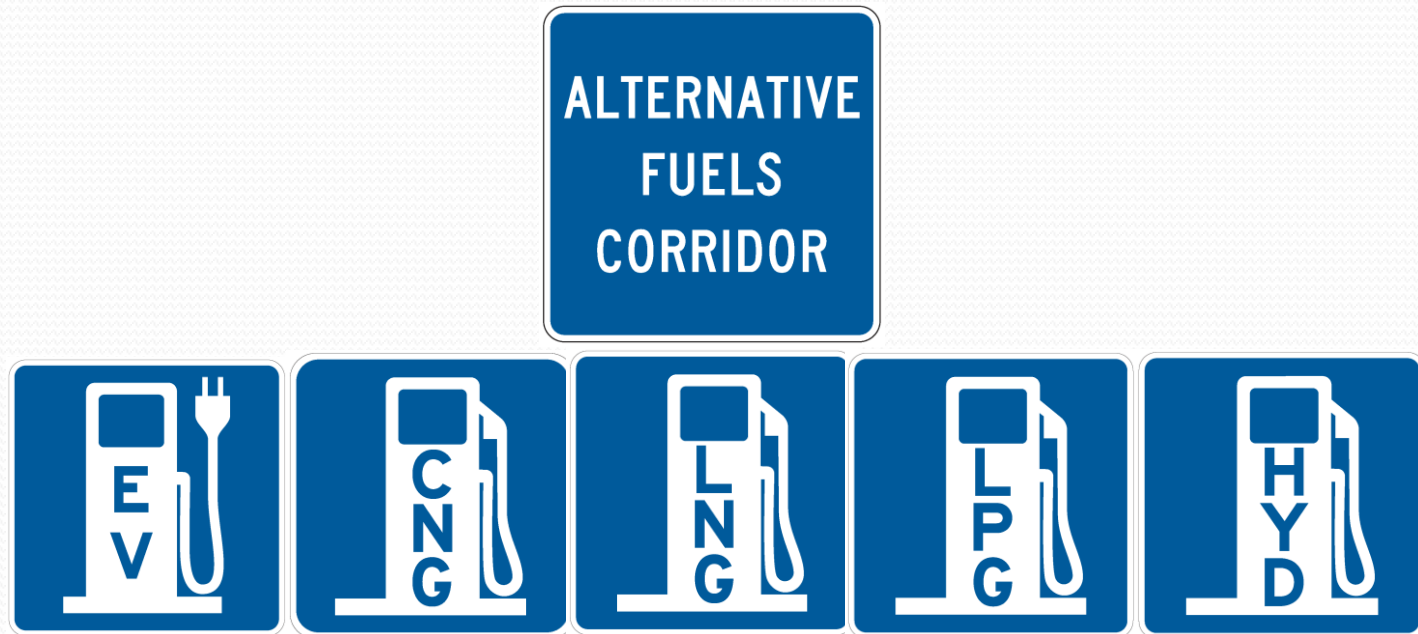


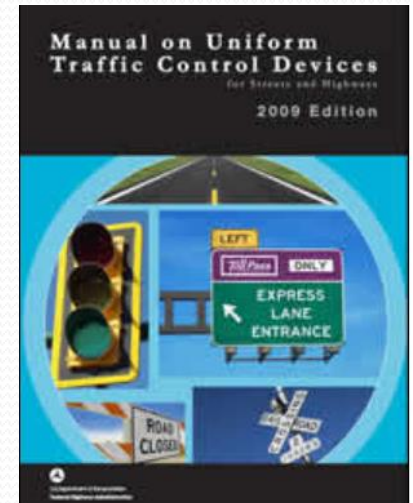
# Alternative Fuel Vehicle Signage Update

## *Overview and Corridor Signage*



# Overview

- Increasing adoption of alternative fuel vehicles (AFVs) will require building out more fueling infrastructure with consistent signage.
- FHWA publishes the Manual on Uniform Traffic Control Devices (MUTCD) which sets national standards for signs.
- FHWA also designates AFV corridors to help identify infrastructure needs and inform the traveling public.
- This webinar will provide an update on signage issues related to AFV fueling infrastructure and designated AFV corridors.



[https://mutcd.fhwa.dot.gov/htm/2009/html\\_index.htm](https://mutcd.fhwa.dot.gov/htm/2009/html_index.htm)

# Alternative Fuels Corridor Designations

- ❑ FHWA designates corridors that employ electric vehicle charging, hydrogen, propane, and natural gas fueling technologies
  - Identify near and long-term need for infrastructure;
  - At strategic locations along major national highways;
- ❑ **No funding authorized**

# FY 2016 Nomination Results

- ❑ 34 nomination packages received, with nominated corridors separated into two designation categories:
  - **Signage/Corridor-ready** – sufficient facilities on the corridor to warrant highway signage;
  - **Signage/Corridor-pending** – currently insufficient facilities on the corridor to warrant highway signage.
- ❑ Designations....
  - Include portions/segments of 55 Interstates and a few state roads/highways
  - Comprise 36 states plus D.C.
- ❑ Decisions based on DOE's *Alternative Fuel Station Locator* database

# FY 2017 AFC Designations

- ❑ **24** nominations received – mostly from State DOT's (others from state environmental and energy agencies, MPO's, 1 Governor's Office and 1 Economic development Authority)
- ❑ **14 new lead applicants:** AL, AR, AZ, DE, IA, KY, LA, MI, ND, NJ, OH, RI, WI and WY
- ❑ **10 repeat states:** CA, GA, HI, MD, NC, NY, OK, PA, TN and TX

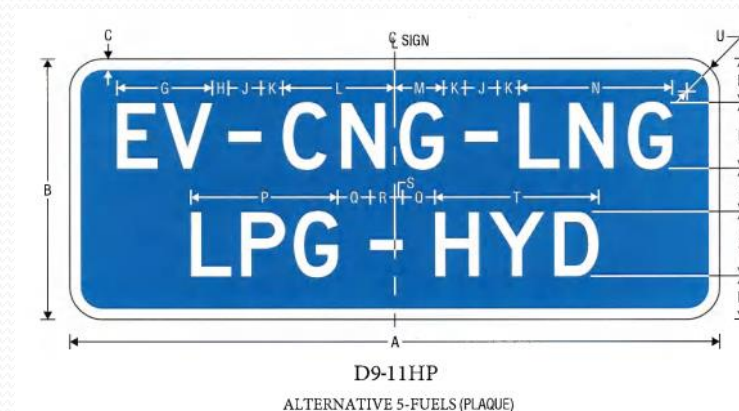
# FY 2017 AFC Designations (Con't)

□ FY 2016 and FY 2017 designations:

- Includes **58 nominations**;
- Includes **44 states plus DC**; and,
- Covers segments or entire lengths of **71 corridors** plus a few state roads/highways

# AFV Corridor Highway Signage

- ❑ MUTCD Memorandum – Signing for Designated Corridors
  - Provides guidance to State DOTs
  - First Corridor signs installed on I-94 and I-26
  - Some questions remain on General Service & Specific Service exit signage
  - FHWA developed FAQs



# First Corridor Signs Installed



I-26 (South Carolina)

I-94 (Minnesota)



# Next Steps

- ❑ FHWA internal briefings
- ❑ Revise AFC web site in preparation for designation announcement
- ❑ Implement 5 Regional AFC Convening's in 2018/2019
  - Working with states/stakeholders in priority areas to prepare for future round of nominations
  - Florida, Indiana, Western/Mountain EV Corridor MOU States, and remaining states with no corridors

# For More Information

## DOT Alt Fuel Corridor Team Contact Information

### **Diane Turchetta**

U.S. Department of Transportation  
Federal Highway Administration

202-493-0158

[diane.turchetta@dot.gov](mailto:diane.turchetta@dot.gov)

### **Mike Scarpino**

U.S. Department of Transportation  
Volpe Center

617-494-3373

[michael.scarpino@dot.gov](mailto:michael.scarpino@dot.gov)

### **Stephen Costa**

U.S. Department of Transportation  
Volpe Center

617-494-3852

[stephen.costa@dot.gov](mailto:stephen.costa@dot.gov)

## Resources

FHWA Alternative Fuel Corridor website:

[http://www.fhwa.dot.gov/environment/alternative\\_fuel\\_corridors/](http://www.fhwa.dot.gov/environment/alternative_fuel_corridors/)

MUTCD Memorandum – Signing for Designated Alternative Fuel Corridors:

[https://mutcd.fhwa.dot.gov/resources/policy/alt\\_fuel\\_corridors/index.htm](https://mutcd.fhwa.dot.gov/resources/policy/alt_fuel_corridors/index.htm)

DOE/NREL Alternative Fueling Station Locator:

