



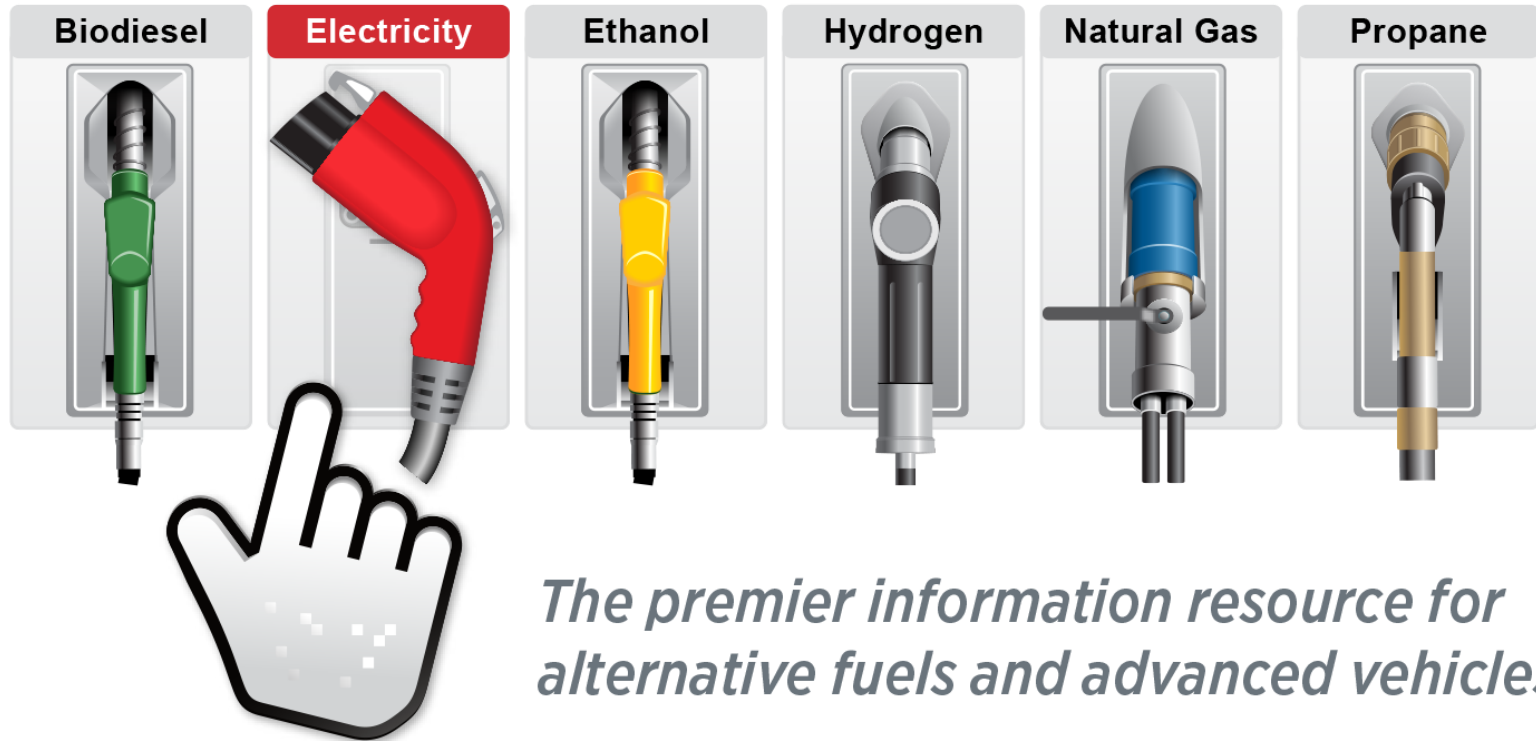
Alternative Fuels Data Center Station Locator Redesign and Corridor Tool

Matt Rahill and Johanna Levene
Midwest Alternative Fuel Corridor Convening
June 12, 2018

Session Outline

- 1** Overview of the AFDC
- 2** Station Locator Tool
- 3** Data Analysis for Corridors
- 4** Corridor Mapping Tool
- 5** Questions and Feedback

