Maryland Neighborhood and Amenity Electric Vehicle Charging Suitability Tool

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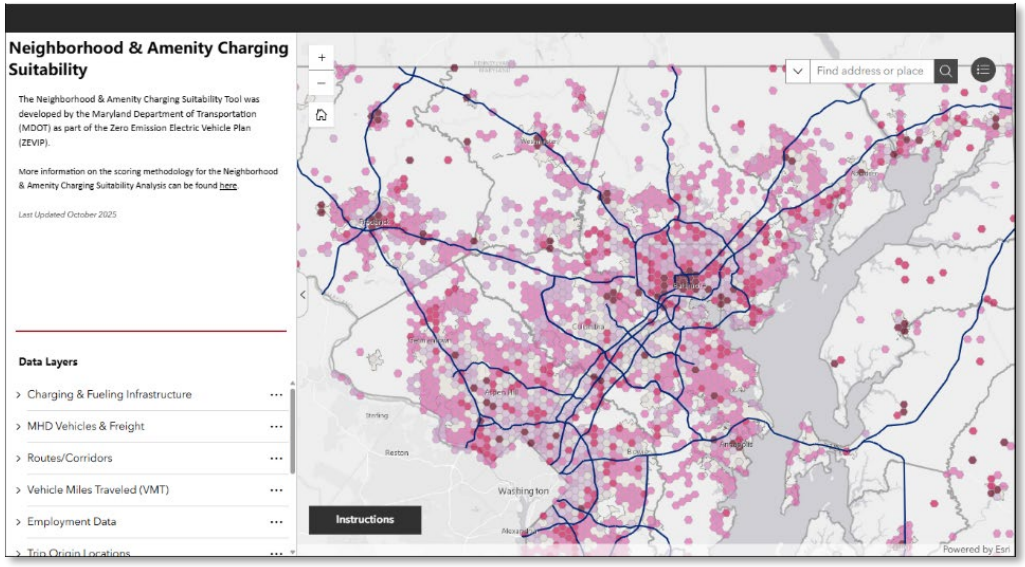

Background

The Maryland Neighborhood and Amenity Electric Vehicle (EV) Charging Suitability Tool was developed by the Maryland Department of Transportation (MDOT) as part of the Zero Emission Vehicle Infrastructure Plan (ZEVIP) to support the deployment of publicly available light-duty EV charging infrastructure throughout the State. The tool is designed to:

- Establish publicly available EV charging infrastructure within Maryland communities where people gather or currently stop.
- Increase equitable access to publicly available EV charging infrastructure.

Where to find the Tool

You can follow this link to view and use the tool: https://experience.arcgis.com/experience/d8d908d9e62f4054b14ec8f6cbb5392b/page/Suitability-Tool?views=Neighborhood-%26-Amenity-EV-Charging

Your Insights Help Us Improve

If you have any feedback or questions related to the tool, please visit our Maryland Electric Vehicle Charging Suitability Tool Feedback and Questions Form.

Target Audience

Stakeholders and communities interested in EV charger siting such as:

- Local governments
- Local businesses and non-profits
- EV charging industry
- Property developers
- Electric utilities

Neighborhood and Amenity Charging Suitability Analysis

This tool utilizes hexagonal binning ('hexbins') to divide Maryland into 12,773, 1-square mile units, allowing for consistent and equitable area comparisons, regardless of the disparities found in census tracts or zip codes. By ranking these hexbins based on weighted scores, the tool produces a clear visualization of the most suitable locations for installing neighborhood and amenity charging infrastructure. This approach enables stakeholders to prioritize investments in areas with the greatest potential impact, ensuring that Maryland's communities have broad and equitable access to EV charging as part of the state's broader zero-emission transportation goals.

As part of the Zero Emission Vehicle Infrastructure Plan (ZEVIP), MDOT, in coordination with other State agencies, identified a variety of federal and state data layers that would be key in the deployment of neighborhood and amenity-based charging infrastructure. The list of data layers incorporated into this Neighborhood and Amenity Charging Suitability Tool were further refined based on Maryland's charging priorities as well as changes to federal policies and priorities. These layers were aggregated and weighted based on Maryland's priorities for increasing equitable access to charging within communities and neighborhoods where people currently gather or stop. The weighted scores were then combined to give an overall weighted score for each hexbin. Hexbins were then ranked on a scale from 1 to 6, 1 being the most suitable for EV charging infrastructure and 6 being the least suitable based on the overall weighted score.

To learn more about the benefits of publicly available EV charging, please visit the Alternative Fuels Data Center: Charging Electric Vehicles in Public website.

