



Federal Funding is Available For Electric Vehicle Charging Infrastructure On the National Highway System

April 22, 2021



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



FEDERAL FUNDING IS AVAILABLE FOR ELECTRIC VEHICLE CHARGING INFRASTRUCTURE ON THE NATIONAL HIGHWAY SYSTEM

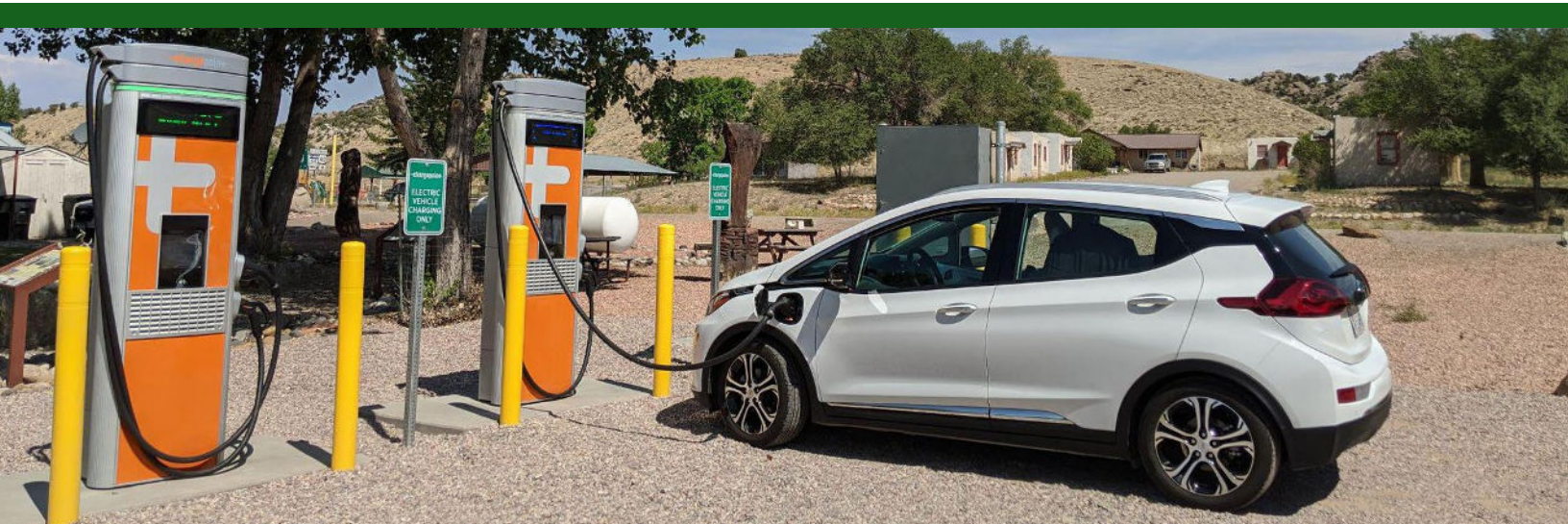
The U.S. Department of Transportation's (DOT) Federal Highway Administration (FHWA) supports the Biden-Harris Administration's goal of installing 500,000 new electric vehicle (EV) chargers by 2030. In order to accelerate the deployment of EV chargers, FHWA is highlighting the policies and funding available today for partners in States, Tribes, Territories, metropolitan planning organizations (MPOs), and Federal land management agencies (FLMAs) to build out electric vehicle chargers along the National Highway System. These EV chargers will support inter-city, regional, and national travel, build consumer confidence by addressing driver range anxiety, and accelerate awareness of and public interest in the use of electric vehicles.

USING FEDERAL FUNDING TO ACCELERATE CONSTRUCTION OF FAST EV CHARGING

Several DOT funding and finance programs are available to plan for and build EV chargers; support workforce training for new technologies; and integrate EVs as part of strategies to address commuter, freight, and public transportation needs. This document highlights eligibilities under each of these programs. Many of these programs are oversubscribed, and EV charging infrastructure competes with many other types of eligible projects. The American Jobs Plan would provide dedicated funding for EV charging infrastructure.

