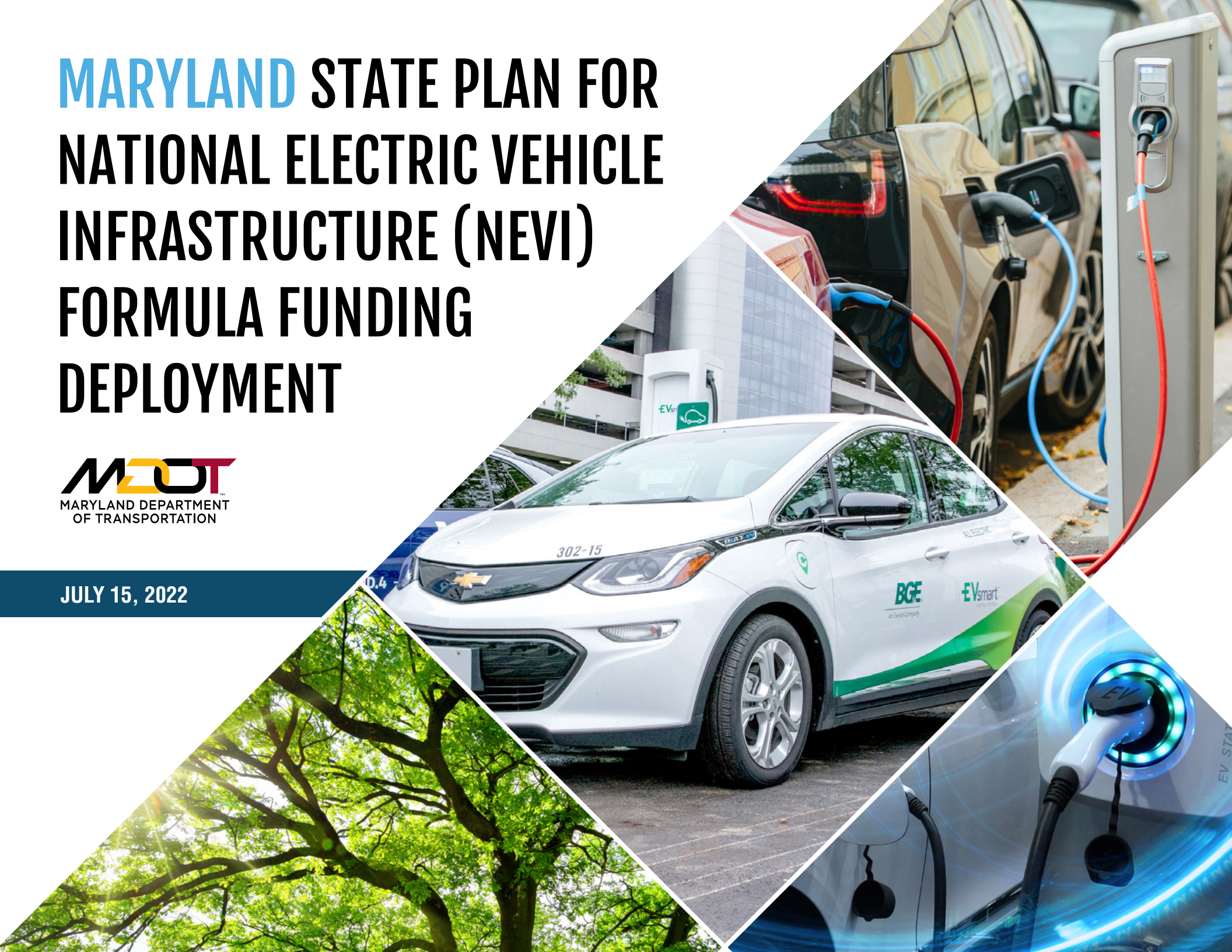
MARYLAND STATE PLAN FOR NATIONAL ELECTRIC VEHICLE INFRASTRUCTURE (NEVI) FORMULA FUNDING DEPLOYMENT

MARYLAND DEPARTMENT OF TRANSPORTATION

JULY 15, 2022



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MESSAGE FROM MARYLAND TRANSPORTATION SECRETARY JAMES F. PORTS, JR.

On behalf of the Maryland Department of Transportation (MDOT), and in close collaboration with the Maryland Energy Administration (MEA), I am pleased to submit Maryland's State Electric Vehicle (EV) Infrastructure Deployment Plan as required under the National Electric Vehicle Infrastructure (NEVI) Formula Program.

Maryland has been at the forefront of electrifying the transportation sector since 2007 with the passage of the Maryland Clean Cars Act and the creation and expansion of the Maryland Zero Emission Electric Vehicle Infrastructure Council (ZEEVIC) in 2011 and 2019, respectively. As a result of this leadership, Maryland has 23 designated EV corridors in our state that provide connections within our borders and serve as important thoroughfares for freight and passenger movement throughout the nation.

I would like to express my sincere gratitude to our partners, stakeholders, and communities that have remained dedicated to promoting EVs and their benefits and to developing policies, programs, and delivering projects that have accelerated the adoption of EVs and the deployment of an EV charging network in Maryland. Our collaborative efforts have resulted in Maryland's consistent ranking as a leading EV state by the Electrification Coalition, Kelley Blue Book, the American Council for an Energy-Efficient Economy, and others.

This NEVI Plan represents an important continuation of our work to electrify the transportation sector. I encourage all Maryland residents, stakeholders, private-public partnerships, and the EV industry to use this Plan, and its associated website and toolkit, as an opportunity to remain engaged and provide feedback.

Introduction

BACKGROUND

The Bipartisan Infrastructure Law (BIL) was enacted on November 15, 2021 as the Infrastructure Investment and Jobs Act (IIJA). The $5 billion National Electric Vehicle Infrastructure (NEVI) Formula Program was authorized under the Highway Infrastructure Program heading of the IIJA and provides dedicated funding to states to strategically deploy Electric Vehicle (EV) charging infrastructure.

The NEVI Formula Program apportions approximately $63 million to Maryland between federal fiscal years (FFY) 2022-2026, before any set-asides, with approximately $9.3 million allocated for FFY 2022.

MARYLAND'S NEVI PLAN

This document serves as Maryland's first State EV Infrastructure Deployment Plan as required under the NEVI Formula Program and will be referred to henceforth as the NEVI Plan.

This Plan acts as the foundation of Maryland's Zero Emission Vehicle Infrastructure Plan (ZEVIP) and was developed in close coordination with partners, stakeholders, and communities. It is a living document and was designed to be updated throughout the life of the NEVI program. The initial approval of the Plan by the Joint Office is required before Maryland can begin using the funding allocated under the IIJA.

Maryland ZEVIP

We Are Here

NEXT STEPS

NEVI FORMULA PLAN

- Required by August 1, 2022
- Unlocks ~$60M in MD
- Must use on Alternative Fuel Corridors (AFCs) 1st then Communities
- Submitted Annually
- 10% set-aside for national grant program

DISCRETIONARY $ FOR ZEV

- $2.5B of the $7.5B under BIL
- $1.25B for Corridor ZEV infrastructure along AFCs (EV, hydrogen, propane, natural gas)
- $1.25B for Community ZEV infrastructure
- Guidance Est. Late 2022

OTHER STATE PROGRAMS

- VW Settlement
- Clean Fuels Technical Assistance Program
- MD Smart Energy Communities
- Solar Canopy Grant Program
- MEA EVSE Program

OTHER FUNDING

Other Federal
- DOT
- DOE
- EPA

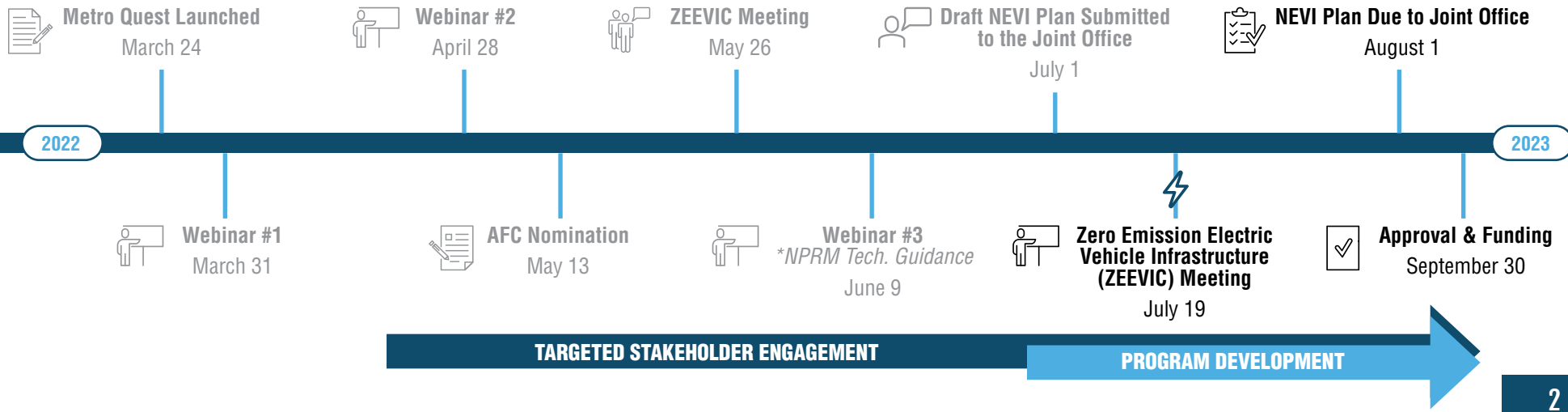
Private/Other Investment
- Site Hosts
- Network Companies
- PSC Pilot Program/Utility Investment

NEVI PROGRAM

- High-Level in Plan
- Details are Developing on Administration and Application

MARYLAND NEVI PLANNING TIMELINE

Maryland began the development of the NEVI Plan with the launch of a MetroQuest survey and a public webinar in March of 2022. Planning for the remainder of 2022 will include targeted stakeholder outreach and the development of Maryland's NEVI Program to obligate and distribute the NEVI funding that has been apportioned to Maryland for FFY 2022-2023. Per guidance from the Joint Office, NEVI Plans must be updated on an annual basis and the second round of NEVI Plans is slated to cover FFY 2024.



State Agency Coordination

Throughout the development and approval of Maryland's NEVI Plan, MDOT and the MEA coordinated with key state agencies. MDOT and MEA are working in partnership to develop the NEVI Plan and Program as MEA plays a critical role in achieving Maryland's goals for energy reduction, renewable energy, climate action, and green jobs through the offerings of grants, loans, rebates, and incentives. As the state's energy agency, MEA co-hosted the stakeholder webinars with MDOT and was a key contributor to the NEVI Advisory Group (AG).

The NEVI AG comprises several key state agencies including MDOT, MEA, the Maryland Department of the Environment (MDE), the Maryland Department of Planning (MDP), and the Public Service Commission (PSC). The AG meets to review, discuss, and provide feedback on polling and survey results, the vision and goals of the plan, data needs and analysis, identification of disadvantaged communities (DACs)/rural communities, and overall plan development.

In addition to regular meetings with the AG, Maryland continues to share information on NEVI and solicit feedback through the ZEEVIC. One-on-one meetings were also held with the Department of Commerce (Commerce) to discuss labor and workforce considerations, as well as MDP to further discuss data resources and needs, specifically Maryland-based, GIS census and land use data. A detailed list of ZEEVIC members (name, position, representing association) can be found on MDOT's ZEEVIC site here.

MARYLAND ZERO EMISSION
Electric Vehicle Infrastructure Council

ZEEVIC MEMBERS

State & Local Government

- MD Association of Counties (rural and urban/ suburban region)
- MD Energy Administration
- MD Department of Commerce
- MD House of Delegates
- MD Department of Transportation (Council Chair)
- MD Department of the Environment
- MD Municipal League (rural and urban/ suburban region)
- MD Office of People's Counsel
- Member from a MD Institution of Higher Education
- MD Public Service Commission
- MD State Senate
- MD Department of Planning

Industry Representatives

- EV Manufacturer
- Fuel Cell EV Manufacturer
- Fuel Cell EV Infrastructure Equipment Manufacturer
- New Vehicle Dealer Association
- Electric Companies
- Fleet Operators
- Electrical Workers
- EV Charging Station Manufacturer

Public & Community Representatives

- Public with Expertise in Energy or Transportation Policy
- Environmental Community
- EV Driver Advocacy Organization

Public and Stakeholder Engagement

Public engagement plays a critical role in the development of Maryland's NEVI Plan. MDOT/MEA implemented a proactive stakeholder engagement and public participation process to ensure input and feedback from both the public and stakeholders were incorporated throughout the planning process and will continue to be incorporated beyond Maryland's initial submission of the NEVI Plan to the Federal Highway Administration (FHWA).

STAKEHOLDERS

MDOT/MEA, in coordination with the NEVI AG, identified the following key stakeholder groups. Representatives from each of these stakeholder groups were engaged throughout the planning process and their input and feedback, captured through webinar polling and Q&As, the MetroQuest Survey, as well as one-on-one meetings, were incorporated in the development of this plan. Community Events are being planned where key staff can engage the public and others, going forward.

- **Utilities**
- **Network Companies** [EV Charging Manufacturers]
- **Disadvantaged/ Rural Communities**
- **Original Equipment Manufacturers (OEMs)/ Automakers**
- **Local Governments** and Planning Partners
- **Potential EV Charging Site Hosts**

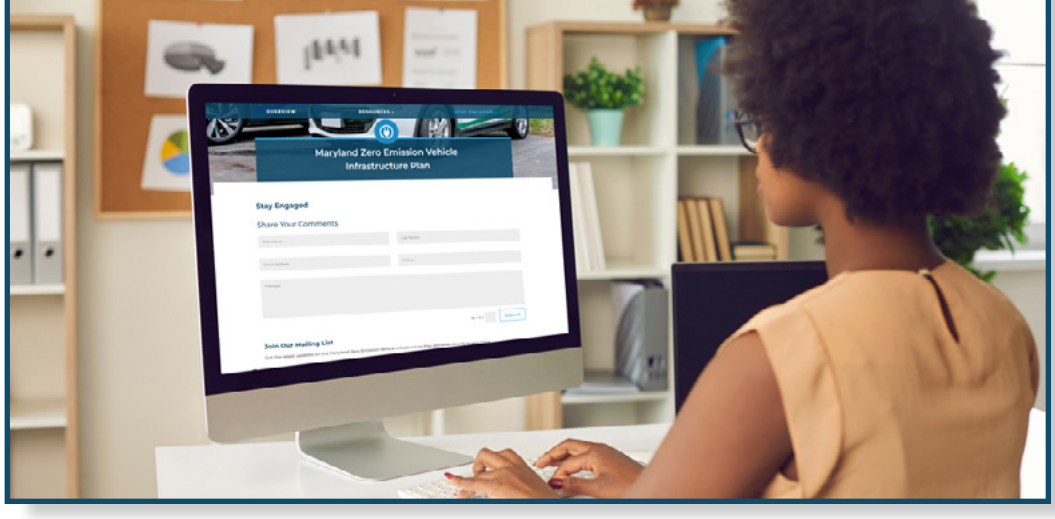
WAYS WE STAY ENGAGED

- **Website**
- **Webinars**
- **Surveys and Polling**
- **Community Events**

OUTREACH ACTIVITIES

WEBSITE

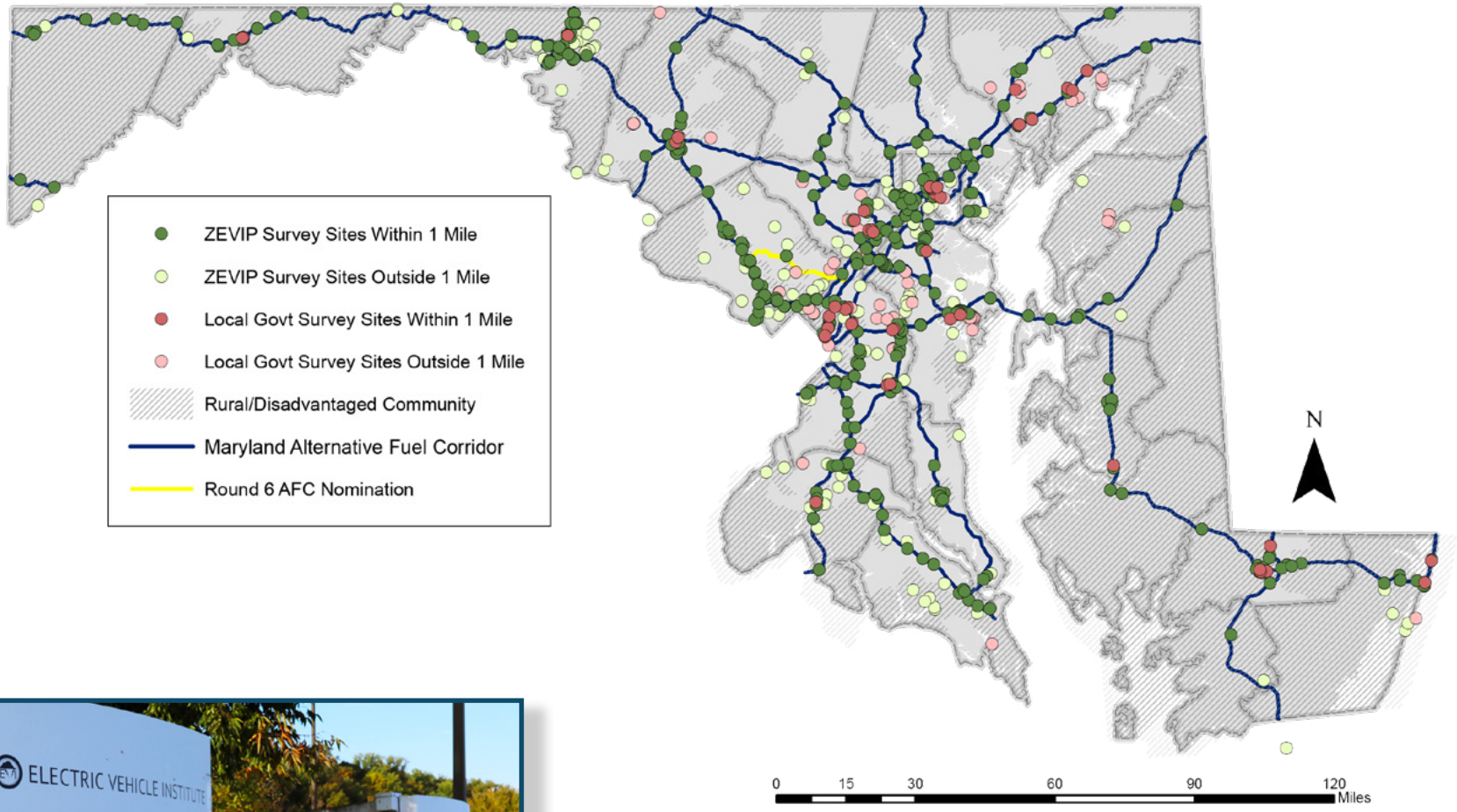
MDOT/MEA developed the Maryland ZEVIP website to serve as a primary resource for both the public and stakeholders. This site provides an overview of NEVI, highlights milestones, plan updates, upcoming meetings, and provides previous webinar slides and summaries. The website also allows the public to stay engaged with the planning process by joining the mailing list or providing comments or feedback related to the deployment of EV infrastructure in Maryland.



OUTREACH BY THE NUMBERS

- **2,070 Website Views**
- **293 Survey Participants**
- **502 Optimal Sites Identified**
- **987 Unique Visitors**
- **3 Webinars**
- **332 Webinar Participants**
- **5 State Agencies Engaged**
- **6 Planned Community Events**
- **3 Presentations to Partner Organizations**

OPTIMAL CHARGING LOCATIONS IDENTIFIED VIA METROQUEST SURVEYS



METROQUEST SURVEY

A web based MetroQuest Survey was developed to provide a unique perspective from stakeholders and the public that will help shape and develop Maryland's plan to strategically deploy publicly accessible charging infrastructure. The survey launched on March 24, 2022 and consisted of rating the importance of ZEVIP vision and goals, identifying prioritization criteria, concerns, and AFCs for prioritization, as well as dropping pins on a map to help identify optimal locations for the EV charging stations. This survey built on previous MetroQuest surveys developed by MDOT, including the Local Government EV Survey, which identified challenges faced by local governments with installing charging stations as well as the location of optimal and planned charging station.

WEBINARS

MDOT, in collaboration with MEA, conducted three webinars to provide updates on the development of the NEVI Plan and to seek input from the public and stakeholders through interactive polling and Q&A opportunities. In total, 332 participants attended the three webinars covering NEVI, Maryland's AFC and infrastructure build-out needs, equity considerations, identification of disadvantaged communities, stakeholder engagement and results, site selection criteria including both location-based and non-location-based considerations, and the development of the Maryland ZEVIP Planning Toolkit, which is a location-based assessment tool for the deployment of new technologies.

WEBINAR #1

158 attendees

Topics:

- Overview of NEVI and AFCs
- Draft Vision & Goals
- ZEVIP Priorities

WEBINAR #2

82 attendees

Topics:

- Initial Corridor Analysis
- Equity/Disadvantaged Communities
- Initial Considerations

WEBINAR #3

92 attendees

Topics:

- Public & Stakeholder Engagement
- Maryland ZEVIP Planning Toolkit
- Program Considerations

PRESENTATIONS

In addition to the webinars above, MDOT/MEA utilized two forums – ZEEVIC Meetings (March and May) and the Commuter Choice Maryland webinar – to provide updates on the NEVI planning process. These public forums also provided an opportunity to engage key stakeholders, including utilities, state agencies, Original Engine Manufacturers (OEMs), EV advocacy and environmental organizations, local planning partners, and electric vehicle supply equipment (EVSE) manufacturers. MDOT also continues to promote the NEVI plan and solicit feedback through regularly scheduled planning meetings with our local planning partners and with Maryland's Metropolitan Planning Organizations (MPOs).

FUTURE OUTREACH

Future outreach activities that will occur during the 5-year NEVI program period have been identified. MDOT, in partnership with MEA, will continue to promote the NEVI plan and solicit feedback through regularly scheduled planning meetings with our local planning partners and with MPOs. These activities will build on and complement MDOT's existing efforts and will also help to increase the opportunities and avenues for stakeholder and public engagement throughout the planning and implementation process.

COMMUNITY EVENTS

The Maryland ZEEVIC has been working to increase EV awareness by meeting Marylanders in their communities at planned events and festivals throughout the state. Since 2017, ZEEVIC, through Maryland EV, has engaged over 7,300 people through 25 events. While attendance at in-person events was paused due to the Pandemic, in-person outreach will resume in 2022 with three community events scheduled in July and August. These events will provide MDOT with an avenue to engage and gather input directly from residents of Central Maryland, Western Maryland, and the Eastern Shore.

TARGETED STAKEHOLDER OUTREACH

In addition to providing updates and soliciting feedback from stakeholders through the planned ZEEVIC meetings, MDOT/MEA anticipates holding targeted outreach meetings with the following stakeholder groups:

- Maryland Utilities
- EVSE Manufacturers
- OEMs/Automakers
- Disadvantaged Communities
- Potential Site Hosts

Meetings with the utilities, EVSE manufacturers, OEMs, and potential site hosts will focus on challenges and opportunities related to the deployment and installation of EV charging infrastructure in the state, as well as any potential best practices that will assist in the development of contracting and funding programs.

MDOT, in consultation with MDE and MEA, will build upon previous outreach completed for the Northeast States for Coordinated Air Use Management (NESCAUM) Zero Emission Vehicle (ZEV) Action Plan and meet with members of DACs to discuss how EV infrastructure deployment can best provide benefits and meet the needs of their residents. To facilitate participation, MDOT, MEA, and MDE will work with these communities to determine the best means of outreach including the best media, venues, and timeframes to ensure robust and meaningful involvement.

PUBLIC INPUT OPPORTUNITIES

MDOT, in consultation with MEA, will continue to solicit public feedback and comments on the draft NEVI Plan, the ZEVIP Planning Toolkit, and NEVI Program through a suite of public engagement tools and websites. The primary sources for providing ongoing feedback are the Maryland ZEVIP Survey, and Maryland ZEVIP Website Comments Page. Feedback will also be gathered through the public meetings of the Maryland Commission on Climate Change (MCCC) and the Commission on Environmental Justice and Sustainable Communities (CEJSC). Future outreach efforts to stakeholders, DACs, and the public as well as the input received will be summarized in an annual community engagement outcomes report and submitted to the Joint Office.

Plan Vision and Goals

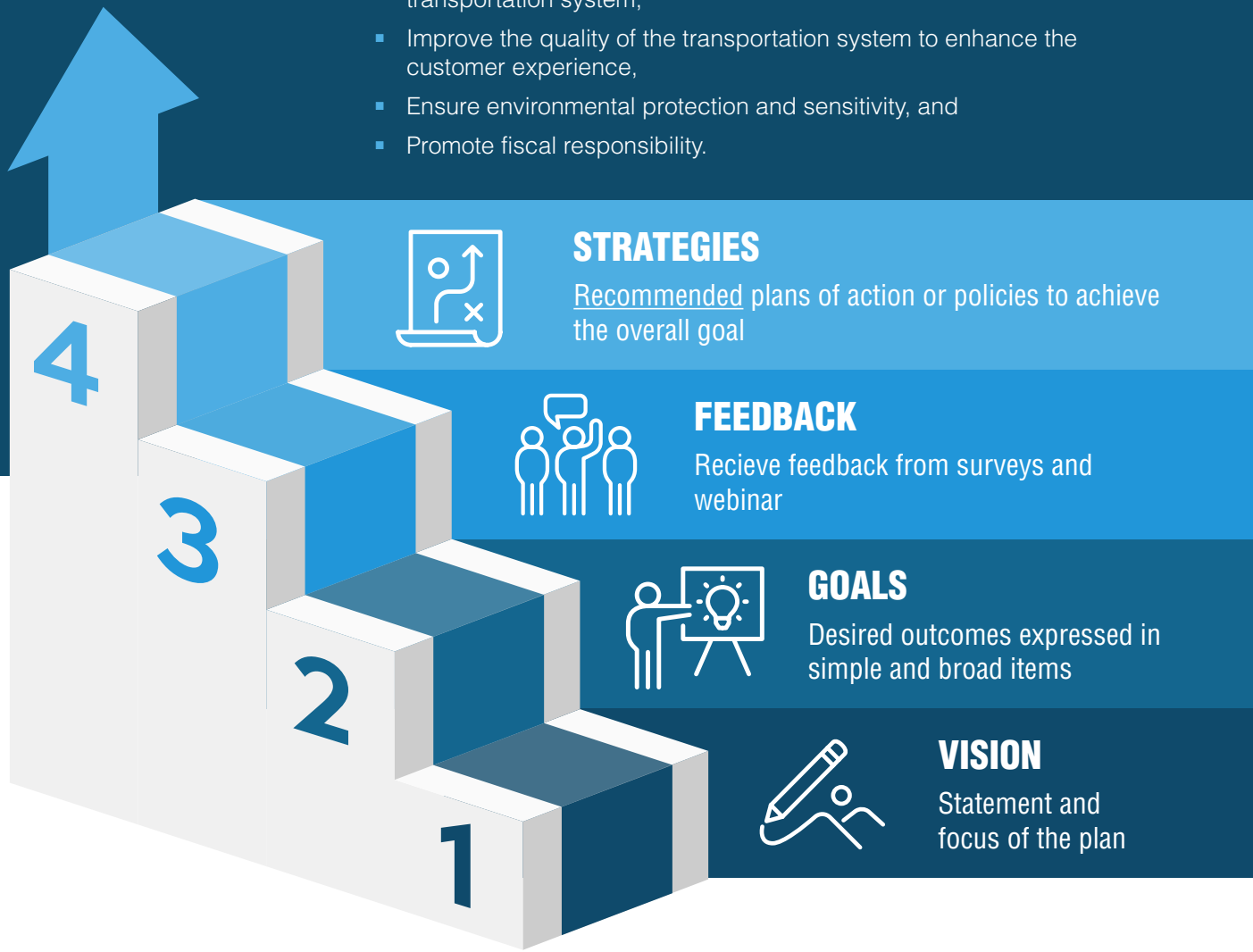
Maryland remains committed to the strategic deployment of a convenient, accessible, reliable, and equitable EV charging network.