The layers included in the Neighborhood and Amenity Charging Suitability Analysis are identified in the table below. To view information on supplemental data layers that are incorporated in the Maryland Suitability Analyses, please visit: https://evplan.mdot.maryland.gov/wp-content/uploads/2025/10/Additional-Suitability-Layers-User-Guide.pdf

Layer Name	Definition	Methodology & Scoring	Weight	Source
Retail Employment	Hexbin employment density of retail jobs using North American Industry Classification System (NAICS) Codes by census blocks.	OnTheMap (OTM) Employment = # retail jobs ❖ Retail industry was prioritized due to the potential to generate consistent demand for EV charging infrastructure, particularly in areas with high employee and customer activity.	5	U.S. Census- LEHD Origin-Destination Employment Statistics (LODES)- 2023 https://onthemap.ces.census.gov/
Healthcare Facilities	Hexbin employment density of healthcare jobs using North American Industry Classification System (NAICS) Codes by census blocks.	OTM Employment = # healthcare jobs ❖ Healthcare facilities were prioritized due to the potential to generate consistent demand for EV charging infrastructure, particularly in areas with high employee and patient / customer activity.	4	U.S. Census- LEHD Origin-Destination Employment Statistics (LODES)- 2023 https://onthemap.ces.census.gov/
Education Facilities	Hexbin employment density of education jobs using North American Industry Classification System (NAICS) Codes by census blocks.	OTM Employment = # education jobs ❖ Education facilities were prioritized due to the potential to generate consistent demand for EV charging infrastructure, particularly in areas with high employee and student activity.	3	U.S. Census- LEHD Origin-Destination Employment Statistics (LODES)- 2023 https://onthemap.ces.census.gov/

Layer Name	Definition	Methodology & Scoring	Weight	Source
Recreation Points	Includes Movies, Bars, Museum, Exercise Activities and Fraternal, Gym, Health Club, Auditorium, Bowling, Theater, Skating Rink, Indoor Tennis (MD Parcel Data)	Maryland Parcel Point density ❖ Recreational facilities were prioritized due to the potential to generate consistent demand for EV charging infrastructure, particularly in areas with a high density of facilities where people are likely to gather / dwell.	3	Maryland Department of Planning MD Parcel Data (Recreation) https://data.imap.maryland.gov/datasets/maryland::maryland-property-data-parcel-points/about/
Community Centers	Includes religious and Community Gathering centers	Maryland Parcel Point density ❖ Community centers were prioritized due to the potential to generate consistent demand for EV charging infrastructure, particularly in areas with a high density of facilities where people are likely to gather / dwell.	3	Maryland Department of Planning MD Parcel Data (Community) https://data.imap.maryland.gov/datasets/maryland::maryland-property-data-parcel-points/about/
Maryland Main Streets or Rural Villages	Areas designated as Main Street Maryland communities under the Maryland Department of Housing and Community Development's Main Street Maryland Program. Areas designated as Rural Villages as defined by the Maryland Smart Growth Areas Act of 1997	Captures hexbins that include Maryland Priority Funding Areas designated as Main Streets or Rural Villages.	3	Maryland Department of Planning Incentive Zones https://data.imap.maryland.gov/datasets/ddc995f8db9b4b53acf0aa7ff77627b6_1/explore
MDE MDEnviroScreen	Identifies an area's environmental justice concern.	EnviroScreen Score = Intersection of the centroid of the hexbin with the EnviroScreen Score ❖ Communities facing higher cumulative environmental burdens are prioritized in planning and resource allocation.	2	MDE MDEnviroScreen Tool https://mde.maryland.gov/Environmental_Justice/Pages/MDEnviroScreen.aspx
EV Destination Trips	Trip count by hexbin - EVs only	❖ Density of trip destination	2	Replica

Layer Name	Definition	Methodology & Scoring	Weight	Source
Existing Level 2 Stations	Proximity to existing L2 charging	❖ Calculates hexbins that are within 0.5 miles of existing charging stations. If within 0.5 mile = 0 and outside of 0.5 mile = 1.	2	Michael Baker International, compiled from U.S. Department of Energy - National Renewable Energy Laboratory (NREL) / ArcGIS Living Atlas

The methodology and data layers will be updated as necessary, based on the needs and priorities of Maryland.

Additional Suitability Tools

In addition to neighborhood and amenity EV charging suitability, Maryland has developed other suitability tools that address publicly available high-density residential, workplace, and corridor charging for light-duty EVs. The following graphics illustrate the purpose and use of the Maryland Light-Duty EV Charging Suitability Suite of Tools.

The Suitability Tools Are Designed To:

- Help inform local and statewide decisions for public light-duty EV charging siting.
- Consider different use cases for light-duty EV charging—corridor, workplace, high-density residential, and neighborhood and amenity.
- Identify EV charging gaps at a high level and areas for light-duty EV charger siting.

The Suitability Tools Are Not Designed To:

- Act as an economic or a cost-benefit analysis tool.
- Provide exact locations for light-duty EV charging.
- Calculate GHG reductions or savings.
- Indicate the role of private vs. public investments.
- Inform siting based on electric utility hosting capacity.