<https://www.afdc.energy.gov/locator/stations/>



Photo Credit: Drive Electric Minnesota



# I-94 Alternative Fuel Corridor in Minnesota

Tim Sexton

Alternative Fuel Signage Update, March 7, 2018  
Webinar

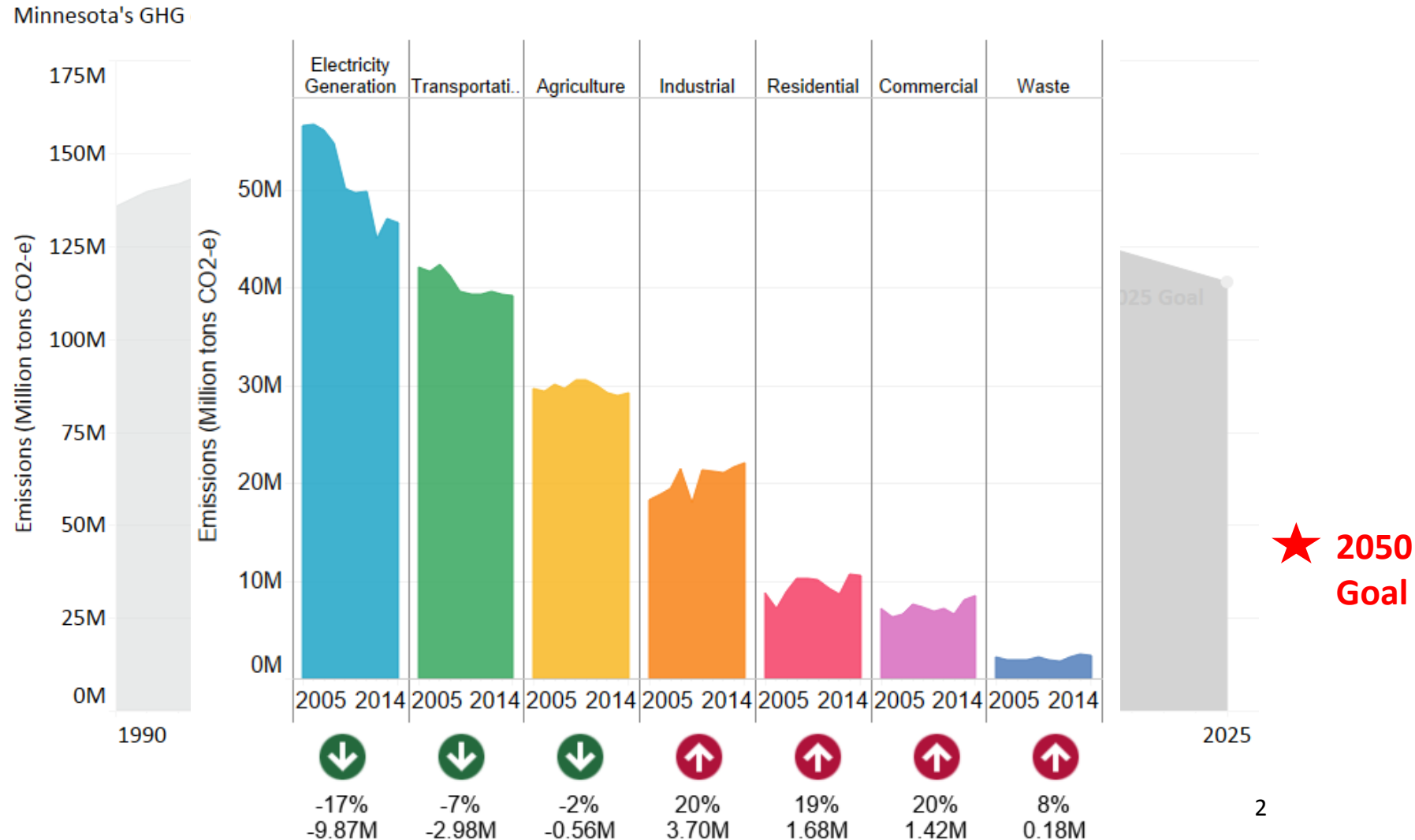
# Why this matters to MN

## Next Generation Energy

Act --- reduce GHG emissions from 2005

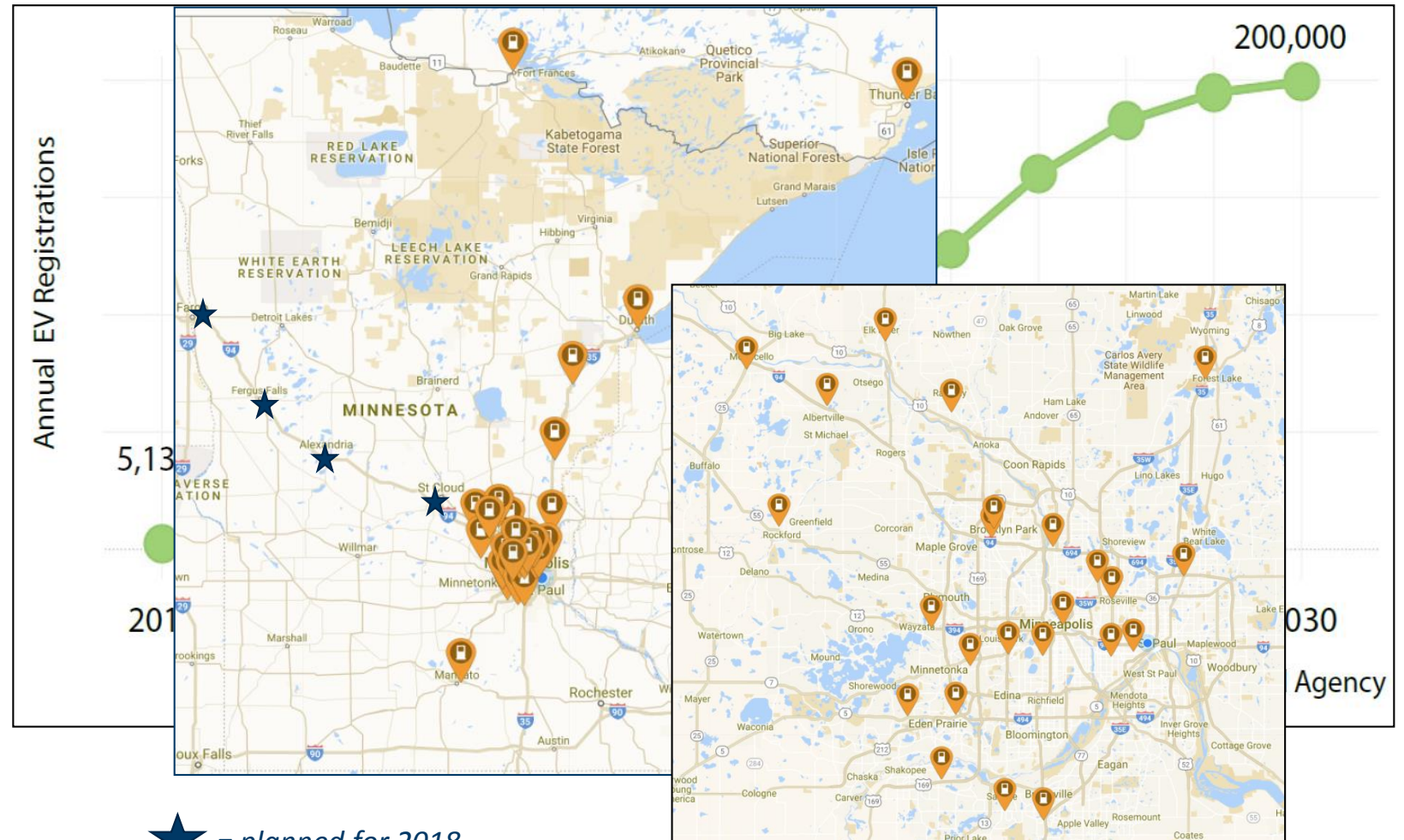
- 15% by 2015
- 30% by 2025
- 80% by 2050

Minnesota's greenhouse gas emissions from economic sectors 2005-2014



# Increased EV uptake is one strategy

- State goal for 20% of fleet to be EV by year 2030



Source: [www.plugshare.com](http://www.plugshare.com)

# I-94 Great Lakes Corridor

1. Minnesota
2. Wisconsin
3. Illinois
4. Indiana
5. Michigan
6. City of Detroit

Tech Support - NREL and Argonne

Other support/partners – Clean Cities, OEMs, others...



# Signage

## *Installed*

- 4 locations installed, both directions
- 3 more planned
- Internal fabrication and install (\$700 – \$1,000 per sign)

## *Supplemental guidance in TEM*

- beginning and end of the corridor
- confirmatory assemblies at 30 to 60 miles spacing.
- Consider rural/urban environments and bypasses when spacing signs



# Supplemental Signing

Facility Type	Sign Design Sign #'s refer to designation in the MnDOT Standard Signs Summary	# of Miles from an Intersection or Interchange N/E = Not Eligible		Roadway Type	Sign Program and Facility-Specific Criteria  Unless otherwise indicated, the General Criteria apply for all facilities. See MnDOT's Traffic Engineering Manual for placement of signs.
		Urban	Rural		
Electric Vehicle (EV) Charging	<ul style="list-style-type: none"> <li>D9-X6</li> </ul> <div>EV-CHARGING</div> <div>EV-CHARGING →</div>	N/E	2	<ul style="list-style-type: none"> <li>Freeway</li> <li>Expressway</li> </ul>	EV charging stations must meet the following requirements: <ol style="list-style-type: none"> <li>1. High powered charging station.</li> <li>2. Located within 2 miles of the interchange.</li> <li>3. Available to the public 12 hours per day 7 days per week.</li> <li>4. The route leading to the EV charging station and the charging station itself should be clearly identified with EV charging station signs.</li> <li>5. Parking spaces identified with regulatory signs for electric vehicle charging only.</li> <li>6. The EV charging station and parking facilities are lit.</li> <li>7. Installation and maintenance of trailblazing signs beyond the exit ramp and on site facility signing will be the responsibility of the local road authority and requester.</li> <li>8. Trailblazing signs located on local roads may use either white legend on blue background or the D9-11b (alternate) symbol.</li> </ol>



