

# REGIONAL ELECTRIC VEHICLE INFRASTRUCTURE IMPLEMENTATION (REVII) STRATEGY

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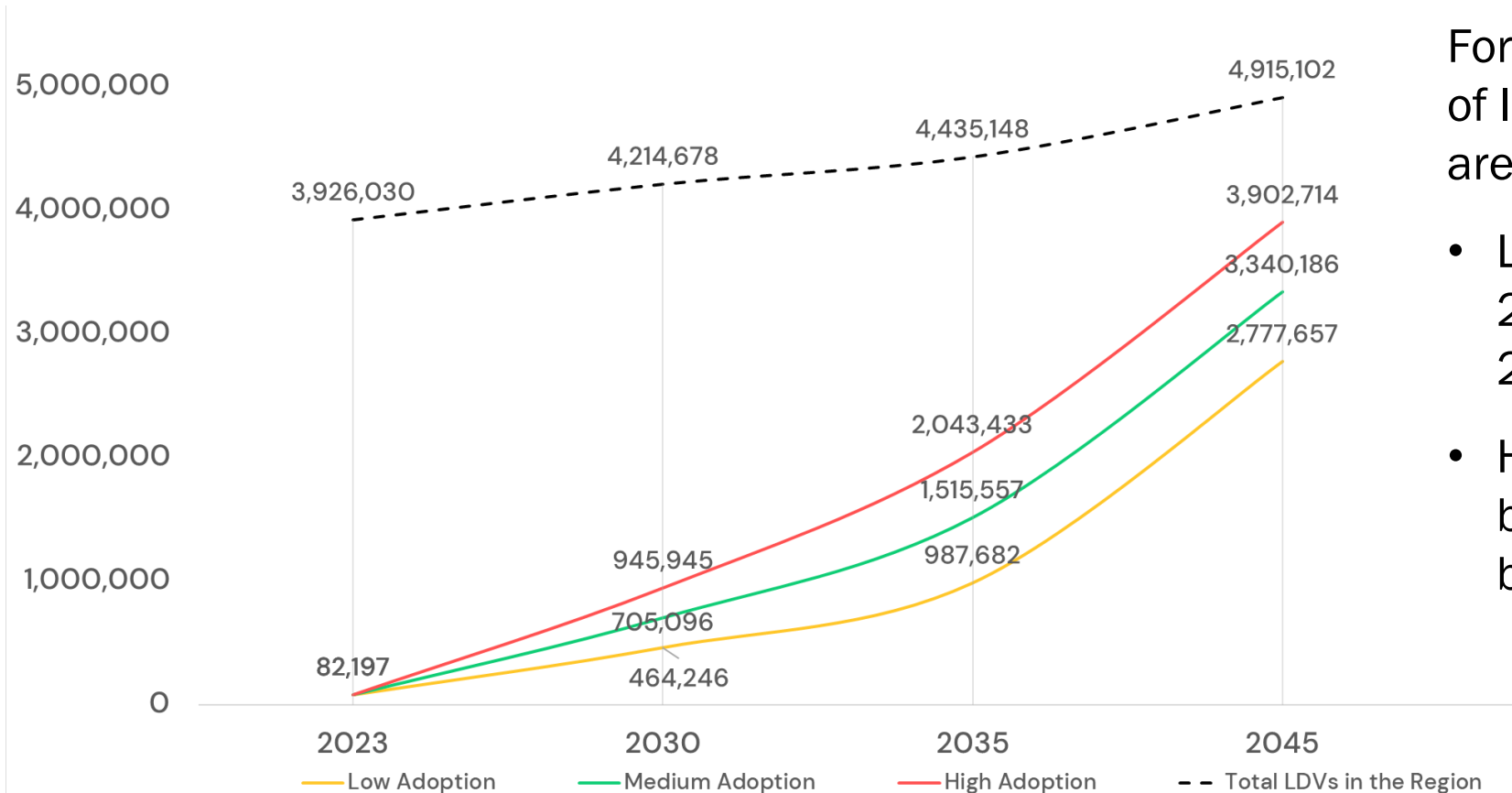
Climate, Energy and Environment Policy Committee (CEEPC)  
September 25, 2024