Through surveys, polling, and outreach webinars, Maryland stakeholders and communities have identified a set of priorities that were integral to the development of the Plan vision and goals. These priorities will also guide the policies and strategies used to implement this plan and include:

- Investment along the AFCs,
- EV registration density,
- Proximity to residential areas,
- Access for DACs and rural communities,
- Vehicular traffic (vehicle miles traveled [VMT]/annual average daily traffic [AADT]),
- Existing infrastructure,
- Evacuation routes,
- Points of interest/destination,
- Proximity to employment centers,
- Distance to the nearest charging station,
- Commuting/travel corridors, and
- Freight & multimodal corridors.

The following vision and goals were developed utilizing feedback from stakeholders and the public through our webinars, surveys, and polling opportunities. These goals are also rooted in the overall 2040 Maryland Transportation Plan Goals to:

- Provide better transportation choices and connections,
- Ensure a safe, secure, and resilient transportation system,
- Facilitate economic opportunity and reduce congestion in Maryland through strategic system expansion,
- Maintain a high standard and modernize Maryland's multi-modal transportation system,
- Improve the quality of the transportation system to enhance the customer experience,
- Ensure environmental protection and sensitivity, and
- Promote fiscal responsibility.



ZEVIP VISION STATEMENT

To continue leading the nation and strengthening our communities by providing equitable, reliable, and safe transportation electrification solutions. This vision statement applies to all activities that fall under the ZEVIP umbrella, including the NEVI Plan.

NEVI GOALS

Alternative Fuel Corridors

Certify existing (23) corridors within five years and identify future roadways

Build & Strengthen Public-Private Partnerships

Facilitate contracting and implementation

Equitable Charging Infrastructure

Prioritize disadvantaged and rural communities

Collaboration

Work with state, local, regional, non-government organizations (NGOs), and public organizations and plans

Workforce/Job Impacts

Providing training
Enhance experience-level, and diversity

Resiliency and Reliability

Understand and address grid impacts, renewables, emergency preparedness, weather, operations/maintenance

Geographic and Location Diversity

Meet demands in various locations - Urban, suburban, rural, employment centers, multi-unit dwellings, etc.

Contracting and Program Administration

The precise terms and conditions of Maryland's NEVI Formula Funding Program are under development. As Maryland works toward a formalized NEVI Funding Program, the following DRAFT funding allocations and guidelines were developed by MDOT/MEA, in close coordination with the NEVI AG, stakeholders, and communities.

DRAFT FUNDING ALLOCATIONS BY FISCAL YEAR

The following table illustrates DRAFT NEVI Program Funding allocations by Maryland State Fiscal Year (SFY). The Maryland SFY begins on July 1 and ends on June 30.

KEY ASSUMPTIONS

1. "Installation" will include eligible costs as determined in accordance with federal guidance and as deemed appropriate by MDOT/MEA, e.g., equipment procurement, installation costs (design, engineering, construction), operations and maintenance, utility upgrades, and others as deemed necessary such as traffic control devices.
2. Funding will be distributed in accordance with Maryland's SFY. Since SFY 2022 will be closed before the finalization of this plan, Maryland will begin funding with SFY 2023. In addition MDOT/MEA have accounted for the significant effort and anticipated learning curve associated with this program. As a result, less funding will be distributed in SFY 2023 versus future years. It is also important to note that funding does not expire and is not subject to rescission, so Maryland does intend to spend NEVI funding beyond FFY 2026.
3. This total does not sum up to Maryland's apportioned amount of $62,818,576.00 due to federal set-asides.

The following guidelines will help direct the development of the formalized program and MDOT/MEA encourages all interested parties to continue to provide comments and stay engaged as the process advances.

ADMINISTERED THROUGH MDOT

The NEVI Formula Program will be administered through MDOT in partnership with MEA. While the funding will flow through MDOT, investment strategies and decisions will involve cooperation and input from MEA, other state agencies, and critical stakeholders. In addition, MDOT will ensure that all NEVI formula funding and projects are in compliance with all applicable requirements under chapter 1 of Title 23, U.S.C., and 2 CFR part 200. Before any funds are obligated, the program funding must be included in the Statewide Transportation Improvement Program (STIP) in accordance with 23 CFR part 450.

DRAFT NEVI Formula Funding Program Allocations by Maryland Fiscal Year [July 1 – June 30]

Funding Category	2023[2]	2024	2025	2026	2027	Total	% of Total
Planning and Staffing	$500,000	$500,000	$500,000	$500,000	$500,000	**$2,500,000**	4%
Installation[1]	$4,250,000	$16,250,000	$11,500,000	$11,500,000	$11,500,000	**$55,000,000**	96%
Total	$4,750,000	$16,750,000	$12,000,000	$12,000,000	$12,000,000	**$57,500,000**[3]	

COMPETITIVE

MDOT/MEA will develop a competitive process with transparent criteria for the award of NEVI Formula Funding. The majority of the funding is anticipated to be awarded to private entities, though that does not mean that public agencies or organizations could not apply for or benefit from the installation of EV infrastructure under the NEVI Formula Program.

EQUITABLE

Interested applicants, proposers, stakeholders, and communities can expect equity to play a critical role in the site identification and project selection processes. Demonstrable equitable benefits will be critical to the implementation of this program. In addition to utilizing the data included in the Argonne National Laboratory's EV Charging Justice40 Map, MDOT/MEA will also consider the impacts of this program on our workforce, rural and DACs, and will strive to ensure geographic diversity. Another significant equity component of this effort will be ensuring that opportunities are available to small businesses as provided in 23 U.S.C. 304.

FOCUSED ON ALTERNATIVE FUEL CORRIDORS IN THE SHORT-TERM AND COMMUNITIES IN THE LONG-TERM

In the Joint Office NEVI Formula Program Q&A, the Joint Office communicated that states must "build-out" their AFCs before funding can be used elsewhere. In addition, funding in FFY 2022 can ONLY be used for projects along AFCs. The Joint Office also strongly encouraged states to "prioritize the use of funding for EV charging stations along interstates in order to meet the needs of those traveling long distance or for multiple hours at a time." Once Maryland has built out the corridors, it is possible that NEVI funding could be used in installing infrastructure in communities.

TIME-LIMITED APPLICATION PROCESS

MDOT/MEA anticipate that funding for the first round of NEVI Formula Funding (FFY 2022-2023) will not be awarded on a rolling basis. This may change in future years, but interested parties should anticipate a time-limited application process for the first year of implementation (SFY 2023).

REQUIREMENTS PER FEDERAL GUIDANCE AND OTHER CONSIDERATIONS

All funding administered through this program will meet the minimum federal requirements. In addition to the traditional planning requirements (STIP/Transportation Improvement Program [TIP], Long Range Transportation Plan [LRTP]) described above, this may include, but not be limited to the following requirements and considerations:

- Ability to address existing infrastructure gaps
- Safety considerations - lighting, siting, driver and vehicle safety, fire prevention, tampering, charging locks, surveillance, etc.
- Proximity to amenities
- National Environmental Policy Act (NEPA), Buy America, Americans with Disabilities Act (ADA), and Section 504 requirements are met
- Data collection and sharing
- Grid connectivity, operations, and maintenance capabilities
- Innovations such as solar or battery storage
- Competitive pricing and matching offers, i.e., greater than 20 percent requirement
- Fostering Public-Private Partnerships (P3s)

Existing and Future Conditions Analysis

Understanding Maryland's existing and future conditions is important to the successful deployment of EV charging infrastructure. These conditions serve as the basis for identifying opportunities, challenges, and risks.

STATE GEOGRAPHY AND LAND USE PATTERNS

While Maryland is the ninth smallest state by area, Maryland is the 18th most populous state in the US with a 2020 Census population of over 6.1 million people and is expected to grow to over 6.7 million by 2040, with most of Maryland's population concentrated along the I-95 and I-270 Corridors. Maryland is a geographically diverse state with forested mountains, marshlands, beaches, and rolling hills and can be divided into five regions.

The **Western Region**, consisting of Allegany, Garrett, and Washington Counties, is the least populous region in Maryland with a population of just over 251,000. It is mostly rural with forested mountains, some agriculture, small towns, and the cities of Hagerstown, Frostburg, and Cumberland.

The **Washington Metro Region**, consisting of Frederick, Montgomery, and Prince George's Counties, is the second most populous region in Maryland with a population of 2.3 million surrounding our nation's capital. Recently, the region's growth has been concentrated along the I-270 corridor. It is primarily suburban with dense/moderately dense urban nodes, which include Frederick, Rockville, and Silver Spring. These urban nodes transition into medium-to-low density suburban areas.

The **Baltimore Metro Region**, consisting of Baltimore City and Anne Arundel, Baltimore, Carroll, Harford, and Howard Counties, is the most populous region in the state with a population of over 2.7 million. Land use within this region is varied with dense urban cores located in Baltimore City and Annapolis (state capitol), which transition into medium-to-low density suburban areas. The region becomes more rural towards the edge.

The **Southern Maryland Region**, consisting of Calvert, Charles, and St. Mary's Counties, has a population of 281,000. Projected to be the fastest growing region in Maryland in terms of percent growth, Southern Maryland has seen rapid, low-density suburbanization as a result of the increasing employment opportunities in the region and its proximity to Washington, DC.

The **Eastern Shore Region**, consisting of Cecil, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Worcester Counties, has a population of 456,000. The region is predominantly rural with a thriving agriculture industry centered around the City of Salisbury. Tourism is also an important part of the Eastern Shore, especially in Ocean City.

CLIMATE

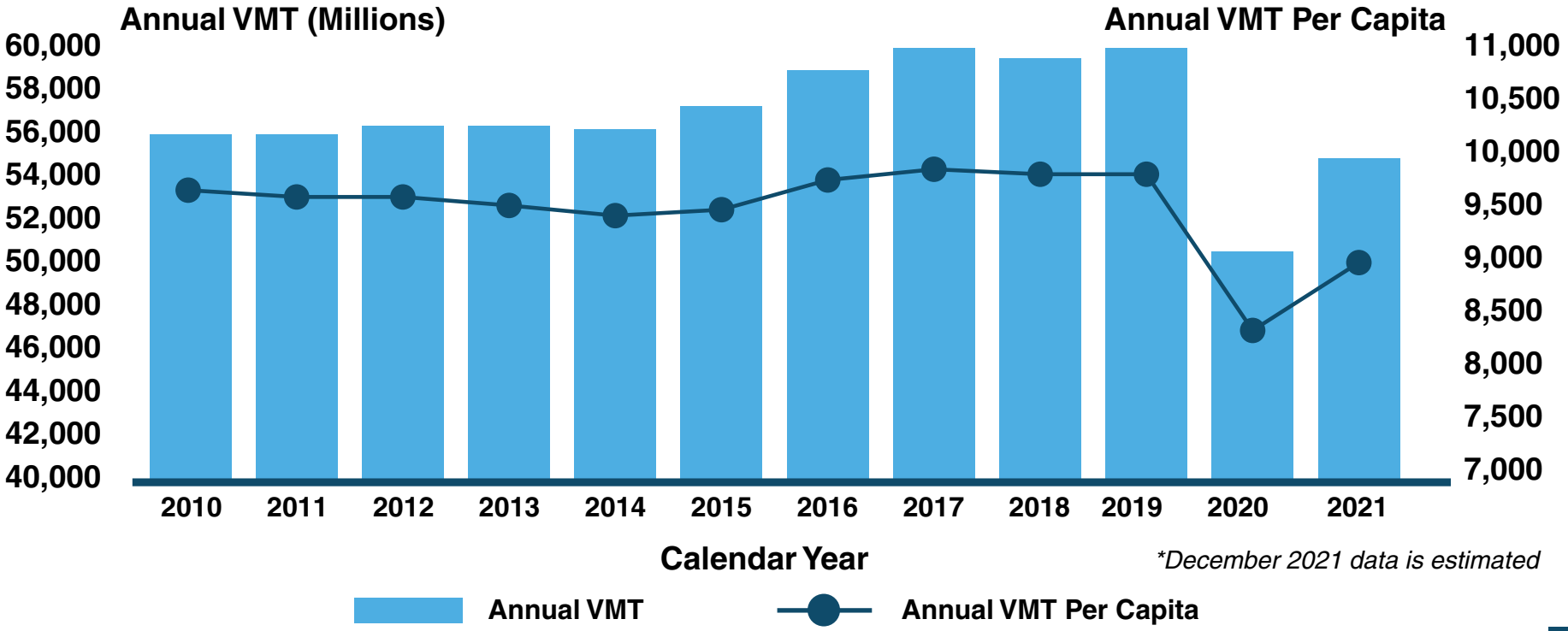
Maryland climate is classified as temperate, experiencing four distinct seasons. Maryland has an average annual temperature of 55.1°F, with the highest temperatures occurring in July with average temperatures in the mid to upper 80s and the lowest temperatures occurring in January with average temperatures in the low to mid 20s. However, due to the geography, temperatures can vary from region to region with the western region experiencing colder weather and more snow in the winter while summers in the eastern and southern areas are hot with greater levels of humidity.

Since the beginning of the 20th century, Maryland has experienced an increase of 1.5°F in the annual average temperature and the average of less than one day per year of nights below 0°F in the winter since the mid-1990s. Maryland is expected to have a notable increase in days with extreme heat (over 90°F) by 2050. Heat waves are likely to increase in frequency, intensity, and duration.

Maryland receives an average annual precipitation of 59 inches, which typically peaks in July and August. Maryland's annual mean precipitation has been above average for the past two decades. Maryland has an average seasonal snowfall of 20.6 inches with areas in the Eastern Shore receiving approximately 10 inches per year while Garrett County in Western Maryland receives 110 inches of snow.

Rising temperatures along with the increase in extreme weather events are the result of an increase in Greenhouse Gas (GHG) emissions, particularly from the transportation sector, which accounts for over one-third of GHG emissions in Maryland. This could negatively impact, both directly and indirectly, Maryland's ecosystems, infrastructure, recreational opportunities, and economy. In addition, the effects of climate change could result in adverse health consequences for people throughout the state as well as negative outcomes for those in disadvantaged communities.

ANNUAL VMT AND VMT PER CAPITA



STATE TRAVEL PATTERNS, PUBLIC TRANSPORTATION NEEDS, FREIGHT AND OTHER SUPPLY CHAIN NEEDS

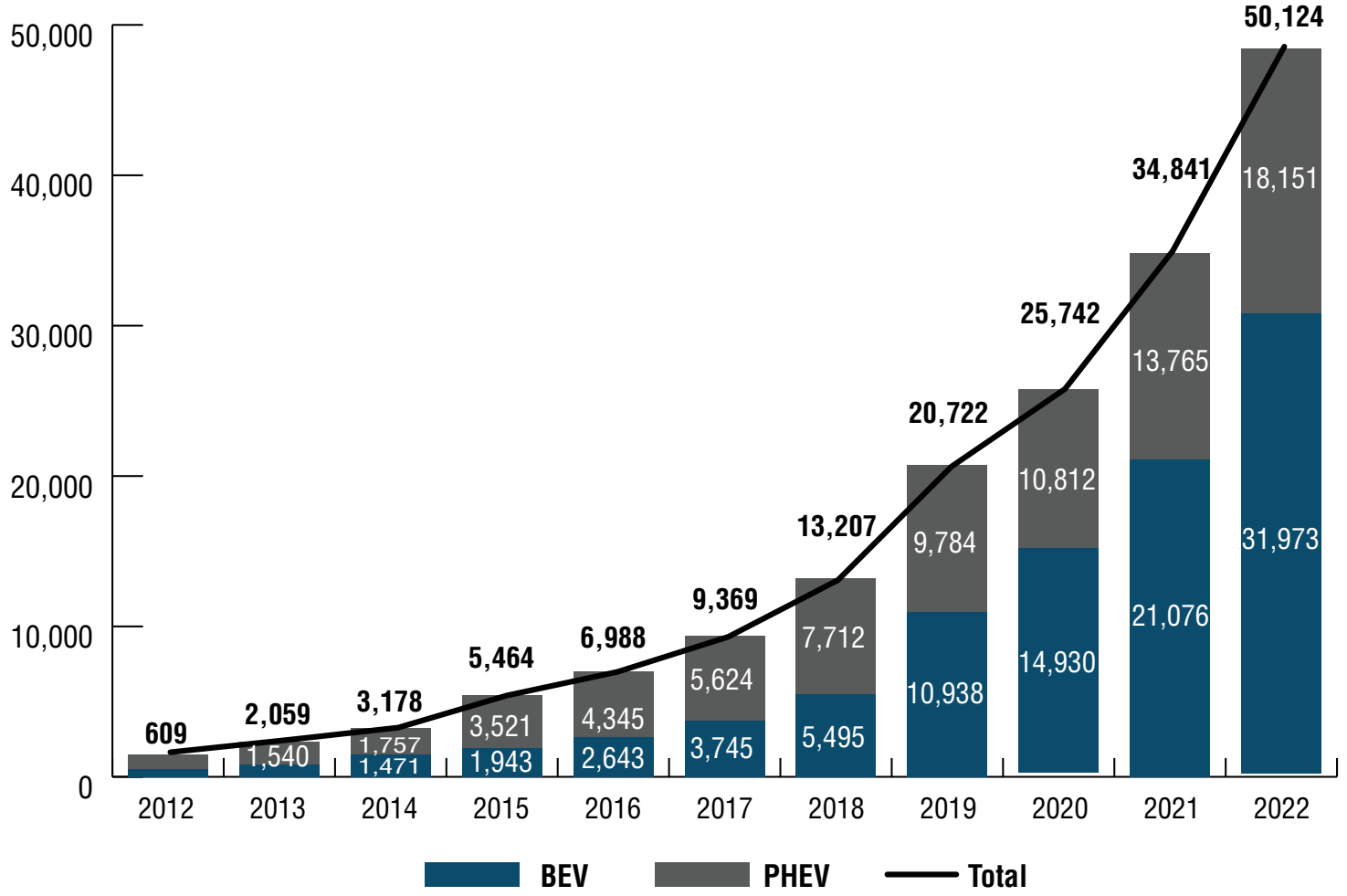
MDOT regularly tracks and forecasts vehicle miles traveled (VMT), truck and light-duty vehicle travel, as well as freight activities and transit movements throughout the state. Existing and forecast metrics can be found in the 2040 Maryland Transportation Plan, the Maryland State Freight Plan, and the Maryland Attainment Report on Transportation System Performance, which is updated annually.

The MDOT State Highway Administration (MDOT SHA) also maintains a comprehensive Traffic Monitoring System (TMS) website, which includes a TMS Dashboard, a web-based portal tool that provides data analyses on traffic patterns, volumes, and classifications.

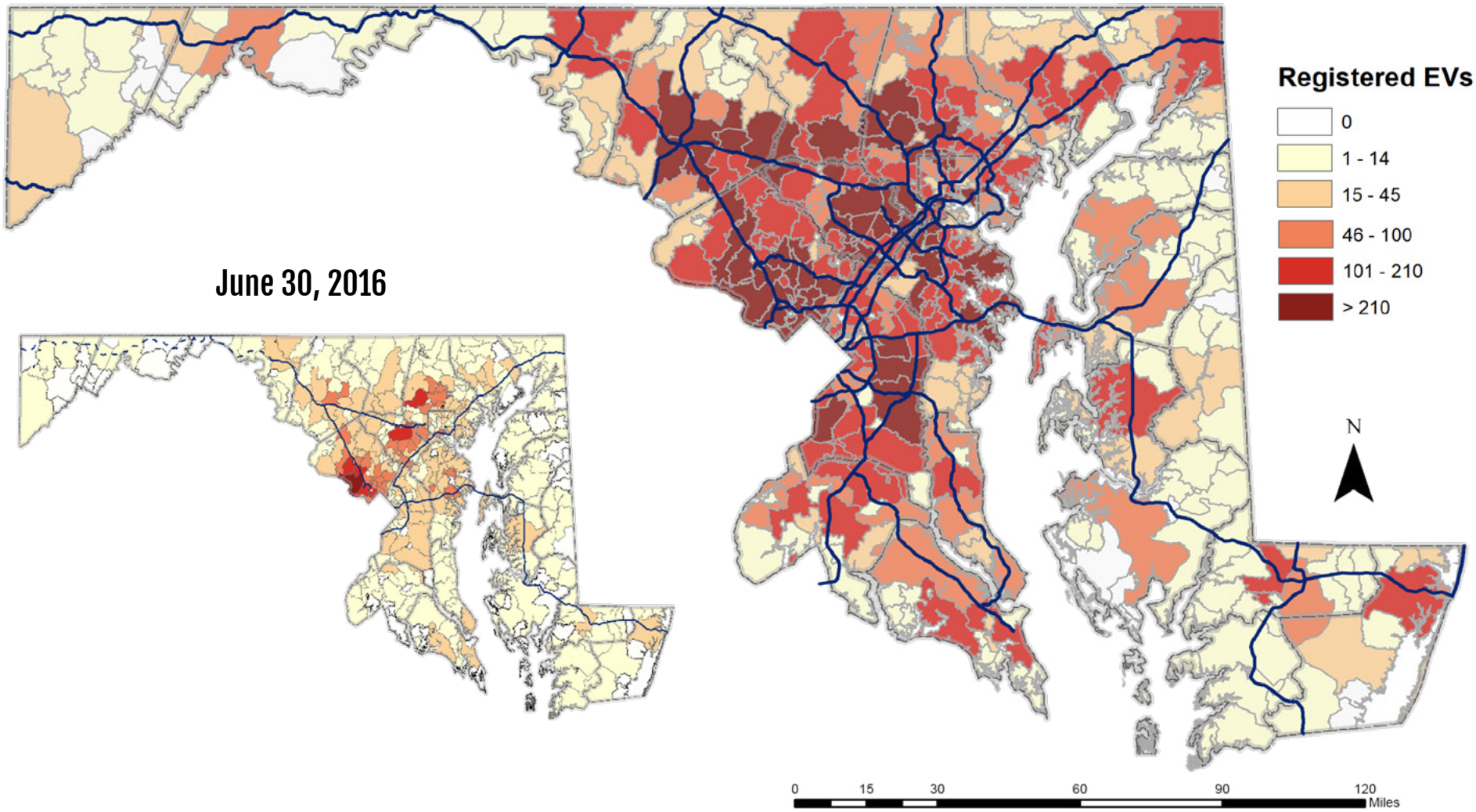
EV OWNERSHIP

Maryland continues to experience significant growth in ownership of both battery electric vehicles (BEV) and plug-in hybrid electric vehicles (PHEV). As of the end of SFY 2022 (on June 30, 2022), 50,124 total EVs were registered in Maryland. This represents nearly one percent of the light-duty fleet. Since SFY 2012, when only 609 EVs were registered in the state, ownership has grown by over 7,000 percent, with 44 percent growth over the last SFY.

While most of Maryland's EV ownership is concentrated in the Baltimore Metro and Washington Metro Regions, there has been growth in EV ownership along the EV AFCs in Southern Maryland, Western Maryland, and the Eastern Shore Regions. As of June 30, 2022, Maryland has 72 zip codes with more than 210 EVs registered and four zip codes with more than 1,000 registered EVs.



NUMBER OF EVS REGISTERED BY ZIP CODE - JUNE 30, 2022

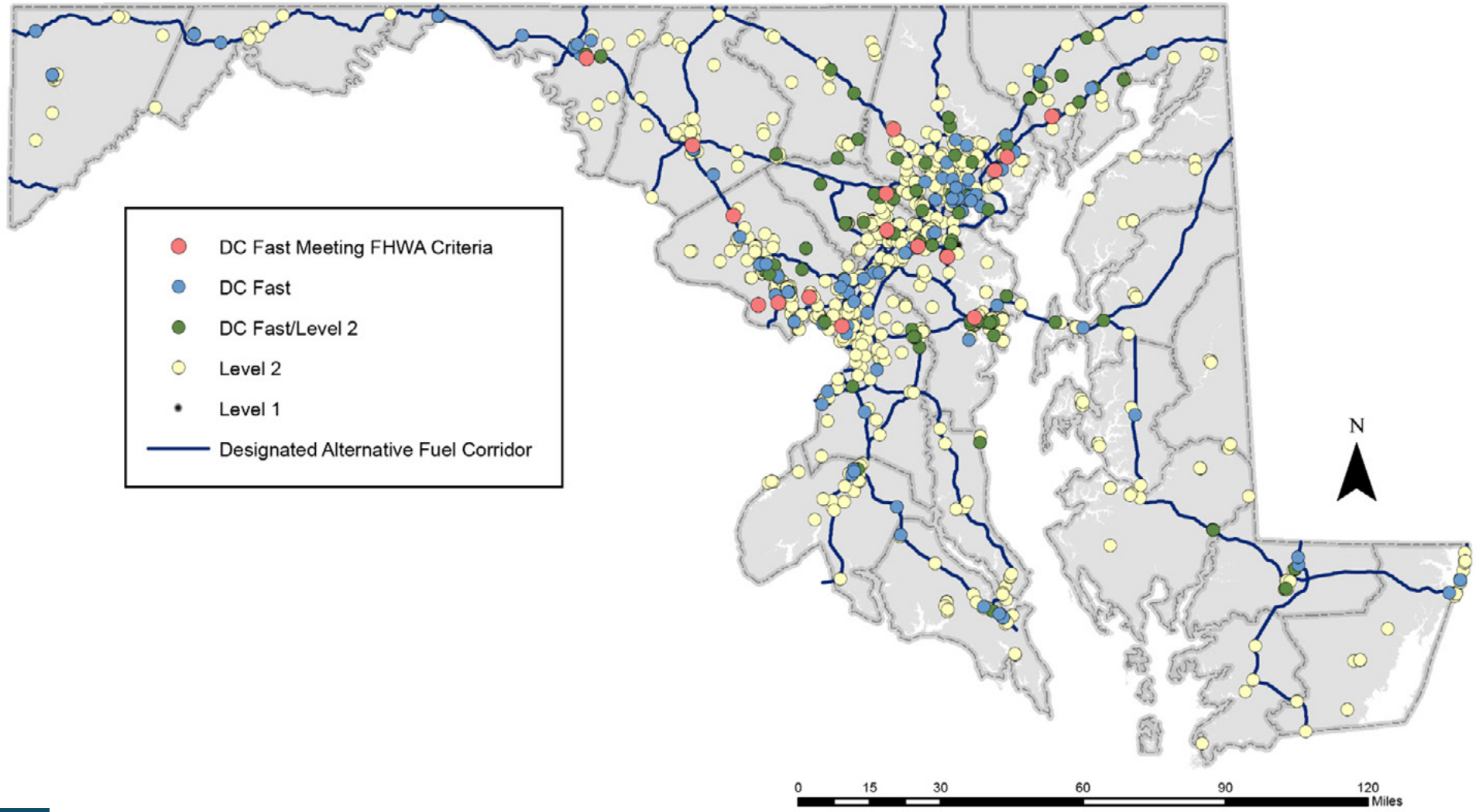


Maryland is working to update state EV projections based on the latest EV growth and trends in Maryland as well as updated federal policies and guidance. MDOT expects to complete updated projections in late 2022. Current national projections indicate that US EV sales will be 29.5 percent of passenger and truck fleet by 2030.