The FHWA strongly encourages transportation partners in States, Tribes, Territories, MPOs, and FLMAs both to use existing DOT funding and finance programs to build out EV charging, as well as to use these programs to leverage private sector investment in such a national EV charging network.

In addition to DOT, there are other Federal funding opportunities for EV infrastructure through programs such as those in the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy.



► (Above) A DC fast charger in use at the Dinosaur Welcome Center in Dinosaur, Colorado.
Photo credit: Colorado Department of Transportation

(Cover) Electric vehicle charging at DC Fast charging station at Tejon Pass Rest Area along Interstate 5 in California. Photo credit: Caltrans (California Department of Transportation)

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DOT Funding and Financing Programs with EV Eligibilities*

LEGEND

Construction and installation of EV charging infrastructure including parking facilities and utilities.	Workforce development and training related to EV infrastructure.	EV acquisitions and engine conversions - cars or trucks.	Planning for EV charging infrastructure and related projects.	Construction and installation of EV charging infrastructure to support operational, resiliency, national energy security, environmental, and community goals for freight transportation.	Installation of EV charging infrastructure as part of transit capital projects eligible under chapter 53 of title 49, United States Code.

	FY 2021 AMOUNT						
FORMULA PROGRAMS							
National Highway Performance Program (NHPP)	\$23.1 B						
Surface Transportation Block Grant Program (STBG)	\$10.2 B						
Congestion Mitigation & Air Quality Improvement Program (CMAQ)	\$2.4 B						
National Highway Freight Program (NHFP)	\$1.5 B						
State Planning and Research (SPR)	\$641.5 M						
Metropolitan Planning (PL)	\$357.9 M						
DISCRETIONARY PROGRAMS							
Rebuilding American Infrastructure with Sustainability and Equity (RAISE) (formerly known as BUILD)	\$1.0 B						
Infrastructure for Rebuilding America (INFRA) Grant Program	\$889.0 M						
Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD)	\$53.3 M						
OTHER ALLOCATED PROGRAMS							
Federal Lands and Tribal Transportation Program (FLTTP)	\$1.0 B						
Highway Infrastructure Program (HIP) (other than for bridges)	\$644.0 M						
Puerto Rico Highway Program (PRHP)	\$74.9 M						
Territorial Highway Program (THP)	\$37.3 M						
INNOVATIVE FINANCE PROGRAMS							
State Infrastructure Banks (SIBs)	Varies						
Transportation Infrastructure Financing and Innovation Act (TIFIA)	Varies						

Disclaimer: Many of these programs are oversubscribed, and EV charging infrastructure competes with many other types of eligible projects.

* All eligibility determinations are fact specific. Limitations may apply. Additional low and zero-emission fuel types also may be eligible under these programs.

Note: Total (in millions and billions, rounded to one decimal place)

For more information on the DOT funding and finance programs with EV eligibilities see page 10.



ADDRESSING THE CLIMATE CRISIS IS A TOP PRIORITY

In January 2021, President Joseph R. Biden, Jr. issued Executive Order 14008, titled Tackling the Climate Crisis at Home and Abroad, which states that the Nation faces “a climate crisis that threatens our people and communities, public health and economy, and starkly, our ability to live on planet Earth.”¹ The Federal government has an opportunity to “build a modern and, sustainable infrastructure, deliver an equitable, clean energy future, and put the United States on a path to achieve net-zero emissions, economy-wide, by no later than 2050.”²

