table 2: NEVI Milestones

Dates	Milestones
February - July 2022	• Stakeholder engagement • AFC nomination and approval • Draft *Michigan State Plan for Electric Vehicle Infrastructure Deployment* development
August 1, 2022	• *Michigan State Plan for Electric Vehicle Infrastructure Deployment* submission to the Federal Highway Administration (FHWA)
September 14, 2022	• *Michigan State Plan for Electric Vehicle Infrastructure Deployment* approval by FHWA
October 2022 - Present	• Stakeholder engagement
June 2023	• Post Round 1 RFQ
July 2023	• Announce qualified Submitters from the RFQ, now qualified to submit on the Round 1 RFP
Anticipated Dates	**Milestones**
August 2023	• *Michigan State Plan for Electric Vehicle Infrastructure Deployment 2023 Update* submission to the Federal Highway Administration (FHWA) • Round 1 RFP released
September 2023	• *Michigan State Plan for Electric Vehicle Infrastructure Deployment 2023 Update* approval by FHWA
November 2023	• Round 1 contracts awarded

2023 - 2026 *(annual activities)*	• Future rounds of applications reviewed, contracts awarded, and infrastructure deployed • Continued stakeholder engagement conducted • Workforce development programs initiated and continued • NEVI Formula Program monitored for reporting purposes • Additional AFCs nominated • *Michigan State Plan for Electric Vehicle Infrastructure Deployment* updated and resubmitted annually

Table 3: Anticipated NEVI Deployment Packages

Anticipated Dates	2022	2023	2024	2025	2026
Currently Designated AFCs					
Additional Non-AFC Corridors					
Additional Charging on AFC Corridors					

1.2 Updates from the 2022 Michigan NEVI Plan

The *Michigan State Plan for Electric Vehicle Infrastructure Deployment* 2023 Update reflects MDOT's and its partners' work and changes to the deployment strategy since the *Michigan State Plan for Electric Vehicle Infrastructure Deployment* was approved in 2022. Table 4 provides an overview of the 2023 updates made to the plan.

Table 4: Plan Updates Since 2022

Chapter	Update
General Plan Updates	The plan has been updated to reflect events that have happened since the 2022 version of the *Michigan State Plan for Electric Vehicle Infrastructure Deployment*.
Chapter 1: Introduction	Updated anticipated NEVI milestone dates. Added a section for Updates from the *Michigan State Plan for Electric Vehicle Infrastructure Deployment* approved in 2022.
Chapter 2: State Agency Coordination	Added more information about the Michigan Mobility Funding Platform and its awardees. Updated Table 6: Border State AFC Crossings in Michigan to add I-69 and change US-2 to a designated border state AFC with Wisconsin. Updated Figure 1: Michigan State Park EV Charger Deployment to reflect State Park chargers currently under development instead of the Lake Michigan EV Circuit.

Chapter	Update
Chapter 3: Stakeholder and Public Engagement	Added Table 8 to reflect stakeholder engagement events. Updated Public Outreach summary section to include other online resources and seminars. Added a Tribal Engagement section. Added a Utilities Engagement section including a summary of engagement with public utilities. Added a Site-Specific Public Engagement section.
Chapter 4: Plan Vision and Goals	Updated outcome to reflect new number of chargers and year of expected completion.
Chapter 5: Contracting	Updated to reflect the current contracting process and mechanism being used to deploy charging stations. Removed figure, table, and bulleted list that were no longer applicable to the process. Added a section on the status of the contracting process to reflect that the first step of the two-step process is complete and the RFP will be released later in 2023. Added a section on awarded contracts, which includes the number of prequalified submitters. Added a section on scoring methodologies utilized, which reflects scoring criteria of the RFQ, and will later reflect scoring of the RFP, in future updates to the plan. Added a section on the plan for compliance with federal requirements.
Chapter 6: Civil Rights	Moved this chapter from later in the document; previously chapter 9. Added Table 11: Civil Rights Actions, identifying inclusion of civil rights in all phasing of deployment.
Chapter 7: Existing and Future Conditions Analysis	Updated Figure 10: Average Monthly Traffic Demand in Michigan to reflect the year 2020. Added more information about FTA Low-No program funding in 2022. Updated to indicate that statistics on deployed zero-emission buses, school buses, battery electric buses, buses ready for procurement, and agencies requesting funding are from 2022. Added update to reflect approval of round 6 AFC nominations and no requested changes for round 7. Updated Table 12: Existing Michigan DC Fast Charging Infrastructure (at least four CCS ports at 150kW+), as of August 2023 to reflect additional chargers deployed and additional information required. Updated Industry and Market Conditions to reflect increases in EV sales and market share. Updated Figure 14: Michigan EV Sales by Automakers through April 2023 to reflect current data. Updated Table 14: EV Sales in Michigan and Surrounding States Since 2019 to bring the table up to date. Updated Table 15: Charging Ports in Michigan and Surrounding States to reflect the current number of deployed chargers.

Chapter	Update
Chapter 8: EV Charging Infrastructure Deployment	Updated to reflect the announcement of the Charging and Fueling Infrastructure Discretionary Grant Program in March 2023. Updated Figure 15: FY 2023 Michigan Infrastructure Deployments/Upgrades to reflect new designation standards and new number of chargers needed. Added mentions of 2022 Michigan NEVI Deployment Plan research to Section 8.2: Infrastructure Deployments and Upgrades for scenarios, upgrades, and increased capacity/redundancy analysis.
Chapter 9: Implementation	Added information about data collection frequency, timeline, type of data, and collection process. Added tables to be used for under construction and planned stations after contracts are awarded and applicable information is available.
Chapter 10: Equity Considerations	Added table to describe benefits, metrics, baselines, goals, data collection and analysis, and community validation.
Chapter 11: Labor and Workforce Considerations	Updated to reflect status of EV programs underway.
Chapter 12: Physical Security and Cybersecurity	Added a Physical Security section with sample requirements to be used in awarded contracts. Updated the Cybersecurity section discussing the requirement of vendor cybersecurity plans.
Chapter 13: Program Evaluation	No updates have been made.
Chapter 14: Discretionary Exceptions	Added information, a table, and three figures describing discretionary exceptions for future charger locations due to geography.

Chapter 2 State Agency Coordination

The *Michigan State Plan for Electric Vehicle Infrastructure Deployment* was developed with the involvement of many State agencies, as well as coordination with border states and international entities.

2.1 Michigan State Agency Coordination

The *Michigan State Plan for Electric Vehicle Infrastructure Deployment* was spearheaded by the Michigan Department of Transportation (MDOT), the Michigan Department of Environment, Great Lakes, and Energy (EGLE), the Michigan Department of Labor and Economic Opportunity (LEO), and Michigan Public Service Commission (MPSC), with support from many other agencies. Throughout the planning process, weekly meetings were held between MDOT, EGLE, LEO, and MPSC to set priorities, evaluate results, and identify next steps to help the State maximize electrification opportunities for motorists and the local workforce. Table 5 identifies State agencies and their EV roles. Additionally, in February 2020, Governor Gretchen Whitmer created the Council on Future Mobility & Electrification (CFME) to advise the Governor, State government administration, and State legislature.[10] CFME has an electrification advisory group and provides policymakers with recommendations annually to ensure the State's continued leadership in mobility and electrification.[11]

Table 5: Michigan Agencies and Their EV Roles

Agency	Role
EGLE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY	EGLE coordinates with electric utilities and EV operator applicants to provide funding for site preparation, qualified Direct Current Fast Charger (DCFC) EV charging equipment, equipment installation, networking fees, and signage. EGLE's Charge Up Michigan Program has provided a starting point for the State's NEVI Formula Program, with its model for state prioritization and installation lessons learned.[12]
LARA LICENSING AND REGULATORY AFFAIRS	The Michigan Department of Licensing and Regulatory Affairs (LARA) oversees employment, professional licensing, construction, and commerce. Critical to the NEVI Formula Program, LARA houses the MPSC, Bureau of Professional Licensing, and Bureau of Fire Services.[13]
LEO	LEO provides the connections, expertise, and innovative solutions to drive continued business growth, retain key talent to fill Michigan's vast pipeline of opportunities, build vibrant communities, and generate tourism.[14] LEO is responsible for overseeing the Michigan EV jobs and infrastructure academies and ensuring Michigan remains the global leader in transportation technologies.

Agency	Role
MDCR MICHIGAN DEPARTMENT OF CIVIL RIGHTS	The Michigan Department of Civil Rights (MDCR) is responsible for ensuring that civil rights are protected equally, and discrimination complaints are investigated. MDCR enforces civil rights laws and supports diversity, inclusion, and equity efforts.[15] MDCR is working in partnership with other State agencies to establish Americans with Disabilities Act of 1990 (ADA) standards for EV charging parking spaces.
MDOT Michigan Department of Transportation	MDOT is responsible for Michigan's nearly 10,000 miles of State highway system. MDOT is also in charge of the NEVI program delivery, including reporting and U.S. Code Title 23 compliance activities, including National Environmental Policy Act (NEPA) documentation and real estate requirements.[16]
MEDC MICHIGAN ECONOMIC DEVELOPMENT CORPORATION	The Michigan Economic Development Corporation (MEDC) markets Michigan as the place in which to do business, assists companies with their growth strategies, and fosters the development of vibrant communities. MEDC works closely with economic development partners and businesses located throughout Michigan and supports conversations with potential electric vehicle supply equipment (EVSE) submitters.[17]
Michigan Department of AGRICULTURE & Rural Development	The Michigan Department of Agriculture and Rural Development (MDARD) houses the Weights and Measures Service Agency, which is responsible for enforcing consumer protection standards for people providing EV charging services, which include station inspections.[18]
Michigan Infrastructure Office	The Michigan Infrastructure Office (MIO) was created by Governor Whitmer to coordinate and oversee the expenditure of BIL/IIJA funds. MIO is housed within the Office of the Governor.[19]
MICHIGAN OFFICE OF FUTURE MOBILITY & ELECTRIFICATION	The Office of Future Mobility and Electrification (OFME), which is within LEO, works with the State government, academia, and private industry to enhance Michigan's mobility ecosystem, including efforts to develop dynamic mobility and electrification policies and support the startup and scale-up of emerging mobility and electrification technologies and businesses throughout Michigan. OFME has initiated EV collaboration and support between State departments in charge of infrastructure, passenger transportation, industry, workforce, climate solutions, and the grid.[20]
MPSC Michigan Public Service Commission	MPSC ensures the energy infrastructure supporting the State's EV adoption program remains safe, reliable, and accessible. MPSC closely monitors and coordinates with utility companies in Michigan as they implement Electric Vehicle Supply Equipment (EVSE) programs. MPSC reviews and decides whether to approve investor-owned utility EV charging infrastructure programs in electric rate cases or other proceedings before the MPSC.[21]

In addition to coordinating on the development of the *Michigan State Plan for Electric Vehicle Infrastructure Deployment*, these agencies are collaborating on other complementary EV initiatives across Michigan, as well as with other states, as discussed later in this chapter. Michigan initiatives include the following:

- **Development of North America's first wireless EV charging road system** in Detroit through a collaboration led by MDOT and OFME to deploy North America's first public in-road, dynamic charging system, allowing EVs to charge while in motion. The State may pursue future grants to help fund commercial deployment of this type of technology.
- **National Park Service (NPS) EVSE planning** is underway, with the cooperation of the Michigan Department of Natural Resources (DNR) and OFME, to identify potential projects within National and State Parks and shorelines that would enable NPS visitors and staff to improve access to charging stations, reduce congestion, and enhance accessibility through advanced mobility services.[22]
- **Michigan State Park EV Charger Deployment** will install more than 15 EV charging sites at State Parks and Oden State Fish Hatchery in Michigan through a State partnership with Adopt A Charger and Rivian. These chargers will add to three existing State Park charging locations, as shown in Figure 1.[23,24]
- **Southeast Michigan Council of Governments' (SEMCOG's) EV Resource Kit and Planning Hub** provides a comprehensive platform for local governments, community leaders, and residents to consider EV adoption and the deployment of EV infrastructure at the local level.[25] OFME is working with SEMCOG and other partners to expand awareness of this toolkit statewide.
- **EGLE's Charge Up Michigan** Program is an EV charger program that aims to build the infrastructure for DCFC stations in Michigan to ensure the feasibility of long-distance trips for EV users within the state and to neighboring states and Canada. To achieve this, EGLE and its electric utility and applicant partners provide funding for site preparation, DCFC EV charging equipment, equipment installation, networking fees, and signage. Sites are selected and funds distributed through a competitive grant process.[26] To date, the program has allocated $6.8 million in Volkswagen settlement funds, leveraging a total of $20.4 million in EV infrastructure investment. This has resulted in the installation of 261 chargers, as shown in Figure 2.
- **The Michigan Mobility Funding Platform** was launched by MDOT and OFME in 2021 to provide grants to mobility and electrification companies to deploy technology solutions in the state of Michigan. The funding program is designed to accelerate investment in:
    - Mobility and electrification solutions that create safer, more equitable and environmentally conscious transportation for all Michigan residents; and
    - High-potential mobility and electrification companies that anticipate long-term growth in Michigan[27] and seek to play a meaningful role in the state's mobility ecosystem.

  To date, the funding program has awarded five rounds of grants distributing a total of $2,285,135 to awardees including Muve, Airspace Link, KUHMUTE, GreenRoute, Michigan Flyer, AbleLink Smart Living Technologies, Fermata Energy, iSmartWays, Lazarillo, Mitsubishi Electric Automotive America, Michigan State University, Stantec, Chargeway, eCAMION, ElectricFish, Fleet Lab, MoGo, Volta, Bluecity, GEKOT, Mouvit, Nimbus, Evenergi, HiPer Fiber, and Workhorse Group.[28]

- **MI Power Grid** is a customer-focused, multi-year stakeholder initiative established by Governor Whitmer in collaboration with the MPSC to maximize the benefits of the transition to clean, distributed energy resources for Michigan residents and businesses. The initiative includes outreach, education, and changes to utility regulation designed to ensure that the state's clean energy future provides safe, reliable, affordable, and accessible energy resources. MI Power Grid will achieve this by focusing on three areas of emphasis:
    - Customer engagement,
    - Integrating emerging technologies, and
    - Optimizing grid performance and investments.[29]

Please see Chapter 5 and Chapter 11 for steps the State is taking to maximize opportunities for U.S.-made EVSE.

Figure 1: Michigan State Park EV Charger Deployment

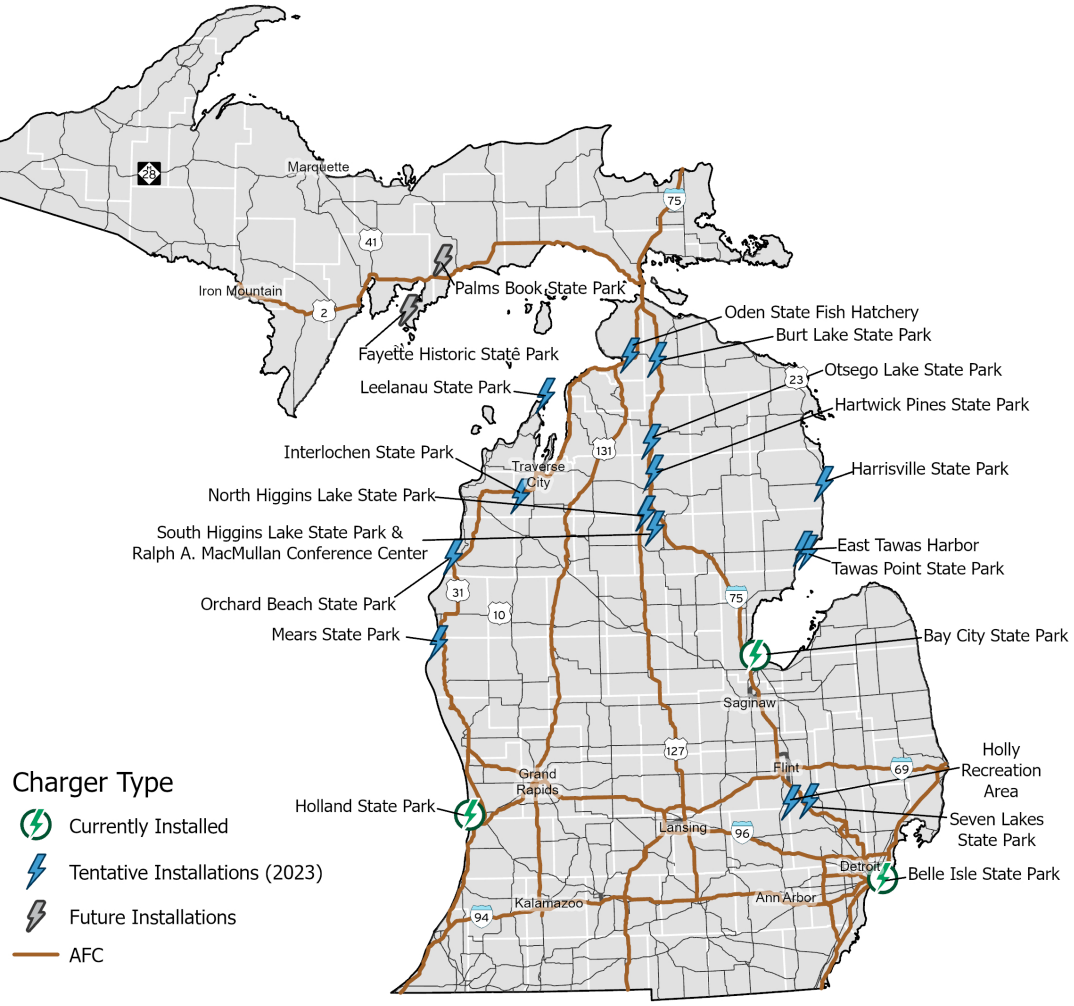
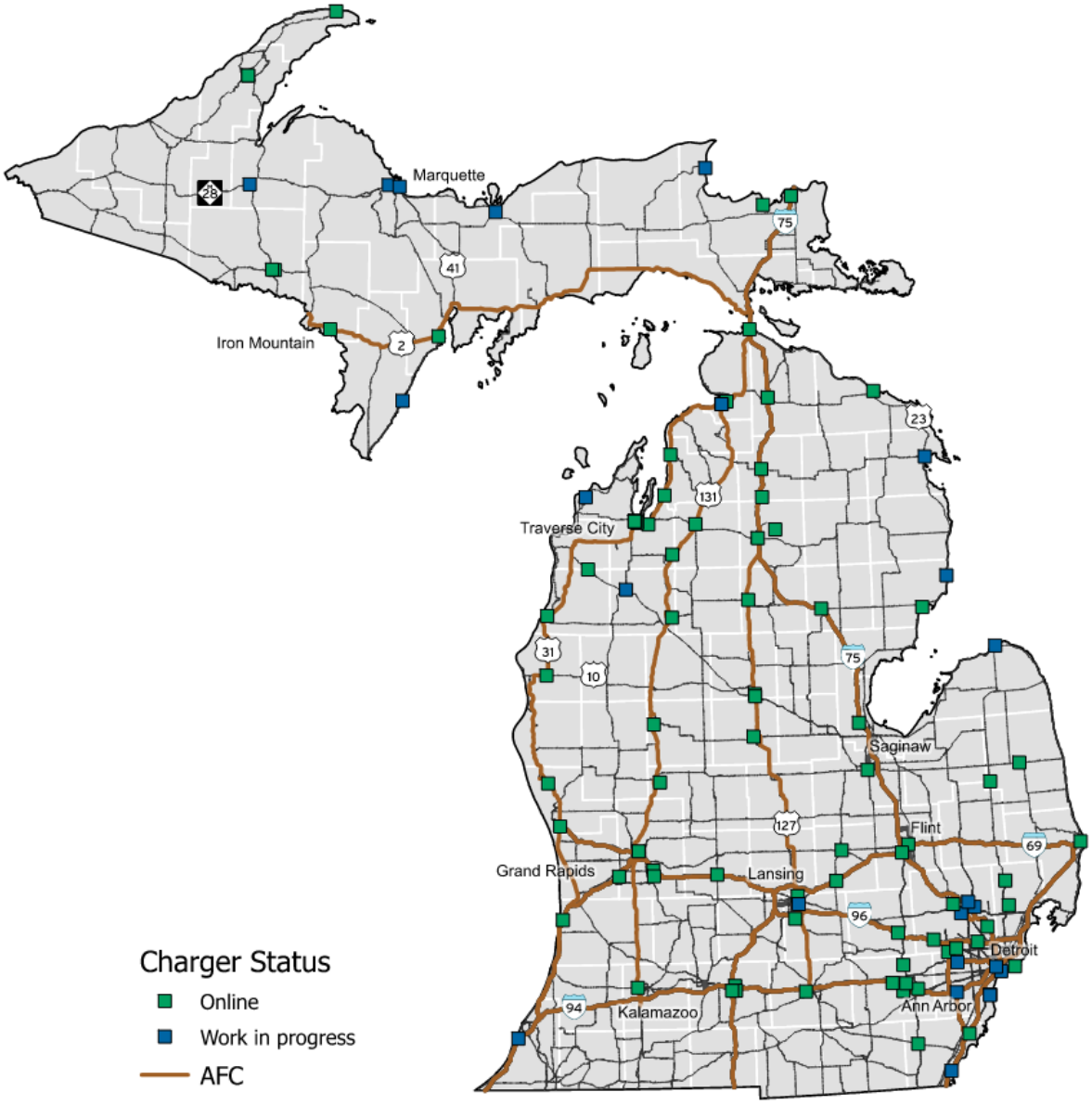


