Electric Vehicle Infrastructure Location Tool and Visualization Map

Version 2.0 Analysis Summary

July 17, 2018

MJB&A

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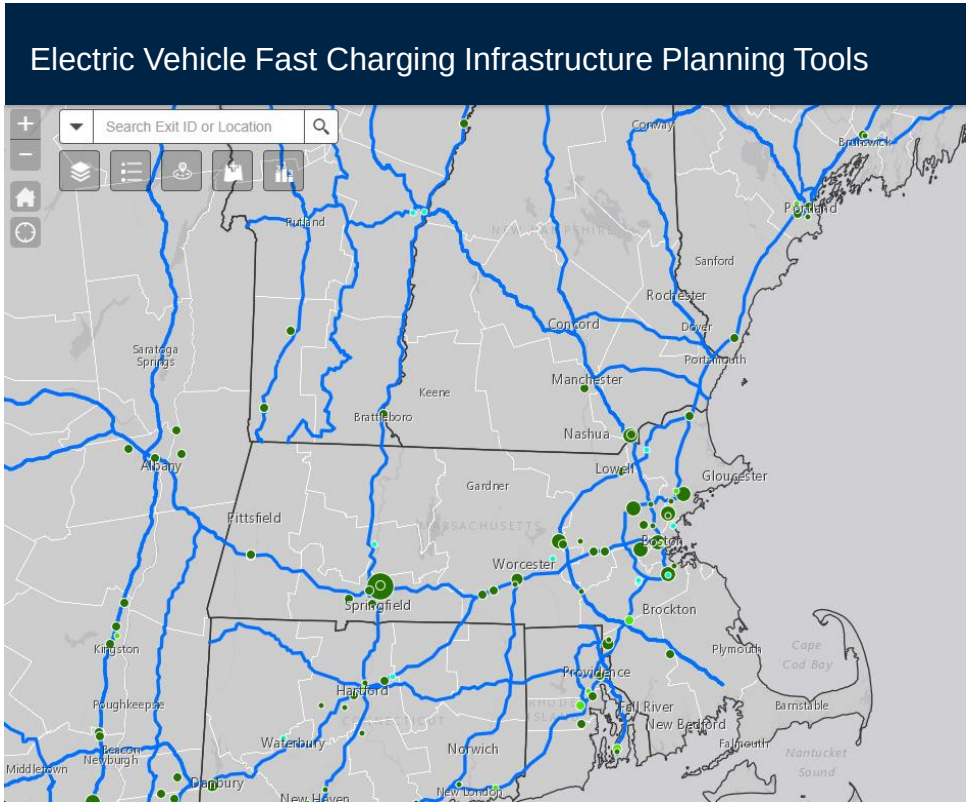
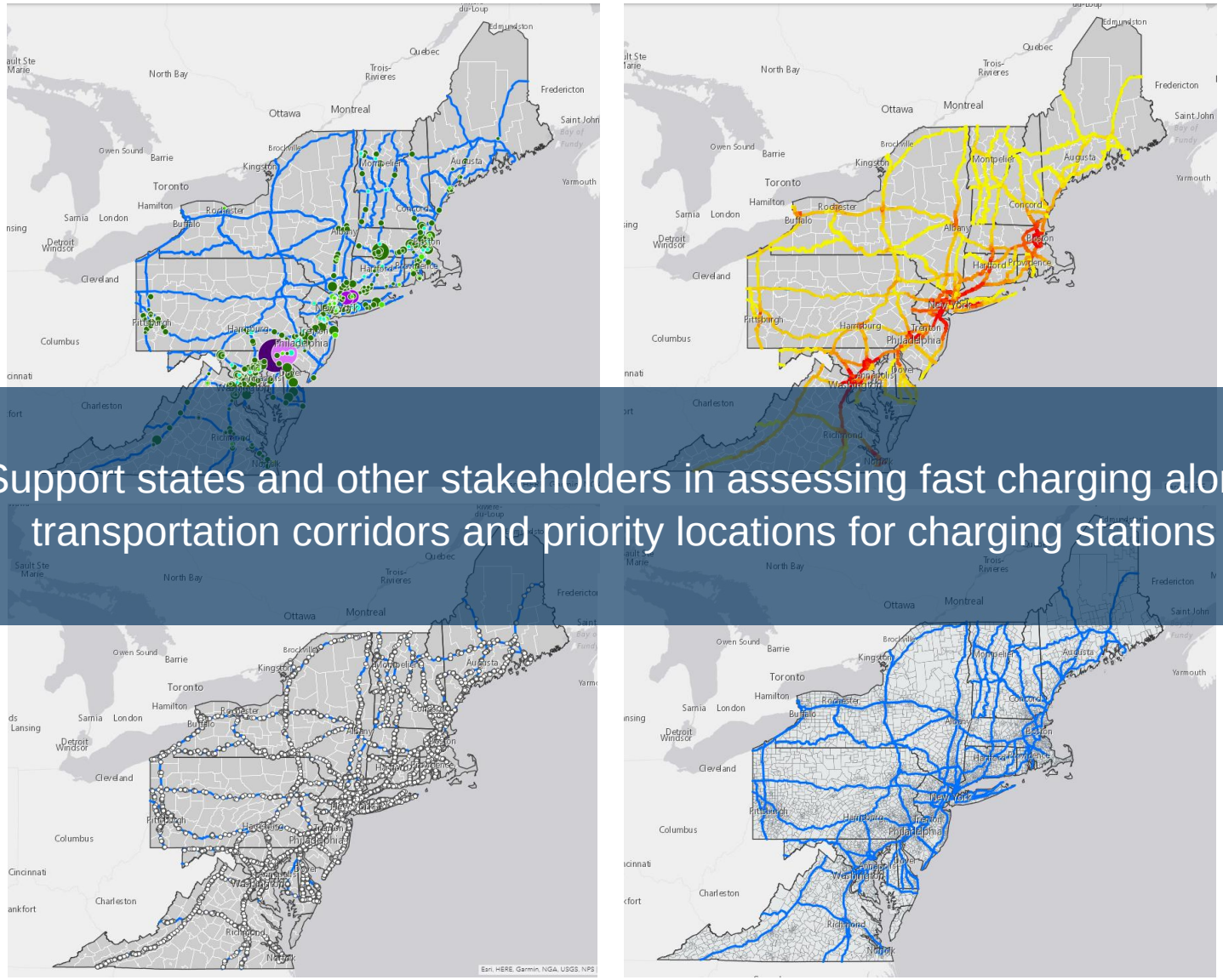


