

Regional Electric Vehicle (EV) Infrastructure Implementation Strategy



MWCOG REVD Working Group
ICF

7/20/2023

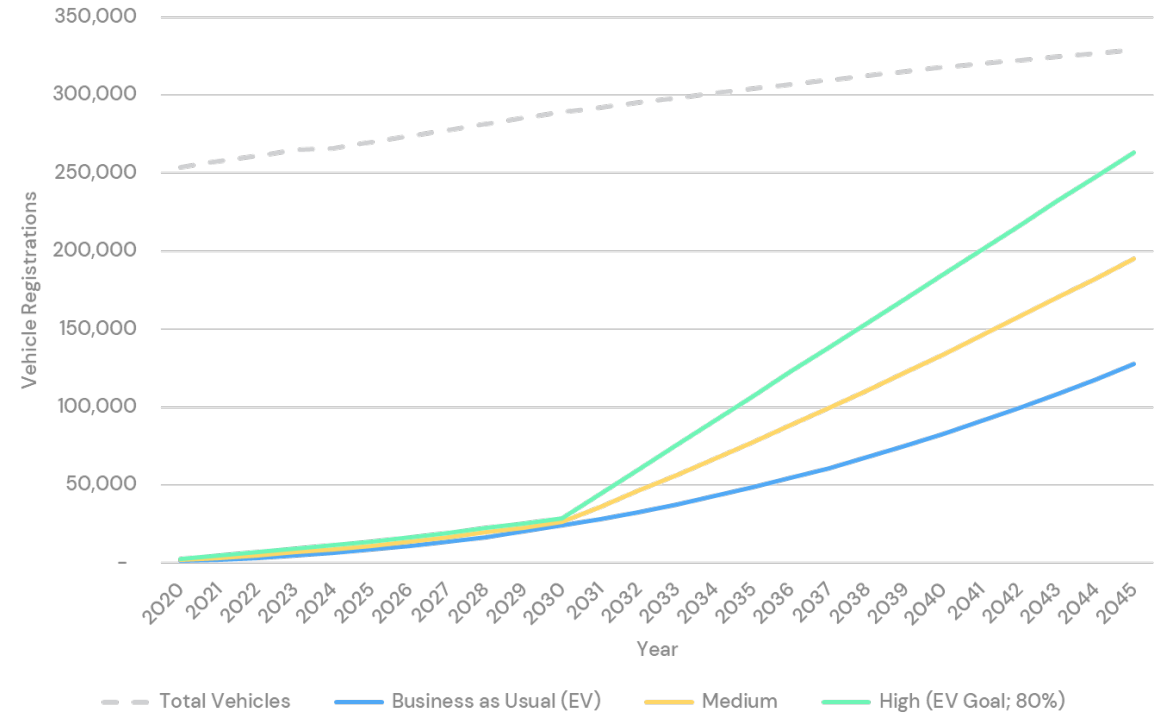


EV and Charging Needs
Assessment and Forecast

&

EV Charger Deployment Planning

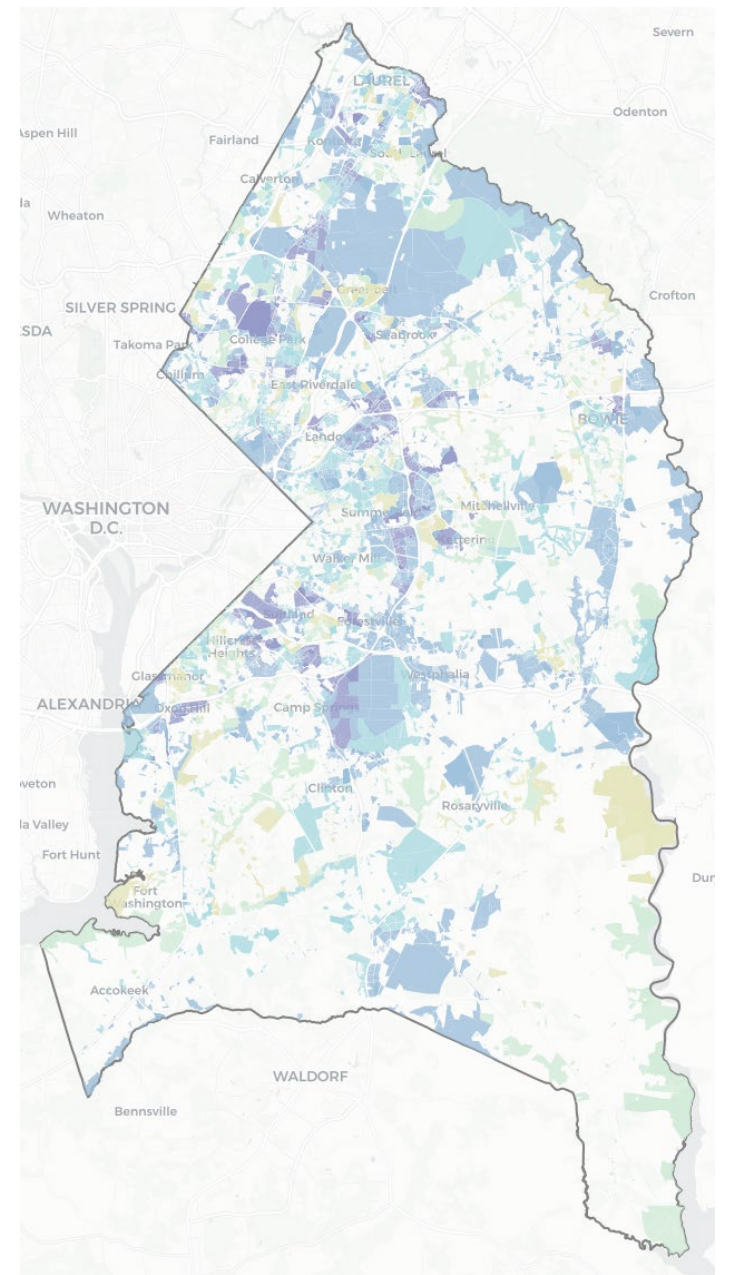
- EV projections for 2030, 2035, and 2045 by county and region
- Scenario development will be informed by:
 - Technology readiness
 - Total cost of ownership
 - Existing and upcoming federal policies
 - Barriers to EV adoption
- Evaluate existing projections for the region for inclusion in this assessment or for an update