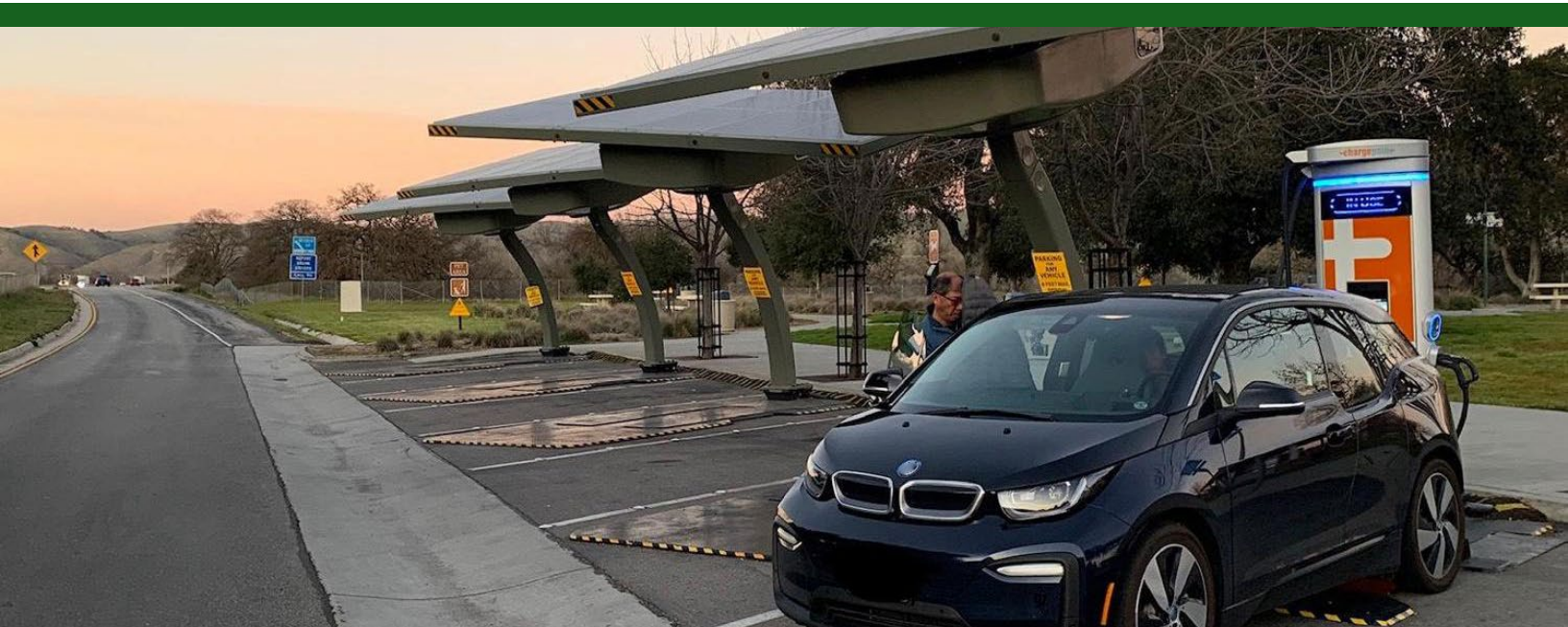
President Biden has directed the Federal government “to organize and deploy the full capacity of its agencies to combat the climate crisis to implement a Government-wide approach that reduces climate pollution in every sector of the economy[,]” including through the “deployment of clean energy technologies and infrastructure.”³

THE TRANSPORTATION SECTOR IS AN IMPORTANT PART OF THE SOLUTION

Burning fossil fuels creates greenhouse gas (GHG) emissions, which build up in the Earth’s atmosphere and warm the climate, leading to many other changes around the world—in the atmosphere, on land, and in the oceans. The transportation sector is responsible for the largest share of GHG emissions in the U.S., and more than half of these emissions are from passenger cars and light-duty trucks traveling on our Nation’s highways.⁴

EVs, which produce zero tailpipe emissions and can be powered by clean, renewable energy instead of gasoline or diesel fuel, are an important part of the solution.

The Biden-Harris Administration has set the ambitious goal of building 500,000 new public EV chargers across the U.S. by 2030 as a key strategy for reducing GHG emissions.