# Questions?

**Tim Sexton**

*Timothy.sexton@state.mn.us*

651-366-4161



*Commissioner Charles Zelle with AFC sign*

# ENERGY



# OFFICE

## Alternative Fuel Corridors in SC



@SCEnergyOffice

**ENERGY.SC.GOV**



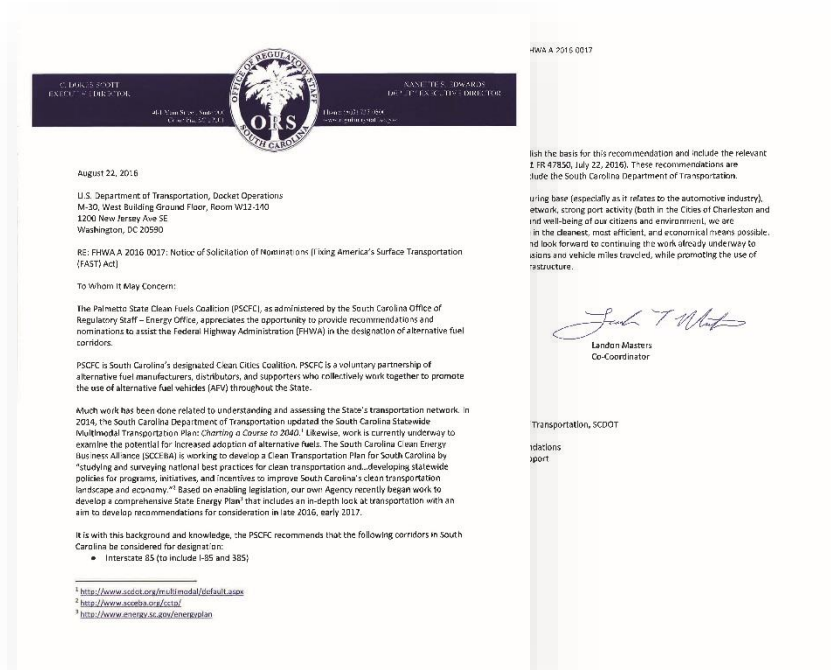
# Alternative Fuel Vehicle (AFV) Corridors

**PCF recommended the following:**

81 FR 47850, July 22, 2016 Call

August 27, 2016,  
Letter to Docket FHWA-2016-0017

- Interstate 85  
(to include I-85 and 385)
- Interstate 26 (to include 526)
- Interstate 77
- Interstate 20
- Interstate 95



# AFV Corridor Designations

Lead Agency	EV Corridor	CNG Corridor	LPG Corridor
<b>SC Energy Office</b>	<p>I-85: From GA border to NC border.</p> <p>I-77: From NC border to the end of I-77 in Columbia.</p> <p>I-26: From Columbia to Orangeburg and from North Charleston to Charleston.</p>	<p>I-85: From the NC border to the GA border.</p>	<p>I-26: From Spartanburg, SC to Charleston, SC</p> <p>I-20: From Camden, SC to GA border.</p>

# Met with SCDOT

- Educated on alternative fuels and FAST Act
- Discussed signage process



# The Process



March 14, 2017

SCDOT - Traffic Engineering  
Attn: James Miller, Director of Traffic Engineering  
255 Park Street, Room 302  
Columbia, SC 29202

#### To Whom It May Concern:

The Palmetto Clean Fuels (PCF) coalition, as administered by the South Carolina Office of Regulatory Support, Energy Office, is submitting this request to the Director of Traffic Engineering in response to guidance released by the Federal Highway Administration (FHWA) on signage for designated alternative fuel corridors.

PCF is South Carolina's designated Department of Energy's Clean Cities Coalition (CCC). A voluntary partnership of alternative fuel manufacturers, distributors, and supporters who work together to promote the use of alternative fuel vehicles throughout the State.

In August of 2016, PCF submitted a request to the call for nominations of alternative fuel corridors to the South Carolina Department of Transportation (SCTD) pursuant to:

On November 3, 2016, the Energy Office received a response from the FHWA in which a list of PCF nominations were being delayed until an alternative fuel corridor. Corridors were designated as *Signage Ready Alternative Fuel Corridors* and *Signage Pending Alternative Fuel Corridors*. The table below includes the information on the locations of the Signage Ready designated corridors. More information can be found on the FHWA website.

<https://www.fhwa.gov/infocenters/signage/alternative-fuel-corridors.cfm>

Receive  
Approval/  
Recognition  
of Request

Approval of  
request received  
and process of  
implementation  
begins



Requested that  
signs be placed  
per FHWA  
specifications  
along designated  
"signage-ready"  
corridors

Submit  
Signage  
Request

Transportation

March 17, 2017

Marvin S.S. Mason  
Landon Masters  
Palmetto Clean Fuels Coalition  
South Carolina Office of Regulatory Support  
1401 Main Street, Suite 500  
Columbia, South Carolina 29201

RE: Request for Alternative Fuel Corridor Signage

Dear Mr. Mason and Mr. Masters:

Thank you for your letter dated March 14, 2017, requesting signage for alternative fuel corridors in South Carolina as designated by the Federal Highway Administration (FHWA).

My office will review the information provided with your request to determine the feasibility and estimated costs associated with this work. Upon completion of our review, my office will contact you to discuss the appropriate path forward including available funding.

Thank you for contacting my office regarding this matter. If you have any questions, please contact Nick Brouse, State Traffic Operations Engineer, at 803-727-2086.

Sincerely,

*Anthony M. Miller, P.E.*  
Director of Traffic Engineering

HAIJAW  
File: HAIJAW



Printed: 03/17/2017 11:00 AM

Received a  
detailed cost  
estimate

Cost Estimate



@SCEnergyOffice

ENERGY.SC.GOV



- Submitted very detailed request

- 

**SCORNEY ROAD**  
DIRECTOR'S OFFICE

The State of South Carolina  
Office of the Director

SCORNEY ROAD  
COLUMBIA, SC 29201  
Phone: 803.735.1000  
www.southcarolina.gov

**March 24, 2017**

SC2016 - 100% Engineering  
Attn: Tracy Fritzsche - Director of Traffic Engineering  
355 Park Street, Room 301  
Columbia, SC 29201

Transmittal: Traffic Engineering - Alternative to SCORNEY ROAD  
March 24, 2017  
Page 1

Local Agency	Nonmotorized Facilities	Electric Vehicle (EV)	CNG	LNG	LPG	Hydrogen
South Carolina Energy Office	<p>1. 1.5 ft minimum shoulder for all 1/2 mile or greater sections</p> <p>2. 1.5 ft minimum shoulder for all 1/2 mile or greater sections</p>	<p>1. 1.5 ft minimum shoulder for all 1/2 mile or greater sections</p> <p>2. 1.5 ft minimum shoulder for all 1/2 mile or greater sections</p>			<p>1. 1.5 ft minimum shoulder for all 1/2 mile or greater sections</p> <p>2. 1.5 ft minimum shoulder for all 1/2 mile or greater sections</p>	

Transmittal: Traffic Engineering - Alternative to SCORNEY ROAD  
March 24, 2017  
Page 1

**2. Alternative Fuel Corridor**

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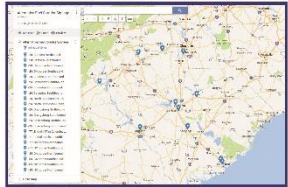
98. 1.5 ft minimum shoulder for all 1/2 mile or greater sections

99. 1.5 ft minimum shoulder for all 1/2 mile or greater sections

100. 1.5 ft minimum shoulder for all 1/2 mile or greater sections

Transmittal: Traffic Engineering - Alternative to SCORNEY ROAD  
March 24, 2017  
Page 1

For more detailed locations of signage, visit the website [www.southcarolina.gov](#)



We look forward to working with SCOTD for the implementation of the alternative fuel corridor, and certainly our efforts to work together to make it a viable, safe, convenient and vehicle miles traveled, while promoting the use of alternative fuels and alternative fuels infrastructure.