CHARGING INFRASTRUCTURE

Maryland has a robust network of EV charging stations and AFCs. Since the initial AFC Nomination in 2016, MDOT has successfully nominated 23 corridors for designation as EV AFCs with the Intercounty Connector/ Maryland 200 (ICC/MD200) being the most recent corridor designated under the Round 6 Nomination submitted to FHWA on May 13, 2022. A complete list of Maryland's EV AFC and their designation status can be found in **Appendix A**. These corridors support over 1,200 charging stations with nearly 3,350 charging ports located throughout the state with the highest concentration of EV charging stations along the I-95 and I-270 corridors in the Baltimore and Washington Metro regions. Of these stations, 16 currently meet the site requirements of at least four (4) Combined Charging System (CCS) ports with at least 150 killowatts (kW) of power each, or 600kW for the entire site.

DESIGNATED AFCS AND CHARGING STATIONS IN MARYLAND



Of the 16 sites that currently meet the site requirements, the following nine sites fall within one mile of an interstate exit or highway intersection along Maryland's designated AFCs and meet FHWA's site requirements.

AFCs	Station Name	Address	EV Station Network	150kW CCS Ports
I-270	Clarksburg Premium Outlets	22705 Clarksburg Road, Clarksburg, MD	Electrify America	4
MD 100	Simon Arundel Mills	7000 Arundel Mills Circle, Hanover, MD	Electrify America	6
I-95	Walmart 2009	401 Constant Friendship Boulevard, Abingdon, MD	Electrify America	8
US 50	Sam's Club 6357	2100 Generals Highway, Annapolis, MD	Electrify America	4
I-70 & I-270	Walmart 2233	7400 Guilford Drive, Frederick, MD	Electrify America	4
I-695	Walmart 3489	6420 Petrie Way Road, Rosedale, MD	Electrify America	4
I-97	Target T1003	7951 Nolpark Court, Glen Burnie, MD	Electrify America	4
I-70	Walmart 2790	10420 Walmart Drive, Hagerstown, MD	Electrify America	4
I-270	Westfield Montgomery Mall	7101 Democracy Boulevard, Montgomery, MD	Electrify America	6

KNOWN RISKS AND CHALLENGES

MDOT identified the following risks and challenges that could impact the successful implementation and deployment of Maryland's EV charging infrastructure.

Supply Chain – Due to the ongoing Covid-19 pandemic and conflict in Ukraine, global supply chains experienced major disruptions resulting in slowed shipment, increased product demand, higher costs, and shortages in materials. As a result, there may be shortages in EV charging equipment and additional wait time for the delivery of EV charging infrastructure and other products. This could impact the overall timeline for the deployment of charging infrastructure in Maryland.

In addition to delays in the shipment of EV charging equipment, a global chip shortage has resulted in a slowdown in the production of cars and an overall higher vehicle cost, which could impact the consumer's decision and ability to purchase an EV. If the availability and demand for EVs slow, there may be lower demand for EV charging infrastructure, resulting in some stations being underutilized.

Grid Capacity – Electrification of the transportation sector will lead to an increase in electrical demand on the grid. Existing infrastructure may not be able to support the increase and require upgrades to ensure the grid can reliably support the increase in electrical load. Upgrades needed to both the line and load side to meet this increased demand could be extremely costly, especially in areas where the infrastructure may be limited.

Reliability – Ensuring the uptime and reliability of the charging equipment is critical to the successful adoption of EVs. Stations that are consistently down and unavailable create a gap in the charging network. This could further fuel range anxiety by creating a negative opinion and experience surrounding charging, which could impact the consumer's decision to purchase an EV.

Climate Change – As Maryland's climate continues to change due to GHG emissions, there is potential for the occurrence of extreme temperatures and severe weather events, including flooding from increased rainfall, which could impact access to charging stations as well as the operations and uptime, resulting in stations being unavailable for an extended period of time.

Public Education – With the shifting landscape around new charging providers, public education was identified by stakeholders as key to the adoption of EVs and deployment of infrastructure. Education is necessary to build awareness and comfort within the public about EVs, the cost to charge, how to use the charging stations, and access and availability of charging stations. Without this, the public may not be comfortable purchasing an EV or utilizing public EV charging stations.

Emergency Management – Widespread power outages due to severe weather events could result in charging stations being unavailable for prolonged periods of time, while evacuations may result in an increase in demand for the charging infrastructure. Preparation for emergencies and severe weather through the deployment of mobile charging stations and other technologies is necessary to ensure that charging stations remain available for EVs.

ADA Accessibility – Ensuring that the charging stations are accessible to all people is essential to EV adoption. While the NEVI Program guidelines recommend that "States should consider locations at or immediately adjacent to land uses with publicly accessible restrooms, appropriate lighting, and sheltered seating areas such as travel centers, food retailers, convenience stores, visitor centers on Federal lands, small businesses with an ADA accessible pathway between the EV charging infrastructure and the front door of the identified establishment," there are no specific provisions for EV charging stations in the ADA Accessibility Standard including the recommended minimum number of ADA accessible EV charging spots.

Equity Barriers – Members of rural and disadvantaged communities face barriers that prevent the adoption of EVs within these communities. The greatest of these barriers is affordability. EVs, on average, are more expensive than comparable internal combustion engine (ICE) vehicles, which could inhibit members of these communities from purchasing an EV without incentives or rebates. Members of these communities also tend to live in areas where there is limited or no access to Level 2 charging stations, such as multi-unit dwellings, or older communities with predominantly street parking, leaving members of these communities reliant on DC Fast Charging, which is more expensive than Level 2 charging stations. Additionally, some members of these communities may also be considered "unbanked," meaning they do not have access to a personal bank account or credit card, which is often necessary to charge at these stations. Other payment options, such as a pre-paid or cash option, would be needed.

Workforce Development – As new job opportunities related to the installation, operations, and maintenance of EV charging stations are created, education and training opportunities must be available to support these jobs. If unavailable, there could be labor shortages if there are not enough qualified people to fill the roles, or there also could be an inexperienced workforce.

Compatibility – The end-user experience across multiple network company platforms may be difficult to navigate. Similar to maintaining multiple grocery store rewards memberships, payment across multiple EV networks, and establishing and maintaining multiple accounts, could be a barrier to EV adoption.

EV Charging Infrastructure Deployment

The primary objective of the NEVI Formula Funds is to build out and certify Maryland's existing AFCs. Once certified, funding can be used to build out public charging infrastructure within communities.

1 | Build Out *ALL* Existing Corridors

2 | Obtain Certification

3 | Invest in Communities

BUILD OUT REQUIREMENTS

- ≤ 50 miles between one station/site and the next on corridor (minimum two stations)
- ≤ 1 mile from Interstate exits or highway intersections along the corridor
- Include four Combined Charging System (CCS) connectors - Type 1 ports (Simultaneously charging four EVs)
- Maximum charge power per DC ports should not be below 150 kW
- Site power capability should be no less than 600 kW (support at least 150 kW per port simultaneously across four ports)

FUNDING SOURCES

Maryland will be apportioned approximately $63 million between FFY 2022-2026, before any set-asides. These NEVI funds can be used by themselves or can be combined with funds from other eligible USDOT funding sources for EV charging infrastructure. In total, federal funds can cover up to 80 percent of eligible project costs.

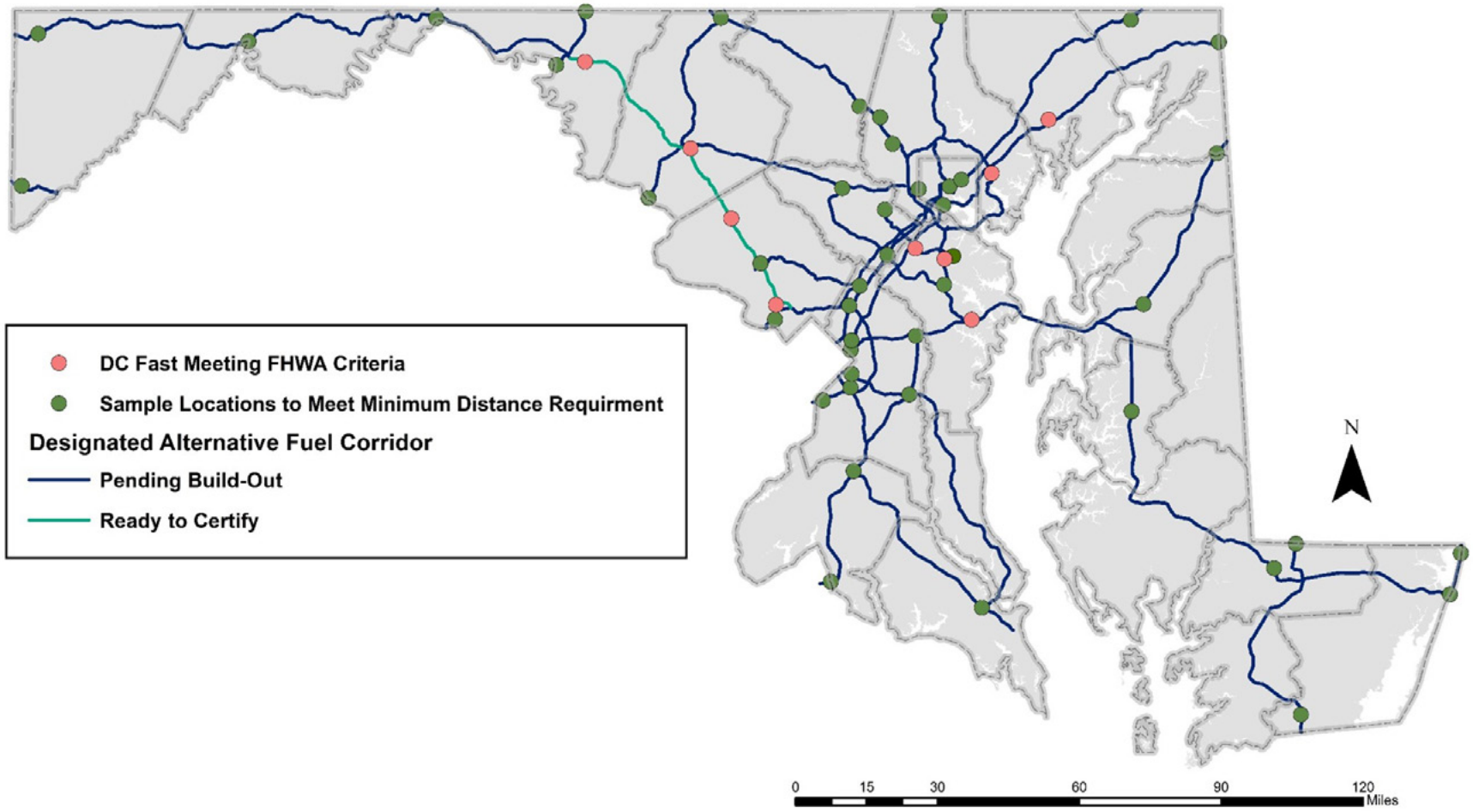
The remaining cost share must be matched by private, state, or local funds. Matching funds will be largely covered through private funds from private entities with some possible state or local funding match available.

INFRASTRUCTURE DEPLOYMENTS/UPGRADES

Prior to the release of the updated criteria for EV charging stations in February 2022, 15 of the 23 corridors in Maryland met the criteria for Corridor-Ready, meaning signage could be installed, and four corridors were considered Corridor-Pending, meaning more infrastructure was required before signage could be installed. Three corridors had segments considered both Corridor-Ready and Corridor-Pending. With the release of the new criteria, only I-270 and a segment of I-70 between Frederick and Hagerstown currently meet FHWA's designation requirements for certification. The remaining corridors would now be considered pending build out of infrastructure and would require infrastructure upgrades to meet FHWA's requirements to be certified.

Maryland conducted a cursory gap analysis to help visualize and estimate the sites that would be needed to achieve "certified" corridor status for the 23 designated. Based on this analysis, Maryland estimates approximately 40-45 sites must be built out to meet the maximum distance between sites (50 miles) and the requirement that each corridor includes at least two charging sites.

SAMPLE LOCATIONS TO MEETING MINIMUM DISTANCE REQUIREMENTS



ELECTRIC VEHICLE FREIGHT CONSIDERATIONS

Maryland is committed to the electrification of the medium- and heavy-duty (MHD) vehicle fleets. In 2020, Maryland signed the MHD ZEV memorandum of understanding (MOU) and has been actively participating in the Multi-State ZEV Task Force to develop the MHD ZEV Action Plan. The plan will provide a framework for meeting the target of at least 30 percent of all new truck and bus sales being ZEVs by 2030 and 100 percent by 2050. MDOT is also currently updating the Maryland State Freight Plan, which identified the need for EV infrastructure and the use of alternative energy sources for freight transportation vehicles, multimodal support equipment, or related applications as a strategy for consideration. To build on these efforts, MDOT will continue to partner with key stakeholders within the trucking industry and explore opportunities for electrification at current truck parking locations, intermodal facilities, and warehousing locations.

PUBLIC TRANSPORTATION CONSIDERATIONS

In addition to MDOT's commitment to purchase only ZEV buses beginning in 2023, Maryland has also incorporated transit stops and transit-oriented developments (TOD) into the Maryland ZEVIP Toolkit. These GIS layers identify discrete transit stops and TOD developments, which might act as future EV investment sites or mobility hubs.

FY23-26 INFRASTRUCTURE DEPLOYMENTS

Maryland is focused on bringing existing and pending AFCs up to certified status and envisions that most of the funding in the early years of the five-year program will be focused on that goal. The existing infrastructure and relatively small geographical nature of Maryland will likely lend itself to building redundancy along the corridors, i.e., less than 50-mile gaps between charging locations, and off-corridor, community-based investments in the future years of the program.

The following stations are less than one mile from the AFC, but currently have less than four existing 150 kW CCS Ports. These sites may be potential locations for upgrades.

Potential Corridor	Station Name	Address	EV Station Network	Distance from AFC	Existing CCS 150kW Ports
US 50	Bowie Town Center	15606 Emerald Way, Bowie, MD	Electrify America	0.8 Miles	3
US 1	Safeway Charles Street	2401 N Charles Street, Baltimore, MD	eVgo Network	0.4 Miles	2

The following stations are greater than one mile to the AFC but some, including those within two miles, may be eligible for NEVI Formula Funding depending on the specific measurements of on/off ramps and precise charging equipment installation.

Potential Corridor	Station Name	Address	EV Station Network	Distance from AFC	Existing CCS 150kW Ports
I-95	Walmart 5228	6405 Dobbin Road, Columbia, MD	Electrify America	2.4 Miles	10
I-495	Westfield Wheaton	11160 Veirs Mill Road, Silver Spring, MD	Electrify America	2.1 Miles	6
I-70	Walmart 2412	3200 North Ridge Road, Ellicott City, MD	Electrify America	2.3 Miles	4
I-795	Target T1045	11200 Reisterstown Road, Owings Mills, MD	Electrify America	2.8 Miles	4
I-495 & I-270	BOA MDW-215	10000 Falls Road, Potomac, MD	Electrify America	4.5 Miles	4
US 1	PREIT Mall	3500 East-West Highway, Hyattsville, MD	Electrify America	1.2 Miles	4
I-95	Southside Marketplace	825 E Fort Avenue, Baltimore, MD	eVgo Network	1.8 Miles	2
I-81	Valley Park Commons	1580 Wesel Boulevard, Hagerstown, MD	eVgo Network	1.1 Miles	2
I-495	Bethesda Row	4950 Elm Street, Bethesda, MD	eVgo Network	3.1 Miles	2

STATE, REGIONAL, AND LOCAL POLICY

Since 2007, Maryland has been working to address the threat of climate change and its effects on the state. With the transportation sector accounting for nearly one-third of GHG emissions in the state, Maryland's efforts to reduce emissions from the transportation sector have focused on the adoption, deployment, and integration of ZEVs into Maryland's transportation network. Efforts include:

LIGHT-DUTY ZEV SALES GOALS

Beginning with the passage of the Clean Cars Act in 2007, Maryland adopted California's stricter emission standards and set a light-duty ZEV mandate requiring car manufacturers to sell an increasing number of ZEVs in Maryland. As part of this, Maryland set a goal of 300,000 ZEVs by 2025 and 600,000 ZEVs by 2030.

GHG EMISSION REDUCTION TARGETS

Maryland passed the Greenhouse Gas Reduction Act (GGRA), requiring a reduction in statewide emissions by 25 percent by 2020 from 2006 levels in Maryland. The re-authorization of the GGRA in 2016, established a more ambitious goal of reducing statewide GHG by 40 percent from 2006 levels by 2030. The passage of the Climate Solutions Now Act in 2022 set an even more ambitious goal of a 60 percent reduction by 2031 and a goal of carbon neutral by 2045 as well as associated planning requirements.

As part of the GGRA, Maryland is required to develop a statewide GGRA Plan detailing strategies and policies that would meet the GHG emission reduction targets. Strategies identified for emission reductions from the transportation sector in the 2020 GGRA Plan focus on the deployment of low and zero-emission vehicles and infrastructure throughout the state for use by the public, state fleet vehicles, and the MHD trucking industry.

ZEEVIC

In 2011, the Maryland Electric Vehicle Infrastructure Council (EVIC) was established through legislation and was charged with promoting and facilitating the successful integration of EVs into Maryland's transportation network. In 2019, the purview of EVIC was expanded to include ZEVs and fuel cell electric vehicles (FCEVs) and was renamed the Maryland ZEEVIC.

ZEEVIC is charged with the development of policies, recommendations, and incentives that increase awareness of ZEVs, support the ownership of ZEVs, and promote investment by the private sector in ZEVs. The following have been identified as 2022 priorities for ZEEVIC:

- Install more EVSE and ensure EV readiness through strategic infrastructure planning, particularly focusing on rural communities, equitable EVSE placement in environmental justice communities, corridors, and multi-unit dwellings.
- Maximize the use of grant and alternative funding opportunities for EV/EVSE in Maryland, particularly funds allocated to Maryland through the IIJA, by collaborating across local and state agencies to strategically target funds for optimal infrastructure expansion.
- Continue ZEV education and outreach coordination, with a focus on diversity and equity, to increase ZEV deployment.

REGIONAL INITIATIVES

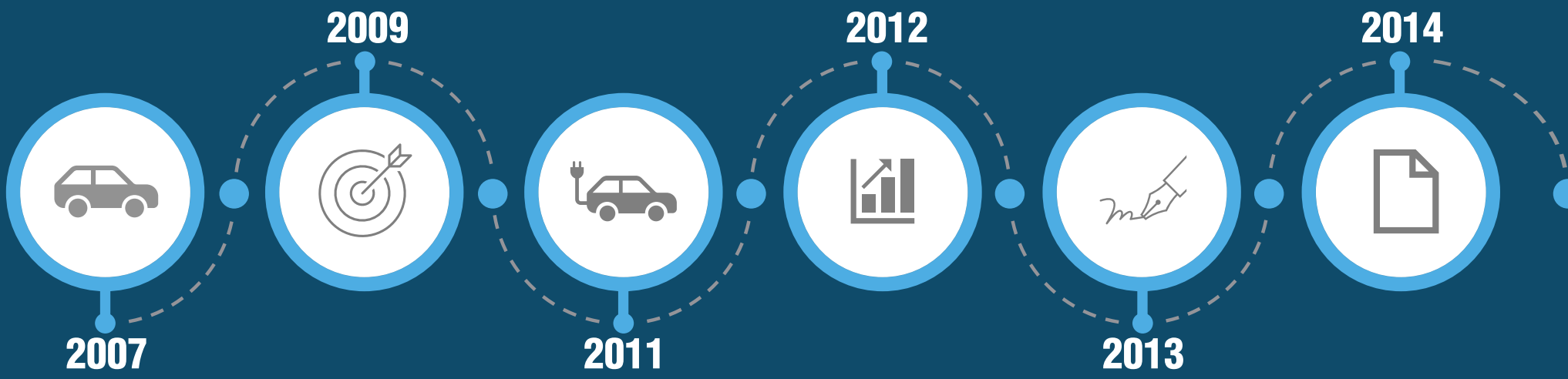
In 2013, Maryland joined seven other states in signing the Multi-State ZEV MOU ensuring the successful implementation of ZEV programs through coordinated actions and efforts. Maryland actively participated in NESCAUM's ZEV Taskforce for the development of the Action Plan, which focused on the five priority areas:

- Raising consumer awareness and interest in EV technology;
- Building out a reliable and convenient residential, workplace and public charging/fueling infrastructure network;
- Continuing and improving access to consumer purchase and non-financial incentives;
- Expanding public and private sector fleet adoption; and
- Supporting dealership efforts to increase ZEV sales.

In 2020, Maryland, along with 14 states and DC, signed the MHD ZEV MOU to support the deployments of MHD ZEVs. Maryland is actively participating in NESCAUM's Multi-State ZEV Task Force that developed a draft ZEV Action Plan to identify barriers and propose solutions to support the electrification of MHD vehicles, accelerate deployment, and benefit DACs.

Although Maryland did not sign onto the Transportation Climate Initiative Program (TCI-P), Maryland continues to be engaged in the ongoing discussions related to TCI.

Maryland joined the Regional Greenhouse Gas Initiative (RGGI) in 2009 to reduce GHG emissions from the energy sector by shifting to cleaner energy sources to power buildings as well as EVs. Additionally, the investment from RGGI supports MEA's Strategy Energy Investment Fund (SEIF).



In addition, Maryland has coordinated with neighboring states in the submission of its corridors as part of FHWA's AFC Nominations and will continue to work and coordinate with these states as Maryland's AFCs are built-out.

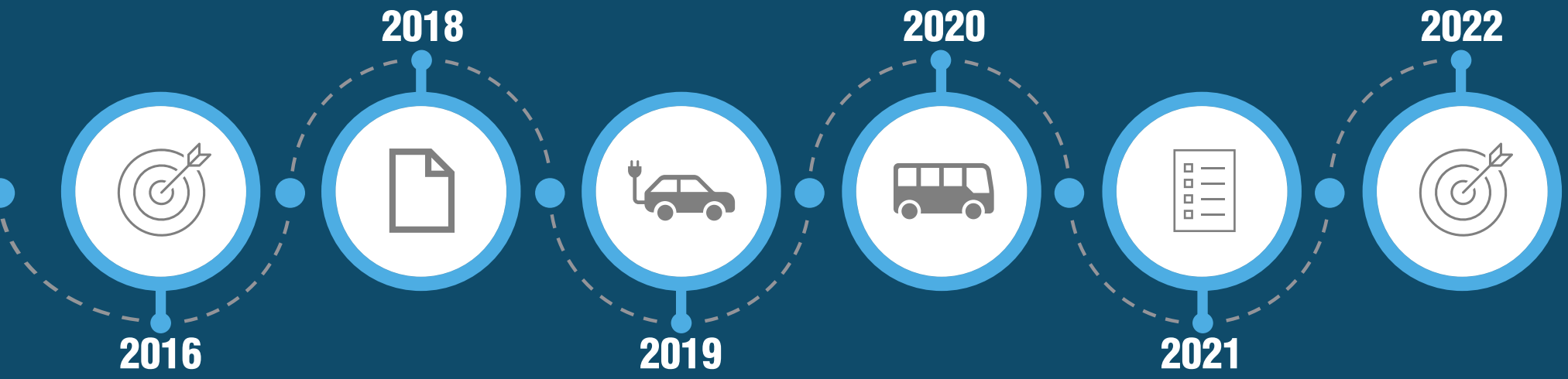
CLEAN AND RENEWABLE ENERGY STANDARD (CARES)

The CARES plan builds upon Maryland's Renewable Portfolio Standard (RPS) and will increase the strategic use of zero- and low-carbon clean and renewable energy sources such as solar, hydropower, and energy-efficient combined heat and power systems. The CARES plan embraces clean, homegrown energy and increases the RPS requirement of 50 percent by 2030 and to 100 percent clean electricity by 2040. This energy will assist in fueling the electrification of the transportation sector and aid Maryland in meeting the state's GHG reduction goals.

INCENTIVES & PROGRAMS

Maryland state agencies have developed several programs and incentives that support the adoption of ZEVs and EV infrastructure.

In addition to these state efforts, many local governments and MPOs throughout Maryland have been working to support the deployment of ZEVs and infrastructure. These state, regional, and local efforts and policies support the vision and goals of the NEVI Plan as well as FHWA's goal of creating a national charging network. A comprehensive list of Maryland state incentives is included in the Maryland EV Resources and Incentives section of this document.



Implementation

To successfully implement the NEVI Formula Program and deploy EV charging infrastructure throughout Maryland, MDOT, in coordination with MEA and the NEVI Advisory Committee, is working to develop implementation strategies and activities that will ensure the EV charging infrastructure funded under NEVI is operated and maintained according to the program guidelines and that data from the EV charging infrastructure is collected and shared via an online dashboard.

The development of these strategies, activities, and dashboard is still ongoing but will be finalized in concert with the development of Maryland's competitive funding program guidelines and requirements.

