



# Charging Forward

A Toolkit for Planning and Funding Rural  
Electric Mobility Infrastructure

[www.transportation.gov/rural/ev/toolkit](http://www.transportation.gov/rural/ev/toolkit)



# Poll Questions



# Webinar Agenda

1. Welcome and Introductions
2. Overview of *Charging Forward: A Toolkit for Planning and Funding Rural Electric Mobility Infrastructure*
3. Case Study: Electric Vehicle Charging in Athens County, Ohio
4. Upcoming Activities
5. Q&A





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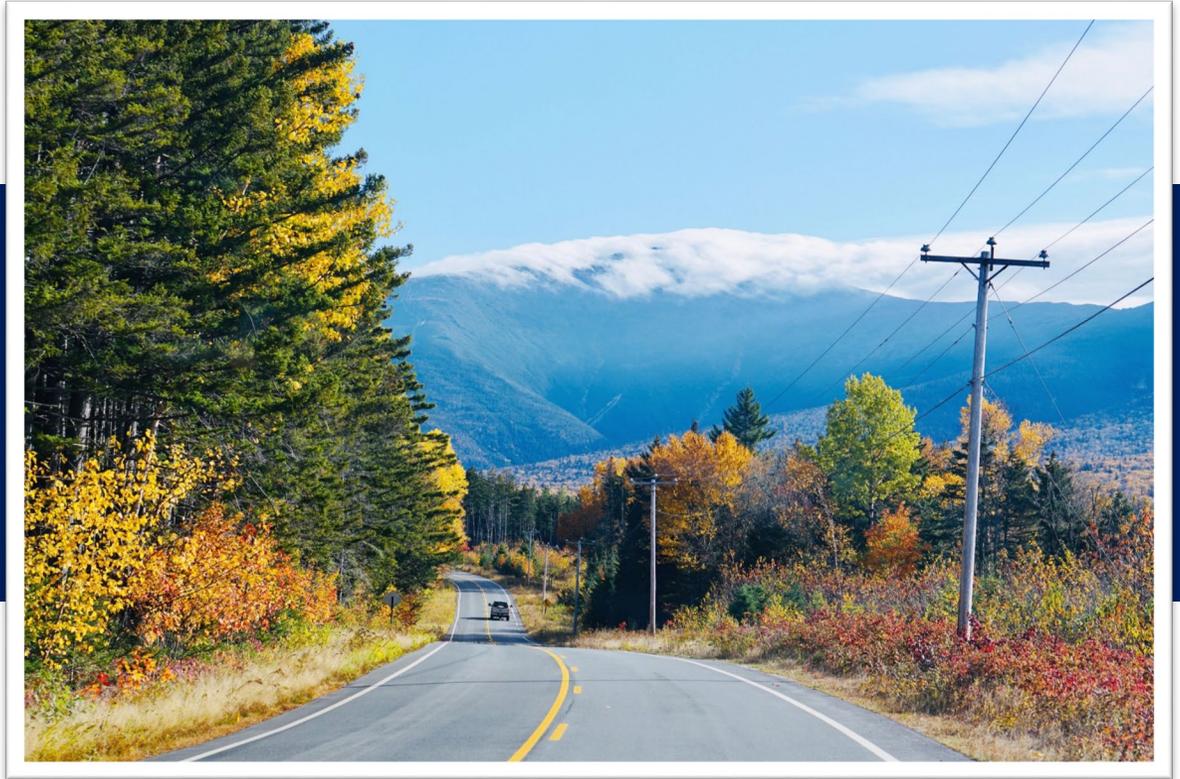
# Poll Questions



# DOT & DOE Leadership Perspective



# Charging Forward



# About the ROUTES Initiative

The Rural Opportunities to Use Transportation for Economic Success (ROUTES) Initiative aims to address disparities in rural transportation infrastructure and improve safety and economic competitiveness nationwide.



## The ROUTES Initiative will...

**Engage Rural Communities** through a series of events to better understand the needs and priorities of rural communities and collect essential data from stakeholders representing different communities, groups, workers, and industries to identify solutions.

**Harmonize DOT Programs** to implement rural policy by establishing the ROUTES Council to lead and coordinate Departmental activities to implement BIL and better align new and existing funding, financing, and technical assistance programs with the needs of rural and Tribal communities.

**Utilize a Whole-of-Government Approach** by partnering with other rural-focused Federal agencies such as DOE, DOI, and USDA to expand DOT's presence in rural America, better promote DOT's resources to their customers, and capitalize on synergies between Federal funding programs.

[www.transportation.gov/rural](http://www.transportation.gov/rural)



# Electrification of Rural Transportation

All Americans should have the opportunity to benefit from the lower operating costs, reduced maintenance needs, and improved performance that EVs provide.

## WHY RURAL

- Transportation makes up **20% of rural household expenses**, compared to 16% in urban areas.
- Rural households spend **44% more on transportation fuel** than urban households.
- Rural residents drive **10 more miles per day** on average than urban residents.

## WHY NOW

- **Federal strategy** to build 500,000 electric vehicle (EV) chargers nationwide
- **Bipartisan Infrastructure Law** includes \$7.5 billion of funding for new EV chargers and other alternative fueling infrastructure
- **Executive Order** targeting 50% of new vehicles sold in 2030 be zero-emission vehicles

USDOT's **Rural EV Infrastructure Toolkit** was created under the ROUTES Initiative to help rural entities plan and fund EV chargers.



# What is This Toolkit?

The toolkit provides a free, one-stop resource to help rural stakeholders scope, plan, and fund EV charging infrastructure.

## Toolkit Purpose

- Provide rural stakeholders with an easy-to-use guide for planning, funding, and implementing EV charging stations

## Audience

- Local rural governments
- Retail and other business owners
- Gateway communities (e.g., near national parks)



# USDOT's Rural EV Infrastructure Toolkit

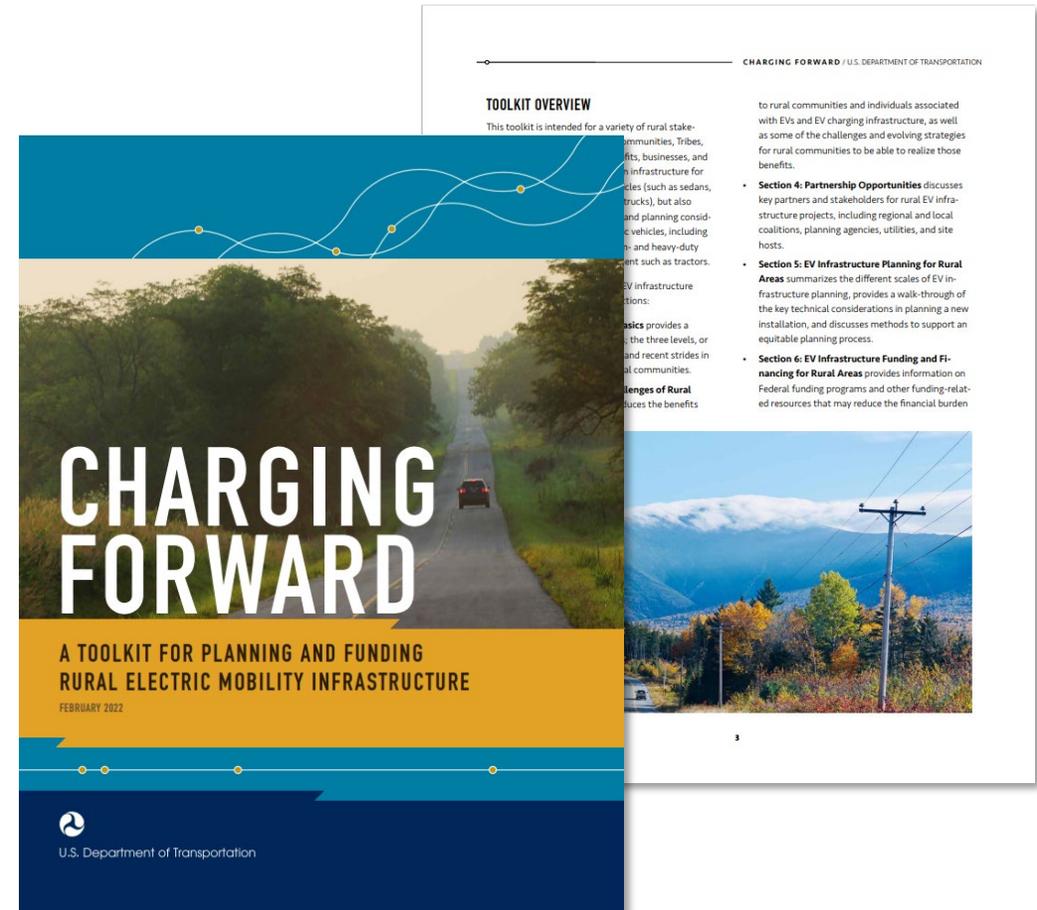
*Charging Forward: A Toolkit for Planning and Funding Rural Electric Mobility Infrastructure*

## TABLE OF CONTENTS

- Electric Vehicle Basics
- Benefits and Challenges of Rural Vehicle Electrification
- Partnership Opportunities
- EV Infrastructure Planning for Rural Areas
- EV Infrastructure Funding and Financing for Rural Areas

## INCLUDES...

- Grant and loan opportunities
- Planning tools and resources
- Rural success stories



[www.transportation.gov/rural/ev/toolkit](http://www.transportation.gov/rural/ev/toolkit)



# Plan for Spring/Summer 2022

USDOT is organizing virtual workshops with rural communities across the country to “test drive” the toolkit and inform a revised version.



Download the toolkit and submit feedback online.