# Why Develop the REVII Strategy?

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- CEEPC's Metropolitan Washington 2030 Climate and Energy Action Plan (adopted in 2020) identified zero emission vehicles and expanding electric vehicle (EV) infrastructure as a key transportation strategies for the region to achieve its multi-sector greenhouse gas (GHG) reduction goals.
- The TPB's Climate Change Mitigation Study of 2021 (CCMS) found that transitioning vehicles from fossil fuels to clean fuels is the action with the highest potential to reduce GHG emissions from the on-road transportation sector and help the region achieve its GHG reduction goals.
- The Bipartisan Infrastructure Law (2021) established a \$7.5B program within the U.S. DOT to fund the development and installation of EV charging infrastructure - the \$5 billion National Electric Vehicle Infrastructure (NEVI) Formula Program and the \$2.5B Charging and Fueling Infrastructure Discretionary Grant Program (CFI Program).
- REVII was developed to help the region plan to meet the demand for EV infrastructure by identifying locations for publicly accessible deployment and help ensure all populations in the region are able to access and benefit from EVs.

# Electric Vehicle Projections



Forecasts for growth in number of light duty EVs in the region are extremely high:

- Low scenario: 5-fold growth by 2030 and 12-fold growth by 2035
- High scenario: 11-fold growth by 2030 and 25-fold growth by 2035

*Low growth – Historical trends*

*High growth – State policies – Advanced Clean Car 2 and 80% EVs by 2045*

# EV Public Charging Station Needs

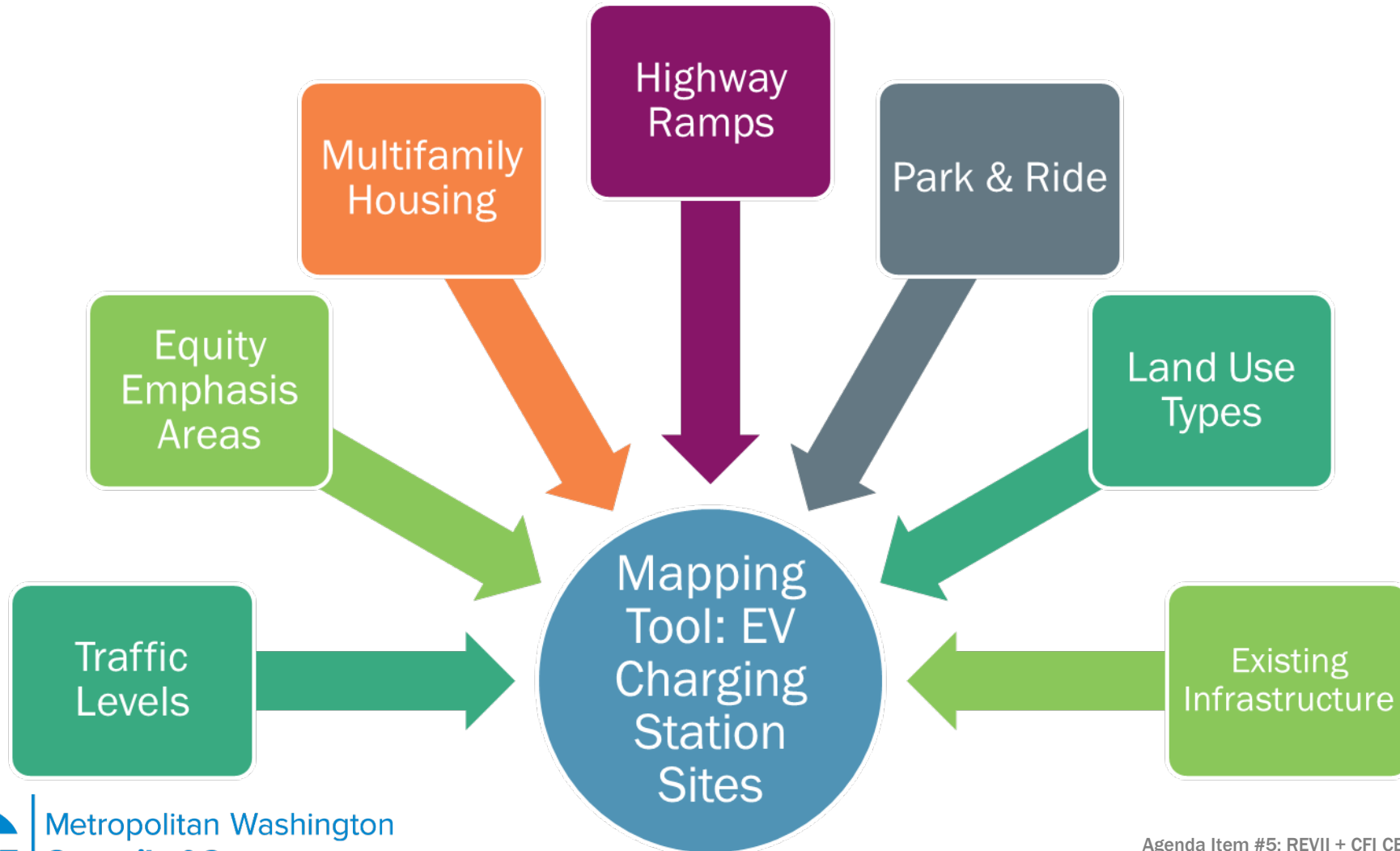
Scenario		Charger Type	2030	2035	2045
Low	EV Charging Port	Public Level 2*	13,848	30,647	72,013
		Public DCFC**	485	1,103	2,447
	<b>Total Charging Ports</b>		<b>14,333</b>	<b>31,750</b>	<b>74,460</b>
	<i>Total EVs</i>		<i>464,246</i>	<i>987,682</i>	<i>2,777,657</i>
Medium	EV Charging Port	Public Level 2	21,840	44,333	86,936
		Public DCFC	785	1,538	2,955
	<b>Total Charging Ports</b>		<b>22,625</b>	<b>45,871</b>	<b>89,891</b>
	<i>Total EVs</i>		<i>705,096</i>	<i>1,515,557</i>	<i>3,340,186</i>
High	EV Charging Port	Public Level 2	29,339	58,822	98,704
		Public DCFC	1,052	2,024	3,320
	<b>Total Charging Ports</b>		<b>30,391</b>	<b>60,246</b>	<b>102,024</b>
	<i>Total EVs</i>		<i>945,945</i>	<i>2,043,433</i>	<i>3,902,714</i>

