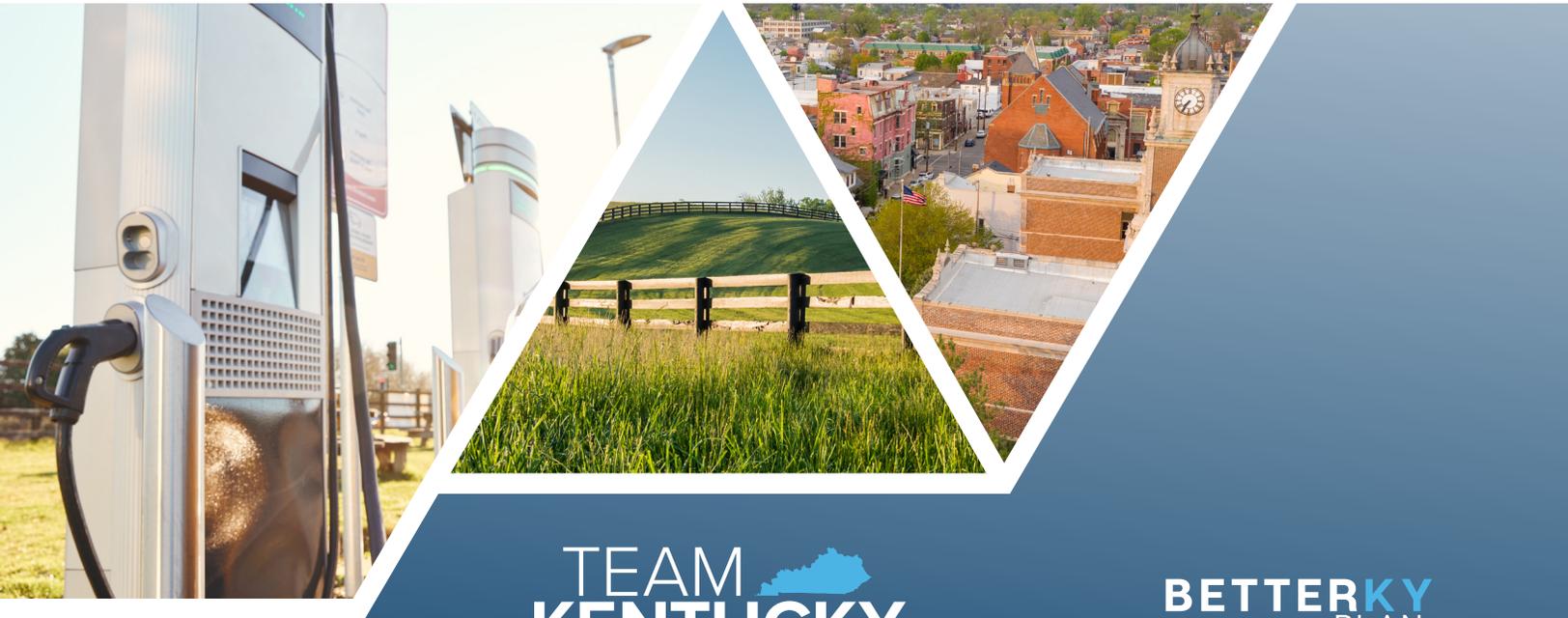


Kentucky's Electric Vehicle Infrastructure Deployment Plan

Better Kentucky Plan

SEPTEMBER 2023



TEAM
KENTUCKY

BETTERKY
PLAN

EXECUTIVE SUMMARY

Kentucky's updated Electric Vehicle Infrastructure Deployment Plan (EVIDP) was developed in accordance with the National Electric Vehicle Infrastructure (NEVI) Formula Program Guidance that was issued by the Federal Highway Administration (FHWA). The process included robust stakeholder engagement and a thorough technical and policy analysis. Combined, these efforts resulted in a plan that provides a thoughtful and flexible framework for developing a statewide charging network across the Commonwealth.

INTRODUCTION

Kentucky's 2022 EVIDP was developed by the Kentucky Transportation Cabinet (KYTC) in close coordination with Kentucky's Energy and Environment Cabinet (EEC). The agencies established a steering committee that included the Public Service Commission (PSC) and FHWA to provide oversight and direction for the plan. Work on the plan began in January 2022 and the plan was submitted to the Joint Office in July 2022. The plan included three major elements: engagement, technical analysis, and policy and plan development. The plan was approved by the Joint Office on September 14, 2022.

This update of the 2022 EVIDP takes into account the updated guidance released by FHWA, in collaboration with the Joint Office, since the original plan was approved. It also takes into consideration the release of KYTC's first Request for Proposals (RFP) for developers to design, build, own, operate and maintain EV charging stations in the state. Kentucky's EVIDP will be submitted to the Joint Office by the August 1, 2023, deadline.

STATE AGENCY COORDINATION

In addition to coordinating with EEC, PSC, and FHWA, KYTC also involved the following Cabinets: Economic Development, Finance and Administration, Tourism, Arts and Heritage, and Education and Labor. KYTC also regularly communicates with other states to coordinate on Alternative Fuel Corridors (AFCs) and other EV-related topics to implement the NEVI Formula Program guidance through one-on-one and regional meetings. In addition to state agencies, KYTC continues to collaborate with other local and regional organizations and advocacy groups.

Per the Federal guidance, this plan reaffirms KYTC is committed to the "Buy America" requirements of the NEVI program. KYTC and EEC will continue to monitor the development of "Buy America" compliant charging infrastructure.

KYTC continues to meet NEVI regulations and guidance as they emerge. The sidebar text in the Executive summary indicates how this plan meets NEVI guidance.

Introduction

- Plan development process
- Target Dates
 - Plan Update, July 2023
 - Plan Approval, Sept. 2023
 - Implementation, Ongoing
- Summary of Plan Updates

State Agency Coordination

- Collaborative effort between KYTC and EEC
- Involved other KY state agencies, FHWA, and other state DOTs
- Commitment to using U.S. made EV supply equipment

PUBLIC ENGAGEMENT

Outreach to the public was central to the development of the plan and continues to be an important aspect of implementation. KYTC participated in over 80 stakeholder meetings, events, or presentations between February and July 2022, resulting in engagement with over 800 stakeholders (Figure ES.1). Since the plan’s approval in September 2022 through July 2023, KYTC has participated in an additional 75 meetings with over 2,900 stakeholders (Figure ES.2). Representatives included government agencies, municipalities, utilities, manufacturers, advocacy groups, private firms, and non-profits. The resulting themes covered key topics that helped inform the plan, including:

- + Focus initial efforts on deploying fast charging infrastructure first on Interstates
- + Next, focus on Parkways and then other priority corridors
- + Prioritize geographic coverage over site capacity
- + Pair charging with economic opportunity
- + Serve rural and disadvantaged communities (DACs)

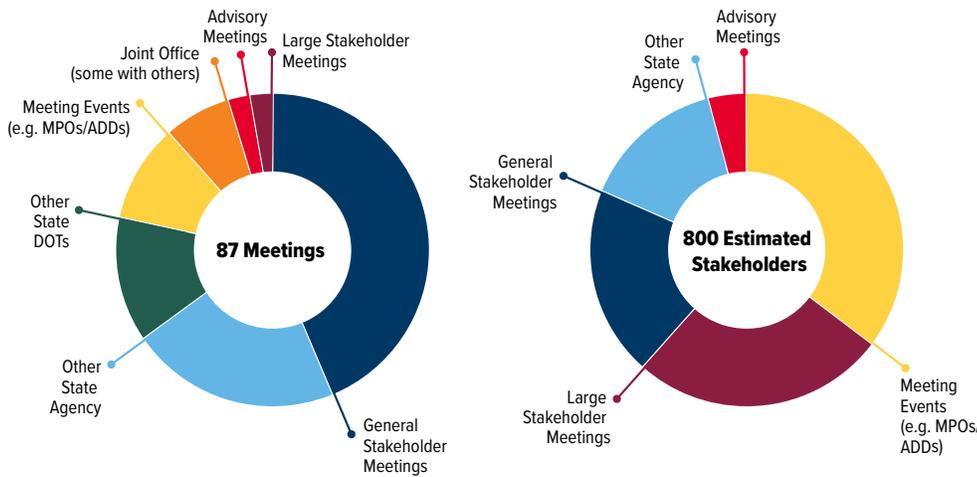


FIGURE ES.1 PLAN DEVELOPMENT STAKEHOLDERS

Public Engagement

- Stakeholder engagement included representatives from government agencies, municipalities, utilities, manufacturers, private firms, and non-profits
- Engagement included equity-focused outreach that will continue as the plan evolves
- Stakeholder feedback supported the Joint Office goals including prioritizing Interstates and serving rural and disadvantaged communities
- Community Engagement Outcomes are documented including activities and feedback related to planning and implementation

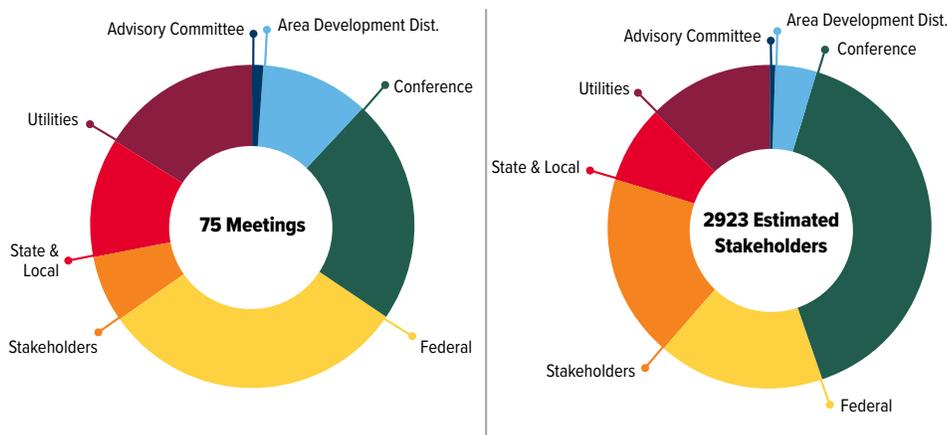


FIGURE ES.2 IMPLEMENTATION STAKEHOLDERS



VISION AND GOALS

KYTC considered the NEVI Formula Program goals and guidance, in tandem with Kentucky's Long-Range Statewide Transportation Plan goals, to develop the EVIDP vision:

“A reliable, accessible, convenient, and affordable EV charging network that supports transportation choices, energy diversification, economic development, and environmental sustainability for all Kentuckians.”

As required by the guidance, KYTC evaluated the sources and uses of funding Kentucky will receive from the NEVI Formula Program. The total federal amount is approximately \$69.5 million over the 5-year program. This will be matched by at least 20% (\$17.4 million) in non-federal, private, funds for a total investment of at least \$86.9 million. The expected amounts, uses, and timing are shown in **Figure ES.3** which is discussed further in **Chapter 7**. This annual update includes updated funding amounts and describes how KYTC will measure progress toward KYTC's five goals:

1. A corridor-based EV charging system that supports interstate and regional travel
2. A local EV ecosystem that serves Kentucky's communities and travelers
3. A comprehensive system that supports transportation choices for all of Kentucky's residents
4. An interconnected, reliable, and resilient vehicle fueling system that can adapt to changes in market conditions and transportation technologies
5. A transportation system that reduces emissions and promotes clean air in Kentucky

Plan Vision and Goals

- Aligns NEVI Formula Program goals with KY's LRSTP goals
- Identifies anticipated NEVI funding over the 5-year program
- Provides for annual updates
- Goals include quantitative targets including measuring system coverage and charging station reliability

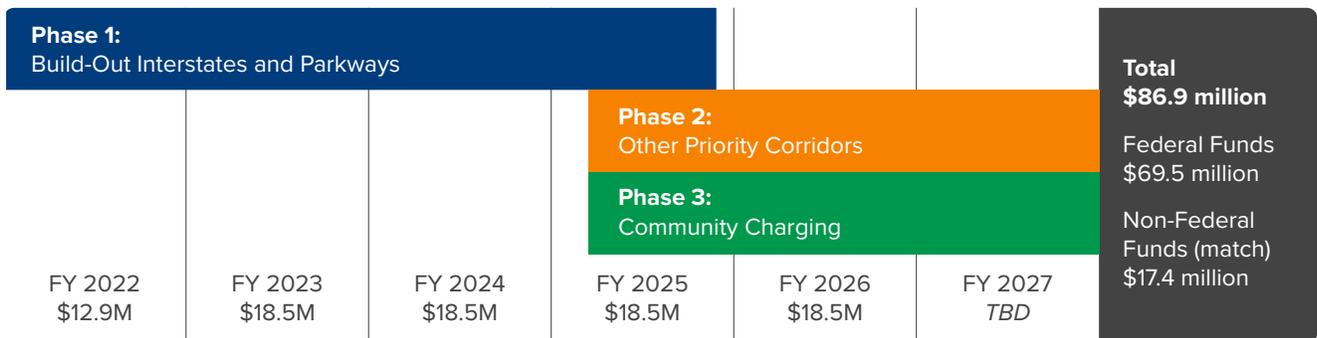


FIGURE ES.3 NEVI FORMULA FUNDING PROGRAM

CONTRACTING

On June 15, 2023, KYTC issued a request for proposals (RFP) to solicit proposals to design, build, own, operate, and maintain direct current fast charging (DCFC) electric vehicle supply equipment stations (EVSE stations) along the state’s Alternative Fuel Corridors (AFCs). Proposals are scheduled to be due August 24, 2023, with a notice of award anticipated by September 27, 2023. KYTC will evaluate proposals in September, with the execution of project agreements (PAs) on or before December 20, 2023. There are 17 corridor groups across the state for which proposals are being accepted (**Figure ES.4**). KYTC may make awards for each corridor group. Ultimately, KYTC expects that up to 37 sites will be needed to achieve build-out of the AFC network in the state.

KYTC identified priority outcomes for the contract method to implement the deployment of DCFC stations, including:

- + Maximization of the leverage of federal funds
- + Attraction of multiple experienced proposers
- + Engagement with local, small and disadvantaged businesses

KYTC is currently preparing a project management plan (PMP) to document KYTC’s management procedures and organizational structure to comply with Federal and State requirements.