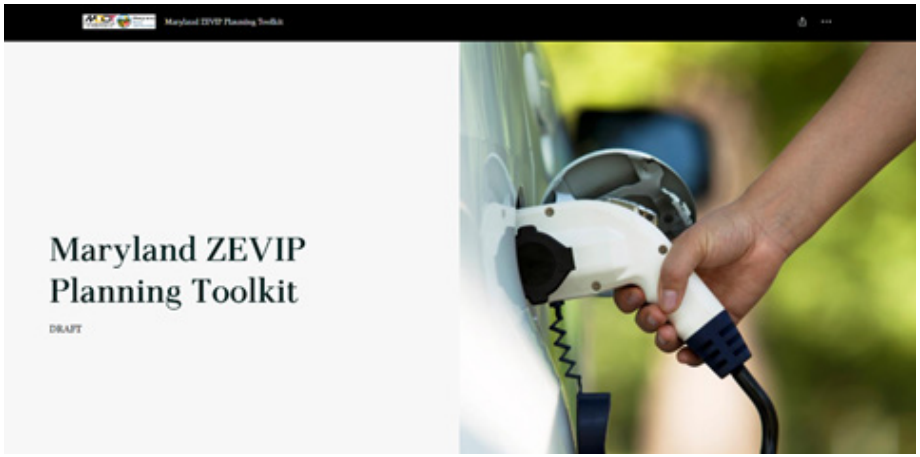
MARYLAND ZEVIP PLANNING TOOLKIT

To assist in site identification, evaluation, and tracking, Maryland developed the Maryland ZEVIP Planning Toolkit (arcgis.com).

The ZEVIP Toolkit is in the beta phase, undergoing internal review, and will be released in a public beta phase prior to the finalization of the Maryland NEVI Formula Program. The toolkit includes the following elements:

- Introduction
- Maryland Site Information Tool
- Corridor and Community Charging
- Resources

In addition to the elements mentioned above, the toolkit is also designed to act as a publicly available tracking dashboard, that will disclose where NEVI funded stations have been installed and track usage of those stations.



STRATEGIES

The following strategies were suggested as implementation considerations by the Joint Office in their State NEVI Plan Template and were affirmed by the NEVI outreach conducted in Maryland. As the Maryland NEVI Program is developed, these strategies will evolve and be included in future NEVI Plan updates.

OPERATIONS AND MAINTENANCE

EVSE operations and maintenance guidelines and requirements will be included as part of the competitive funding program. The applicant/site host applying for the funding will be responsible for the operations and maintenance of the EV charging infrastructure for a minimum of five years. Any maintenance needs or challenges experienced during the five-year operating period will be included in the data collection requirements and summarized by MDOT via the dashboard.

EVSE DATA COLLECTION & SHARING

MDOT has developed an online dashboard tool, part of the Maryland ZEVIP Toolkit, that will track EV charging infrastructure locations receiving NEVI funding, the status of stations (design, construction, complete, etc.), costs for acquisition and installation of EVSEs, cost for grid upgrades, the number of charging stations/ports per location, usage, uptime, as well as maintenance needs or challenges. As part of the program requirements, applicants would be required to track and share this data regularly with MDOT for a minimum of five years. The data collected from the EV charging station site will be reflected in the dashboard and updated regularly by MDOT and submitted to the Joint Office quarterly. Maryland will also submit identifying information for the organizations that operate, maintain, and install charging infrastructure and whether these organizations participate in state or local business opportunity certification programs annually to the Joint Office.

RESILIENCE, EMERGENCY EVACUATION, SNOW REMOVAL/SEASONAL NEEDS

Resilience, emergency evacuation, and snow removal/seasonal needs guidelines and requirements will be included as part of the competitive funding program. As part of the application process, the site host must address these issues and provide assurance that the site will be operational 24/7/365 with minimal downtime or disruptions.

In addition, the Maryland ZEVIP Toolkit will incorporate a Maryland floodplain mapping layer as an important resource to identify current and future sites that may be susceptible to flooding.

Maryland is also investigating the viability of mobile charging options that can provide quick charges to motorists in need.

STRONG LABOR, SAFETY, TRAINING, AND INSTALLATION STANDARDS

MDOT, in collaboration with MEA, will continue ongoing discussions and coordination with Commerce and other State Agencies, including the Maryland Department of Labor, to understand safety considerations, trainings, or certifications that may be needed as well as the potential impact on the workforce.
This will allow for the identification of existing programs that can be expanded and built upon to meet existing and future needs.

Examples of existing or required future EV training programs include:

- MDOT MTA safety and workforce development training required under the Zero Emission Bus Acquisition Requirement (Senate Bill 61, 2022)
- Training for school bus drivers under the Maryland Public Service Commission's Electric School Bus Pilot Program (SB 528, 2022)
- Local initiatives undertaken by members of the Climate Mayors EV Purchasing Collaborative which provides training, best practices, educational resources, and analysis support, creating a one-stop shop to support EV transitions for public fleets. Participating Maryland cities/counties include Baltimore, College Park, Greenbelt, Hyattsville, Montgomery County, and Takoma Park.
- The Electric Vehicle Infrastructure Training Program (EVITP), identified in the Notice of Proposed Rulemaking (NPRM), would serve to provide training and certification for electricians installing, operating, and maintaining EVSEs

In addition, ZEEVIC, chaired by MDOT, will continue with the development of policies and recommendations, and incentives that increase awareness of ZEVs and promote investment by the private sector in ZEVs through education and outreach to its members and stakeholders.

IDENTIFYING ELECTRIC VEHICLE CHARGER SERVICE PROVIDERS AND STATION OWNERS

As part of the MetroQuest Survey, MDOT asked stakeholders to drop pins on a map within one mile of an exit or interchange along designated AFCs to identify optimal locations that would support the build-out and certification of the AFCs. Stakeholders could also drop pins outside the one-mile buffer to identify locations that would be optimal for community charging once AFCs are built-out. These locations, as well as those identified in a previous Local Government MetroQuest Survey, will be included as a map in the Maryland ZEVIP Planning Toolkit. The map will allow EV network companies to identify and connect with potential optimal site locations.

Civil Rights

Maryland will comply with all regulations according to the Title VI of the Civil Rights Act and accompanying USDOT regulations, the ADA, and Section 504 of the Rehabilitation Act by addressing the following:

- Engage Maryland Works to be a network provider to promote workforce development among individuals with disabilities
- Promote job opportunities with the Maryland Department of Labor, Maryland Department of Education Division of Rehabilitation Services, American Association of People with Disabilities (AAPD) Career Center, and The Employer Assistance & Resource Network on Disability Inclusion (EARN) so that job seekers are aware of vacancies that they can potentially apply for
- Connect with counties that provide employment resources for the disabled such as Baltimore and Montgomery
- Carry out the Department of Justice's strategy regarding education and training on environmental justice to staffing and participate in department-wide briefings
- Ensure that no violations are cited based on race, color, or national origin by conducting frequent progress check-ins
- Provide technical assistance to aid all users in the deployment plan.

Equity Considerations

Maryland is committed to deploying an equitable and accessible charging network that ensures that at least 40 percent of all benefits from the NEVI Formula Program target DACs and rural communities that have been disproportionately burdened by the transportation and energy sectors. Based on input provided by stakeholders in the webinars, ZEEVIC meetings, and the MetroQuest Survey, MDOT, in consultation with MEA, identified the following principles that will guide the equitable deployment of charging infrastructure:

ACCESSIBILITY

Ensuring all Marylanders and Visitors Have Access to Reliable EV Charging

Geographic Diversity

Rural/Urban

Corridors/Communities

Multi-Lingual Graphic User Interfaces

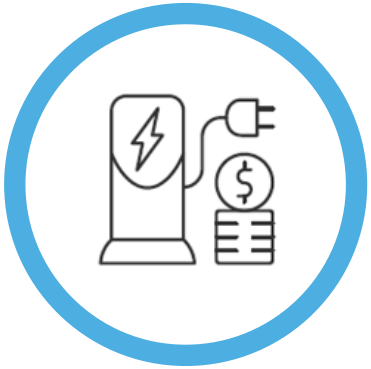
ADA Compliance

Multi-Unit Dwellings

Employment Centers

Safety While Charging

Grid Reliability



AFFORDABILITY

Creating Incentives, Innovations, and Systems that Increase Affordability of EV Ownership and Charging

Leveraging state, local, federal, and private funding

Cost of Vehicles

Cost of Charging

Mobility Hubs

Carshare

Rideshare

ZEV Transit

COMMUNICATION

Meeting People where they are, Listening, and Educating

Multi-Lingual Materials

Events

Webinars

Surveys and Polls

Geofencing

Website

Social Media

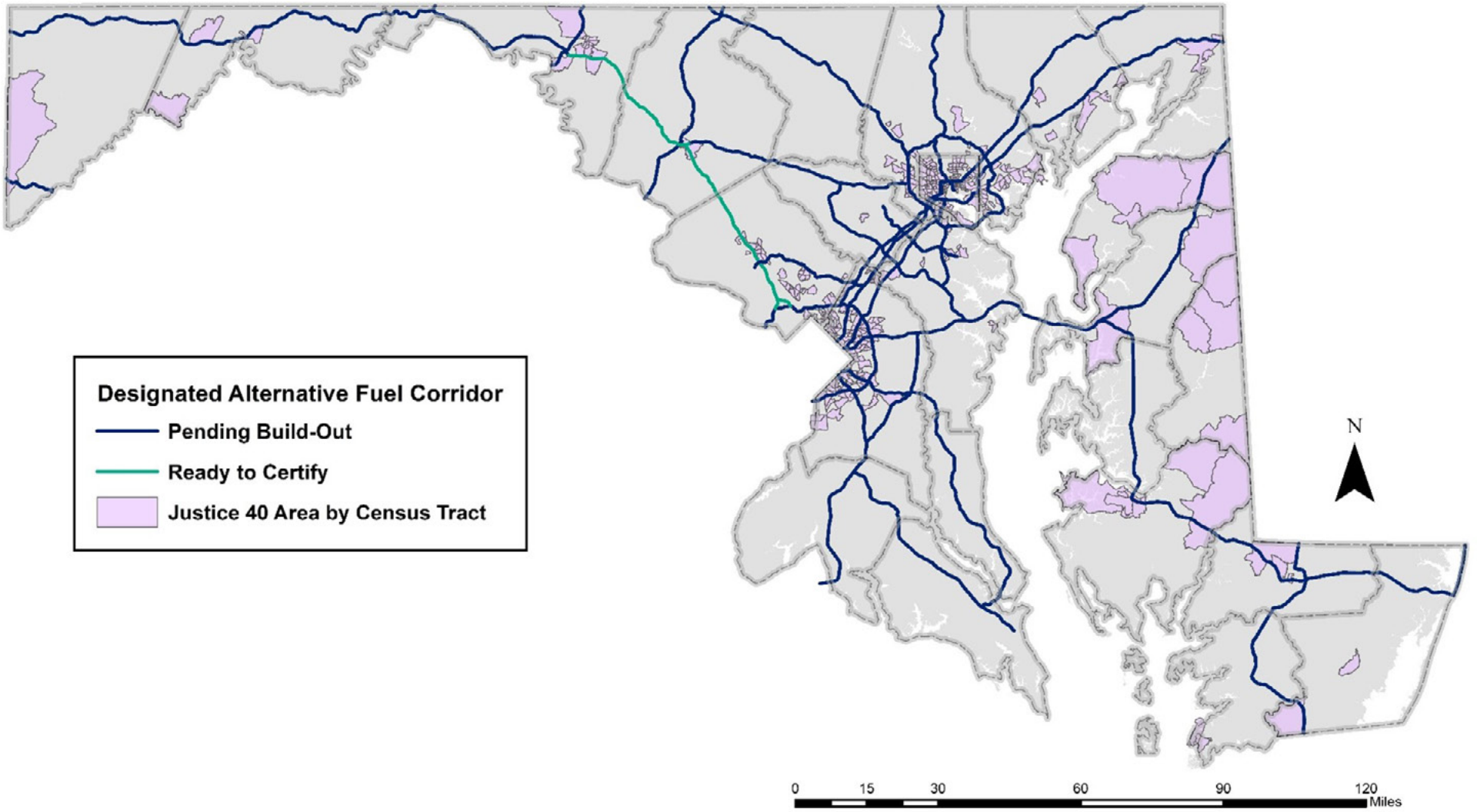
Calculators

IDENTIFICATION OF DISADVANTAGED COMMUNITIES (DACS) IN THE STATE

The USDOT and USDOE jointly developed an interim definition of DACs for the NEVI Formula Program that captured vulnerable populations, health, transportation access and burden, energy burden, fossil fuel dependence, resilience, and environmental and climate hazards. To help states identify these populations, USDOT developed the EV Charging Justice40 Map Tool.

For Maryland, census tracts with DACs are mainly concentrated within the Baltimore Beltway, primarily in Baltimore City, and within the Washington Beltway in Prince George's County. Census tracts with DACs were also identified in Frederick, Hagerstown, Cumberland, Frostburg, and along the Eastern Shore. No census tracts with DACs were identified in Southern Maryland.

JUSTICE 40 AREAS IN MARYLAND BY CENSUS TRACT



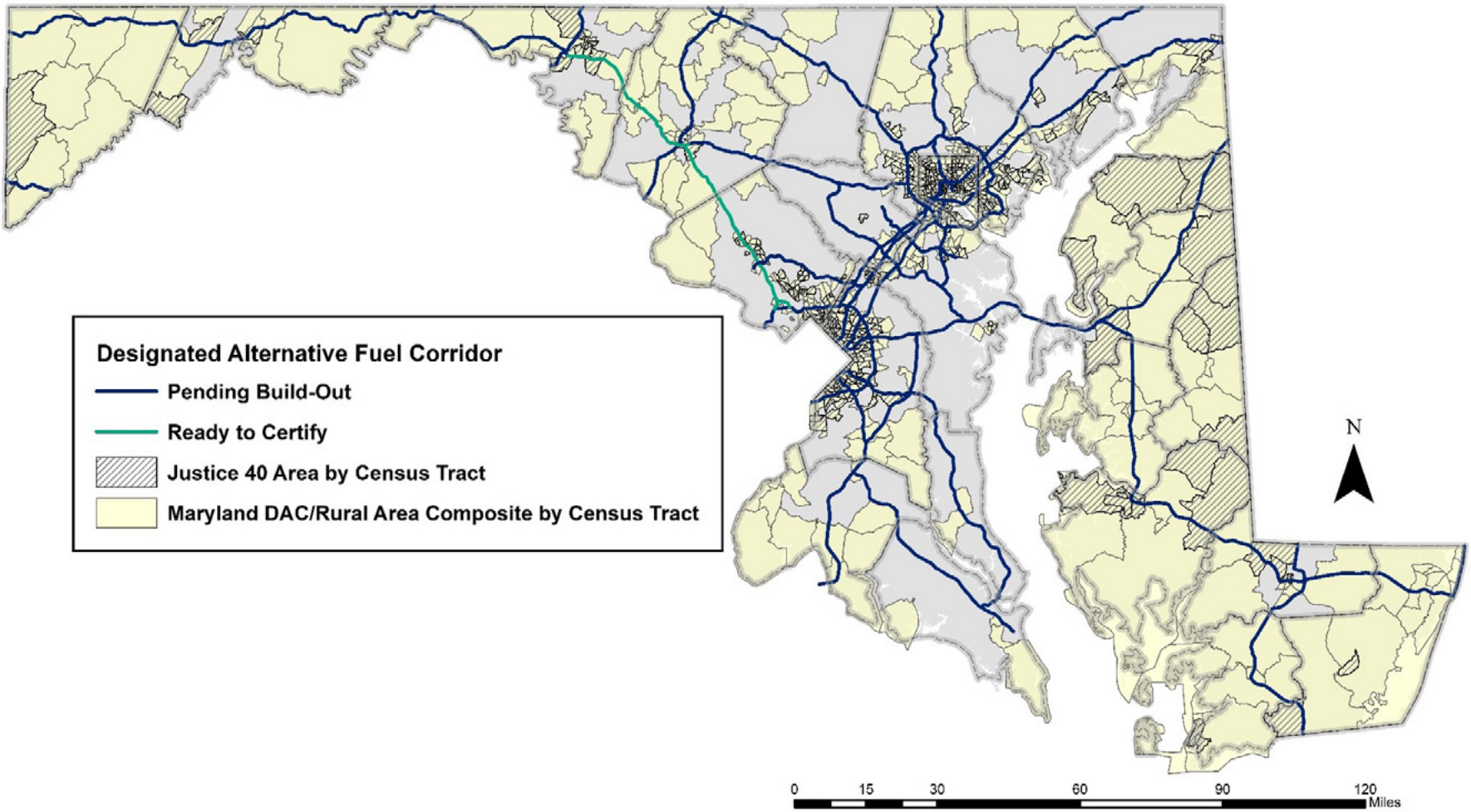
To ensure that all DACs within Maryland are identified, MDOT, in consultation with the NEVI AG, identified state and national data layers that would be used to supplement the EV Charging Justice40 Map Tool. These layers include:

- University of Maryland/MDE EJScreen Tool
- Historical Disadvantaged Communities
- Designated Rural Areas
- CDC Social Vulnerability Index

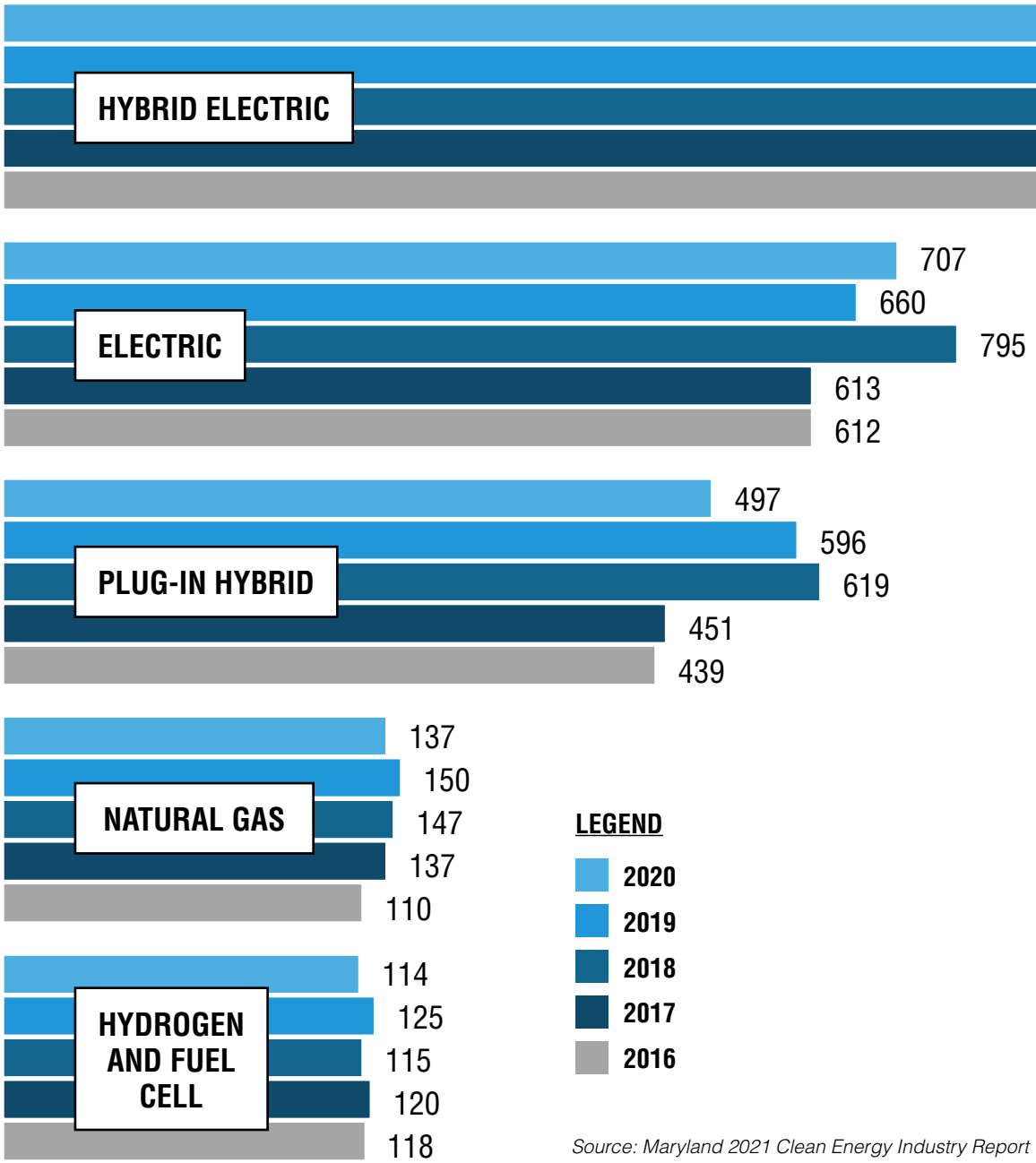
PROCESS TO IDENTIFY, QUANTIFY, AND MEASURE BENEFITS TO DACS

As part of the online dashboard tool MDOT is developing to track EV charging infrastructure locations receiving NEVI funding, MDOT will be able to identify the number of EV charging infrastructure installed in DACs. Building upon the modeling completed in the GGRA Plan and utilizing data provided by the site applicants, MDOT will model air quality benefits associated with the deployment of EV charging infrastructure. As illustrated below, MDOT will also monitor the impacts of the NEVI program on Maryland's workforce, especially in the DACs.

IDENTIFIED DAC/RURAL AREAS IN MARYLAND BY CENSUS TRACT



ALTERNATIVE TRANSPORTATION EMPLOYMENT BY SUB-TECHNOLOGY, 2015-2020



Source: Maryland 2021 Clean Energy Industry Report

Labor and Workforce Considerations

The Maryland 2021 Clean Energy Industry Report was published in June 2022 and is the first report that details historical clean energy employment across Maryland. Report production was funded by a grant from MEA. In addition to tracking overall clean energy employment dating back to 2016, the report provides a breakout of employment by technology sector, sub-sector, and value chain segment. EV employment is considered a clean energy sub-technology within the report. The hybrid electric and electric vehicle sub-sectors were the only sub-sectors without job losses from 2019 to through 2020 despite economy-wide downturns. Hybrid electric firms grew by just under a percent, or 12 jobs, while EV firms grew employment by seven percent, or almost 50 workers in 12 months. At the end of 2020, hybrid EV firms employed more than 1,300 workers while EV firms employed about 700 workers.

MDOT, in consultation with MEA, will continue coordination with Commerce and the Maryland Department of Labor, to identify certifications and educational needs or requirements, and explore the expansion of apprenticeship programs offered through MDOT MTA and mobile training. Mobile training would allow more people to access training without traveling to a centralized location.

Cybersecurity

Maryland is committed to ensuring that critical infrastructure transportation technologies do not pose cybersecurity or personal privacy risk to Maryland or the United States. The increase in connected devices could cause an increase in cyberattacks, exposure of personal information, and payment/financial data risk. Third parties contracted will own, operate, and maintain the EV charging stations as well as the data produced. They will be required to provide MDOT anonymized data on a recurring basis. MDOT will follow its Information Security Plan to handle information received from third-party operators and to transfer data to FHWA and the Joint Office. Third parties will also be required to publish station location, power ratings, and costs to the various sites tracking EV charging stations, including the US Department of Energy Alternative Fuel Data Center.

As part of the contract, prior to issuance of the award or other funding, the third party will be required to demonstrate compliance with applicable Maryland, regulatory, and federal cybersecurity requirements. Third party will be required to maintain cybersecurity throughout the life of the NEVI program, including upgrades for future cybersecurity requirements, and to alert MDOT and the Cybersecurity and Infrastructure Security Agency (CISA) of any known or suspected network or system compromises. Contracting documents shall specify cybersecurity reporting and auditing requirements.

In the recently released NPRM on minimum technical requirements, FHWA proposes to outline network connectivity requirements for charger-to-charger network, charging network-to-charging network, and charging network-to-grid communications. It is believed that these requirements will help address cybersecurity concerns.

Program Evaluation

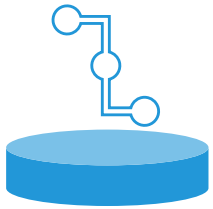
The Maryland ZEVIP Toolkit will track EV charging infrastructure locations receiving NEVI funding. In addition to tracking the physical locations of NEVI infrastructure, Maryland will work with site hosts and network companies to track the status of stations (design, construction, completion, etc.), the number of charging stations/ports per location, usage, time to charge, downtime, gaps in the charging infrastructure, as well as maintenance needs or challenges.

Discretionary Exceptions

As part of the development and approval of state plans, and in very limited circumstances, a state may submit a request for discretionary exceptions from the requirement that charging infrastructure is installed every 50 miles along that state's portion of the Interstate Highway System within one travel mile of the Interstate, as provided in the AFCs request for nominations criteria. MDOT, in consultation with MEA, has not identified the need to request discretionary exceptions at this time for Maryland's NEVI Plan. MDOT, in consultation with MEA, will continue to evaluate the need for discretionary exceptions and will coordinate with the Joint Office if the need arises.

Comply with ISO Requirements

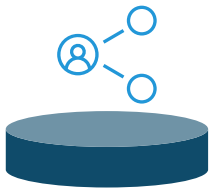
Encryption of company data



Single-sign-on (SSO) Authentication

Email Requirements

Process on Disclosing Vulnerabilities



Rights to Data and Data Sharing

Maryland's EV Resources and Incentives

Maryland has a robust set of online tools that were designed for easy access and specific end-user needs. Each web resource is targeted to a specific EV audience within the state and is accompanied by a StoryMap or Toolkit to aid in information-sharing.

MARYLAND ZEVIP WEBSITE

The Maryland ZEVIP website was created to share information on, and to track, ZEV infrastructure funding opportunities, like the NEVI Formula Funding. This website showcases progress on NEVI planning, announces opportunities for stakeholder and community interaction, and provides data synopses.

