



Alternative Fuels Deployment Plan for I-81 and I-78 in Pennsylvania

FHWA APPLIED RESEARCH PILOT STUDY

Overview of PennDOT's I-81 & I-78 Alternative Fuels Deployment Plan

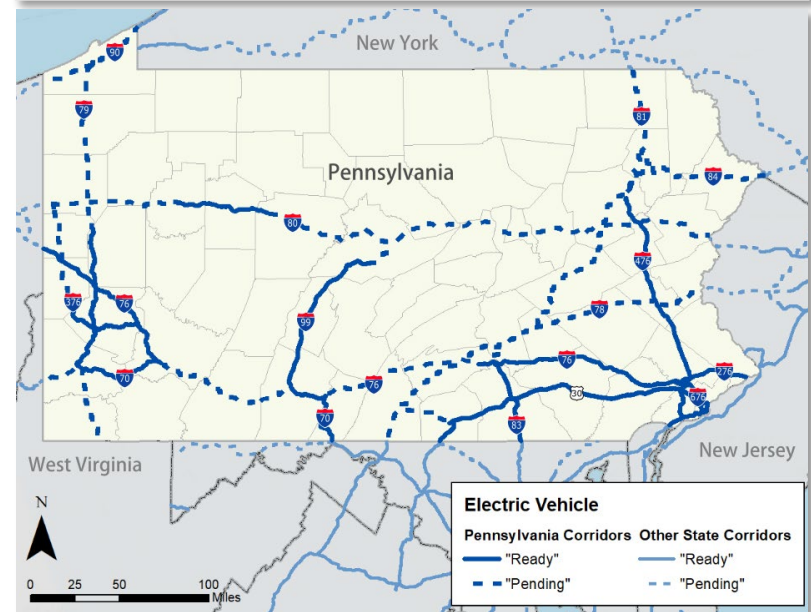


Link to Study:

<https://www.penndot.gov/ProjectAndPrograms/Planning/Pages/Energy-and-Environment-Initiatives.aspx>

Study Background

- FHWA funded “Pilot” study led by PennDOT
- Supports FHWA’s Alternative Fuel Corridor (AFC) program
- Focuses on DC-Fast Charging locations
- Supports advancing AFC corridors from “Pending” to “Ready” status
- I-81/I-78 Corridor - Electric Vehicle and CNG Fuels
- Establish resource for future studies



https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/

Identified Study Goals



Demonstrate a **data-driven approach** to prioritizing locations for new infrastructure



Establish a **role PennDOT or MPO/RPOs** to play in planning and supporting future infrastructure



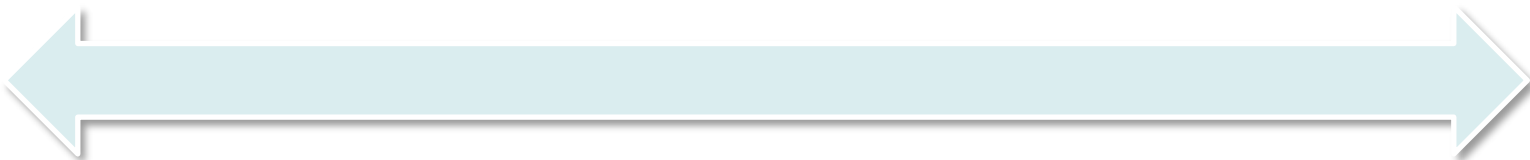
Evaluate **equitable methods for outreach** to businesses and infrastructure companies on priority locations and existing state funding programs



Understand the current **business models** for station hosts and third-party infrastructure companies

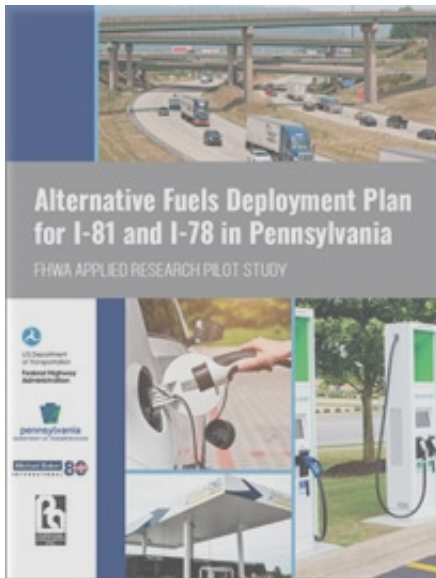


Collaborate with DEP **funding programs** to explore opportunities to incorporate Deployment Plan priorities into program application



▶ What is in the Study Report?