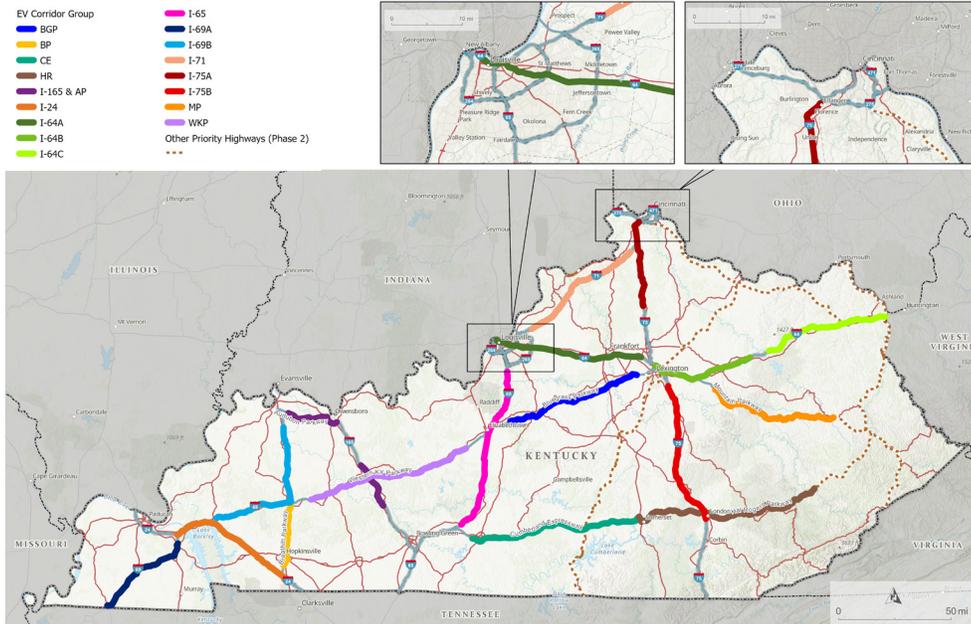


FIGURE ES.4 CORRIDOR GROUP

Contracting

- Third-party entities will install, own, operate, and maintain the charging stations
- KYTC has issued an RFP and is currently accepting proposals for 17 corridor groups
- Proposals are currently due by August 24, 2023 with Notice of Award being issued in September and project agreements in place in December
- The proposal evaluation process is outlined in the RFP
- A project management plan (PMP) is being developed to support compliance with NEVI program requirements
- KYTC has taken steps to promote small and disadvantaged business involvement in the RFP process



EXISTING AND FUTURE CONDITIONS ANALYSIS

In accordance with the NEVI Guidance, KYTC examined issues related to geography, terrain and climate. These attributes are not expected to impact EV infrastructure planning in the state, with a few possible exceptions. These exceptions include addressing snow removal, considering the mountainous highways in eastern Kentucky, and providing emergency charging equipment if power is lost during a storm event.

Kentucky is served by a network of interstates and state parkways that provide for travel within, to and through the state. I-65 and I-75 run north-south through the center of the state; I-24 runs through western Kentucky and I-64 runs east-west through the northern part of the state. The Parkway System covers other areas of the state and provides connectivity to rural areas. All 11 interstates and eight parkways are designated as EV AFCs, as shown in **Figure ES.5**. KYTC expects to use NEVI formula funds to deploy EV charging infrastructure on those AFCs, as described in **Chapter 5**. As detailed in the full report, additional priority corridors beyond the AFC network will be explored after the AFC network is approved by FHWA as built out.

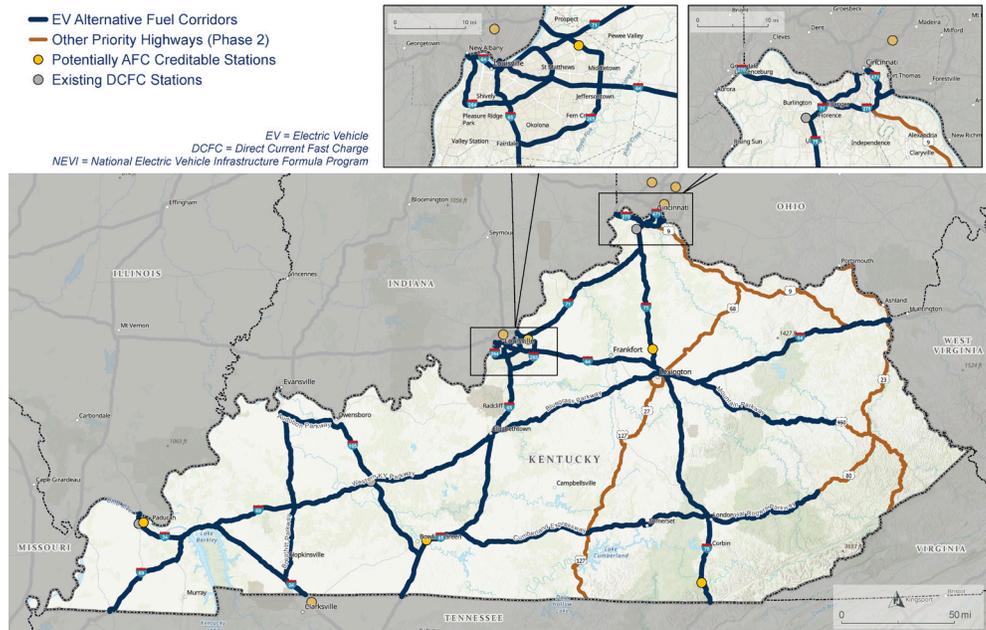


FIGURE ES.5 ALTERNATIVE FUEL CORRIDORS IN KENTUCKY

In Kentucky, there are currently eight publicly accessible 24-hour DCFC stations within one mile of an AFC. Five of these publicly accessible stations are potentially AFC creditable stations. There are additional creditable DCFC stations just beyond the state border on I-65 in Indiana, on I-71 and I-275 in Ohio, and on I-24 in Tennessee. These stations provide some AFC network coverage in Kentucky.

Electric power is distributed across Kentucky by 50 utilities, including investor-owned electric utilities, rural electric cooperatives, municipal electric systems and Tennessee Valley Authority regulated utilities. The peak electrical power demand for DCFC stations was estimated along the AFC network based on projections for EV adoption and traffic growth. The results showed that the peak power demand through 2026 should not be difficult to meet with the existing electrical grid. Kentucky currently has five publicly accessible 24-hour DCFC stations in the state, with an additional four just beyond the state boundary. There are several publicly accessible non-AFC creditable DCFC stations, as well.

Existing and Future Conditions Analysis

- Considered state specific geography, terrain, climate, market conditions, public transportation needs, and freight as it pertains to EV charger deployment
- Evaluated electric utilities that service the study area and grid capacity to support additional EV charging infrastructure
- Examined existing EV infrastructure and EV adoption and projected future adoption
- Identified designated AFCs and existing DCFC charging stations along AFCs in the state
- Identified risk and challenges to EV adoption and EV infrastructure deployment



Currently, there are approximately 7,200 registered battery electric vehicles (BEVs) in Kentucky. This is 0.18% of the 3.3 million registered light-duty vehicles in the state, which is lower than the national average of 1.17% of registered vehicles. A forecast was developed that considered twelve industry projections. It calls for BEV sales in Kentucky to reach a 30% market share in 2035, with 11.5% of all registered vehicles being BEVs by that time. Kentucky has lagged behind other areas of the country in EV adoption. However, with the growth of EV and battery manufacturing in the state and the substantial private, local, state, and federal investment in EVs and EV infrastructure, it is expected that adoption in Kentucky will increase and follow the national average in the future. This increase in adoption will go along with overcoming many of the identified barriers to EV adoption and EV infrastructure in Kentucky.

EV CHARGING INFRASTRUCTURE DEPLOYMENT

This section of the plan presents the proposed NEVI Program funded DCFC network, expected network demand, and how Kentucky is prioritizing locations on the network. It also covers other items required by the NEVI guidance. KYTC prepared an analysis of the predicted demand for AFC creditable DCFC stations (NEVI stations) on the AFC network, along with assessments of power demand and station utilization. A NEVI station consists of a 4-port station, with a minimum of 150kW of power per port (600kW total), and stations no more than 50 miles apart. The station demand is presented as a map of the required NEVI station density per 50 miles. **Figure ES.6** shows the predicted demand in 2030.

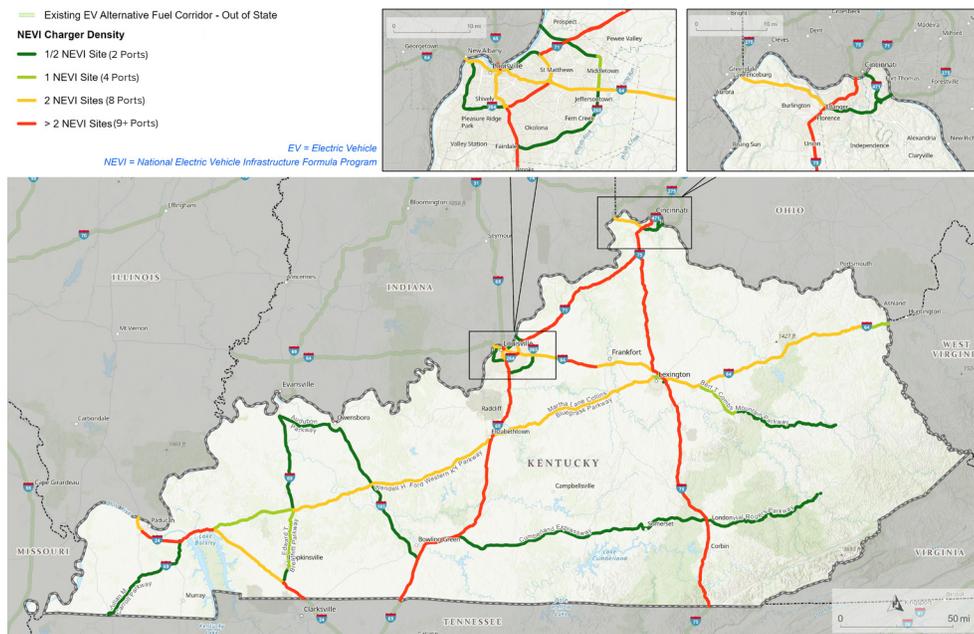


FIGURE ES.6 2030 NEVI CHARGER DENSITY

EV Charging Infrastructure Deployment

- Data-driven strategy for installations that prioritizes build-out along the Interstate Highway System
- Documented proposed DCFC network, NEVI station charger density, peak demand for NEVI stations, utilization rate for NEVI Stations, interchange suitability and prioritization
- Identified and mapped planned and under construction DCFC stations along AFCs in the state
- Outlines the plan for building out the AFC system including the number of required stations
- Policy includes a three-phase plan to complete build-out starting with AFCs, then advancing to other corridors using a data-driven process to evaluate potential sites

Kentucky's Electric Vehicle Infrastructure Deployment Plan

The analysis does not recommend specific sites or interchanges but assigns planning level scores, which can be used to support future deployment activities. The approach is based on the view that there are multiple potentially good solutions to the challenge of siting DCFC stations on the AFC network. Therefore, KYTC does not want to unnecessarily narrow the list. Instead, KYTC is involving the private sector in the implementation and contracting phases. **Figure ES.7** shows the interchange prioritization scores.

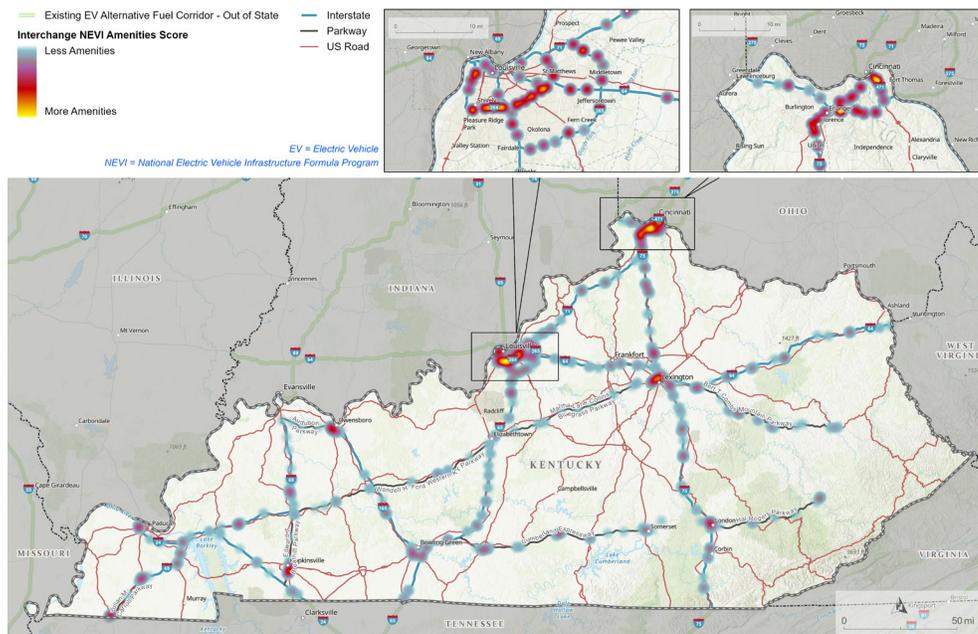


FIGURE ES.7 INTERCHANGE PRIORITIZATION SCORE

KYTC has a three phase policy for the implementation of the NEVI Formula Program (See **Figure ES.3**). KYTC's policy is designed to provide capacity where needed and coverage to every corner of the state. Phase 1 would build-out the interstates and the Parkways. This would provide broad coverage along major highways including deployment in rural, mountainous, and disadvantaged communities. Phase 2 would address other priority corridors off of the AFC network (see **Figure ES.4** for examples) and run concurrently with Phase 3, including chargers in communities and at destinations. These phases would further fill gaps and provide additional services in rural and disadvantaged communities.

IMPLEMENTATION

KYTC has involved the private sector in the implementation phase with the goal of maximizing the effectiveness of federal investment. This is done while adhering to the FHWA requirements and striving to meet KYTC's goals as outlined in this plan.

KYTC expects that operations and maintenance (O&M) for NEVI stations will be performed by private third-party providers, who will be required to meet specific contractual O&M standards. The contracting process is being used to identify station installers, service providers, and site hosts. The private operators will be responsible, by contract, to collect and share data and meet the other program requirements.