\* Level 2 charging: 10 - 20 miles of range/hour. Most suitable for residential/workplace locations where charging for at least 4 hours is feasible.

\*\* DCFC charging gives 60 to 80 miles of range per 20 minutes of charging.

# EV Public Charging Potential Deployment Locations

Factors considered to locate publicly accessible EV charging stations



# EV Public Charging Deployment Location: Scenarios

## Prioritizing Direct Current Fast Chargers with High Utilization

- Focus: Building out direct current fast charging stations to serve a larger number of vehicles more quickly.

## Prioritizing Level 2 Chargers with Equity Focus

- Focus: Building out Level 2 charging stations in equity emphasis areas.

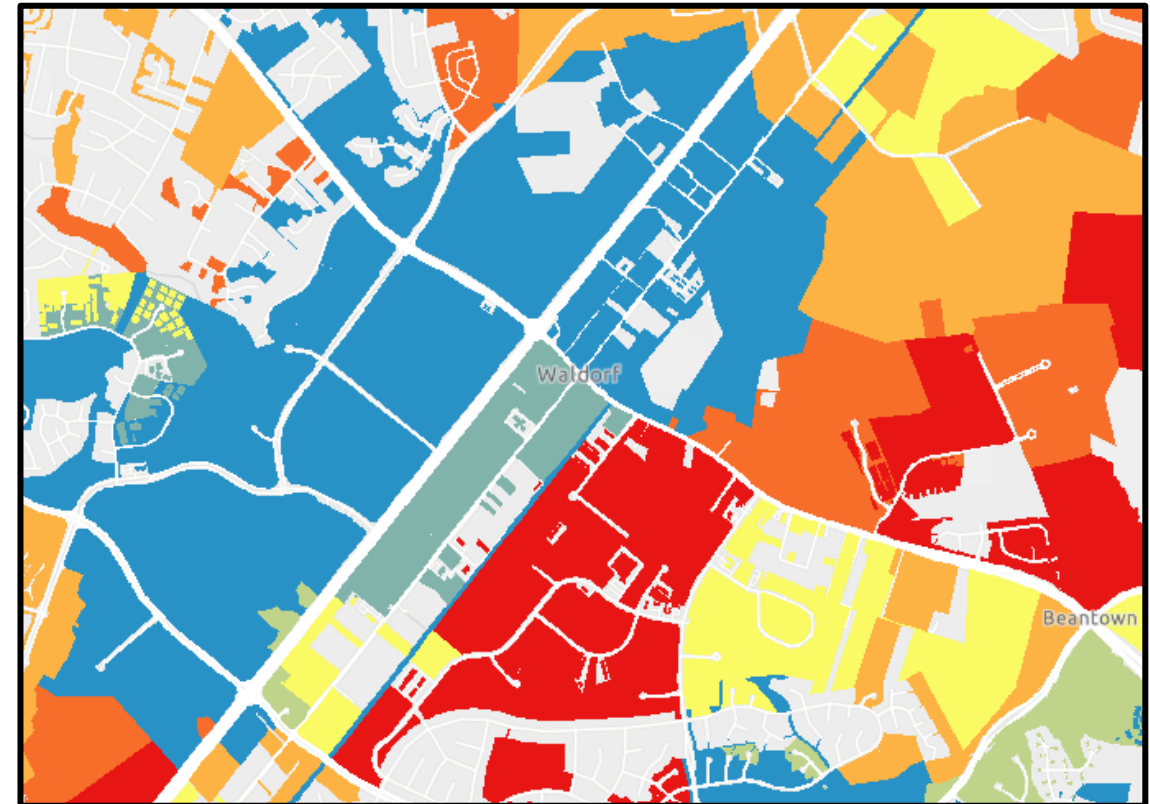
## Prioritizing Direct Current Fast Chargers with Multifamily Housing Focus

- Focus: Building out direct current fast chargers in areas located near multifamily housing developments.

# EV Public Charging Potential Locations

- Parcels are examined and scored for potential EV charging station deployment suitability based on traffic levels and different site characteristics:
- Results for all three maps are displayed by priority.
- Each set of scenario results may be viewed on the same online mapping platform.

<http://www.mwcog.org/reviistrategymap>



- Highest ranking/priority: Red
- Lowest ranking/priority: Blue

# REVII Strategy Document

- Executive Summary
- Background and Context
  - State of the Market
  - State of the Region
- Using the EV Charger Siting Analysis
  - How to use the REVII Strategy
  - Technical Approach
  - Limitations and Considerations
- Regional Results
- Jurisdictional Profiles
- Appendices



<https://www.mwcog.org/documents/2024/09/04/regional-electric-vehicle-infrastructure-implementation-revii-strategy-climate-energy-climate-change-electric-vehicles/>



# REVII Strategy Jurisdictional Profile: Charles County



## Total EV Registrations\*

1,812



## EV % of Total LDVs

1%



## Current EV Charging Ports

31 Level 2

5 DCFC



## County Progress

Charles County developed a Climate Resilience Plan in 2020