*Up to 10 workshops with individual rural and tribal communities to*

- *Build community knowledge of EV infrastructure*
- Obtain feedback on the toolkit

Planned updates

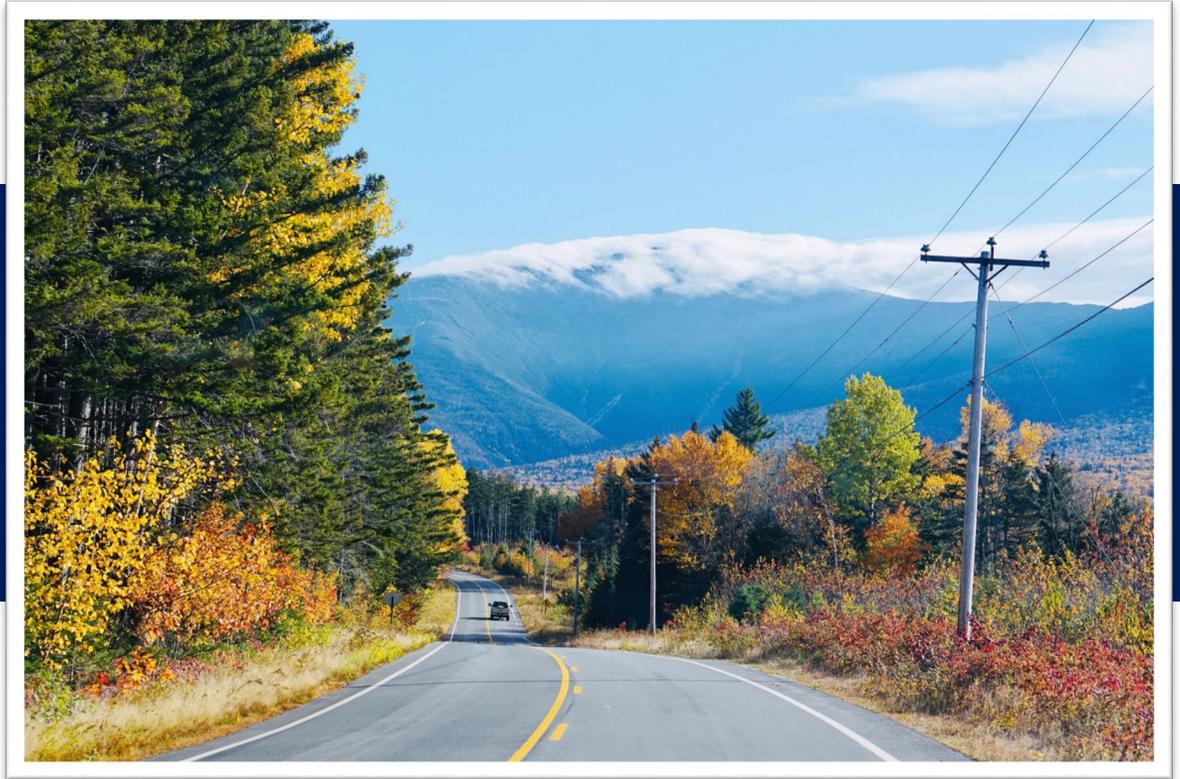
- Updated content based on stakeholder feedback
- Expanded information on electric transit vehicles, school buses, and micro-mobility
- Updated funding programs, including the Bipartisan Infrastructure Law (BIL)

*Note: BIL is not covered in the current version.*

**Feedback requested:**  
[transportation.gov/rural/ev/toolkit/feedback](https://transportation.gov/rural/ev/toolkit/feedback)



# Electric Vehicle (EV) Basics



# Types of Electric Vehicles (EVs)

**BEVs and PHEVs run on electricity from batteries that are charged by an external power source.**

## Battery Electric Vehicles (BEVs)

All-electric vehicles that run only on electricity from batteries.

## Plug-in Hybrid Electric Vehicles (PHEVs)

Run on a combination of electricity from batteries and an internal combustion engine fueled by gasoline or diesel fuel.

*Other types of electric drive vehicles cannot be "plugged in" to recharge.*



# Types of EV Chargers

EVs can be charged by EV supply equipment (EVSE) with differing charging powers and speeds.



## Level 1 Charger

- Provides **2-5 miles** of range per hour of charging.
- Charging time from empty: 40-50hrs (BEV); 5-6hrs (PHEV)
- Typical use: Home charging; long-term parking.

## Level 2 Charger

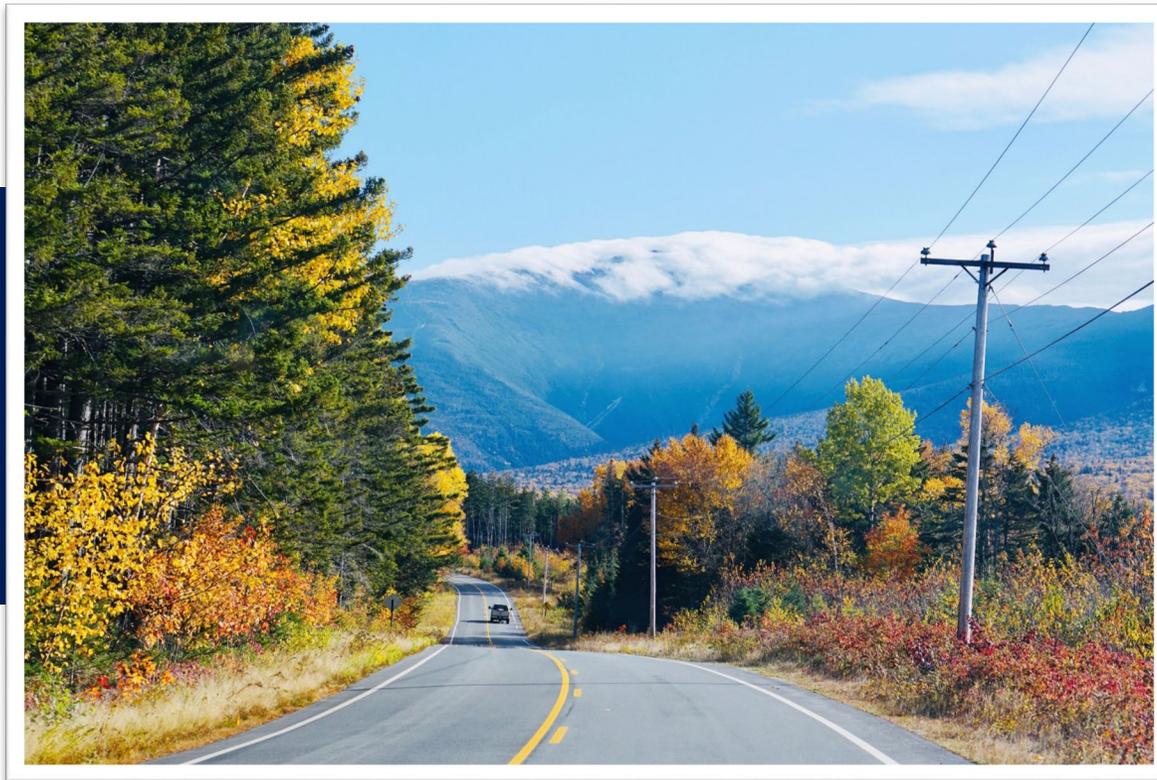
- Provides **10-20 miles** of range per hour of charging.
- Charging time from empty: 4-10hrs (BEV); 1-2hrs (PHEV)
- Typical use: Home, workplace, and public charging.

## Direct-Current Fast Charger (DCFC)

- Provides **180-240 miles** of range per hour of charging.
- Charging time from empty: 20mins - 1hr (BEV)
- Typical use: Public charging



# Benefits and Challenges of Rural Vehicle Electrification



# Benefits to Individuals

EVs offer numerous benefits to individual vehicle owners.



**Lower ownership costs**

**Accessible fueling infrastructure**

**Expanding vehicle options**

**Increased resilience**

**Electric vehicles** have

- **Higher** energy efficiency,
- **Lower** fuel costs, and
- **Lower** maintenance costs

than similar conventional vehicles.



# Benefits to Individuals

EVs offer numerous benefits to individual vehicle owners.



Lower ownership costs

Accessible fueling infrastructure

Expanding vehicle options

Increased resilience

EVs can be charged **at home, work, community sites, grocery stores, and other locations** that offer parking with EV chargers.



# Benefits to Individuals

EVs offer numerous benefits to individual vehicle owners.



Lower ownership costs

Accessible fueling infrastructure

Expanding vehicle options

Increased resilience

In 2019 there were **72 light-duty EV models** for sale in the U.S., including sedans, SUVs, and pickup trucks.

There was only 1 model in 2010.



# Benefits to Individuals

EVs offer numerous benefits to individual vehicle owners.



Lower ownership costs

Accessible fueling infrastructure

Expanding vehicle options

Increased resilience

EVs with bidirectional chargers can serve as a **backup power source** in place of diesel generators during extreme weather events



# Benefits to Communities

EVs – and the charging infrastructure that supports them – offer benefits to rural communities.



**Economic development**

**Improved public health**

**Lower greenhouse gas emissions**

Community members and regional travelers **can visit local stores, restaurants, and other attractions while charging their EVs.**



# Benefits to Communities

EVs – and the charging infrastructure that supports them – offer benefits to rural communities.



**Economic development**

**Improved public health**

**Lower greenhouse gas emissions**

Battery-electric vehicles produce

- **No** tailpipe emissions and
- **Less** brake dust pollution

compared to conventional vehicles.



# Benefits to Communities

EVs – and the charging infrastructure that supports them – offer benefits to rural communities.



Economic development

Improved public health

Lower greenhouse gas emissions

EVs produce **lower GHG emissions** than conventional vehicles, especially when electricity is generated with renewable sources.



# Challenges and Evolving Solutions

Rural areas face some important barriers in deploying EVs and EV infrastructure.



**High upfront costs**

**Longer distances between sites**

**Potential need for grid upgrades**

**Low awareness**

**Though continuing to decrease,** the upfront costs of both EVs and EV charging infrastructure pose a barrier to EV uptake.



# Challenges and Evolving Solutions

Rural areas face some important barriers in deploying EVs and EV infrastructure.



High upfront costs

Longer distances between sites

Potential need for grid upgrades

Low awareness

There is a growing need for an expanded DC fast charging network, **especially for rural drivers** who may travel long distances.



# Challenges and Evolving Solutions

Rural areas face some important barriers in deploying EVs and EV infrastructure.



High upfront costs

Longer distances between sites

Potential need for grid upgrades

Low awareness

**Costly electrical upgrades** and peak pricing for electricity can hurt the business case for deploying fast-charging EV infrastructure.



# Challenges and Evolving Solutions

Rural areas face some important barriers in deploying EVs and EV infrastructure.