Figure 2: Charge Up Michigan Charging Stations



2.2 Border and Partner State Agency Coordination

Collaboration is underway with the States of Indiana, Illinois, Iowa, Kansas, Kentucky, Minnesota, Missouri, Ohio, and Wisconsin through the following organizations and initiatives:

- **Regional Electric Vehicle (REV) Midwest Coalition**: In September 2021, the Governors of Illinois, Indiana, Michigan, Minnesota, and Wisconsin signed a Memorandum of Understanding (MOU) to form the REV Midwest Coalition. The goals of REV Midwest include accelerating medium- and heavy-duty fleet vehicle electrification, elevating economic growth and industry leadership, and advancing equity and a clean environment.[30]
- **Mid America Association of State Transportation Officials (MAASTO)**: The MAASTO Board of Directors established the EV Infrastructure Committee for the member States of Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. The goal is to identify opportunities for collaboration on the implementation of an EV charging network across MAASTO states.
- **Lake Michigan EV Circuit Tour**: DNR, LEO, and OFME, along with the States of Illinois, Indiana, and Wisconsin, are partnering with the private sector to establish a network of EVSE around Lake Michigan at small businesses, lodging and resort businesses, and every feasible State Park, lighthouse, and shoreline. The network is intended to provide a long-distance EV route with zero range anxiety and promote ecotourism around Lake Michigan.Figure 1

Table 6 lists the designated Michigan AFCs that cross into neighboring states. Michigan has coordinated with the surrounding states and does not have any AFC mismatches at borders.

Table 6: Border State AFC Crossings in Michigan

Border State	Route	Designated AFC in Border State?
Indiana	I-94, I-69	Yes
Ohio	I-75	Yes
Wisconsin	US-2	Yes

2.3 International Agency Coordination

Michigan has three bridge crossings and one tunnel crossing facilitating international highway travel between the U.S. and Canada, and one new bridge crossing is currently under construction by a public-private partnership (P3), as shown in Table 7. The Detroit-Windsor Tunnel crossing is in the process of establishing a discounted EV toll rate to encourage EV adoption. In addition, Michigan and Ontario have signed the Cross-Border Mobility Technologies MOU to spur border-crossing technology innovations and transportation solutions, such as clean powertrain technologies.[31]

Table 7: International Border Crossings in Michigan

Crossing	Location	Route	Designated AFC?
Ambassador Bridge	Detroit	I-75 / I-96	Yes
Blue Water Bridge	Port Huron	I-94	Yes
Detroit-Windsor Tunnel	Detroit	M-10 / I-375B / Jefferson Avenue	No
Gordie Howe International Bridge *(under construction)*	Detroit	I-75	Yes
International Bridge	Sault Ste. Marie	I-75	Yes

Chapter 3 Stakeholder and Public Engagement

The State brings a foundation of robust stakeholder relationships to EV infrastructure planning, leveraging its long history of working successfully across sectors to plan and implement statewide and regional infrastructure projects. Extensive EV infrastructure outreach and engagement efforts have been underway for years as a key input to the *Michigan Mobility 2045 (MM2045): A transportation plan for a connected future* (February 2018-November 2021), the Optimized EV Charger Placement Plan / Charge Up Michigan Program (March 2018-January 2020), the Catalyst Communities Initiative (November 2020-July 2022), and the *MI Healthy Climate Plan* (April 2021-February 2022). Through these initiatives, the State has engaged over 7,000 attendees in virtual workshops and in-person forums, received feedback from over 9,000 survey participants, hosted over 11,000 website visitors, and had 500,000 social media advertisement views. Stakeholders engaged in these efforts are indicated in Figure 3.

Figure 3: Stakeholders Engaged in *Michigan State Plan for EV Infrastructure Deployment* Outreach Efforts

3.1 Stakeholders Involved in Plan Development

Building on previous stakeholder engagement efforts, the State has continued outreach since the 2022 NEVI Deployment Plan development with engagement efforts specific to the *Michigan State Plan for EV Infrastructure Deployment* development.

The State has engaged with over 200 entities listed in Figure 3 since the beginning of the State's NEVI planning efforts.Figure 3: Stakeholders Engaged in *Michigan State Plan for EV Infrastructure Deployment* Outreach Efforts

Since August 2022, the State has continued engagement through a series of meetings with various organizations, such as Clean Cities Coalitions, community-based organizations, the State of Michigan Office of the Environmental Justice Public Advocate, tribal governments, and workforce trade organizations. Additionally, a draft Request for Proposals (RFP) was posted for industry input to refine the procurement process. In addition, EGLE established the Electric Vehicle Infrastructure Project Partners Directory to assist interested applicants in building teams to apply to the State's procurement process.

Based on the State's continued engagement, the input received has been used to influence future NEVI planning and workforce development programs aimed at training and upskilling the local employment base to be able to capitalize on EVSE installation and operations and maintenance (O&M) opportunities.

Table 8: Stakeholder Engagement

Stakeholder	# of events	Type of Events
Michigan Metropolitan Planning Organizations (MPOs)	3	Quarterly meeting
Indiana DOT	1	Coordination meeting
Wisconsin DOT	1	Coordination meeting
Illinois DOT	2	Coordination meeting
Oakland County	2	Coordination meeting
Michigan Legislators	3	Program discussion
EVSE Manufacturers	8	Program discussion
SEMCOG	2	Program discussion
WestPlan	1	Program discussion
American Council of Engineering Companies (ACEC)	1	Program discussion
EVMidwest Conference	1	Program discussion
AASHTO Conference	1	Program discussion

Stakeholder	# of events	Type of Events
Other Industry Partners	5	Program discussion
Washtenaw County	1	Coordination meeting
ITS America	1	Program discussion

3.2 Public Outreach

Public outreach and engagement has occurred and will continue throughout the lifecycle of the program. Past outreach efforts have included:

- MDOT, EGLE, OFME, and MPSC jointly hosted a webinar on July 18, 2022, to educate the general public about EVs and the *Michigan State Plan for EV Infrastructure Deployment*.
- MDOT posted the approved *Michigan State Plan for EV Infrastructure Deployment* on their website for public access.
- A survey was used to obtain input from stakeholders and the public during the outreach process.[32]
    - The survey received 138 responses
    - Respondents included members of the government, labor organizations, utility providers, freight and logistics companies, academia, the public, and other interested parties.

3.3 Tribal Engagement

Tribal engagement occurred prior to the approval of the *Michigan State Plan for EV Infrastructure Deployment* in 2022. The State is continuing to coordinate with tribal stakeholders and will conduct additional engagement in the future.

3.4 Utility Engagement

After the *Michigan State Plan for EV Infrastructure Deployment* was approved in 2022, EGLE and Michigan State University (MSU) continued to engage with utilities to further discuss EV charger deployment, with a specific emphasis on the NEVI Formula Program.

Results from MSU's charger placement optimization model were shared with utilities across the state including DTE and Consumers Energy, two of the largest investor-owned utilities in the state, and five other utilities across the regions, with respective service regions as shown in Figure 11 in Chapter 7. These meetings served several purposes:

- Discuss the proposed general locations ("nodes") and number of chargers in each utilities' service territory
- Gather feedback and concerns from utilities on capacity requirements to inform deployment strategies
- Share information regarding the NEVI Formula Program requirements
- Collect insight into requirements to incorporate into the procurement process
- Gauge utilities interest in participating in the application evaluation process

Feedback from utility engagement included the following:

- Municipal and co-operative utilities, especially in the northern part of the state, are concerned with the costs associated with meeting capacity requirements
- Utilities suggest that performance bonds may be a better mechanism to ensure reliability than penalties
- Utilities expressed interest in supporting the program in whatever ways would be helpful

3.5 Site-Specific Public Engagement

Site specific engagement will occur after the procurement process is complete and awards are announced.

Chapter 4 Plan Vision and Goals

The *Michigan State Plan for Electric Vehicle Infrastructure Deployment* vision and goals, shown in Table 9, were developed through a collaborative approach with various State agencies and alignment with other State plans to set the direction for successfully deploying NEVI Program funding within Michigan. In particular, the following state sustainability goals were established in the 2022 *MI Healthy Climate Plan*:

- Reduce Michigan economy-wide GHG emissions by 28% below 2005 levels by 2025, en route to achieving carbon neutrality by 2050; and
- Build the safe, convenient, affordable, reliable, and equitable infrastructure necessary to support two million EVs on Michigan roads by 2030.[33]

Recommendations on how to achieve these goals may include purchase incentives, transitioning the State of Michigan's fleet to 100% zero-emission vehicles, and adopting a Clean Fuels Standard.[34] The NEVI Formula Program will help Michigan make early progress towards deploying the DCFC infrastructure needed to support the goals in the *MI Healthy Climate Plan*.

Table 9: Plan Vision, Goals, and Outcome

VISION	**Develop a safe, equitable, reliable, convenient, and interconnected transportation electrification network that enables the efficient movement of people, improves quality of life, spurs economic growth, protects Michigan's environment, and facilitates data collection.**
GOALS	1. Reduce vehicle emissions to improve air quality and increase the protection of human health and the environment; 2. Build a stronger state economy and workforce through safer, more equitable and environmentally conscious transportation for all Michigan residents; 3. Plan and deliver a NEVI charging infrastructure program that provides a safe and reliable electric transportation option for motorists throughout Michigan; and 4. Leverage ongoing utility EV pilots and programs, encourage charging deployment that enhances electric grid utilization and distribution system reliability, and support the buildout of a statewide charging network that provides benefits to all ratepayers.
OUTCOME	The State of Michigan will deploy at least 184 DCFC chargers across 46 sites to achieve a fully built-out AFC corridor network by 2030.

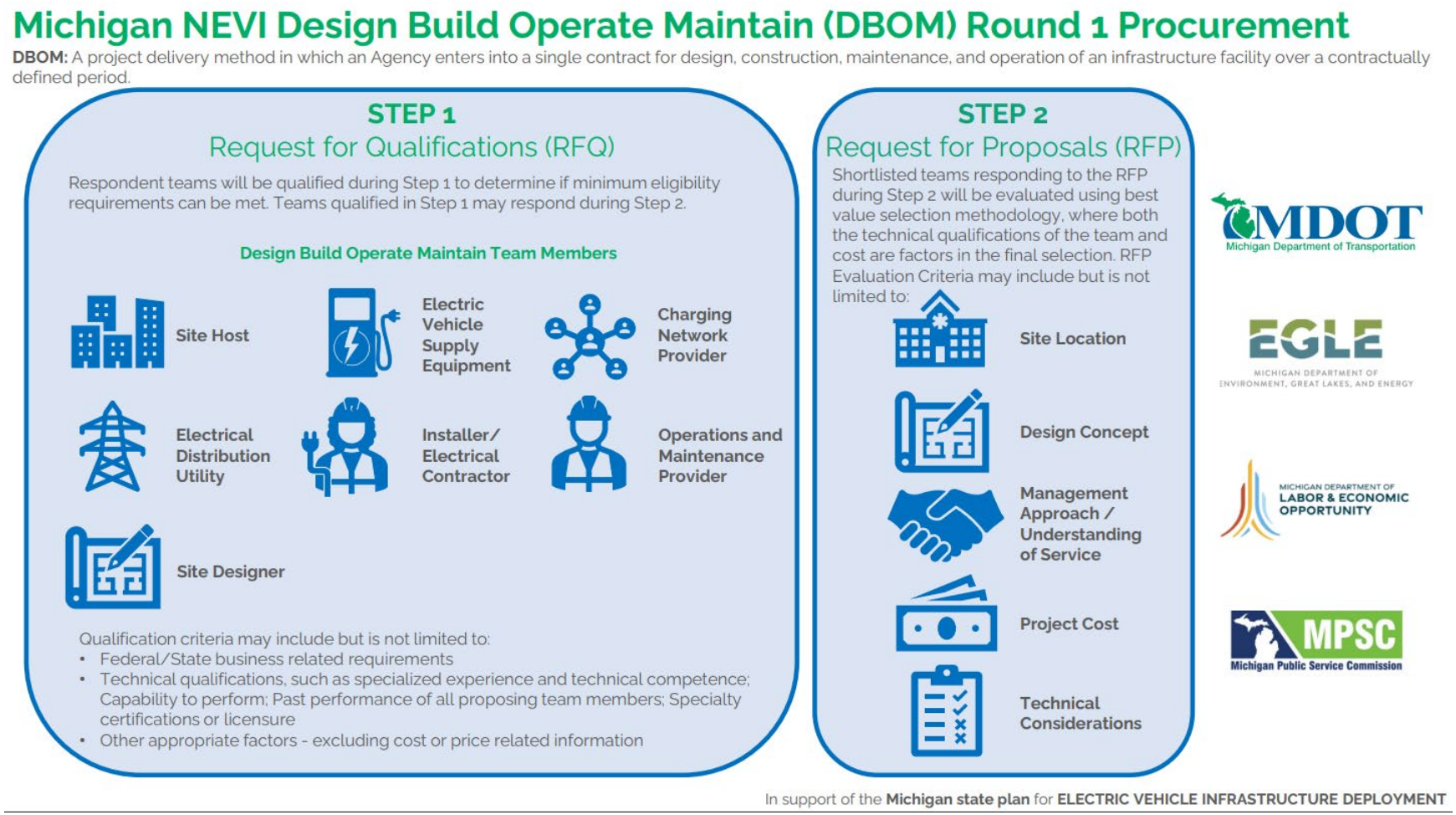
Chapter 5 Contracting

Since August 2022, the State has made significant progress establishing a contracting mechanism to deploy the NEVI Formula Program funding and deliver the ongoing O&M based on the goals of the *Michigan State Plan for Electric Vehicle Infrastructure Deployment*. The State will contract for the design, construction, operation, and maintenance of publicly accessible EV charging infrastructure to maximize the use of the NEVI Formula Program funding. The State anticipates multiple procurement rounds during the life of the NEVI program.

For Round 1, the State is using a Design-Build-Operate-Maintain (DBOM) procurement method. The development of a procurement method was informed by lessons learned from EGLE's Charge Up Michigan program, feedback from industry and stakeholder outreach, and feedback from draft procurement documents that were made publicly available.

The Round 1 NEVI procurement will be a two-step DBOM process that will establish a contract with a DBOM team to administer, design, construct, operate, and maintain a NEVI site at the identified nodes. The first step is a Request for Qualifications (RFQ) to solicit information, in the form of Statement of Qualifications (SOQ). SOQs received are evaluated to determine which teams are qualified to successfully deliver a NEVI site. In the second step, MDOT will issue a Request for Proposal (RFP) to the teams prequalified during Step 1. These teams will be eligible to submit a technical and price proposal in response to the RFP. The State intends to award each NEVI site to the RFP respondent team that offers the best value. Proposals will be submitted, evaluated, and selected for each individual Node. An overview of the two-step DBOM process is provided in Figure 4.

Figure 4: Michigan NEVI DBOM Round 1 Procurement Process



5.1 Contracting Approach

Table 10 provides the 10 step contracting approach the State is using to begin the deployment process.

Table 10: Contracting Approach

Step	Actions	Completion Status
Step 1: Determine charging location needs	▪ Updated the Electric Vehicle Charger Placement Optimization in Michigan: Phase I – Highways (Supplement I: Full Tourism Analysis) report based on NEVI deployment requirements ▪ Published an online map showing the needed EV charging locations with associated priority phases, and/or bundling	Completed

Step 2: Develop contractual requirements	▪ Developed contractual requirements for:
	  ▪ Planning, environmental clearance, design, permitting, and installation
	  ▪ Roles of property owners, installation contractors, utilities, networking companies, the State, and local agencies
	  ▪ Collaboration and coordination with property owners, municipalities, utilities, other impacted entities, and the public
	  ▪ Minimum EV charging equipment specifications
	  ▪ Procurement and construction adhering to Buy America
	  ▪ Surety and/or performance bonds
	  ▪ O&M of hardware, networks, charger availability, safety data, cybersecurity data, and data monitoring
	  ▪ Reporting and data-sharing
	  ▪ Performance evaluation and mechanisms to be used when failing to adhere to contract requirements
	  ▪ Transition when the required O&M period expires
		Completed

Step	Actions	Completion Status
Step 3: Develop RFQ	▪ Developed Request for Qualifications (RFQ)[35] ▪ Established associated timeline requirements ▪ Advertised RFQ ▪ Conduct open webinar to review the RFQ and answer any questions from potential submitters	Completed
Step 4: Evaluate SOQs and notify prequalified submitters	▪ Allowed one month for applicants to respond ▪ Evaluated Statements of Qualifications (SOQs) for pass/fail of RFQ requirements ▪ Notified prequalified Submitters[36]	Completed
Step 5: Develop and advertise RFP	▪ Develop RFP that incorporates the NEVI Formula Program requirements, and establishes selection criteria[37] ▪ Distribute the RFP to prequalified Submitters ▪ Establish a review team and processes for award ▪ Conduct a webinar to review the RFP and answer questions from prequalified submitters	In Progress
Step 6: Evaluate applications and award contracts	▪ Receive, review, score, and select Submitters for award ▪ Identify nodes that may require a discretionary exception	Planned for September - October 2023
Step 7: Perform NEPA clearance & contracting	▪ Complete NEPA clearance activities ▪ Award and execute contracts with selected Submitters ▪ Identify procurement lessons learned to inform future rounds of NEVI procurement	Planned for early 2024

Step	Actions	Completion Status

Step 8: Provide planning, design, and construction support and oversight	▪ Establish a group responsible for managing and overseeing the planning, designing, permitting, constructing, and inspecting of EV charging stations
	▪ Determine the inspection processes, staff qualifications, and fee structures to approve and transition stations into O&M, such as:
	  ▪ Municipality inspections as per applicable code(s)
	  ▪ MDARD inspections prior to new devices being placed into commercial service
		Future task

Step 9: Provide O&M oversight	▪ Establish a group responsible for overseeing and monitoring program performance and contract adherence ▪ MDARD to establish inspection frequency and conduct inspections during the O&M phase	Future task
Step 10: Facilitate project closeout	▪ Establish an expiration and release-of-terms process ▪ Establish a group responsible for closing out projects and supporting transitions when the O&M period expires	Future task

5.2 Status of Contracting Process

The state has completed the first step of the two-step RFQ/RFP process. The RFQ was advertised on May 4, 2023 and SOQs were due June 6, 2023. After evaluation, the state released a Notification of prequalified Submitters[38]. The state is now preparing to release the RFP in August 2023. Upon release, prequalified Submitters will have 60 days to submit proposals to compete for awards. Awards are anticipated in November of 2023.[39]

5.3 Awarded Contracts

Contracts have yet to be awarded, however, MDOT has prequalified 44 prime Submitters eligible to respond to the Round 1 RFP, several of which have multiple team configurations that are dependent on the EV charger location. To promote competitive bids and cost containment, a best value selection will be made through an evaluation of the Submitter's technical price proposal.[40]

5.4 Scoring Methodologies Utilized

The following evaluation criteria were used in the RFQ process to determine a pass/fail result for each SOQ received. The scoring methodology for the RFP will be released in August 2023 as part of the advertisement.