\*As of April 2024

## Charles County

### Maryland

### EV and Charging Infrastructure Deployment Progress

Over the past few years, Charles County has taken the following actions to reduce GHG emissions and support EV adoption:

- In 2020, the county created a Climate Resilience Action Strategy which is aimed to help them prepare for, adapt to, and recover from the impacts of climate change. The County is currently working to expand this work through the development of a Climate Action Plan for Resilience and Mitigation that will address both government operations and the broader community.
- Established the Resilience Authority of Charles County, a nonprofit organization that, as a government instrumentality, is operated for the public purpose of responding to the impacts of climate change in communities across Charles County and the State.
- Opened their first EV chargers in 2012 at the Welcome Center, P.D. Brown Library, and Potomac Branch Library as part of the county's climate change initiative.
- Partnered with SMECO to install 15 additional EV chargers at various locations across the county on public property.

### EV Registration Projections

At the end of April 2024, Charles County had approximately 1,800 registered EVs, accounting for 1% of total LDVs in the county. Table 7, below, shows the number of EVs and percentage of EVs in the LDV population for low-, medium-, and high-adoption scenarios at benchmark years 2030, 2035, and 2045.<sup>65</sup>

Table 7. Charles County EV Registration Projections

Growth Scenario	2030		2035		2045	
	# EVs	% EVs	# EVs	% EVs	# EVs	% EVs
Low	7,850	5%	16,261	10%	44,958	25%
Medium	20,735	14%	44,903	28%	93,716	52%
High	33,620	22%	73,544	46%	142,473	79%

### Trends in EV Adoption

Over the last five years, Charles County has made marked progress in launching GHG and EV initiatives. From 2020 to 2024 alone, the number of EVs on the road grew by almost 1,200 vehicles, a 298% increase in EV registrations. Similarly, after deploying their first charger in 2012, the county now has 36 charging ports available.