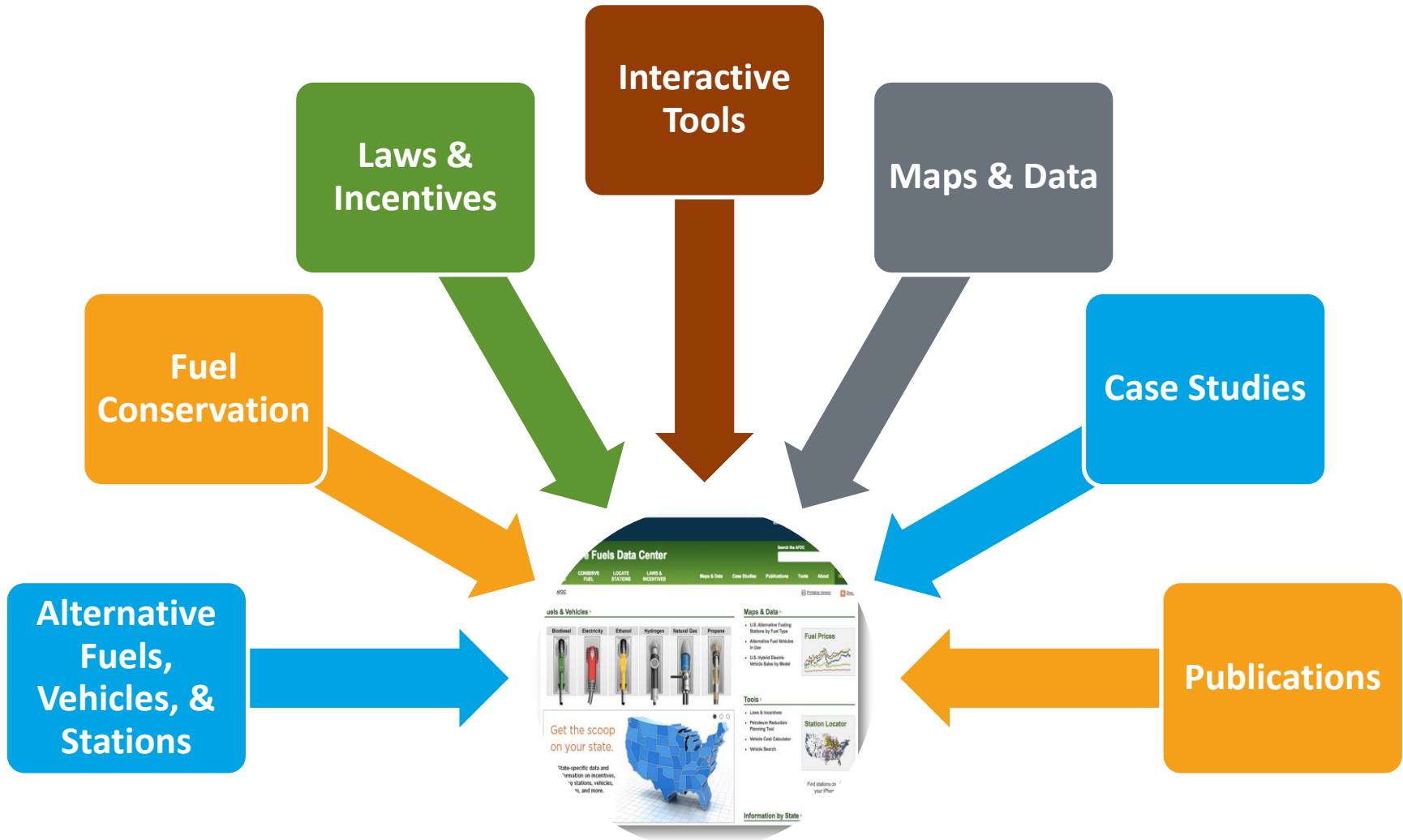
Alternative Fuels Data Center



*The premier information resource for
alternative fuels and advanced vehicles*

afdc.energy.gov

What does the AFDC provide?



Who uses the AFDC?



Fleet
managers



Transportation
planners



Fuel
providers



Utilities








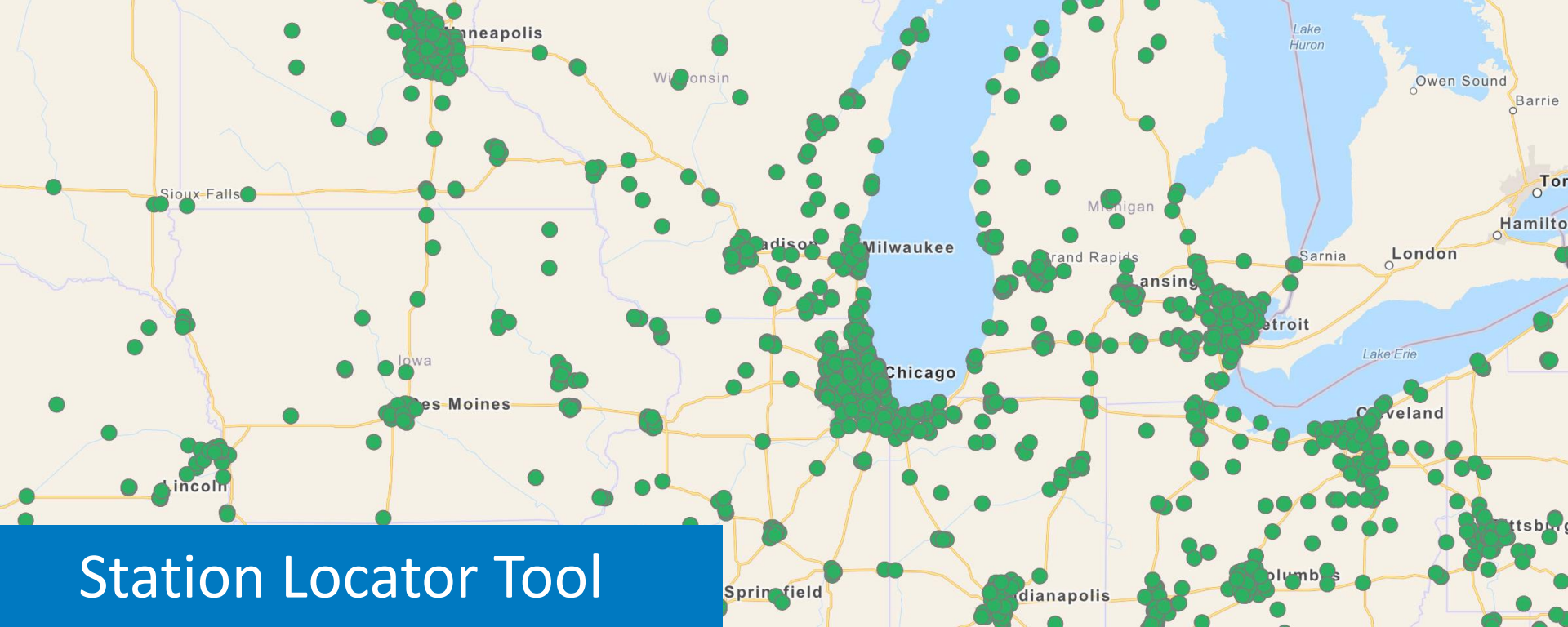
Clean Cities
coalitions

1.5 million
users annually

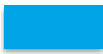


5.5 million
station searches annually

How do people use the AFDC tools and data?

-  Research alternative fuels
-  Compare vehicles
-  Find stations
-  Plan fueling infrastructure
-  Find laws and incentives



Station Locator Tool

-  Search for stations by city, state, or ZIP code
-  Filter by fuel type and station details
-  Map a driving route

Alternative Fuels Data Center

Search the AFDC

SEARCH

FUELS & VEHICLES

CONSERVE FUEL

LOCATE STATIONS

LAWS & INCENTIVES

Maps & Data

Case Studies

Publications

Tools

About

Home

EERE » AFDC » Locate Stations

Printable Version

Share

Alternative Fueling Station Locator

Find alternative fueling stations near an address or ZIP code or along a route in the United States. For state information, see [stations data by state](#).