Sincerely,

**Maureen S.E. Maun**  
SC Coordinator  
355 Park Street, Suite 301  
South Carolina Energy Office

**Landan Masters**  
SC Coordinator  
355 Park Street, Suite 301  
South Carolina Energy Office

\* Attachment 1: Traffic Engineering - Alternative to SCORNEY ROAD

# Sign Locations

Sign	Locations
<b>BEGIN (M4-14) Plaque</b>	I-20: Camden Southbound I-20: GA border Northbound I-26: Charleston Northbound I-26: Columbia Northbound I-26: Columbia Southbound I-26: North Charleston Northbound I-26: North Charleston Southbound I-26: Orangeburg Northbound I-26: Orangeburg Southbound I-26: Spartanburg Southbound I-77: End of I-77 in Columbia Northbound I-77: NC border Southbound I-85: GA border Northbound I-85: GA border Southbound I-85: NC border Northbound I-85: NC border Southbound
<b>END (M4-6) Plaque</b>	I-20: Camden Northbound I-20: GA border Southbound I-26: Charleston Southbound I-26: Spartanburg Northbound I-77: End of I-77 in Columbia Southbound I-77: NC border Northbound I-85: GA border Northbound I-85: GA border Southbound I-85: NC border Northbound I-85: NC border Southbound

<b>D18-1 Alternative Fuels Corridor</b>
<b>09-11a Alternative Fuel-Compressed Natural Gas</b>
<b>09-11 b (Alternate) Electric Vehicle Charging (Alternate Symbol)</b>
<b>09-11e Alternative Fuel-Liquefied Petroleum Gas</b>

- I-20: Camden Northbound
- I-20: Camden Southbound
- I-20: GA border Northbound
- I-20: GA border Southbound
- I-26: Charleston Northbound
- I-26: Charleston Southbound
- I-26: Columbia Northbound
- I-26: Columbia Southbound
- I-26: North Charleston Northbound
- I-26: North Charleston Southbound
- I-26: Orangeburg Northbound
- I-26: Orangeburg Southbound
- I-26: Spartanburg Northbound
- I-26: Spartanburg Southbound
- I-77: End of I-77 in Columbia Northbound
- I-77: End of I-77 in Columbia Southbound
- I-77: NC border Northbound
- I-77: NC border Southbound
- I-85: GA border Northbound
- I-85: GA border Southbound
- I-85: NC border Northbound
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- I-20: GA border Northbound
- I-26: Charleston Northbound
- I-26: Columbia Northbound
- I-26: Columbia Southbound
- I-26: North Charleston Northbound
- I-26: North Charleston Southbound
- I-26: Orangeburg Northbound
- I-26: Orangeburg Southbound
- I-26: Spartanburg Southbound





# Receipt of Request

- Once we received receipt of request, we could begin discussions about implementation and costs



South Carolina  
Department of Transportation

March 17, 2017

Maeva S.R. Mason  
Landon Masters  
Palmetto Clean Fuels Coalition  
South Carolina Office of Regulatory Staff  
1401 Main Street, Suite 900  
Columbia, South Carolina 29201

RE: Request for Alternative Fuel Corridor Signing

Dear Ms. Mason and Mr. Masters:

Thank you for your letter dated March 14, 2017, requesting signing for alternative fuel corridors in South Carolina as designated by the Federal Highway Administration (FHWA).

My office will review the information provided with your request to determine the feasibility and estimated costs associated with this work. Upon completion of our review, my office will contact you to discuss the appropriate path forward including available funding.

Thank you for contacting my office regarding this matter. If you have any questions, please contact Nick Boxzer, State Traffic Operations Engineer, at 803-737-2086.

Sincerely,

  
Anthony W. Fallow, P.E.  
Director of Traffic Engineering

HAF:ssg  
File:1E/AWF



Mail: O/C/OA Box 191  
Columbia, South Carolina 29202-0191

Phone: (803) 737-2314  
TTY: (803) 737-3870

AN EQUAL OPPORTUNITY/  
AFFIRMATIVE ACTION EMPLOYER



@SCEnergyOffice

ENERGY.SC.GOV 

# Estimated Costs

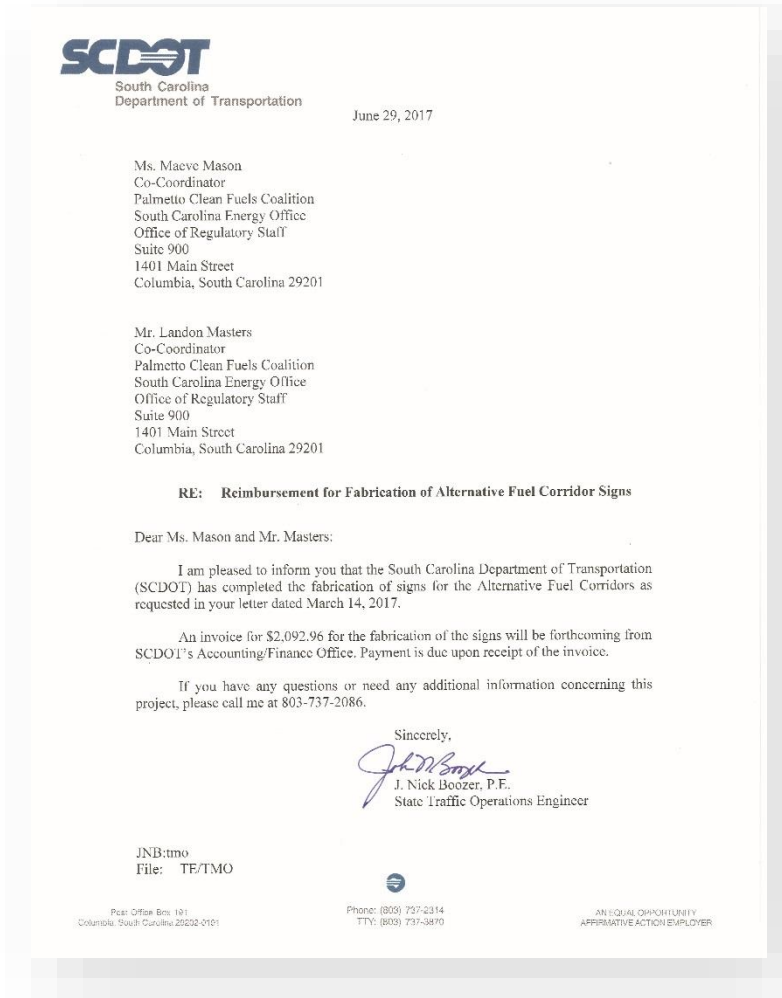
Alternate Fuel Corridor Sign Fabrication Costs					
Sign Type	Quantity	Sq. Ft/Sign	\$/SF	Cost per sign	Total Cost
Begin (M4-14)	14	3.125	\$10	\$31.25	\$ 437.50
End (M4-6)	8	3.125	\$10	\$31.25	\$ 250.00
D18-1 Alt. Fuel Corr.	22	12	\$10	\$120	\$ 2,640.00
D9-11a CNG	2	6.25	\$10	\$62.50	\$ 125.00
D9-11b EV	8	6.25	\$10	\$62.50	\$ 500.00
D9-11e LPG	10	6.25	\$10	\$62.50	\$ 625.00
					\$ -
Fabrication Total					\$ 4,577.50

Alternate Fuel Corridor Sign Installation Costs		
No. of Locations	\$/Location	Total Cost
22	\$125.00	\$ 2,750.00
Installation Total		\$ 2,750.00

<b>Grand Total</b>	<b>\$ 7,327.50</b>
--------------------	--------------------

# Actual Costs

- Total cost was \$2,092 for all signs and installation
- Less than original estimate
  - SCDOT covered the costs to install
  - Fabrication was completed by SC Department of Corrections- Prison Industries sign shop instead of SCDOT sign shop





# Dedicated Web Content

The screenshot displays the Palmetto Clean Fuels website. The header features the organization's logo, a search bar, and a navigation menu with links to Home, Alternative Fuels, Funding & Incentives, Awards, News, Events, Get Involved, Links & Resources, Newsletters, and Contact Us. A left sidebar lists various initiatives, with 'Alternative Fuel Corridors' selected. The main content area is titled 'Alternative Fuel Corridors' and includes a breadcrumb trail: Home > Links & Resources > Alternative Fuel Corridors. The text describes the installation of alternative fuel corridor signs along major interstates in South Carolina, initiated by the Palmetto Clean Fuels coalition and the S.C. Office of Regulatory Staff – Energy Office (Energy Office), in collaboration with the S.C. Department of Transportation (SCDOT) in June 2017. It details the FHWA's designation of 55 routes across the U.S. in November 2016 for a national network of alternative fuel corridors, aiming to create and expand a network of alternative fueling, charging infrastructure, and signage along National Highway Systems corridors. Specific routes in South Carolina (I-20, I-26, I-77, and I-95) are mentioned as 'signage ready'. A quote from Maevie Mason, co-coordinator for the coalition, expresses pride in being the first in the Southeast and the second state in the U.S. to install these signs. The page also notes that the new signs and a list of 'signage ready' corridors can be found on the FHWA website at [http://www.fhwa.dot.gov/environment/alternative\\_fuel\\_corridors](http://www.fhwa.dot.gov/environment/alternative_fuel_corridors). A 'RELATED LINKS' section provides additional resources, including links to news articles about the signs, the November 2016 announcement, and a handout. A blue box on the right side of the page features the text 'ALTERNATIVE FUELS CORRIDOR'. The footer contains a repeat of the navigation menu and the physical address of the Palmetto Clean Fuels Coalition: 1401 Main Street, Suite 900, Columbia, SC 29201.