MARYLAND ZEVIP TOOLKIT

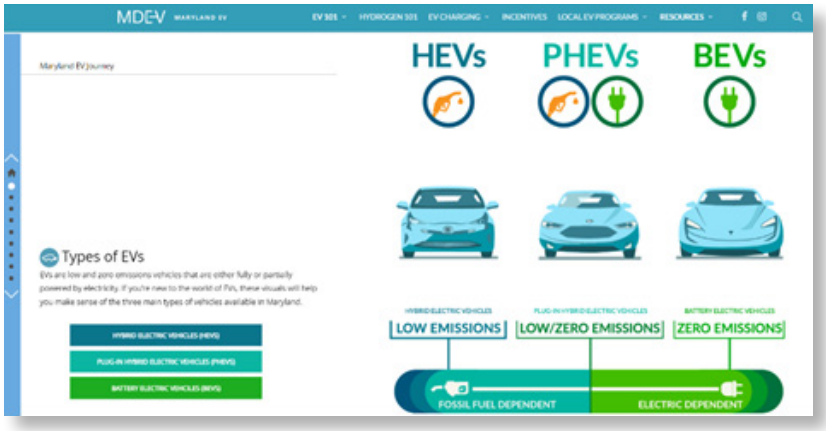
As a companion to the Maryland ZEVIP website, the Maryland ZEVIP Toolkit acts as an interactive data gathering and sharing tool. It provides location-based information to aid in ZEV site selection and evaluation. It was designed to be agile and possesses the functionality to both track our progress on building out publicly available charging along corridors and, eventually, within our communities. Visitors can use the tool to evaluate the most desirable locations for charging infrastructure installation. Users can also utilize an interactive tool to drop pins on a map to tell all visitors where they would like to see infrastructure installed and why.

MARYLAND EV.ORG

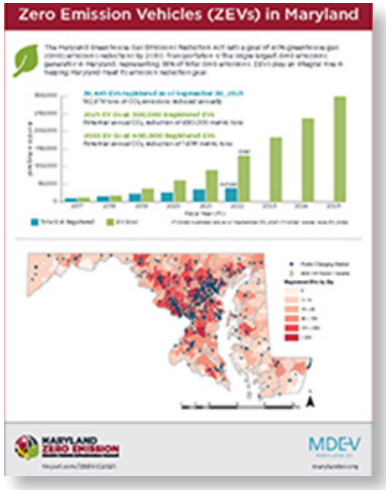
The MarylandEV.org website is a one-stop shop for all EV newcomers. It was designed as a user-friendly entry to all things EV in Maryland. This website includes the basics like, what is an EV; how do I charge an EV, what are my charging options, how much does it cost to own an EV, and what are the federal incentives and opportunities for me? It is linked to social media accounts that regularly share useful EV information.

MARYLAND EV JOURNEY

The Maryland EV Journey StoryMap was designed as an interactive and educational tool for EV beginners.



MARYLAND ZEEVIC WEBSITE



The Maryland ZEEVIC website was designed to share information related to the meetings and activities of ZEEVIC. Visitors can view the current membership of the Council, find information about upcoming meetings, view summaries of past meetings, and download copies of ZEEVICs Annual Reports dating back to 2015. The ZEEVIC website is geared more toward sharing ZEV policy information and includes an annual policy scorecard, detailing how Maryland stacks up compared to other states.

MARYLAND ZEEVIC STORYMAP

The Maryland ZEEVIC StoryMap tracks EV ownership density and registration trends, our AFCs, and community outreach activities.

MARYLAND STATE EV INCENTIVES

The following list of Maryland State EV incentives are listed on the MarylandEV.org Website along with Maryland utility incentives and programs, and federal EV incentives and are subject to change:

EV HIGH OCCUPANCY VEHICLE (HOV) LANE EXEMPTION

Permitted EVs may operate in any Maryland HOV lanes regardless of the number of occupants. Qualified EVs must have a maximum speed capability of at least 65 miles per hour. To operate in HOV lanes, EV owners must obtain a permit from the Maryland Department of Transportation Motor Vehicle Administration (MDOT MVA). Each year the MDOT MVA and MDOT SHA must report EV use in HOV lanes to the governor. This exemption expires September 30, 2022. For more information, see the HOV Permit Issuance for EVs website.

EV CHARGING STATION REBATE PROGRAM

The MEA offers a rebate to individuals, businesses, or state or local government entities for the costs of acquiring and installing qualified EV charging stations. Between July 1, 2022, and June 30, 2023, the rebate may cover 40 percent of the costs of acquiring and installing qualified EVSE, or up to the following amounts and is subject to change:

Qualified Entity	Amount per EV Charging Station
Residential	$700
Businesses, Nonprofits, Workplaces, Multi-Unit Dwellings, and State or Local Government Entities	$4,000

Applicants must demonstrate compliance with state, local, and/or federal law that applies to the installation or operation of qualified EV charging stations. Other requirements may apply. MEA may award up to $1,800,000 total. Each entity that applies for a commercial rebate may receive up to 10 percent of the total program budget per fiscal year. Rebates will be awarded on a first-come, first-serve basis. For more information, see the MEA EVSE Rebate Program website.

ZERO EMISSION SCHOOL BUS GRANT PROGRAM AND STUDY

The MDE administers a Zero Emission School Bus Transition Grant Program to purchase zero emission school buses, install charging infrastructure, and transition to zero emission school bus fleets. MDE and MDOT also provide technical assistance to county boards of education transitioning school buses to zero emission vehicles throughout the state.

EV EMISSIONS INSPECTION EXEMPTION

Vehicles powered exclusively by electricity are exempt from state emissions inspections. For more information, see the Maryland Vehicle Emissions Inspection Program website.

ALTERNATIVE FUEL VEHICLE (AFV) GRANTS

The Clean Fuels Incentive Program (CFIP), administered by MEA, provides grants to fleets for the purchase of new AFVs. Grant award amounts vary and may cover up to 100 percent of the incremental AFV cost. Grants in SFY 22 were available in the following amounts. SFY 23 program details are still under development.

AFV Technology	Vehicle Class	Maximum Grant Award per Vehicle
Electric Vehicles	Class 1-2	$5,000
Natural Gas, Propane, Biodiesel, and Hydrogen Vehicles	Class 1-2	$7,500
Natural Gas, Propane, and Biodiesel Vehicles	Class 3-7	$50,000
Electric and Hydrogen Vehicles	Class 3-7	$80,000
Electric and Hydrogen Vehicles	Class 8	$150,000

Eligible applicants include school districts, nonprofits, commercial entities, corporations, and local and municipal governments. AFVs purchased for individual or personal use are ineligible. Vehicles receiving funding from other state programs are ineligible. Grants will be awarded on a competitive basis, with equity and environmental justice considerations as part of the evaluation criteria. For more information, including additional eligibility criteria, see MEA's CFIP Program website.

EV WORKPLACE CHARGING GRANT

The MDE offers grants for the installation of EV charging stations at workplaces through the Charge Ahead Grant Program (CAGP). Grants are available for up to $4,500 per Level 2 EV charger and $600,000 per applicant. CAGP funding is available for costs directly attributable to the design, installation, and operation of eligible workplace EV charging stations. Eligible entities include non-profits, private companies, and government agencies. The program is funded by Maryland's portion of the Volkswagen Environmental Mitigation Trust. For more information, including program guidance and application, see the MDE Volkswagen Settlement website.

EV CORRIDOR CHARGING GRANT

The MDE offers grants of up to 80 percent of the cost for the installation of direct current fast charging (DCFC) stations along Federal Highway Administration designated AFCs through the Electric Corridors Grant Program (ECGP). ECPG funding is available for up to $150,000 per DCFC station and $600,000 per applicant. Eligible entities include non-profits and private businesses. Grant awards vary based on total kilowatts per charging port. The program is funded by Maryland's portion of the Volkswagen Environmental Mitigation Trust. For more information, including program guidance and application, see the MDE's Volkswagen Settlement website.

SOLAR CANOPY EV INFRASTRUCTURE GRANT

The MEA offers grants of up to $125,000 for the planning and installation of solar arrays on existing public facilities and infrastructure. Eligible projects include solar canopies that support EVSE. For more information, see the MEA Public Facility Solar Grant Program website.

CLEAN ENERGY GRANTS

The Maryland Smart Energy Communities (MSEC) program, administered by MEA, offers local governments grants for transportation-related projects, including the purchase of new EVs or alternative fuel vehicles and the installation of EV charging stations. Grants are available in the following amounts:

Project Type	Maximum Grant Award
Purchase of a New EV with an All-Electric Range of up to 199 Miles	$3,750 per vehicle
Purchase of a New EV with an All-Electric Range of Over 200 Miles	$7,500 per vehicle
EV Charging Station Equipment and Installation	$6,000 per EV charging station

Communities already participating in the MSEC program may receive a maximum award of $55,000 per project and new communities may receive up to $75,000. Additional requirements may apply. For more information, including requirements and application deadline, see the MEA MSEC website.

National NEVI Information

To track the progress of the NEVI Formula funding program, please visit the Joint Office of Energy and Transportation website. This website tracks national progress on infrastructure deployment and includes helpful news, updates, and tools related to the installation of EV infrastructure throughout the nation.

GLOSSARY OF TERMS

AADT – Annual Average Daily Traffic

AC – Alternating Current

AFC – Alternative Fuel Corridor

AG – Maryland NEVI Advisory Group, Comprised of Key State Agencies

BEV – Battery Electric Vehicle

CCS – Combined Charging System or plug type for DC Fast Charging

CEJSC – Commission on Environmental Justice and Sustainable Communities

Corridor Pending – Corridor does not satisfy FHWA requirements

Corridor Ready – Corridor meets FHWA requirements

DAC – Disadvantaged Community

DC – Direct Current

DC Fast Charging – High power charging 400-800 volt, 150-600 amps, 3 phase

DOE – Department of Energy

DOT – US Department of Transportation

EV – Electric Vehicle

EVSE – Electric Vehicle Supply Equipment

FFY – Federal Fiscal Year (October 1st - September 30th)

FHWA – Federal Highway Administration

Justice40 – Federal program outlining 40 percent of federal climate investments go directly to frontline communities most affected by poverty and pollution

kW – Kilowatt (1,000 watts)

KWh – Kilowatt Hour (1,000 watts for 1 hour)

Level I – Low power charging 120-volt, 10-20 amps, single phase

Level II – Medium power charging 240-volt, 15-50 amps, single phase

MCCC – Maryland Commission on Climate Change

MDOT – Maryland Department of Transportation

MW – Megawatt (1,000 kilowatts)

MWh – Megawatt Hour (1,000 kilowatts for 1 hour)

NEVI Formula Program – National Electric Vehicle Infrastructure Formula Program

NPRM – Notice of Proposed Rule Making

PHEV – Plug-In Hybrid Electric Vehicle

SFY – State Fiscal Year (July 1st- June 30th)

VMT – Vehicle Miles Traveled

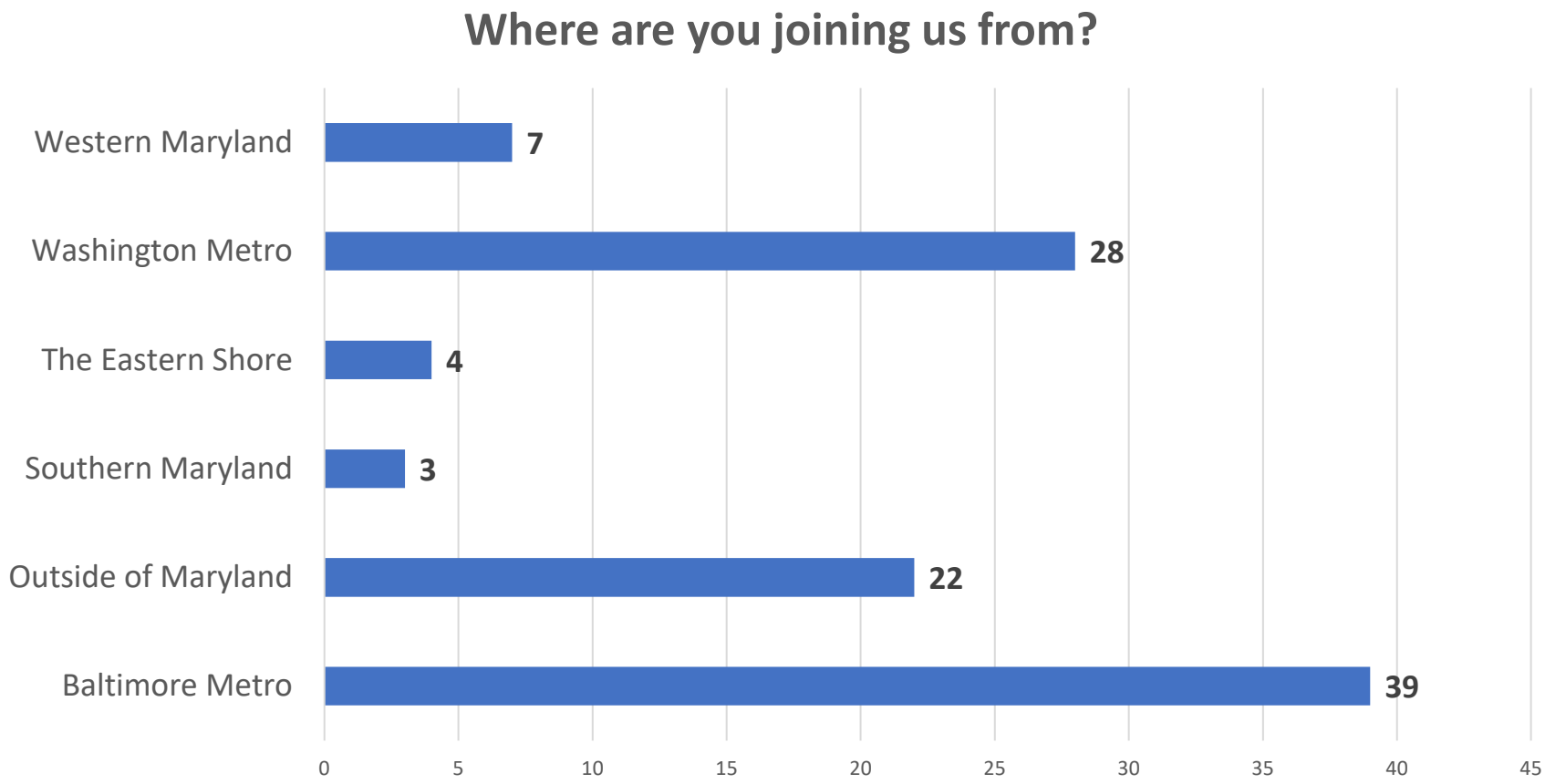
ZEEVIC – Maryland's Zero Emission Electric Vehicle Infrastructure Council

ZEVIP – Maryland's Zero Emission Vehicle Infrastructure Program

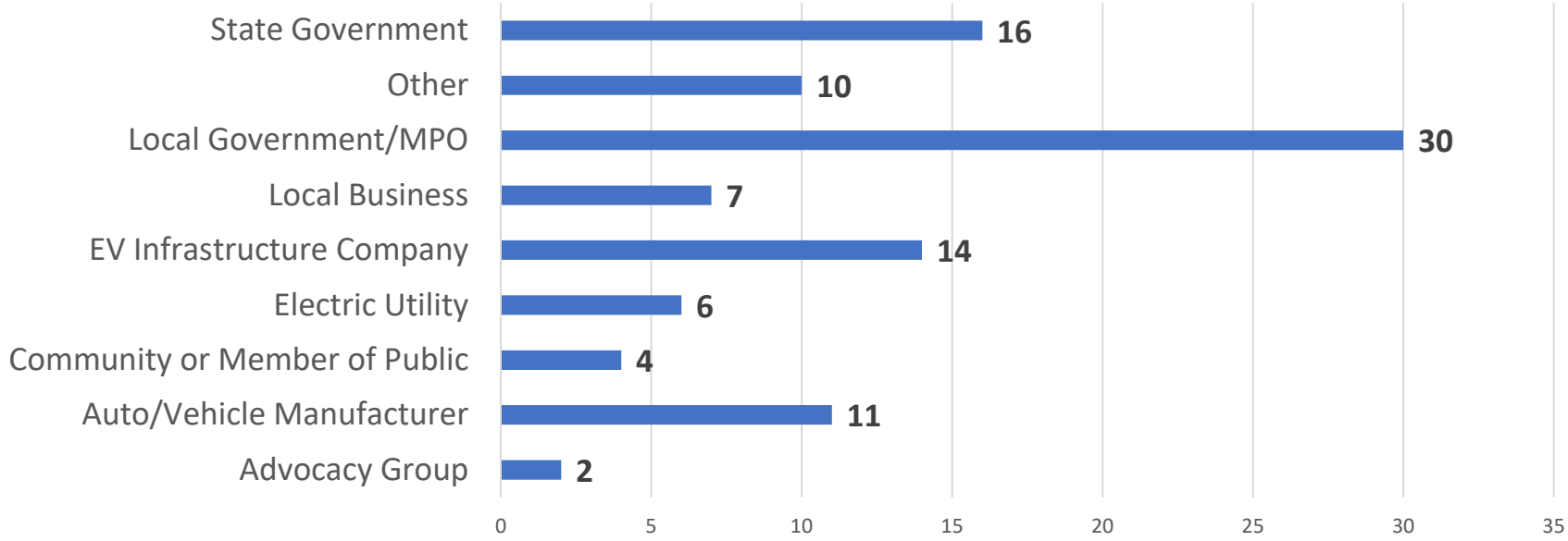
APPENDIX A: MARYLAND'S EV ALTERNATIVE FUEL CORRIDORS

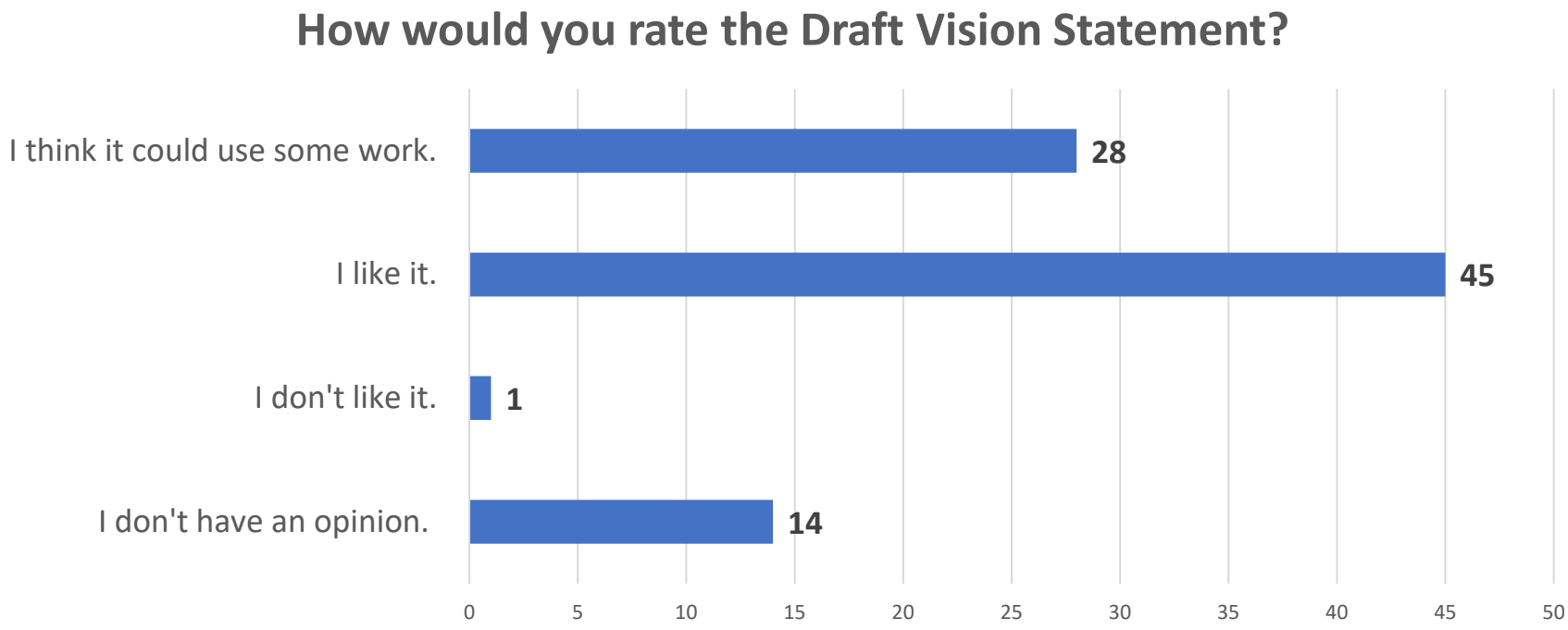
Corridor	Length (Miles)	Start	End	Designation	Corridor Status
I-270	34.5	I-70	I-495	Corridor-Ready	Ready to be Certified
I-495	16.1	VA State Line	VA State Line	Corridor-Ready	Pending Build Out
I-68	79.9	I-70	WV State Line	Corridor-Pending	Pending Build Out
I-695	51.3	-	-	Corridor-Ready	Pending Build Out
I-70	90.9	I-695	PA State Line	Corridor-Ready	Pending Build Out
I-795	8.9	I-695	MD 140	Corridor-Ready	Pending Build Out
I-81	12.0	PA State Line	VA State Line	Corridor-Ready	Pending Build Out
I-83	32.9	PA State Line	Fayette Street	Corridor-Ready	Pending Build Out
I-95	108.1	DE State Line	VA State Line	Corridor-Ready	Pending Build Out
I-97	18.2	I-695	US 50	Corridor-Ready	Pending Build Out
US 1	24.4	PA State	Joppa	Corridor-Pending	Pending Build Out
	60.4	Joppa	DC Line	Corridor-Ready	Pending Build Out
US 13	42.2	DE State Line	VA State Line	Corridor-Pending	Pending Build Out
US 15	37.85	PA State Line	VA State Line	Corridor-Ready	Pending Build Out
US 301	67.1	DE State Line	MD 5	Corridor-Ready	Pending Build Out
	22.6	MD 5	VA State Line	Corridor-Pending	Pending Build Out
US 50	139.7	DC Line	MD 528	Corridor-Ready	Pending Build Out
MD 100	16.8	US 29	MD 177	Corridor-Ready	Pending Build Out
MD 140	11.5	I-795	Westminster	Corridor-Ready	Pending Build Out
	22.41	Westminster	PA State Line	Corridor-Pending	Pending Build Out
MD 32	30.3	I-70	I-97	Corridor-Ready	Pending Build Out
MD 4	58.8	DC Line	MD 235	Corridor-Pending	Pending Build Out
MD 5	52.8	DC Line	MD 712	Corridor-Ready	Pending Build Out
MD 528	8.6	DE State Line	US 50	Corridor-Pending	Pending Build Out
MD 295	30.5	Russel Street	DC Line	Corridor-Ready	Pending Build Out
ICC/MD 200	18.8	US 1	I-270	Corridor-Pending	Pending Build Out

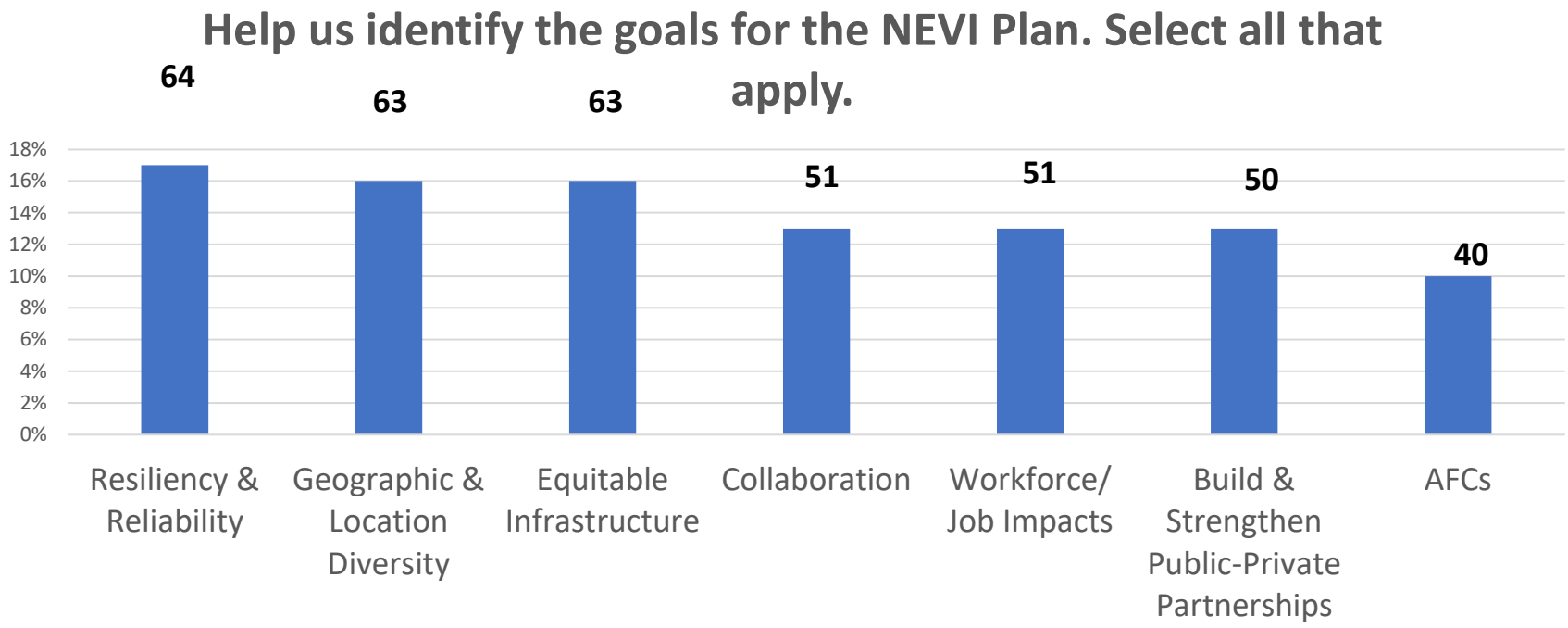
APPENDIX B: PUBLIC OUTREACH – POLLING AND SURVEY RESULTS


Where are you joining us from?
Western Maryland
7
Washington Metro
28
The Eastern Shore
4
Southern Maryland
3
Outside of Maryland
22
Baltimore Metro
39
0
5
10
15
20
25
30
35
40
45

What type of organization are you representing?