► *Electric vehicle charging at solar-powered DC (direct current) charging station at Camp Roberts Rest Area along U.S. 101 in California. Photo credit: Caltrans (California Department of Transportation)*



ELECTRIC VEHICLES WILL IMPROVE THE QUALITY OF LIFE IN CITIES AND STATES

EVs will substantially reduce air pollution from combustion engines, lower fuel and vehicle maintenance costs, and decrease the use of oil and gas for personal transportation.⁵ Analyses have shown that spending less on oil and gas can create opportunities to build wealth by freeing individuals to spend more in other areas, from education to construction, and that lower fuel costs enable owners to direct some of their fuel savings to local businesses that create local jobs.⁶



Climate Change

EVs have no direct (tailpipe) GHG emissions, but all vehicles produce some level of life cycle emissions, which are the emissions related to a vehicle's production and fuel consumption. Emissions from EVs throughout their lifecycle (including the life cycle emissions) are about three times lower than gasoline-powered vehicles,⁷ in part because EVs can be powered by renewable energy sources including solar, wind, and hydropower without producing GHGs. Even when electricity is produced from non-renewable energy sources, EVs generally produce fewer life cycle emissions than gasoline and diesel-powered vehicles.⁸



Air Quality, Noise, Public Health, and Equity

People who live near major roadways face disproportionate exposures to harmful air pollution and noise from combustion engines. Significantly reducing air pollution and noise⁹ will save thousands of lives and avoid tens of billions of dollars of health costs while improving the quality of life in communities adjacent to our roadways.¹⁰



► Signage showing prices for gasoline and DC fast charge in Denver, Colorado. Photo credit: Colorado Department of Transportation



Economy

By using electricity rather than gasoline or diesel fuel, EVs have the potential to save consumers money, leaving them with more disposable income to spend in the State and local economy. Also, the electricity rates paid to local electric utilities and generation companies keeps more money in the local economy than money spent on gasoline, which typically flows to oil producers, refiners, and gasoline distributors in other States.¹¹

Jobs

Producing EVs and installing new EV charging infrastructure while promoting strong labor, training, and installation standards creates good-paying jobs (research, raw materials extraction, manufacturing, technology, maintenance and services, and supportive industries) in clean energy industries of the future.





AS TECHNOLOGY ADVANCES, CONSUMER DEMAND FOR ELECTRIC VEHICLES GROW

EVs currently represent a small, but rapidly growing portion of new vehicle sales. A variety of factors point to increased EV adoption in the coming years.

The tax credits, point of sale rebates, and other incentives offered by the Federal, State, and local governments for the purchase of EVs – as well as the installation of EV chargers – will further encourage more consumers to adopt EVs.



Changing Policies:

- **Improving Fuel Economy Standards:** At President Biden's direction, the National Highway Traffic Safety Administration (NHTSA) and the Environmental Protection Agency (EPA) are working to increase fuel economy and GHG standards. As standards get tighter, car companies are making more and more electric vehicles, which they can use to comply with the standards. By 2040, more than half of all new cars could be electric.¹²
- **Phasing Out Gasoline-Powered Vehicles:** Several countries, regions, and cities around the world – and the State of California¹³ – have announced plans to require all zero emission vehicles (ZEVs) in the years ahead.¹⁴ Several large automakers, following consumer demand and public policy are committing to bold new goals for all-electric or mostly electric fleets.



Increasing Consumer Demand:

- **Lower Operating Costs:** Consumers save money because EVs are cheaper to maintain and charge.¹⁵ In fact, over an EV's lifetime consumers can save \$3,500-4,200 in fuel costs compared to gasoline-powered vehicles.¹⁶
- **Increasing Driving Range:** There are currently several EV models with a maximum range over 200 miles.¹⁷ As battery technology improves, EVs will be able to go even farther between charges.
- **Increasing Charging Speeds:** Fast charging technology is improving, decreasing charging time.
- **Decreasing Prices:** In conjunction with lower operating costs, the price of purchasing a new EV, even without tax incentives, is projected to decrease. By the mid-2020's, EV purchase costs are expected to be comparable to gasoline-powered vehicles.¹⁸



Increasing EV Production:

- **Increasing Models:** Automakers are producing an increasing number of EV models, and one market analysis indicates that by 2022, there will be more than 500 EV models available globally,¹⁹ up from only a few dozen models available in 2020.²⁰
- **Transitioning to EVs:** Several automakers have announced plans to transition to producing only EVs, discontinuing production of gasoline-powered vehicles, in the coming years.