The EVIDP addresses the topic of labor, training and installation standards. Regarding installation, preliminary charger types, standards, and possible layouts are presented. These will continue to be refined as the project advances.

Implementation

- Outlines the approach to EV station operations and maintenance including data sharing to meet NEVI requirements
- Explains that KYTC has an inspection team in place and is participating with the Joint Office in the testing of EV-ChART for data reporting
- Presents the current RFP process and how that ties to the implementation objectives
- Outlines expected role of the private sector and how partners will be identified
- Addresses workforce and small business development opportunities
- Considers operations and maintenance, data sharing, emergency needs, and conceptual site layouts



CIVIL RIGHTS

KYTC routinely administers Federal-aid funds and is committed to compliance with State and Federal civil rights laws. The NEVI Formula Program will be implemented using the adopted practices related to Civil Rights compliance that have been successfully implemented in other Federal funding programs for decades, such as the Disadvantaged Business Enterprise (DBE) Program, Title VI of the Civil Rights Act and Americans with Disabilities Act (ADA).

EQUITY

The Commonwealth supports equity considerations when planning for investments in its EV charging infrastructure. During the development of the EVIDP, KYTC used the EV Charging Justice40 Map tool to analyze the existing and future EV network for Kentucky and incorporated the location of these communities as a criterion for the selection of corridors and the priority scoring of interchanges. KYTC is working to develop approaches to encourage and monitor the participation of all citizens in the planning process and has taken specific steps to identify disadvantaged community members that should be included in the outreach and engagement program. Throughout the NEVI Formula Program, KYTC will engage these groups to understand the potential for workforce development, potential barriers to effective deployment and use of the infrastructure, and the potential to adjust the program to better suit the needs of every community member.

KYTC has started taking specific steps to identify and engage with disadvantaged community members. This included working with information from the Metropolitan Planning Organizations (MPOs) and Area Development Districts (ADDs) as well as the Equity Task Force (part of Kentucky's Resiliency Working Group) to develop an initial list of DAC organizations and individuals across the state to be contacted and invited to participate. Another step KYTC is taking is to use data and maps to identify specific communities where outreach should occur. Over the next year, KYTC will advance the initiatives started last year and conduct more focused outreach to disadvantaged communities across the state. This will include a combination of in-person meetings, virtual meetings, email updates, and encouraging people to visit the website for more information.

LABOR AND WORKFORCE

The NEVI Formula Program will generate substantial opportunities for equitable and accessible job creation in Kentucky's electrical and construction trades, as a network of EV chargers is planned, designed, installed, and commissioned. Kentucky is prepared to meet this opportunity through its strong utility stakeholders and powerful workforce practices. These practices including leveraging statewide workforce initiatives, bolstering equity and accessibility to the workforce, educational collaboration, inclusive input and outreach, and leveraging the energy industry.

Civil Rights

- Addressed compliance with State and Federal civil rights laws

Equity Considerations

- Considered equity and disadvantaged communities in plan and RFP development
- Addressed a process for identifying, quantifying, and measuring benefits to disadvantaged communities
- Outlined KYTC's next steps for advancing equity-based planning and outreach to disadvantaged communities

Labor and Workforce Considerations

- Ongoing exploration of potential training outreach opportunities



Physical Security & Cybersecurity

- Set framework in place to address physical security and cybersecurity during deployment

Program Evaluation

- Proposed metrics for evaluating performance in achieving stated goals
- Proposed metrics that address the items in the NEVI guidance

Discretionary Exceptions

- None requested

PHYSICAL SECURITY & CYBERSECURITY

The State of Kentucky and KYTC are committed to public security including physical security, cybersecurity, cyber resiliency and privacy conditions for all services and systems that KYTC help to develop in the communities they serve. **Chapter 12** provides a summary of considerations for physical and cybersecurity. KYTC identified a variety of best practices and strategies associated with maintaining the reliability and security of the state's EV charging network.

Site design is essential to physical security and is considered in the requirements described in the RFP that was released on June 15, 2023. Sites are encouraged to be designed in accordance with local, state, and Federal requirements related to layout, signage and traffic flow, among other considerations. As EVSE Stations continue to be developed toward a full build-out of the AFCs, KYTC will continue to coordinate with the Joint Office and other partners, including Kentucky's Office of Technology, to include the appropriate requirements and regulations to address physical and cybersecurity.

PROGRAM EVALUATION

KYTC has developed a program evaluation plan that would provide the Joint Office with data that documents the impact of the federal dollars invested in EV charging infrastructure. It would also provide the Joint Office and KYTC with metrics regarding Kentucky's progress towards its goals and the performance of the charging network. In this plan update, the goals and approach to program evaluation have been updated to include additional guidance related to job creation and workforce, equity and reliability. One additional step KYTC has taken is to partner with the Joint Office as part of the beta test group for the EV Charging Analytics Reporting Tool (EV-ChART) that is currently in development. Program evaluation and data delivery will commence after the initial DCFC stations are constructed and operational.

DISCRETIONARY EXCEPTIONS

Kentucky is not requesting any discretionary exceptions.



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ACRONYMS

| | |
|--------|--|
| AFC | Alternative Fuel Corridor |
| AASHTO | American Association of State Highway and Transportation Officials |
| ADA | Americans with Disabilities Act |
| ADD | Area Development District |
| ADT | Average Daily Traffic |
| BEV | Battery Electric Vehicle |
| BIL | Bipartisan Infrastructure Law |
| BTS | Build-to-Suit |
| CCS | Combined Charging System |
| CED | Cabinet for Economic Development |
| CMAR | Construction Management at Risk |
| DAC | Disadvantaged Communities |
| DB | Design-Bid |
| DBB | Design-Bid-Build |
| DBE | Disadvantaged Business Enterprise |
| DBF | Design-Build-Finance |
| DBFO | Design-Build-Finance-Operate |
| DBFOM | Design-Build-Finance-Operate-Maintain |
| DBOM | Design-Build-Operate-Maintain |
| DCFC | Direct Current Fast Charger |
| DiD | Defense-in-Depth |
| DOT | Department of Transportation |
| EV | Electric Vehicle |
| EVSE | Electric Vehicle Supply Equipment |
| EVIDP | Electric Vehicle Infrastructure Deployment Plan |
| EEC | Kentucky Energy and Environment Cabinet |
| FHWA | Federal Highway Administration |
| FY | Fiscal Year |
| ICE | Internal Combustion Engine |
| IIJA | Infrastructure Investment and Jobs Act |
| KACo | Kentucky Association of Counties |
| KCFC | Kentucky Clean Fuels Coalition |
| KLC | Kentucky League of Cities |



| | |
|----------|---|
| KMUA | Kentucky Municipal Utility Association |
| KPMA | Kentucky Petroleum Marketers Association |
| KRWG | Kentucky Resiliency Working Group |
| KUTC | Kentucky Unemployment Tax Credit |
| KYTC | Kentucky Transportation Cabinet |
| kW | Kilowatt |
| LRSTP | Long-Range State Transportation Plan |
| MPO | Metropolitan Planning Organization |
| MW | Megawatt |
| NACS | North American Charging Standard |
| NASEO | National Association of State Energy Officials |
| NEVI | National Electric Vehicle Infrastructure |
| NPV | Net Present Value |
| O&M | Operations and Maintenance |
| PA | Project Agreement |
| PSC | Public Service Commission |
| RFP | Request for Proposal |
| SbD | Security by Design |
| SE REVI | Southeast Regional Electric Vehicle Information Exchange |
| STP | State Transportation Planning |
| STRIDE | Spoofing, Tampering, Repudiation, Information Disclosure, Denial of Service, Elevation of Privilege |
| TAH | Tourism Arts and Heritage Cabinet |
| TETC | The Eastern Transportation Coalition |
| U.S. DOE | United States Department of Energy |
| U.S. DOT | United States Department of Transportation |
| VFM | Value-for-Money |
| VW | Volkswagen |
| WOTC | Work Opportunity Tax Credit |
| ZEV | Zero Emission Vehicle |



This symbol indicates guidance from The Joint Office U.S. DOT and U.S. DOE

CHAPTER 1

INTRODUCTION

BACKGROUND

The nation's transportation system is beginning its most significant transformation since the Interstate System was established. The Federal Bipartisan Infrastructure Law (BIL), enacted as the Infrastructure Investment and Jobs Act (IIJA), passed in 2021 and provides investments to help modernize infrastructure assets and support emerging technologies, including electric vehicles (EVs). The resulting changes will provide long-lasting infrastructure and mobility improvements, including supporting the adoption of electric vehicles by developing a national network of electric vehicle chargers.

In parallel with the federal initiatives, major automotive manufacturers have announced over \$11.3 billion in EV-related investments in Kentucky, which will result in over 10,950 new full-time jobs. This includes \$5.8 billion and 5,000 new jobs to establish BlueOvalSK, a joint venture between Ford Motor Co. and SK On, in Hardin County and \$2.0 billion and 2,000 new jobs at Envision AESC in Warren County. These and related projects will position Kentucky to be the EV battery production capital of the United States. Toyota also announced plans to establish its first U.S.-assembled battery electric vehicle (BEV) in Georgetown. Together, these substantial investments will position Kentucky's residents and businesses to be major beneficiaries of this industry transformation.

One of the new Federal policy and funding initiatives included in the IIJA was the creation of the National Electric Vehicle Infrastructure (NEVI) Formula Program. The NEVI program provides funding to states to deploy EV charging infrastructure that will support this automotive industry and technology shift to EVs. The guidance issued for the NEVI Formula Program required that states develop and provide annual updates to an Infrastructure Deployment Plan that outlines how they would utilize the formula funding. Kentucky developed an EV Infrastructure Deployment Plan (EVIDP) that addresses the federal guidelines with partnerships across agencies and stakeholders.

PLAN DEVELOPMENT PROCESS

Kentucky's EVIDP was prepared by the Kentucky Transportation Cabinet (KYTC) in close coordination with the Kentucky Energy and Environment Cabinet (EEC). The plan was developed in accordance with the most recent NEVI Formula Program Guidance as of July 2023. The plan will be flexible and will continue to evolve as new program rules and information becomes available over the five-year life of the NEVI Formula Program. This EVIDP documents the process that was used to develop the plan which included three key elements: stakeholder engagement, technical analysis, and policy and plan development. A summary of the plan development process is provided in **Figure 1.1**.

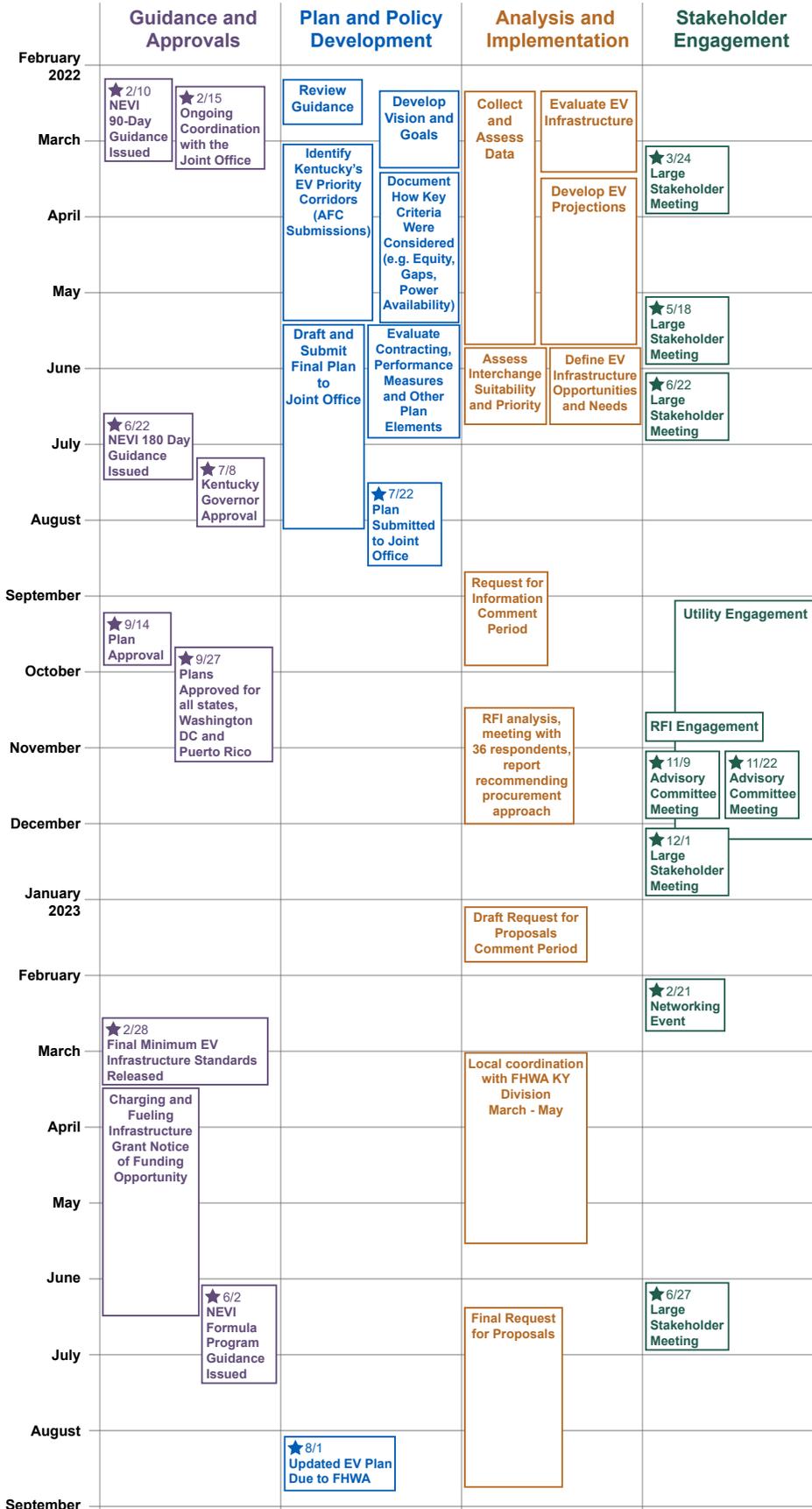


FIGURE 1.1 KENTUCKY EVIDP PROCESS

Kentucky's Electric Vehicle Infrastructure Deployment Plan

Stakeholder Engagement – KYTC reached out to over 100 different agencies, organizations and stakeholder groups across the state. KYTC also set up a Steering Committee and two representative Advisory Committees. The input and feedback received from these stakeholders helped inform many aspects of the plan. Information gathered from these entities was essential to the technical and policy planning tasks.