**High upfront costs**

**Longer distances between sites**

**Potential need for grid upgrades**

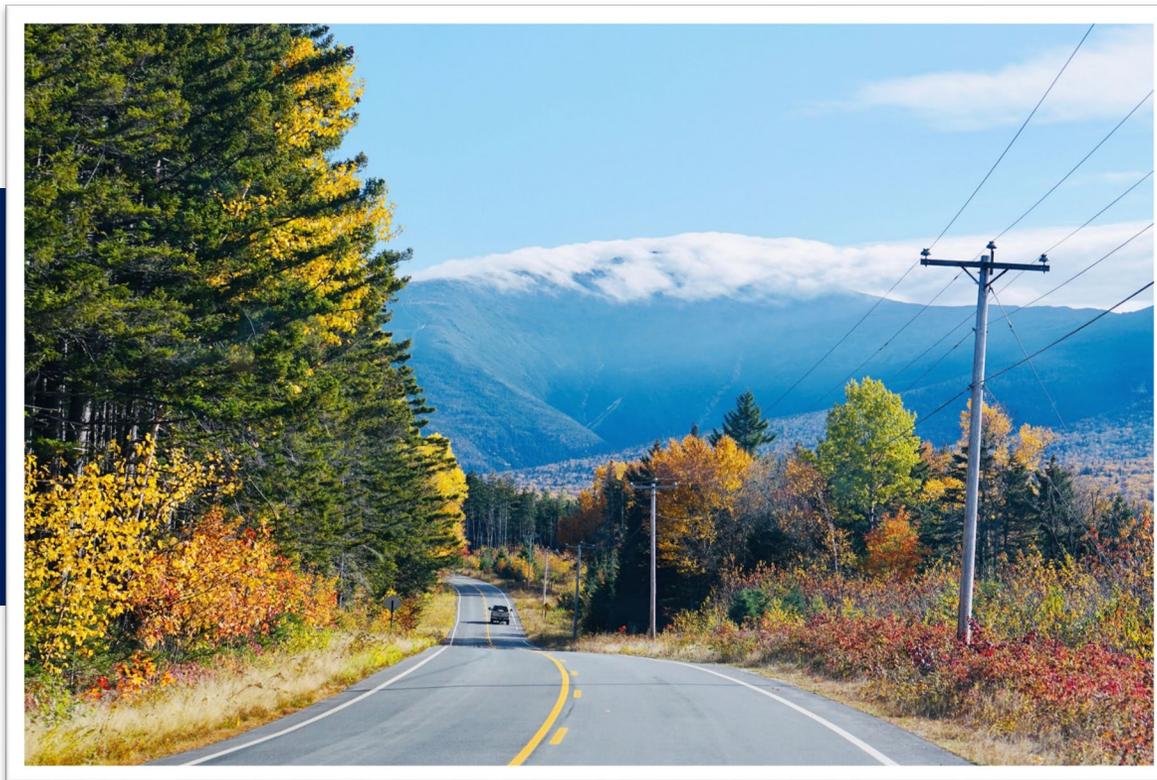
**Low awareness**

**Rural communities** typically have had less exposure to EV technology than urban communities.

**Project developers** must navigate a potentially unfamiliar permitting and siting process.



# Partnership Opportunities



# Partnership Opportunities

Diverse partnerships can support rural entities in planning, funding, and implementing EV infrastructure projects.



**Statewide, multistate, and tribal partners**

**Local and regional planning partners**

**Electric utilities**

**Charging networks**

**Site hosts**

**EV corridor planners** (e.g., for FHWA's Alternative Fuel Corridors)

**State agencies** for transportation (DOTs), energy, and environment

**Multistate initiatives** for EVs, air quality, and climate (e.g., REV West, Transportation and Climate Initiative, Northeast Electric Vehicle Network)



# FHWA's Alternative Fuel Corridors

FHWA works with other federal, state, and local officials and with private industry to facilitate an interstate network of electric and other alternative fuel stations along major U.S. roads.



Map of EV corridors under FHWA's Alternative Fuel Corridors program

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



# Partnership Opportunities

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**DOE's Clean Cities coalitions**

**Regional planning agencies,** including Regional Transportation Planning Organizations (RTPOs), regional planning councils, and local governments



# DOE's Clean Cities Coalitions

More than 75 coalitions nationwide bring together local stakeholders to advance alternative fuels through public-private partnerships.



U.S. Department of Energy

Map of Clean Cities Coalitions locations (source: DOE, 2021)

[cleancities.energy.gov/](http://cleancities.energy.gov/)

Map Date: 12/15/21



R.O.U.T.E.S.  
RURAL OPPORTUNITIES TO USE TRANSPORTATION FOR  
ECONOMIC SUCCESS



# Partnership Opportunities

Diverse partnerships can support rural entities in planning, funding, and implementing EV infrastructure projects.



Statewide, multistate, and tribal partners

Local and regional planning partners

**Electric utilities**

Charging networks

Site hosts

Electric utilities provide **technical advice** and can assist in project planning, including by

- addressing grid-level constraints,
- explaining electricity pricing, and
- identifying sources of financial support.

Electric utilities also often **take ownership** of aspects of an EVSE installation.



# Partnership Opportunities

Diverse partnerships can support rural entities in planning, funding, and implementing EV infrastructure projects.



Statewide, multistate, and tribal partners

Local and regional planning partners

Electric utilities

**Charging networks**

Site hosts

**Charging network companies** are experts in charger **technologies** and can provide resources on EVSE installation and operation (e.g., payment, access control).

Many public charging stations are owned or operated by these companies.



# Partnership Opportunities

Diverse partnerships can support rural entities in planning, funding, and implementing EV infrastructure projects.



**Statewide, multistate, and tribal partners**

**Local and regional planning partners**

**Electric utilities**

**Charging networks**

**Site hosts**

**Tourist destinations** and public lands

**Businesses and institutions** (e.g., hotels, shops, restaurants, universities)

**Transportation facilities** (e.g., airports, fleet depots)

**Community sites** (e.g., public library, town hall)

**Other sites** that provide EV charging stations

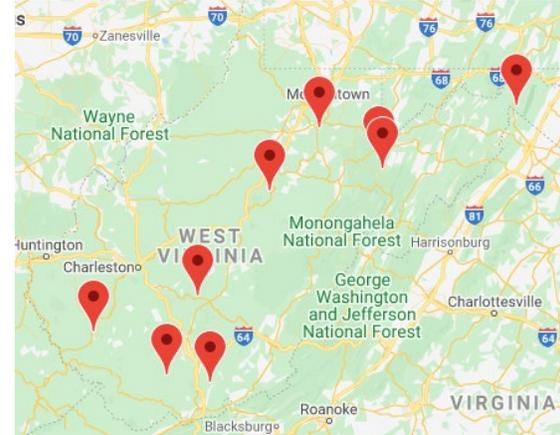


# Success Story: Charging at West Virginia State Parks

State parks in West Virginia attract visitors, shoppers, and diners through complimentary EV charging.

## SUCCESS STORY: CHARGING AT STATE PARK LODGES IN WEST VIRGINIA

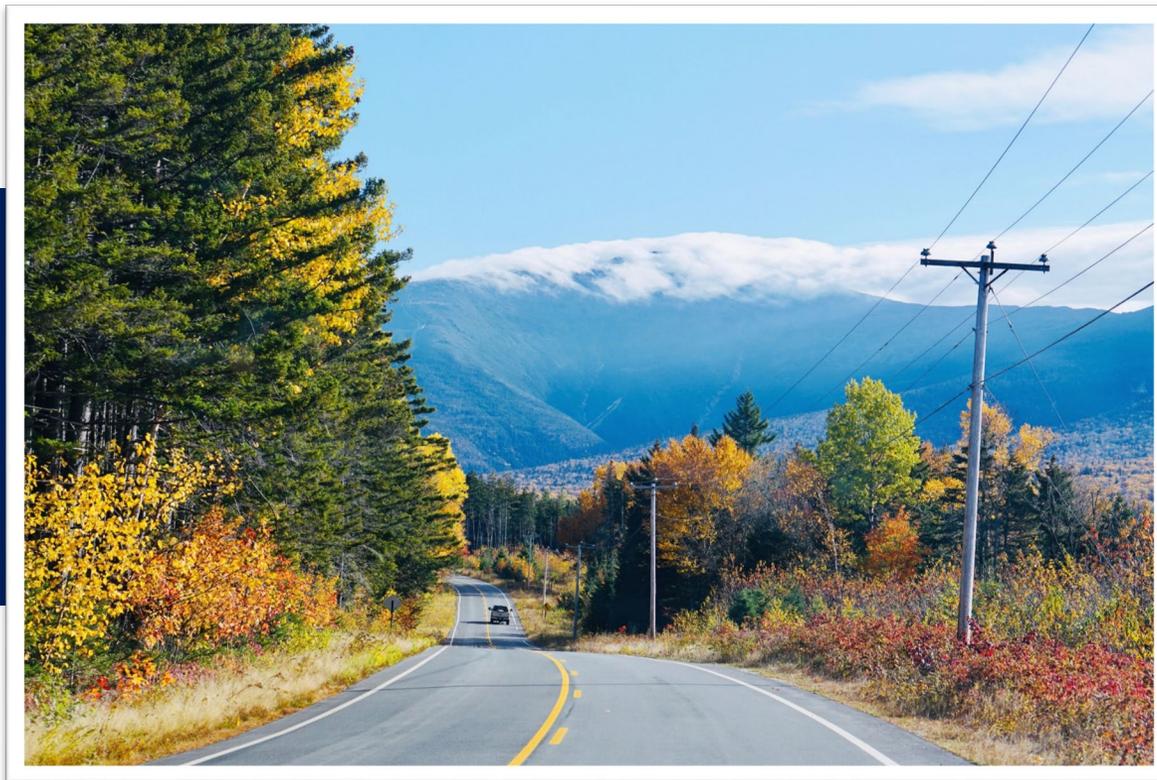
In West Virginia, EV charging stations are available at 9 of the 10 State park lodges in the State. Drivers can charge their vehicles for free, but lodge owners noted that while people are charging their vehicles they spend money at the lodges, including in gift shops and restaurants and for overnight stays.



Map of state lodge locations (top) and parking spot for EV charging (bottom) (source: West Virginia State Parks, 2022)



# Infrastructure Planning



# Guiding Principles for Planning

Guiding principles help rural stakeholders find their own path through the EV infrastructure planning process.



- ❖ **There is no one-size-fits all approach**, especially in rural areas where demand and infrastructure readiness greatly varies.
- ❖ **Different aspects of planning may occur in parallel** to allow planners and stakeholders to revisit and revise earlier steps of the process.
- ❖ **Coordinate early and often** with partners to access the most relevant information and up-to-date technical support through a project's life.
- ❖ **Stakeholders may have different needs and perspectives.** Engage rural community members in the planning process to understand and address their needs and concerns.
- ❖ **Build for flexibility** by planning now for future charging needs to prevent costly upgrades down the road.



# Types of EVSE Planning

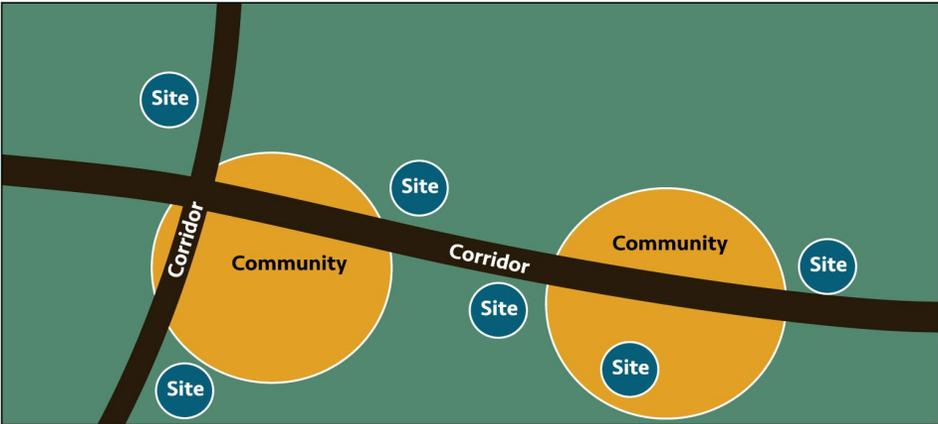
The toolkit defines and provides resources for three types of EV infrastructure planning.