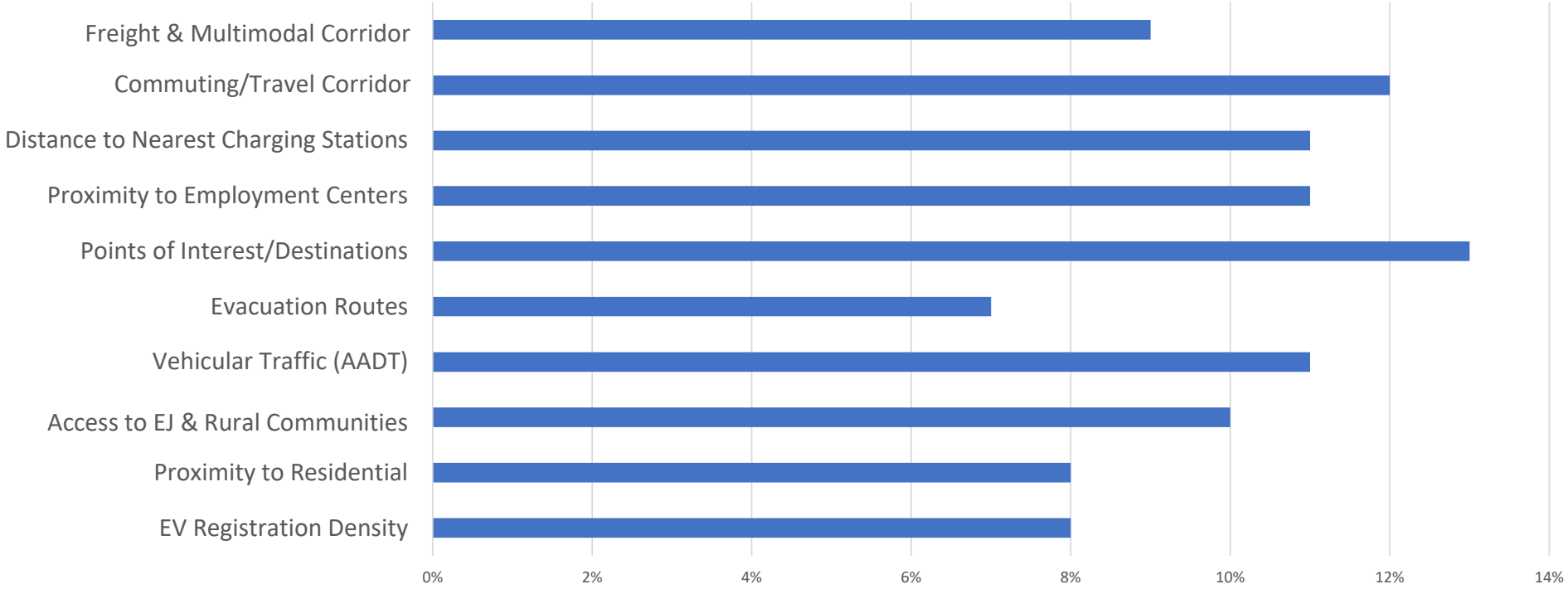

How would you rate the Draft Vision Statement?
I think it could use some work.
28
I like it.
45
I don't like it.
1
I don't have an opinion.
14
0
5
10
15
20
25
30
35
40
45
50


Help us identify the goals for the NEVI Plan. Select all that apply.
64
63
63
51
51
50
40
18%
16%
14%
12%
10%
8%
6%
4%
2%
0%
Resiliency & Reliability
Geographic & Location Diversity
Equitable Infrastructure
Collaboration
Workforce/ Job Impacts
Build & Strengthen Public-Private Partnerships
AFCs

Are there other goals we should consider? Type in a word or phrase.

Access to Transit Options [3]
Affordability [4]
Customer Experience [4]
Education [3]
Environmental (Air Pollution, EJ, GHG, Sustainability) [8]
Heavy Duty [7]
Housing (Townhouses, Urban Areas, Residences with no parking) [4]
Safety [2]
Miscellaneous (Economic Development, awareness, induction charging, maintenance, Grid Diversity) [19]

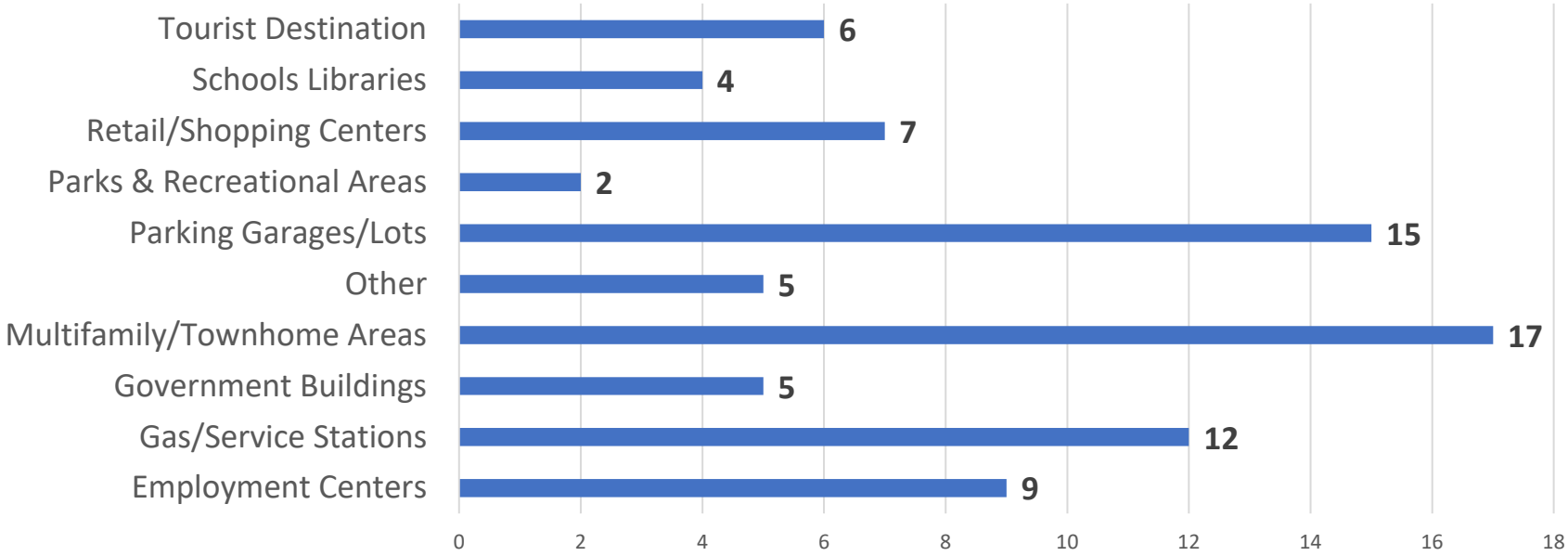
Help us identify prioritization criteria. Select all that apply.



Are there other prioritization criteria we should consider that weren't listed? Type in a word or phrase.

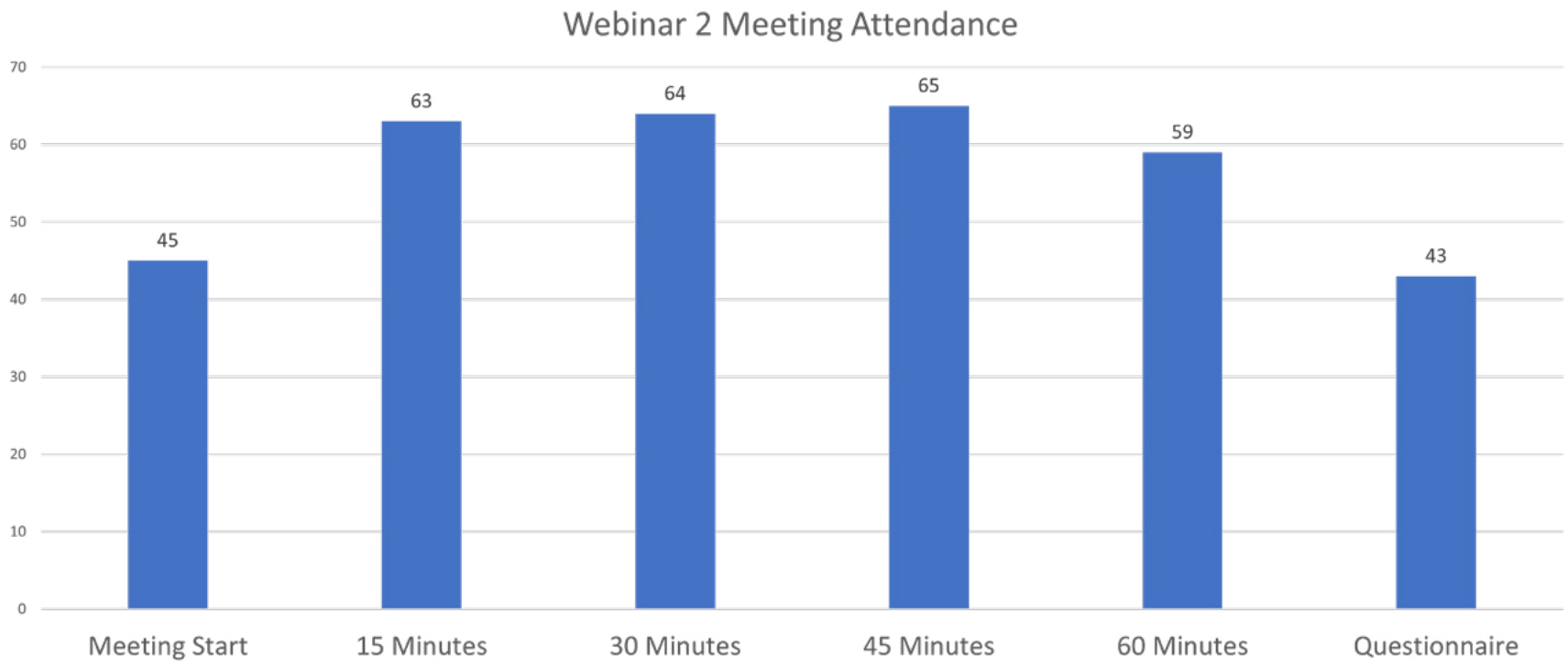
- Access to Amenities (Hotels, gyms, Town Centers, etc.) [4]
- Existing infrastructure (Wattage, existing stations) [4]
- Multi-Family Housing [4]
- Incentives [5]
- Schools [4]
- Traffic Congestion/ Delays [4]
- Overnight Stations (Transit Stations, Workplace) [5]
- Miscellaneous (proximity to exits, public/private charger access, costs, etc.) [21]

What are preferred locations for installing charging stations? Select the most important.



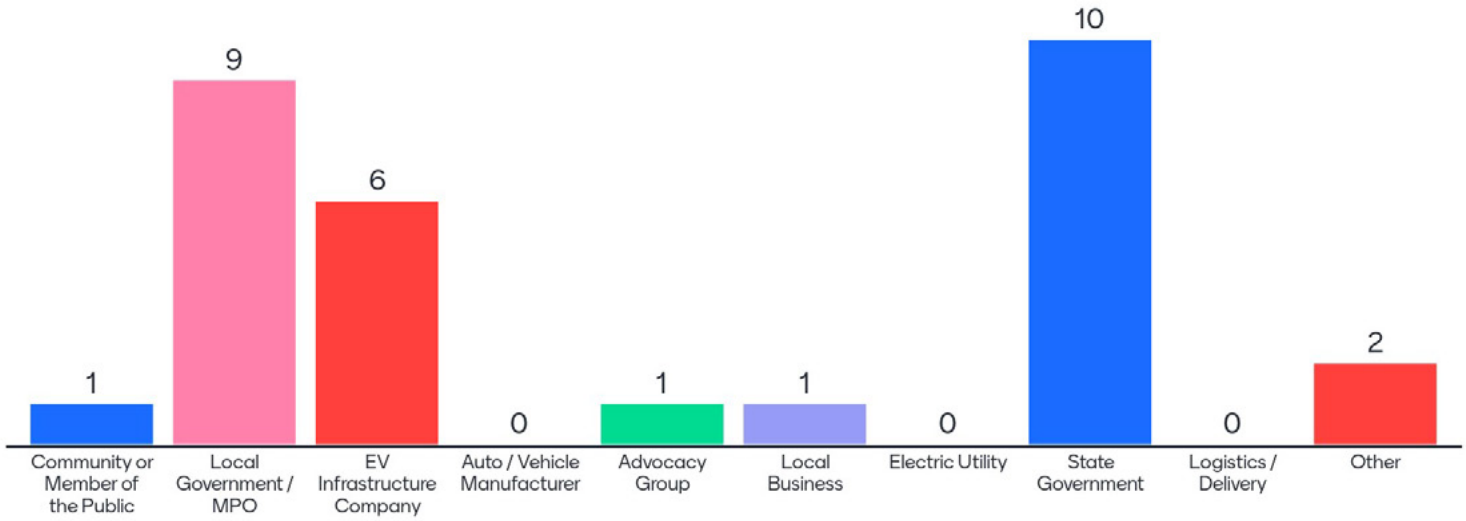
Are there other preferred locations we should consider that weren't listed? Type in a word or phrase.

Entertainment Areas (Convention Centers, Sports Arenas, Shopping Centers, etc.) [12]
Fleet Charging (Fleet Charging, Heavy Duty Trucks)[13]
Hospitals [3]
Rest Areas [6]
Transit [3]
Schools [3]
Warehouses [2]
Miscellaneous (Faith Centers, Government owned areas, etc.) [15]


Webinar 2 Meeting Attendance
70
60
50
40
30
20
10
0
45
63
64
65
59
43
Meeting Start
15 Minutes
30 Minutes
45 Minutes
60 Minutes
Questionnaire

What organization are you with?

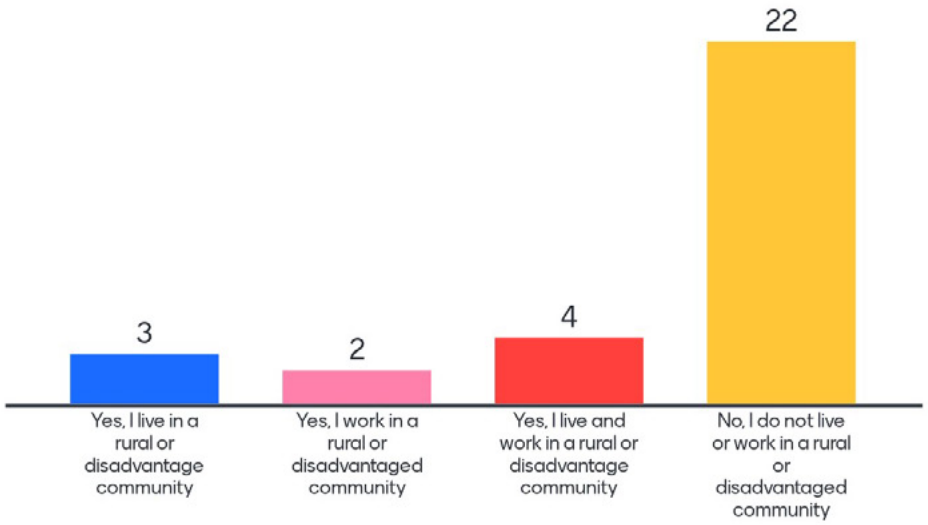
Mentimeter



30

Do you live or work in a rural or disadvantaged community?

Mentimeter



31

Is there enough information publicly available about EV infrastructure?

Mentimeter

yes	no	no
yes	not yet	no
No	yes	Don't know. Not driving an EV yet.

25

Is there enough information publicly available about EV infrastructure?

Mentimeter

yes

Yes

no, not yet.

no people still think their townhouse community or rental community won't allow it but haven't thought to ask them to install chargers

Yes but people just don't pay attention. It needs to be on tax bills, utility bills, etc.

not yet

Not consistent information

Kind of, there is a ton of information, but it is all over the place and hit or miss as to applicability and usefulness..

Its out there for someone proactively looking for it. Even some EV drivers aren't educated on how the infrastructure works outside of their preferred charging method.

25

Is there enough information publicly available about EV infrastructure?

Mentimeter

No. The public needs to be educated about the benefits of EVSE. PSAs would be great. Billboards, etc. A traditional marketing campaign.

nope

Yes, but it feels limited to people who are actively looking for the information

Feels political now

Yes, but you need to seek it out

Need more support on education and outreach. Maryland potential EVSE host sites have been resistant

Yes

25

How would you define a rural or disadvantaged community?

Mentimeter

- Lack of access to resources
- General store and a post office
- Rural zoning / lower income census tract
- limited public utility and infrastructure access
- area where public transportation is limited or not availible at all
- An area that lacks infrastructure or the resources to provide proper infrastructure to those that live in that community
- State legislation for the Climate Solutions Now act, I think, just did that. Let's not reinvent the wheel.
- unable to afford a car and don't have easy access to public transportation
- Generally low-income community.

22

How would you define a rural or disadvantaged community?

Mentimeter

City, Town, Public

Disadvantaged- one that is more impacted by air pollution, lacks adequate infrastructure

Low EJ Index

Certain percentage low income, zero vehicle households, limited English proficiency, minorities, etc

Low population, poor, remote, removed from the rest of the state geographically and politically

Disadvantaged is one in which there is a spike in COPD outside the normal levels, where the education levels are lower than normal

Disproportionately affected by pollution and socioeconomic background. Governments should be defining these terms if want to incorporate into their EV plans/grant programs

Rural = low density in an agricultural setting.Disadvantaged = extreme low income based on AMI

Rural is rural, ag, nature, not urban and heavily developed. Disadvantaged are areas with high poverty, former redlined, historically underinvested, poor access to community needs like quality grocery stores, etc.

22

How would you define a rural or disadvantaged community?

Mentimeter

A place where you do not get many grants or funding awarded. Limited amount of resources than a city would have.

Rural - A highly dispersed population, largely undeveloped or agricultural area. Disadvantaged - Lacking in economic and physical infrastructure

Prideful communities that lack the resources seen in urban/metropolitan areas

typically, rural zoning and low income areas

22

What are your top equity concerns related to EV infrastructure?

Mentimeter

how much usage the chargers will actually get

potential for gentrification

affordability of maintenance of stations for the community

Home charging for renters

That cost of charging is either free or reasonably priced.That stations are easy to find.That stations are in locations that are safe; I realize that's subjective.

Home charging

that EJ communities won't get the same funding as other communities because they don't have anyone to fight for them.

that vehicle price is high so few lower income people can afford them. How do we make sure those charging stations are used? Can we assist promoting vehicles?

Cost for charging, being available away from more affluent and tourist areas

28

What are your top equity concerns related to EV infrastructure?

Mentimeter

cost to charge should be free

lack of easy access to EV chargers, cost of charging

Price of both electric vehicles and charging

Failure to consider future impacts - deterioration of utility system, disposal and removal of equipment, maintenance, etc.

Reducing air pollution in EJ communities

Reliable charging and safe locations

cost and location

lack of stakeholder engagement with the communities, is there an opp to create jobs for these folks to provide the O&M on the stations?

Cost of charging.

28

What are your top equity concerns related to EV infrastructure?

Mentimeter

Is there evidence of large numbers of EV in rural and disadvantaged communities to make the investment worthwhile? Projections of usage might be helpful.

DCFC sites in rural communities. Also, charging costs that are increased as demand charges and tariffs aren't adjusted with utilities

re: vehicle price and charging cost there used to be lots of tax incentives for e-car purchase. they have mostly been phased out but still may be relevant to revisit from an affordability and equity perspective

This infrastructure is expensive and operation costs will be volatile (utility demand charges, maintenance, etc.). Even with proper training/education, the average small business will get buried by unexpected costs.

Some EJ communities, with a strong tourism component, need charging stations to attract visitors to the area which will, in turn, support jobs .

That ALL people, focusing on socio-economic status, are given a fair share of all aspects of this.

A plan in place incase one stops working. How long to replace one or a part.

lack of charging for multifamily (apartments and condos) and high-density residential areas in EJ communities.

Barriers to buying personal vehicles. Will the chargers get used/actually be beneficial

28

What do you think the barriers are with respect to installing EV infrastructure in rural or disadvantaged communities?

Mentimeter

- none
- Coordination between state, local governments and landowners
- maintenance responsibility
- Ease of access/convenience for EV drivers
- Potential lack of maintenance for charging infrastructure
- climate change deniers thinking it will cost the community money, more taxes etc. other misunderstandings
- Low demand, high costs
- Demand charges in rural areas. Need demand charges address with utility tariffs for projects to pencil
- location of parking area in competition with overall parking space

18

Do you think there are any particular challenges associated with building out the EV Corridors?

Mentimeter

power supplied to the chargers

local planning approvals

Too few corridors in Eastern Shore

For southern Garrett County with its two "stripes" going east/west, we need to connect those north/south.

availability of sites to install charging stations--will the state acquire or lease the space from private properties?

people only stop at a rest area for 10 min, chargers need to be outside of restaurants, popular shopping centers on these corridors where people spend more time

parking facilities with electrical infrastructure (cost of running infrastructure to say parking garage

MD's climate impacts - hotter days, more precip. MDOT's roads have ~70% of their flooding incidents outside of FEMA Flood Zones. EVSE and flood = bad look

rapidly changing technology. Induction (wireless) charging will supplant wired charging. It concerns me that I haven't heard much about this.

13

Do you think there are any particular challenges associated with building out the EV Corridors?

Mentimeter

Opportunity: Education on and promotion of cleaner air. Marketing of corridor

Mixing charging parking spots and ADA accessible spaces

prioritize brownfield parcels

balancing short charging with longer charging (workplace parking)

13

A overarching goal of the NEVI plan is to prioritize underserved and rural communities. Are there specific goals that you think should correspond?

Mentimeter

- Prioritize brownfield type parcels
- broadband/public wifi access at the charging areas in rural communities
- Charging at libraries, parks, and beaches.
- encourage ownership of EVs to increase demand and actual use of charging stations in these areas
- Air quality metrics
- just providing good public transportation
- Yes, underutilized sites with good access to public facilities
- Tree planting to reduce Urban Heat Island, stormwater implications, snow and ice removal/maint
- 'free' charging for low to moderate income

16

A overarching goal of the NEVI plan is to prioritize underserved and rural communities. Are there specific goals that you think should correspond?

Mentimeter

Is there a way to create a solar hub or sorts to allow for device-charging in these areas (create a resilience hub in conjunction with EV infrastructure)

balancing short term charging options vs. full day (workplace & residence) options

Reducing barriers for residents of MUDs

Increase EV ownership in rural and underserved communities. And, by the way, the goal should be to decrease the number of cars on the road while increasing the proportion of cars (in all corridors) that are EVs.

Make sure that the community has a need for the chargers and aren't just being dumped with a service that outsiders will use...

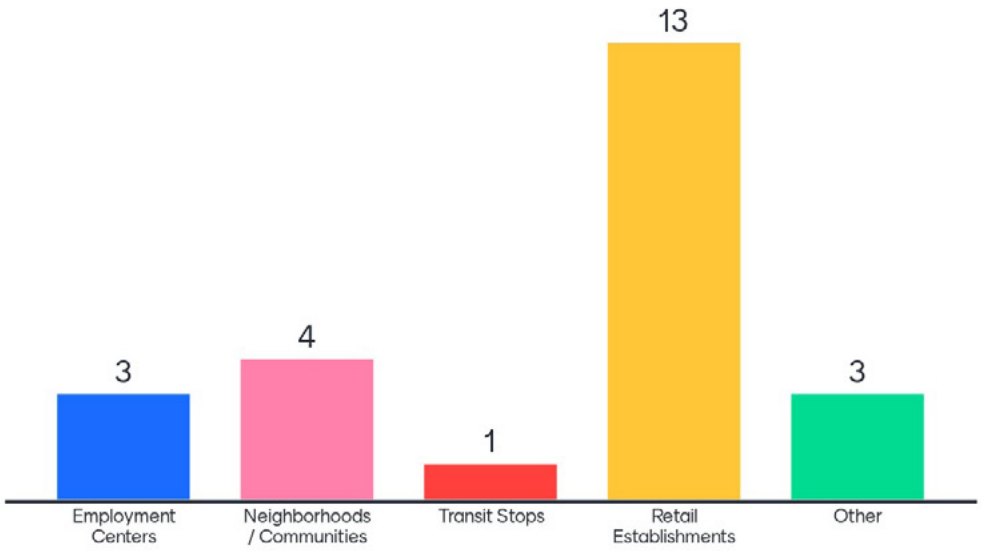
Maybe some of the plug-in instructions in Spanish.

Solar canopied parking?