Find Public Stations Analyze & Download Data 22,777 results

Enter location All Fuels Map a Route

Legend

- Biodiesel
- CNG
- Electric
- Ethanol
- Hydrogen
- LNG
- Propane

Powered by Esri, Esri, HERE, Garmin, NGA, USGS



Search

- Energy ▾
- Mining/Materials ▾
- Forests ▾
- Earth Sciences ▾
- Hazards ▾
- Explosives ▾
- Clean Growth ▾
- Climate Change ▾

Home → Energy → Energy Efficiency → Transportation → Personal vehicles → Electric Charging and Alternative Fuelling Stations Locator

Electric Charging and Alternative Fuelling Stations Locator

Enter a location to find a station where you can recharge or refuel your vehicle in Canada. This map will also show alternative fuel stations by using the drop-down menu. To find alternative fuelling stations in the United States, visit the website of the [U.S. Department of Energy](#).

Find Public Stations

Analyze & Download Data

4,225 results

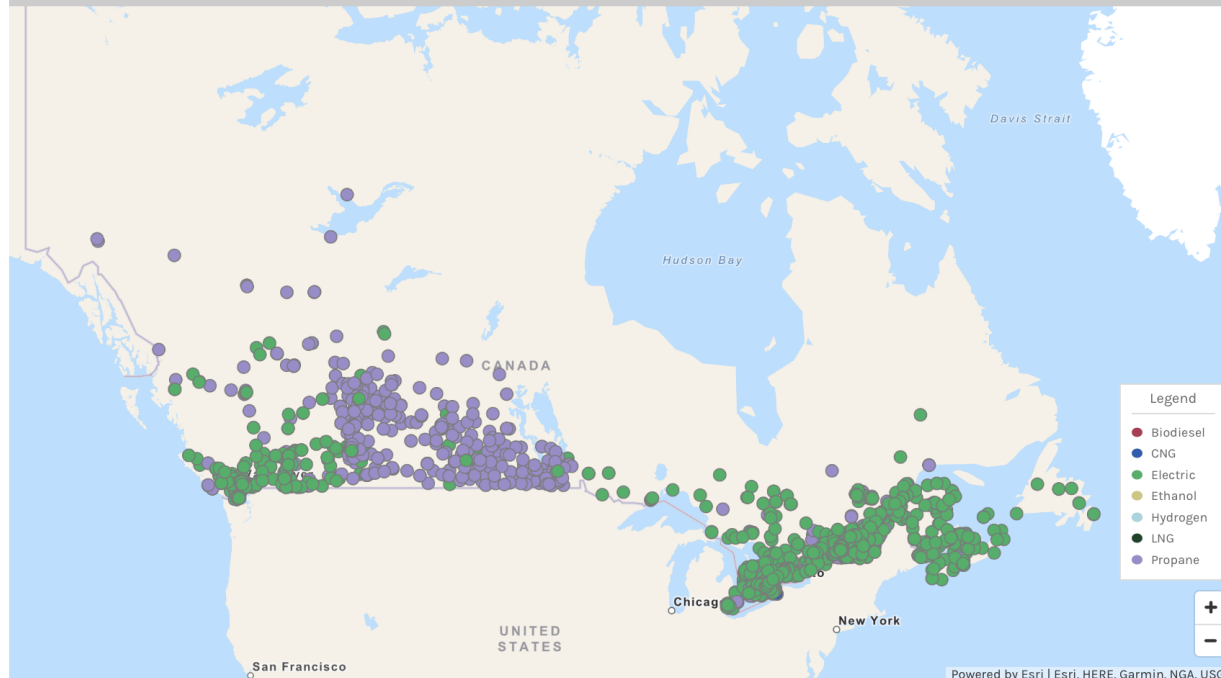
Enter location



All Fuels



Map a Route



Alternative Fuels Data Center

Search the AFDC

SEARCH

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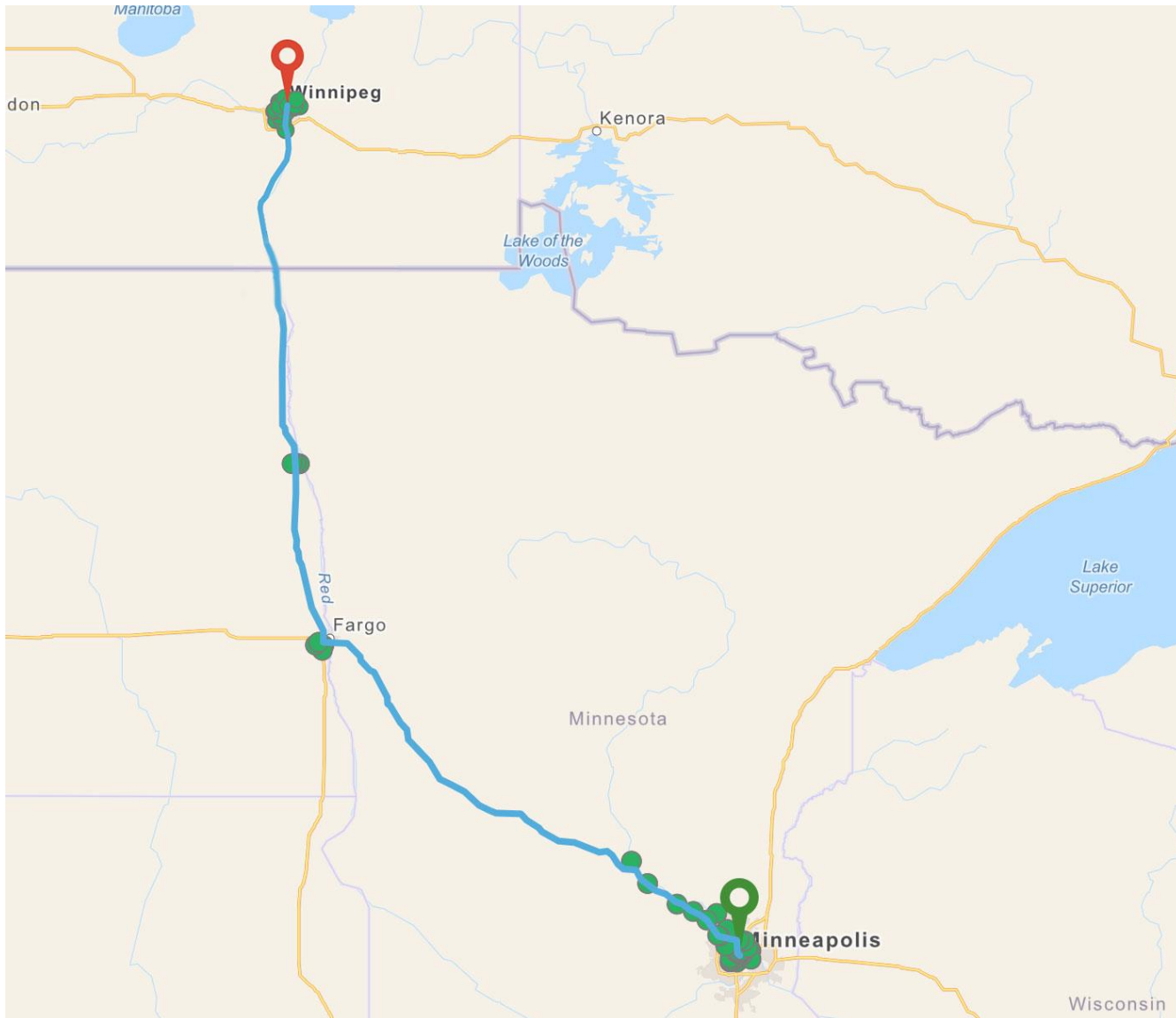
Legend

