

UNION COUNTY ELECTRIC VEHICLES INFRASTRUCTURE STUDY



THE UNION COUNTY BOARD OF
COUNTY COMMISSIONERS



The purpose of this study is to plan for the expansion of electric vehicle supply equipment (EVSE) in order to support a growing number of electric vehicle (EV) drivers. EV adoption promotes better air quality and improves community health by reducing emissions from gasoline-powered vehicles.

The popularity of EVs and plug-in hybrids is growing as innovation improves reliability and driving range while government incentives improve affordability. While many EV drivers typically charge at home, not all households have the required space. EV drivers also need public charging when traveling long distances. This challenge, combined with an increased number of EV drivers locally and regionally, requires a solution. This study, funded both by Union County and the North Jersey Transportation Planning Authority's Subregional Studies Program, proposes a roadmap for expanding the EV infrastructure network in a way that is efficient, convenient, and equitable.

Data Collection

The data gathered for this study includes information about the current county infrastructure and industry best practices using data and guidelines from both public and private entities at national, regional, and local levels, local land use and zoning ordinances and trends, and demographic characteristics. Using that data, GIS layers were created in a project-specific mapping tool. The data collection included an Equity Assessment based upon the NJTPA Equity Tool.

Public Outreach

The study sought input from agencies and organizations, local businesses and community members, property owners, and the public, in addition to representatives from the County staff, the consultant, and the NJTPA to create a Public Information Plan. A variety of opportunities for education, discussion, comment, and meaningful input were used throughout the planning process with the following principles in mind:

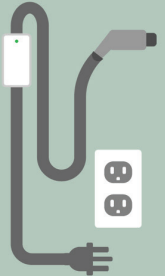
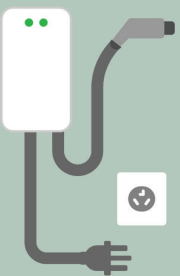
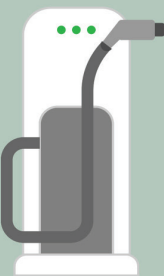
- **Engage People:** The outreach approach was designed with multiple opportunities to provide input. These included Technical Advisory Committee (TAC) meetings, a public meeting, virtual interactive mapping and survey initiatives, and a project webpage to provide project background and updates.
- **Seeing is Believing:** Visually rich content, including newsletters, flyers, and presentations, were integrated into each meeting. Interactive survey questions offered stakeholders opportunities to provide input.
- **Reach the Community:** People of different ages, ethnicities, races, and incomes learn about and participate in community engagement activities and events in different ways. The webpage and virtual community engagement activities were developed to be mobile-friendly. Engagement materials were prepared in Spanish and English. Spanish-speaking Team members were available at the public meeting. In order to cast the widest net for community input, outreach included using the Union County Human Services Advisory Council, a network of social service agencies, to ensure that disadvantaged communities were contacted and involved in the Study.

UNION COUNTY ELECTRIC VEHICLES INFRASTRUCTURE STUDY



Study Methodology

The Study measured the suitability of potential EVSE locations projected for the next 10 years by considering areas of highest demand and need, based on four categories: equity, land use/built environment, EV network gap, and early adoption. These EV charging opportunities reflect both public input and technical analysis.

		
Level One 120V Electrical source from a regular home outlet.	Level Two 220V Electrical source from a regular home dryer outlet, home hardwire, or public station.	DC Fast Charge 208 or 480V 3-Phase AC Electrical source from a public station.
Charge Time 2-5 miles of range per 1 hour of charging.	Charge Time 10-20 miles of range per 1 hour of charging.	Charge Time 60-80 miles of range per 20 minutes of charging.

The process for developing the proposed network of chargers includes goal-setting, data collection, and data mapping according to various logistical, cost, and equity factors, in addition to the aforementioned public outreach and input, to create a suitability score that can be used to help individual municipalities, developers, and businesses identify best fit locations to place EV charging infrastructure.

The framework for the EV charging network reflects the December 2025 goal for the State of New Jersey National Electrical Vehicle Infrastructure Plan (NEVI) to have 330,000 registered passenger EVs and at least 400 public direct current fast chargers (DCFC) throughout the state. The DCFC chargers are to be distributed to at least 200 locations.

Site Selection

A number of factors were considered as part of the site selection process and ultimately evaluated for suitability, namely, **Prime Location, Gap, High Trip Destination, Visibility, Shovel Readiness, and Safety.**