16

Where do you think charging would be best suited in rural and disadvantaged communities

Mentimeter



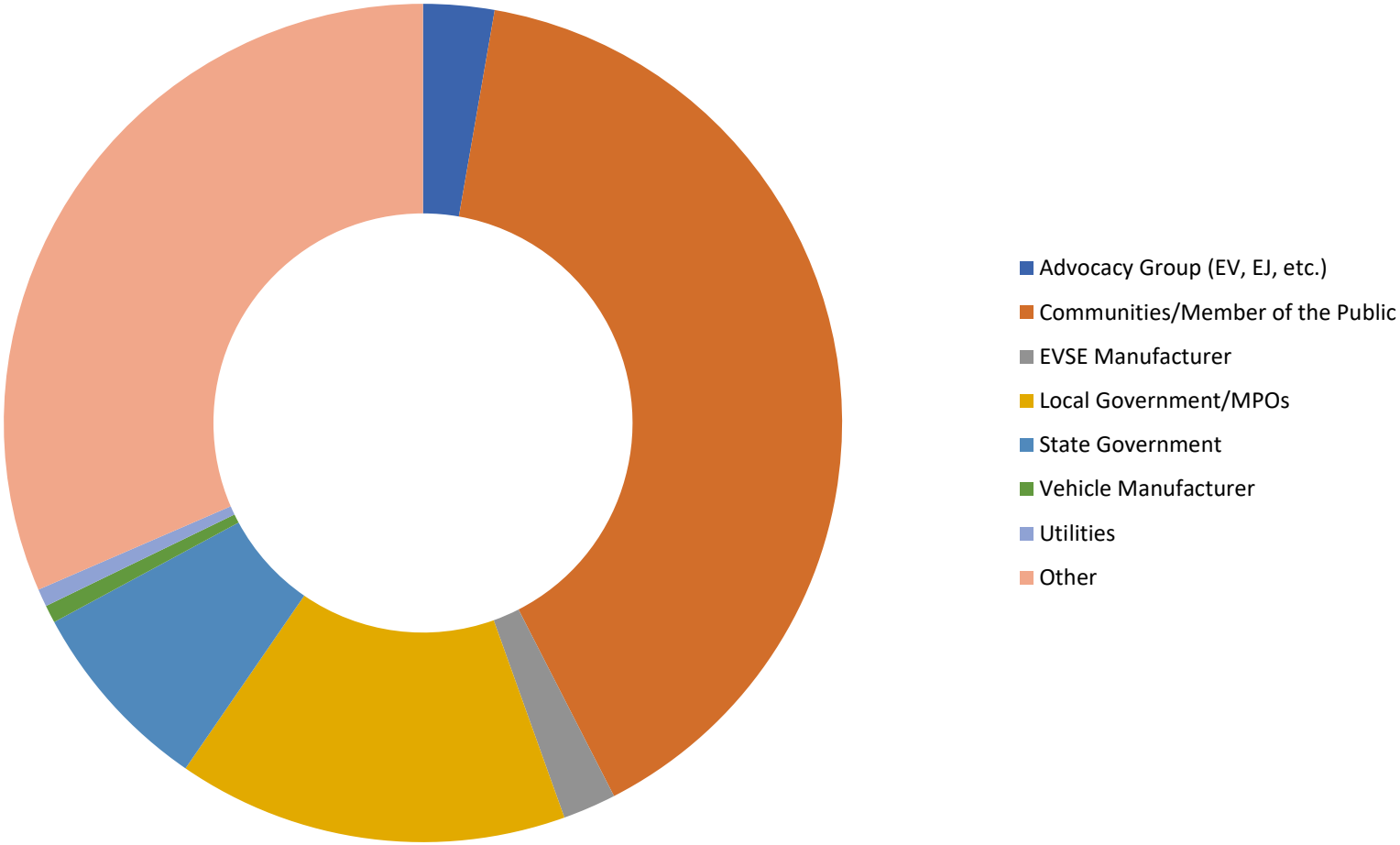
24

Where do you think other charging would be best suited in rural and disadvantaged communities

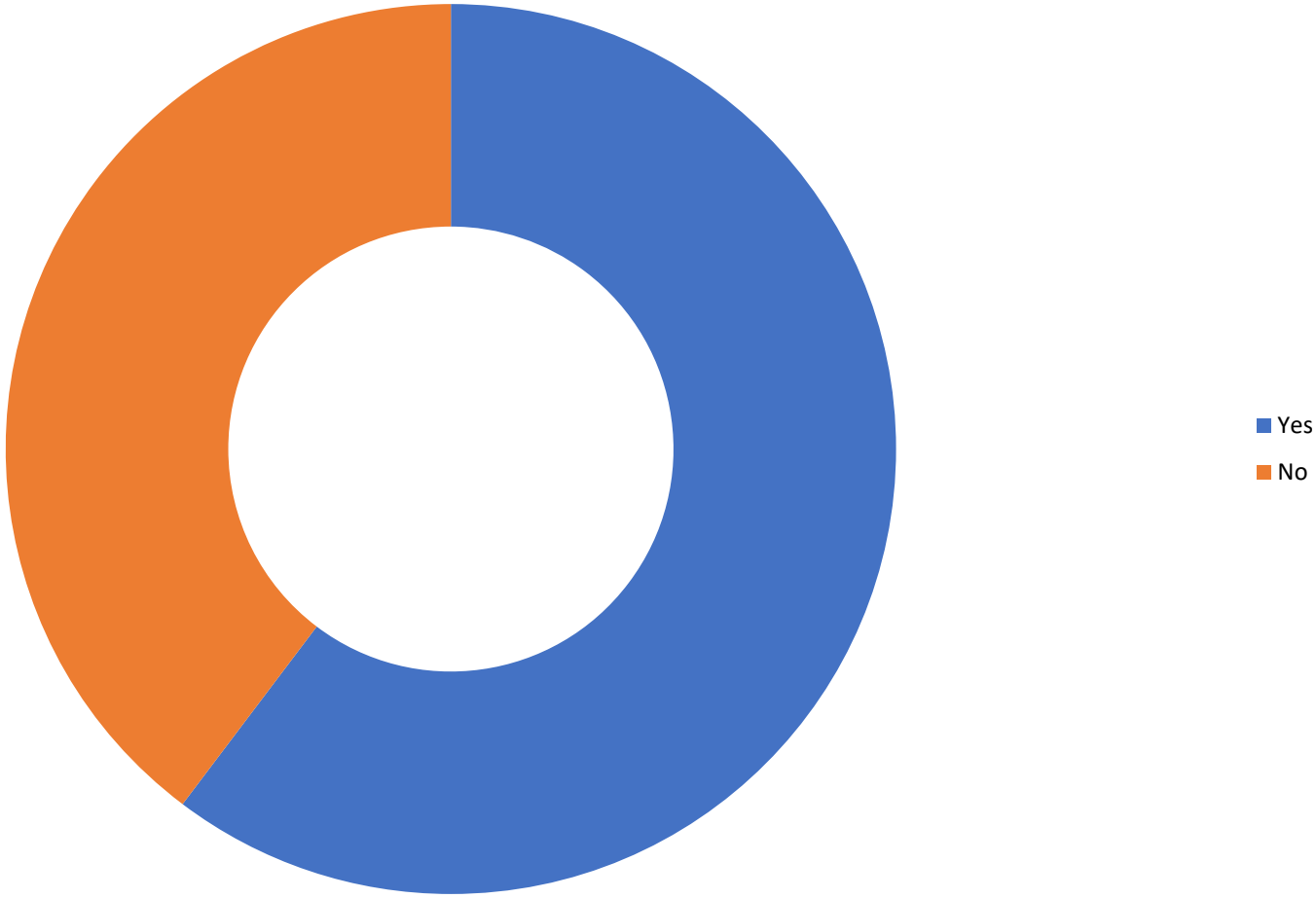
Mentimeter

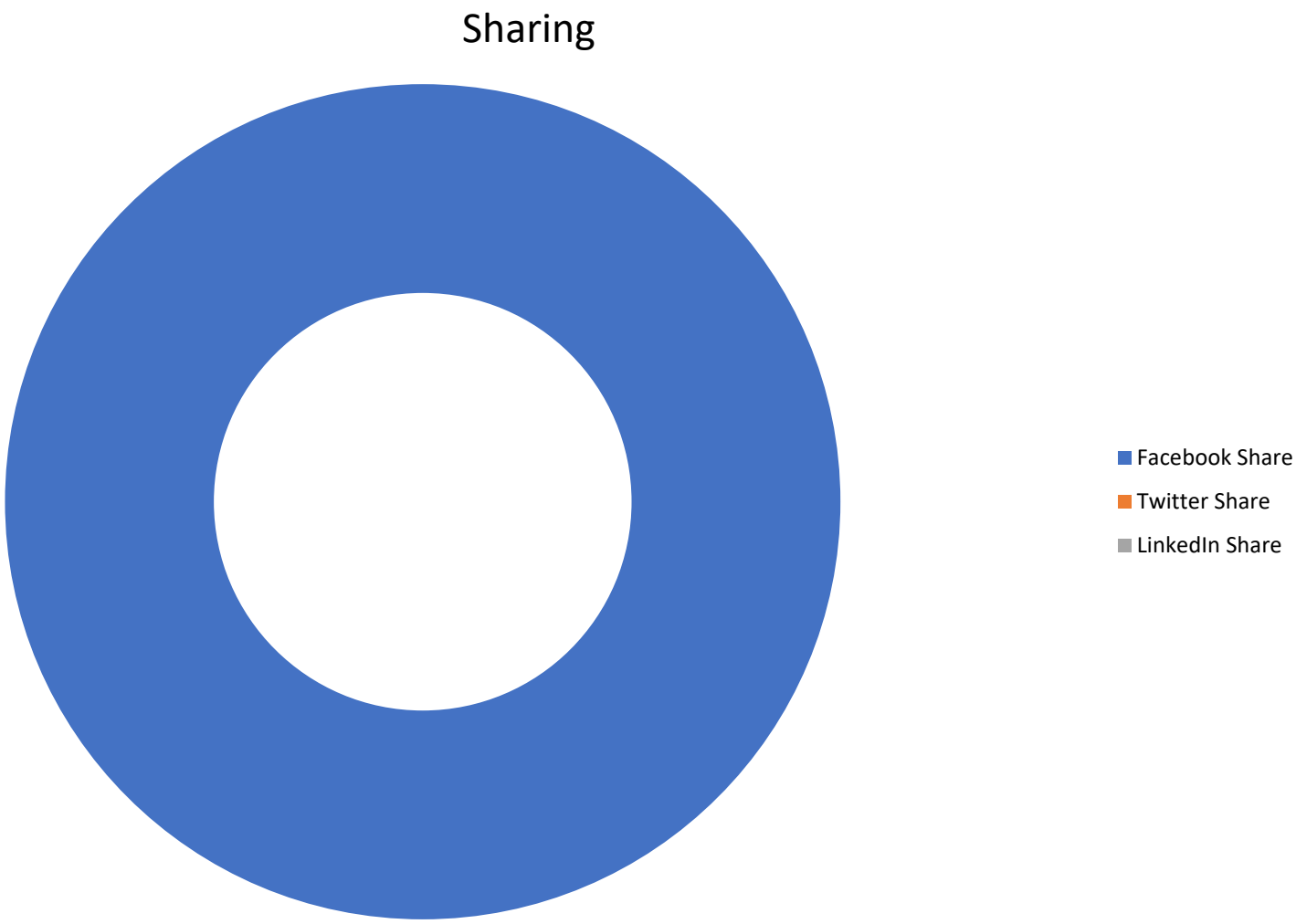
14

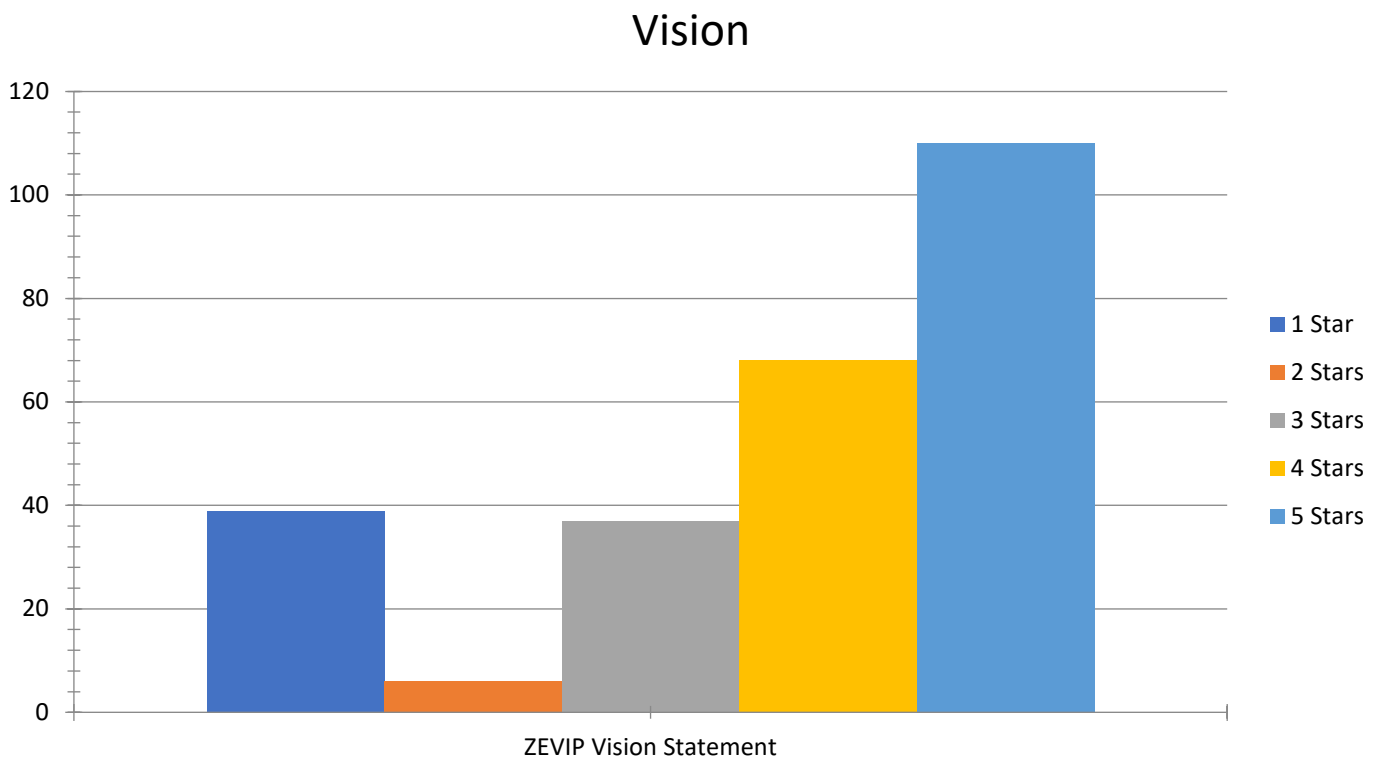
What organization do you represent?

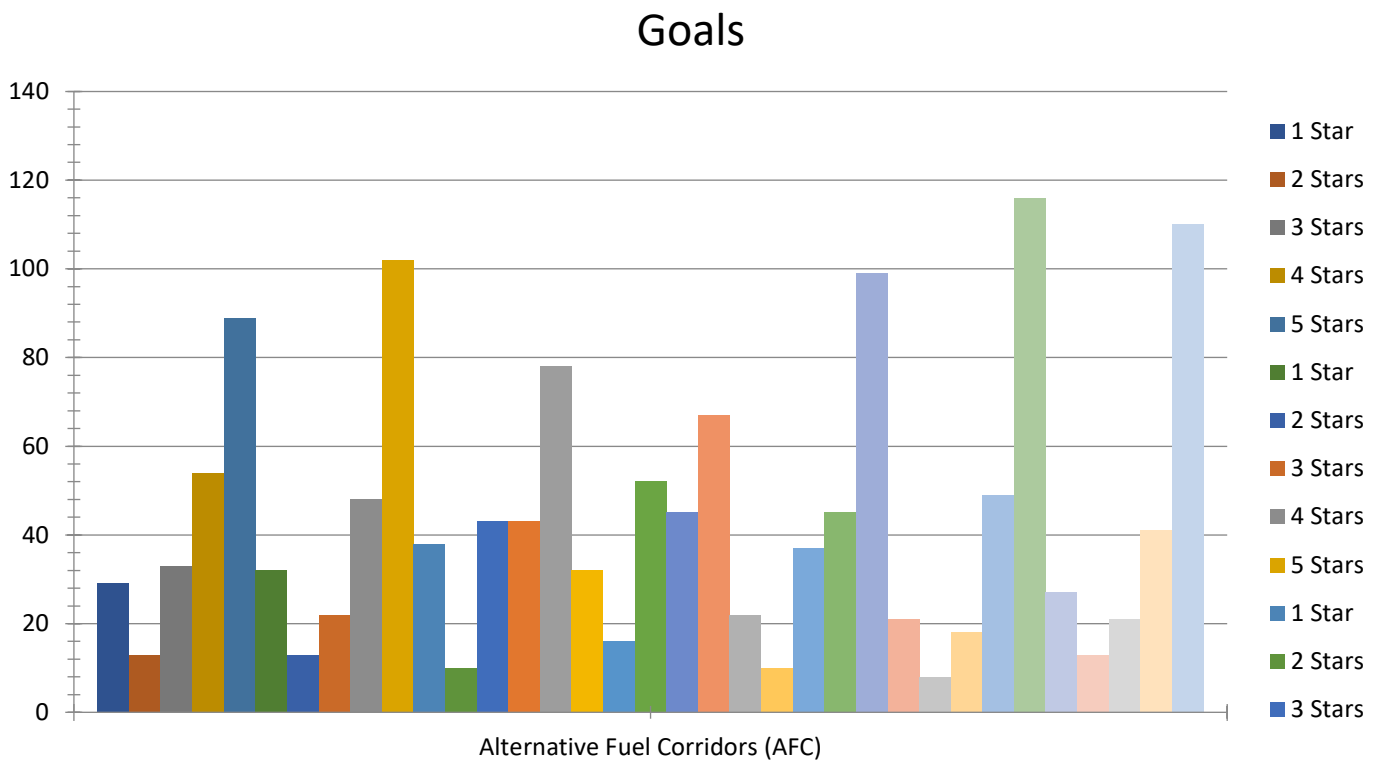


Would you like to receive updates on the ZEVIP?

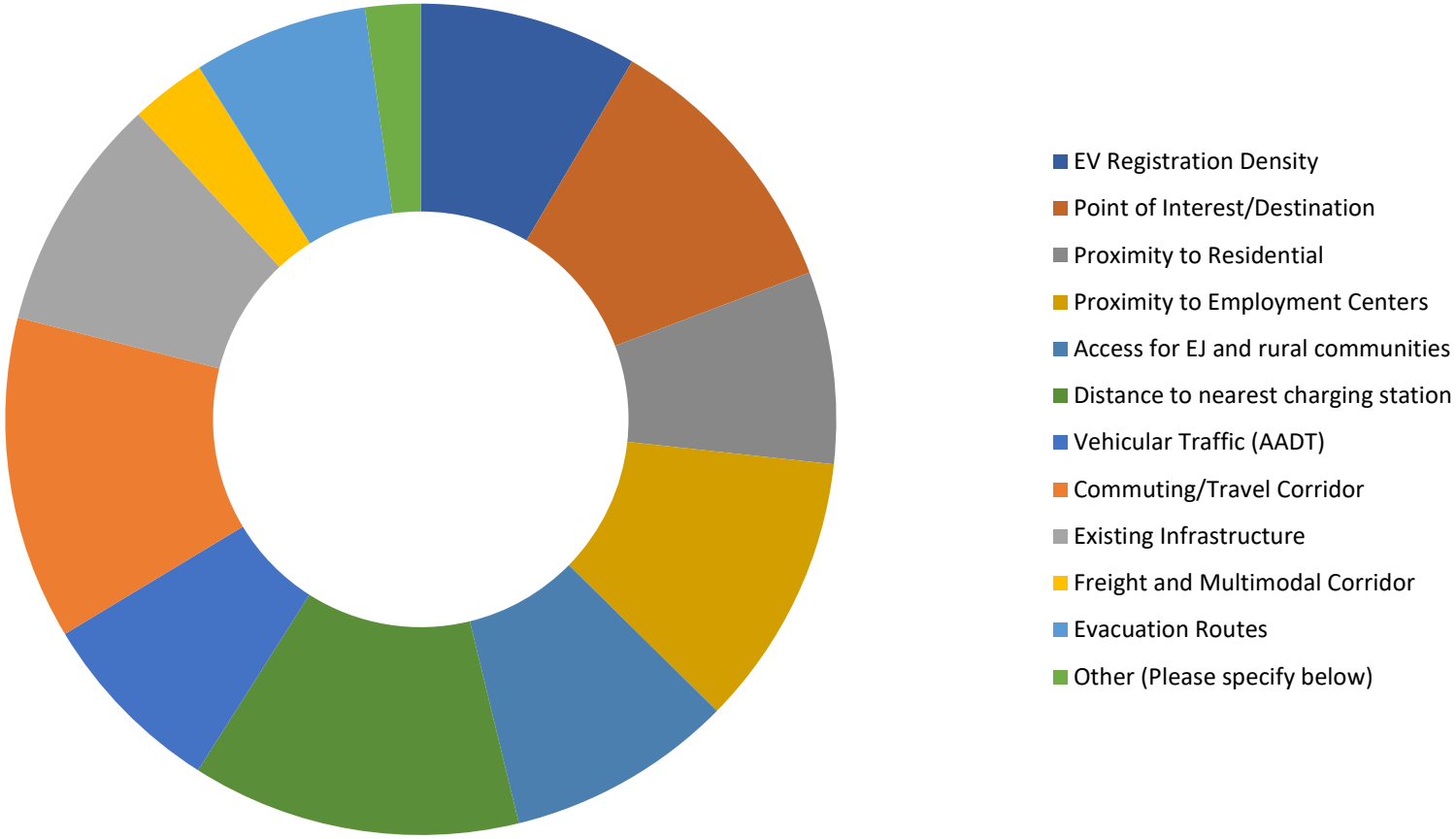



Sharing
Facebook Share
Twitter Share
LinkedIn Share

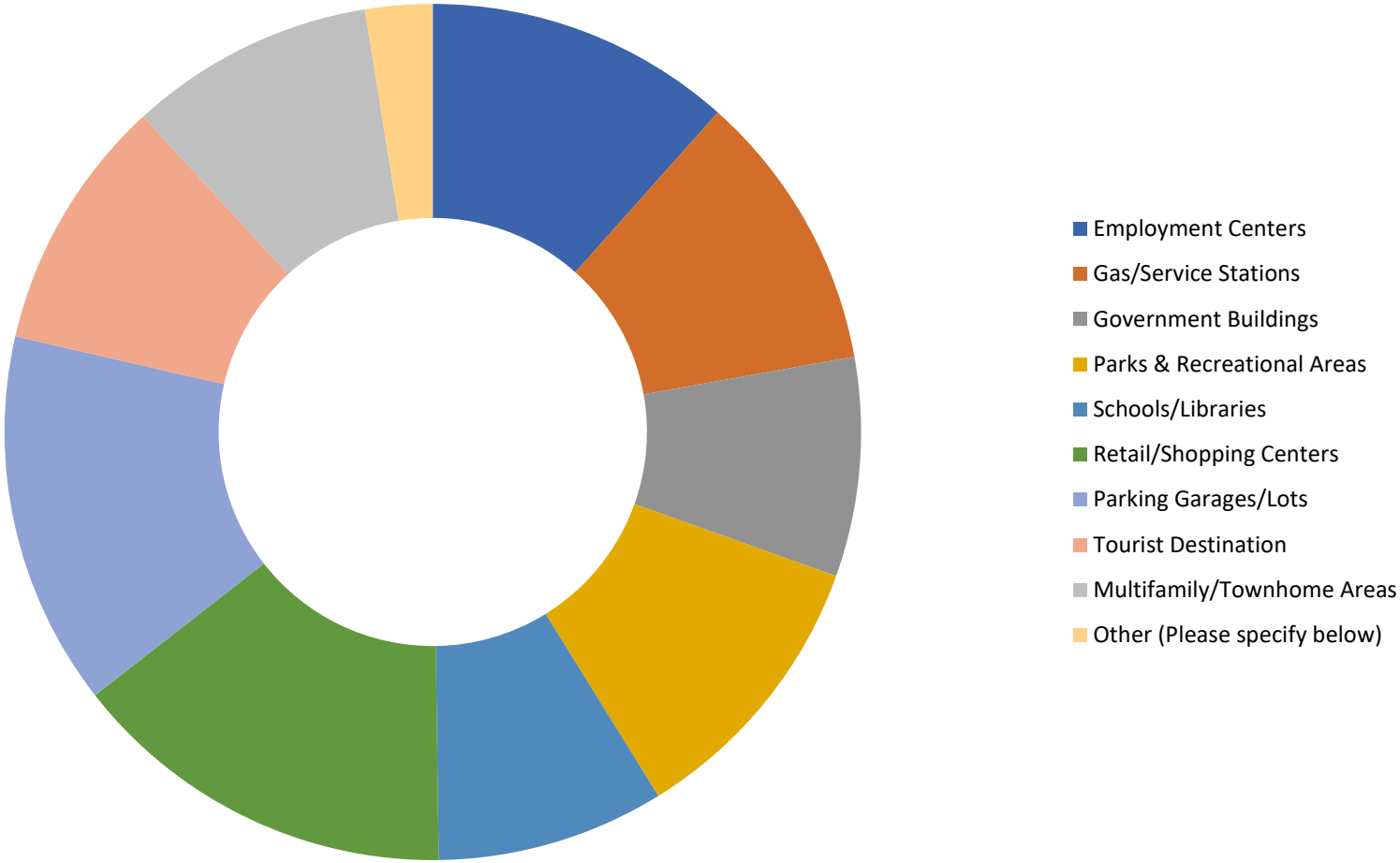

Vision
120
100
80
60
40
20
0
ZEVIP Vision Statement
1 Star
2 Stars
3 Stars
4 Stars
5 Stars


Goals
140
120
100
80
60
40
20
0
Alternative Fuel Corridors (AFC)
1 Star
2 Stars
3 Stars
4 Stars
5 Stars
1 Star
2 Stars
3 Stars
4 Stars
5 Stars
1 Star
2 Stars
3 Stars

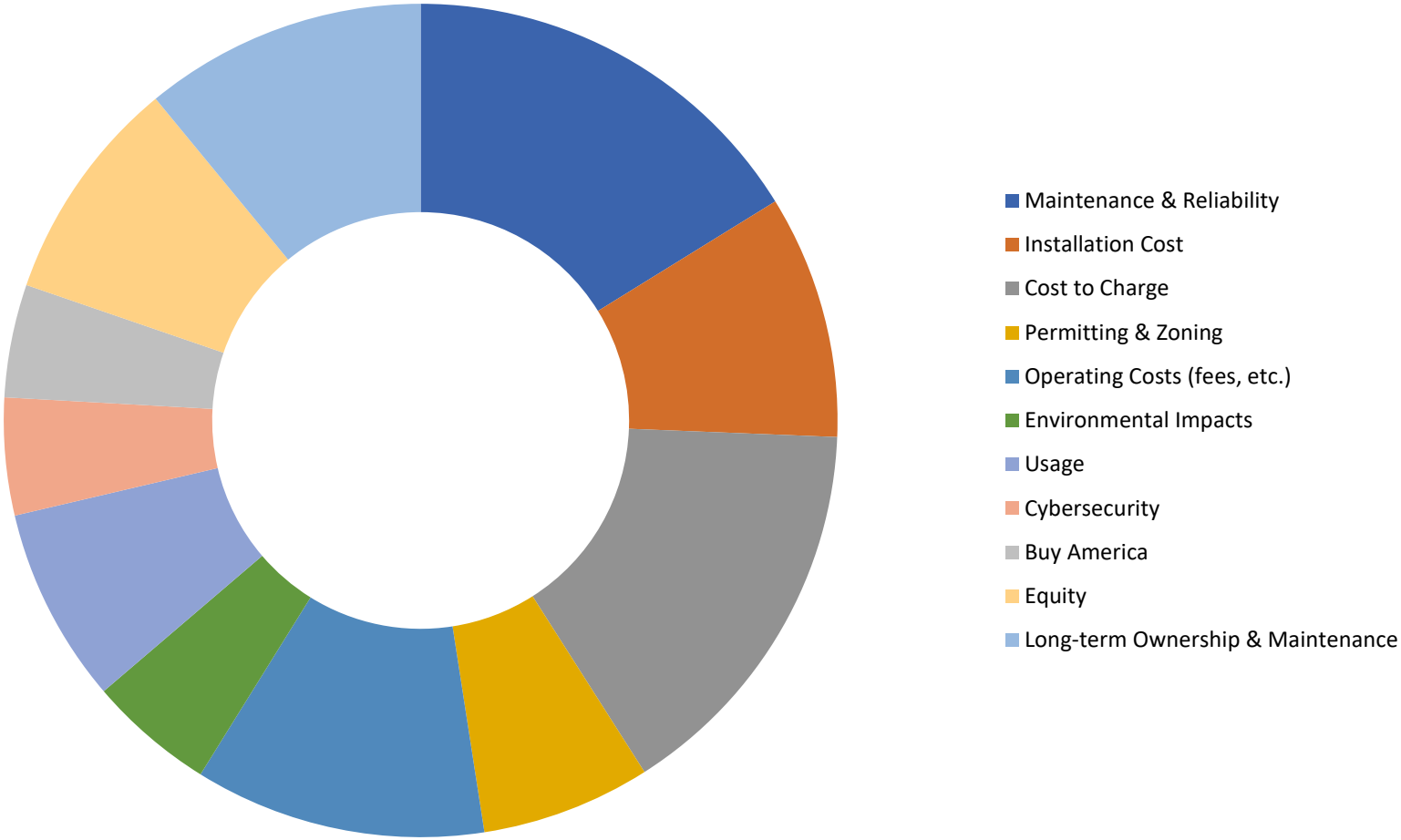
What criteria should be used to prioritize new EV charging infrastructure locations?