Technical Analysis – The evaluation and assessment activities addressed the criteria outlined in the NEVI Guidance. This work provided a sound, quantitative basis for decision making, including determining the suitability and prioritization of corridors and interchanges for Direct Current Fast Charger (DCFC) deployments.

Plan and Policy Development – The planning and policy work outlined the program's vision and goals. It also addressed key topics such as funding, equity, contracting, and coordination with other states and their EV infrastructure programs. The final result is a focused but flexible plan for Kentucky.

PLAN ADOPTION AND 2023 UPDATE

Kentucky initiated the development of the first annual plan in January 2022 (See **Figure 1.2**). Work on the plan was substantially complete in June 2022, when the plan was approved by Kentucky's Governor Andy Beshear. The plan was submitted to the Joint Office of the U.S. Department of Energy and the U.S. Department of Transportation (Joint Office) on July 22, 2022. The Federal Highway Administration (FHWA) approved the plan on September 14, 2022. KYTC updated the plan in June and July 2023 in accordance with the FHWA guidance issued on June 2, 2023. The updated plan will be submitted to the Joint Office by August 1, 2023.

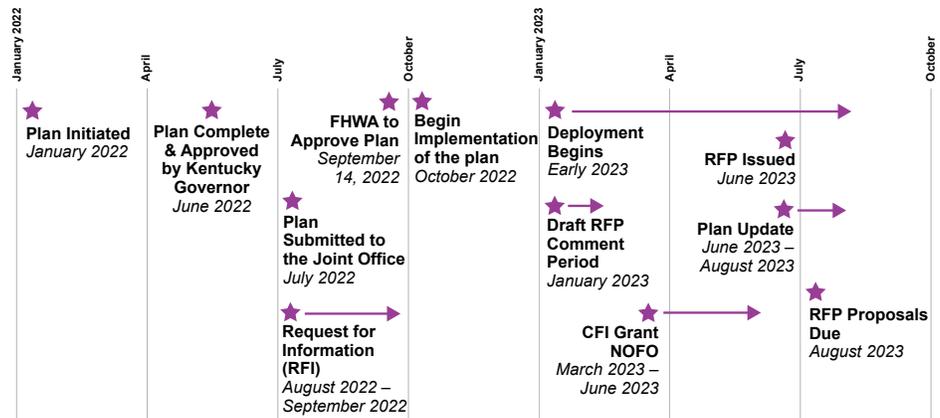


FIGURE 1.2 TIMELINE OF DEVELOPMENT, ADOPTION, AND IMPLEMENTATION



PLAN IMPLEMENTATION AND DEPLOYMENT

KYTC began implementation of the plan before it was officially approved, with the issuance of a Request for Information (RFI) on August 24, 2022. This was followed by a Draft Request for Proposals (RFP) that was issued in January 2023. The Draft RFP requested proposals from qualified entities (proposers) to design, build, operate, and maintain Direct Current Fast Charging (DCFC) Electric Vehicle Supply Equipment Stations (EVSE Stations) at locations across Kentucky. In accordance with Federal requirements, the first stations must be built on Federally designated Alternative Fuel Corridors (AFCs), which includes all of Kentucky’s interstates and parkways.

Based on industry feedback and in close coordination with FHWA, a Final RFP was released on June 15, 2023. Responsive proposals are due by August 24, 2023. Initial deployment of the charging stations could occur as soon as late 2023. KYTC would like to select developers for the remaining sites necessary to achieve build-out in 2024. The goal is to achieve AFC build-out by 2025.

One challenge that could affect the final build-out date is the lead times needed for acquiring major infrastructure elements (e.g., charging equipment and transformers). The current long lead times could affect the construction and build-out timeline.

Once the NEVI requirements for the AFCs are met and certified by FHWA as “built out,” the Commonwealth can proceed to install chargers on other high-priority EV corridors, as well as in other communities. See **Chapter 4, Chapter 6** and **Chapter 7** for additional discussion of the AFCs and deployment phases.

STUDY AREA

The study area is the State of Kentucky, as illustrated in **Figure 1.3**. Kentucky is centrally located with numerous cross-state connections, including both north-south and east-west interstates. The expansion of EV infrastructure in Kentucky will benefit the many drivers who travel within, to and through Kentucky daily.

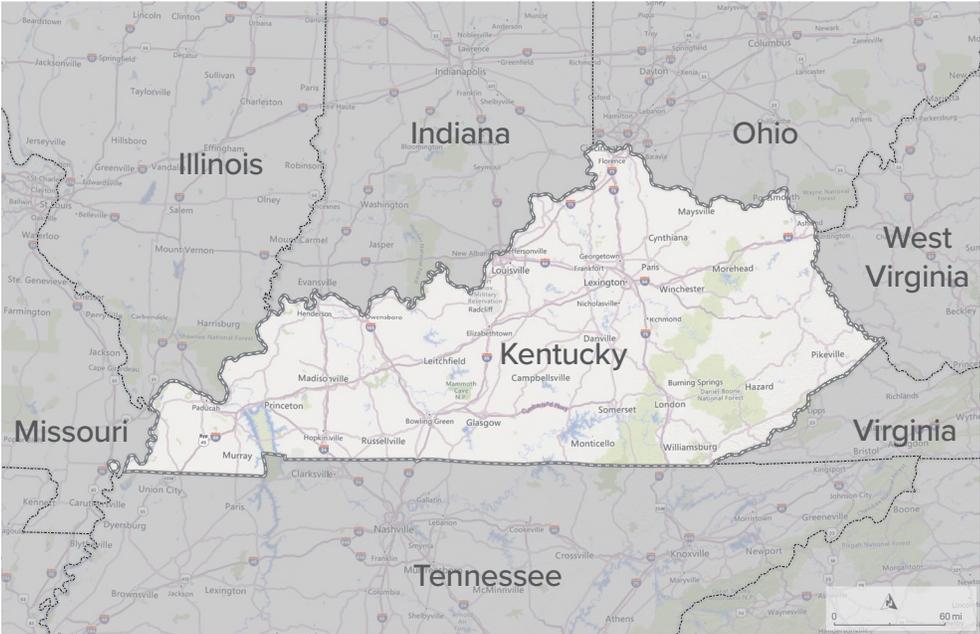


FIGURE 1.3 STUDY AREA

UPDATES FROM PRIOR PLAN

The following sections of Kentucky's 2023 EVIDP have been updated from the 2022 EVIDP.

Executive Summary – This was updated to reflect the changes listed below.

Chapter 1: Introduction – Updated to reflect the 2022 plan approval, 2022 and 2023 EV infrastructure planning and deployment activities, and the current status of the plan implementation. It also includes the required updates section.

Chapter 2: State Agency Coordination – Updated to reflect ongoing coordination and to discuss the Buy America guidance.

Chapter 3: Public Engagement – New material was added to cover the engagement activities completed since the initial plan was prepared. A new required Community Engagement Outcomes Report section was added to this chapter.

Chapter 4: Plan Vision and Goals – Numbers and text were adjusted to reflect the latest values.

Chapter 5: Contracting – This entire chapter was rewritten to address the four required sections in the updated plan template.

Chapter 6: Existing and Future Conditions Analysis – Chapter six was updated to provide the required existing Charging Stations Section and associated table. Other chapter data was updated as available. KYTC did not propose any changes to the EV AFC network during the AFC Round 7 nomination period.

Chapter 7: EV Charging Infrastructure Deployment – A new section was added that addresses Planned Charging Stations, which includes the required tables for stations under construction and planned for future implementation. The chapter also now includes a specific section that addresses Kentucky's approach to achieving a fully built out determination. Supporting data was updated where appropriate.

Chapter 8: Implementation – The current RFP and implementation process have been incorporated. The chapter was updated to match updates to **Chapter 5** from above.

Chapter 9: Civil Rights – Several updates were made to clarify text related to the applicability of the DBE programs.

Chapter 10: Equity – This chapter was adjusted to more clearly address how KYTC is identifying and reaching out to disadvantaged communities. It includes information about past activities as well as the activities that will be undertaken in the coming year. This chapter also includes an expanded discussion about how KYTC will identify, quantify and measure benefits to disadvantaged communities.

Chapter 11: Labor and Workforce Considerations – The description of how Kentucky plans to approach training, experience level and diversity of the EV charging infrastructure workforce, including potential partnerships with educational resources, was updated in this chapter.

Chapter 12: Physical Security and Cybersecurity – A section was added to describe methods to address physical security. Additional information related to compliance with minimum standards was also provided.

Chapter 13: Program Evaluation – Minor changes were made to the program evaluation text and table to clarify items or better align them with NEVI requirements.

Chapter 14: Discretionary Exceptions – No substantive changes were made to this section. KYTC is not requesting any discretionary exceptions.

Chapter 15: Conclusion – The conclusion was updated to be consistent with the above referenced changes.

CHAPTER 2

STATE AGENCY COORDINATION

KYTC is the lead agency for developing the EVIDP; however, the plan was developed in close coordination with EEC. Staff from the EEC have been involved in the EV planning conversation for many years. They provided knowledge and insight on key topics. The EEC is also the lead agency responsible for the future distribution of the Volkswagen (VW) settlement funds that have been allocated to zero emission vehicle (ZEV) infrastructure. KYTC and EEC leadership reviewed the draft EVIDP before the document was submitted to the Governor for approval.

In addition to coordinating with EEC, KYTC created a Steering Committee that includes representatives from KYTC, EEC, the Public Service Commission (PSC), and the FHWA. This group met regularly to discuss the initial plan development and related topics. KYTC has also reached out to other state agencies to coordinate on specific parts of the plan (**Figure 2.1**).



FIGURE 2.1 OTHER AGENCIES INVOLVED IN EV INFRASTRUCTURE PLANNING

Kentucky's Electric Vehicle Infrastructure Deployment Plan



KYTC also coordinated with departments of transportation (DOTs) from adjoining states to coordinate on Alternative Fuel Corridors (AFCs), and to determine how they were implementing the NEVI Formula Program guidance. One-on-one meetings were held with Illinois DOT, Indiana DOT, Ohio DOT, Tennessee DOT, and West Virginia DOT. KYTC has not coordinated with Missouri DOT or Virginia DOT yet since there are no Interstate or Parkway/Freeway connections between those states and Kentucky. Collaboration with these states will take place later in the five-year NEVI program as the deployments shift to other priority routes. In addition to the one-on-one discussions, KYTC has also been a part of numerous regional meetings where adjoining states have been represented. These meetings have included sessions sponsored by the Joint Office as well as The Eastern Transportation Coalition (TETC), Southeast Regional Electric Vehicle Information Exchange (SE REVI), American Association of State Highway and Transportation Officials (AASHTO), National Association of State Energy Officials (NASEO), and affiliated groups. These sessions have provided a forum for discussing key topics related to AFCs and the NEVI Guidance.

In addition to the state agencies discussed here, many other local and regional agencies, as well as statewide organizations and advocacy groups were actively involved in the plan development. This included Metropolitan Planning Organizations (MPOs) and Area Development Districts (ADDs) from across the state. The many agencies and groups involved in the plan development are discussed further in **Chapter 3**.

KYTC has continued to coordinate EV infrastructure planning and implementation with other agencies and entities. One key ongoing coordination partner is the Kentucky Cabinet for Economic Development (CED). KYTC has stayed in contact with CED as numerous EV related industries announce plans to build or expand in Kentucky. KYTC will also coordinate with the Education and Labor Cabinet (ELC) to address EV infrastructure workforce needs and requirements. This collaboration will be critical for achieving key program goals.

As outlined by the NEVI Guidance and requested for inclusion in this section of the plan, KYTC and EEC have been working to develop an approach that maximizes opportunities to use U.S.-made EV supply equipment (EVSE), in addition to U.S.-made materials and products for site development, electrical equipment, and construction materials. For example, KYTC explored opportunities to secure US-made equipment before NEVI funding became available, as it could be difficult to procure chargers once funding is available given the increase in demand.

KYTC understands that the Buy America requirement is a key feature of this program intended to spur the growth of the EVSE charging industry in America. However, KYTC understands that there is a temporary waiver of the EVSE requirements as outlined in the FHWA notice published on February 21, 2023. KYTC and EEC will continue to monitor the latest guidance to ensure requirements are met. KYTC and EEC met with industry representatives to discuss and identify Buy America-compliant charging infrastructure and have come to understand that charging infrastructure providers are working to provide equipment that meets the requirements as well.

Following a highly successful period of stakeholder engagement prior to the adoption of the Infrastructure Deployment Plan, KYTC proceeded to conduct additional public engagement initiatives after the plan's adoption in September 2022. These initiatives included an EV website for the public and stakeholders, a Request for Information (RFI), a networking event aimed at connecting developer teams with DBE contractors interested in collaborating on proposals, large stakeholder meetings, presentations to numerous interested groups, and opportunities for providing input on the Request for Proposals (RFP). These engagement strategies yielded valuable feedback and outcomes from stakeholders and the public.

Future engagement initiatives will continue to reach out to a broad range of stakeholders, including additional in-person meetings as well as initiatives designed to reach underserved and disadvantaged communities (DACs) more effectively. This will include meetings in different parts of the state and outreach to specific communities and organizations to accomplish these goals.

COMMUNICATION PROGRAM GOALS

The communications plan and engagement process were developed and implemented with the primary goals of:

- + Engaging in discussions with stakeholders about planning for EVs and EV infrastructure, both along corridors but also in communities
- + Identifying key partners and gathering/sharing data
- + Informing stakeholders about the NEVI Formula Funding Program, and general information about EVs and EV infrastructure
- + Identifying and engaging with underserved and disadvantaged communities and businesses
- + Obtaining feedback and answering questions related to the NEVI Program
- + Requesting feedback on plan-related topics such as the evaluation criteria
- + Engaging with potential station developers, equipment manufacturers, and other industry partners

MEETINGS

INITIAL PLAN ENGAGEMENT MEETINGS

Between February 2022 and July 2022, KYTC engaged in over 80 meetings and outreach efforts, reaching nearly 800 stakeholders. These engagement efforts included Large Stakeholder Meetings, Speaker Events, Advisory Committee Meetings, and Smaller Group Stakeholder Discussions (**Figure 3.2**). There were also numerous meetings with the Joint Office, other state DOTs, and other Kentucky state agencies over the six-month period. Examples and more details are provided later in this chapter.