- Qualifications of Team
  - Organization of Project Team
  - Identification of Key Personnel and other Non-Key Personnel
- Submitter Experience
  - Description of two to four similar projects which the Submitter has completed or participated in
- Legal and Financial Information
  - Disclosure of any Organizational Conflicts of Interest
  - Legal and financial structure of Submitter

5.5 Plan for Compliance with Federal Requirements

Submitters have been advised that the RFP will be drafted based on the assumption that the Project will be eligible for federal-aid funds. Therefore, the procurement documents and the Contract shall conform to requirements of applicable federal law, regulations, and policies. MDOT anticipates that certain federal procurement requirements will apply, including but not limited to Equal Opportunity requirements (Title VI of the Civil Rights Act of 1964, as amended), Buy America requirements (49 Code of Federal Regulations Part 661), Waiver of Buy America Requirements for Electric Vehicle Chargers established by the Federal Highway Administration on 2/21/2023 (Document 88 FR 10619), and Davis-Bacon wage rates. MDOT reserves the right to modify the procurement process to address any concerns, conditions or requirements of federal agencies, including the Federal Highway Administration (FHWA).

Chapter 6 Civil Rights

While all State agencies comply with federal and State civil rights laws, MDOT, EGLE and LEO work particularly closely with MDARD and MDCR in navigating the NEVI requirements. MDARD is responsible for protecting consumers by enforcing laws related to weights and measures. MDCR investigates and resolves discrimination complaints and works to prevent discrimination through educational programs that promote voluntary compliance with civil rights laws.[41, 42]

MDARD, MDCR, EGLE, LEO, and MDOT will work together to administer compliance of the NEVI Formula Program with all federal and State laws, including ADA, Title VI of the Civil Rights Act of 1964, and Section 504 of the Rehabilitation Act.[43, 44, 45] Compliance will be ensured through the actions in Table 11 below.

Table 11: Civil Rights Actions

Phase	Actions
Outreach and Planning	• NEVI public meetings during the five-year NEVI Formula Program, the team will follow the guidelines and use the tools in the *2020-2023 State Transportation Improvement Program (STIP) Public Participation Plan*, which sets standards to ensure that appropriate measures are taken to accommodate all community members[46] • As shown in Figure 3, engagement efforts have reached many stakeholders and helped create the *Michigan State Plan for Electric Vehicle Infrastructure Deployment*; these efforts will continue • Section 508 of the Rehabilitation Act compliant NEVI plans will be posted online at https://www.michigan.gov/mdot/travel/mobility/initiatives/nevi
Procurement	• NEVI contracts will include nondiscrimination language and require third-party contractors to use the same language in all subcontracts; a breach of contract related to discrimination will be considered a material breach of contract • RFPs will include similar nondiscrimination language • EV charging stations will comply with the U.S. Access Board's Design Recommendations for Accessible Electric Vehicle Charging Stations
Installation	• Documentation to show that charging locations are ADA-accessible will be required • EV charger location information will be made available to the public in multiple formats following ADA guidelines to allow for sufficient access
O&M	• Data collection will be required for general reporting on and tracking of performance • Verification of nondiscrimination compliance will be included in contracts

Chapter 7 Existing and Future Conditions Analysis

This chapter provides an overview of Michigan's geography, terrain, and climate, including current and future temperature, precipitation, and land use patterns; known risks and challenges; and industry and market conditions.

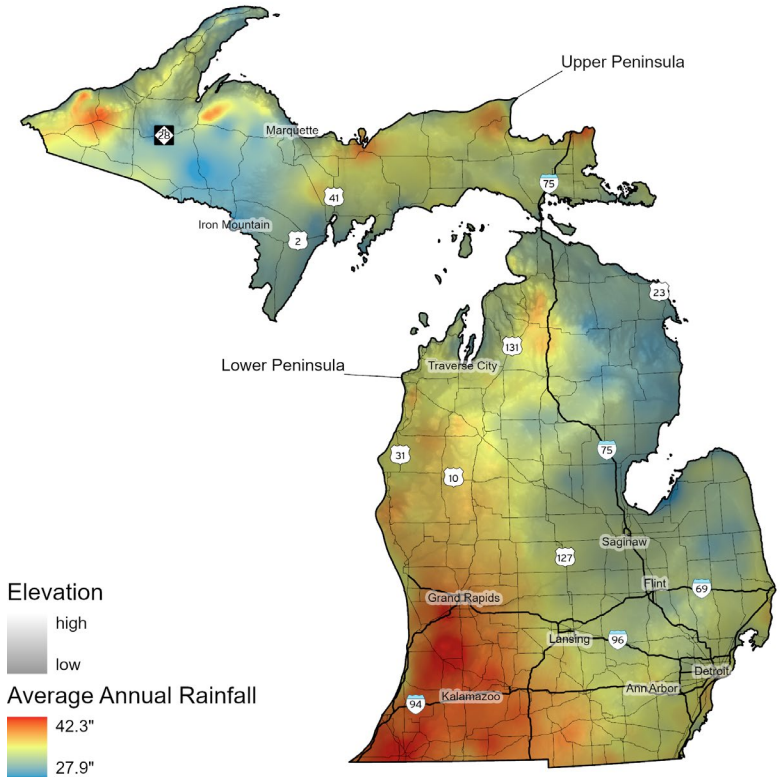
7.1 State Geography, Terrain, Climate, and Land Use Patterns

Michigan borders Canada, Indiana, Ohio, and Wisconsin. The state's land and water area make it the 10th largest in the U.S. In Michigan, there are 58,110 square miles of land; 1,305 square miles of inland water; 3,288 miles of Great Lakes shoreline; and 8,575 square miles of Great Lakes water. Wetlands cover about 15% of the state. The highest point in the state is 1,981 feet above sea level, and the lowest point is 572 feet above sea level.[47]

Michigan is divided into two main land areas, the Upper Peninsula and the Lower Peninsula, and borders all Great Lakes except for Lake Ontario. While Isle Royale is part of Michigan and was included in the state's rainfall and land use statistics, it was not otherwise considered for the NEVI Formula Program due to its status as a National Park.

Winter low temperatures in Michigan average around 13°F, while summer highs reach the mid-80s°F. As shown in Figure 5 below, the state receives an average of 34.5" of rain per year, which is four inches higher than the national average, and the southwestern portion of the state gets more average rainfall than does the rest of the state.[48]

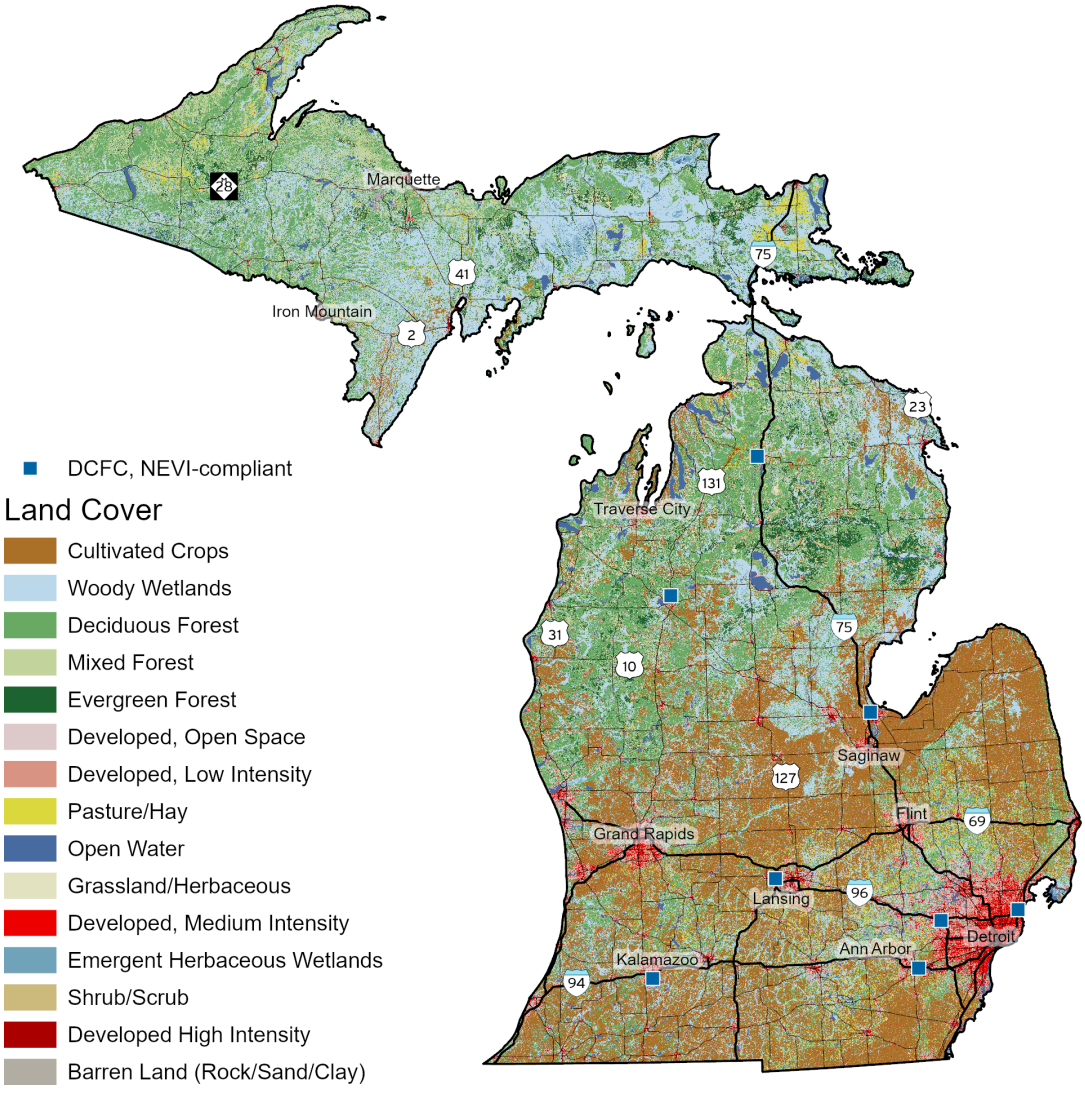
Figure 5: Michigan Elevation and Rainfall[49]



Summers are warming and becoming dryer, while recent winters have been characterized by polar vortexes. Intense rainfall during storms has caused flooding and high water levels. These factors contribute to habitat, wildlife, and crop losses; increased pests and diseases; infrastructure damage; and power outages.[50]

The State's land cover is shown in Figure 6. The Upper Peninsula is primarily covered with woody wetlands and forestland, as is the northern portion of the Lower Peninsula. Moving from north to south, there is an increase in farmed and developed land. The state is home to approximately 47,600 farms, with a total of almost 10 million acres of farmland. Michigan produces over 300 agricultural commodities, constituting the country's second most diverse agriculture industry, including the most dry black and borlotti beans, begonias, blueberries, tart cherries, pickling cucumbers, Easter lilies, geraniums, low-fat ice cream mix, impatiens, petunias, and squash in the U.S. Christmas tree growing, dairy production, and livestock raising are significant in Michigan as well. Finally, year-round tourism driven by the state's geography is critical to the economy.[51, 52]

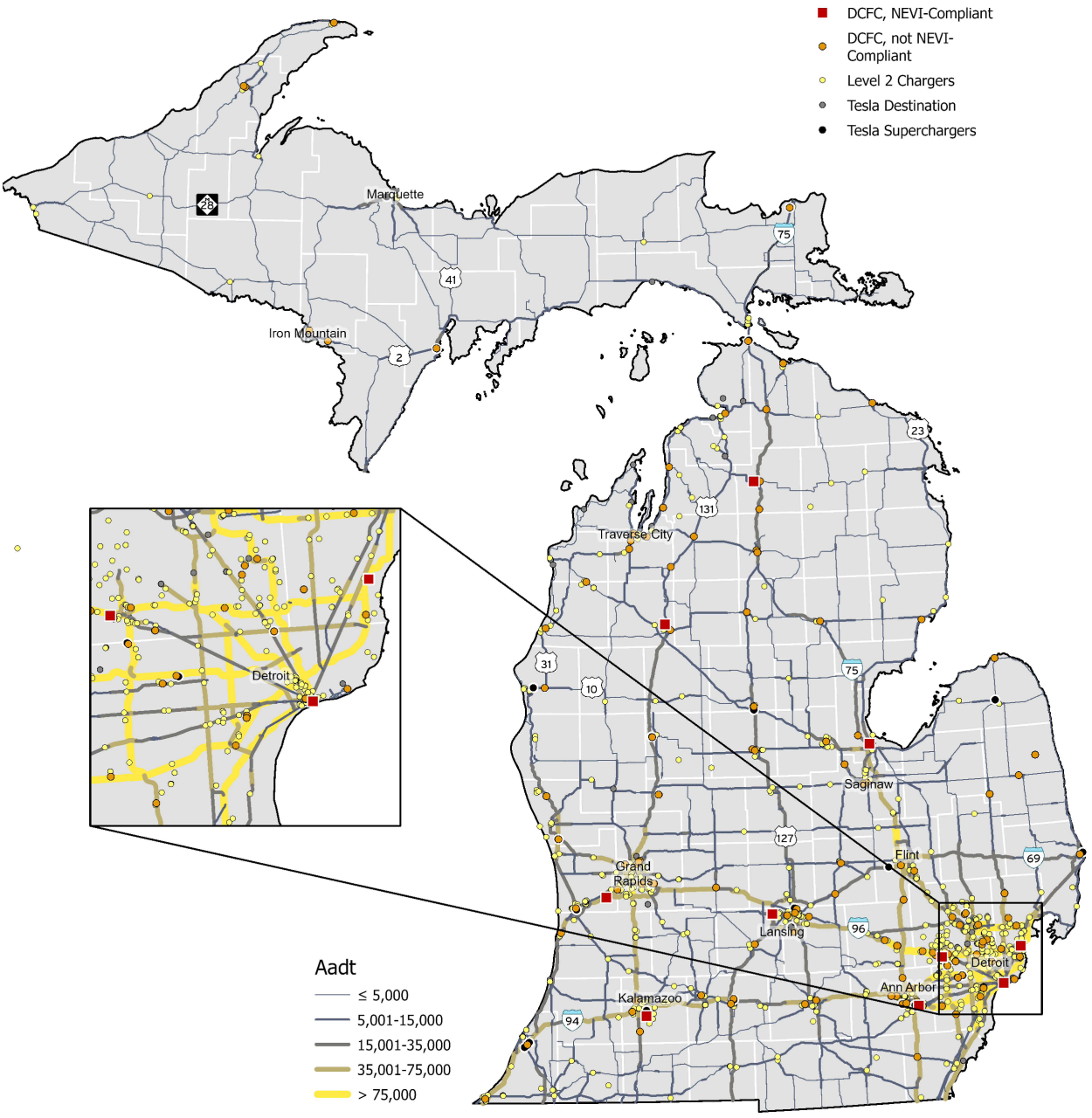
Figure 6: Michigan Land Cover[53]



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

State travel patterns and annual average daily traffic (AADT) are shown in Figure 7 and MDOT's traffic volume map. Interstates and other AFCs have significantly more AADT, moving from north to south in Michigan.

Figure 7: Michigan Travel Patterns and AADT[54]

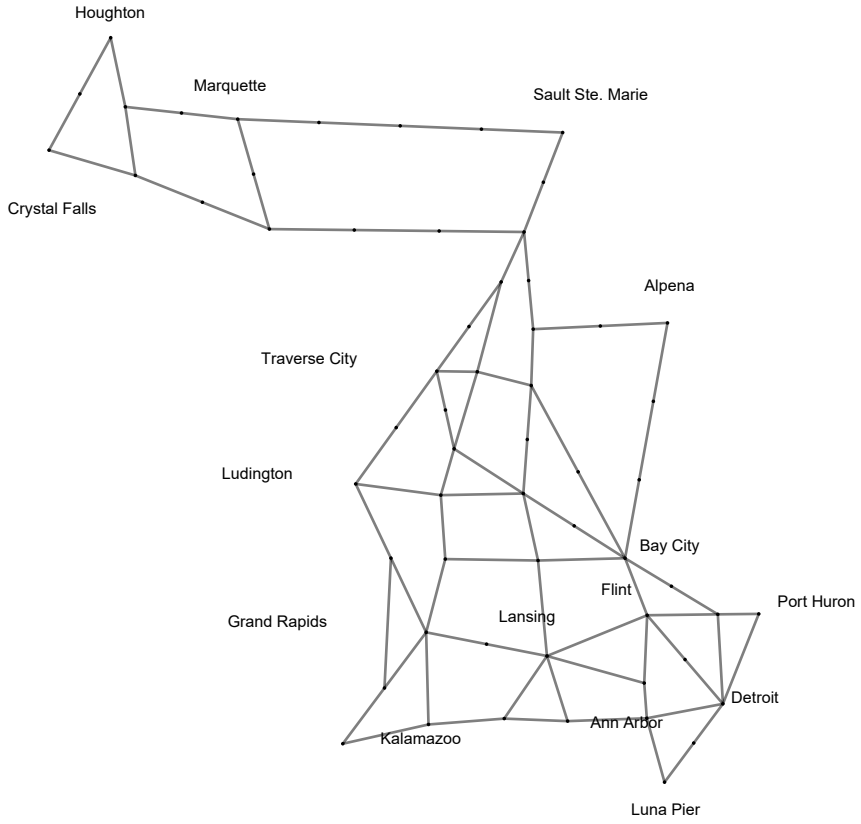


To determine DCFC demand on Michigan's AFCs, the MDOT road network and origin-destination (O-D) travel demand was used. The state TransCAD network, shown in Figure 8, contains 83,820 links and 62,996 nodes. This model, previously used to support prioritization of charging locations for the Charge Up Michigan Program, was updated to meet the NEVI requirements, as discussed in Section 8.2.