Intended as a **Resource** for future deployment plans ... not a template



Introduction

- Basics on AFC Program
- Key steps for deployment plan

Understanding the Basics

- Basics on EV Charging & CNG
- Business models - Partners

Identifying Gaps & Needs

- Identify I-81 / I-78 gaps
- Demonstrate a process

Identifying Priority Locations

- Exit and site prioritization
- Process, data, criteria

Funding Opportunities

- Overview of available grants
- PennDOT P3; Utility programs

Outreach and Implementation

- Approach to support deployment
- EV Networks, MPOs, Businesses

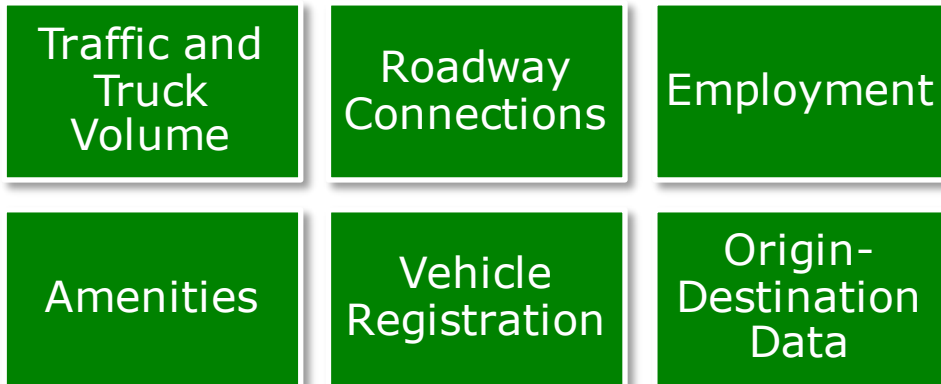
Conclusions and Lessons Learned

- Priority locations for I-81/I-78
- Key process conclusions

Analysis Highlights: Prioritizing Locations

Stage of Analysis	Steps
Exit Prioritization	1. Identify and summarize data to support prioritization
	2. Develop exit prioritization scores based on data
	3. Group exits by AFC gap locations and other prioritization needs
Site Identification (for priority exits)	4. Evaluate types of businesses at priority exit locations
	5. Develop scenarios to address AFC designation and other planning needs

Types of Data Used in Prioritization:



Analysis Highlights: Exit Scoring System

Data Item	Scoring Method
Total Traffic Volume	<ul style="list-style-type: none"> Apply EXCEL PERCENTILE.INC function to each exit volume If volume is in highest 20% of all exits, Score = 4 If volume is in highest 40% of all exits, Score = 3 If volume is in highest 60% of all exits, Score = 2 If volume is in highest 80% of all exits, Score = 1 Otherwise score = 0
Truck Volume	<ul style="list-style-type: none"> Treated as a bonus score point Apply EXCEL PERCENTILE.INC function to each exit volume If truck volume is in highest 20% of all exits, Score = 1 Otherwise score = 0
Ramp Volume	<ul style="list-style-type: none"> Treated as a bonus score point Same scoring as truck volume
Employment	<ul style="list-style-type: none"> Same scoring as Total Traffic Volume above, except based on total employment within a 2-mile buffer of corridor
NHS Connections	<ul style="list-style-type: none"> Treated as a bonus score point If exit connects to a National Highway System (NHS) route then an additional score point is assigned
Amenities	<ul style="list-style-type: none"> Based on exit amenities (points are additive) If food available then Score = 1 If gas or related amenities available then Score = 1 If other commercial amenities available then Score = 1-3 (assigned manually by reviewing businesses at each exit)