## PalmettoCleanFuels.org/AFVcorridors



@SCEnergyOffice

ENERGY.SC.GOV



# Media



- **New signs installed along designated alternative fuel corridors in South Carolina**
  - July 21, 2017
  - ORS Energy Office/Palmetto Clean Fuels
    - "We're happy to be the first in the Southeast and the second state in the U.S. to install the signs along the "signage ready" corridors," said Maeve Mason, co-coordinator for the Palmetto Clean Fuels coalition.
    - <http://www.regulatorystaff.sc.gov/Documents/News%20Archives/7-21-17%20New%20signs%20installed%20along%20designated%20%27alternative%20fuels%20corridors%27%20in%20South%20Carolina%20FINAL.pdf>



- **Lowcountry now in Alternative Fuel Corridor**
  - July 7, 2017
  - WCSC Live5News, Charleston, SC
    - Mason said Charleston is a prime place that EV, electric vehicle charging, and propane fueling facilities can continue to develop. Propane is used to fuel vehicles and also known as liquefied petroleum gas. Electric vehicles or EV are also becoming more popular, and allows you to plug your vehicle in to charge it.
    - <http://www.live5news.com/story/35838008/lowcountry-now-in-alternative-fuel-corridor>



- **New signs designate 'alternative fuels corridors' in South Carolina, pointing out routes with new ways to fill up**
  - Jul 10, 2017
  - The Post and Courier, Charleston, SC
    - The State Energy Office is looking at putting them in along highways to identify the specific exits with alternative refueling stations, not unlike the gas and lodging signs that dot South Carolina interstates now.
    - [http://www.postandcourier.com/business/new-signs-designate-alternative-fuels-corridors-in-south-carolina-pointing/article\\_69386a84-65a3-11e7-be1c-c3b0c46b17c7.html](http://www.postandcourier.com/business/new-signs-designate-alternative-fuels-corridors-in-south-carolina-pointing/article_69386a84-65a3-11e7-be1c-c3b0c46b17c7.html)



# Contact



## Landon Masters

Office of Regulatory Staff

**Energy Office**

Energy Specialist

**Palmetto Clean Fuels**

Co-Coordinator

*[lmasters@regstaff.sc.gov](mailto:lmasters@regstaff.sc.gov)*

803.737.8285



@SCEnergyOffice

**ENERGY.SC.GOV**





# Alternative Fuels Signage Update

March 7<sup>th</sup>, 2018



**Julia Gold**

Chief, Sustainability, Autonomous Vehicles, and Innovation

[Julia.Gold@dot.ri.gov](mailto:Julia.Gold@dot.ri.gov)

# PARTNERS

- Rhode Island Department of Transportation
- Rhode Island Office of Energy Resources
- Rhode Island Department of Environmental Management
- Ocean State Clean Cities



# BACKGROUND

## Interstate 95 in Rhode Island

- Alternative Fuel Corridor designated for Electric Vehicles in 2016
- Corridor nomination submitted for Hydrogen and CNG in 2017



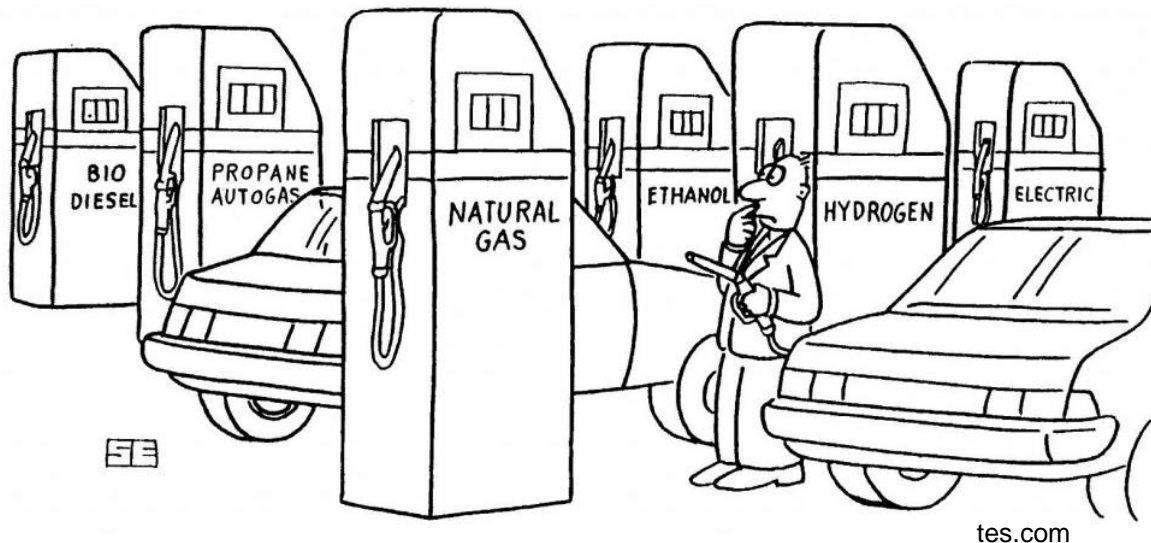
# SIGNAGE PLANS

- Spring 2018- Install Alternative Fuel Corridor Signs at the I-95 North-South state lines (including EV sign)
- Plans to install HYD and CNG signs upon designation



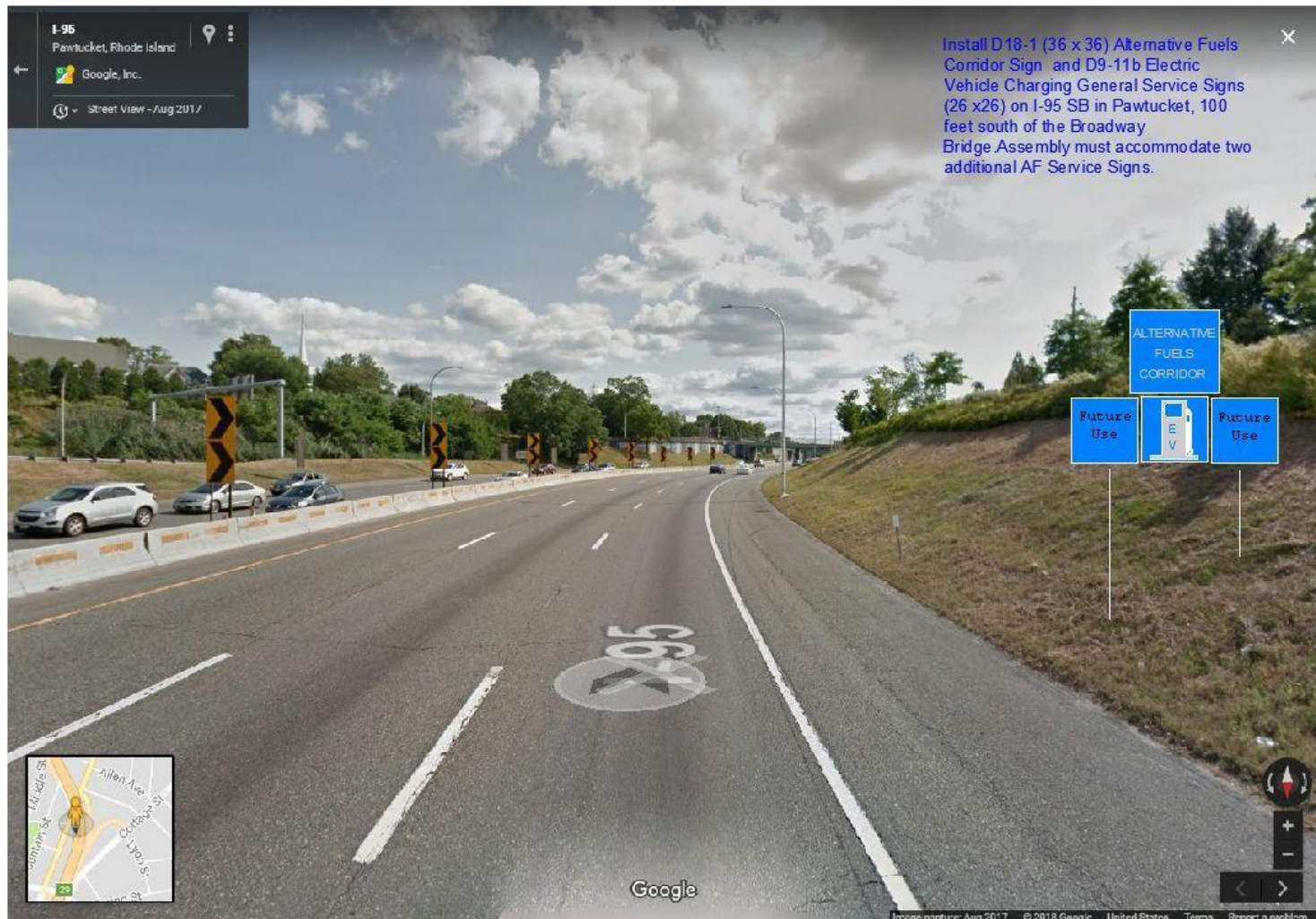
# CONSIDERATIONS

- Public Education & Exposure
- Siting complications (500 ft. from other signs on 1-95)
- Wayfinding requirements (excessive for maintenance and unnecessary for EV drivers)
- Preferential treatment and long term impacts



# Installation Plan I-95 South

**Install D18-1 Alternative Fuels Corridor sign (36x36) and D9-1 Electric Vehicle service sign (30x30) on I-95 Southbound, 100 feet south of Mile Marker 42.4 (Broadway Bridge)**



# Installation Plan I-95 North

**Install D18-1 Alternative Fuels Corridor sign (36x36) and D9-1 Electric Vehicle service sign (30x30) on I-95 northbound**



# Alternate Fuel Vehicle (AFV) Signage & Policies in California

**Donald E. Howe, P.E.**

Chief, Traffic Signs Branch  
Office of Traffic Engineering  
Division of Traffic Operations  
California Department of Transportation  
(916) 654-2634 \* [don.howe@dot.ca.gov](mailto:don.howe@dot.ca.gov)



7/21/1997



G66-21 (CA)\*

\* Note: Refer to TOPD 13-01 for use on Electric Vehicle Charging Station sign G66-21B(CA)  
<http://www.dot.ca.gov/hq/traffops/engineering/control-devices/policy/13-01.pdf>

1/21/2010



G66-22G (CA)  
G66-22H (CA)

# Aug 2011



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**AUG 10 2011**

1200 New Jersey Avenue, SE  
Washington, D.C. 20590

In Reply Refer to:  
HOTO-1

Mr. Wayne Henley  
Chief  
California Dept. of Transportation  
Division of Traffic Operations  
Office of Signs, Markings and External  
Support  
P.O. Box 942873  
Sacramento, CA 94273

Dear Mr. Henley:

Thank you for your letter of August 5 requesting approval to use alternative Electric Vehicle Charging General Services symbol signs on all highways in California, including all local jurisdictions. Your request is made under the provisions of Section 1A.10 of the 2009 edition of the *Manual on Uniform Traffic Control Devices for Streets and Highways* (MUTCD) and our Interim Approval Memorandum IA-13 dated April 1, 2011.