Figure 8: Michigan TransCAD Network

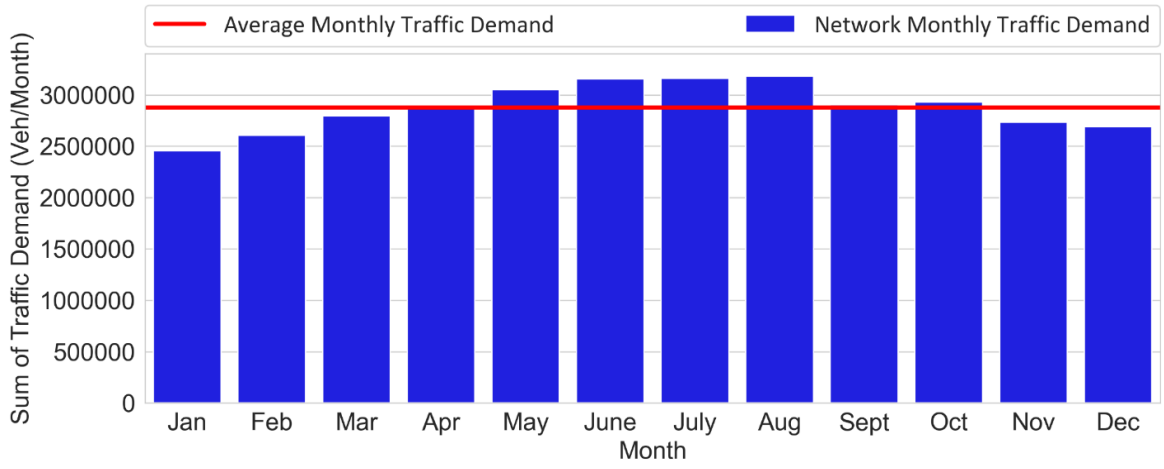
To improve computational efficiency, a simplified model, shown in Figure 9, was developed to represent a weekday in the fall with normal weather conditions. Demand from 23 nodes representing cities with populations of 50,000 or more was used to load the network and analyze charging demand in various scenarios discussed later in this chapter.

Figure 9: Simplified Road Network Model



Network and average monthly traffic demand based on this simplified model are shown in Figure 10. Travel demand in Michigan, particularly in the Upper Peninsula, can vary significantly throughout the year, in part due to cold winter weather and scenic views year-round in the state. Using data from 69 MDOT continuous counting stations on the simplified network, travel demand was calibrated. As the State of Michigan moves beyond the initial interstate deployment of EVSE, variations will need to be considered in more detail.

Figure 10: 2020 Average Monthly Traffic Demand in Michigan



7.2.1 Public Transportation Needs

MDOT oversees more than 135 public transportation providers, rideshare providers, and passenger marine vessels in the state. Michigan has 82 public transit agencies, including urban, rural, and four ferry boat agencies, that serve the state's 83 counties.[55, 56] Public transit is available in every county in the state.[57] Michigan is unique in the fact that MDOT covers the 20% cost-share requirements for all rural transit agencies, which offsets any additional cost burdens they may have.

In 2020, MDOT received $6.3 million from the Federal Transit Administration's (FTA's) Low or No Emission (Low-No) program to support the deployment of 12 shuttle buses and five 40'-long buses.[58] In 2021, MDOT received $5.1 million on behalf of the Huron Transit Corporation / Thumb Area Transit to improve a transit facility in a rural county through FTA's Low-No program.[59] In 2022, the City of Detroit received $7 million from FTA's Buses and Bus Facilities program to purchase electric buses and charging equipment.[60] As of 2022, 10 transit agencies in the state have deployed zero-emission battery electric buses, and 17 zero-emission battery electric school buses have been introduced across seven school districts. Currently, there are more than 29 additional buses ready for procurement. The FTA is making funding available to support the transition to no- and low-emission vehicles, though this requires applying agencies to develop no-emission fleet transition plans.[61] More than 14 agencies in Michigan recently requested federal funding to deploy another 50 zero-emission battery electric buses. Transit agencies across the state have established zero-emission goals, and local governments have adopted climate plans. The State will continue to pursue funding to help support these efforts and lower emissions.

Transit services can play a leadership role in the EV transition in the U.S.[62] However, challenges to widespread adoption of electric buses remain. Transit agencies often need support with funding, workforce development, staff training, EV route planning, deploying charging infrastructure, upgrading electrical networks, environmental reviews, land acquisition, and other efforts. Initial capital costs are the largest barrier, as electric buses, not including the charging infrastructure, can cost up to twice as much as the cost of equivalent diesel buses.[63]

7.2.2 Freight and Other Supply Chain Needs

Trucks move approximately 71% of the 528 million tons and 74% of the $799 billion of freight that travels through Michigan each year, and Michigan's transportation sector accounts for almost 28% of the state's total GHG emissions, with 65% from light-duty vehicles (LDVs) and 21% from freight. Freight volumes are forecasted to grow across Michigan's roads over the next 25 years. The total tonnage carried via trucking is projected to increase by 15% from 2019 to 2045, with about half of the growth coming from pass-through traffic. During that same time period, the total value of freight shipments is forecasted to grow by 46%. The increase in freight volume will cause more demand on the state's highway infrastructure, negatively impacting existing bottlenecks and supply chains.

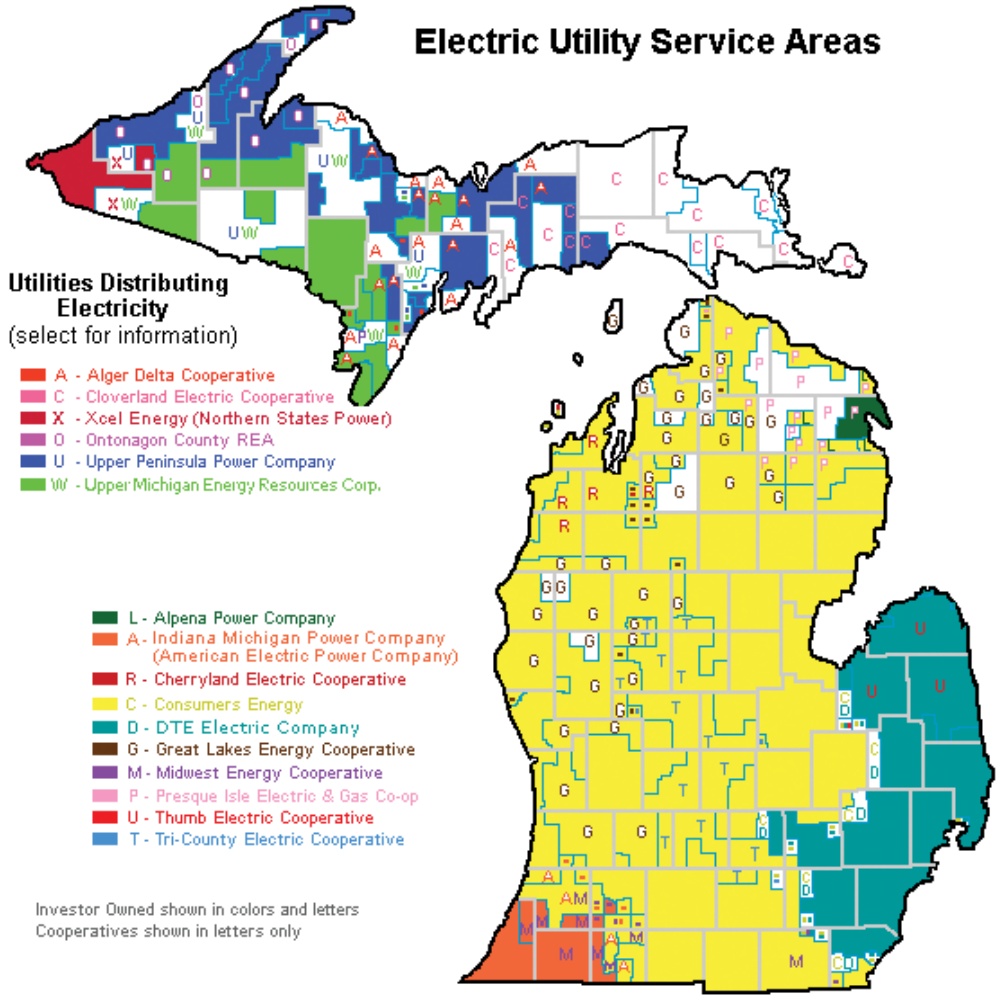
The State anticipates that the supply chain and freight transportation routes will diversify. Funding to preserve and expand the freight system after years of under-investment is essential to Michigan's ability to recapture and grow the manufacturing industry. Many industries are rethinking their supply chains to mitigate disruption, take advantage of emerging modes of production, and respond to consumer preferences. The state's importance as a gateway to Canada will likely rise as more freight volumes flow across the continent.

Freight electrification has been slower for larger medium-duty and long-haul vehicles because of their higher energy needs.[64] These vehicles weigh more, pull heavier loads, and often have more intensive duty cycles than LDVs. The freight industry will require a network of megawatt charging systems along AFCs to increase the adoption of electric freight vehicles and the funding to support the development and deployment of the vehicles. In 2022, a letter to the USDOT and U.S. Department of Energy (DOE) penned by EV companies requested that 10% of EV charging be allocated to medium- and heavy-duty vehicle infrastructure.[65, 66] The EPA's Clean Heavy-Duty Vehicle Program will invest $1 billion, as part of the Inflation Reduction Act, on the replacement of heavy-duty vehicles with zero-emission vehicles, related infrastructure, and worker development programs. EPA announced a technical Request for Information to understand how to best develop this grant program and is expected to release the Notice of Funding later in 2023.[67]

7.3 State Electric Utility Service Areas

Michigan's existing electric utility distribution is shown in Figure 11 below. Michigan has eight investor-owned utilities, 40 municipal power providers, and nine rural cooperatives.

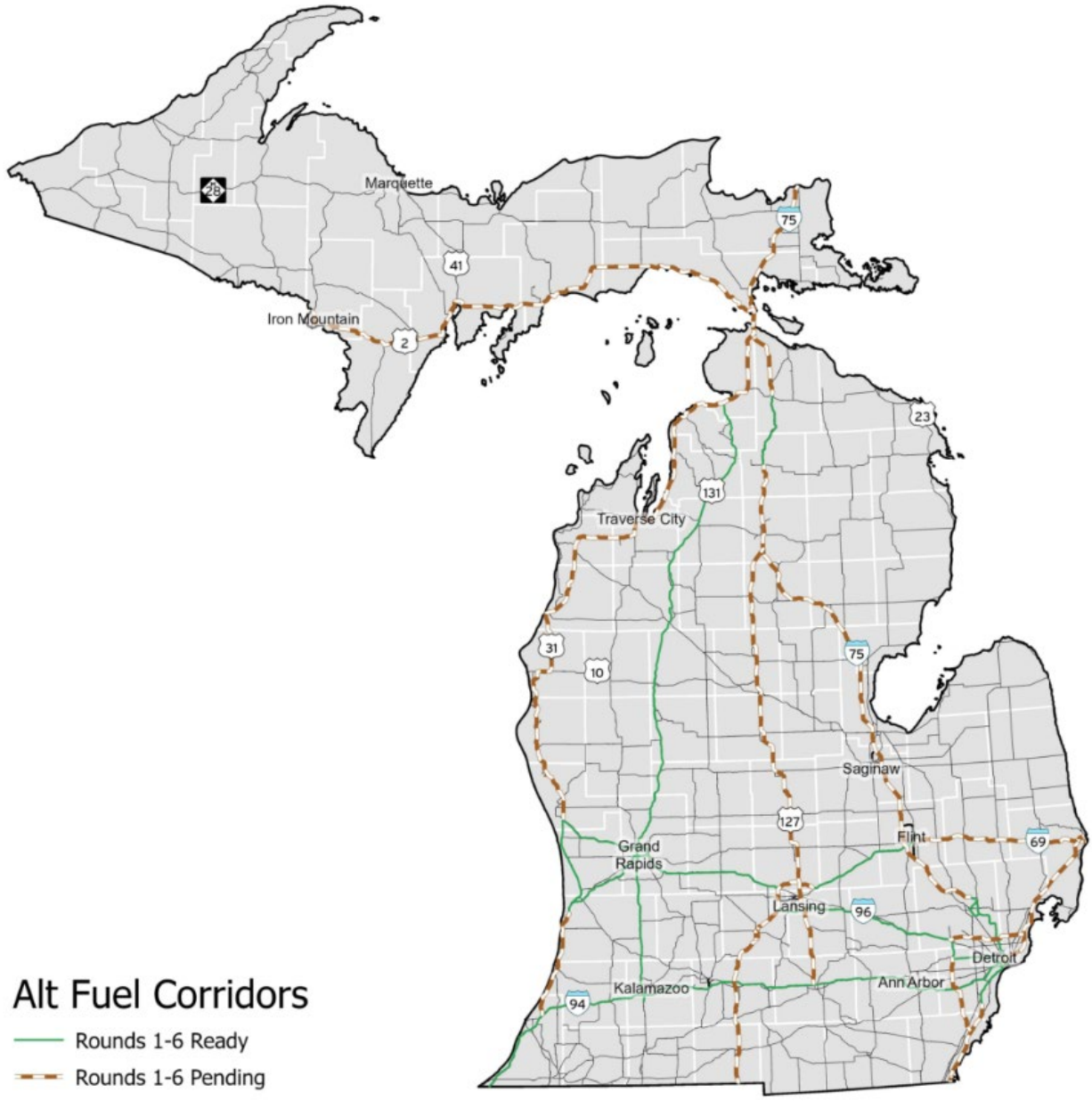
Figure 11: Michigan Statewide Electric Utility Distribution[68]



7.4 AFC Networks

Michigan's existing and proposed AFCs and NEVI-compliant chargers are identified in Figure 12. The State, along with Michigan Clean Cities, Clean Fuels Michigan, SEMCOG, and Southwest Detroit Environmental Vision, submitted seven new MDOT-jurisdiction National Highway System (NHS) corridors in FHWA's Round 6 nomination process that were approved in 2022. Additional corridors were not nominated in Round 7.

Figure 12: Ready and Pending AFCs in Michigan



Installing EV chargers along these AFC routes will improve environmental and public health by promoting the use of low-emission fuels and vehicles and contributing to the development of electric and alternative fueling sites in Michigan. It will also enhance environmental preservation, energy security, and quality of life.

7.5 Existing Locations of Charging Infrastructure along AFCs

Table 12 provides details about the existing charging infrastructure locations along Michigan's AFCs, as of July 2022. In addition, various public utilities and Electrify America have plans to add high-powered DCFC stations to the network over the next few years. See Section 8.3 for more information on the utility programs.

Table 12: Existing Michigan DC Fast Charging Infrastructure (at least four CCS ports at 150kW+), as of July 2023

ID[69]	Charger Level (DCFC, L2)	Number, Power of Chargers	Route	Location	EV Network	Meets all relevant requirements in 23 CFR 680**	Intent to count towards Fully Built Out determination
121721	DCFC	2x 150 kW, 2x 350 kW	I-96, I-69	Walmart 2869 409 North Marketplace Boulevard Lansing, MI 48917	Electrify America		Y
N/A	DCFC	4x 50 kW, 2x 350 kW	I-94	Sam's Club 6661 7021 South Westnedge Avenue Portage, MI 49002	Electrify America		N
145371	DCFC	4x 150 kW, 2x 350 kW	I-94	Roundtree Place 2539 Ellsworth Road Ypsilanti, MI 48197	Electrify America		Y
12746	DCFC	2x 50 kW*, 3x 150 kW, 2x 350 kW	I-96	Walmart 5893 26090 Ingersol Drive Novi, MI 48375	Electrify America		Y*
170328	DCFC	2x 150 kW, 2x 350 kW	I-94	Meijer Roseville 30800 Little Mack Avenue Roseville, MI 48066	Electrify America		Y

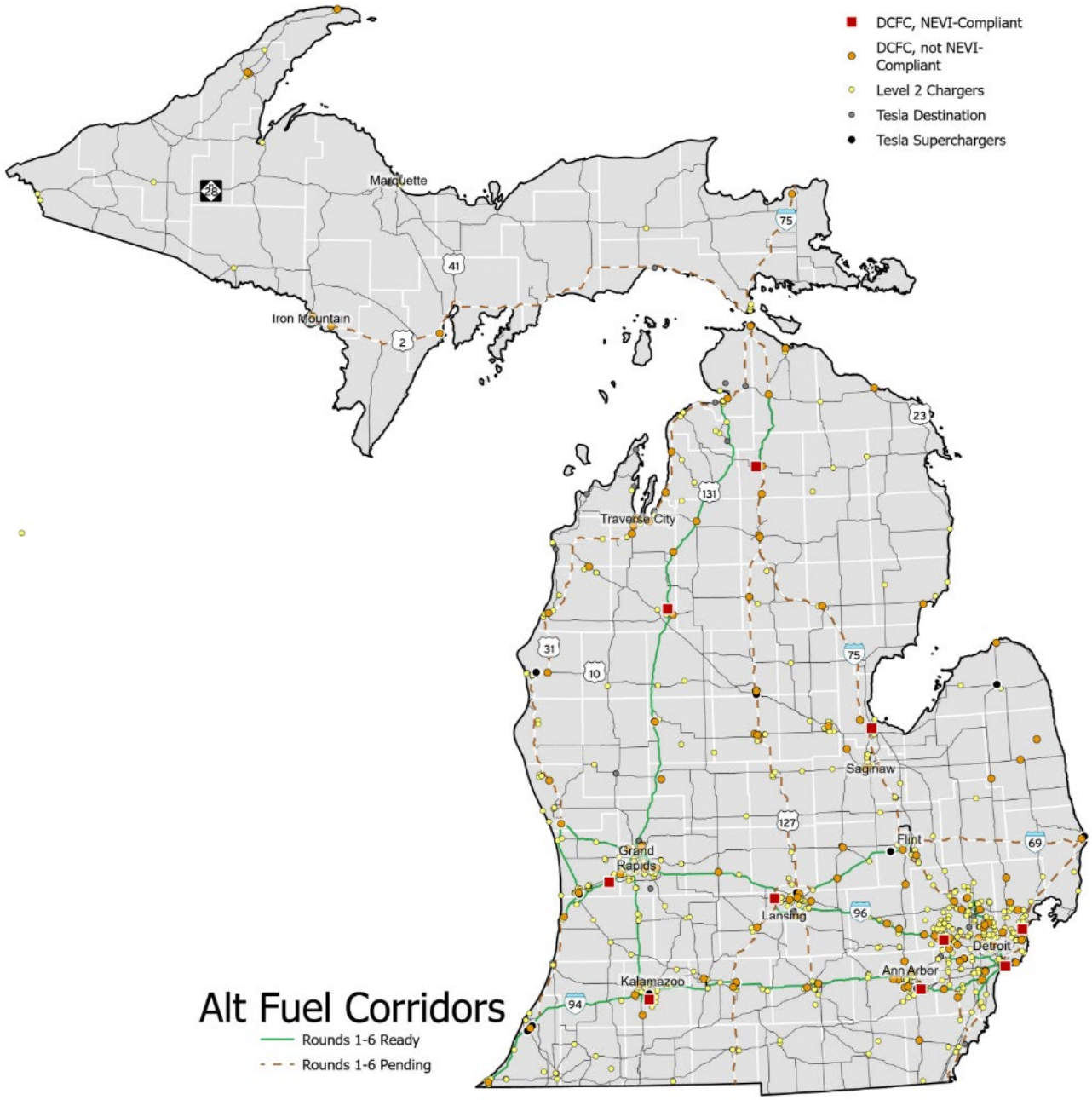
ID[69]	Charger Level (DCFC, L2)	Number, Power of Chargers	Route	Location	EV Network	Meets all relevant requirements in 23 CFR 680**	Intent to count towards Fully Built Out determination
171393	DCFC	2x 150 kW, 2x 350 kW	I-75	Meijer Bay City 2980 Wilder Road Bay City, MI 48706	Electrify America		Y
24040	DCFC	2x 50 kW*, 3x 150 kW, 2x 350 kW	US-131	Meijer Cadillac 8605 East 34 Road Cadillac, MI 49601	Electrify America		Y*
171395	DCFC	2x 150 kW, 2x 350 kW	I-75	Meijer Gaylord 250 Meijer Drive Gaylord, MI 49735	Electrify America[70]		N
228584	DCFC	4x 349.92 kW	US-375	Renaissance Center 100 Renaissance Ctr Detroit, MI 48243	EVgo		Y
260740	DCFC	6x 350 kW	I-196	Meijer 254 4075 32nd Avenue Hudsonville, MI	Electrify America		Y

*Electrify America chargers are going through maintenance and will be restored to 150 kW or 350 kW power levels.