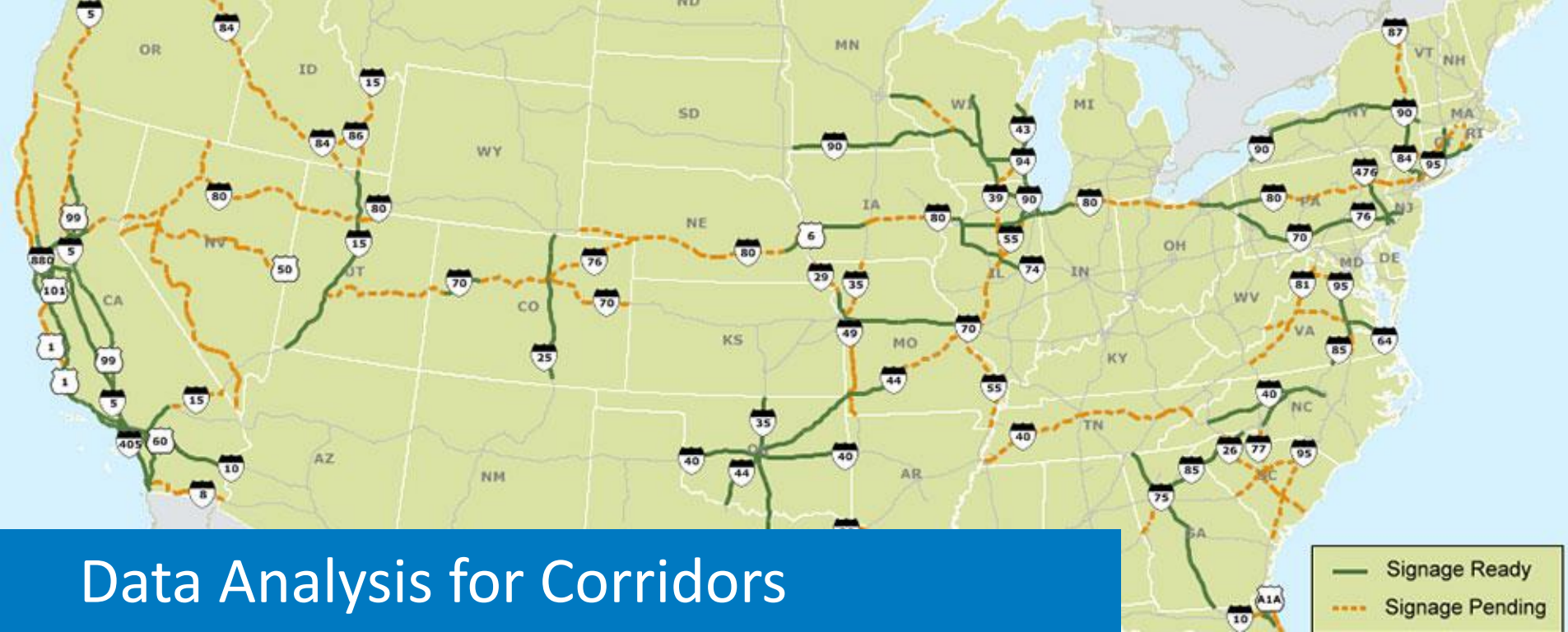
- Biodiesel
- CNG
- Electric
- Ethanol
- Hydrogen
- LNG
- Propane

Powered by Esri | Esri, HERE, Garmin, NGA, USGS

U.S. and Canada coming soon

Are you interested in driving across borders?