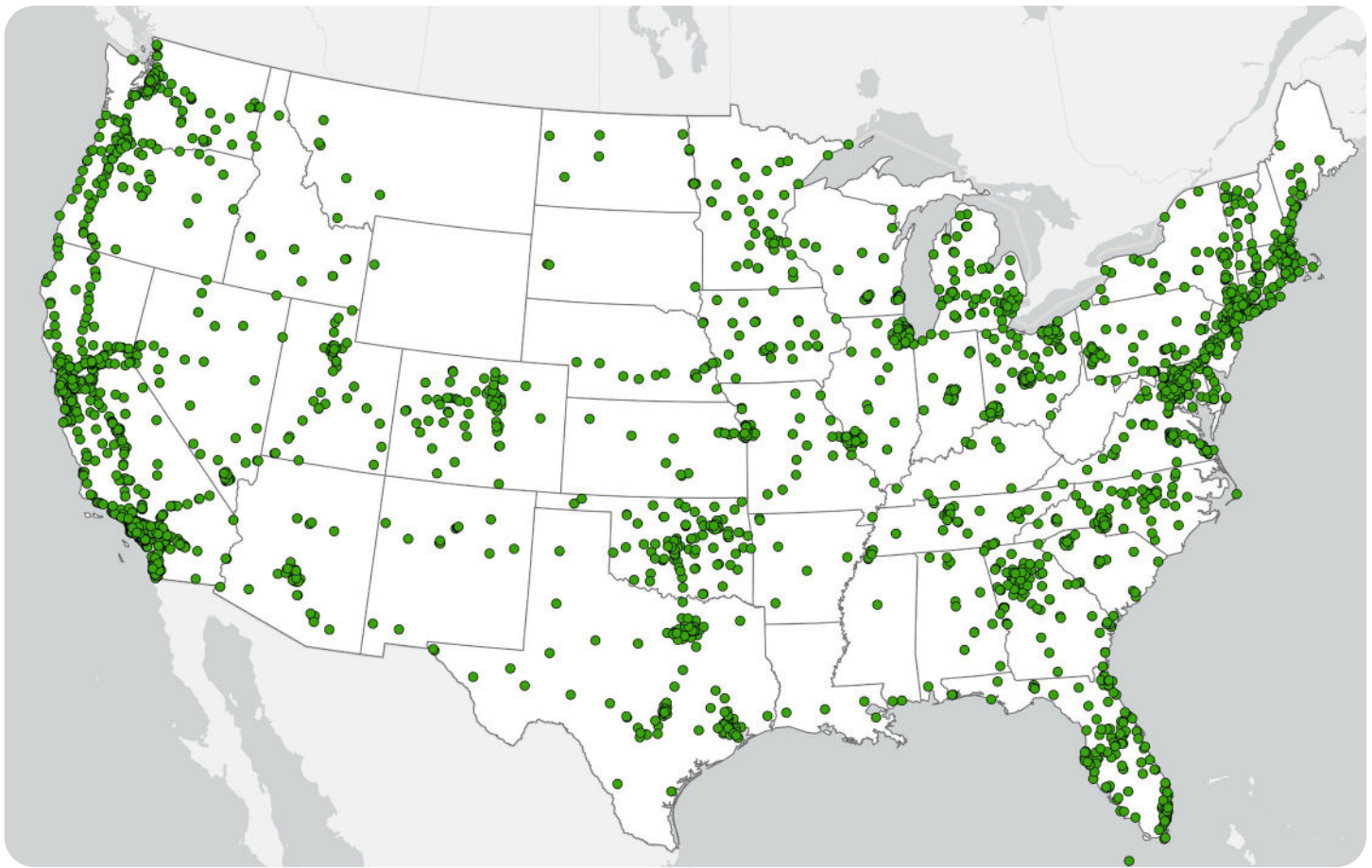


CONSUMERS NEED TO KNOW THEY CAN FIND A CHARGING STATION

One of the primary obstacles to more widespread adoption of EVs is the limited network of EV charging stations, including along highway corridors throughout the National Highway System. According to national survey data, 78 percent of Americans believe that finding an EV charging station is at least moderately difficult.²¹ Of drivers who are not planning to buy or lease an EV when they purchase their next vehicle, 48 percent reported concerns about not enough public charging stations.²²

Unlike the existing national network of gas stations, which are estimated to number more than 150,000²³ as of April 2021, there were only approximately 38,000 publicly-accessible, non-Tesla EV charging stations nationally with approximately 79,000 charging outlets.²⁴ For drivers taking lengthier trips along the country's Interstates and highways, fast charging is particularly critical, yet there are fewer than 4,000 non-Tesla DC fast charging stations nationally with approximately 7,700 charging outlets.²⁵

DC Fast Charging Stations in the Continental U.S.