**Requirement fulfillment under discussion about 680.116(C): third-party data sharing requirement.

The ten existing NEVI Compliant DCFC stations in Michigan with a total of 44 chargers over 150 kW are shown in red in Figure 13 below.

Figure 13: Michigan AFC and Public DCFC and Level 2 Chargers[71]



7.6 Known Risks and Challenges

Governmental agencies and private entities have implemented programs to construct EV charging stations in Michigan for several years now. As a result of lessons learned, many risks that may occur during the planning, procurement, installation/testing, and O&M processes are known. Determining roles and responsibilities for all parties involved early in the project development phase will help avoid possible setbacks. Maintaining a risk register helps keep the management of risks top-of-mind.

Table 13 identifies some of the risks, the project stage in which challenges are most likely to be anticipated, and actions that should be considered to mitigate or eliminate potential challenges.

Table 13: Potential EV Deployment Challenges and Actions

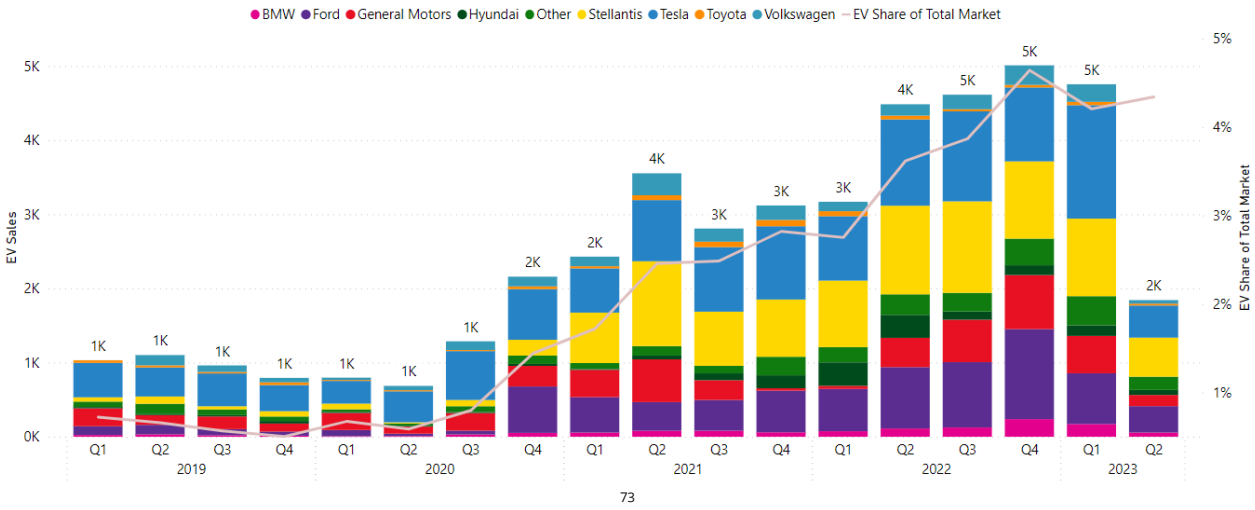
Phase	Potential Challenges	Mitigation Actions
Planning	• Viable location • Lack of space for EVSE • Property ownership	Communicate constraints on and requirements for properties in the RFP process. Analyze and evaluate bids to ensure locations are appropriate for EVSE.
	• EV-only space requirements • Americans with Disabilities Act of 1990 (ADA) EV space requirements • Code requirements • Changes in industry standards and requirements	Property owners and designers must work with local agencies on design to ensure the requirements are fully met. MDOT must be prepared to adapt to industry changes and additions to federal requirements.
	• Lack of use • Loss of profitability • Demand charges	Conduct public engagement, reference siting studies, and determine potentially viable high-traffic locations. Coordinate locations and rates with utility companies, and implement demand management software.
Procurement	• Supply chain delays • Infrastructure capacity • Reliability • Peak demand load management	Ensure discussions have taken place with utility companies and EVSE vendors/suppliers so that equipment such as power transformers, cables, distribution panels, and chargers will be available on schedule and the power capacity needed during peak demand can be met with a high level of confidence.
	• Permitting responsibilities • Payment responsibilities • Surety bonds	Make sure permitting requirements are understood by potential Submitters to enable successful charger deployment. Include performance bonds to ensure construction and operation terms are fulfilled.

Phase	Potential Challenges	Mitigation Actions
Installation and Testing	• Compatible equipment • Certified installer • Contractor default • Equipment vendor support	Review and approve all plans to ensure installation specifications are clear. Implement performance bonds in case contractors or operators fail to fulfill contracts. Perform site inspections. Require evidence that installers are certified and trained to install equipment.
O&M	• EV charger reliability • Communication link reliability • Payment • Monitoring and program oversight • Cybersecurity	These are all items that affect uptime. Verify connectivity, as loss of connection keeps chargers out-of-service. As a part of the RFP and agreement processes, ensure the equipment will be monitored and returned to service without delay. Ensure cybersecurity issues are adequately addressed with robust software and payment processes.
	• Vandalism • Rodent damage • General cord damage • Vehicle crashes	Implement specifications for equipment, curb, bollard, retractable cord, and vandal-proof charging equipment.
	• Lightning • Water/flooding	Ensure chargers and charging EVs are located outside of flood-prone areas and that adequate surge suppression is provided.

7.7 Industry and Market Conditions

The national trend of accelerated EV adoption is also present in Michigan, as shown in Figure 14 Michigan EV sales and market share from Quarter 1 of 2019 through April of 2023. Ford and Stellantis NV have higher market shares of EV sales in Michigan than their national averages. Tesla's market share for new EV sales in Michigan, however, was about 32% in Quarter 1 of 2023, significantly below its national average of about 48%. The EV market share, or adoption rate, in Quarter 1 of 2023 as a whole was just above four percent, similar to other midwestern states; nationally, it was almost nine percent.[72]

Figure 14: Michigan EV Sales by Automakers through April 2023



Michigan has more EV sales per 1,000 people than any of its surrounding states besides Illinois, as shown in Table 14. Michigan's long history of automotive manufacturing has continued with the EV expansion, as the state is home to EV facilities for Bollinger Motors, Ford, General Motors, LG Electronics, Rivian, and Stellantis NV. At least 14,830 EV manufacturing jobs have been announced in Michigan, and the state leads all others in the U.S. in declared EV manufacturing investments, with more than $15 billion.[74]

Table 14: EV Sales in Michigan and Surrounding States Since 2019

State	Total EV Sales	Battery EV (BEV) Sales	PHEV Sales	EVs Sales per 1,000 People
Illinois	72,118	57,042	15,076	5.73
Michigan	**44,603**	**29,078**	**15,525**	**4.44**
Ohio	41,560	30,488	11,072	3.54
Indiana	19,408	14,174	5,234	2.84
Wisconsin	17,726	12,686	5,040	3.01[75]

Michigan leads all neighboring states in the number of charging ports per 1,000 people, as shown in Table 15. The state has 2,682 ports across 1,173 locations, July 2023. Of the DCFC ports, slightly fewer than 180 have been registered since January 1, 2021, and around half are Tesla chargers.[76]

Table 15: Charging Ports in Michigan and Surrounding States

State	Level 2 Ports	DCFC Ports	Level 2 Ports per 1,000 People	DCFC Ports per 1,000 People
Illinois	1,964	786	0.16	0.06
Michigan	**2,099**	**583**	**0.21**	**0.06**
Ohio	2,465	543	0.21	0.05
Indiana	766	371	0.11	0.05
Wisconsin	821	288	0.14	0.05[77]

Chapter 8 EV Charging Infrastructure Deployment

This chapter discusses the analysis completed to identify Michigan's charging needs, the general funding plan, and considerations for future planning and deployment.

8.1 Funding Sources

The $5 billion NEVI Formula Program is the formula-allocated portion of the $7.5 billion in EV infrastructure funding made available by BIL/IIJA. It aims to provide a network of 500,000 ultra-fast EV charging stations along AFCs. The State will receive $110 million in NEVI funds between FYs 2022-2026, which will be used to plan, install, operate, and maintain the infrastructure. The NEVI Formula Program requires a 20% non-federal match, which the State anticipates being met with private-sector matching funds. See Section 8.3 for more information on how the State is preparing for this.

The remaining $2.5-billion competitive grant program designed to expand EV charging access throughout the country, including in rural and underserved communities, was announced in March 2023 as the Charging and Fueling Infrastructure Discretionary Grant Program. The State submitted a request for funding in this grant program in 2023. The State will continue to evaluate this grant opportunity to further the State's EV deployment efforts in the future.

In addition, funds from other formula-based programs, such as the Carbon Reduction Program, Congestion Mitigation and Air Quality Improvement Program, Surface Transportation Block Grant Program, and National Highway Performance Program, will be explored and utilized to the extent possible to build out the EV charging network further and supplement NEVI funding.

8.2 Infrastructure Deployments and Upgrades

The following data, from the identified sources, was used by the State to identify charging priorities and prioritize the investment of NEVI Formula Program funds across Michigan:

- Current location of DCFC (EGLE and the Alternative Fuels Data Center (AFDC))
- Road network (MDOT)
- Traffic Analysis Zones (MDOT)
- Travel demand matrix (MDOT)
- Electricity provision costs (utilities)
- Charging station and charger costs (charging station companies)
- Vehicle specifications (automotive companies)

The following approach was used to determine the location and quantity of chargers needed to build out the AFC roadways in Michigan:

- Map the current location of existing DCFCs (as shown on AFC website)
- Locate coverage gaps along AFCs not fulfilled by NEVI-compliant DCFCs
- Find the optimum location of four 150 kW-or-more chargers along AFCs to ensure the feasibility of intercity trips and a Fully Built Out network

- Calculate the difference between the above two items to determine the number of chargers required
- Test additional scenarios to improve understanding of future deployments

Five scenarios were tested, as identified in Table 16, to gain insight on the impact of changing input variables, such as the assumed percentage of EVs on the road, or EV market share; vehicle battery size; charging speed; and initial state of charge on the modeling outputs.

Table 16: Scenario Testing Assumptions and Results

		1	2	3	4	5
Inputs	EV Market Share	6%	25%	25%	25%	25%
	Battery (kWh)	70	70	70	70	70
	Charger (kW)	150	150	150	350	350
	Initial State of Charge	100%	100%	60%	100%	60%
Outputs	NEVI Chargers	127	127	127	168	168
	Total Number of Chargers	253	482	2,136	290	968
	Average Delay (minutes)	9.7	10.2	8.4	4.0	4.9
	Total Energy Demand (megawatt hours (MWh))	92	326	1,877	342	1,922

Aside from Scenario 1, all the scenarios assume the need to provide for a 25% EV market share by 2030. The current market share is around 0.5% of vehicles on the road, with an adoption rate close to 4%. The other factor contributing to the significant need for chargers in Scenario 3 is the lower initial state-of-charge, meaning EVs are not assumed to be fully charged when they start trips. Scenario 3, highlighted in green in Table 16, was chosen by the State to project NEVI-compliant charging needs within Michigan. The total number of chargers needed is based on the projected demand, which exceeds the minimum NEVI guidance.

To further test the system, Scenarios 4 and 5 evaluated the use of more, higher-power 350 kW chargers. Results from Scenario 5, the complement to Scenario 3, but with higher-power chargers, indicate that several locations would benefit from 350 kW chargers. As the State develops plan and procurement documents, EV charger and vehicle capabilities mature, and demand increases, the number of 350 kW chargers per location and timing of deployments will be considered by the State. This is discussed further in Section 8.2.2.

The proposed AFC sites are depicted in Figure 15, and more information is provided in Table 17. These are general locations, as the modeling identified a five-mile-radius area that is optimal for the placement of charging stations. After discussions between MDOT, EGLE, MSU, and consultants, the number of needed chargers was updated to 184 to ensure the full build out of Michigan's AFCs.

Figure 15: FY 2023 Michigan Infrastructure Deployments/Upgrades

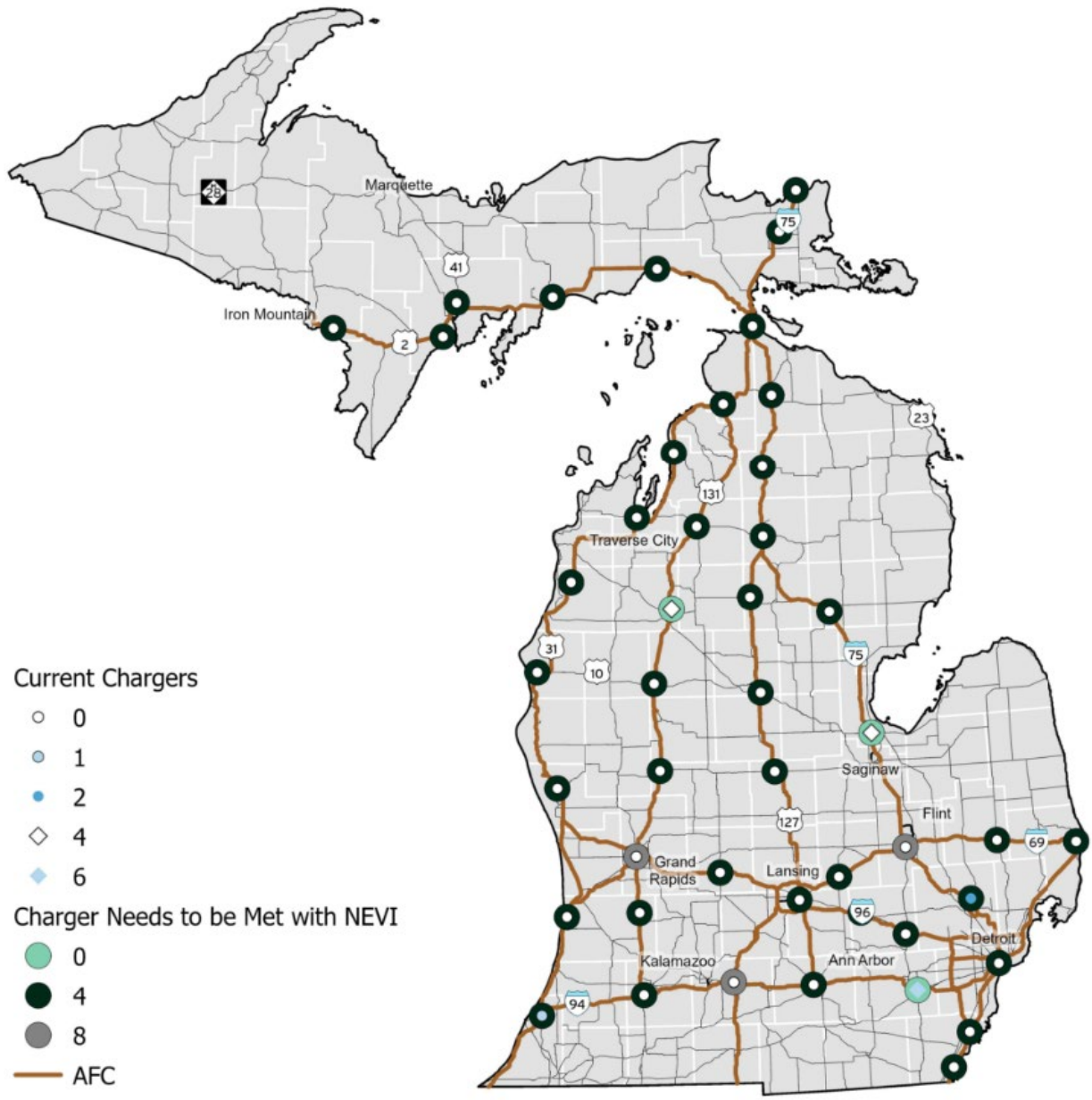


Table 17: FY 2023 EV Infrastructure Deployments/Upgrades

ID	Route	Location	NEVI Chargers Needed	EV Network*	Utility Territory	Station Owner*	FY 2022 Funding*	FYs 2023-2026 Funding*
3	I-75	Sault Ste. Marie	4		Cloverland			
6	US-41, US-2	Rapid River	4		Alger Delta, DTE, Escanaba, Gladstone, UPPCO, Upper Michigan			
7	I-75	Mackinaw City	4		CE, Harbor Springs, Presque Isle, Wolverine Power			
8	US-31, M-37	Traverse City	4		CE, Traverse City, Wolverine Power			
9	I-75, M-72	Grayling	4		CE, DTE, Wolverine Power			
11	US-31, US-10	Ludington	4		CE, DTE, Wolverine Power			
12	US-10, US-127	Clare	4		CE, DTE, Tri-County			
13	I-75, US-10	Bay City	0		Bay City, CE			
14	I-196, US-131	Grand Rapids	8		CE, DTE			
15	I-96, US-127	Lansing	4		CE, Lansing, Wolverine Power			
16	I-75, I-69	Flint	8		CE			
17	I-69, I-94	Port Huron	4		DTE			
18	I-94, I-196	Benton Harbor	4		Midwest, Niles			
19	I-94, US-127	Portage	4		CE, Midwest			
20	I-94, I-69	Marshall	8		CE			
21	I-94, US-23	Ann Arbor	0		Clinton, DTE			
22	I-94, I-75	Detroit	4		DTE, Wyandotte			
23	I-75	Luna Pier	4		CE, Midwest			

ID	Route	Location	NEVI Chargers Needed	EV Network*	Utility Territory	Station Owner*	FY 2022 Funding*	FYs 2023-2026 Funding*
25	US-131, US-31	Petoskey	4		CE, DTE, Great Lakes, Harbor Springs, Petoskey, Presque Isle, Wolverine Power			
26	I-75, M-32	Gaylord	4		CE, DTE, Great Lakes, Presque Isle, Wolverine Power			
27	US-131, M-72	Kalkaska	4		Cherryland, CE, DTE, Wolverine Power			
28	US-131, M-55	Cadillac	0		Cherryland, CE, DTE, Great Lakes			
29	US-131, US-10	Reed City	4		CE, DTE, Wolverine Power, Great Lakes			
30	US-131, M-46	Howard City	4		CE, DTE, Wolverine Power, Great Lakes			
31	US-127, M-46	Alma	4		CE, Tri-County, Wolverine Power			
32	I-69, M-53	Imlay City	4		DTE			
33	I-94, US-127	Jackson	4		CE			
34	I-96, US-23	Brighton	4		DTE			
40	I-75	Kinross	4		Cloverland Electric Co-op			
42	US-2	Norway	4		Alger Delta, DTE, Norway, Upper Michigan, UPPCO			
43	US-2	Manistique	4		Alger Delta, Cloverland, UPPCO			
44	US-2	Naubinway	4		Cloverland, Presque Isle			
45	I-75	Indian River	4		CE, DTE, Great Lakes, Presque Isle, Wolverine Power			
46	US-31	Bear Lake	4		Cherryland, CE, Wolverine Power			

ID	Route	Location	NEVI Chargers Needed	EV Network*	Utility Territory	Station Owner*	FY 2022 Funding*	FYs 2023-2026 Funding*
47	US-31	Kewadin	4		CE, DTE, Wolverine Power			
49	US-127	Houghton Lake	4		CE, DTE			
50	I-75	West Branch	4		CE, DTE			
54	US-31	Muskegon	4		CE, DTE, Wolverine Power			
57	I-96	Ionia	4		CE, Wolverine Power			
58	I-196	Saugatuck	4		CE, Holland, Wolverine Power			
59	I-75	Auburn Hills	4		DTE			
60	I-75, I-275	Newport	4		DTE, Midwest			
68	US-131	Wayland	4		Wolverine Power Supply Co-op, Great Lakes Energy, Consumers Energy Co			
76	US-2	Escanaba	4		Upper Peninsula Power Company, City of Escanaba			
77	I-69	Perry	4		Consumers Energy Co			
78	I-96	Fowlerville	4		DTE			
		Total	**184**					

Utility Territory: Alger Delta = Alger Delta Cooperative Electric Association; Bay City = Bay City Electric Light and Power; Cherryland = Cherryland Electric Cooperative; Clinton = Village of Clinton Electric & Water/Sewer; Cloverland = Cloverland Electric Cooperation; CE = Consumers Energy; Croswell = Croswell Light and Power; DTE = DTE Energy; Escanaba = City of Escanaba Electric Department; Gladstone = City of Gladstone Electrical; Great Lakes = Great Lakes Energy Cooperative; Harbor Springs = City of Harbor Springs Utilities; Holland = City of Holland Board of Public Works; Lansing = Lansing Board of Water & Light; Midwest = Midwest Energy & Communications; Niles = City of Niles Utilities Department; Norway = City of Norway Department Of Power & Light / Electric Department; Petoskey = City of Petoskey Electric Division; Presque Isle = Presque Isle Electric & Gas Co-op; Thumb = Thumb Electric Cooperative; Traverse City = City of Traverse City Department of Municipal Utilities; Tri-County = Tri-County Electric Co. of Washtenaw County; Upper Michigan = Upper Michigan Energy Resources; Wyandotte = Wyandotte Municipal Services

*Columns to be populated as NEVI funds are used to deploy EV charging infrastructure

8.2.1 Upgrade of Existing EV Charging Sites

Existing EV charging sites with less than 4 NEVI compliant ports were evaluated as upgrade opportunities. The following existing EV charging sites may be good candidates for expansion to meet the NEVI site requirements cost-effectively:

- Electrify America has nine NEVI-compliant sites, as shown above in Figure 13;
- 23 of the 27 Tesla Supercharger sites in the state are within one mile of a Michigan AFC;[78] and
- There are four locations within one mile of a Michigan AFC Ready Corridor that have existing high-powered fast chargers but not the required four chargers, as noted in Table 18.