Despite Charles County being a predominately rural area, this growth is expected to continue in the county as barriers to adoption are lowered, even in the low adoption scenario. In terms of infrastructure, EV chargers are currently concentrated in more densely populated areas along the US-301 corridor, with few chargers located within EEAs or in rural portions of the county. To ensure equitable access to EV charging infrastructure for anticipated EV adoption and to support higher EV adoption rates, continued efforts are needed to deploy chargers in high-traffic populous areas, including considerations for EEAs and rural portions of the county.

### Projected EV Charging Infrastructure Needs

To support the projected EV registrations above, Charles County would need to deploy the following estimated numbers of EV chargers for each scenario and planning year. See Appendix 1.B for technical methodology on calculating EV charging port needs.

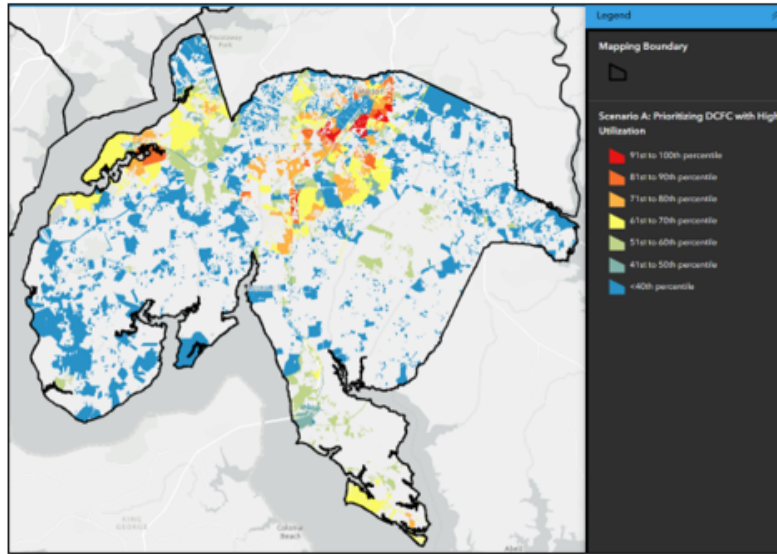
Table 8. Charles County Estimated EV Charging Port Needs

Growth Scenario		Charger Type	2030	2035	2045
Low	EV Charging Port Needs	Public Level 2	258	490	1,181
		Public DCFC	10	17	39
	EVs		7,850	16,261	44,958
Medium	EV Charging Port Needs	Public Level 2	625	1,180	3,079
		Public DCFC	22	39	119
	EVs		20,735	44,903	93,716
High	EV Charging Port Needs	Public Level 2	1,014	2,413	4,294
		Public DCFC	35	91	150
	EVs to Support		33,620	73,544	142,473

Figure 15 summarizes the charger siting analysis results for Charles County. The charger siting analysis identifies and ranks parcels of land based on their suitability for deploying public EV chargers. Three scenarios were tested. This map shows Scenario A, Prioritizing DCFC with High Utilization. The online map can be used to display all three scenarios. Red parcels are high priority, and blue parcels are low priority. Charles County may use this map and these estimated charging port needs to support and participate in the development of a regional charging network.<sup>66</sup>

# REVII Strategy Jurisdictional Profile: Charles County

Figure 15. Charles County EV Charging Siting Analysis Results



## EV Charger Deployment Site Recommendations

The sites identified below are examples of locations where Charles County may choose to deploy or engage and support the private sector in deploying EV chargers. The images of each site are provided at the CBG level, which includes the recommended site and the surrounding area. These sites are recommendations, not requirements, and are highlighted due to their high scores in EV charger GIS siting analysis. However, Charles County may have different priorities or location preferences than the ones highlighted below. As such, additional priority options are available for use and consideration in the online interactive map. Charles County may consider and move forward with these locations for deployments but should rely on local knowledge, expertise, and priorities when siting EV chargers. See the [interactive map](#) to view all priority locations, EEAs, and transportation infrastructure within the county.