→ EV and Charging Needs Assessment and Forecast

- Use EV projections to estimate number and type of chargers needed
- Engage utilities for electric capacity information
- **Recommendations will be developed using a three-step process** intended to identify sites that have a high probability for charging demand.
 - **Step 1: Census Tract Level Screening**
 - **Step 2: High Priority Parcel Analysis**
 - **Step 3: Site Selection**
- *This will build on past work completed for Prince George's County and the City of Rockville.*

→ EV Charger Deployment Planning



Step 1: Census Tract Level Screening

- Screening analysis of all census tracts in COG region
- Data sources: income, HEV ownership, home ownership, dwelling type, the travel demand forecasting model, AFCs, Justice40, COG's Regional Activity Centers (RAC), Equity Emphasis Areas (EEA), High-Capacity Transit Stations (HCT), and utility EV capacity, and more
- Three types of charging: residential, workplace, and opportunity

Step 2: High Priority Parcel Analysis

- Potential parcels will be scored according to the following example criteria:
 - Distance to existing charging stations
 - Distance to multi-unit dwellings
 - Distance to highway on-ramp or off-ramp
 - Location in or near a disadvantaged community
 - Distance to public transportation connection

Step 3: Site Selection

- Review of each high scoring parcel to determine suitability for a public EV charging station
- Review will consider factors such as the following:
 - Parcel size and parking availability
 - Facility access
 - Retail chains with EV charger programs
 - Utility electric service capacity

→ EV Charger Deployment Planning: 3 Steps

EV and Charging Needs Assessment and Forecast

- Methodology Memo
- EV projections for 2030, 2035, and 2045
- Presentation of Draft Results to REVD Working Group

EV Charger Deployment Planning

- Methodology Memo
- Report of Deployment Implementation Strategy
- Meetings with Electric Utilities
- GIS Maps for Local Jurisdiction Staff
- Public-Facing GIS Maps
- Presentation of Draft Results to REVD Working Group