Table 18: Existing Charge Up Michigan Chargers

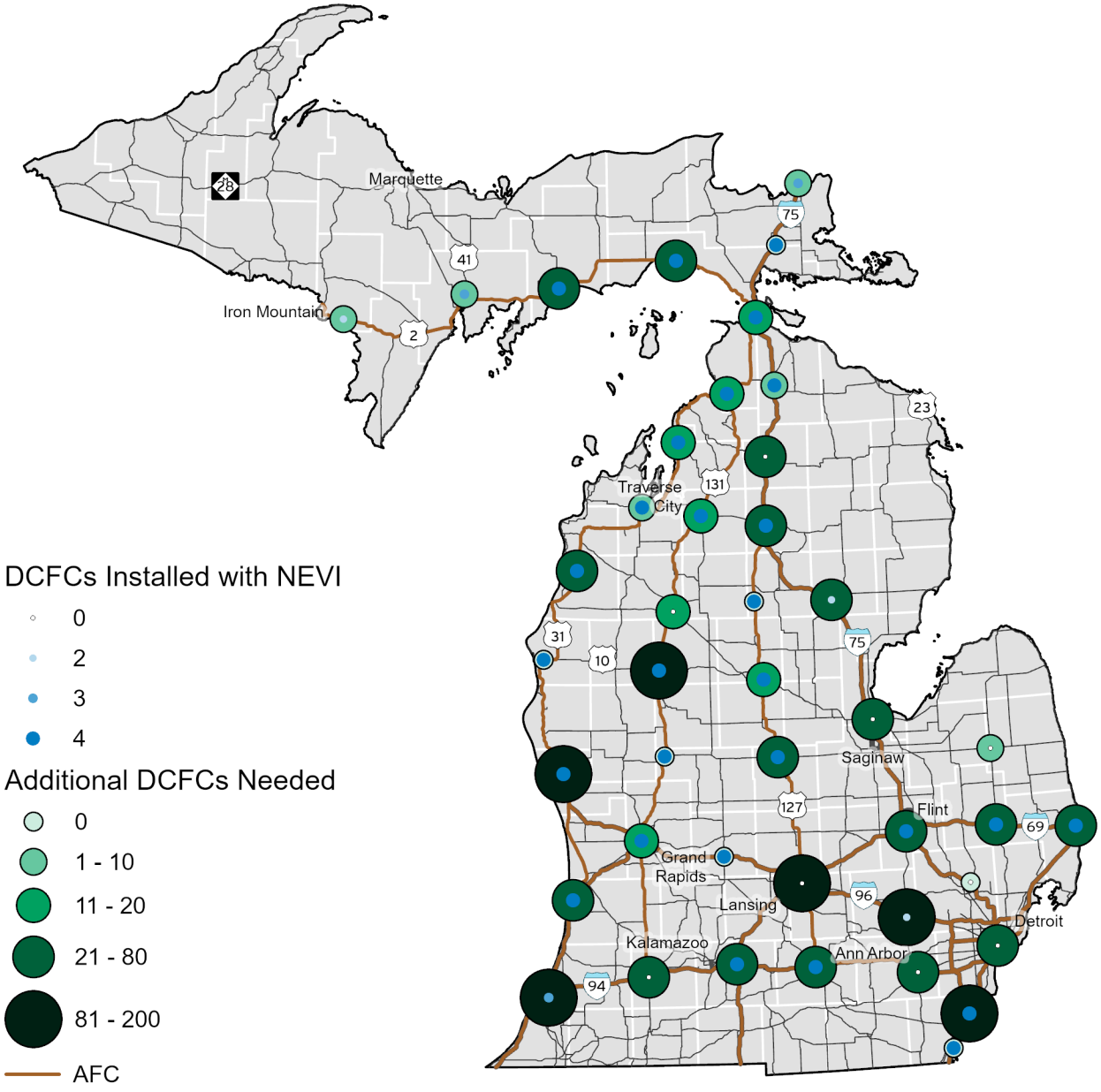
Route	City	Number, Power of DCFC Ports	# of NEVI Ports Needed to Meet Requirements	Network
I-75	Sault Ste. Marie	1x 120 kW	3	Shell Recharge Solutions
US-41, US-2	Rapid River	1x 120 kW	3	Shell Recharge Solutions
I-94, I-196	Benton Harbor	1x 320 kW *(construction began in May 2022)*	2	RED E
I-75	West Branch	2x 175 kW	2	Shell Recharge Solutions

8.2.2 Increases of Capacity/Redundancy along Existing AFCs

The Scenario 3 modeling, discussed in Section 8.2, indicates that accommodating two million EVs on Michigan roads with 150 kW chargers requires 15 times the proposed NEVI levels (127 vs. 2,136). Locations in Benton Harbor, Brighton, Muskegon, Newport, and Reed City need more than 130 additional chargers each within a five-mile radius of the recommended locations to meet the expected demand. Figure 16 depicts these additional DCFC needs. Scenario 5 indicates that using 350 kW chargers can provide improved wait times with less than half the number of overall chargers using a similar total amount of energy.

Combined with data collected as sites are brought online, this modeling will help identify where future capacity and redundancy along the AFCs should focus.

Figure 16: Additional DCFC Needs From 2022 NEVI Plan Research[79]



8.2.3 EV Freight Considerations

International freight is critical to the State of Michigan. Canada has set an ambitious goal for zero-emission vehicles: By 2030, 35% of the country's medium- and heavy-duty vehicles will be zero-emission. Michigan must be ready for this transition.

Commercial vehicles only make money while moving, so it is critical that high-capacity (350 kW and above) charging infrastructure is deployed across the state. Commercial electric trucks need to be able to charge quickly during driver breaks without delaying shipping schedules. However, current DCFCs do not deliver enough power for freight vehicles, and many chargers and their placements are

not designed to accommodate large vehicles (i.e., pull-through design). Thus, the freight industry will need a network of megawatt charging systems with specific structural and site accommodations for commercial vehicles. These systems will likely require electric power grids to be updated to charge multiple electric trucks simultaneously alongside major freight corridors and at logistics hubs.

As NEVI planning continues, Michigan will consider further the opportunities for freight, whether through specifying the need for trailers or larger vehicles to be able to pull through at charger locations, increasing the maximum charging supply at NEVI locations, and/or developing projects that install shared charging hubs for fleet vehicles.

8.2.4 Public Transportation Considerations

As mentioned in Section 7.2.1, transit agencies will likely need support with funding, staff training, EV route planning, deploying charging infrastructure, upgrading electrical networks, environmental reviews, land assistance, and other technical assistance. Similar to EV freight considerations, the State will consider opportunities for public transportation, whether through specifying the need for larger vehicles to be able to pull through at charger locations, increasing the maximum charging supply at NEVI locations, and/or developing projects that install shared charging hubs for fleet vehicles. Long-distance passenger trips can also be provided by smaller-size electric public transit vehicles that can utilize publicly accessible NEVI-compliant EVSE located along AFCs. In pursuit of the *MI Healthy Climate Plan* goals, Michigan aims to purchase 100% zero-emission public transit vehicles and school buses by 2030.[80]

8.3 FYs 2023-2026 Infrastructure Deployments

As noted earlier, prior to the NEVI Formula Program, Michigan's public and private entities analyzed and implemented EV charging stations to advance the state's charging network through several programs. The programs include MPSC-approved EV pilots from UPPCO, DTE Energy, Consumers Energy, Indiana Michigan Power, and Alpena Power Company. Those entities' territories collectively serve over 90% of Michigan residents.[81] A list of the active investor-owned electric utility EV pilot programs is provided in Table 19.

Table 19: Electric Utility EV Pilot Program Comparisons

Company*	Program	Rate Case	Money Approved	DCFC Rebates	Level 2 Charger Rebates	Residential Rebates
UPPCO	N/A	U-21137	Up to $750,000	Up to $70,000 per DCFC	N/A	N/A
DTE Engergy	Charging Forward	U-20162	$13 million	$50,000	$2,500	$500
Consumers Energy	PowerMIDrive	U-20134	$10 million	Up to $70,000 per DCFC	$5,000	$500
Consumers Energy	PowerMIDrive and PowerMIFleet	U-20697	$12 million (PowerMIFleet)	$500,000 (up to $70,000 for public use and $35,000 for non-public use)	N/A	N/A
Indiana Michigan Power	IM Plugged In	U-20359	$675,000	$20,000	$2,500	$500
Alpena Power Company		U-21234				

*On July 27, 2022, the MPSC in docket number U-21234 approved Alpena Power Company's EV Pilot Program

EGLE, LEO, MDOT, and MPSC are strategizing on how these and other programs, as well as the remaining VW funds, can be used in coordination with the NEVI funds for the greatest benefits to the State of Michigan and the local workforce. In some cases, this may be through matches of NEVI Formula Program funds or involve funding State priorities that are not a focus of the NEVI Formula Program.

The Charge Up Michigan Program is being delivered using an equal funding split among VW funds, an electric utility, and an EVSE/site host. Once the procurement details are finalized, Table 20 will be populated with the NEVI funding splits.

Table 20: 2023-2026 Infrastructure Deployments

	Federal*	Utility*	Submitter*
Spending in Years 2-5 of NEVI Formula Program			
Percent			

*Columns to be populated after the State's procurement details are finalized

8.4 State, Regional, and Local Policy

Policy considerations at the state, regional, and local levels are vital to the success of EV adoption. Such considerations are discussed below.

8.4.1 State Policy

In Michigan, changes to provide policy support for EVs are being enacted at the State level. Governor Whitmer signed an executive order in 2020 setting forth goals to achieve carbon neutrality by no later than 2050. An executive directive in 2020 established the OFME. Implementing Statewide policies in support of electrification is an integral part of Michigan's goal to decrease GHG emissions while significantly increasing public health, social equity, and economic development.[82, 83] State agencies driving electrification policy and their basic roles are identified in Table 5.

Policy recommendations in the *Council on Future Mobility & Electrification 2021 Report* cover multiple areas of consideration, such as building/development codes, permitting, incentives to support EV adoption, state EV fees, clean fuels standards, utility rate cases, cybersecurity, economic development, workforce training, and education. Some recommendations include pairing economic development and talent goals; expanding research and development tax credits, with specific electrification targets; creating a talent attraction and retention fund to increase the workforce by 2030 to 15,000 advanced mobility employees; and establishing an EV Academy to educate and train a skilled workforce. With the Charge Up Michigan Program, the State is already well-established in creating and maintaining EVSE partnerships, so CFME recommends a legislative vehicle to support the development of State-administered incentive programs and a utility-administered incentive program overseen by MPSC. EVSE policy recommendations include analyzing which EV consumer incentives would best increase equitable EV adoption in Michigan and the impact of electrification on traditional transportation infrastructure financing systems, updating the Michigan Uniform Energy Code and Michigan Residential Code to require EV readiness for new construction, supporting EV readiness in building

codes, pursuing federal funding for EVSE, funding a transit and school bus electrification transition pilot program, and continuing to incentivize EVSE purchase and installation.[84]

The CFME also recommended the establishment of strategic economic development and site readiness funds to attract and grow EV-related investments in the state. The resulting Strategic Outreach and Attraction Reserve (SOAR) fund was vital to multiple business development opportunities, most notably the historic, seven-billion-dollar General Motors investment in EV production.[85] CFME also recommended the State invest $25 million in a Mobility Futures Initiative. This initiative was created in the State's FY 2022 budget and is being used to support mobility and electrification projects. The funds will help Michigan retain its global leadership position in mobility by making investments in the EV manufacturing and EV charger manufacturing, installation, and maintenance workforces; supporting communities' transitions to electrified mobility and related economic impacts; and encouraging more mobility and electrification innovation. The State's FY 2024 budget includes $21.3 million for clean energy and electric vehicle infrastructure investments, and an additional $1 million to begin transitioning the State's fleet to electric vehicles.

OFME has also founded a new partnership between the State of Michigan, Ford, Google, and the City of Detroit to create an innovation hub in the city's Corktown District. Corktown is home to the Michigan Central Station, a formerly abandoned train depot, which is being redeveloped into an advanced mobility campus. This new partnership will co-operate the Michigan Central Innovation District, a unique geographical zone with streamlined permitting access for testing real-world mobility and electrification technology applications. It provides collaborative workspaces and access to capital and startup investments and will focus on economic, workforce, and community development while supporting mobility and electrification innovation.[86]

Michigan also leverages tax policy to support transportation electrification. Charging station owners are eligible for a personal property tax exemption under Section 211.9o of Michigan's General Property Tax Act if the aggregate value of all industrial or commercial personal property in a local taxing jurisdiction is less than $80,000. The exemption may be claimed in each local taxing jurisdiction. The total value limit for the exemption will automatically increase to $180,000 per local taxing jurisdiction beginning in the 2023 tax year. The State also provides an alternative energy personal property tax exemption for qualifying alternative energy systems under Section 211.9i of the General Property Tax Act.

8.4.2 Regional Policy

With regard to the Midwest region, Michigan joined REV Midwest through an MOU with Illinois, Indiana, Minnesota, and Wisconsin in September 2021. The REV Midwest MOU creates a regional framework to spur vehicle electrification in the Midwest. Taskforce coordinating activities include accelerating medium- and heavy-duty fleet electrification, elevating economic growth and industry leadership, and advancing equity and a clean environment.[87]

Within the state of Michigan itself, MPOs play an important role regionally in identifying local needs, communicating with local governments, and providing guidance and support to smaller jurisdictions. In some cases, MPOs are evaluating regional EV infrastructure needs and helping secure additional funds for infrastructure. Another important role of MPOs is to ensure that transportation projects are in conformance with the National Ambient Air Quality Standards (NAAQS) and support transportation-related pollution reduction in nonattainment areas.[88]

8.4.3 Local Policy

Michigan's local governments perform a vital role in regard to EV policy. Cities are installing EV charging stations, purchasing electric fleet vehicles, and retiring internal combustion engine vehicles. Budgets include carbon reduction goals and EV purchases for fleets. Development and zoning codes are being modified to allow EV-only parking spaces to count as minimum parking spaces and for EV parking spaces and the EV readiness of new infrastructure to be required. For example, the Cities of Ann Arbor, Dearborn, and Ferndale and the Village of Milford added EV parking regulations to their codes. As a result of Ann Arbor, Grand Rapids, and Ypsilanti joining the Climate Mayors EV Purchasing Collaborative, those municipalities will receive substantial cost savings on EV purchases.[89, 90, 91, 92, 93, 94]

8.4.4 Planned Charging Stations

MDOT is in the midst of the NEVI Round 1 procurement process to award contracts for the deployment of charging stations. Therefore, MDOT does not yet have charging stations that are planned or under construction. EGLE's Charge Up Michigan Program, along with private companies like Electrify America, have charging stations planned and sites going through construction currently that are separate from the NEVI roll-out, but will be considered as future funding decisions are made.

Table 21: Stations Under Construction

State EV Charging Location Unique ID*	Route (note if AFC)*	Location (street address)*	Number of Ports*	Estimated Year Operational*	Estimated Cost*	NEVI Funding Sources*	New Location or Upgrade?*

* Columns to be populated after the contracts are awarded by the State.

Table 22: Planned Stations

State EV Charging Location Unique ID*	Route (note if AFC)*	Location (street address)*	Number of Ports*	Estimated Year Operational*	Estimated Cost*	NEVI Funding Sources*	New Location or Upgrade?*

* Columns to be populated after the contracts are awarded by the State.

8.4.5 Planning Towards a Fully Built Out Determination

Based on the latest information we have today, the Round 1 procurement will cover the installation of up to 184 NEVI chargers at 46 sites. Michigan is currently preparing to advertise an RFP for these sites. To obtain a Fully Built Out determination preliminary calculations indicate that another 12 locations are needed across Michigan's AFCs.

Round 2 would include sites not awarded in Round 1, existing DCFC locations listed in Table 12 that need upgrades to meet NEVI requirements, along with 12 additional sites needed according to a

preliminary termini and segment site analysis based on FHWA's NEVI Formula Program Guidance Update (June 2, 2023), as shown in Table 23.

Table 23: Additional Sites Needed to Obtain Fully Build Out Determination

Revised Criteria	Additional Sites Needed
All Termini (within 25 miles must have 1 location)	• I-196: 1 charger location • US-131: 1 charger location • US-127: up to 1 charger location (dependent on I-94 selection) • I-96: 2 charger locations (one at each terminus) • I-69: 1 charger location • US-31: 2 charger locations (one at each terminus)
Segments less than 25 miles = 1 location	• I-275 (~30 miles): 2 charger locations • I-696 (~30 miles): 2 charger locations
Loops: less than 25 miles= 1 location, 25<x<50 miles = 2 locations	N/A
Total	**~12 additional locations needed**

To attain Fully Built Out status, every AFC termini must now have an existing or proposed NEVI compliant charger within 25 miles of the termini. At AFC segments less than 25 miles in length, there must be an existing or proposed NEVI compliant charger along the segment. Also, at AFC segments longer than 25 miles and less than 50 miles, the segment must have two existing or proposed NEVI compliant chargers. From the preliminary termini and segment site analysis, eight chargers are needed within 25 miles of AFC terminus and four chargers are required on shorter segments to meet the new requirement.