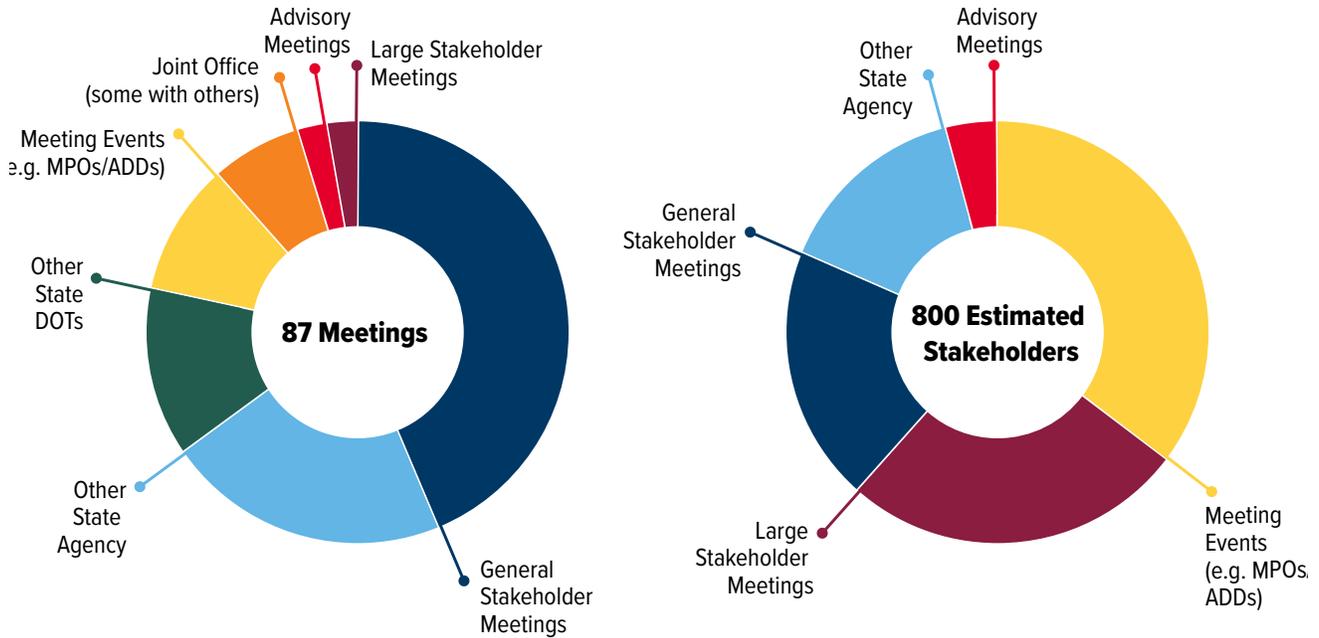


FIGURE 3.2 SUMMARY OF PLAN ENGAGEMENT STAKEHOLDER MEETINGS

Steering Committee

A steering committee was formed to provide management, oversight, and execute decisions concerning the organization and direction of the deployment plan. Meetings for the steering committee were held virtually, once a week. The committee also worked with outreach coordinators to help identify stakeholders and partners.

Representative Technical Advisory Committee

The Technical Advisory Committee (**Figure 3.3**) was set up to provide focused input during the development of the plan. This committee was composed of entities such as utility companies that could provide data about current infrastructure and provide guidance on what would be needed to build-out the charger network. In addition to the Steering Committee members, the following organizations were represented:

- + Kentucky Electric Cooperatives
- + Kentucky Municipal Utility Association (KMUA)
- + Investor-Owned Electric Utilities (IOUs)
- + Kentucky Clean Fuels Coalition (KCFC)
- + Kentucky Finance and Administration Cabinet
- + Kentucky Petroleum Marketers Association (KPMA)
- + University of Kentucky (UK)



FIGURE 3.3 TECHNICAL ADVISORY COMMITTEE



Representative Government/Policy Advisory Committee

A Government/Policy Advisory Committee (**Figure 3.4**) was also set up to provide input on the plan, in addition to assisting with outreach to local jurisdictions to prepare them for implementation. In addition to the Steering Committee members, the following organizations were represented:

- + Cabinet for Economic Development (CED)
- + Kentucky Association of Counties (KACo)
- + Kentucky Council of Area Development Districts (ADDs)
- + Kentucky Finance and Administration Cabinet
- + Kentucky League of Cities (KLC)
- + Metropolitan Planning Organizations (MPOs)
- + Tourism Arts and Heritage (TAH) Cabinet



FIGURE 3.4 GOVERNMENTAL ADVISORY COMMITTEE

Large Group Stakeholder Meetings

Three large virtual stakeholder meetings were conducted during the initial development of the plan. These meetings were designed to reach out to any interested stakeholders. Each meeting included informational and educational elements and was also designed to facilitate feedback. Attendees were involved through the chat function as well as through virtual meeting interactive polling. Breakout groups were used during one of the meetings to provide people with the opportunity to talk in small group settings about any questions, concerns, or ideas. Many groups attended the meetings including but not limited to:

- + American Electric Power
- + Area Development Districts
- + Big Rivers Electric Corporation
- + Cabinet for Economic Development
- + Commonwealth Alliances
- + Duke Energy
- + East Kentucky Power Cooperative
- + Energy Services Coalition
- + Evolve KY
- + Federal Highway Administration (FHWA)
- + Ford
- + Frankfort Plant Board (FPB)
- + General Motors
- + Gladstein Neandross & Associates (GNA)
- + Clean Transportation and Energy Consultants
- + Goss Samford, PLLC (representing KPMA)
- + Government Strategies
- + Hopkins County Magistrate District 4
- + Kentuckians for Better Transportation
- + Kentucky Association for Economic Development
- + Kentucky Association of Counties
- + Kentucky Cabinet for Economic Development
- + Kentucky Chamber of Commerce
- + Kentucky Chapter of American Petroleum Institute
- + Kentucky Clean Fuels Coalition
- + Kentucky Conservation Committee
- + Kentucky Department of Local Government
- + Kentucky Electric Cooperatives
- + Kentucky Energy and Environment Cabinet (EEC)
- + Kentucky League of Cities
- + Kentucky Municipal Utilities Association (KMUA)
- + Kentucky Petroleum Marketers Association (KPMA)
- + Kentucky Power
- + Kentucky Public Service Commission (PSC)
- + Kentucky Retail Federation
- + Kentucky Society of Professional Engineers
- + Kentucky State Parks and Tourism
- + Kentucky Transportation Cabinet (KYTC)
- + LG&E-KU
- + McCarthy Strategic Solutions
- + MML & K Government Solutions
- + Mountain Association
- + Schmidt Consulting, LLC
- + Schneider Electric
- + Tennessee Valley Authority (TVA)
- + The Rotunda Group
- + Thoroughbred Firm
- + Toyota Manufacturers of North America, Toyota Motor Manufacturer Kentucky (TMNA/TMMK)
- + University of Louisville
- + Williamstown Kentucky Government



Speaker Events

As a means of sharing information, KYTC staff and other project team members spoke at over a dozen agency or group events during the initial plan development. This included meetings such as MPO, ADD, county association, and utility association meetings. KYTC also participated in Federal and state meetings. Examples include:

- + The Eastern Transportation Coalition (TETC) presentation on April 13, 2022.
- + The KYTC sponsored State Transportation Planning (STP) meeting held in Frankfort, KY on April 20, 2022. This hybrid meeting was attended by over 100 transportation planners across the state. It provided an opportunity for many community and planning leaders across the state to learn about the plan, ask questions, and provide feedback.
- + The Quarterly Kentucky Municipal Utility Association meeting held in Leitchfield, KY on April 21, 2022. This meeting reached a very different group of stakeholders and provided an excellent opportunity for them to provide feedback and raise concerns about electric utility related issues.
- + AASHTO Planning Webinar Series, Part 2: EV Plan Development on May 9, 2022.

Small Group Stakeholder Meetings

Dozens of smaller group stakeholder discussions were held throughout the initial plan development to discuss specific topics ranging from emerging technology to community charging to ongoing station deployments by other agencies. Five examples are:

- + Kentucky based vehicle manufacturer meeting to discuss topics such as power levels, site layouts, and vehicle charging speeds.
- + Kentucky Clean Fuels Coalition (KCFC) meeting to discuss the Alternative Fuel Corridors (AFCs), plan development process, and the CFC's initiatives to install stations in Kentucky using U.S. DOE grant funding.
- + EvolveKY meeting to discuss their experiences installing hundreds of Level 2 charging ports around the state. EvolveKY is a non-profit EV advocacy group in Kentucky.
- + Petroleum Marketers Association meeting to discuss the NEVI funding and guidance and to hear the perspective of, and get feedback from, the association's members.
- + An equity-focused meeting with the Kentucky Resiliency Working Group (KRWG) Equity Task Force and representatives from the ADDs and MPOs across the state to solicit input on the plan and plan deployment. During the plan development, KYTC also met with university researchers, Electric Vehicle Supply Equipment (EVSE) installers/operators, individual utilities, and many others. KYTC also met with parties interested in freight movement, including hydrogen fuel cell freight stakeholders such as Amazon and TMNA/TMMK.

FOLLOW-UP PLANNING AND IMPLEMENTATION ENGAGEMENT MEETINGS

Even as the plan was being reviewed by FHWA in August of 2022, KYTC was continuing with its outreach and engagement efforts. This included large and small stakeholder meetings as well as initiatives focused on moving forward with plan implementation and EVSE station deployment. **Figure 3.5** illustrates the meetings and stakeholder engagement that occurred from September 2022 through July 2023.

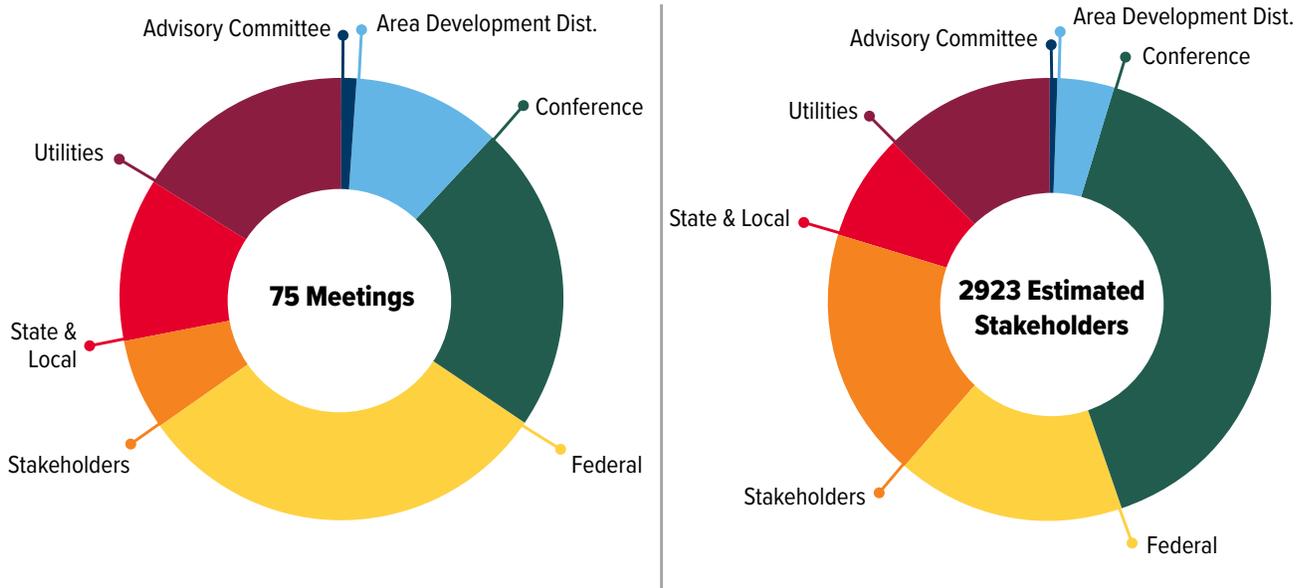


FIGURE 3.5 SUMMARY OF PLAN ENGAGEMENT STAKEHOLDER MEETINGS

REQUEST FOR INFORMATION (RFI)

On August 24, 2022, KYTC issued a Request for Information to solicit input from potential market participants across varying sectors regarding the planning, deployment, operation and maintenance of Direct Current Fast Charging (DCFC) EVSE.

The RFI comment period took place between August 24 and September 30, 2022, when KYTC collected valuable feedback from the potential EV industry

partners. KYTC received a total of 36 RFI responses to inform procurement and contracting strategies. RFI respondents who provided comments ranged from site hosts, utilities, charge network providers, EVSE suppliers, consultants and more, as shown in **Figure 3.6**. KYTC offered to meet with all RFI respondents. A total of 35 one-on-one meetings were held to allow for further discussion and clarification.

Key themes from the RFI process included the importance of utility coordination and the desire for flexibility in procurement, contracting and implementation. Some participants proposed the use of NEVI funds to subsidize operations and maintenance. Most respondents recommended a competitive site-based procurement.