► The U.S. Department of Energy's Alternative Fuel Data Center maintains an Alternative Fueling Station Locator at <https://afdc.energy.gov/stations> or through an app available for iPhone and Android devices.

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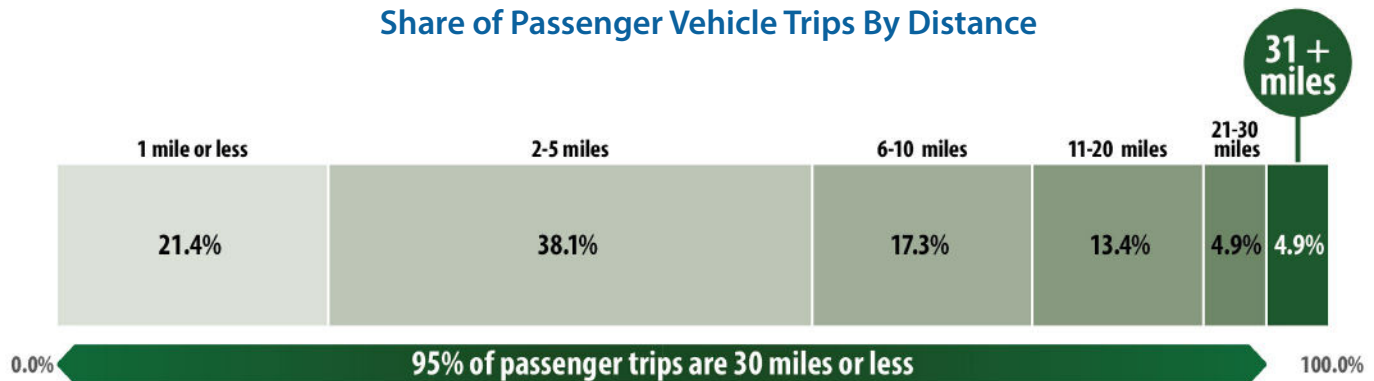
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Most EVs have ranges over 100 miles per charge and several models have ranges over 200-300 miles. These distances well exceed typical personal trip distances on a single charge.²⁶

While personal trips distances of 31 miles or farther account for less than five percent of all trips, consumer “range anxiety” may limit demand for EV purchases until drivers are confident that they will easily be able to find charging stations on long-distance trips. Because many such longer trips use Interstates and the National Highway System, DOT and its State partners have a unique opportunity to address this key challenge by using existing Federal funding streams to help build out a network of EV charging stations– and particularly DC (direct current) fast chargers – along our Interstates and other roads on the National Highway System.

Share of Passenger Vehicle Trips By Distance



► National Household Travel Survey, 2017.