## Corridor-level planning

Corridor-level planning supports infrastructure **along roads and highways** to facilitate inter-regional travel.

## Community-level planning

## Site-level planning



# Types of EVSE Planning

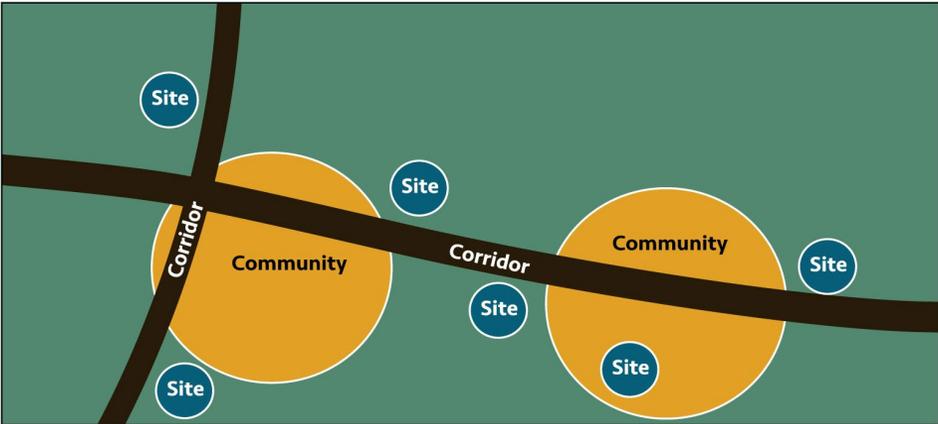
The toolkit defines and provides resources for three types of EV infrastructure planning.

## Corridor-level planning

**Community-level planning**

Community-level planning considers infrastructure solutions to address the needs of a **particular region or town.**

## Site-level planning



# Types of EVSE Planning

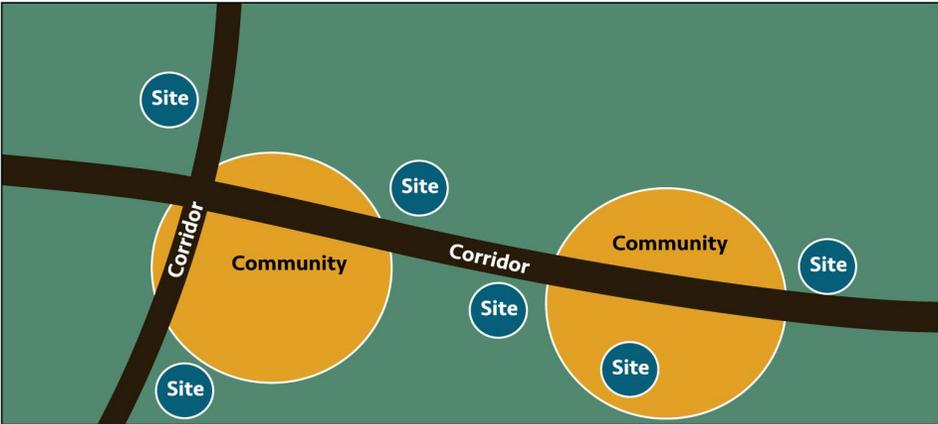
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Corridor-level planning

Community-level planning

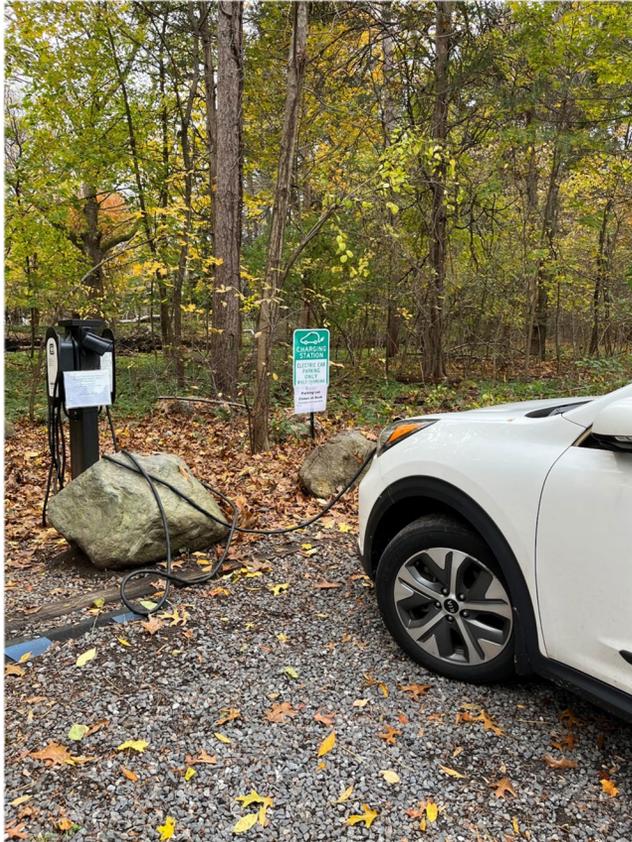
**Site-level planning**

Site-level planning focuses on the installation of EVSE **at a specific site**.



# Project Planning Checklist

The toolkit walks through a planning checklist for EVSE projects and provides technical guidance.



## PROJECT DEVELOPMENT AND SCOPING

- Establish overall project scale
- Determine site and installation type
- Identify project partners
- Decide on ownership model
- Assess EV charging needs
- Identify needs for permitting and regulatory compliance

## UTILITY PLANNING

- Assess local grid infrastructure
- Determine electricity rates and pricing structures

## INSTALLATION PLANNING

- Determine procurement process
- Determine network connection needs
- Select equipment and network provider
- Assess installation needs and costs

## OPERATIONAL PLANNING

- Assess operations and maintenance costs
- Determine pricing, payment, and access
- Consider additional needs

## ITERATIVE PROCESS

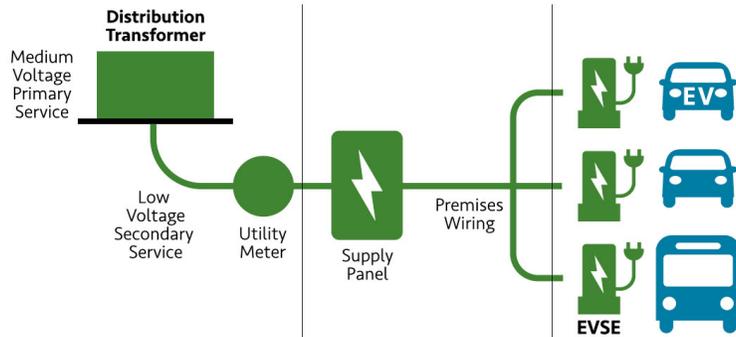
Revisit and Refine Prior Steps as Needed



# Project Planning Checklist (Examples)

The toolkit walks through a planning checklist for EVSE projects and provides technical guidance.

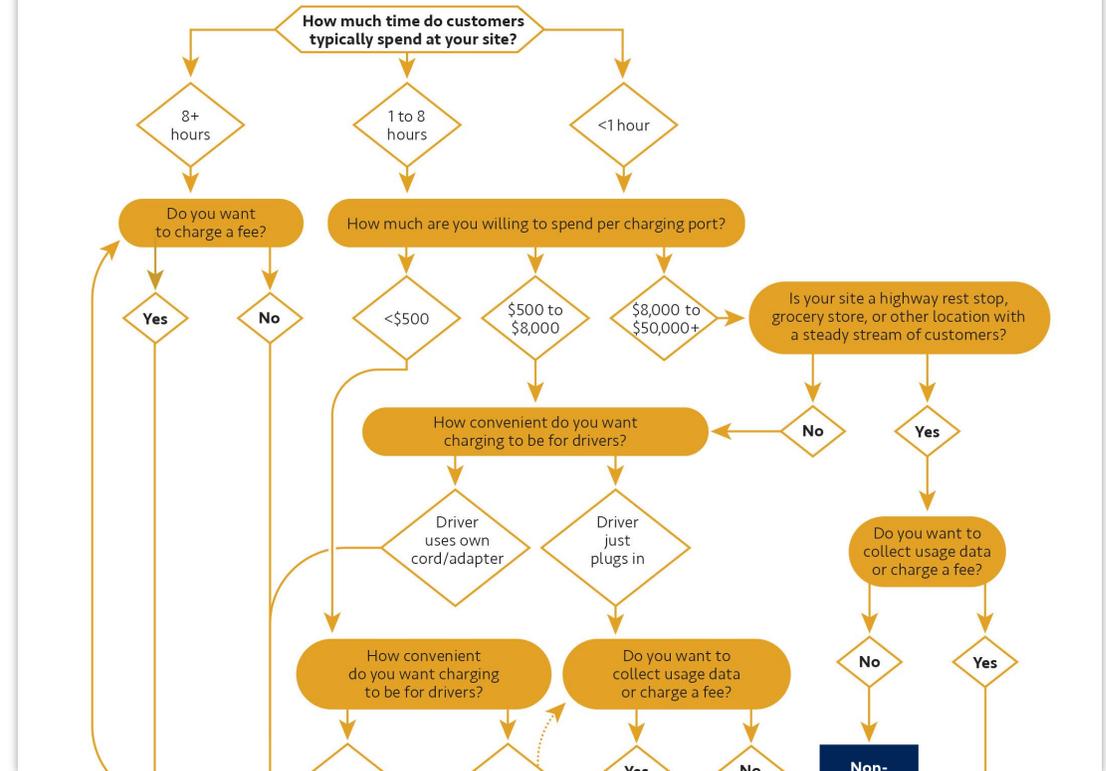
## Decide on an ownership model



	UTILITY SERVICE	PREMISES WIRING	EVSE
<b>1. Traditional</b>	Electric Company	Customer	
<b>2. Make Ready</b>	Electric Company		Customer
<b>3. EVSE Only</b>	Electric Company	Customer	Electric Company
<b>4. Full Ownership</b>	Electric Company		

Various approaches to ownership of EVSE and related site-wiring (adapted from AVISTA, 2020).