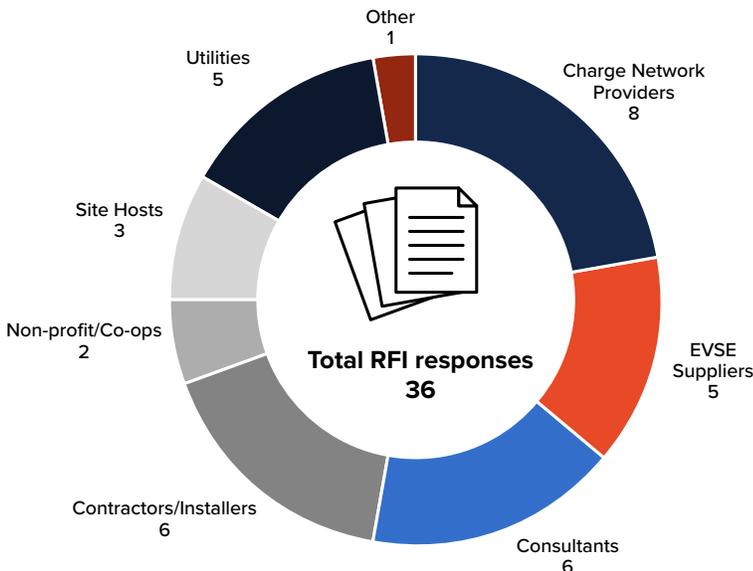


FIGURE 3.6 RFI RESPONSES BY RESPONDENT CATEGORY



Large Group Stakeholder Meetings

Two large stakeholder update meetings were held during the implementation phase, one on December 1, 2022, and another on June 27, 2023.

During the December meeting, KYTC provided updates on the final approved plan, the RFI process and findings, and the steps Kentucky was taking to implement the plan. KYTC made the stakeholders aware that a draft Request for Proposals was to be released in the coming weeks. KYTC also discussed ways private firms could be involved in the plan implementation and steps that communities could take to prepare for the growth of EVs in Kentucky. There were also opportunities for participants to provide input on topics related to Kentucky's ongoing EV planning efforts.

Over 200 people participated in the June stakeholder meeting, where KYTC provided an update on the RFP process, updated federal guidance, available infrastructure grants, and the process of updating the plan. Kentucky's final RFP had been issued at the time of this meeting. KYTC gathered feedback on potential barriers to implementation as well as suggestions for engagement with disadvantaged communities. Feedback from the meeting was positive.

SPEAKER EVENTS

Between August 2022 and July 2023, members of KYTC's EV infrastructure project team participated in and/or presented at nearly 20 events. The goal of these efforts included continued communication with Kentucky stakeholders, outreach to industry, and collaboration and coordination with other entities and agencies (both inside and outside of Kentucky).

- + 2022 American Council of Engineering Companies (ACEC)-KY/FHWA/KYTC Partnering Conference – Presentation
- + Mechanical/Electrical Day at the University of Kentucky (UK) – Presentation
- + Electric and Alternative Fuel Vehicle Infrastructure Summit – National Governors Association
- + 2022 Governor's Conference on Energy and the Environment – Presentation
- + Kentucky Petroleum Marketers Association Conference
- + Mid America Association of State Transportation Officials (MAASTO) EV Committee – Presentation
- + Kentuckians for Better Transportation (KBT) Conference – Panelist
- + AASHTO/ NASEO Midwest Regional EV Workshop – Presentation
- + KYTC Section Engineers Meeting – Presentation
- + AASHTO/ NASEO Southeast Regional EV Workshop – Presentation
- + The Eastern Transportation Coalition (TETC) EV Working Group Meeting – Presentation
- + American Society of Transportation Engineers (ASHE) EV – Presentation
- + EV Charging Summit & Expo in Las Vegas, NV – Presentation
- + Kentucky Statewide Transportation Planning Meeting – Presentation
- + Kentucky MPO Meeting – Presentation
- + Women in Transportation (WTS) Luncheon EV – Presentation
- + NASEO-AASHTO Electric Vehicle Charging Infrastructure National Conference

SMALL GROUP STAKEHOLDER MEETINGS

KYTC has continued to participate in small group stakeholder meetings after the submission of the plan to FHWA for review. Examples of stakeholder meetings that occurred after the submission of the draft EV Plan up to and including the RFI activities include:

- + Utility Stakeholder Discussion – August 1, 2022
- + EV Supply Equipment Firm Stakeholder Discussion – August 29, 2022
- + Auto Manufacturer Stakeholder Meeting – September 2, 2022
- + KYTC Partnering Conference – September 7, 2022
- + Municipal Stakeholder Meeting – September 26, 2022
- + 17 one-on-one EV RFI Respondent Meetings – October 21 – October 28, 2022
- + 12 one-on-one EV RFI Respondent Meetings – November 14 – 15, 2022

Additional meetings were held after this date, many of which related to the draft and final RFP process.

REQUEST FOR PROPOSALS

On January 4, 2023, KYTC issued a Draft RFP to solicit feedback from qualified entities (potential proposers) who intended to respond to the Final RFP for the EV Charging Program. Over 150 comments were received before the comment period closed on January 27, 2023. Following the comment period for the Draft RFP, KYTC worked with FHWA through spring to develop the final RFP released on June 15, 2023.

Examples of stakeholder meetings that KYTC held during the RFP development phase include:

- + Municipal Electric Utility Stakeholder Discussion – November 16, 2022
- + Rural Electric Cooperatives Stakeholder Discussion – November 16, 2022
- + American Society of Civil Engineers – November 18, 2022
- + Electric Utility Stakeholder Discussion – November 18, 2022
- + Electric Utility Stakeholder Discussion – November 22, 2022
- + Kentuckians for Better Transportation Annual Meeting – January 12, 2023
- + KY EV Networking Event – February 21, 2023 (additional information in a following section)

KYTC also held a large virtual EV Plan Stakeholder Meeting during this time frame to provide an update on the implementation process, with nearly 200 participants.

- + December 1, 2022

EV NETWORKING EVENT

On February 21, 2023, KYTC hosted a well-attended RFP networking event to make private sector developers more aware of opportunities to partner with other firms including small, local and disadvantaged firms or DBE entities. Over 80 members of Kentucky's DBE contractor list were invited to connect with stakeholders (approximately 500 at this date).

Nearly 80 participants participated in this session, where 48 organizations presented on their capabilities so that other participants could learn more about them and explore possible opportunities and partnerships. Potential prime and sub firms also presented during the session. Prior to the networking event, participants completed company profiles that helped identify the category of participant and provide contact information for others interested in pursuing partnerships.



OTHER ENGAGEMENT METHODS

EV WEBSITE

After the plan was complete, KYTC began developing a branded website in late 2022 for the public and other stakeholders to learn more about EVs and KYTC's EV infrastructure program. This was intended to replace the content that was temporarily housed on the KYTC Planning website. The new Kentucky EV website formally launched on March 13, 2023 and the address is <https://EVCharging.ky.gov>.

The website provides information on EV basics, Kentucky's EV Plan, EV program implementation, the EV industry in Kentucky, and other topics. Specific content examples include information about types of EVs, types of chargers, EV economic development statistics for Kentucky (investment and jobs), the program implementation schedule, and links to numerous EV related resources. The site also provides links to one-page sheets that KYTC prepared to help local governments, regional planning agencies, and utilities prepare for the shift to EVs.

All of the information is presented in a format that is public-friendly and accessible to all stakeholders. KYTC has had a total of over 2,700 website visitors and a significant increase in sign ups for additional information. As of July 2023, KYTC has received 150 comments and inquiries through the question submission forms and gained a total of over 600 subscribers to the KYTC mailing list, which is also available to register for on the website. These measures indicate a high success rate of engagement in terms of the website's audience reach, relevancy and effectiveness.

VIDEO AND OTHER ENGAGEMENT METHODS

KYTC has also prepared a two-minute video that provides a summary of what is happening in Kentucky regarding EVs. It presents the Federal NEVI program, Kentucky's EV program, EV related economic development in the state, and the general timeframe for moving forward.

In addition to the activities previously mentioned, KYTC also prepared and issued press releases, website updates, and provided email updates to stakeholders. KYTC sent 15 EV program updates between September 2022 and June 2023 to the nearly 600 recipients who are signed up to receive these emails.



Deployment Corridor Prioritization

During the second stakeholder meeting, attendees weighed in on the plan’s goals and the prioritization of deploying EV infrastructure on different types of corridors and areas. Based on the live polling responses, attendees rated the use of NEVI formula funds for deploying DCFC chargers on Interstates as the top priority which matches U.S. DOT’s stated top priority for the program (**Figure 3.8**). The deployment of DCFC on Parkways was the second priority, closely followed by other state priority corridors. The deployment of Level 2 chargers in communities and at destinations was rated as the lowest priority for this program. Stakeholders mentioned an approach that would leave the Level 2 charging to be implemented at the local level (due to its lower cost and lower complexity) and leave DCFC charging infrastructure to KYTC (due to its higher cost and higher complexity).

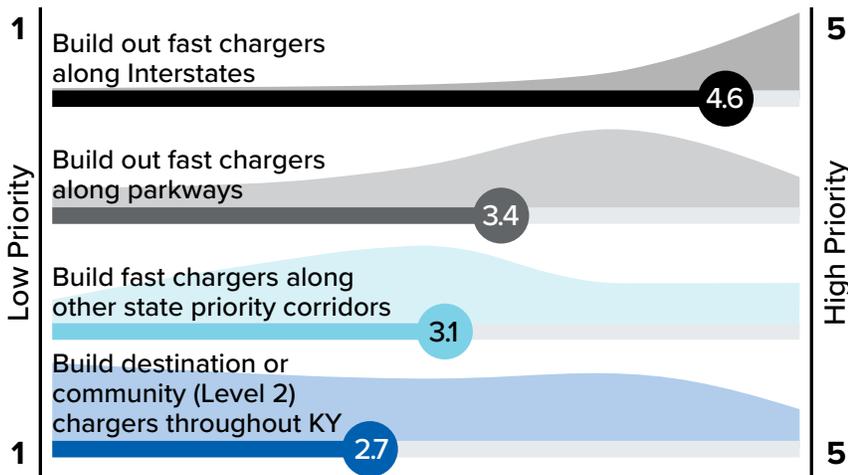


FIGURE 3.8 DEPLOYMENT PRIORITIZATION

Attendees scored the use of NEVI formula funds for deploying DCFC chargers on Interstates as the top priority, which matches U.S. DOT’s top priority for the program.

Most Important Characteristics for Locating DCFC Stations

During the first stakeholder meeting, stakeholders were asked to rate the importance of characteristics for locating DCFC stations from 1= least important, to 10= most important. Providing service to long-distance travelers was ranked as the most important characteristic for DCFC Charging Sites (**Table 3.1**).

TABLE 3.1 IMPORTANT CHARACTERISTICS FOR DCFC CHARGING SITES

| Characteristic | Weighted Average |
|---|------------------|
| Service to long-distance travelers | 8.0 |
| Plugging Gaps (smaller sites on more corridors) | 6.7 |
| Proximity to businesses and services | 6.6 |
| Near high-density population centers | 6.2 |
| Near tourist areas and attractions | 5.9 |
| Direct access for site ingress and egress | 5.8 |
| Service to rural or underserved areas | 5.7 |
| Building Capacity (bigger sites on fewer corridors) | 3.9 |

Criteria for Prioritizing Interchanges for Fast Charging Stations

During stakeholder meetings, attendees were asked to share how the state could prioritize interchanges for DCFC stations. The planning team developed draft criteria and considerations (listed below) that were used as discussion points with stakeholders. In general, stakeholders thought the criteria reflected the priorities that should be considered for either the selection of interchanges or the selection of candidate host sites for the infrastructure.

- + Accessibility and ease of access to the charging station.
- + Traveler Amenities such as shops or restaurants that can serve travelers.
- + Capacity for the grid to accommodate AFC creditable DCFC chargers.
- + Community Assets such as parks and open spaces where people can spend time while a vehicle charges.
- + Destinations that draw locals and tourists to an area, especially those that draw long-distance travelers.
- + Justice40 Communities that are located in both the urban and rural portions of Kentucky.
- + Economic Opportunity in places like redevelopment districts, or areas identified by government for focused investment.



Key Engagement Takeaways - plan Development

Throughout the engagement process, feedback was collected from a wide variety of stakeholders and participants. Participants were asked to explore barriers to deployment, opportunities for successful implementation, and areas where additional coordination or efforts will need to be made. The feedback received from this effort was used to inform specific elements in the Plan but will also be used as a guide for future program implementation efforts and future EV-related efforts. While the key takeaways listed below do not capture every comment received, they do provide a summary of some of the areas that are critical to making this Plan and program a success in Kentucky. (The views listed below were mentioned by at least several individuals/stakeholders throughout the plan development process.)

- + Focus DCFC infrastructure first on Interstates, then Parkways, and then National Highway System (NHS) corridors that support long-distance travel.
- + Prioritize geographic charger coverage over site capacity. Fewer chargers in more places are better than more chargers in fewer places.
- + Traveler amenities are important. Chargers should be placed with consideration to nearby businesses, services, destinations, attractions, and other amenities that can be accessed when a vehicle is charging.
- + Pair charging with economic opportunity. There is a recognition that this infrastructure has the potential to be an economic catalyst that leverages new technology and next-generation transportation systems. Example: Location of chargers within redevelopment districts or co-located to serve the manufacturing facilities that are building the technology here in Kentucky. Batteries for the new Ford F-150 Lightning will be manufactured by people driving that vehicle to work, charging it on infrastructure developed as part of this program.
- + Serve rural and disadvantaged communities. This includes engagement, minimum infrastructure requirements, prioritization of infrastructure in these communities, and selection of corridors to serve these communities.
- + Education will be a continuous need. Electric mobility is still new to many people, and there will be a period of transition before it becomes well-known.
- + Partner whenever possible, from utilities, workforce development providers, and communities, to OEM's, EV groups, and local and regional governments.
- + Engage and support communities that will be home to DCFC infrastructure, and those who wish to start the planning and implementation of destination charging for their communities. This includes streamlined permitting, model code, general guidance, and community readiness planning.
- + Power availability was a key concern, especially in rural areas. The program should provide the ability to install less chargers (less load) in less-utilized areas. Coordination with utilities throughout the process will be key in identifying the ability to deliver the needed power to chargers.
- + There was recognition that new DCFC chargers do not need to be located near existing chargers (both DCFC and Level 2).

IMPLEMENTATION AND PLAN UPDATE ENGAGEMENT

Feedback was received at several points related to the implementation of the plan and the EV plan update.

During the RFI process, KYTC received feedback from a wide range of potential market participants. One theme was the importance of utility coordination, and KYTC took action on this feedback by meeting with utilities and including contacts in the draft and final RFPs. Another theme was the desire for flexibility in procurement, contracting and implementation. KYTC included as much flexibility as was possible, while still meeting the Federal and state requirements. Other feedback addressed the use of NEVI funds to subsidize operations and maintenance and the use of a competitive site-based procurement. KYTC took both of these items into consideration as well.