Analysis Objective

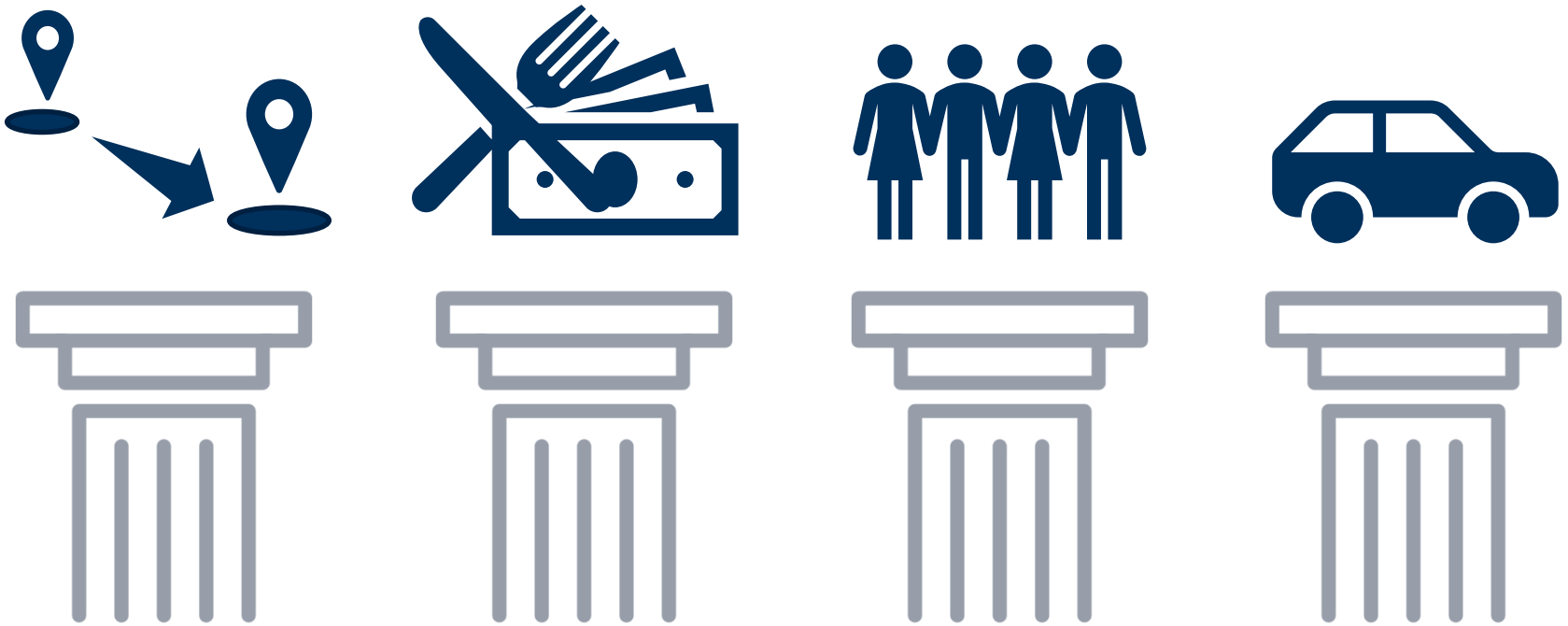


Key Analysis Parameters

MJB&A utilized a GIS platform to collect and organize data on over 9,000 miles of key PEV corridors in 12 states: the 11-state Transportation & Climate Initiative region (including D.C.) and Virginia

- Assessed DC Fast Charging (DCFC) opportunities along all the designated federal corridors plus additional state priority corridors
- For the existing network, included public, non-proprietary DCFC infrastructure within 5 miles of freeway corridors, extending into neighboring regions
- Focused on interstate exits and other key intersections as sites for corridor fast charging
- Worked with analysis region state participants to refine dataset, parameters, and metrics