## Assess installation needs and costs



Charger selection decision tree (adapted from plugincars.com, 2014).



# Success Story: Free Public Charging in Colorado

Since 2013, the Colorado Energy Office and Regional Air Quality Council have supported the installation of more than 1,000 charging stations through the Charge Ahead Colorado grant program.

## SUCCESS STORY: PROVIDING FREE PUBLIC CHARGING IN COLORADO

In 2013, the Town of Carbondale installed its first Level 2 charging station along parking spaces in front of the town hall. The project cost \$6,050, of which more than \$4,800 was reimbursed through grant funding. The town decided to initially provide free charging services, since enabling payment capabilities would cost more than just paying for the electricity while use was low. Since then, Carbondale has expanded to 16 charging stations, of which 15 are free Level 2 charging stations.



Cars waiting to charge at the Carbondale Town Hall EV Charging Station  
(Source: John Colson, Post Independent, 2013)



# Equity Considerations in Planning

An equitable planning process helps ensure that a project's benefits and costs are fairly distributed throughout the community.

**Affordability**

**Reliability**

**Safety**

**Geographic coverage**

**Accessibility**

**At-home charging capabilities**

**Investment opportunities**

**Employment opportunities**



# Equity Considerations in Planning

An equitable planning process helps ensure that a project’s benefits and costs are fairly distributed throughout the community.

Equitable Planning	
<b>Engage</b>	<ul style="list-style-type: none"><li>• Stakeholder interviews</li><li>• Needs assessments</li><li>• Public comment sessions</li><li>• Virtual public involvement</li><li>• Ongoing communication</li></ul>
<b>Analyze</b>	<ul style="list-style-type: none"><li>• Socioeconomic data</li><li>• Equity-related metrics</li></ul>

**INTERACTIVE MAPS AND TOOLS**

- FHWA’s HEPGIS Website
- EPA’s Environmental Justice Screening and Mapping Tool (EJSCREEN)
- DOE’s Low-Income Energy Affordability (LEAD) Tool



# Tools and Resources

The toolkit includes a compilation of planning tools, including calculators, maps, templates, and guidance documents.

**Alternative Fueling Station Locator**

Find alternative fueling stations in the United States and Canada. For U.S. stations, see [data by state](#). For Canadian stations in French, see [Natural Resources Canada](#).

Q Public Stations **Advanced Filters** Fuel Corridors 60,428 results in U.S. and Canada

Enter location  All Fuels

**Alternative Fueling Station Locator**

A	B	C	D	E	F	G	H
1		<b>Project Year</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
2		Months Vehicle Ownership	6	12	12	12	12
3		Months EVSE Ownership	6	12	12	12	12
4		Months Battery Life	6	12	12	12	12
5							
6		<b>Purchase Price</b>					
7		Incremental Cost of all Vehicles	\$1,629,232				
8		EVSEs	\$200,000				
9		EVSE Installation	\$68,200				
10		Grant	\$1,500,000				
11		<b>Up-front net cost of project</b>	<b>\$397,432</b>				
12							
13		<b>Residual Values and battery replacement</b>					
14		Diesel bus residual value	\$0	\$0	\$0	\$0	\$0
15		EB residual value	\$0	\$0	\$0	\$0	\$0
16		Battery Salvage Value	\$0	\$0	\$0	\$0	\$0
17		2nd Battery Salvage Value	\$0	\$0	\$0	\$0	\$0
18		EVSE Salvage Value	\$0	\$0	\$0	\$0	\$0
19		Battery Replacement Cost	\$0	\$0	\$0	\$0	\$0
20							
21		<b>Operating Costs</b>					
22		Electricity Price (per kWh)	\$0.13	\$0.13	\$0.13	\$0.13	\$0.13
23		Electricity Demand Charge (per month)	\$265	\$265	\$265	\$265	\$265
24		Diesel Price (per gallon)	\$3.18	\$3.20	\$3.22	\$3.25	\$3.27
25		EV Fleet Ma				\$84,004	\$84,004
26		EV Fleet Elec				\$36,056.57	\$36,024
27		Diesel Fleet				\$115,505	\$115,505
28		Diesel Fleet Fuel Costs	\$47,103	\$94,865	\$95,529	\$96,198	\$96,871

**VICE Battery-Electric Bus Model**

**Electric Vehicles: What You Need to Know!**

Get the info on electrified powertrains – hybrid, plug-in hybrid, range-extended-electric, and all-electric – from smallest to largest electric motors and battery packs.

**Hybrid Electric Vehicles (HEVs)**

HEVs are powered by a gasoline or diesel engine, and an electric motor that receives energy from a battery. The battery is charged through regenerative braking, not by plugging in.

**Plug-in Hybrid Electric Vehicles (PHEVs) and Battery Electric Vehicles with Range Extender (BEVxs)**

PHEVs and BEVxs are similar to HEVs in that they include both a gasoline engine and an electric motor with a battery, but they have larger batteries that can be recharged by plugging into an electric outlet. They can be powered by...

**Battery Electric Vehicles (BEVs)**

Battery Electric Vehicles with R...

**Evolution Tool**

**Public Involvement**

FHWA → Planning → Public Involvement

**Virtual Public Involvement**

Innovation Spotlight: Virtual Public Involvement

U.S. Department of Transportation  
Federal Highway Administration

**Innovation Spotlight**

Virtual Public Involvement

**FHWA's Virtual Public Involvement Website**

**DOE LEAD Tool**

Low-Income Energy Affordability Data (LEAD) Tool

Avg. Energy Burden (% Income) for the United States

5% 6% 7% 8% 9% 10%

**ENERGY STAR**

Find Products Save at Home New Homes Commercial Buildings

Home » Certified Products » Product Finder » ENERGY STAR Certified Electric Vehicle Chargers

Languages: English | Français

**Find and Compare**

Change Product

**ENERGY STAR Certified Electric Vehicle Chargers**

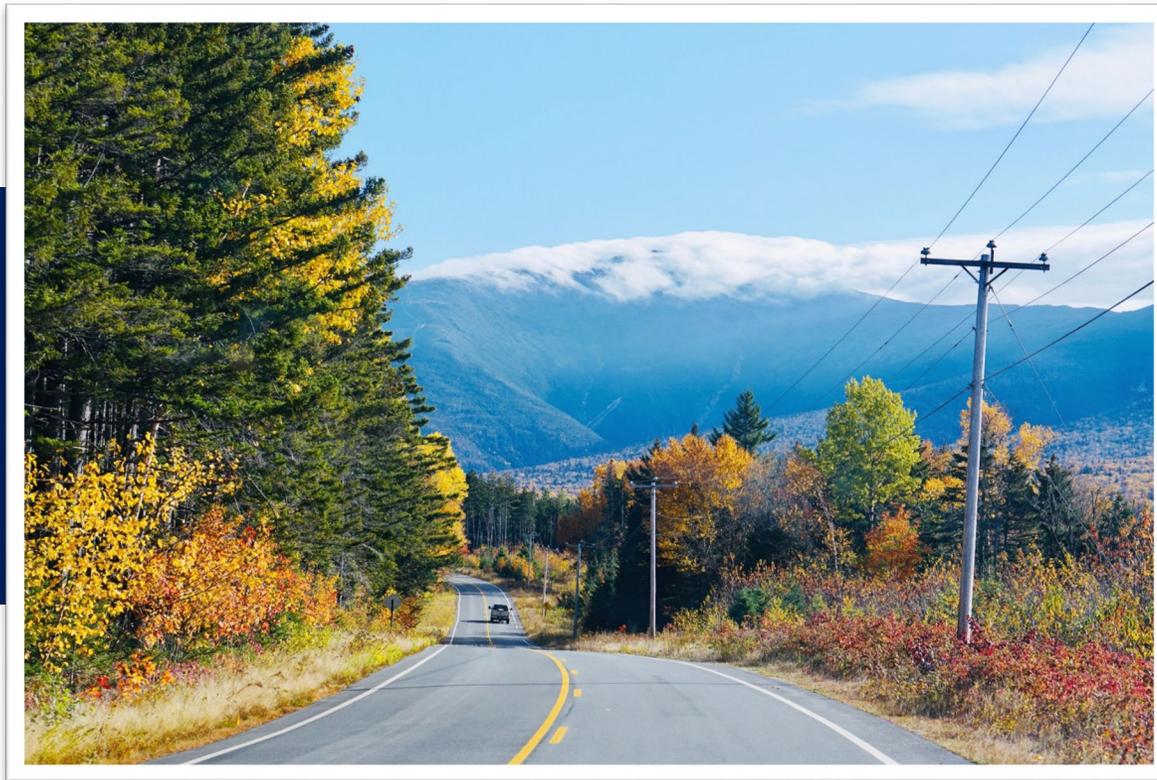
Visit the [Electric Vehicle Chargers](#) page for usage tips and buying guidelines.

**ENERGY STAR EV Chargers**

Together we can create a healthier planet for all of us.



# Funding and Financing



# Program Types and Eligibilities

Diverse federal programs serve a range of applicant and EV activity types.

Federal Agencies
U.S. Department of Transportation (USDOT)
U.S. Department of Agriculture (USDA)
Department of Energy (DOE)
Environmental Protection Agency (EPA)
Small Business Administration (SBA)
Department of Commerce (DOC)
Department of Labor (DOL)
Internal Revenue Service (IRS)

Program Types
Discretionary Grant Funding Programs ( <i>competitive selection</i> )
Formula Grant Funding Programs ( <i>allocated funding</i> )
Loan Financing Programs
Tax Incentives

Applicant Types
States
Localities
Tribes
Transportation Providers
Non-Profits
Private Sector
Individuals

EV Activity
Light-Duty Vehicle Charging
Public Transportation Charging
Commercial Charging
Infrastructure Planning
Workforce Development
Vehicle Acquisition



# Key Federal Programs

The toolkit highlights key federal programs and includes application tips, resources, and initial points of contact.



## DEPARTMENT OF TRANSPORTATION

### Federal Highway Administration (FHWA)

- Congestion Mitigation and Air Quality Improvement (CMAQ) program
- Federal Land Access Program (FLAP)

### Federal Transit Administration (FTA)

- Grants for Buses and Bus Facilities Programs

### Office of the Secretary of Transportation (OST)

- Rebuilding American Infrastructure with Sustainability and Equity (RAISE)

## DEPARTMENT OF AGRICULTURE

### Rural Development (RD)

- Community Facilities Grant Program

## DEPARTMENT OF ENERGY

### Vehicle Technologies Office

- Funding Opportunity Announcements (FOAs)

### Weatherization and Intergovernmental Programs Office

- State Energy Program (SEP)

### Loan Programs Office

- Title XVII Renewable Energy and Efficient Energy Projects

## ENVIRONMENTAL PROTECTION AGENCY

- Diesel Emissions Reduction Act (DERA) Programs

## INTERNAL REVENUE SERVICE

- Alternative Fuel Infrastructure Tax Credit

### Bipartisan Infrastructure Law (BIL)

- National Electric Vehicle Infrastructure Formula Program (\$5 billion)
- Discretionary Grant Program for Charging and Fueling Infrastructure (\$2.5 billion)



# Rural EV Infrastructure Funding Matrix

The toolkit includes a comprehensive list of federal programs and eligibilities.