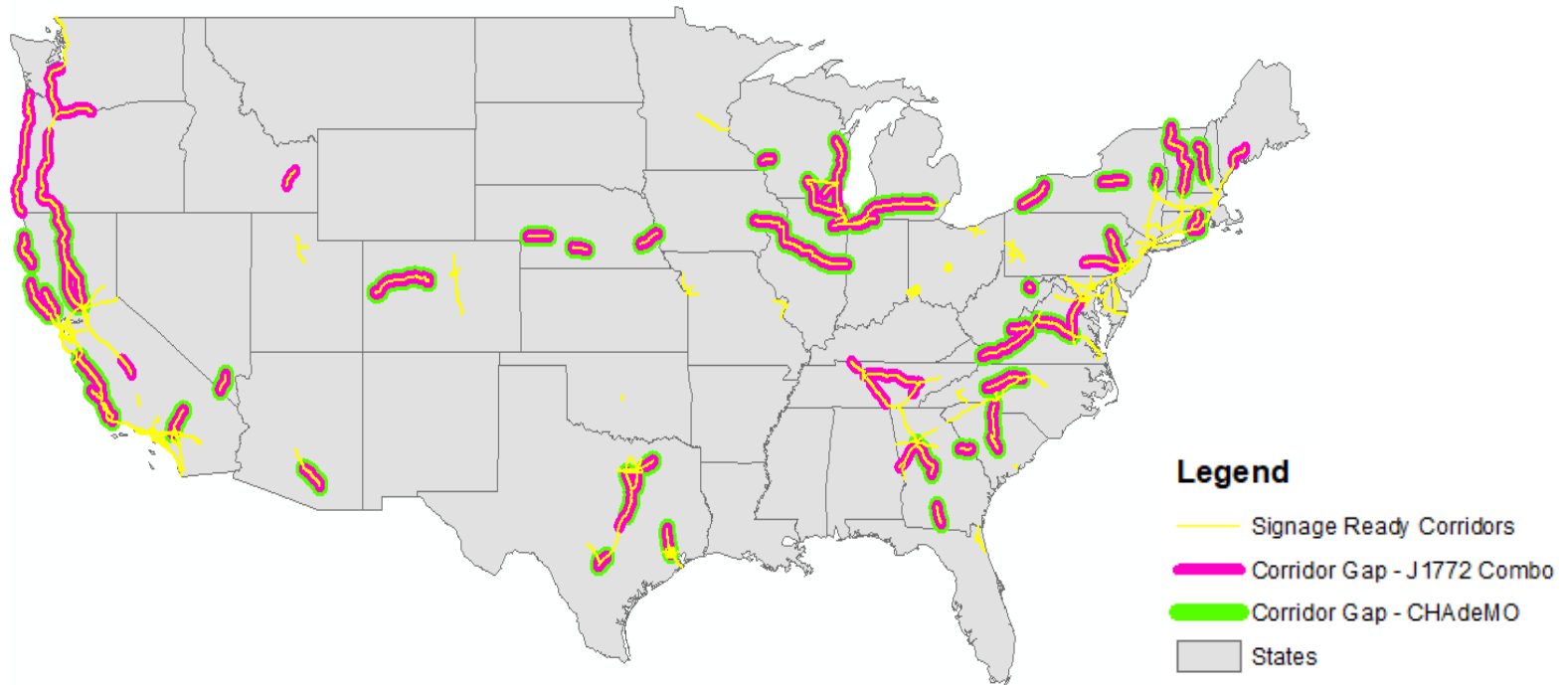


Data Analysis for Corridors

- States proposed corridors
- Corridors evaluated against AFDC stations
- Corridors designated as signage ready, signage pending, or non-corridor