During the draft RFP process, KYTC received 150 comments. The comments were responded to and taken into consideration in preparing the final RFP. The industry feedback addressed issues related to project schedule, evaluation criteria, Corridor-Groups, and technical requirements. Multiple respondents asked for more time for proposal development, particularly in relation to time required to engage with local utilities. Respondents also provided feedback on spacing requirements and Corridor-Groups, asking for clarification on certain space requirements around AFC Creditable Stations. Feedback also covered technical specifications for emergency buttons and refinements to the submission process to facilitate multiple submissions. This industry feedback provided valuable insights and was ultimately used to refine the final RFP.

A large stakeholder meeting was held on June 27, 2023. Attendees were encouraged to contribute feedback using Slido, a surveying tool. Participants were asked questions about the organization they represented, their EV ownership status, strategies for overcoming barriers to charger infrastructure, and topics that should be considered for future in-person and virtual meetings. The majority of attendees represented government agencies, electric utilities, consultants, and EV equipment manufacturers. 72% of attendees stated they'd consider owning an EV, with 19% stating they already own one.

Participants listed many potential barriers to EV charging infrastructure including reaching out to rural areas, sufficient electric power in a community, the need for utility engagement, and clearly identifying site host feasibility (e.g., sufficient power to the site). Topics raised for future meetings included: supply chain concerns, how EVs participate in road funding, other funding topics, community charging, equity, and environmental approvals for station construction.

UTILITY ENGAGEMENT AND SITE-SPECIFIC PUBLIC ENGAGEMENT

The topics of utility engagement and engagement with communities and private entities that would serve communities where charging is needed are described in the above discussion.

KYTC has held numerous meetings and communications with electric utility service providers from across the state. The utilities were part of the RFP development process and the contacts that they provided are listed in the final RFP. The utilities are also discussed in **Chapter 6**.

KYTC has also engaged with communities (cities, counties, and regional planning agencies) from across the state. This has included many meetings and other communications. KYTC has tried to make sure that communities are aware of EV infrastructure planning, implementation activities, and funding opportunities.



COMMUNITY ENGAGEMENT OUTCOMES REPORT

The prior sections provide considerable detail on the various initiatives and events KYTC has undertaken to communicate with the public, stakeholders, potential private partners, and other public agencies regarding the EV infrastructure program. This section summarizes the meetings that occurred from September 2022, when the initial plan was approved by FHWA, through July 2023, when the updated 2023 plan is to be submitted for approval. It lists the meetings and provides information on how many people were involved in each meeting. It demonstrates that KYTC has continued to remain engaged with a wide range of interested parties on this important initiative.

Table 3.2 shows that KYTC participated in at least 75 events since September 2022. KYTC staff talked with or presented to well over 2,500 individuals through the course of those events as shown in **Table 3.3**. **Table 3.4** provides the detailed meeting and event listing. KYTC also reached thousands more through its website activity. Overall, KYTC has been able to communicate information out to thousands of people from across the state, people with varying perspectives and interests in the planning and deployment of EV infrastructure.

TABLE 3.2 NUMBER OF MEETINGS OR EVENTS KYTC WAS INVOLVED WITH FROM SEPTEMBER 2022 TO JULY 2023

| Meeting Type | Number of Meetings |
|------------------------|--------------------|
| Utilities | 12 |
| State & Local | 9 |
| Area Development Dist. | 8 |
| Stakeholders | 5 |
| Advisory Committee | 1 |
| Conference | 17 |
| Federal | 23 |
| Grand Total | 75 |

TABLE 3.3 NUMBER OF PEOPLE KYTC TALKED WITH OR PRESENTED TO FROM SEPTEMBER 2022 TO JULY 2023

| Meeting Type | Number of People |
|------------------------|------------------|
| Utilities | 365 |
| State & Local | 223 |
| Area Development Dist. | 120 |
| Stakeholders | 538 |
| Advisory Committee | 20 |
| Conference | 1170 |
| Federal | 487 |
| Grand Total | 2923 |

Note: Some attendees may be counted multiple times due to attending multiple meetings.

KYTC is currently organizing a major outreach effort for this coming year. The plan being developed includes several in-person meetings throughout the state. It also includes focused outreach to underserved and disadvantaged communities and stakeholders. This effort will be informed by key partners as well as the Justice40 mapping tool and other equity analysis methods. KYTC made initial attempts last year to accomplish this goal and with new approaches and partnerships, it is expected that these communities will become even more engaged this coming year.

One of the measures of effectiveness is the amount of interest and feedback received by KYTC. As noted above, KYTC has received hundreds of communications (emails, phone calls, chat messages, and more) from interested stakeholders, agencies, and potential partners. The feedback has had a very beneficial impact on how KYTC has gone about planning for and implementing EV charging infrastructure in the state. It has influenced the RFP process and the current plan update.

Kentucky's Electric Vehicle Infrastructure Deployment Plan

KYTC has accomplished its goals of broadly reaching out to the public and interested stakeholders across the Commonwealth, but with the new initiatives planned for the coming year, it is expected that this outreach will reach even more people, businesses, and communities.

TABLE 3.4 DETAILED LIST OF OUTREACH EVENTS AND MEETINGS

| Meeting Name | Category | In-person or Virtual | Month | Attendees |
|--|------------------------|----------------------|------------|-----------|
| 2022 ACEC-KY/FHWA/KYTC Partnering Conference | Conference | In-Person | Sept. 2022 | 200 |
| EV and Potential ARC Funding (Multi-State ARISE Grant) | Federal | Virtual | Sept. 2022 | 2 |
| BGADD EV Presentation | Area Development Dist. | Virtual | Sept. 2022 | 15 |
| Utility Stakeholder Council Presentation | Utilities | Virtual | Sept. 2022 | 35 |
| LTADD EV Presentation | Area Development Dist. | Virtual | Sept. 2022 | 15 |
| Southeast Regional EV Monthly Call | Federal | Virtual | Sept. 2022 | 20 |
| Midwest Regional EV Monthly Call | Federal | Virtual | Sept. 2022 | 25 |
| Mechanical/Electrical Day (UK) Presentation | Conference | In-Person | Oct. 2022 | 15 |
| National Governors Association: Electric and Alternative Fuel Vehicle Infrastructure Summit (Greenville, SC) | Conference | Virtual | Oct. 2022 | 75 |
| KRADD: Regional Transportation Committee EV Presentation | Area Development Dist. | Virtual | Oct. 2022 | 15 |
| NKADD EV Presentation | Area Development Dist. | Virtual | Oct. 2022 | 15 |
| Statewide Transportation Planning meeting Presentation | State & Local | Both | Oct. 2022 | 75 |
| 2022 Governor's Conference on Energy and the Environment | Conference | In-Person | Oct. 2022 | 90 |
| 17 one-on-one meetings with the RFI respondents | Stakeholders | Virtual | Oct. 2022 | 34 |
| KIPDA: Regional Transportation Committee EV Presentation | State & Local | Virtual | Oct. 2022 | 15 |
| Southeast Regional EV Monthly Call | Federal | Virtual | Oct. 2022 | 20 |
| Midwest Regional EV Monthly Call | Federal | Virtual | Oct. 2022 | 25 |
| BR Sub on Transportation – Testifying to Legislators | State & Local | In-Person | Nov. 2022 | 10 |
| IJC on Appropriations & Revenue – Testifying to Legislators | State & Local | In-Person | Nov. 2022 | 34 |
| Kentucky Petroleum Marketers Association Conference | Conference | In-Person | Nov. 2022 | 100 |
| KY / Joint Office NEVI Plan Check-in | Federal | Virtual | Nov. 2022 | 10 |
| KY EV Infrastructure Planning & Deployment - Advisory Com. Mtg | Advisory Committee | Virtual | Nov. 2022 | 20 |
| 17 one-on-one meetings with the RFI respondents | Stakeholders | Virtual | Nov. 2022 | 34 |
| Electric Vehicle Infrastructure Deployment Plan - Municipal Meeting | Utilities | Virtual | Nov. 2022 | 15 |
| Electric Vehicle Infrastructure Deployment Plan - Rural Co-ops Mtg | Utilities | Virtual | Nov. 2022 | 20 |
| KY EV Infrastructure Mtg - KYTC and Duke Energy | Utilities | Virtual | Nov. 2022 | 5 |
| KY EV Infrastructure - KYTC and TVA Discussion | Utilities | Virtual | Nov. 2022 | 5 |



Table 3.4 Continued

| Meeting Name | Category | In-person or Virtual | Month | Attendees |
|---|------------------------|----------------------|-----------|-----------|
| BSADD EV Presentation | Area Development Dist. | Virtual | Nov. 2022 | 15 |
| Southeast Regional EV Monthly Call | Federal | Virtual | Nov. 2022 | 20 |
| Midwest Regional EV Monthly Call | Federal | Virtual | Nov. 2022 | 25 |
| KY EV Infrastructure Planning and Deployment - Stakeholder Mtg | Stakeholders | Virtual | Dec. 2022 | 150 |
| Utility Stakeholder Council Presentation | Utilities | Virtual | Dec. 2022 | 35 |
| District Utility Staff Meeting | Utilities | Virtual | Dec. 2022 | 45 |
| EV and Potential ARC Funding (Multi-State ARISE Grant) | Federal | Virtual | Dec. 2022 | 20 |
| MAASTO EV Committee Presentation | Conference | Virtual | Jan. 2023 | 25 |
| KBT Conference | Conference | In-Person | Jan. 2023 | 100 |
| Joint Office NEVI: Southeast Regional Office Hours | Federal | Virtual | Jan. 2023 | 25 |
| Southeast Regional EV Monthly Call | Federal | Virtual | Jan. 2023 | 20 |
| Midwest Regional EV Monthly Call | Federal | Virtual | Jan. 2023 | 25 |
| Utility Stakeholder Council Presentation | Utilities | Virtual | Feb. 2023 | 35 |
| District Utility Staff Meeting | Utilities | Virtual | Feb. 2023 | 45 |
| AASHTO/ NASEO Regional EV Workshop-Midwest Presentation | Conference | In-Person | Feb. 2023 | 25 |
| FIVCO EV Presentation | Area Development Dist. | Virtual | Feb. 2023 | 15 |
| EV Networking Meeting | Stakeholders | Virtual | Feb. 2023 | 90 |
| Southeast Regional EV Monthly Call | Federal | Virtual | Feb. 2023 | 20 |
| Midwest Regional EV Monthly Call | Federal | Virtual | Feb. 2023 | 25 |
| Kentucky Electric Cooperatives: Funding Meeting EV Presentation | Utilities | Virtual | Mar. 2023 | 45 |
| NEVI Presentation at PDP Section Engineers Meeting | Conference | In-Person | Mar. 2023 | 50 |
| AASHTO/ NASEO Regional EV Workshop-Southeast Presentation | Conference | In-Person | Mar. 2023 | 30 |
| TETC EV Working Group Meeting: EV Presentation | Conference | Virtual | Mar. 2023 | 50 |
| ASHE EV Presentation | Conference | In-Person | Mar. 2023 | 45 |
| EV Charging Summit & Expo | Conference | In-Person | Mar. 2023 | 200 |
| Southeast Regional EV Monthly Call | Federal | Virtual | Mar. 2023 | 20 |
| Midwest Regional EV Monthly Call | Federal | Virtual | Mar. 2023 | 25 |
| ADD Transportation Meeting EV Presentation | Area Development Dist. | In-Person | Apr. 2023 | 15 |
| Statewide Transportation Planning meeting Presentation | Conference | Both | Apr. 2023 | 75 |

Kentucky's Electric Vehicle Infrastructure Deployment Plan



Table 3.4 Continued

| Meeting Name | Category | In-person or Virtual | Month | Attendees |
|---|------------------------|----------------------|-----------|-----------|
| April STP Meeting-MPO Afternoon Session EV Presentation | Conference | In-Person | Apr. 2023 | 30 |
| Lexington Comprehensive Plan EV policies | State & Local | Virtual | Apr. 2023 | 5 |
| BTADD EV Presentation | Area Development Dist. | Virtual | Apr. 2023 | 15 |
| Southeast Regional EV Monthly Call | Federal | Virtual | Apr. 2023 | 20 |
| Midwest Regional EV Monthly Call | Federal | Virtual | Apr. 2023 | 25 |
| Utility Stakeholder Council Presentation | Utilities | Virtual | May 2023 | 35 |
| District Utility Staff Meeting | Utilities | Virtual | May 2023 | 45 |
| Joint Office NEVI: Southeast Regional Office Hours | Federal | Virtual | May 2023 | 25 |
| Southeast Regional EV Monthly Call | Federal | Virtual | May 2023 | 20 |
| Midwest Regional EV Monthly Call | Federal | Virtual | May 2023 | 25 |
| Several meetings with cities and agencies on CFI Grants | State & Local | Virtual | May 2023 | 20 |
| BR Sub on Transportation – Testifying to Legislators | State & Local | In-Person | Jun. 2023 | 10 |
| IJC on Appropriations & Revenue – Testifying to Legislators | State & Local | In-Person | Jun. 2023 | 34 |
| EV and Potential ARC Funding (Multi-State ARISE Grant) | State & Local | Virtual | Jun. 2023 | 20 |
| KY EV Infrastructure Planning and Deployment | Stakeholders | Virtual | Jun. 2023 | 230 |
| Southeast Regional EV Monthly Call | Federal | Virtual | Jun. 2023 | 20 |
| Midwest Regional EV Monthly Call | Federal | Virtual | Jun. 2023 | 25 |
| WTS Luncheon EV Presentation | Conference | In-Person | Jul. 2023 | 60 |
| NASEO-AASHTO EV Charging Infrastructure National Conference | Conference | In-Person | Jul. 2023 | 325 |

CHAPTER 4

PLAN VISION AND GOALS



KYTC 2022-2045 DRAFT LRSTP

KYTC's 2022-2045 Long-Range State Transportation Plan (LRSTP) goals, objectives, and guiding principles were considered alongside the NEVI guidance to develop Kentucky's EVIDP vision and goals. The KYTC LRSTP goals, objectives, and guiding principles are summarized in the following section. They correlate well with the NEVI guidance emphasizing topics such as seamless connectivity, reliability, and equity.