11 - page resource

CHARGING FORWARD / U.S. DEPARTMENT OF TRANSPORTATION

## RURAL EV INFRASTRUCTURE FUNDING MATRIX

Below is a list of Federal programs that can fund rural EV infrastructure, sorted alphabetically by agency. The matrix notes the type of EV activities that are eligible for funding under different programs, as well as the eligible entities. The matrix will be expanded in future updates of this toolkit to reflect new programs in the 2021 Bipartisan Infrastructure Law.

Agency/Office	Program Name	Program Description	Eligible Parties	LDV Charging	Transit Charging	Commercial Charging	Infrastructure Planning	Workforce Development	Vehicle Acquisition
	Program Type								
DOC EDA	<a href="#">FY2020 EDA Public Works and Economic Adjustment Assistance Program</a>	Provides investments that support construction, non-construction, technical assistance, and revolving loan fund projects designed to leverage existing regional assets and support the implementation of economic development strategies that advance new ideas and creative approaches to advance economic prosperity in distressed communities.	State, Tribes, Localities, Non-profits	•		•	•	•	
	Grant (Discretionary)								
	<a href="#">Build to Scale Program</a>	Provides funds for organizations to aid companies in developing the next generation of tech-based economic development initiatives, including commercial EV technology implementation.	State, Tribes, Localities, Non-profits			•		•	
	Grant								



# Success Story: Charging Electric Buses in Michigan

Through FTA's Low-No Emission Program, Michigan DOT was awarded funding to build a transit facility that can charge Thumb Area Transit's new battery-electric bus fleet.

## SUCCESS STORY: LOW-NO BUS DISCRETIONARY PROGRAM

In 2021, the Michigan Department of Transportation received \$5.2 million on behalf of Thumb Area Transit (TAT) in rural Huron County to replace an undersized, aging transit facility with a centrally located LEED-certified maintenance, operations, and administrative center to improve transit services and maintain its new battery-electric bus fleet. The facility will include electric bus charging equipment and other infrastructure to allow TAT to provide reliable transportation across its 836-square-mile service area while improving air quality.

**FTA'S 2021 LOW & NO EMISSIONS PROGRAM:  
\$5.2 MILLION  
TO MICHIGAN DEPARTMENT OF  
TRANSPORTATION**

**Thumb Area Transit in rural Huron County  
will replace their aging transit facility with a  
new building to serve Michiganders for years  
to come.**

**Learn more at [transit.dot.gov/lowno](https://transit.dot.gov/lowno)**

Source: FTA, 2021



# Funding Programs Points of Contact

The toolkit highlights points of contact to learn more about particular funding programs.



**USDOT Programs**

**USDA Programs**

**DOE Programs**

**EPA Programs**

**IRS Programs**

## POINTS OF CONTACT

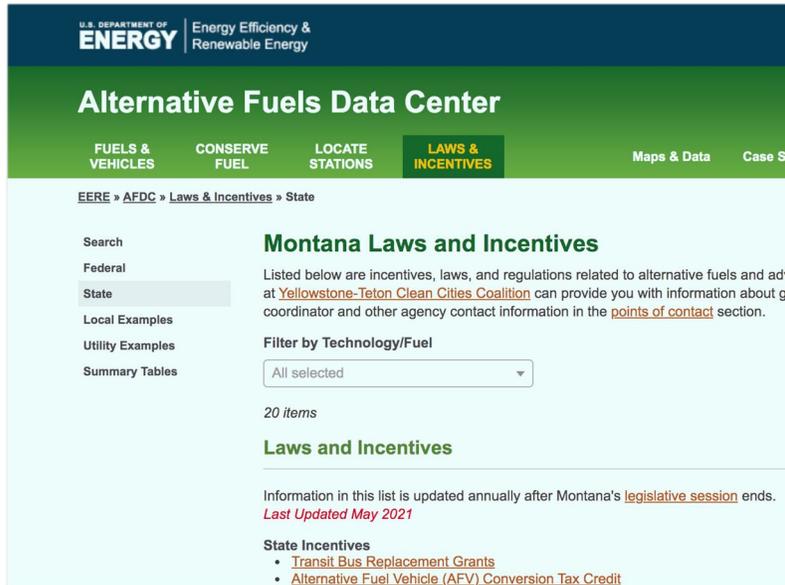
Staff in the agency field offices are available to answer program questions:

- [FHWA Field Offices](#)
- [FTA Regional Offices](#)
- [USDA Rural Development State Offices](#)
- [DOE Vehicle Integration Office / Technology Integration Regional Manager Contacts](#)
- [DOE Clean Cities Coalition Contacts](#)
- [EPA Regional Offices](#)



# Additional Funding Resources

Several resources can help identify funding sources administered by States, local governments, and utilities.



## Funding Resource Clearinghouses

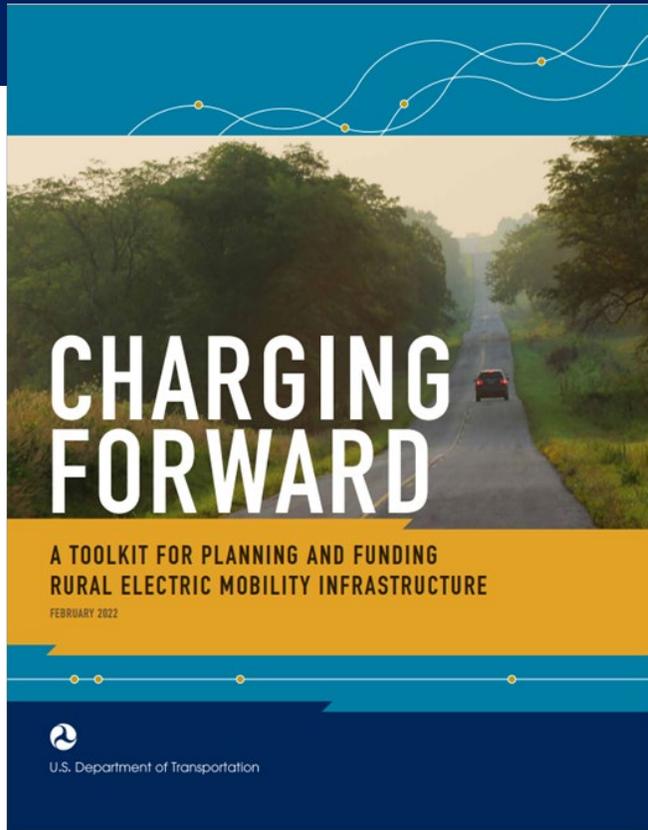
- Alternative Fuels Data Center (AFDC)
- Clean Cities Coalitions
- Database of State Incentives for Renewables & Efficiency (DSIRE)

## State-Level Funding Programs for EVSE

- State Energy Offices
- State Infrastructure Banks (SIBs)
- Volkswagen (VW) Settlement Funds



# USDOT's Rural EV Infrastructure Toolkit



**ROUTES:** [www.transportation.gov/rural](http://www.transportation.gov/rural)

**Toolkit:** [www.transportation.gov/rural/ev/toolkit](http://www.transportation.gov/rural/ev/toolkit)

**Feedback:** [www.transportation.gov/rural/ev/toolkit/feedback](http://www.transportation.gov/rural/ev/toolkit/feedback)

**Email:** [rural@dot.gov](mailto:rural@dot.gov)



# CLEAN TRANSPORTATION ACTION IN ATHENS COUNTY, OHIO

February 9, 2022 | USDOT Charging Forward Webinar

**Sarah Conley-Ballew, MPA**

**Rural Action Sustainable Energy Solutions  
Program Director**



**Rural Action**  
Thriving Communities, Healthy Environments



# Rural Action

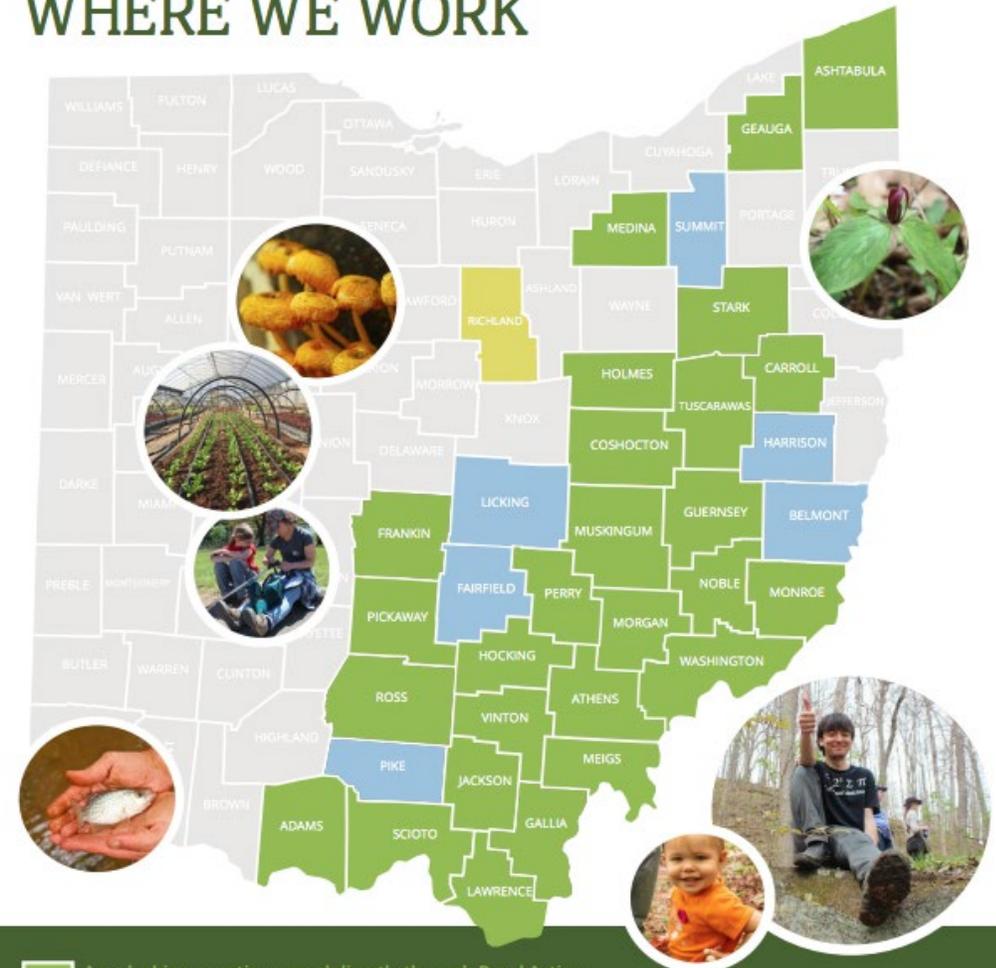
Thriving Communities, Healthy Environments

Nestled in the foothills of Appalachian Ohio, Rural Action was founded in 1991 on the principle that locally-based, sustainable, and inclusive development is the main strategy for building resilient rural Appalachian communities.