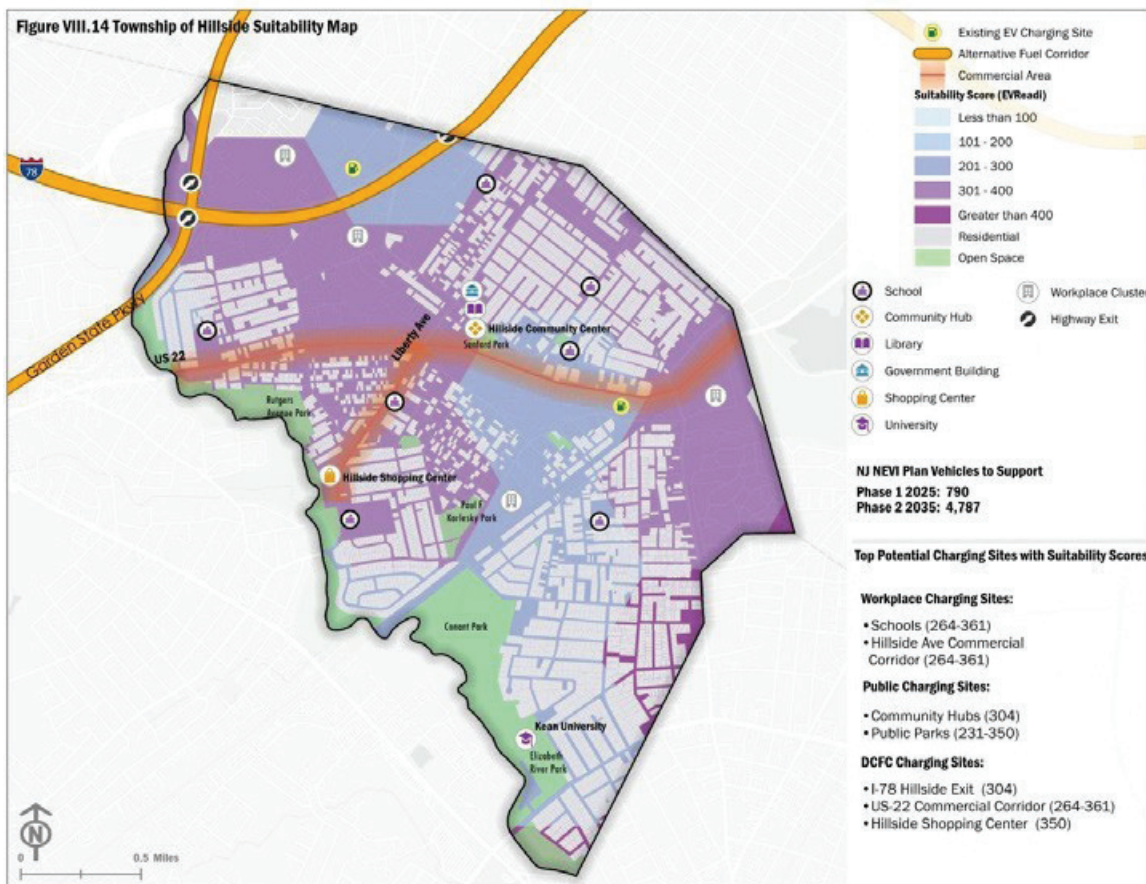
UNION COUNTY ELECTRIC VEHICLES INFRASTRUCTURE STUDY



THE UNION COUNTY BOARD OF COUNTY COMMISSIONERS



This work ultimately led to the development of a suitability map for each of the 21 municipalities within Union County. The maps also display commercial corridors/areas, schools, parks, community hubs, the major state highways termed Alternative Fuel Corridors (AFCs), existing charging infrastructure, transit centers, and other key destinations. These maps can be used in future planning to begin identifying where to deploy charging infrastructure based on suitability and adjacent land uses.



In addition to individual static maps, the Study produced an interactive map showing all the municipalities with their suitability scores. This map can be accessed at ucnj.org/ev-study/interactivemap.

EVSE Design Considerations

Reliability and confidence-building are critical issues in EV adoption. The State's focus is currently on reducing barriers to adoption. The Study explores how site selection, suitability, and EV charging implementation are affected by: **Charger Requirements, Number of Chargers, Electrical Service for Chargers, Networked or Not Networked, How to Find a Charger, Compliant Network Service Providers, Selecting a Charger Type, and ADA Accessible Charging Stations.**

UNION COUNTY ELECTRIC VEHICLES INFRASTRUCTURE STUDY



THE UNION COUNTY BOARD OF
COUNTY COMMISSIONERS



Grant Funding

There are various grants for public and private entities interested in purchasing and installing EV charging stations. The study identifies and summarizes available grants as well as provides sample language for grant writing that applicants can utilize to reference the Study in their future EVSE grant applications.

Next Steps

The suitability model provides direction for focusing investment on EVSE. The municipal review and mapping found in the report help the County, municipalities, developers, and private investors to determine where to prioritize charging locations. While investment in EV charging is needed throughout the County and the study considered a balanced approach to weighting the factors, the results reveal an initial focus on high trip destinations and proximity to AFC would benefit most from initial deployment of public charging stations.

Next steps include the County sharing the municipal maps with each community, as well as working with the priority municipalities that were identified as high in suitability. Also important is to identify where the County can provide charging opportunities for their own fleet and staff, as well as reviewing potential public charging locations at County owned facilities such as parks, parking lots, parking garages, and administrative buildings.

The County will continue to maintain EV guidance resources and funding opportunities at its website, ucnj.org/ev-study, in order to assist municipalities and the community on evolving trends, policies and best practices. The full study, which formed the basis for this top-line report, is available upon request.

THE UNION COUNTY BOARD OF COUNTY COMMISSIONERS

Sergio Granados, Chairman
Kimberly Palmieri-Mouded, Vice-Chairwoman
James E. Baker, Jr.
Joseph C. Bodek
Dr. Angela R. Garretson
Bette Jane Kowalski
Lourdes M. Leon
Alexander Mirabella
Rebecca Williams

QUESTIONS:

Liza Betz, AICP, PP,
Transportation Planning
Manager

Bureau of Transportation
Planning

ebetz@ucnj.org
(908) 558-2273

UNION COUNTY ADMINISTRATION

Edward T. Oatman, County Manager

Amy Crisp Wagner, Deputy County Manager
and Director of Economic Development

James E. Pellettiere, RMC, QPA,
Clerk of the Board

Sponsored by the Union
County Board of County
Commissioners



UNION COUNTY
We're Connected to You!