Your request is approved, subject to the terms and conditions of the referenced Interim Approval memorandum and to your agreement to comply with Item D1 (restoration of sites following issuance of a Final Rule) of Paragraph 18 of Section 1A.10 of the MUTCD. Please develop and periodically update a list of all locations where alternative Electric Vehicle Charging General Services symbol signs are installed in California. Your specific approval has been assigned the following number and title: "IA-13.3 – Alternative Electric Vehicle Charging General Services Symbol Sign – California." Please reference this number and title in any future correspondence.

Thank you for your interest in improving highway safety. If we can be of further assistance on this matter, please contact Mr. Kevin Sylvester at [kevin.sylvester@dot.gov](mailto:kevin.sylvester@dot.gov).

Sincerely yours,

Mark R. Kehrli  
Director, Office of Transportation  
Operations



**OTE** Office of Traffic Engineering  
**TRAFFIC OPERATIONS**

3/14/2013

\* Subject to FHWA  
Interim Approval 13  
(IA-13)



\* G66-21B(CA)

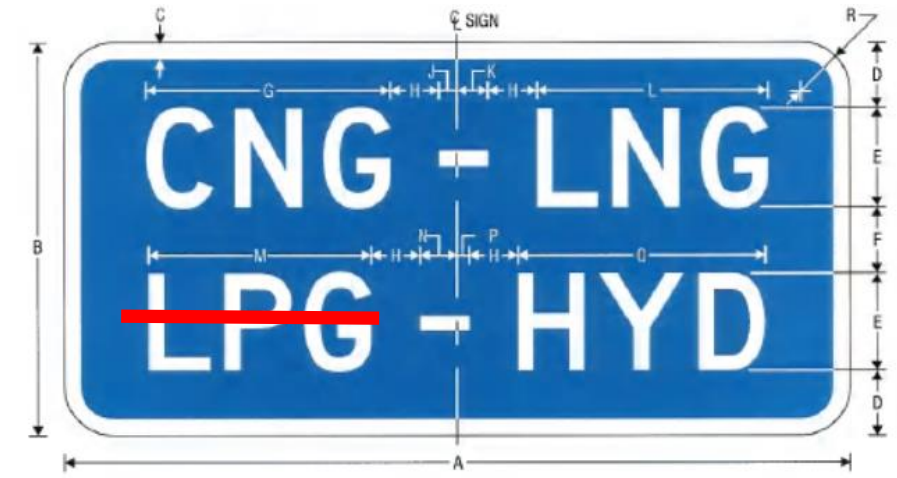


G66-21C(CA)

\* Note: Refer to TOPD 13-01 for use on Electric Vehicle Charging Station sign G66-21B(CA)  
<http://www.dot.ca.gov/hq/traffops/engineering/control-devices/policy/13-01.pdf>

12/21/2016

Figure 1



D9-11GP  
ALTERNATIVE 4-FUELS (PLAQUE)

*(in California)*

**CNG - LNG**

**EV - HYD**

# Dec 2017 FHWA Pooled Fund Study













## RESULTS

### CONCLUSIONS (CONT.)

#### Alternative Fuels

Participants were more likely to be fully correct (i.e. understand what type of fuel is available) when viewing signs with the supplemental placards than when viewing signs without the supplemental placards. Participants had particular difficulty understanding alternatives 11 and 12. It is recommended that Alternative fuel signs should include the gas pump symbol and a supplemental placard indicating what type of alternative fuel is offered.

Table 5: Alternative Fuels Sign Alternatives

Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
					
Alt. 7	Alt. 8	Alt. 9	Alt. 10	Alt. 11	Alt. 12
					

3/07/2018

Questions?



**OTE** Office of Traffic Engineering  
TRAFFIC OPERATIONS

# Alt Fuel Vehicles

Apps and Resources for  
Locating Fueling  
Infrastructure

AFV Pooled Fund Webinar  
Signage for AFVs

March 7, 2018

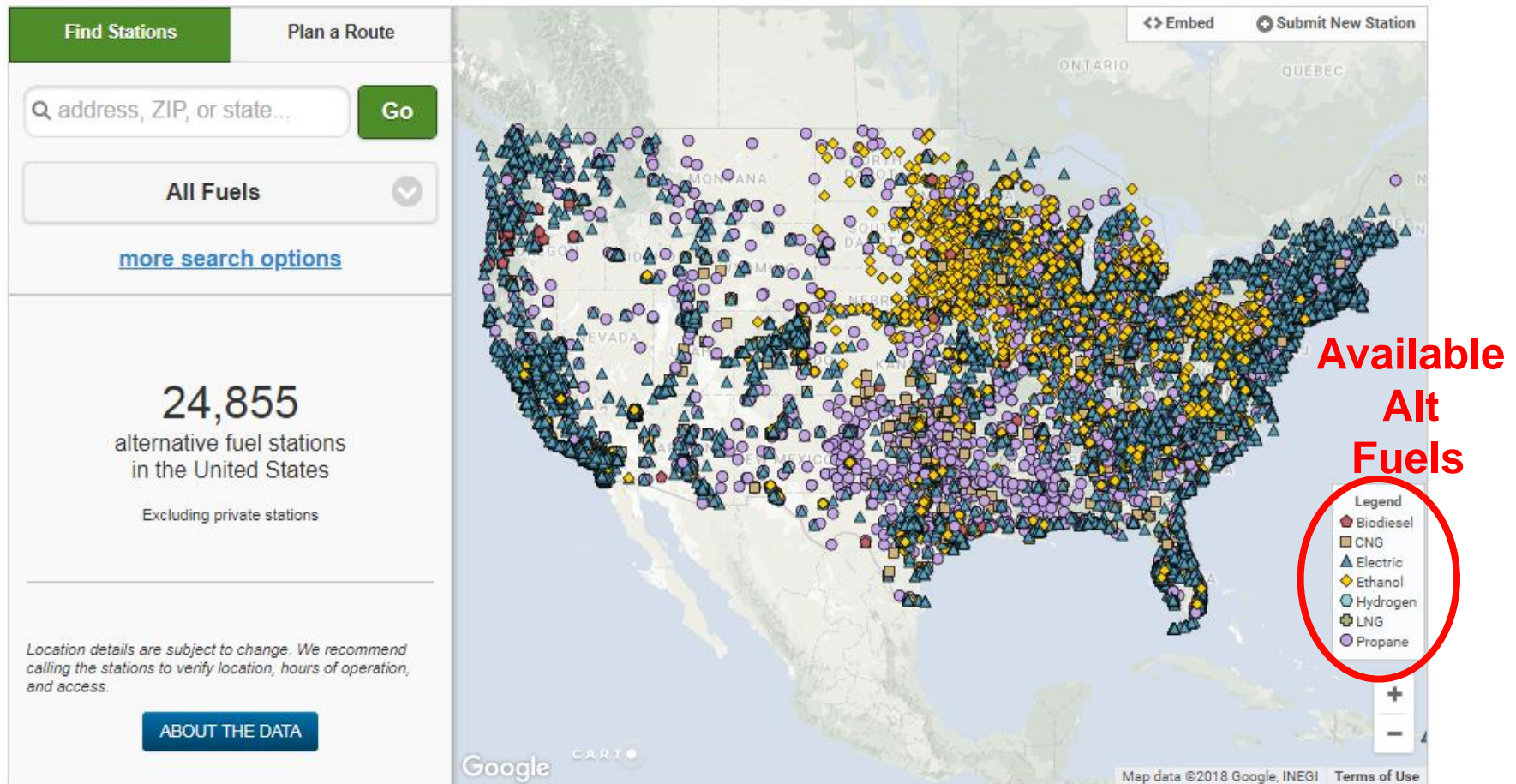
David Roberts  
[droberts@veic.org](mailto:droberts@veic.org)

VEIC

# US DOE Alt Fuels Data Center Locator

Website – mobile version and apps available

<https://www.afdc.energy.gov/locator/stations>



# AFDC Trip Planner

<https://www.afdc.energy.gov/locator/stations>

**Trip Planner**

Find Stations **Plan a Route** [Submit New Station](#)