Rural Action’s mission is to build a more just economy by developing the region’s assets in environmentally, socially, and economically sustainable ways. Together, we envision a region with clean streams and healthy forests; a place where thriving family farms, meaningful livelihoods and vibrant communities exist for everyone; with people engaged as good stewards of the world they live in and working together to make this vision a reality.

As a membership-based organization, we believe the best development is done with participation from diverse groups who have a stake in the outcome.

## WHERE WE WORK

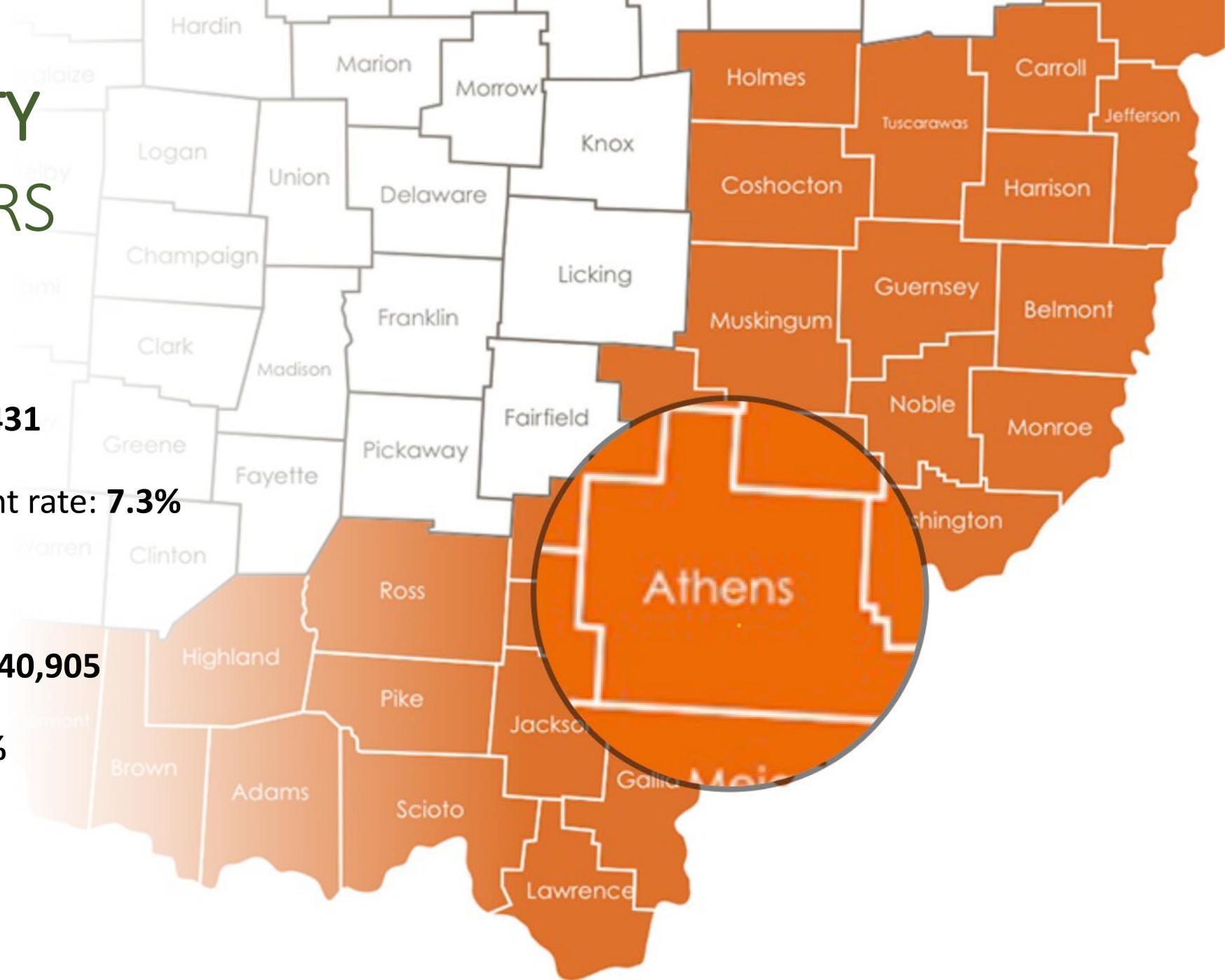


- Appalachian counties served directly through Rural Action
- Additional counties reached through Ohio Stream Restore Corps partners
- Additional Ohio counties served through Rural Action social enterprises

Rural Action has 5 offices located on the ground in communities where we work. In 2019, Rural Action reached 34 Ohio counties, 27 directly through Rural Action programs. Additionally, 7 counties were served through our Appalachian Ohio Restore Corps partners and Zero Waste Event Productions, LLC. In 2019, Rural Action also worked and collaborated in 10 states beyond Ohio including West Virginia, Kentucky, Pennsylvania, South Carolina, North Carolina, Virginia, Tennessee, Minnesota, and Illinois through Zero Waste Event Productions, LLC., and regional partnerships.

# ATHENS COUNTY BY THE NUMBERS

- 2020 Population Census: **62,431**
- 3-year average unemployment rate: **7.3%**
- Per capita income: **\$22,040**
- Median household income: **\$40,905**
- Persons living in poverty: **22%**



[Source: U.S. Census Bureau](#)

# ATHENS COUNTY FACES HIGH TRANSPORTATION ENERGY BURDEN

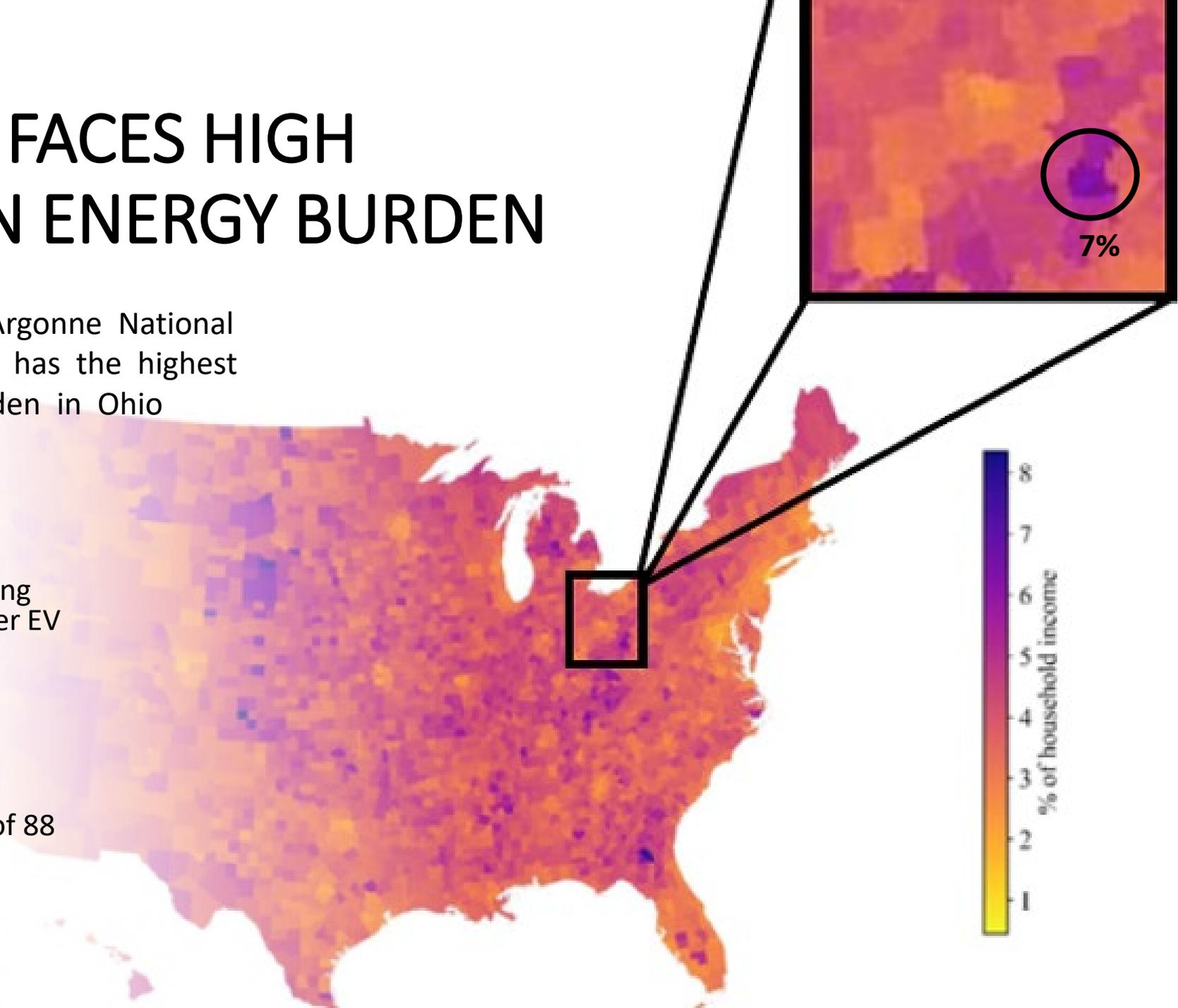
According to a December 2020 Argonne National Laboratory study, Athens County has the highest transportation energy burden in Ohio

## AND YET:

Athens County has more EVSE charging infrastructure and significantly greater EV adoption than its other rural and Appalachian counterparts

Athens County is 7<sup>th</sup> highest in Alternative Fuel Vehicle (AFV's) registrations per capita in Ohio, out of 88 counties

Source: Rural Electrification Report



# WHY STUDY EV ADOPTION IN RURAL OHIO?

- Ohio is a microcosm of the U.S: all four seasons, varied terrain
- Leading research teams and facilities
- AV testing authorized on all public roadways
- Almost 20% of U.S population lives in rural areas
- 50% of roadway fatalities occur in rural areas

**RURAL OPEN ACCESS DEVELOPMENT  
MOBILITY ACTION PLAN (R.O.A.D.M.A.P.)  
Pilot Demonstration Sites**



# CITY OF ATHENS SUSTAINABILITY STRATEGY

- Athens Sustainability Action Plan
- Sustainable Ohio Public Energy Council
- Athens Public Solar Fund
- Climate Emergency Declaration
- L2 & DC Fast Charge Station
- 2.9 MW Planned/Installed Solar Capacity
- SolSmart Bronze Community





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U.S. DEPARTMENT OF  
**ENERGY**

Office of  
**ENERGY EFFICIENCY &  
RENEWABLE ENERGY**

Partnerships are Key to  
Rural Electrification



# LAYING THE GROUNDWORK FOR EV ADOPTION

The Ohio University Credit Union's Hybrid and EV Loan Program (2016-2017) was an innovative financing program that provided OUCU members access to 0% interest loans for alternative fuel vehicles.