→ Key Deliverables



Example: Frederick County Community EV Projections

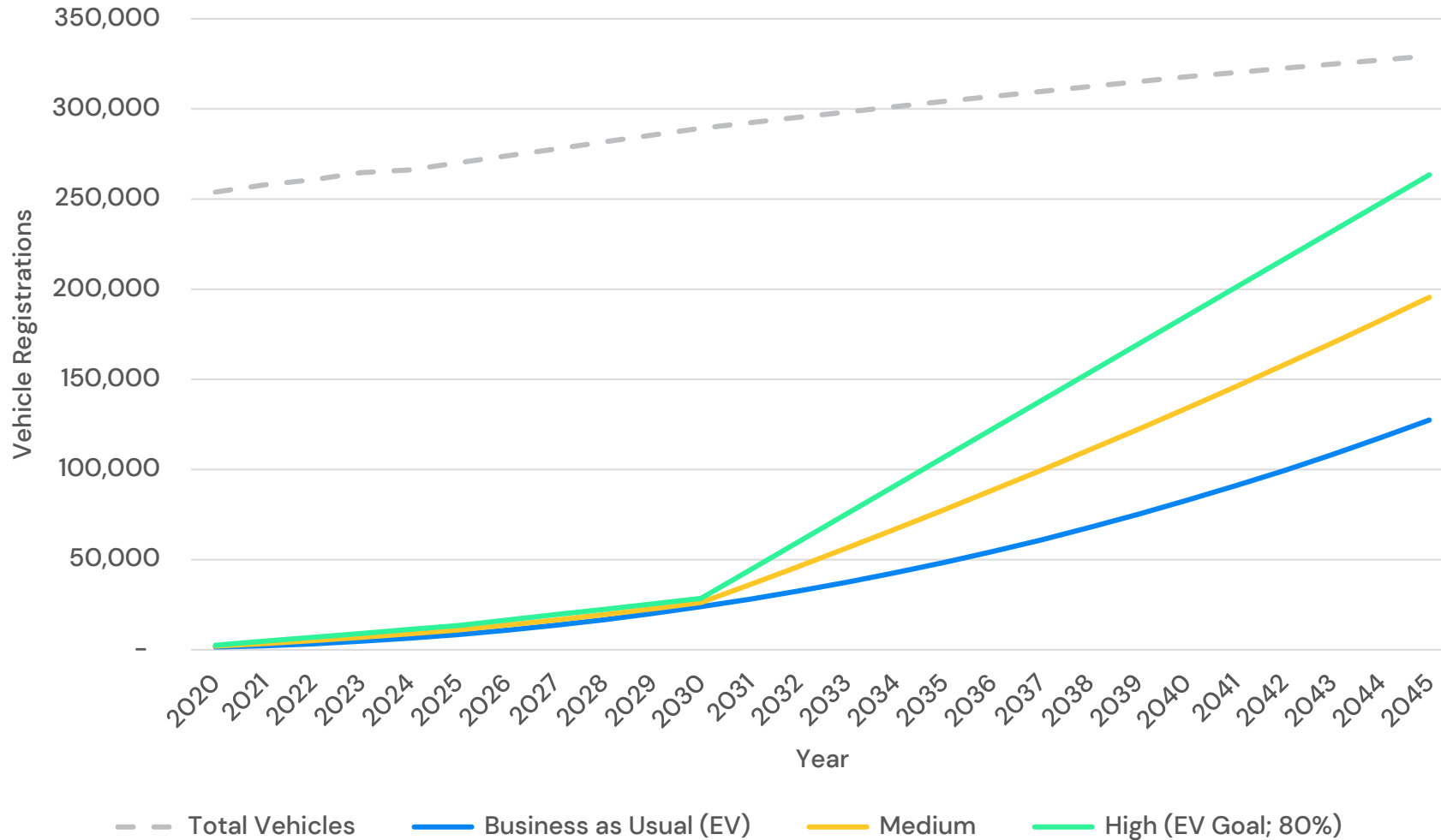
- **Business as Usual (BAU)**: Growth rate informed by historical vehicle registration data and knowledge of the jurisdiction
- **Medium**: Average of BAU and high scenarios
- **High**: Jurisdiction's proportion of State ZEV adoption goals through 2030; subsequent goal of 80% ZEVs by 2045

→ Projection Scenarios

Input Data	Source
State Population	Maryland State Data Center
Jurisdiction Population	MWCOG Cooperative Forecasts
Vehicle Registration	Maryland DOT
EV and PHEV Registrations	Maryland DOT
Maryland ZEV Adoption Goal	Maryland DOT

→ EV Projection Inputs

Frederick County EV Projections Over Time



→ Frederick County EV Projections



Electric Vehicle Infrastructure Projection Tool (EVI-Pro) Lite

This tool provides a simple way to estimate how much electric vehicle charging you might need and how it affects your charging load profile.

Charging Need Load Profile

State Vehicles Results Reset

Select a State

Select a state by clicking on the map or using the dropdown menu.

- Number of Vehicles Supported
- Vehicle Mix
- PHEV Support
- Home Charging Access