Representative Operational Characteristics of EV Chargers for Light-Duty Vehicles

Charger Type	Primary Use	Typical Power Output	Estimated EV Charge Time from Empty (~60 kWh battery)
Level 1	Residential Charging	1 – 1.5 kW	40 - 50 hours
Level 2	Residential and Public Charging	7 - 19 kW	4 - 10 hours
Older Level 3 DC Fast Charge	Public Charging	50 kW	< 1 hour [to 80% charge]*
State-of-the-Art DC Fast Charge	Public Charging	150 kW +	20 minutes [to 80% charge]*

► U.S. Department of Transportation Volpe Center, U.S. Department of Energy, March 2021; Alternative Fuels Data Center, https://afdc.energy.gov/fuels/electricity_infrastructure.html, U.S. Department of Energy, www.fueleconomy.gov, March 2021.

* Note: To prolong battery life, charging slows after an 80% charge level is reached.



BUILDING A NATIONAL EV CHARGING NETWORK

The eventual National Highway System network of fast charging stations will build on the work already done by FHWA and State partners to designate Alternative Fuel Corridors. The FHWA designates national Alternative Fuel Corridors for electric vehicle charging as well as hydrogen, propane, and natural gas fueling infrastructure based on nominations from State and local officials.²⁷ The purpose of the program is to add visibility to sections of the National Highway System that can sustain long-distance travel for alternative fuel vehicles. Once FHWA designates these corridors, States may install Alternative Fuel Corridor signs along the designated highway corridor.²⁸

The FHWA designates EV corridors with public DC fast charging stations as:

- **Corridor ready** with EV charging stations located no greater than 50 miles apart and no greater than 5 miles off the highway, and
- **Corridor pending** with some EV charging stations, but not at the right frequency or locations to fully meet the standard of “corridor ready.”²⁹

The FHWA has designated EV corridors on approximately 58,980 miles of the National Highway System in 48 States plus the District of Columbia, including segments of 106 Interstates along with 104 US highways and State roads. South Dakota and Mississippi are the only two states without an EV corridor designation.

The FHWA is working with other Federal, State, and local officials, as well as private industry, to plan and promote both the existing set of corridors and, ultimately, an even more comprehensive national network.

Existing and Pending Electric Vehicle Fuel Corridors



► FHWA, *Alternative Fuel National Corridors map*, <https://hepgis.fhwa.dot.gov/fhwagis/>



DOT FUNDING AND FINANCE PROGRAMS EV ELIGIBILITIES*

LEGEND

Construction and installation of EV charging infrastructure including parking facilities and utilities.	Workforce development and training related to EV infrastructure.	EV acquisitions and engine conversions - cars or trucks.	Planning for EV charging infrastructure and related projects.	Construction and installation of EV charging infrastructure to support operational, resiliency, national energy security, environmental, and community goals for freight transportation.	Installation of EV charging infrastructure as part of transit capital projects eligible under chapter 53 of title 49, United States Code.



Formula Programs

PROGRAM	ELIGIBLE EV ACTIVITIES
<p>National Highway Performance Program (NHPP) NHPP funds may be used for a project or program of projects aimed toward supporting progress toward the achievement of national performance goals on the National Highway System.</p>	
<p>Surface Transportation Block Grant Program (STBG) The STBG program (STBG) provides flexible funding that may be used by States and localities for projects to preserve and improve the conditions and performance on any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals.</p>	
<p>Congestion Mitigation and Air Quality (CMAQ) Improvement Program The CMAQ program provides a funding source for States and local governments to fund transportation projects and programs that help meet the requirements of the Clean Air Act.</p>	
<p>National Highway Freight Program (NHFP) The NHFP aims to improve the efficient movement of freight on the National Highway Freight Network. The program supports several goals including reducing the environmental impacts of freight movement.</p>	




*All eligibility determinations are fact specific. Limitations may apply.