71 auto loans were originated in Athens County, generating \$99,079 in sales tax revenue in 2017

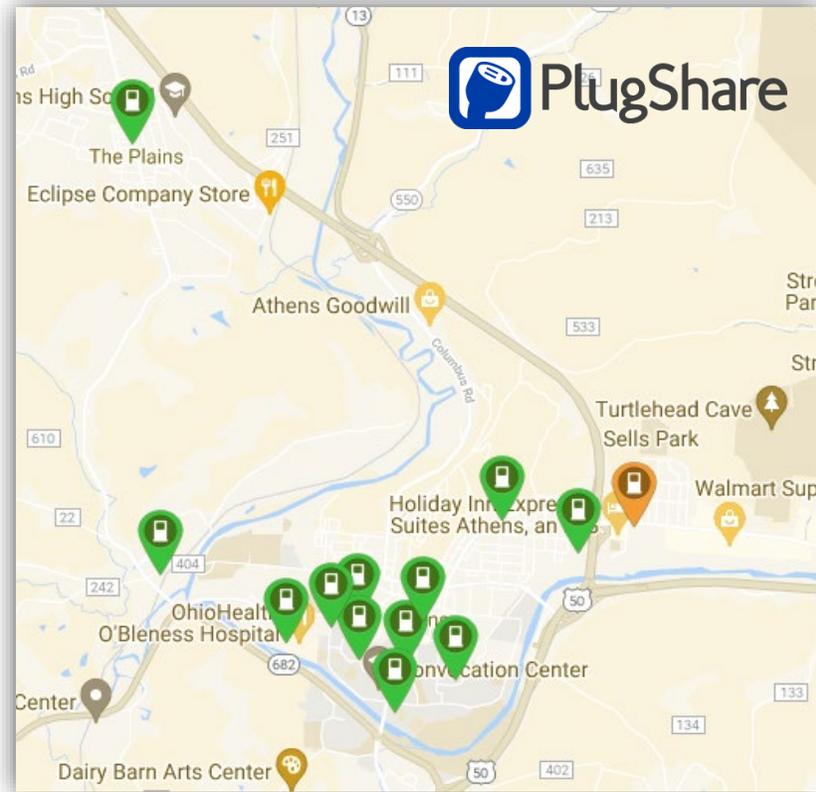


# Drive Electric Ohio

The EV Cruisers Club for electric vehicle owners was established in 2016 to provide peer-to-peer networking and education about EV ownership to the community.



# 27 EV PORTS IN ATHENS COUNTY (AND COUNTING!)





## FREE EV FLEET ANALYSIS

- 1.) Gather Data on Fleet Operations
- 2.) Establish Fleet KPIs & Goals
- 3.) Evaluate Available Options
- 4.) Provide Decision Making Tools
- 5.) Strategic Plan & Recommendations



# Athens Public Transit's First EV SHUTTLE

LAUNCHES  
MAY 2022

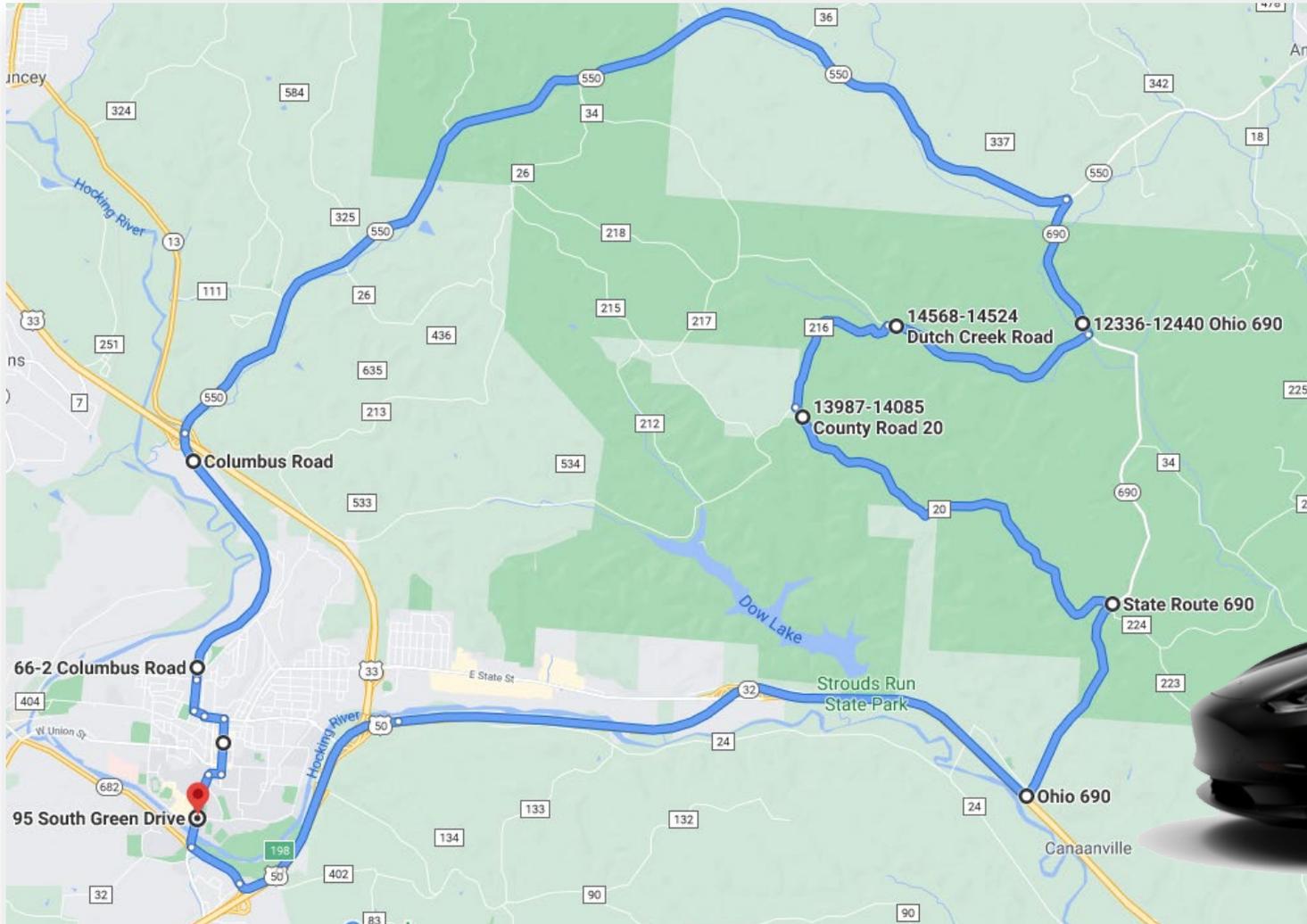


U.S. DEPARTMENT OF  
**ENERGY**

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ENERGY EFFICIENCY &  
RENEWABLE ENERGY

TheJoyceFoundaton

# AUTONOMOUS VEHICLE FEASIBILITY STUDY



- + ~28 MILE TEST ROUTE IN ATHENS COUNTY
- + EXAMINING OBSTACLES IN RURAL INFRASTRUCTURE FOR AUTOMATED VEHICLE TECHNOLOGY
- + FOUR ITERATIONS ON-SITE RURAL ROUTE TESTING, ALL SEASONS
- + CONTROLLED ENVIRONMENT TESTING



# PIONEERING POLICE DEPARTMENT: City of Logan, Ohio

- First fully outfitted Tesla police cruiser in the world
- Over \$6,000/year in savings per cruiser
- City of Logan will save \$1.75M over 30 years as it transitions to an all-electric fleet



# MORE PROJECTS ON THE HORIZON

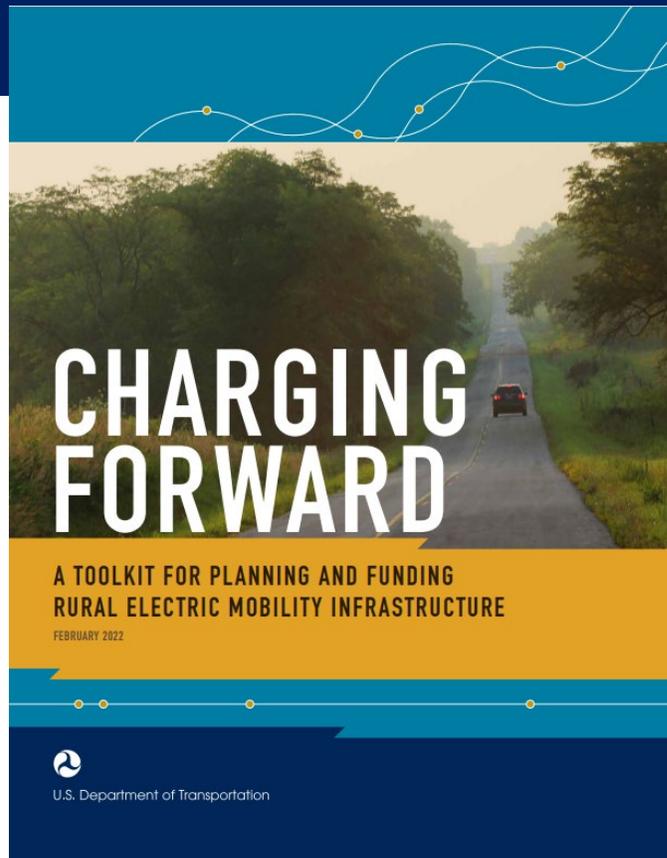
- Dealership engagement to bring PHEV/EV models to rural showrooms
- Workforce training and skill development in advanced vehicle technologies
- EVSE Siting in rural communities beyond highway corridors
- Transportation Service Provider (TSP) fleet analysis and education



# Upcoming FHWA Activities



# Questions



**ROUTES:** [www.transportation.gov/rural](http://www.transportation.gov/rural)

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