## Waldorf Senior Center and Recreational Center

The Waldorf Senior Center and Recreation Center in Waldorf is close to a large residential area, government facilities and local businesses. The recreational center is less than a mile from a major road, MD-5, and within two miles of US- 301 making it an attractive location for residential and community traffic. This area is also within an EEA and includes MFH. Level 2 chargers are ideal for community residents and DCFC may be useful for a wider range of users visiting the various social and governmental services close by.

Figure 16. Waldorf Senior Center and Recreational Center



# CHARGING AND FUELING INFRASTRUCTURE (CFI) PROGRAM

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Metropolitan Washington Round 1b Award  
and Round 2 Proposal



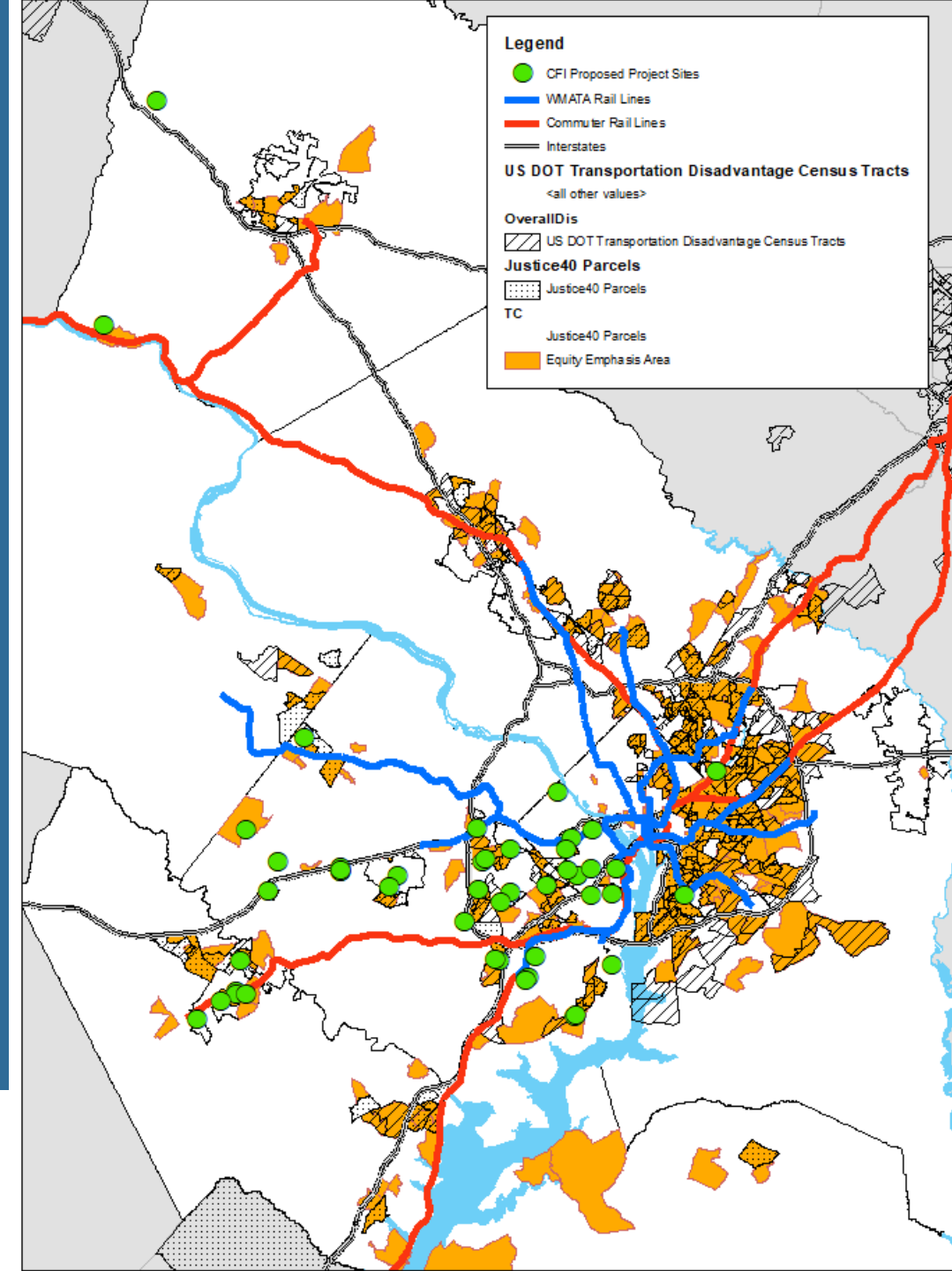
Metropolitan Washington  
**Council of Governments**