Q St Louis, MO X

Q Los Angeles, CA X **Go**

Compressed Natural Gas (CNG) v

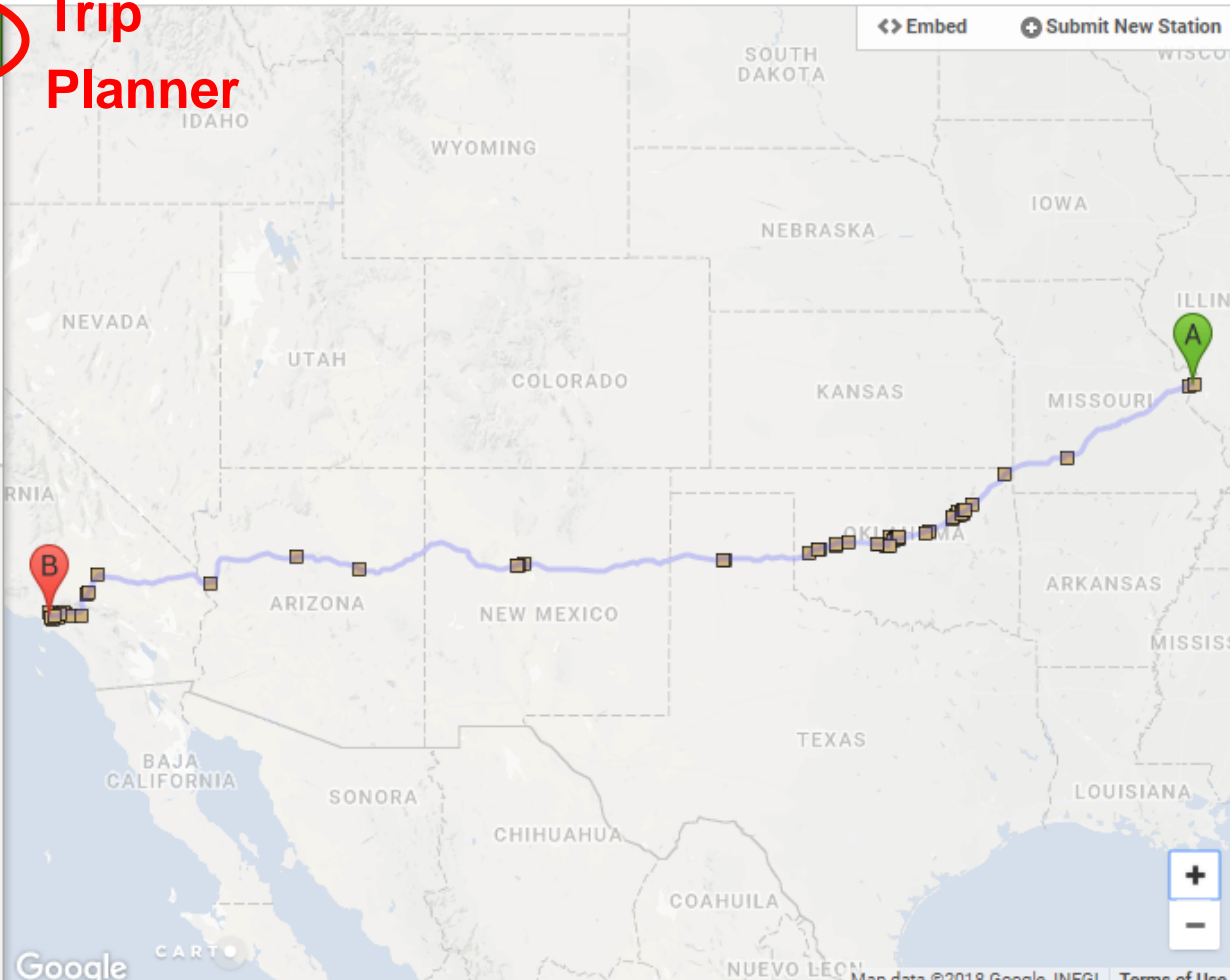
[more search options](#)

**58 CNG stations along the route**

Excluding private stations

[Download spreadsheet of matching stations](#)

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

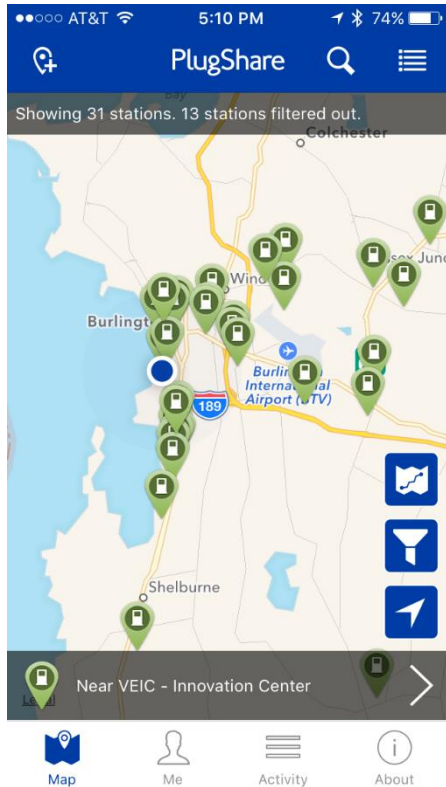


Map data ©2018 Google, INEGI [Terms of Use](#)