→ EV Charging Demand Inputs

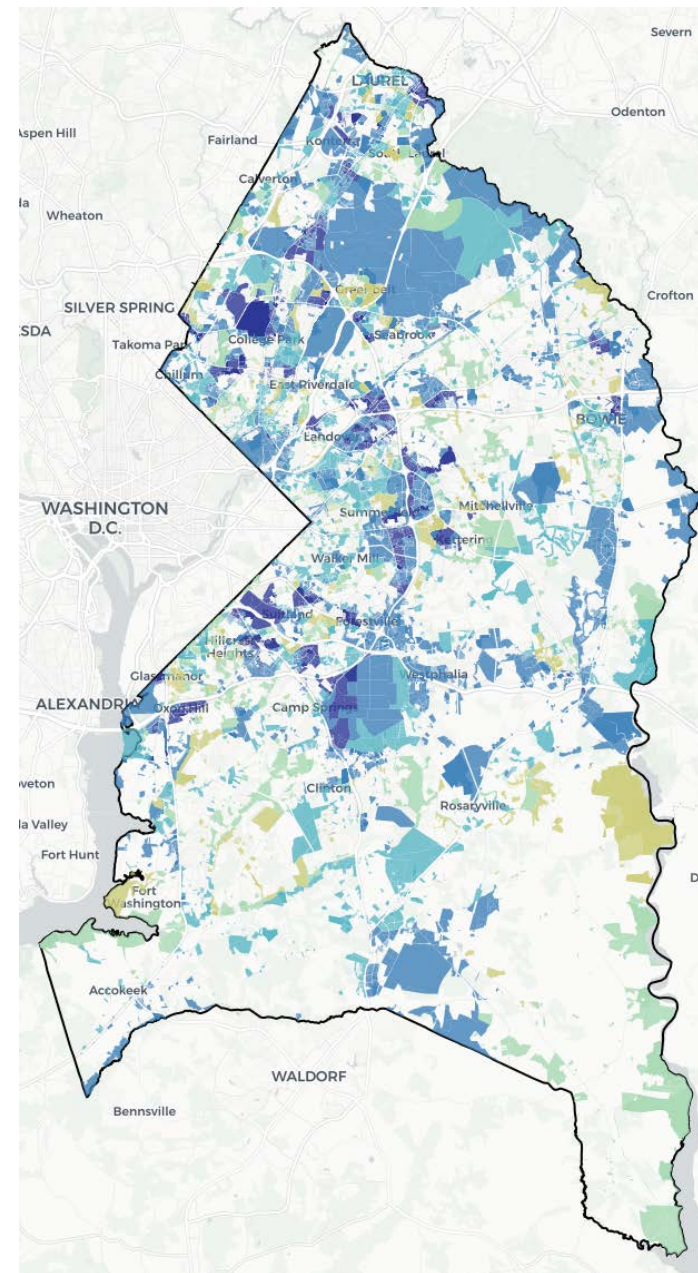
Scenario			2025	2030	2035	2040	2045
Business As Usual (BAU)	EVSE Needs (charging ports)	Single Family	6,066	16,705	34,490	58,977	88,749
		Shared Private	479	1,220	2,729	4,661	6,479
		Public Level 2	617	1,546	3,508	6,003	8,214
		Public DC Fast	37	77	211	362	406
		Total	7,200	19,548	40,938	70,003	103,848
	EVs to Support	8,523	23,991	48,461	82,866	127,450	
Medium	EVSE Needs (charging ports)	Single Family	7,854	18,270	55,249	93,299	136,084
		Shared Private	621	1,334	4,369	6,813	9,933
		Public Level 2	799	1,690	5,620	8,633	12,591
		Public DC Fast	48	80	340	429	623
		Total	9,323	21,374	65,578	109,174	159,231
	EVs to Support	11,035	26,238	77,629	133,986	195,433	
High (ZEV Goal; 80% by 2045)	EVSE Needs (charging ports)	Single Family	9,434	19,836	76,008	128,893	183,423
		Shared Private	689	1,448	6,014	9,409	13,395
		Public Level 2	873	1,835	7,735	11,926	16,969
		Public DC Fast	43	91	467	590	842
		Total	11,039	23,210	90,224	150,818	214,629
	EVs to Support	13,548	28,486	106,796	185,106	263,416	

→ Frederick County EV Charging Demand Projections



Example: Prince George's County EV Charger Deployment Needs Mapping

- Provides data relevant to electric vehicle (EV) charging demand in support of siting future charging infrastructure
- Available data includes:
 - Existing and proposed (Pepco) charging stations
 - Multi-family housing
 - Equity Emphasis Areas
 - Government facilities
 - Alternative Fuel Corridors
 - Forecasted employment metrics



➔ **Overview**

- Scores are assigned to specific geographic areas based on the following criteria.
 - Proximity Criteria
 - Parcels have points either awarded or subtracted based on their proximity to:
 - Transit stops
 - Level 2 charging
 - DC Fast charging
 - Multifamily housing
 - Equity Emphasis Areas
 - Travel Demand Scenarios
 - Travel demand is estimated based on the number of non-home-based trips at the Census Block Group scale for three scenarios:
 - Level 2 chargers with high utilization
 - DCFC chargers with high utilization
 - DCFC chargers with equity focus
 - Criteria weighting can be adjusted within the mapping tool to create custom scenarios.

→ Scenarios and Analysis



Q&A