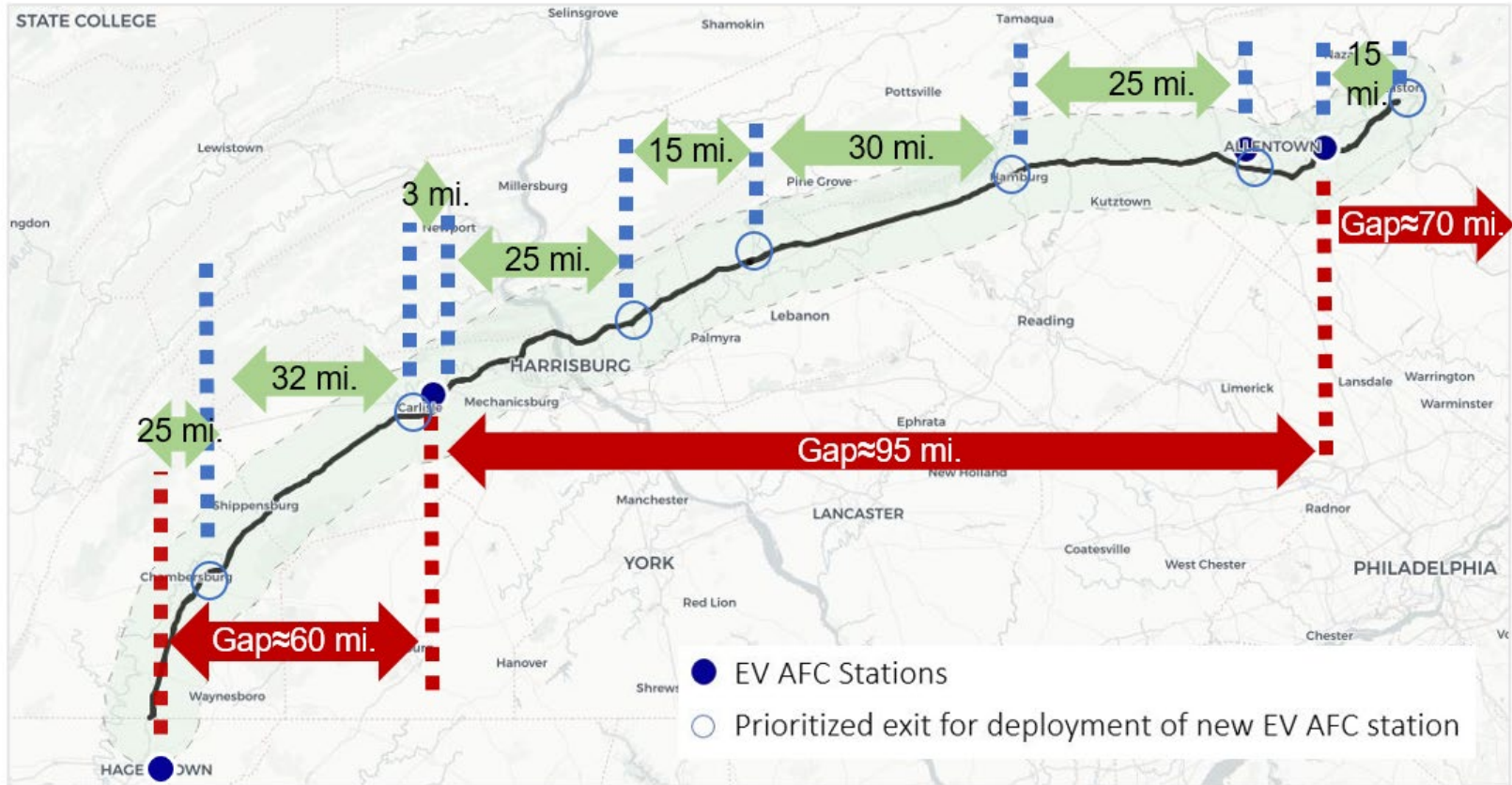
Demonstrates that locations have been prioritized not merely to meet FHWA distance requirements, but also because of their potential economic viability



Generated significant interest from network companies

I-81 / I-78 Scenario Priorities for EV

Deployment Scenario 2: Aggressive Deployment (7 New Stations)



I-81 / I-78 Priority Locations for DCFC

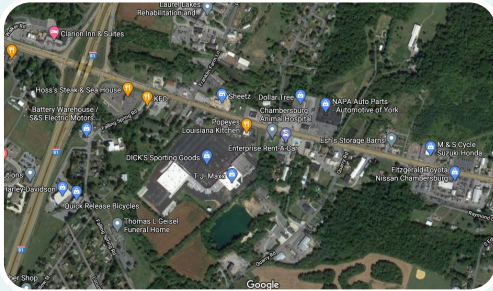
Deployment Scenario 2: Aggressive Deployment (7 New Stations)