Future Work: EV Resiliency Analysis

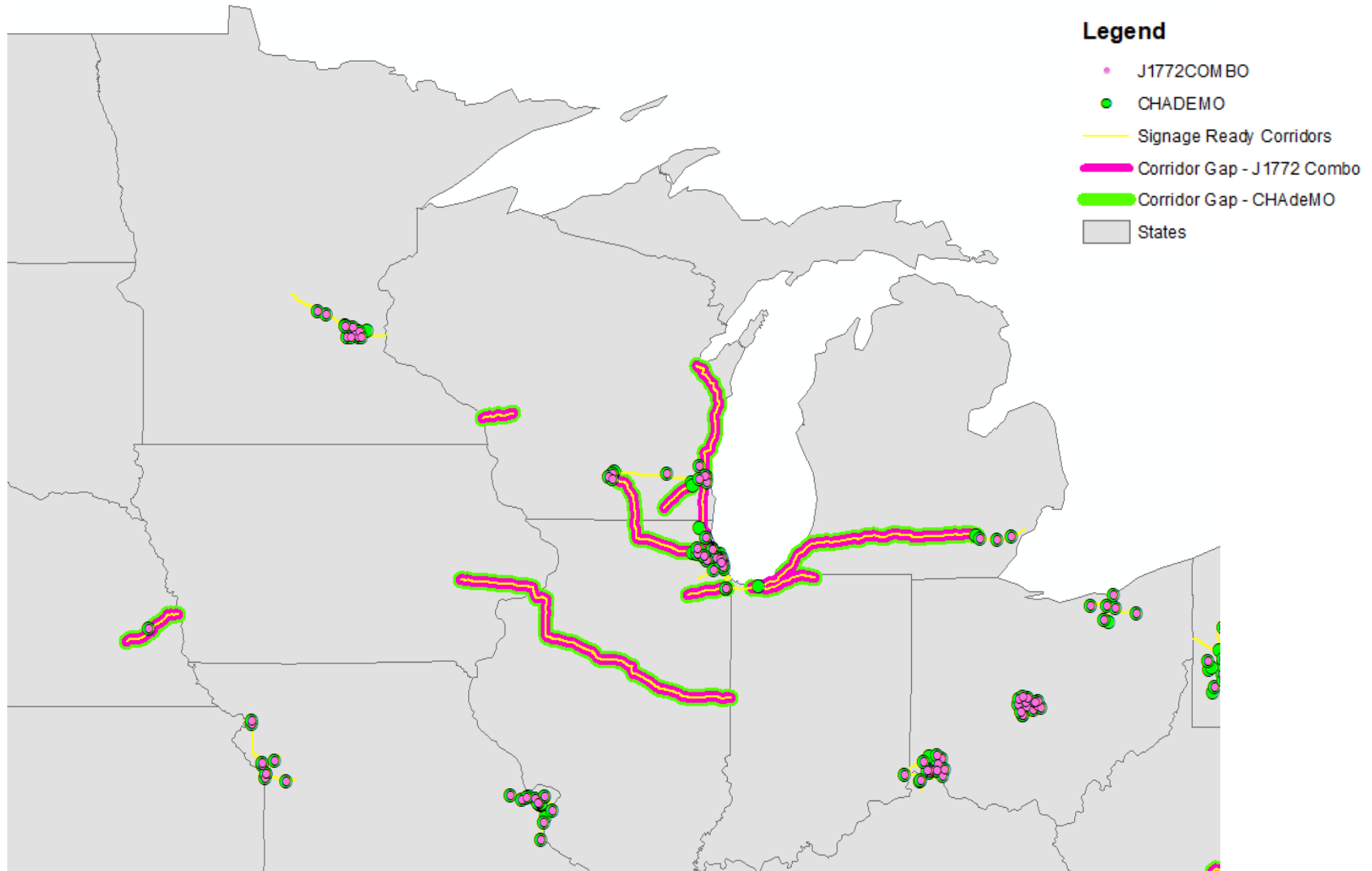
National Gaps



- Evaluate factors that impact corridor usability
 - Connector type
 - CHAdeMO or J1772 Combo
 - Single charger stations
 - Charger utilization
 - Level
 - DC Fast included in round 1 and 2
 - Level 2 included in round 1

Future Work: EV Resiliency Analysis

Midwest Gaps





Goals for the Tool

With the corridor mapping tool, transportation planners can:



Monitor the system and watch for unanticipated gaps and new corridors



View fueling stations along corridors



Determine where to invest in fueling infrastructure

Features for Phase One



Embeddable Application

The screenshot shows the 'Alternative Fuels Data Center' website. The header includes the U.S. Department of Energy logo and navigation links like 'Energy Efficiency & Renewable Energy', 'EERE Home | Programs & Offices | Consumer Information', and a search bar. The main navigation bar has categories: 'FUELS & VEHICLES', 'CONSERVE FUEL', 'LOCATE STATIONS', and 'LAWS & INCENTIVES'. Below this, there are links for 'Maps & Data', 'Case Studies', 'Publications', 'Tools', 'About', and 'Home'. The page title is 'Alternative Fueling Station Locator'. A sub-header reads: 'Find alternative fueling stations near an address or ZIP code or along a route in the United States. Enter a state to see a station count or see [stations data by state](#).' The main content area features a search bar with 'Find Public Stations', 'Analyze & Download Data', and 'Explore Fuel Corridors' tabs. Below the search bar are filters for 'Electric', 'Choose State', and 'Choose HWY'. A map of the United States shows 3354 designated miles of fueling corridors, with a legend indicating 'Complete Corridor' (solid black line) and 'Planned Corridor' (dashed red line). At the bottom, there are links for 'Developer APIs', 'Embed Tool', and 'About the Data'.

1 Alternative Fuels Data Center

The corridor mapping tool will be available as a third tab on the Alternative Fueling Station Locator.

The screenshot shows the 'Alternative Fuel Corridors' tool on the Federal Highway Administration website. The header includes the U.S. Department of Transportation logo and navigation links like 'About Programs Resources Briefing Room Contact Search FHWA'. The main navigation bar has categories: 'Planning', 'Environment', 'Real Estate', 'HEP', 'Events', 'Guidance', 'Publications', 'Glossary', 'Awards', and 'Contacts'. The page title is 'Alternative Fuel Corridors'. Below the title is a decorative graphic of a road and trees. The main content area features a search bar with 'Find Public Stations', 'Analyze & Download Data', and 'Explore Fuel Corridors' tabs. Below the search bar are filters for 'Electric', 'Choose State', and 'Choose HWY'. A map of the United States shows 3354 designated miles of fueling corridors, with a legend indicating 'Complete Corridor' (solid black line) and 'Planned Corridor' (dashed red line). At the bottom, there are links for 'Developer APIs', 'Embed Tool', and 'About the Data'.

2 Federal Highway Administration

The corridor mapping tool can be embedded as a standalone application on the FHWA website or any other website.

National Map

Find Public Stations

Analyze & Download Data

Explore Fuel Corridors

3354 designated miles

Electric

Choose State

Choose HWY

Download Data

Copy Map



Developer APIs

Embed Tool

About the Data

State Maps

Find Public Stations Analyze & Download Data Explore Fuel Corridors

559 designated miles

Electric Ohio Choose HWY

Download Data Copy Map

Ohio

Designated EV corridors: 559 mi
Complete EV corridors: 148 mi

- Show legend
- Show acceptable station distance from highway Miles
- Show stations
- CCS CHAdeMO Tesla Level 2
- Planned stations Private stations

[Download Station List](#)

Test Proposed Stations [Run Analysis](#)

Add markers to test completing a corridor

To qualify as a federal EV corridor, electric stations must be fast charging stations (CCS or CHAdeMO). Stations must be within 50 miles of each other and within 5 miles of the corridor.

See [Federal Highway Corridor Requirements](#)

Contact: [Kirsten.Raymonde@odot.gov](#)