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PROGRAM	ELIGIBLE EV ACTIVITIES
<p>State Planning and Research (SPR) This program provides funding for making transportation investment decisions throughout the State. The goals of the funding are to develop cooperative planning efforts that support transportation investment decisions statewide.</p>	
<p>Metropolitan Planning (PL) This program provides funding for regional efforts within a designated urbanized area with a population of 50,000 or more. The goals of the funding are to develop cooperative planning efforts that support transportation investment decisions within urbanized areas.</p>	

Discretionary Programs

PROGRAM	ELIGIBLE EV ACTIVITIES
<p>Rebuilding American Infrastructure with Sustainability and Equity (RAISE) (formerly known as Better Utilizing Investments to Leverage Development (BUILD)). The RAISE program provides an opportunity for the DOT to invest in road, rail, transit and port projects that promise to achieve national objectives.</p>	 
<p>Infrastructure for Rebuilding America (INFRA) Grant Program The INFRA grant program provides Federal financial assistance to highway and freight projects of national or regional significance. INFRA has multimodal eligibility and increases the impact of projects by leveraging non-Federal funding contributions and incentivizing project sponsors to pursue innovative delivery and financing strategies, including public-private partnerships. For the FY 2021 Notice of Funding Opportunity (NOFO), DOT is seeking projects that address climate change either as part of a comprehensive strategy to address climate change or the deployment of zero-emission-vehicle infrastructure. DOT seeks projects that apply innovative technology, delivery, or financing methods with proven outcomes to deliver projects in a cost-effective manner.</p>	



PROGRAM	ELIGIBLE EV ACTIVITIES
<p>Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) The ATCMTD program provides grants to eligible entities to develop model deployment sites for large scale installation and operation of advanced transportation technologies to improve safety, efficiency, system performance, and infrastructure return on investment. Demonstration projects could include EV charging infrastructure integrated with intelligent transportation systems with the Smart Grid and other energy distribution and charging systems or associated with advanced mobility and access technologies such as dynamic ridesharing.</p>	

Other Allocated Programs

PROGRAM	ELIGIBLE EV ACTIVITIES
<p>Federal Lands and Tribal Transportation Program The programs under the umbrella of the Federal Lands and Tribal Transportation, including the Tribal Transportation Program (TTP), Federal Lands Transportation Program (FLTP), and Federal Lands Access Program (FLAP), aim to improve transportation to and within Federal and Tribal lands.</p>	
<p>Highway Infrastructure Program The FY 2021 Consolidated Appropriations Act appropriated \$640.7 million for STBG purposes and to provide necessary charging infrastructure along corridor-ready or corridor-pending alternative fuel corridors designated by FHWA under 23 U.S.C. 151. The FY 2020 Further Consolidated Appropriations Act previously appropriated \$781 million and included similar eligibility for charging infrastructure.</p>	

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PROGRAM	ELIGIBLE EV ACTIVITIES
<p>Puerto Rico Highway Program (PRHP) The purpose of the PRHP is to carry out a highway program in the Commonwealth of Puerto Rico.</p>	
<p>Territorial Highway Program (THP) The purpose of the THP is to assist each territory in the construction and improvement of a system of arterial and collector highways and necessary inter-island connectors.</p>	

Innovative Finance Programs

INNOVATIVE FINANCE PROGRAMS	ELIGIBLE EV ACTIVITIES
<p>State Infrastructure Banks (SIBs) Capitalized with Federal support, these State-controlled infrastructure investment funds can offer a range of loans and credit enhancement products to public and private sponsors of highway or transit capital projects. The law governing SIBs expressly allows two or more States to establish a “multi-state infrastructure bank,” although there is no requirement that the States be geographically contiguous.</p>	
<p>Transportation Infrastructure Financing and Innovation Act (TIFIA) The TIFIA program provides Federal credit assistance to eligible surface transportation projects. Many large-scale, surface transportation projects - highway, transit, railroad, intermodal freight, and port access - are eligible for assistance. Eligible applicants include State and local governments, transit agencies, railroad companies, special authorities, special districts, and private entities.</p> <p>The capital cost of projects must be at least \$50 million (or 33.3 percent of a State’s annual apportionment of Federal-aid funds, whichever is less) or \$15 million for Intelligent Transportation Systems (ITS) projects.</p>	



ENDNOTES

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