Deployment Role	Route	Exit	Sites for Potential Station(s) (Miles from Exit)
3 – Gap 2: Carlisle to Bethlehem, West	I-81	72*★	Sheetz (<1), Dunkin (<1), Harley-Davidson (<1), Wendy's (2), Arby's (2), Shopping Mall (2)
		77	Sheetz (<1), Travel Centers of America (<1), Flying J Travel Center (<1), Pilot Travel Center (<1)
4 – Other: Shortens distances between	Int	90/1*	Dunkin/Speedway (<1), Love's Travel Stop (<1)
	I-78	10	Flying J Travel Center (<1)
5 – Gap 3: Carlisle to Bethlehem, East	I-78	13	Sheetz (<1), Valero Gas (<1)
	I-78	23	Love's (<1), Dunkin (<1)
	I-78	29*★	Rutter's (<1), Dunkin (1), Wendy's (1), Walmart (1.3), Wawa (1.3), Arby's (2)
Existing Station: Allentown, PA	I-78	51/53	
6 – Allentown-Bethlehem Station Alternative	I-78	49	Dunkin/Shell (<1), Wawa (1), Weis (1.3), Shopping Mall (1.3)
	I-78	54*★	Dunkin (<1), Various Auto (<1), Dunkin (1), Weis (1.5), Wendy's (1), Wawa (1.2), Costco (1.2), Shopping Mall (1.5), Giant (2.5), Walmart (3)
	I-78	57	Dunkin (<1), Giant (1), Shopping Mall (1), Various Auto (1-2)
Existing Station: Bethlehem, PA	I-78	67	
7 – Other: Fills gap to NJ state line	I-78	75*★	Dunkin (<1), Turkey Hill (<1)
<i>Gap to NJ station (53 mi. from PA border) unable to be filled in PA</i>			
Existing Station: Springfield, NJ	I-78 (NJ)	49 (NJ)	

★ = Highest Rank Exit in Gap Area

Key Corridor Conclusions

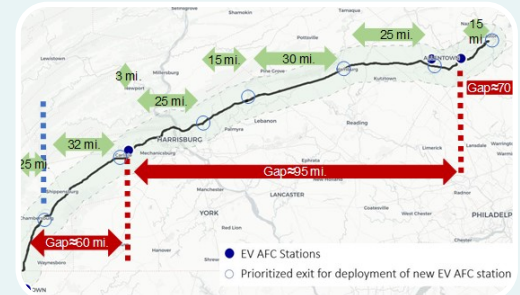


Identified 3 locations and potential businesses for new EV fast-charging stations:

- I-81 Exit 14, 16, or 17 in Chambersburg
- I-81 Exit 72 or 77 in Harrisburg
- I-78 Exit 29 in Hamburg



The EV-“Pending” gap from Bethlehem to Springfield, NJ, and the CNG-“Pending” gap from Carlisle to Knoxville, TN, would be filled more efficiently with new stations not in PA, but in NJ and MD, respectively



An additional “aggressive” EV scenario was developed that aims to both fill existing gaps and provide additional stations at key exits in the Harrisburg and Allentown metro areas

Products for Future Business Outreach

ELECTRIC VEHICLE FAST-CHARGING
FAQS & FUNDING OPPORTUNITIES

What Businesses Need to Know

What Is DC Fast Charging?
Direct current (DC) fast chargers are game-changers for electric vehicles (EVs). While many EV owners rely on home-charging overnight, DC fast chargers can charge an EV in only 20 to 30 minutes. In PA, over 100 locations – most of them businesses – currently have at least one DC fast charger installed in their parking lots.

Why Is Pennsylvania Investing?
One challenge to more rapid adoption of EVs is the lack of public DC fast chargers. By providing funding for fast charge projects in strategic locations – such as along highways and in underserved metro areas – Pennsylvania aims to increase drivers' confidence in the availability of public EV chargers, slow down climate change, and improve public health.

Which Businesses Are the Best Locations?
The best types of businesses for hosting DC fast chargers are restaurants, gas/convenience stores, truck stops, grocery stores, shopping centers, or any interested business with available parking spaces where an EV driver could shop and use amenities during the 20-30 min of charging time. Businesses that are 24/7 and offer food and restrooms are ideal. The best locations for businesses interested in hosting fast chargers are near interstate exits along major travel corridors for commuter and recreational travel needs.

What Are the Benefits to Businesses?