Inputs: **Key Metrics**



Proximity to Existing Charging

Distance to nearest DCFC station and density of existing stations

Commercial Activity

Number of restaurants, bars, and gas stations within 1 mile of each exit

Population

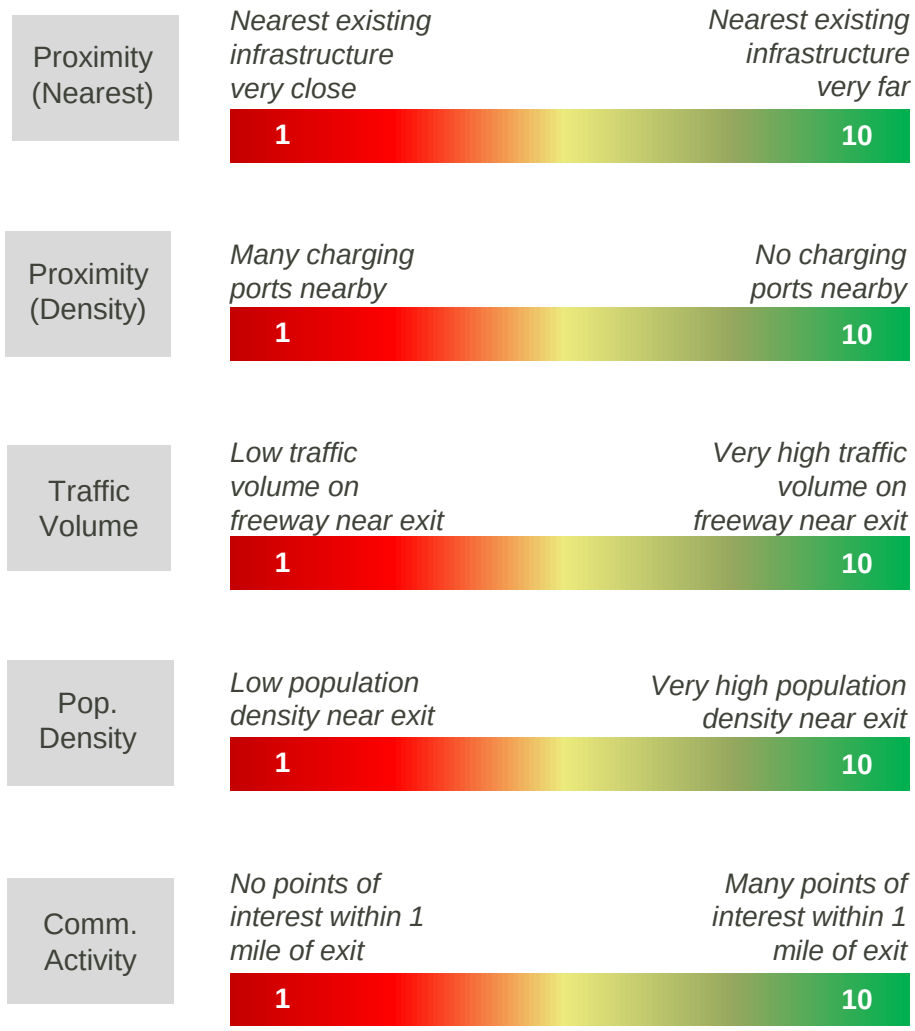
Population density of surrounding census tract

Traffic Density

Average annual traffic volume of freeway segment

Methodology: **Overview**

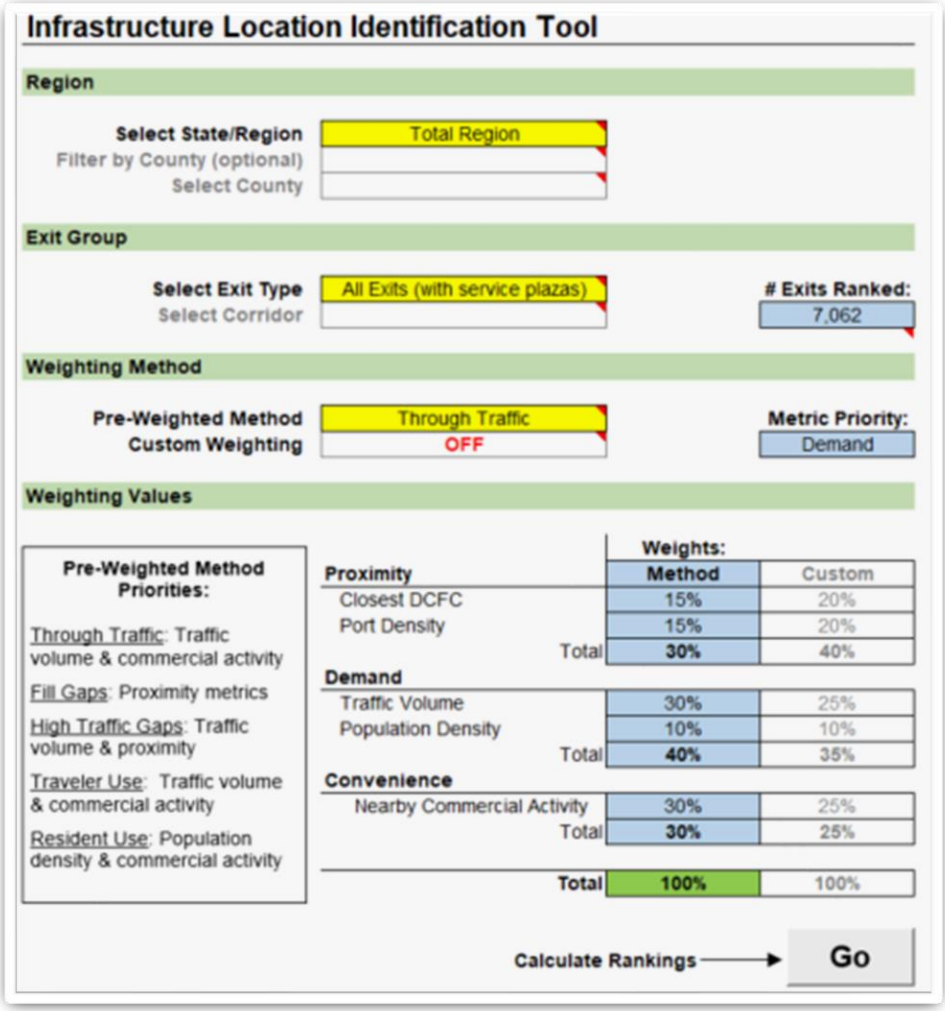
- Each exit is compared to all other selected exits within each metric
- Each exit is scored between 1 and 10 for each metric: an exit could be a 1 for population density (i.e., very low population) but a 10 for proximity (i.e., there are no existing DCFC nearby)
- Metrics are then combined through a range of ranking methods to assign each exit one cumulative score; all scores are then ranked
- Tools allow a user to adjust the weighting of metrics and design a ranking method that reflects personalized priorities