In 2023, a detailed site analysis will determine the exact number of required sites needed for the Round 2 procurement. If all locations are awarded as part of the Round 1 and Round 2 procurement, MDOT could be fully built out by 2025, once chargers are confirmed as operational, as indicated previously in Table 3.

Chapter 9 Implementation

As described in Chapter 5, the State will comply with all federal and State legal provisions. To achieve the State's goals, Michigan is using a competitive procurement program to award and disburse NEVI Formula Program funds.

9.1 Strategies for EVSE O&M

EV charging station manufacturers, installers, and network integrators should all meet EVSE qualifications and responsible contracting requirements. Table 24 identifies important considerations for governmental agencies, utility companies, and other parties involved in providing specifications for EV charging equipment installation and O&M.

Table 24: Considerations for Charging Equipment Installation and O&M

Category	Considerations for Charging Equipment Installation and O&M
Ownership	• Government property, including facilities, easements, and Right of Way (ROW) • Private property
Payment	• Pricing constraints • Personal information security • Non-membership for charger use • Customer support
Operations	• Terms and conditions, including agreements, contract durations, fees and requirements, and cost-sharing • Site improvements and equipment updates • 24/7 service phone numbers
Maintenance	• Warranty • On-hand materials and components • Permissible downtime • Hardware/software upgrades • Property clean-up
Charge Management	• Open Charge Point Protocol (OCPP) network connections • Demand management • Peak operation conditions • Conformance testing for charger software and hardware to follow International Organization for Standardization (ISO) standards
Data Collection and Monitoring	• Reporting • Remote restarts

9.2 Strategies for Identifying EV Charger Service Providers and Station Owners

The State's procurement process and contracts with service providers and station owners for NEVI Formula Program funds will seek to ensure the considerations listed in Table 24 for NEVI-funded EVSEs are addressed. Outreach to industry will continue to support strong program participation.

9.3 Strategies for EVSE Data Collection & Sharing

Data will be collected and shared with FHWA through the EV ChART tool in three categories: one-time data, quarterly data and annual data. Table 25 breaks out the timeline and detail of each data submission.

Table 25: Timeline and Detail of Data Submittal Requirements

One-time	Quarterly	Annual
(1) The name and address of the private entity(ies) involved in the operation and maintenance of chargers. (2) Distributed energy resource installed capacity, in kW or kWh as appropriate, of asset by type (*e.g.,* stationary battery, solar, etc.) per charging station; and (3) Charging station real property acquisition cost, charging equipment acquisition and installation cost, and distributed energy resource acquisition and installation cost; and (4) Aggregate grid connection and upgrade costs paid to the electric utility as part of the project, separated into: (i) Total distribution and system costs, such as extensions to overhead/underground lines, and upgrades from single-phase to three-phase lines; and (ii) Total service costs, such as the cost of including poles, transformers, meters, and on-service connection equipment.	(1) Charging station identifier that the following data can be associated with. This must be the same charging station name or identifier used to identify the charging station in data made available to third-parties in § 680.116(c)(1); (2) Charging port identifier. This must be the same charging port identifier used to identify the charging port in data made available to third-parties in § 680.116(c)(8)(ii); (3) Charging session start time, end time, and any error codes associated with an unsuccessful charging session by port; (4) Energy (kWh) dispensed to EVs per charging session by port; (5) Peak session power (kW) by port; (6) Payment method associated with each charging session; (7) Charging station port uptime, T_outage, and T_excluded calculated in accordance with the equation in § 680.116(b) for each of the previous 3 months; (8) Duration (minutes) of each outage.	(1) Maintenance and repair cost per charging station for the previous year. (2) For private entities identified in paragraph (c)(1) of this section, identification of and participation in any State or local business opportunity certification programs including but not limited to minority-owned businesses, Veteran-owned businesses, woman-owned businesses, and businesses owned by economically disadvantaged individuals.

*Table only reflective of CFR 680, not including EV ChART guidance.

The one-time and annual data will be shared on or before March 1st of each year, beginning in 2024, and the quarterly data will be shared based on calendar quarters. Additional data may be collected as the program matures.

EVSE data collection and sharing will follow the requirements in FHWA's *23 Code of Federal Regulations (CFR) Part 680*. Only customer data that is necessary for charging will be collected, and it will be safeguarded (see Chapter 12 for more details).

Service Providers will be responsible for sharing data with third-party software developers via a free application programming interface (API). This will be governed by the state's contract with the Service Provider. EGLE is in the process of establishing data sharing agreements with all service providers that participate in the NEVI program.[95] Data to be shared includes, at a minimum:

- Unique charging station name or identifier
- Address (street address, city, State, and zip code) of the property where the charging station is located
- Geographic coordinates in decimal degrees of exact charging station location
- Charging station operator name
- Charging network provider name
- Charging station status (operational, under construction, planned, or decommissioned)
- Charging station access information:
    - Charging station access type (public or limited to commercial vehicles)
    - Charging station access days/times (hours of operation for the charging station)
- Charging port information:
    - Number of charging ports
    - Unique port identifier
    - Connector types available by port
    - Charging level by port (DCFC, AC Level 2, etc.)
    - Power delivery rating in kilowatts by port
    - Accessibility by vehicle with trailer (pull-through stall) by port (yes/no)
    - Real-time status by port in terms defined by Open Charge Point Interface 2.2.1
- Pricing and payment information:
    - Pricing structure
    - Real-time price to charge at each charging port, in terms defined by Open Charge Point Interface 2.2.1
    - Payment methods accepted at charging station

9.4 Strategies to Address Resilience, Emergency Evacuation, Snow Removal, and Seasonal Needs

The *MM2045* vision specifically addresses resilience and the importance of a sustainable, environmentally, and economically resilient transportation system in Michigan. *MM2045* devotes an entire chapter to network resiliency and the value of resilience to MDOT. Resilience is among the plan's themes, with strategies about increasing the resilience of the state's transportation network and infrastructure.[96]

In extreme weather and during emergencies, continued access to EV charging infrastructure ensures first responders and the general public remain able to travel as needed. Chargers must be located with consideration given to flood and other weather-related risks, as well as drainage and the ability

for prompt snow removal. MDOT spends approximately 40% of its total maintenance budget on winter maintenance each season. While all AFCs have Priority Level 1 status, which prioritizes the winter maintenance services along these corridors under prevailing weather conditions over the remaining road network in Michigan, local access to the chargers, which will be located in parking areas, has similar priority treatment.[97] In the event of a weather emergency, natural disaster, or human-caused incident, consideration of redundant power sources and the power grid's capability of accommodating increased demand are necessary. Agencies can support policies and projects that enhance resilience and emergency preparedness through technologies such as vehicle-to-grid (V2G), stationary and mobile battery storage, distributed generation, and microgrids.[98]

While hurricanes and wildfires are the most likely causes of evacuation, neither is common in Michigan. Nonetheless, if a mass evacuation is necessary, it will be critical to ensure that people can charge EVs and electric buses along evacuation routes and that response team vehicles are supported. It is important to consider the increased demand for and capacity of the electrical system, as well as the potential for vehicles to queue while waiting to charge. This can be mitigated by longer battery ranges, grid capacity improvements, more DCFCs with decreased distances between them, limited vehicle charging times, and earlier evacuation notices.[99] If a disaster or imminent severe weather can be predicted, it will be essential for electric utilities and public agencies to communicate to EV owners the need to charge vehicles preemptively. Legislation may also be enacted requiring EV charging stations along evacuation routes to have backup generators and/or battery storage, though this alone may not be able to ensure adequate power.[100]

EV batteries may be able to provide backup power to communities that lose electricity.[101] Mobile charging stations may also be capable of providing backup power or roadside assistance and supporting critical responses and evacuations during emergency scenarios.[102] However, such stations may need to be able to operate in isolation of the broader electric grid if the power grid becomes damaged or nonfunctioning as a result of a disaster. Battery swapping, another resilience option, requires charged battery reserves.[103] As the State and vendors deploy EV chargers, they should coordinate with federal, State, and local emergency management entities to ensure that vehicle charging infrastructure is considered in emergency management plans and contracts and that equipment is in place to enhance system reliability and resilience prior to an emergency.

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

One of the State's core objectives is to enable its mobility workforce by assuring that entities and individuals working on EV charging infrastructure are appropriately trained and qualified to perform such work. The EV Jobs Academy is a cooperative of over 100 public and private partners identifying needed EV skills and developing postsecondary training programs. It is focused on transitioning the automobile manufacturing workforce and training utility workers and electricians. LEO awarded a grant to the Southeast Michigan Community Alliance (SEMCA), which will use the five-million dollars to create and improve training academies focused on providing industry-based skills. The academy will attract and train the workforce, especially historically underserved populations, to support the electrification of vehicles in Michigan.

The success of the Jobs Academy model has led the State to begin development of a new workforce training program to support the training of licensed electricians so they can become certified to the highest standard for the construction, installation, and maintenance of EV charging equipment. The

EV Infrastructure Training Program (EVITP), given its development via a collaboration of automobile and EVSE manufacturers, educational institutions, utility companies, electrical professionals, IBEW, and others, is the standard for certification of EV charger electricians. Training on and proficiency in installation standards and safety-related practices and procedures are imperative. As industry standards continue to advance rapidly, design professionals, vendors, and contractors must ensure employees' skills are regularly updated.[104]

The State will specify that contractors and subcontractors use EVITP-certified electricians to install and maintain the EVSE funded by the NEVI program.

Table 26 below identifies considerations for training, labor, safety, and installation.

Table 26: Considerations for Training, Labor, Safety, and Installation

Category	Considerations for Training, Labor, Safety, and Installation
Training	• Local workforce, EVITP, and community colleges • Electrical workers, utility workers, mechanics, and inspectors
Labor Qualifications	• Contractor experience, including number of prior installations and certification
Safety Compliance	• National Fire Protection Association (NFPA), National Electrical Code (NEC), industry, and local standards • Emergency response plans • Emergency shutoffs
Installation Requirements	• DCFC or Level 2; kWs • National standards, ADA compliance • UL or equivalent equipment certification • Procurement schedules • Permitting • Distribution panels, metering • Temperature tolerance • Inspections

Chapter 10 Equity Considerations

To ensure equity considerations for underserved communities, funding will address the historically disproportionate adverse impacts of transportation on infrastructure, housing, and clean air in DACs. NEVI Formula Program funds will be used to maximize benefits to DACs, as well as rural and underserved communities, in alignment with the Justice40 Initiative. The funds will help support environmental justice efforts, integrate climate justice into NEPA processes, and reduce exposure of DACs to GHG emissions, pollutants, and hazardous wastes.

10.1 Identification of and Outreach to DACs in the State

As identified in the *MI Healthy Climate Plan*, transportation represents approximately 28% of total GHG emissions in Michigan.[105] DACs are more likely to have a high number of energy-burdened households and to be impacted by pollution and poor air quality.

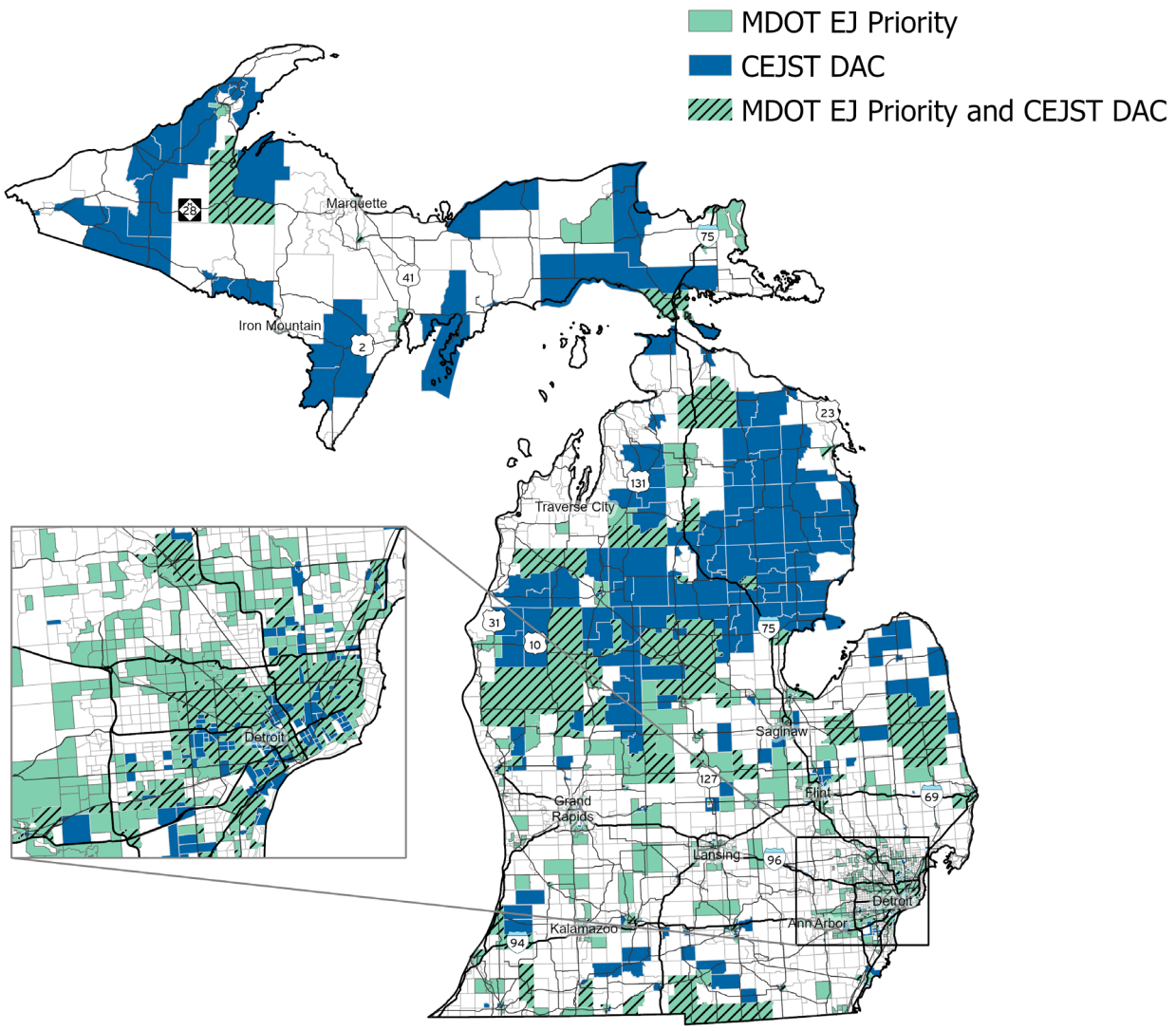
The State uses methods outlined by the DOE and USDOT to identify Census tracts containing DACs to target investments in those areas. Figure 17 shows the DACs identified using the Climate and Economic Justice Screening Tool[106] (CEJST) in conjunction with MDOT's Environmental Justice Priority tool, which leverages 2021 5-year American Community Survey (ACS) data.

The state contains over 7,015 square miles of DACs (12% of the state's land) and more than 682 square miles of tribal lands (one percent of the state's land). Federally recognized tribal lands and U.S. territories are categorized as DACs in accordance with the Office of Management and Budget's (OMB's) definition of community. The State recognizes that tribal nations have faced disproportionate burdens and are especially vulnerable to the impacts of pollution because of their deep ties to the land and reliance on hunting, fishing, and gathering.

MDOT's Round 6 AFC nominations serve DACs that suffer disproportionate negative impacts from emissions, supporting Justice40 and environmental justice efforts. Ready, Pending, and Nominated AFCs constitute over 216 miles of the state's more than 2,119 miles of roads in DACs and 11 miles of roads in tribal lands.[107, 108]

The State recognizes its responsibility for ensuring fairness and accessibility in its programs, services, and activities and is committed to providing safe, equitable, and environmentally conscious transportation for Michigan residents. Through inclusive and comprehensive stakeholder and public engagement, MDOT and its partners will continue to identify ways to support DACs through the NEVI roll-out.

Figure 17: Michigan Disadvantaged Communities[109, 110]



10.2 Processes to Identify, Quantify, and Measure Benefits to DACs

The State is guided by the standards outlined in Executive Order 14008 and Justice40 and prepared to follow the standards established by the Joint Office.[111] The State actively pursues opportunities to transform systems and behaviors that disproportionately harm DACs. Michigan works to eliminate barriers to opportunity and provide additional resources to underserved communities. In response to range anxiety in rural Michigan, Round 6 AFC nominations were intended to make EVs more accessible in these areas. The process of identifying, quantifying, and measuring benefits to DACs is shown in Figure 18 below.

Figure 18: Process of Identifying, Quantifying, and Measuring Benefits to DACs

Potential benefits to DACs can be summarized as follows:

- Clean transportation access,
- Reduced transportation emissions,
- Improved air quality,
- Energy resilience,
- Decreased transportation cost burden,
- Jobs and job training, and

Through continued stakeholder outreach, the State will build upon these benefits and track metrics, see Table 27. Efforts may include focus groups, surveys, websites, and/or social media messaging, as well as outreach to existing community groups.

The State has identified increased accessibility to public transportation, resilience, and the measuring of economic and social disadvantages as priorities in Michigan. The *MI Healthy Climate Plan* states that approximately 19% of Michigan homeowners and renters do not have vehicles. Furthermore, nearly three out of every five jobs are not accessible by public transit. The State could track and measure lowered emissions as bus fleets are electrified and increase access to jobs. LDVs currently account for 65% of the transportation sector's GHG emissions. As investments in EV infrastructure are deployed and EV adoption is expanded, the State will track emission levels in line with the transportation sector's 2050 decarbonization goals. Furthermore, MPOs will track reductions in NAAQS pollutant emissions, especially in nonattainment areas.[112]

The State is implementing rebate programs to offset the purchase of new EVs and residential charging infrastructure. In 2021, MEDC and OFME launched the Michigan Mobility Funding Platform. Through the program, grant dollars are used to facilitate P3s that will help attract technology companies to Michigan, ultimately increasing the number of jobs available and the opportunities to enhance accessibility in underserved communities. The funds are focused on increasing access in rural and lower-income urban areas, in particular. Thus far through the program, the State has awarded over $500,000 in grant funding to mobility entities to support efforts to increase access to EVs by expanding vehicle charging infrastructure and identifying key locations for EV infrastructure within DACs.[113]

Table 27: Strategy for Tracking Benefits

Benefit Category	Metric	Baseline*	Goal*	Data Collection & Analysis Approach	Community Validation*
Reduced transportation emissions	Transportation GHG emissions				
Improved air quality	NAAQS pollutant levels				
Jobs and job training	# of new jobs				

*Baselines, goals, and community validation methods are currently under consideration by the State.

10.3 Benefits to DACs through this Plan

EV adoption in Michigan will benefit DACs by improving air quality and public health and expanding job opportunities. Michigan has an extensive manufacturing history and was home to 17% of total U.S. and 11% of North American vehicle production in 2018.[114] The state will continue to lead in providing next-generation transportation technology jobs to DACs.

Engagement practices with disadvantaged, underserved, and marginalized populations will be assessed on an ongoing basis to determine whether new or innovative approaches may be warranted to understand community needs and ensure engagement throughout project lifecycles better.

The State will calculate the benefits that flow from electrification and accrue in DACs over time, in congruence with guidance outlined by the federal government, and stakeholder and public engagement will ensure that communities agree with those benefits.[115, 116]

Chapter 11 Labor and Workforce Considerations

The State is focused on creating new job opportunities for all skilled trades, including electrical and construction work, while retaining today's manufacturing and transportation labor force through strategic workforce planning. The State is committed to fostering a diverse and inclusive industry.