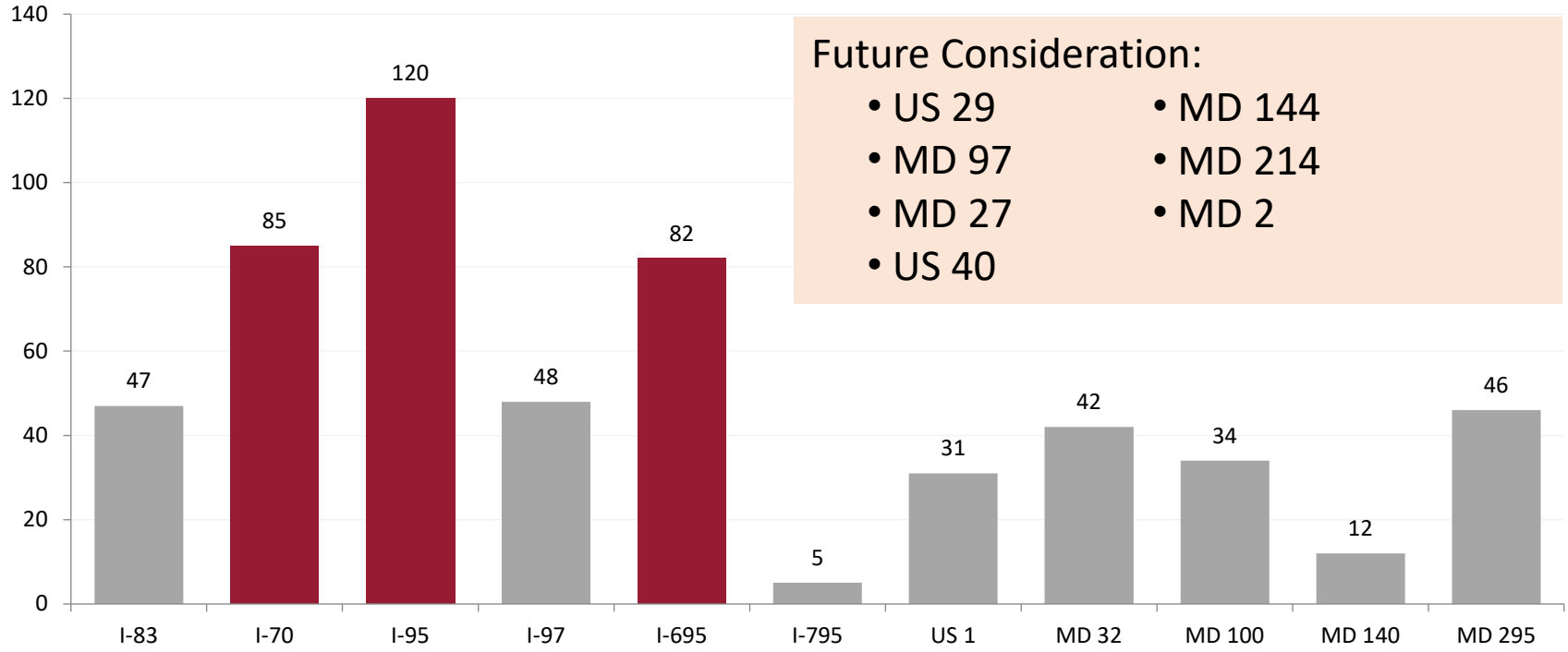


What are preferred locations for installing charging stations?



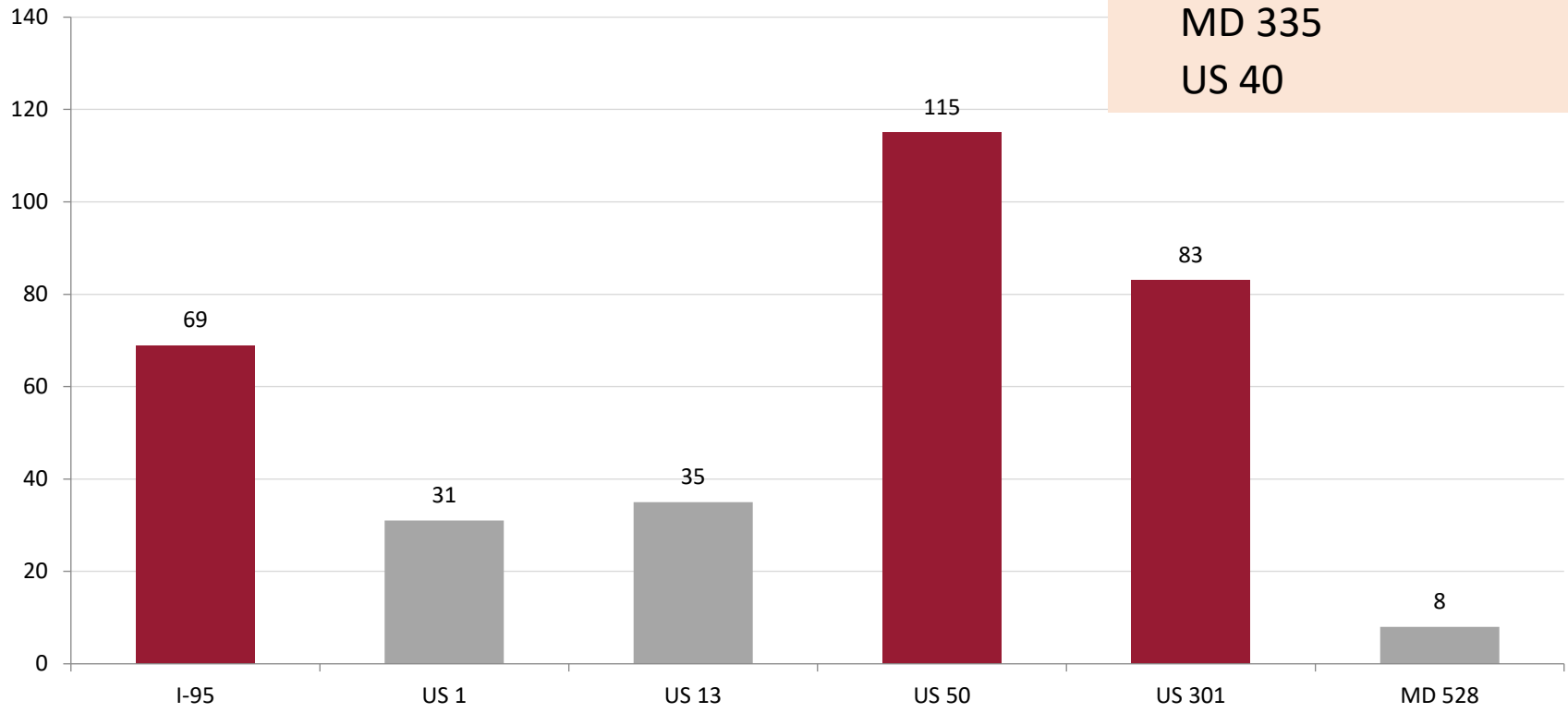
What is your top concern?





Future Consideration:

- US 29
- MD 97
- MD 27
- US 40
- MD 144
- MD 214
- MD 2



Future Consideration:

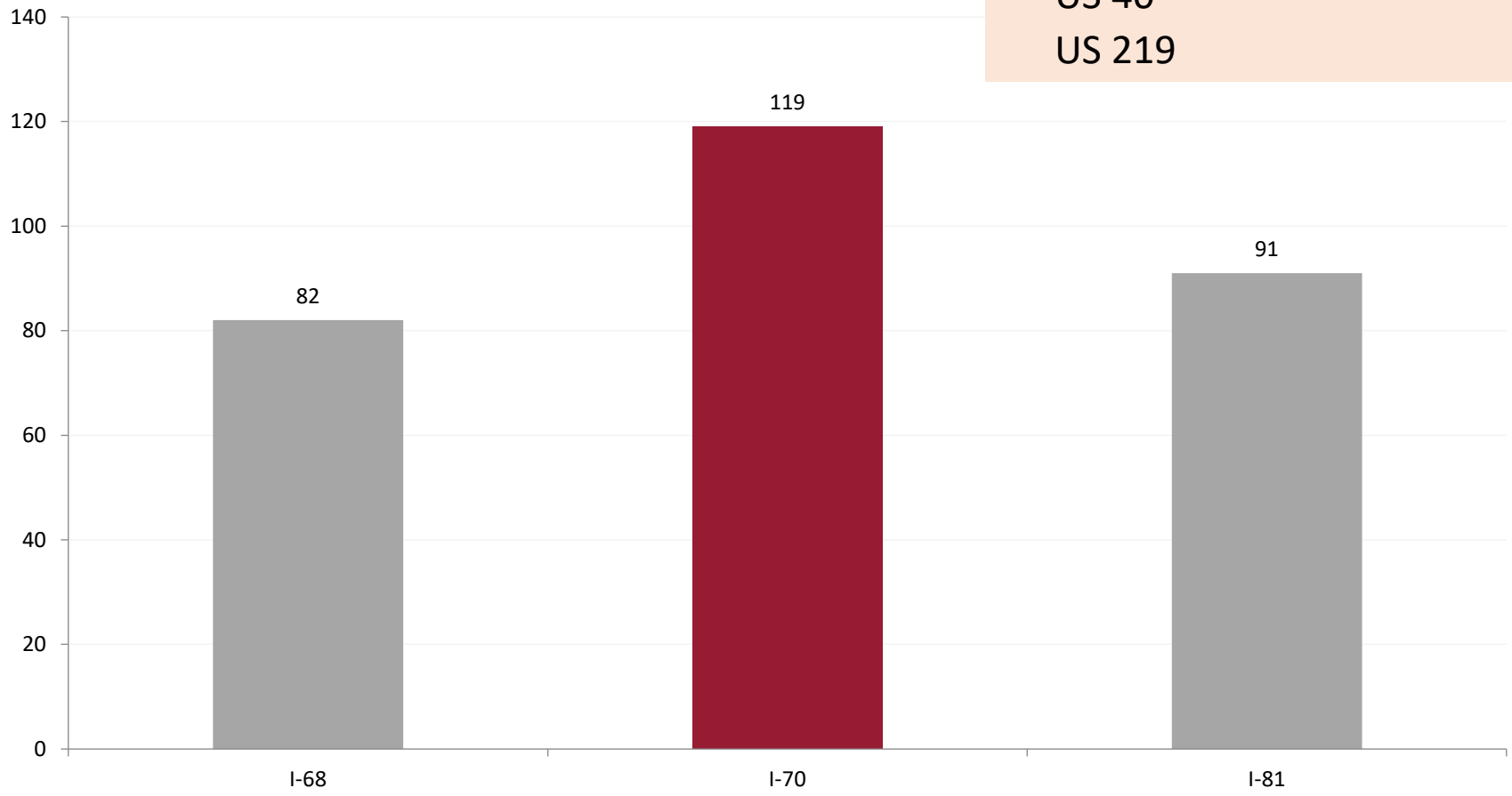
MD 335

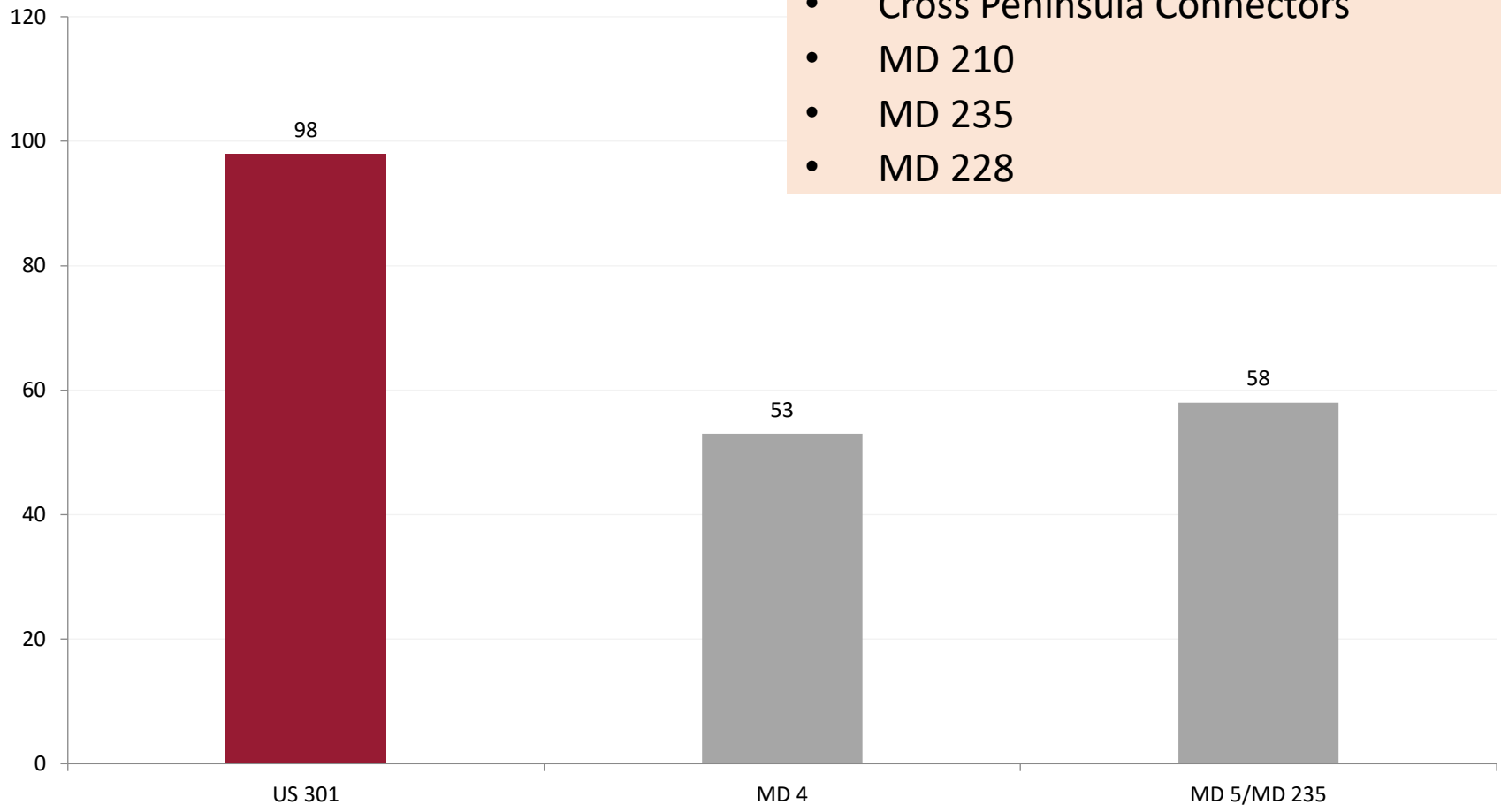
US 40

Future Consideration:

US 40

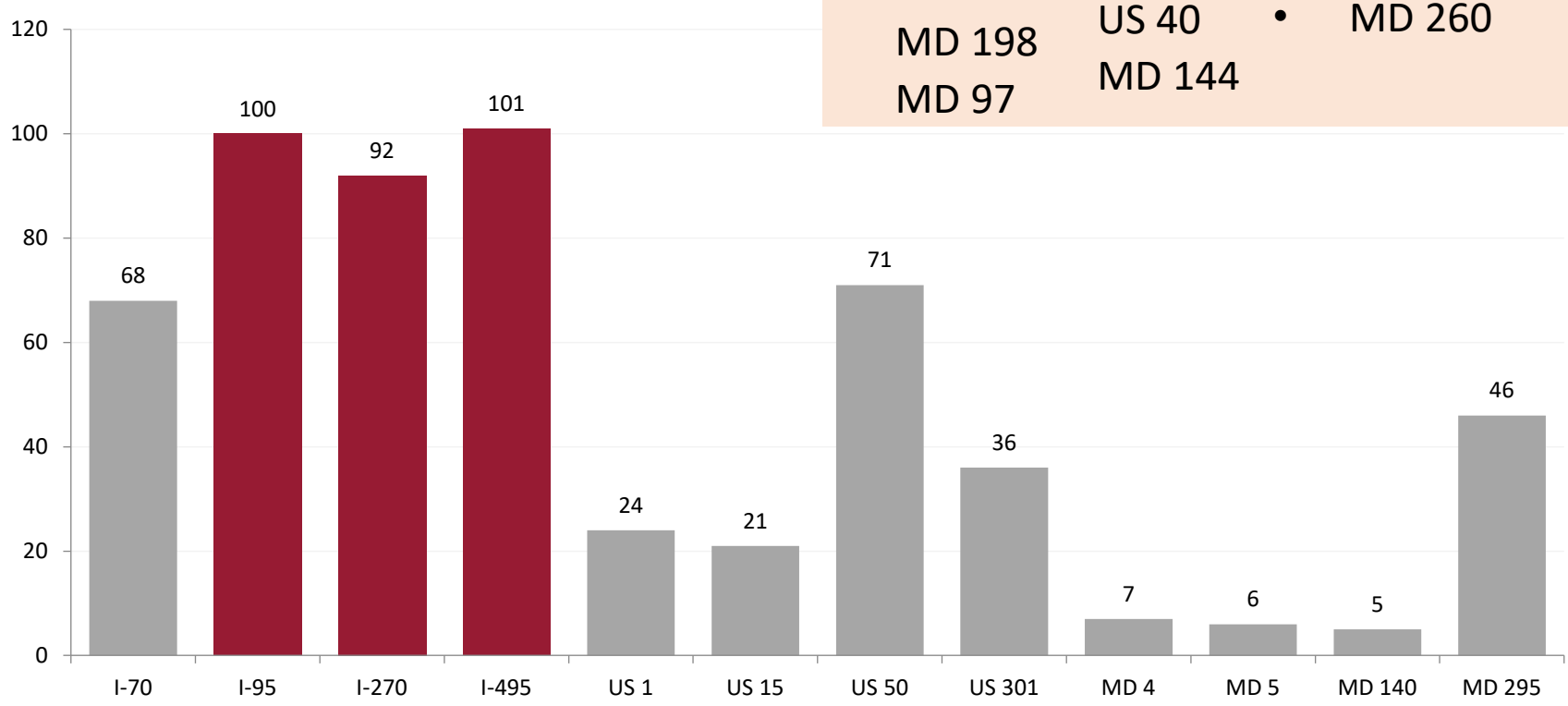
US 219





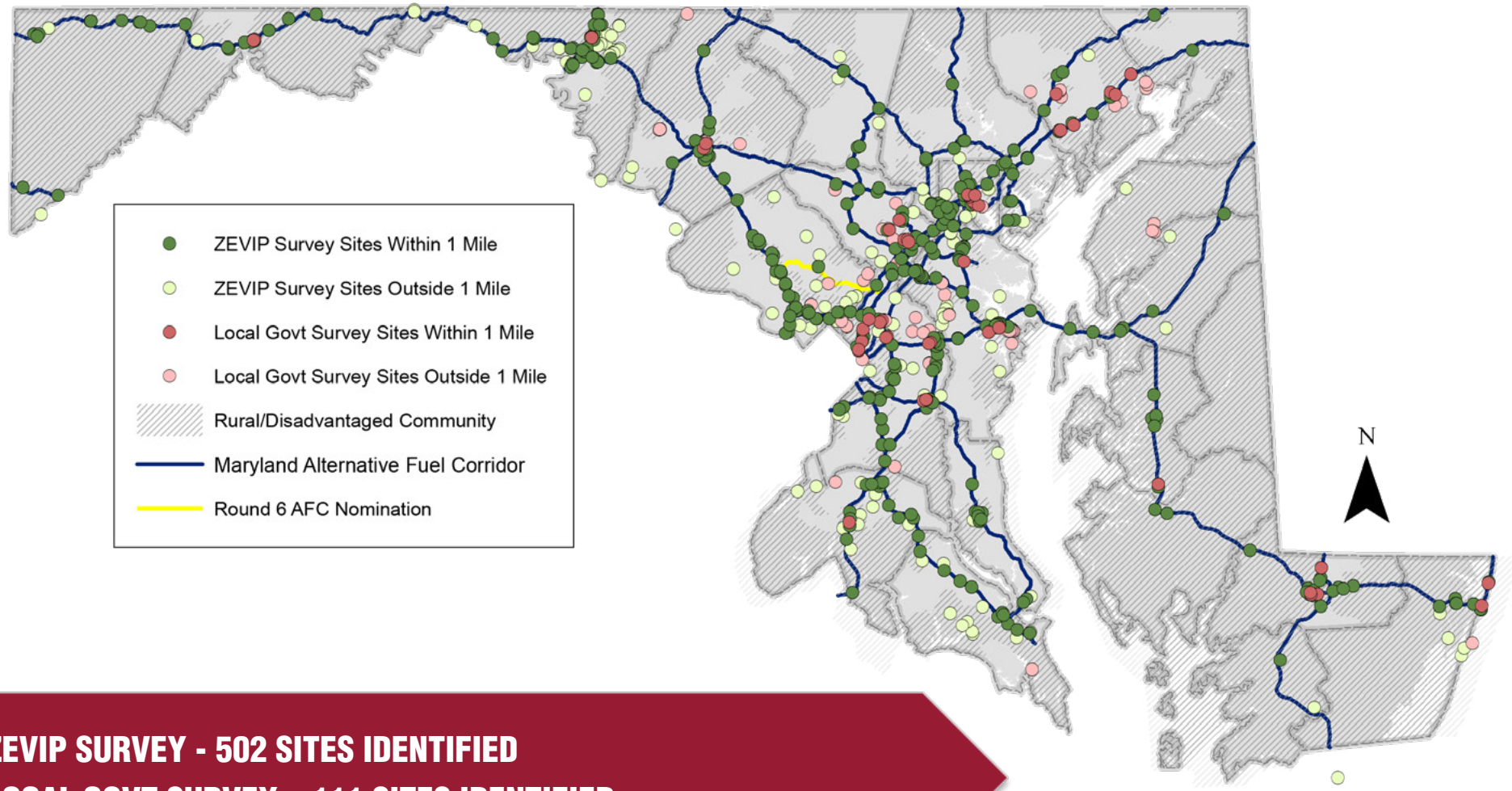
Future Consideration:

- Cross Peninsula Connectors
- MD 210
- MD 235
- MD 228



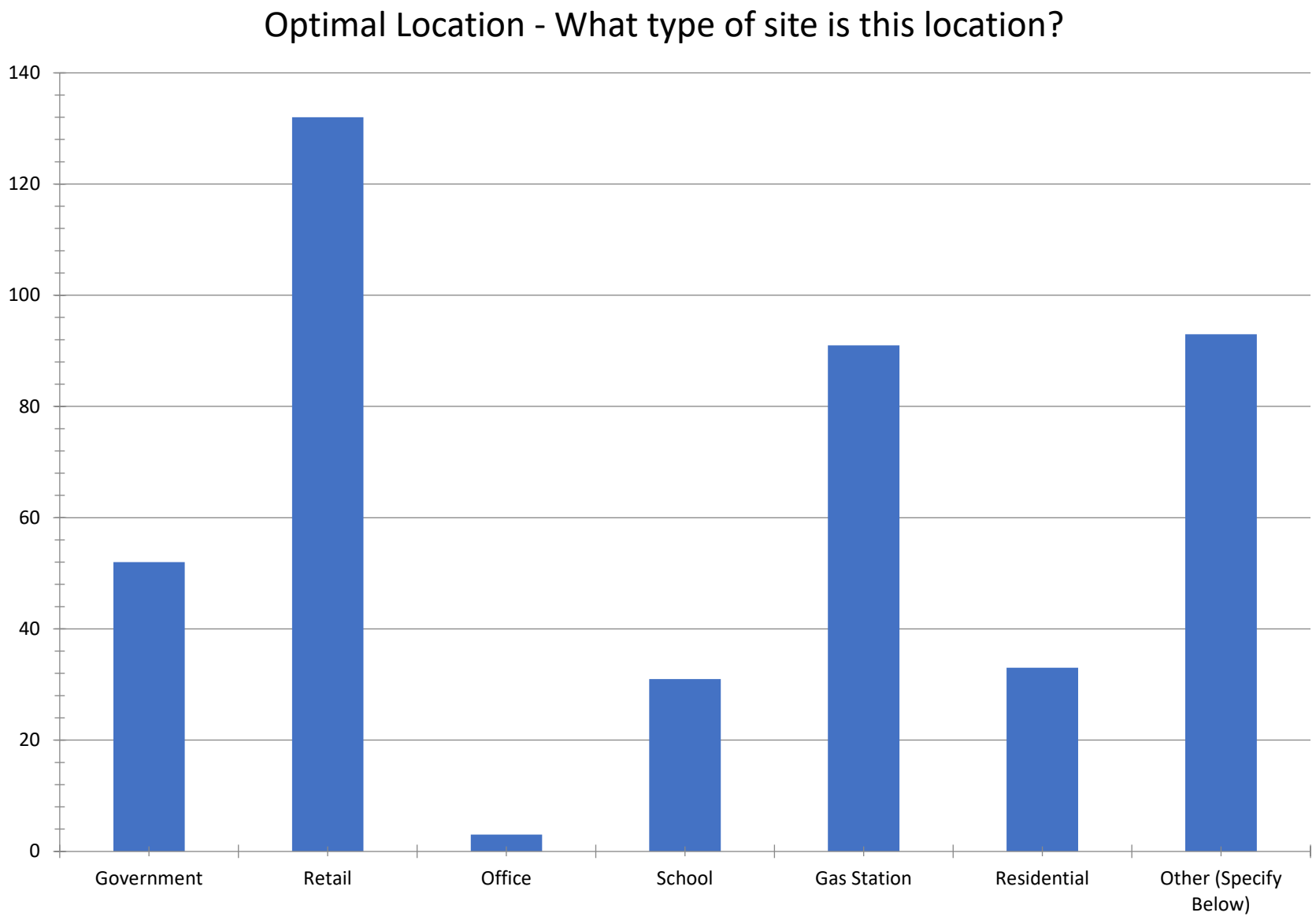
Future Consideration:

- US 29
- MD 190
- MD 198
- MD 97
- MD 650
- MD 27
- US 40
- MD 144
- MD 214
- MD 2
- MD 260



ZEVIP SURVEY - 502 SITES IDENTIFIED

LOCAL GOVT SURVEY – 111 SITES IDENTIFIED


Optimal Location - What type of site is this location?
140
120
100
80
60
40
20
0
Government
Retail
Office
School
Gas Station
Residential
Other (Specify Below)

MARYLAND ZERO EMISSION Vehicle Infrastructure Plan

Maryland State Plan for NEVI Formula Funding Deployment

Prepared By

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION

in Collaboration with

Maryland Energy Administration

With Support From

Michael Baker INTERNATIONAL

Jacobs

REMLINE

7201 Corporate Center Drive, Hanover, Maryland 21076