Stations Layer

Find Public Stations

Analyze & Download Data

Explore Fuel Corridors

559 designated miles

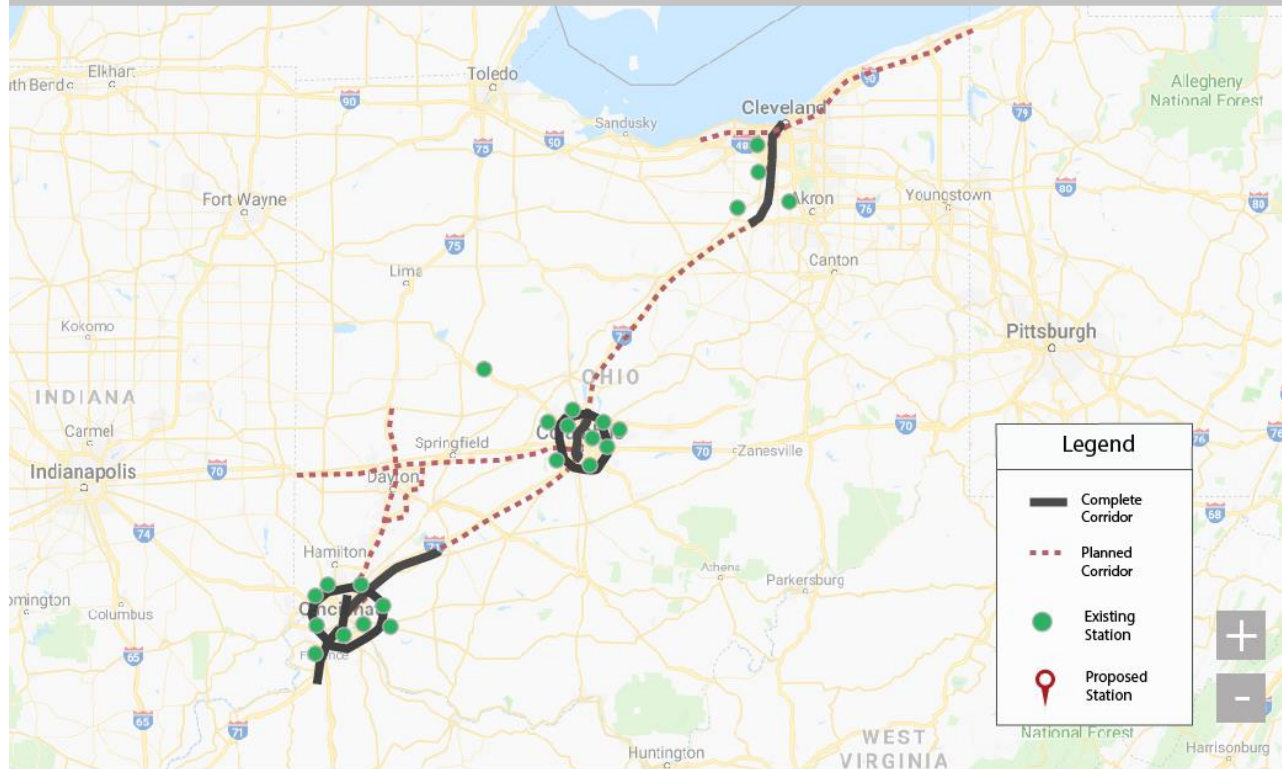
Electric

Ohio

Choose HWY

Download Data

Copy Map



Ohio

Designated EV corridors: 559 mi
Complete EV corridors: 148 mi

Show legend

Show acceptable station distance from highway Miles

Show stations

CCS CHAdeMO Tesla Level 2
 Planned stations Private stations

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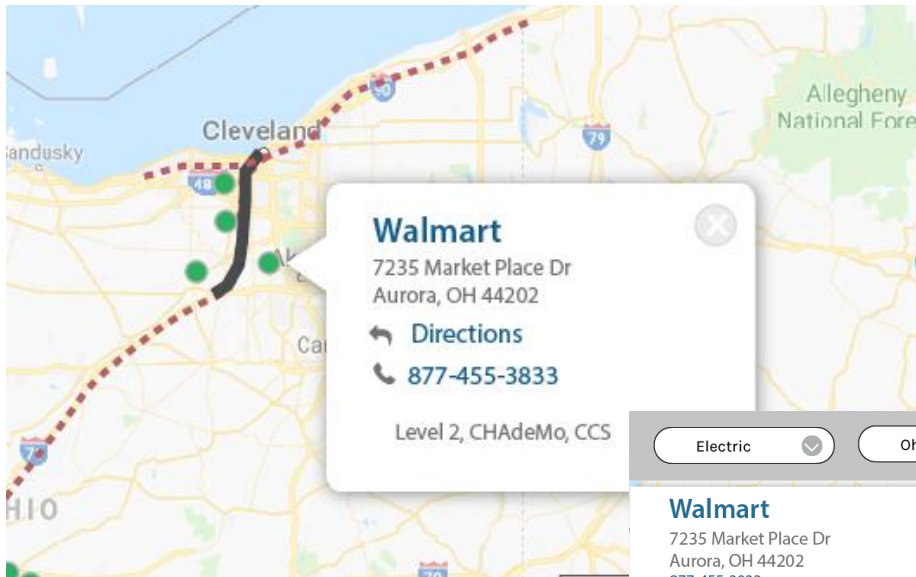
Contact: Kirsten Raymonds, ODOT

Developer APIs

Embed Tool

About the Data

Station Details



559 designated miles

Electric Ohio Choose HWY

Download Data Copy Map

Walmart

7235 Market Place Dr
Aurora, OH 44202
877-455-3833

Directions

Electric Vehicle Charging

Type	Outlets	Connectors
DC Fast	3	J1772

Charging Network: Charge Point

The stations are located in the back of the building on the I-70 side.

Last confirmed: May 2017

Location details are subject to change. We recommend calling the stations to verify location, hours of operation, and access.

Public

5:30am-8pm M-F
6am-8pm Sat
9am-5pm Sun

Mastercard, Visa, Discover

Ohio

Designated EV corridors: 559 mi
Complete EV corridors: 148 mi

Show legend

Show acceptable station distance from highway: 5 Miles

Show stations

CCS CHAdeMO Tesla Level 2

Planned stations Private stations

Download Station List

Test Proposed Stations

Add markers to test completing a corridor

Run Analysis

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See Federal Highway Corridor Requirements

Contact: Kiraten Raymonds, ODOT

Corridor Summary

Find Public Stations Analyze & Download Data Explore Fuel Corridors

659 designated miles

Electric Ohio Choose HWY

Download Data Copy Map

Ohio
Designated EV corridors: 659 mi
Complete EV corridors: 320 mi

- Show legend
- Show acceptable station distance from highway Miles
- Show EV vehicle density
- Show stations
 - CCS CHAdeMO Tesla Level 2
 - Planned stations Private stations

Download Station List

Test Proposed Stations Run Analysis

Add markers to test completing a corridor

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See Federal Highway Corridor Requirements