Resource: **Infrastructure Location Identification Tool**

Identification Tool Options

- **Region:** Full analysis region, state, or county
- **Exit Group:** Ability to filter to include/exclude service plazas and/or limit analysis to specific corridor
- **Weighting method:** one of six preloaded or custom



Infrastructure Location Identification Tool: Ranking Methods

Proximity Metrics

- Nearest DCFC
- Density of DCFC

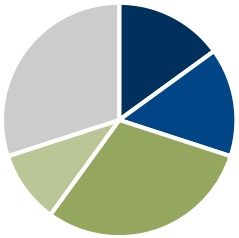
Demand Metrics

- Traffic Density
- Population Density

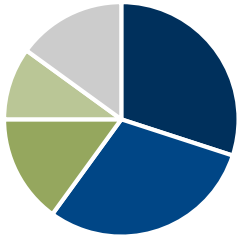
Convenience Metrics

- Commercial Activity

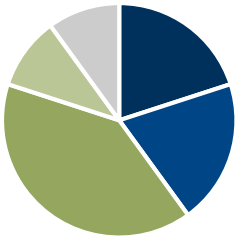
1. Through Traffic



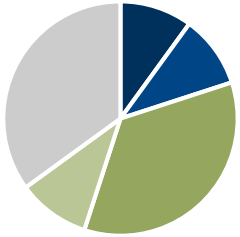
2. Gap



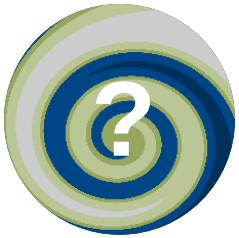
3. High Traffic Gap



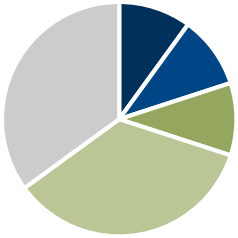
4. Traveler Use



+ User Defined



5. Resident Use



6. Even

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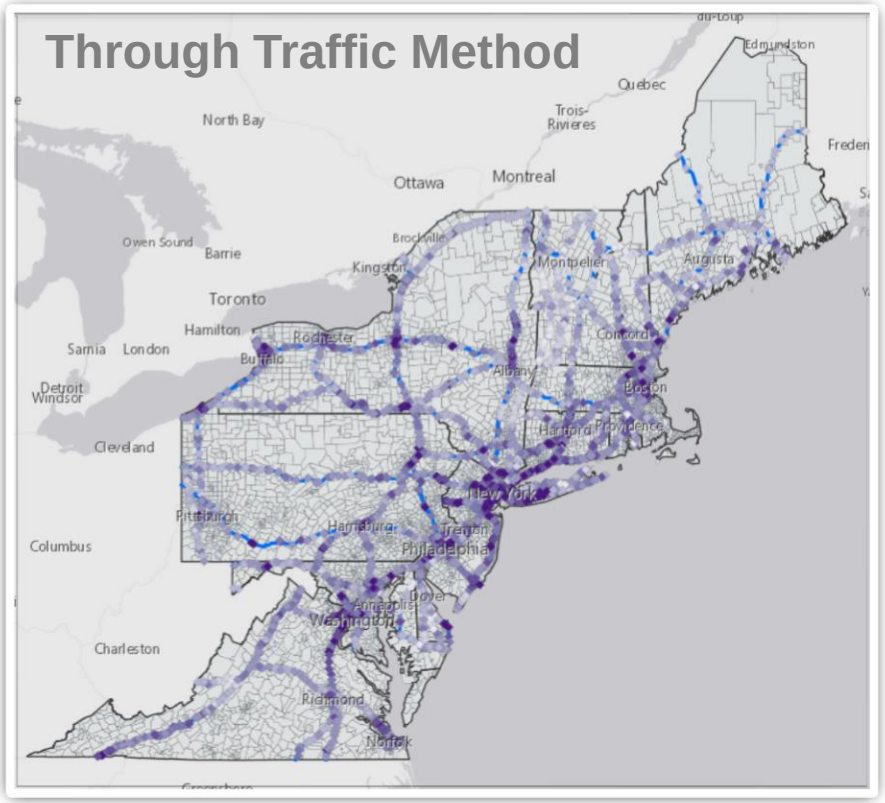
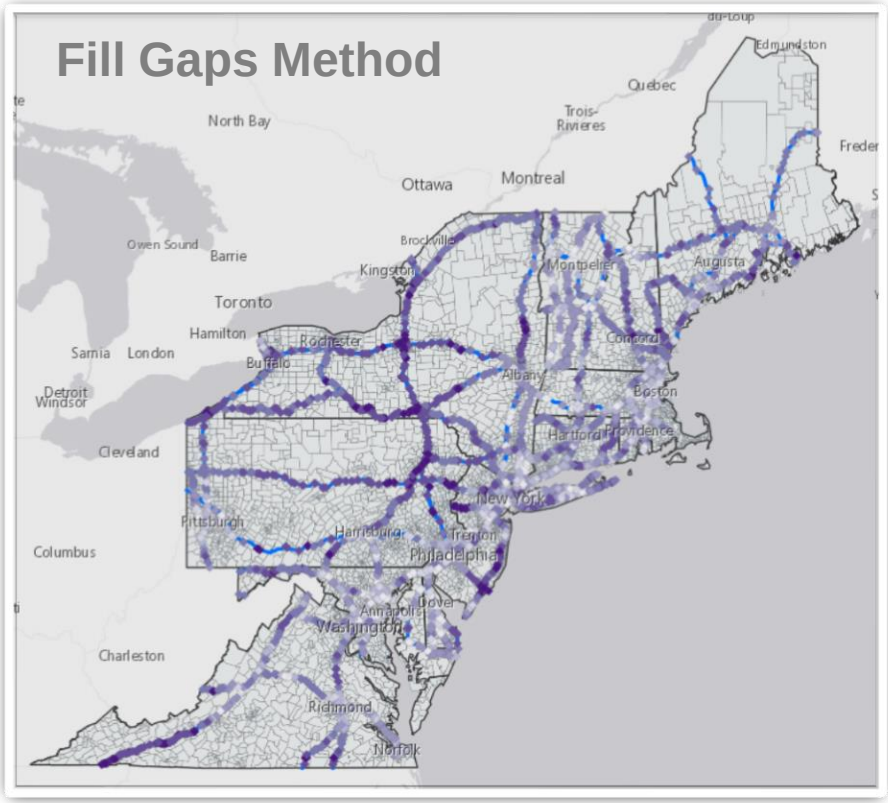
Resource: **Visualization Map**