As indicated in Chapter 9, and in compliance with 23 CFR 680.106(j), to ensure the installation and maintenance of chargers is performed safely by a qualified and increasingly diverse workforce of licensed technicians and other laborers, all electricians installing, operating, or maintaining Electric Vehicle Supply Equipment must receive certification from the Electric Vehicle Infrastructure Training Program (EVITP) or a registered apprenticeship program for electricians that includes charger-specific training developed as part of a national guideline standard approved by the Department of Labor in consultation with the Department of Transportation, if and when such programs are approved.

The Michigan EV Jobs Academy and Michigan EV Charging Jobs Academy developed by LEO will prepare Michigan's workforce for EV and charging station equipment jobs and career pathways. Michigan is the state with the largest 2021 energy sector job growth. The energy sector now constitutes 393,207 jobs, 255,622 of which are focused on motor vehicles, or 9.5% of the state's employment.[117]

In May 2022, LEO provided testimony on the EV workforce to the U.S. House Science, Technology, and Space Committee's Subcommittee on Research and Technology.[118] As part of that testimony, many of the following entities spearheading notable labor and workforce initiatives were discussed, as shown in Table 28.

Table 28: Labor and Workforce Initiatives

Entity	Labor and Workforce Initiatives
EV Charging Jobs Academy	To meet demand for the growing EV Mobility industry, Michigan will need to continue to upskill existing union electrical workers on EV charging technology, reinforce upskill training with hands-on lab experiences, integrate work-based learning, including expand engagement with those interested in exploring a career in the electrical industry which includes EV Charging Technologies. Further, the EV industry is growing rapidly and includes the integration of additional system technologies including solar energy, energy storage and bidirectional communication systems. The state is investing four million dollars over three years to ensure the American workforce adapts to the growing needs of the EV Infrastructure industry.

Entity	Labor and Workforce Initiatives
EV Jobs Academy / SEMCA	Together with SEMCA, the EV Jobs Academy will provide rapid and accelerated training and retraining on EVs, alternative fuels, and other advanced vehicle technologies. Eight employer-led collaboratives are working together to upskill Michigan's EV workforce.[119] The academy will provide the same strategic workforce training for electricians working on charging stations. The State is initially investing five million dollars over five years into the academy initiative. It will build off of the Michigan Alliance for Greater Mobility Advancement, founded in 2009 by six academic institutions, five Original Equipment Manufacturers (OEMs), and five suppliers, to upskill engineers and technicians for the production of EVs. At least 35% of academy participants are required to come from underrepresented populations. Graduates will earn credentials that align with Governor Whitmer's objective to grow the percentage of Michiganders who have post-secondary credentials to 60% by the year 2030.[120] EV Jobs Academy has identified an additional seven million in training dollars that is allocated directly to local workforce development boards to expedite much needed training and reskilling for individuals currently in or interested in careers in the mobility industry.
Ford / Michigan Central Innovation District	The City of Detroit, Ford, Google, and the State entered into a partnership to invest over $126 million into the Michigan Central Innovation District in Corktown. The four areas of focus for the partnership are workforce development, a designated Transportation Innovation Zone, economic development, and community development. This district is expected to create 5,000 jobs; be a hub for mobility innovation, talent, sustainability, small business opportunities, and community engagement; and be home to a one-mile EV wireless charging corridor. Ford is also developing a new battery facility in Michigan, investing $250 million in three other facilities in the state, and producing 450 new jobs in those three facilities.[121, 122]
General Motors	General Motors is investing seven billion dollars into its EV development and manufacturing facilities, which will create 4,000 new jobs and retain 1,000 others. 1,500 workers, the sixth highest figure in the nation, are currently employed at various battery OEM locations in Michigan.[123] General Motors has also committed to providing 2,200 jobs at its Hamtramck EV manufacturing facility.[124]
Stellantis NV	Stellantis NV is constructing PHEVs in Detroit, providing 4,100 jobs for Detroiters and 6,433 total jobs in Michigan.[125]
University of Michigan	LEO has allocated $130 million in general purpose funding for an EV teaching, training, and development center that will be located at the University of Michigan.

Chapter 12 Physical Security and Cybersecurity

12.1 Physical Security

Physical security standards are important to ensure a secure charging transaction for customers and for all vendors and utilities involved in the deployment. The following sample requirements will be reviewed for addition in the procurement process through the RFP and contract:

- Video surveillance of charging area
- Consideration of charger placement for safer visibility
- Adequate and effective lighting
- Fire prevention and suppression amenities
- Emergency call box
- Driver and vehicle safety
- Physical barriers around charger
- Tamper and vandalism resistant equipment design features
- Over-current protection for equipment
- Equipment design to reduce the risk of shock
- Retractable cords
- Inclusion of charge circuit interrupting device (CCID) or ground fault circuit interrupter (GFCI)
- Plan for notification of unexpected access to the charger

12.2 Cybersecurity

Cybersecurity and personal privacy risks continue to intensify as technology advances at a rapid pace, making cybersecurity plans and ongoing reviews necessary. Service Providers contracted to provide the EV charging stations will be responsible for cybersecurity for all charging services including EV chargers (procurement of the equipment and software); installation, and O&M of chargers; and data collection, access, management and sharing.

The State will use the *Michigan State Plan for Electric Vehicle Infrastructure Deployment* to update its procurement and contractual processes to ensure cybersecurity and privacy requirements are met. The State's RFP will be used to gain an understanding of high-level security and privacy practices proposed at each site, including physical and technological solutions, in place to protect the chargers, energy transmission, and data from cyberattacks. Data protection is critical during the data collection, transmission, sharing, storage, and destruction phases. This cybersecurity information will give the NEVI team an early understanding of the cybersecurity ability of the third parties, which can help define final contract terms.

After third-party providers are selected in the procurement process, the following items will be considered for requirement in final contracts:

- Annual updates addressing the following cybersecurity topics and strategies
    - User identification and access management
    - Minimize collection of personal information
    - Cryptographic agility and support of multiple public key infrastructures (PKIs)
    - Monitoring and detection activities

    - Incident prevention and handling including notification to MDOT and affected individuals
    - Configuration, vulnerability, and software update management
    - Third-party cybersecurity testing and certification
    - Continuity of operation when communication between the charger and the charging network is disrupted
- Privacy impact assessments and an understanding of general data privacy protection and data collection methodologies
- Statements of compliance to follow all federal, State, and local laws related to cybersecurity and privacy and with payment card industry requirements
- Subcontractor adherence to the same cybersecurity protections

Chapter 13 Program Evaluation

Program evaluation data will help the State assess the performance of the *Michigan State Plan for Electric Vehicle Infrastructure Deployment* vision and goals. Since the chargers installed as part of the NEVI Formula Program will be networked using OCPP standards, the State will be able to monitor and report on specific charger metrics, such as charger utilization, charger uptime, initial battery state-of-charge, time charging, time plugged in, energy delivered per port, number of sessions, monthly electricity costs (including demand charges, energy charges per kWh, fixed charges, taxes, and all other fees), and maintenance and repair costs. More general program progress will be reported quarterly and annually and is expected to discuss the following:

- EV adoption, equity impacts, environmental benefits, workforce effects, tourism impacts, and media and educational benefits; and
- Funds distributed per year; installation costs; the amount of time between initial funding allocation and chargers being operational; the amount of charge leveled per federal dollar; and site host feedback.

The State is planning to develop a data sharing portal to meet the FHWA data collection requirements and serve as a tool for the public to understand the successes and benefits of the program. A risk register will also be used for program evaluation, with strategies created to improve metrics that do not meet goals. In addition, detailed community engagement tracking will be completed annually, as required. Data collected throughout the program will help the program office adjust more efficiently as new information becomes available.

Chapter 14 Discretionary Exceptions

Michigan has identified two discretionary exceptions. Exception #1 is a future NEVI location along I-75 that will likely require an exception to meet the one travel mile distance requirement from the interstate. Exception #2 is an AFC segment along I-94 between two existing NEVI compliant charging sites that are slightly more than 50 miles apart and will require a 50-mile travel distance exception.

Table 29: Discretionary Exception Requests

Exception #	Type	Distance of Deviation	Corresponding AFC	Reason for Exception Request
1	☐ 50 miles apart ✓ 1 mile from exit	Up to about 1.5 miles, depending on exit selected	I-75	☐ Grid Capacity ✓ Geography ☐ Equity ☐ Extraordinary Cost
2	✓ 50 miles apart ☐ 1 mile from exit	1.7 miles	I-94	☐ Grid Capacity ✓ Geography ☐ Equity ☐ Extraordinary Cost

14.1 Exception #1: I-75

As shown in the Michigan NEVI Online Mapping Tool, Group K along I-75 in the Upper Peninsula is in a rural area with most services located greater than one-mile from the interstate. Exits 373, 378, and 379 were identified in Group K to meet the 50-mile distance requirement between a proposed NEVI site north in the Sault Ste. Marie area and south in the Mackinaw City area along I-75. Of these three exits, only one will be selected for a NEVI compliant site. Table 29 includes details about the request.

Since the State would like to keep the potential locations as open as possible to potential submitters, the proposed NEVI site will be located at one of the three exits in this group, all of which present challenges in terms of viable sites within one mile from the interstates. As such, this distance exception request applies to the three exits in this group.

Figure 19 shows the one-mile travel distance polygon along the road network for Exit 373 in blue. There are a limited number of businesses that operate within this polygon, none of which seem viable for a NEVI compliant charging site. There are potential sites located near the town center of Rudyard, which is about 1.5 miles (an exception of about 0.5 miles) from I-75 Exit 373.

Figure 20 also shows the one-mile travel distance polygons for Exits 378 and 379. Only one commercial establishment is within a one-mile travel distance of Exit 378 (Kinross EZ Mart/Sunoco) and no commercial establishments exist within a one-mile travel distance of Exit 379. There are potential sites located near the town center of Kincheloe, which is about 2.5 miles (an exception of about 1.5 miles) from I-75 Exit 378 or about 4.7 miles (an exception of about 3.7 miles) from I-75 Exit 379.

Another option would be to submit for a 50-mile distance exception between Sault Ste. Marie and Mackinaw City along I-75 since there is about 55 miles between the two areas, but the State's

preference is to include a NEVI compliant site between the two areas in order to serve this rural part of the state.

Figure 19: Discretionary Exception #1 - Exit 373

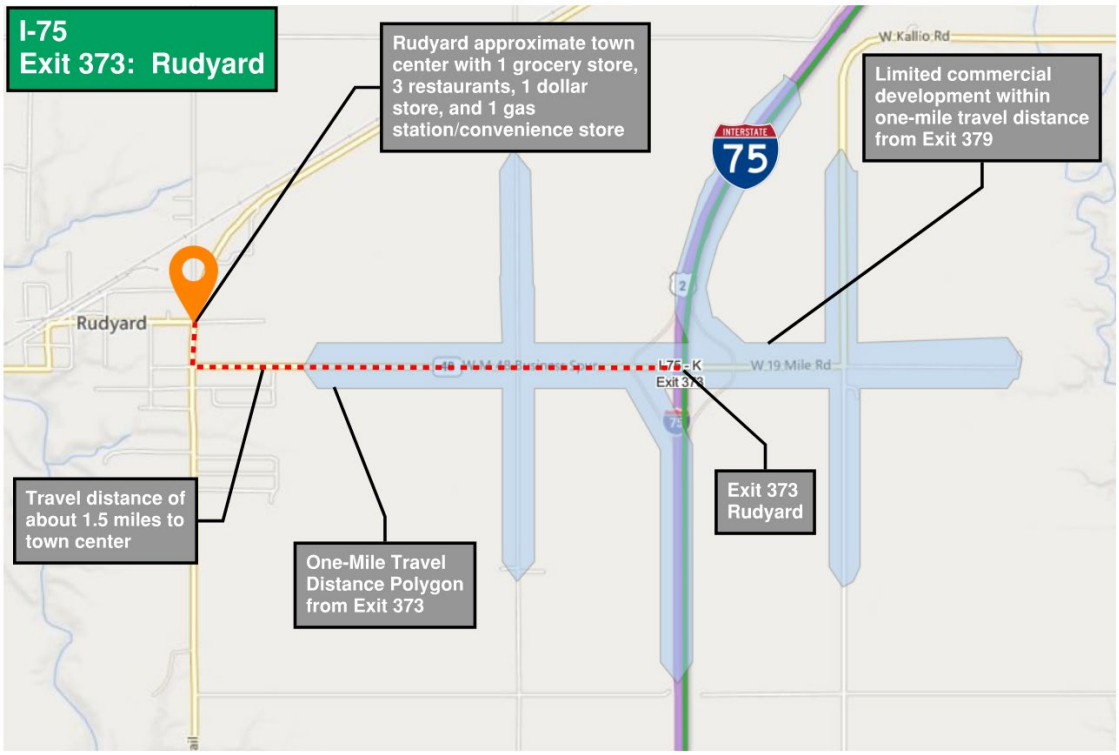
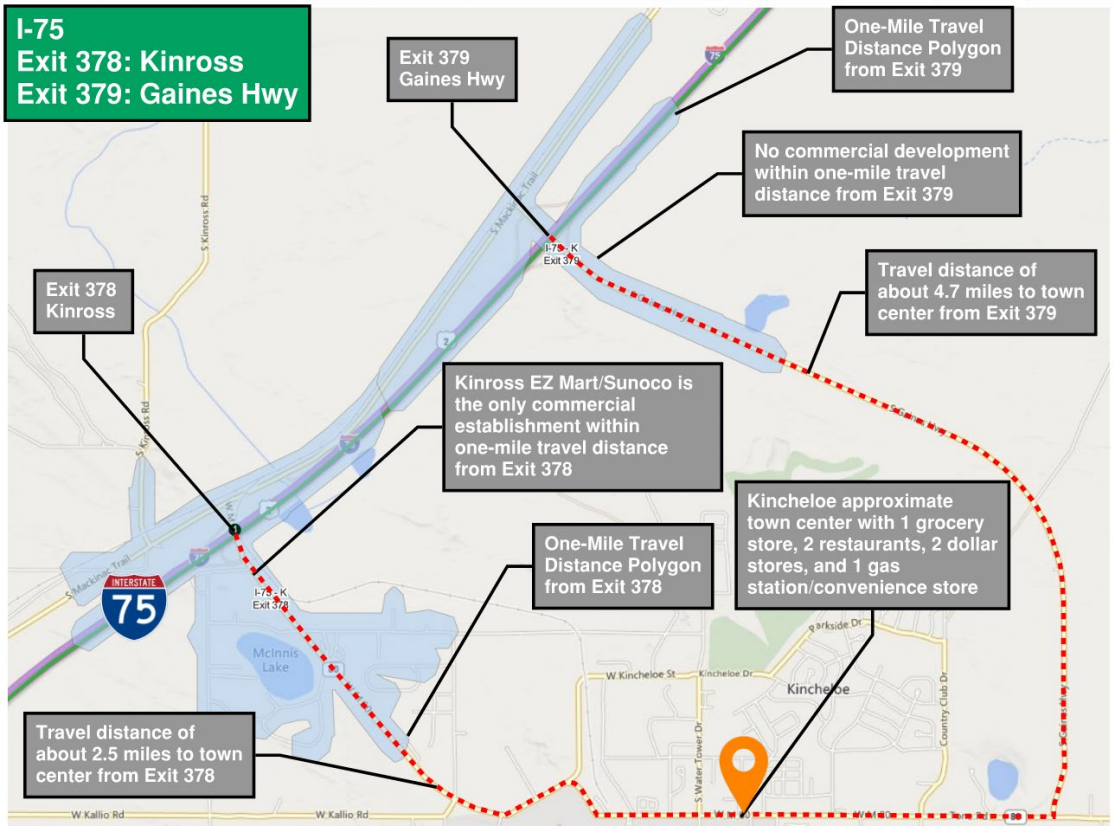


Figure 20: Discretionary Exception #1 - Exits 378 & 379

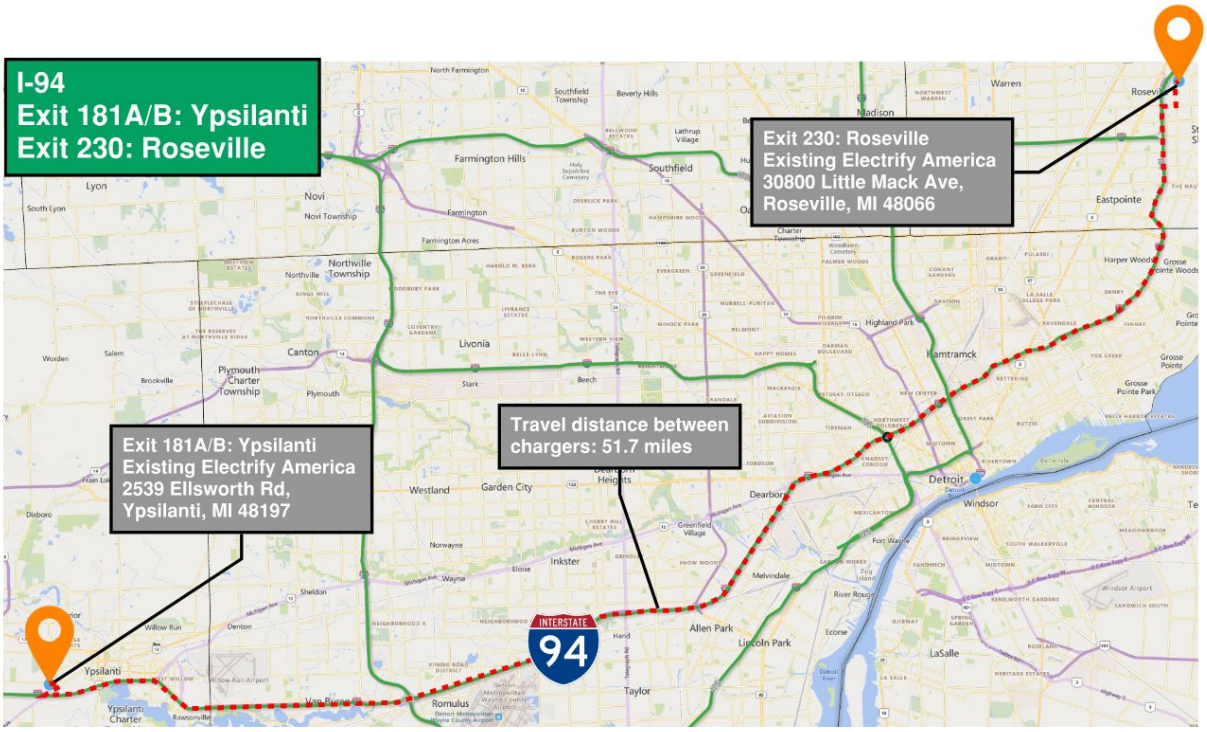


14.2 Exception #2: I-94 (Not Approved by FHWA)

Michigan has identified a part of I-94 where two existing NEVI compliant chargers require an exception to meet the 50-mile distance requirement between them, as shown in Figure 21. The stretch of I-94 goes through Detroit and the two chargers are 51.7 miles apart along the AFC. Both NEVI compliant chargers are 0.6 miles from the closest exits off I-94 in the cities Ypsilanti (Exit 181 A/B) and Roseville (Exit 230). The Ypsilanti charger is an existing Electrify America charger at 2539 Ellsworth Rd, Ypsilanti, MI 48197. The Roseville charger is an existing Electrify America charger at 30800 Little Mack Ave, Roseville, MI 48066.

The State wants to utilize existing NEVI compliant chargers to the greatest extent to optimize funding from the NEVI program. Thus, Michigan requests a 50-mile distance exception (a distance deviation of 1.7 miles) to not place an additional site within the I-94 segment between the existing NEVI compliant chargers in Ypsilanti and Roseville.

Figure 21: Discretionary Exception #2 - I-94



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