# Round 1b Award

- \$3.9 Million Award
- Proposes to install EV infrastructure at a few dozen locations across metropolitan Washington
- 63% are located in or near disadvantaged communities
  - 29% are within disadvantaged communities
  - 33% are near disadvantaged communities
- GHG reduction benefit: 290 short tons CO<sub>2</sub>e / year
- Highlighted the development of the REVII Strategy, EV Clearinghouse, Regional EV Deployment Working Group

CFI Round 1 Proposed Project Sites Map (Source: COG Round 1 application)



# Round 1 Partners and Location Types

## Local Government Partners

1. Alexandria, VA
2. Arlington County, VA
3. Fairfax City, VA
4. Fairfax County, VA
5. Frederick County, MD
6. Manassas, VA
7. Prince George's County Housing Authority, MD

## Location Types

- Community Centers
- Government Centers
- Libraries
- Parks
- Recreation Centers
- Historic Districts/Sites
- Low-Income Multi-Unit Dwellings
- Courthouse
- Transit Center
- General Aviation Airport

# EV Charging Partner Requirements

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## All CFI funded EV infrastructure installation projects must meet:

- National Environmental Policy Act (NEPA)
  - EV infrastructure projects are expected to be a Categorical Exclusion (CE)
- National Electric Vehicle Minimum Standards and Requirements Rule ([23 CFR 680](#))
- Minimum Wage Rates (Davis-Bacon Act)
- Domestic Preference Requirements (Build America, Buy America Act)
- Small and Disadvantaged Business Requirements
- Engineering and Design Services (Brooks Act)
- Civil Rights, Title VI, ADA
- Contribute toward quarterly reporting to FHWA



# Workforce Development and Engagement

Lead Partner: **Greater Washington Regional Clean Cities Coalition**

## Round 1 Awarded

- Community Listening Sessions
- Career Fairs
- Workforce Training on EV Infrastructure Reliability
- Washington Auto Show
- DC SEU Workforce Development Program