The Visualization Map allows the user to see all metric data (e.g., population density and traffic volume) as well as the outputs from the Identification Tool in order to compare possible locations for DCFC infrastructure deployment





Low Suitability — High Suitability

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Ongoing & Potential Tool Uses

- Scoping analysis for state infrastructure development initiatives
- Support for Public Utilities Commission electric vehicle proceedings
- Utility or private developer review / comparison of potential development locations

Version 2.0: Key Updates

- **Geographic Expansion:** tool now assesses over 9,000 miles of key transportation corridors (interstates, highways, and other key thoroughfares) across the Transportation & Climate Initiative region and (*new*) Virginia

- **Charging Network**: existing charging network is updated as of June 12, 2018. It also now includes "border" existing charging stations that may be important for gap analysis but are outside the analysis region (e.g., in neighboring states and Canada)

- **Exit Data:** more accurate assessment of exit and other node locations; exclusion of all rest stop locations that bar commercial development

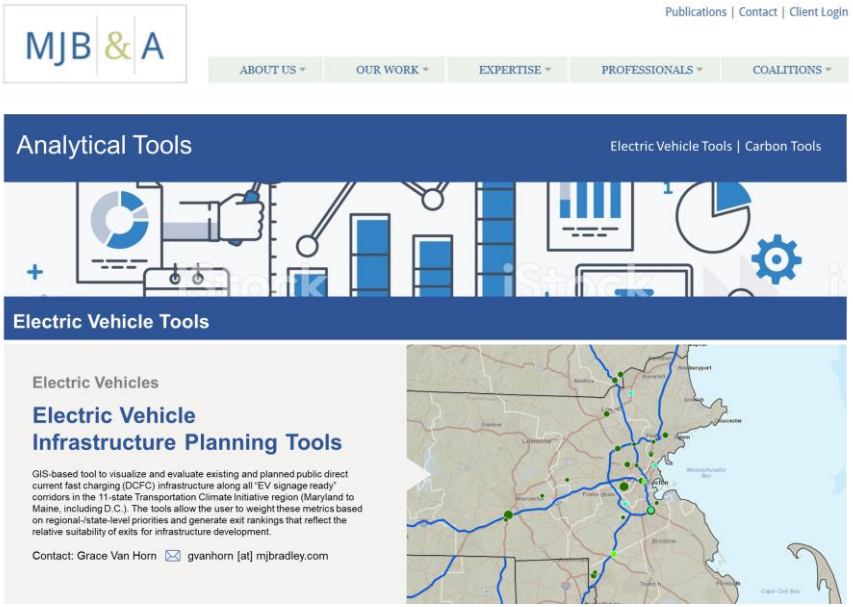
- **Tool Functionality:** replaced "gap exits" assessment group with ability to filter by exit type (including, excluding, or exclusively service plazas) and additional ability to conduct assessment within geographic subgroups (county- and/or corridor-level groupings)

- **Map Functionality:** addition of "filter exits" functionality that allows a user to display only those exits that meet certain analysis criteria (e.g., are located in high traffic areas or further than 10 miles from existing infrastructure)

- **Additional Data Improvements:** latest (2015) traffic data, improved display of population density (now displays by census tract, matching analytical framework)

Tool Availability

Tools are available for free from either M.J. Bradley & Associates or Georgetown Climate Center websites



www.mjbradley.com

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Questions?

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