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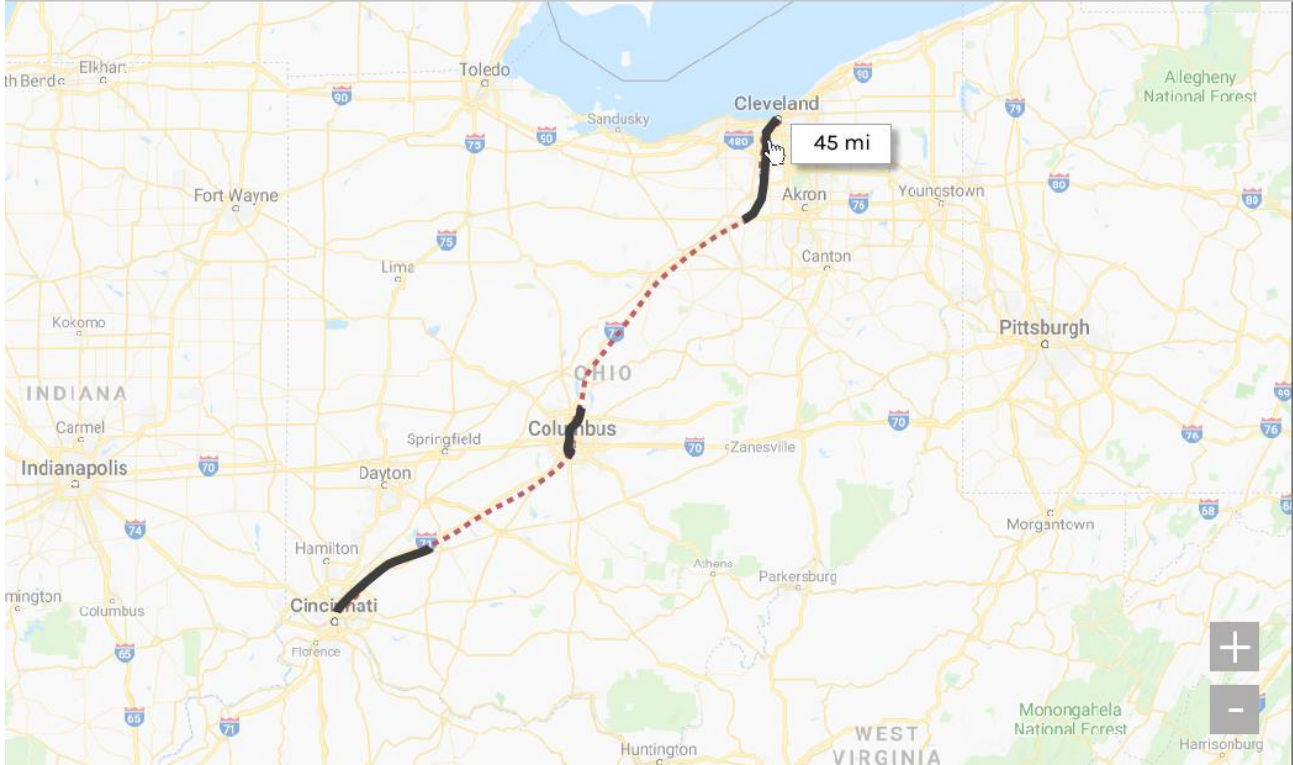
Corridor Details

Find Public Stations Analyze & Download Data Explore Fuel Corridors

348 designated miles

Electric Ohio I-71

Download Data Copy Map




I-71

Total distance: 348 mi
Amount completed: 99 mi

- Show legend
- Show acceptable station distance from highway Miles
- Show EV vehicle density
- Show stations
 - CCS CHAdeMO Tesla Level 2
 - Planned stations Private stations

[Download Station List](#)

Test Proposed Stations [Run Analysis](#)

 Add markers to test completing a corridor

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Proposed Station

Find Public Stations Analyze & Download Data Explore Fuel Corridors

348 designated miles

Electric Ohio I-71

Download Data Copy Map




I-71

Total distance: 348 mi
Amount competed: 99 mi

- Show legend
- Show acceptable station distance from highway Miles
- Show EV vehicle density
- Show stations
 - CCS
 - CHAdeMO
 - Tesla
 - Level 2
 - Planned stations
 - Private stations

Download Station List

Test Proposed Stations [Run Analysis](#)

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See [Federal Highway Corridor Requirements](#)

Contact: Kirsten.Raymonde, ODOT

Results for Proposed Station

Find Public Stations Analyze & Download Data Explore Fuel Corridors

348 designated miles

Electric Ohio I-71

Download Data Copy Map

I-71

Total distance: 348 mi
Amount completed: 99 mi

Show legend

Show acceptable station distance from highway Miles

Show stations

CCS CHAdeMO Tesla Level 2

Planned stations Private stations

Download Station List

Test Proposed Stations

To qualify as a federal EV corridor, electric stations must be fast charging stations (CCS or CHAdeMO). Stations must be within 50 miles of each other and within 5 miles of the corridor.

See Federal Highway Corridor Requirements

Contact: Kirsten.Raymonds.ODOT

Analysis Complete: Proposed station completes 50 more miles of the corridor.

Features for Phase Two



Menu Bar

Find Public Stations Analyze & Download Data Explore Fuel Corridors

3354 designated miles

Electric Choose State Choose HWY Show Legend Download Data Copy Map

Legend

- Complete Corridor
- Planned Corridor

Developer APIs Embed Tool About the Data

Layers

Find Public Stations

Analyze & Download Data

Explore Fuel Corridors

659 designated miles

Electric

Ohio

Choose HWY

Show Legend

Download Data

Copy Map



Developer APIs

Embed Tool

About the Data



Questions and Feedback

Thank You

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johanna.levene@nrel.gov

This work was authored in part by the Alliance for Sustainable Energy, LLC, the manager and operator of the National Renewable Energy Laboratory for the U.S. Department of Energy (DOE) under Contract No. DE-AC36-08GO28308. Funding provided by U.S. Department of Energy Office of Energy Efficiency and Renewable Energy Vehicle Technologies Office. The views expressed in the article do not necessarily represent the views of the DOE or the U.S. Government. The U.S. Government retains and the publisher, by accepting the article for publication, acknowledges that the U.S. Government retains a nonexclusive, paid-up, irrevocable, worldwide license to publish or reproduce the published form of this work, or allow others to do so, for U.S. Government purposes.