## Round 2 Proposed

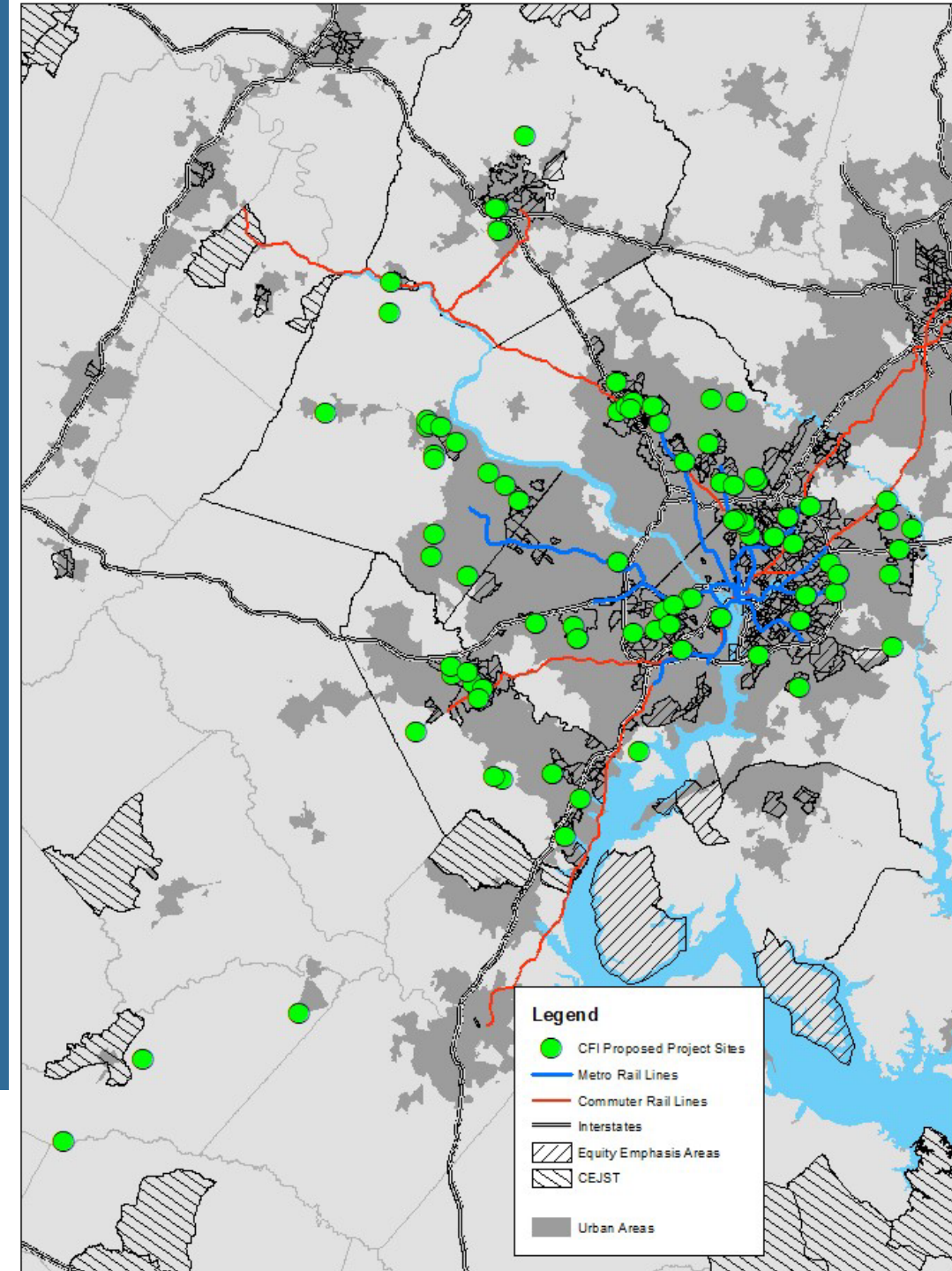
- All of the above + certify 50 workers through the Electric Vehicle Infrastructure Training Program (EVITP) Scholarship



# Round 2 Proposal

- \$14.87 Million Funds Requested
- Proposes to install EV infrastructure at 90 locations across metropolitan Washington
- 70% located in or near disadvantaged communities
  - 31% are within disadvantaged communities
  - 22% are near disadvantaged communities
  - 17% are within rural communities
- GHG & Air Quality Reduction Benefits Over 5-years: 1,304 short tons, 336 lbs. NO<sub>x</sub>, 32 lbs. PM<sub>10</sub>, 28 lbs. PM<sub>2.5</sub>, and 1,307 lbs VOC
- REVII core to proposal, serves as Round 2 NOFO's required equity analysis

CFI Round 2 Proposed Project Sites Map (Source: COG Round 2 application)





# Round 2 Partners

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## Local Government Partners

1. Alexandria, VA
2. Arlington County, VA
3. Brunswick, MD
4. Fairfax County, VA
5. Frederick County, MD
6. Gaithersburg, MD
7. Gordonsville, VA
8. Leesburg, VA
9. Loudoun County, VA
10. Manassas, VA

## Local Government Partners

11. Montgomery County, MD
12. Orange County, VA
13. Prince George's County, MD
14. Prince William County, VA
15. Takoma Park, MD

## Private Sector Partners

16. Citizen Energy
17. VoltPost/ZipCar

# Round 2 Location Types

CFI Focus Areas	# of EV Charging Locations
Neighborhood and Multi-Family Charging	32
Multi-Purpose Workplace and Destination Charging	57
Multimodal Hubs and Shared-Use Fleets	14
Community Fleets and Freight	1

Note: In both tables, one proposed EV charging location may meet multiple criteria for Focus Areas or Location Types.

CFI Priority Location Types	# of EV Charging Locations
Workplace	39
Municipal and Local Community Sites	38
Multi-Unit Dwellings	21
Parking Facilities	19
Public Parks and Recreational Destinations	17
Multimodal Hubs	8
Commercial Districts	7
Intermodal Transportation Facilities	2
Tourism and Destination or Cultural Sites	2

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