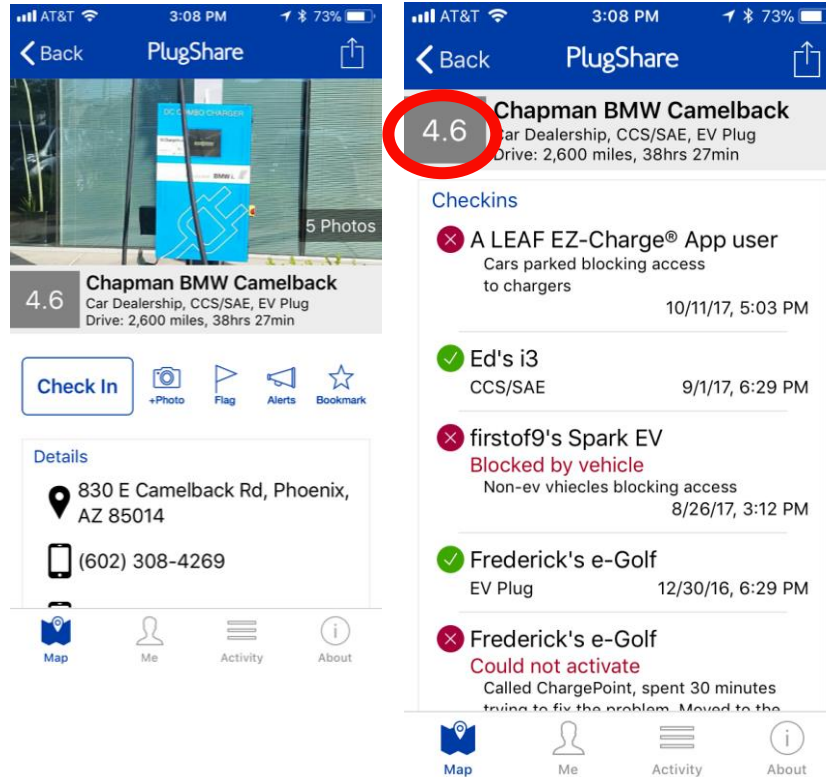


# Electric Vehicle Websites / Apps

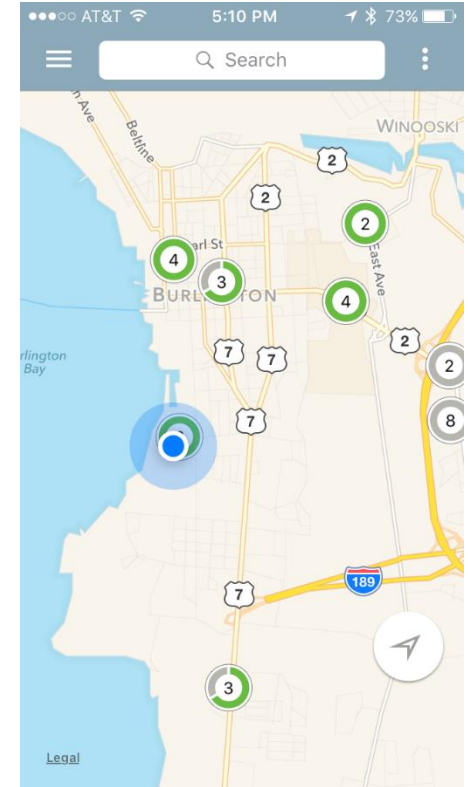
## PlugShare



## PlugShare "Check-in"



## ChargePoint



<https://www.plugshare.com/>

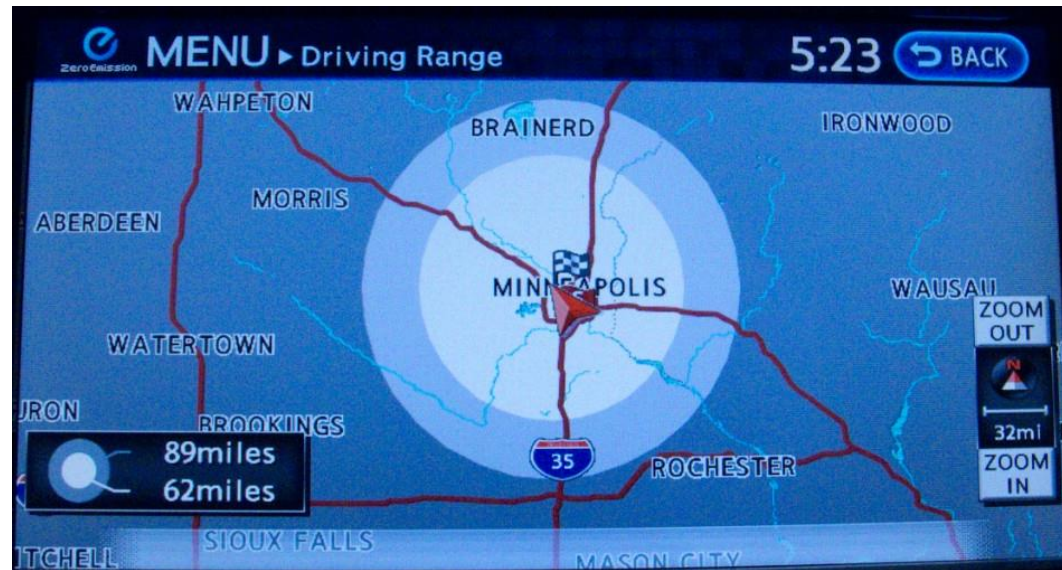
[https://na.chargepoint.com/charge\\_point](https://na.chargepoint.com/charge_point)

# Automaker Systems

Kia App

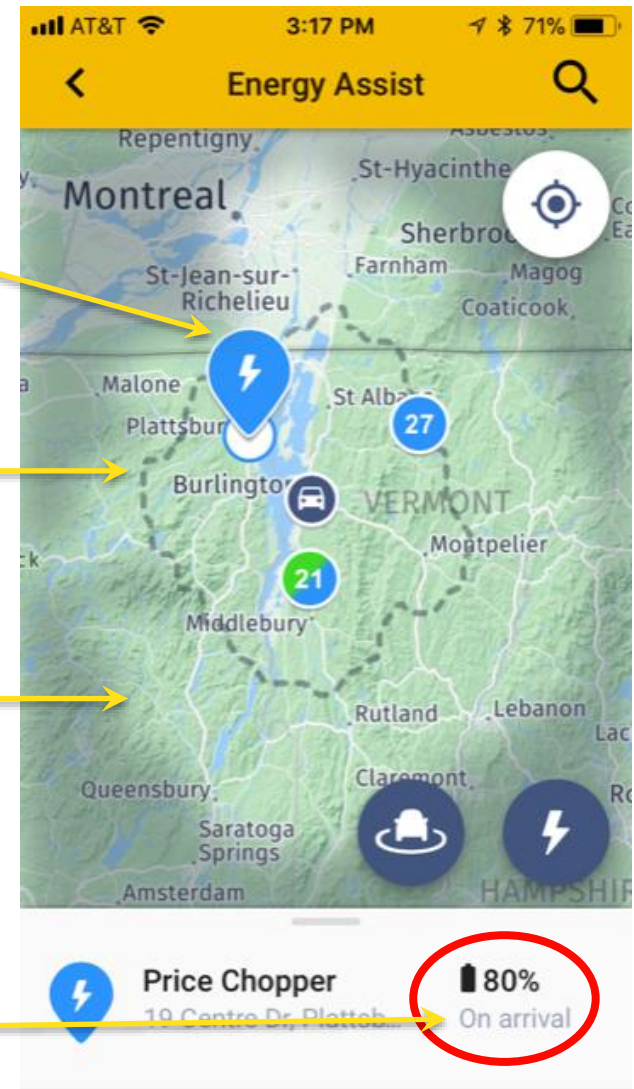


Nissan LEAF In-vehicle Navigation System  
Driving Range Estimate



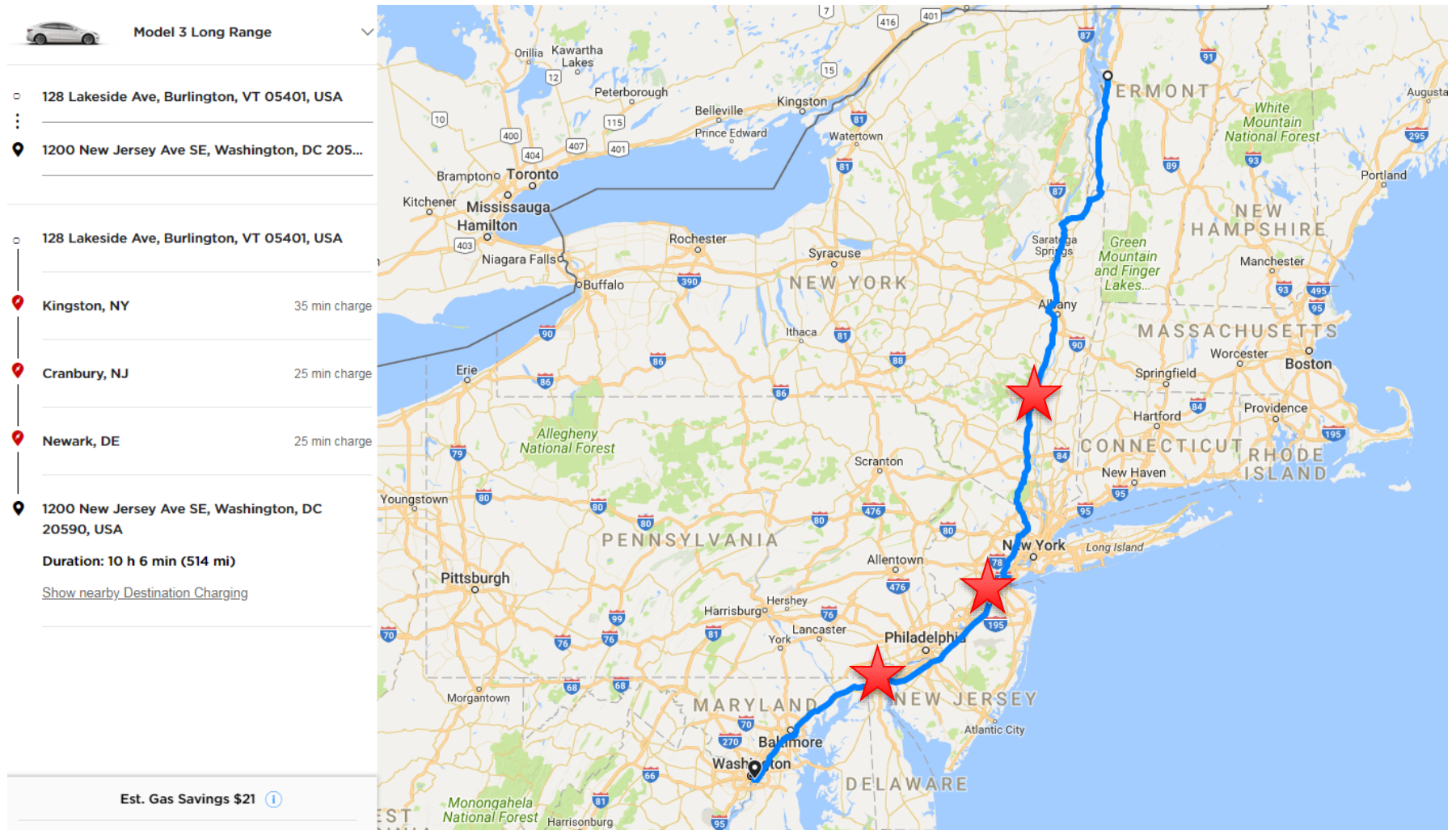
# Chevrolet Bolt App

- Destination
- 50% Range Estimate (roundtrip)
- 5% Range Estimate (one way)
- State of Charge at Destination



# Tesla Trip Planner

<https://www.tesla.com/trips> (website is similar to in-vehicle system)



## ➤ Website Overview:

- Accessible at <http://altfueltoolkit.org/>
- Tools such as interactive maps, a payback calculator, a planning guide, and more to help DOTs and MPOs accelerate alternative fuel vehicle deployment
- Five workshop toolkits each include a resource library, workshop summary report and presentations, and topic-specific materials such as fact sheets or case studies

## ➤ Pooled Fund Overview:

- Participating State DOTs are CA, CT, NC, NY, OR, TX, VT, and WA
- ODOT is leading effort with FHWA as technical liaison
- Implemented five workshops to assist State DOTs and MPOs interested in accelerating the use of alternative fuels/vehicles and associated infrastructure



# Resources

## US Dept of Energy AFDC Station Locator

<https://www.afdc.energy.gov/locator/stations/>

## Alt Fuel Toolkit

<http://altfueltoolkit.org>

## PlugShare

<https://www.plugshare.com/>

## West Coast Electric Highway Signage Resources

<http://www.westcoastgreenhighway.com/evsigns.htm>

## Washington State Anti-“ICEing” Legislation

<http://app.leg.wa.gov/RCW/default.aspx?cite=46.08.185>