- Attract customers looking to stop at a location that offers fast charging
- Increase customer spending at site amenities
- Minimize costs by choosing from a range of business models offered by EV charging hardware & network companies
- Gain customer recognition as a leader in reducing carbon emissions

Is Your Business Located On I-81/I-78?
The Pennsylvania Department of Transportation (PennDOT) has developed a Deployment Plan for alternative fuel infrastructure, including DC fast charging, along the I-81/I-78 corridor in PA. (plans for other interstates are anticipated in the future). If you are interested in a project consultation on fast-charging options and possible grant funding for a property located along the I-81/I-78 corridor, please contact:
RA-PDEVCorridors@pa.gov

DRIVING PA FORWARD

YOUR BUSINESS MAY BE ELIGIBLE FOR FUNDING

DC Fast Charging Grant Program
The Pennsylvania Department of Environmental Protection *Driving PA Forward* initiative includes reimbursements for the acquisition, installation, operation and maintenance of DC fast charging equipment. Program funding and eligibility details include:

- More than 1/2 of costs reimbursed for DC fast charging projects, or \$250,000 maximum per award
- Projects must be in PA, publicly accessible, 24/7 operational, networked, and include both CCS and CHADEMO connector types
- Preferred locations include projects off interstate exits (<5 miles) or in metro areas

Application Opens Fall 2021

Web Link:
[Driving PA Forward Homepage](#)
Scroll down to DC Fast Charging Grant Program to see Guidelines and Instructions

Pennsylvania is Committed to Supporting Growth in EV Vehicles.
See the Pennsylvania EV Roadmap:
[Web Link to Road Map](#)

Survey Form for Business Interested in Hosting DC Fast Charging Stations

- Contact Information**
Name: _____
Site Name: _____
Site Address: _____
Email Address: _____
Phone Number: _____
- Nearest interstate exit to site: _____
- Distance from interstate exit (roadway miles)
 - Less than mile
 - 1-2 miles
 - 2-3 miles
 - 3-5 miles
 - Greater than 5 miles
- Type of Facility (Choose as many that apply)**
 - Convenience
 - Gas
 - Grocery
 - Hotel
 - Restaurant
 - Retail
 - Other (please specify): _____
- Why are you interested in hosting electric vehicle fast charging on your site?** _____
- Are you interested in owning the electric vehicle charging equipment on site or having the equipment be owned by the charging company?**
 - Your site owns and operates the charging equipment
 - EV network company owns and operates the charging equipment
 - Not sure
- Have you or your company previously worked with or contacted any EV network or infrastructure companies?**
 - No, we have not
 - Blink
 - ChargePoint
 - Electrify America
 - EVGo
 - Freewire
 - Greenlots
 - Not sure
 - Other (please specify): _____

▶ PennDOT Role in AFC Deployment

- ✓ Develop a **framework for deployment plan** studies and share resources for business outreach to MPO/RPOs
- ✓ Conduct alternative fuel deployment **studies at select locations** & guide MPO/RPOs on locations for studies they may lead
- ✓ Maintain a **resource email account** as referenced in brochures for interested businesses

Distribution of **survey** to interested businesses

Coordination and sharing of PennDOT/MPO/RPO study results

- ✓ **DEP** - *share gaps and needs*
- ✓ **Clean Cities** - *share gaps and needs; share interested businesses and survey results*
 - **Networks** - *share gaps and needs to complement their site identification process*
 - **Utility companies** - *share interested businesses to help assess infrastructure needs*

Support DEP with other **grant promotion** activities

PennDOT

MPO/RPO Role in AFC Deployment

MPO/RPOs

Support PennDOT in completing **deployment studies** (*per MPO/RPO discretion*)

Identify local channels for sharing information on priority gaps and needs to businesses (e.g. local Chambers of Commerce, business associations) – **Sharing of PennDOT brochures** that businesses can have access to

Identify and share priority gap areas as part of local planning and/or development discussions

Coordination with Clean Cities on connecting and educating interested businesses



Clean Cities will lead in connecting businesses to grant or network companies

Clean Cities Role in AFC Deployment

Clean Cities

Coordinate with PennDOT and MPO/RPOs on alternative fuel infrastructure needs and activities

Direct coordination and discussions with interested businesses

- *Match businesses to network companies*
- ***Support grant application activities***

Next Steps

Next Steps

- ★ **Continue Outreach to Businesses**
- 🚗 **Maintain Discussions with EV Network Companies**
- 💰 **Work with PA DEP on Grant Opportunities**
- 📅 **Track Infrastructure Installations**
- 👥 **Share Lessons Learned with Planning Partners**

Are MPO/RPOs willing to support this?

Integration of Deployment Plan Priorities as Application Selection Criteria

Sharing at upcoming Planning Partners Meeting (Nov)

Contacts

- PennDOT
 - Natasha Fackler, Policy Director
 - nfackler@pa.gov
 - Jackie Koons-Felion, Program Center
 - jfelion@pa.gov