LRSTP GOALS & OBJECTIVES

Goal 1: Enhance safety

Goal 2: Deliver a high level of maintenance and resiliency

Goal 3: Ensure a reliable flow of people and freight

Goal 4: Provide local, regional, and global connectivity for communities

Goal 5: Deliver and operate a system that protects or enhances the natural and human environment



LRSTP GUIDING PRINCIPLES

Principle 1: Equity

Principle 2: Adaptability/Sustainability

Principle 3: Seamlessness

Principle 4: Quality of Life

Principle 5: Economic Vitality

NEVI GUIDANCE

OVERVIEW

The BIL makes the most transformative investment in EV charging in United States history. It puts the country on a path to a nationwide network of 500,000 EV chargers by 2030 to achieve a convenient, reliable, affordable, and equitable charging experience for all users. This national network will:

- + Accelerate equitable adoption of EVs, including for those who cannot reliably charge at home. (Equity)
- + Reduce transportation-related greenhouse gas emissions and help put the U.S. on a path to net-zero emissions by no later than 2050. (Environment)
- + Position U.S. industries to lead global transportation electrification efforts and help create family-sustaining union jobs that cannot be outsourced. (Economic Development)

PURPOSE STATEMENT

The purpose of the NEVI Formula Program is to “provide funding to States to strategically deploy electric vehicle charging infrastructure and to establish an interconnected network to facilitate data collection, access, and reliability.” To be effective, the EV charging infrastructure deployed under this program must provide a seamless customer experience for all users through a convenient, reliable, affordable, and equitable national EV charging network.



EVIDP VISION

Kentucky’s EVIDP vision and goals are presented in **Table 4.1**. They align with the LRSTP goals to work in tandem with the state’s top priorities to address the growing national demand for EV charging infrastructure. For each goal, a quantifiable performance metric is presented. The performance metrics are discussed further later in this chapter.

TABLE 4.1 VISION AND GOALS

| Kentucky’s EV Goals | 2022-2045 LRSTP | | How the Plan will Meet the Goals |
|---|-----------------|--------------------|--|
| | Goals | Guiding Principles | |
| <p>GOAL 1 A corridor-based EV charging system that supports interstate and regional travel</p> | G3, G4 | P1, P3, P5 | <p>Kentucky has defined a system of Interstates and Parkways that serve long-distance travelers within and through the state. The system connects major urban and rural areas across the state. Most EV drivers will be able to access the system by driving 50 miles or less.</p> <p>(Metric: System miles covered by EV charging stations that meet the standards outlined in this plan.)</p> |
| <p>GOAL 2 A local EV ecosystem that serves Kentucky’s communities and travelers</p> | G3, G4 | P1, P2, P3, P5 | <p>Although intended for long-distance travel, the fast-charge infrastructure can also serve as a vital part of the local EV ecosystem near these corridors. They can serve as a backup for local Level 2 charging or be used for emergency fast charging.</p> <p>(Metric: Number of residents and employees within 15 miles and 50 miles of EV charging stations installed using NEVI funds.)</p> |
| <p>GOAL 3 A comprehensive system that supports transportation choices for all of Kentucky’s residents</p> | G3, G4 | P1, P3, P5 | <p>Justice40 and rural communities were a key consideration in the selection of corridors and prioritization of interchanges for future charging infrastructure. It is essential that Kentucky’s EV infrastructure work for all of Kentucky’s communities.</p> <p>(Metric: Number of rural and Justice40 residents within 15 miles and 50 miles of EV charging stations installed using NEVI funds.)</p> |
| <p>GOAL 4 An interconnected, reliable, and resilient vehicle fueling system that can adapt to changes in market conditions and transportation technologies</p> | G2 | P2, P3, P5 | <p>The switch to electrified mobility opens Kentucky’s transportation sector to new energy sources, providing an opportunity for energy diversification and redundancy that is not possible with petroleum-burning internal combustion engines. Reliability will be critical to the success of the system.</p> <p>(Metric: Percent operational time for EV charging stations installed using NEVI funds.)</p> |
| <p>GOAL 5 A transportation system that reduces emissions and promotes clean air in Kentucky</p> | G3 | P1, P2, P4 | <p>Increasing the number of zero emission vehicles on Kentucky’s highways will reduce pollution. Reducing emissions will also benefit communities adjacent to major corridors by decreasing pollution that may affect these areas.</p> <p>(Metric: Number of registered EVs in the state of Kentucky.)</p> |

KENTUCKY'S EVIDP VISION

A reliable, accessible, convenient, and affordable EV charging network that supports transportation choices, energy diversification, economic development, and environmental sustainability for all Kentuckians.

NEVI FORMULA PROGRAM FUNDS - SOURCES

KYTC will receive approximately \$69.5 million in NEVI formula funds over the five-year period from Federal Fiscal Year (FY) 2022 to FY 2026 as indicated in **Table 4.2**. The minimum 20% non-federal match required to secure that funding is \$17.4 million, for a minimum total five-year program amount of \$86.9 million. If a larger non-federal match can be secured that amount could increase.

TABLE 4.2 NEVI FORMULA FUNDS AND MATCHING FUNDS (MILLIONS)

| Federal Fiscal Year | Forecasted NEVI Funds | Match Funds | Total |
|---------------------|-----------------------|---------------|---------------|
| 2022 | \$10.3 | \$2.6 | \$12.9 |
| 2023 | \$14.8 | \$3.7 | \$18.5 |
| 2024 | \$14.8 | \$3.7 | \$18.5 |
| 2025 | \$14.8 | \$3.7 | \$18.5 |
| 2026 | \$14.8 | \$3.7 | \$18.5 |
| Total | \$69.5 | \$17.4 | \$86.9 |

Kentucky has secured the Federal funds for FY 2022 and FY 2023, which totals to approximately \$25.1 million. The minimum 20% non-federal match for these two years is \$6.3 million, resulting in a total of \$31.4 million for the two years. It is assumed that the remaining annual amounts will be divided evenly over the following three years. This results in approximately \$14.8 million in federal funds and \$3.7 million in matching funds or \$18.5 million total for each year from FY 2024 through FY 2026. This plan is expected to be updated on an annual basis (as needed) to reflect the state funding plans for each fiscal year.

NEVI FORMULA PROGRAM FUNDS - USES

It was estimated that up to 37 creditable charging stations could be required to build-out the AFC network in Kentucky. (The AFC network is discussed in detail in **Chapter 6**). This assumed an AFC creditable 4-port charging system would be installed every 50 miles or less in any logical direction of travel on the AFC network. It also assumed stations would be required within 25 miles of the end of an AFC route that does not terminate at a state border. For AFCs that terminate at a state border, it is assumed that a station is needed within 25 miles of the border unless an existing or planned station on the same route in the adjoining state is closer than 25 miles. For some corridors, the distance between chargers could be less than 30 miles due to the corridor length and/or interchange spacing.

The per unit cost estimate for the design and construction of each installation was estimated at approximately \$1.2 million. Based on this value, the resulting cost to build-out all AFCs would be approximately \$44.4 million. It is important to note however, that market volatility, supply chain issues, and inflation could cause these numbers to change over the coming year.

Based on these estimates, Kentucky should be able to install the needed chargers on the Interstates and Parkways (all AFCs). (See **Figure 4.1**). As soon as the final required stations are operational, Kentucky will request to have the AFC system certified as built out by the Secretary of the U.S. DOT. This will require that U.S. DOT certify that the AFCs (with priority given to the Interstates) are fully built out, except where any specific documented exceptions have been granted.

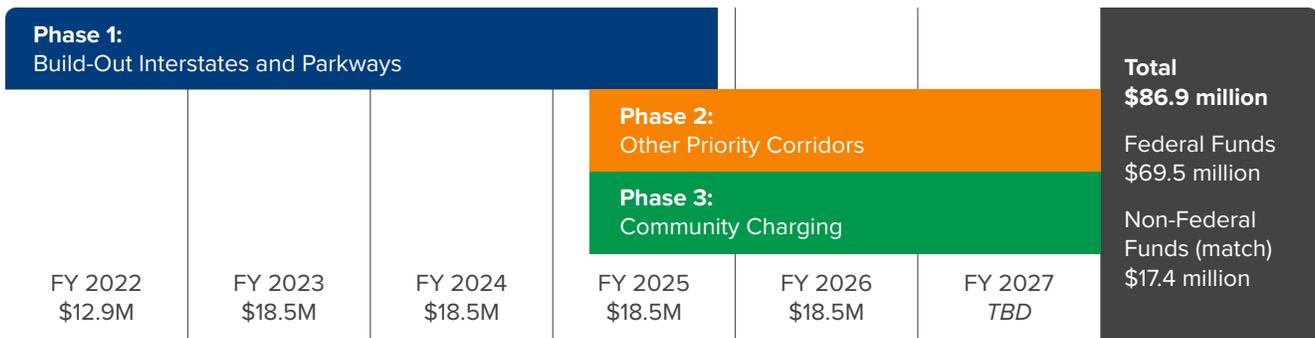


FIGURE 4.1 NEVI FORMULA FUNDS USES BY YEAR

If Kentucky is certified as built out in FY 2025, the remaining funds from FY 2025 and FY 2026 could be used with more flexibility. For example, they could be used to install DCFC stations on other priority corridors around the state (see **Chapter 6**). Investment in these corridors could expand the EV charging network into areas that do not have direct access to an Interstate or Parkway. After build-out, funds could also be used to install Level 2 chargers in communities or at parks and other destinations. This could extend the EV charging network even further and support economic development initiatives across the Commonwealth.



Each state should provide 5-year goals for the duration of the program

FIVE-YEAR TARGETS

In accordance with the NEVI Guidance, KYTC is identifying outcome-based aspirational targets for the next five years (**Table 4.3**). Currently, two of them have preliminary quantifiable targets. The targets are expanded upon in **Chapter 13**. They are also subject to change based on future Federal guidance. They may also be modified during the program implementation process as new information becomes available.

TABLE 4.3 FIVE-YEAR TARGETS

| No. | Goal | Performance Metric | Five-Year Target |
|-----|--|--|---------------------------------------|
| 1 | A corridor-based EV charging system that supports interstate and regional travel | System miles covered by EV charging stations that meet the standards outlined in this plan. | >800 miles |
| 2 | A local EV ecosystem that serves Kentucky's communities and travelers | Number of residents and employees within 15 and 50 miles of EV charging stations installed using NEVI funds. | TBD as Part of Implementation Process |
| 3 | A comprehensive system that supports transportation choices for all of Kentucky's residents | Number of rural and Justice40 residents within 15 and 50 miles of EV charging stations installed using NEVI funds. | TBD as Part of Implementation Process |
| 4 | An interconnected, reliable, and resilient vehicle fueling system that can adapt to changes in market conditions and transportation technologies | Percent operational time for each EV charging port installed using NEVI funds. | >97% Uptime |
| 5 | A transportation system that reduces emissions and promotes clean air in Kentucky | Number of registered BEVs in the state of Kentucky. | TBD as Part of Implementation Process |



Plans should be updated on an annual basis to reflect the state funding plans for that fiscal year.

ANNUAL PLAN UPDATES

In accordance with the guidance, this plan is expected to be updated annually (as needed) to reflect future year funding allocations, new guidance, and progress in implementing the plan. The annual updates provide an opportunity to adjust the plan, including the goals and targets, based on new information, ongoing stakeholder and public input, and lessons learned. These annual updates also provide a scheduled opportunity for information sharing with other states and the Joint Office. This plan has been updated to meet the requirements described in the June 2, 2023, NEVI guidance.

CHAPTER 5

CONTRACTING

On June 15, 2023, KYTC issued a request for proposals (RFP), with ID: 605-2300000290-4, to solicit proposals from qualified entities (proposers) to design, build, operate, and maintain direct current fast charging (DCFC) electric vehicle supply equipment stations (EVSE stations or projects) at locations (sites) across the Commonwealth. This is a best-value procurement pursuant to 23 CFR 636.

KYTC's goals specific to this RFP are as follows:

1. Attract multiple proposers with proven knowledge and experience in EV charging
2. Encourage self-sufficiency during design, construction, and operation of the EV Network while ensuring federal compliance and performance
3. Execute the EV network build-out per the objectives contained in:
 - a. The NEVI Formula Program Guidance issued on February 10, 2022
 - b. The NEVI Formula Program Questions and Answers as updated on September 14, 2022
 - c. The NEVI Formula Program Guidance updated on June 2, 2023
 - d. The National Electric Vehicle Infrastructure Standards and Requirements, Final Rule, Code of Federal Regulations Section 23, Part 680 (23 CFR 680) issued on February 15, 2023 (collectively, NEVI Requirements)
 - e. Other requirements set forth by KYTC pursuant to the laws of the Commonwealth
4. Achieve build-out along the Commonwealth's Federally designated AFCs, as detailed in this Plan
5. Select projects, and preferred proposers, that are likely to remain viable beyond the five-year funding period offered by the NEVI Formula Program.

KYTC will evaluate proposals based on established evaluation criteria, and award contracts to select proposers (Preferred Proposers) for select sites. Preferred proposers will need to execute a contract in the form of a project agreement (PA) with KYTC and agree to PA terms and conditions in relation to a particular project. As per the PA terms and conditions, developers will be expected to carry out site acquisition, design, purchase, construction, installation of hardware and software, operation and maintenance (O&M), and reporting services for a given project. KYTC will not develop, own, operate, or maintain projects. Contract duration is to be for the five years following construction completion.



FHWA anticipates that in most instances States will contract with private entities for the installation, operation, and/or maintenance of EV charging infrastructure funded in whole or in part through the NEVI Formula Program

CORRIDOR GROUPS

KYTC has identified 17 corridor groups along Kentucky's AFCs, as shown in **Figure 5.1** where EVSE stations may be installed to achieve build-out in accordance with AFC creditable stations. KYTC intends to award one or more sites per corridor-group. More than one candidate site may be awarded to the same proposer if it is determined that an additional award provides the best value and alignment with the goals previously stated. However, it is anticipated that KYTC will award contracts to multiple proposers, and thus select multiple developers to build-out the Commonwealth's EV AFCs. This site-based, best-value approach will allow small businesses and individual candidate site owners to submit proposals and compete against other candidate sites in each corridor-group. Thus, small businesses can compete on an even playing field with larger national EV developers.

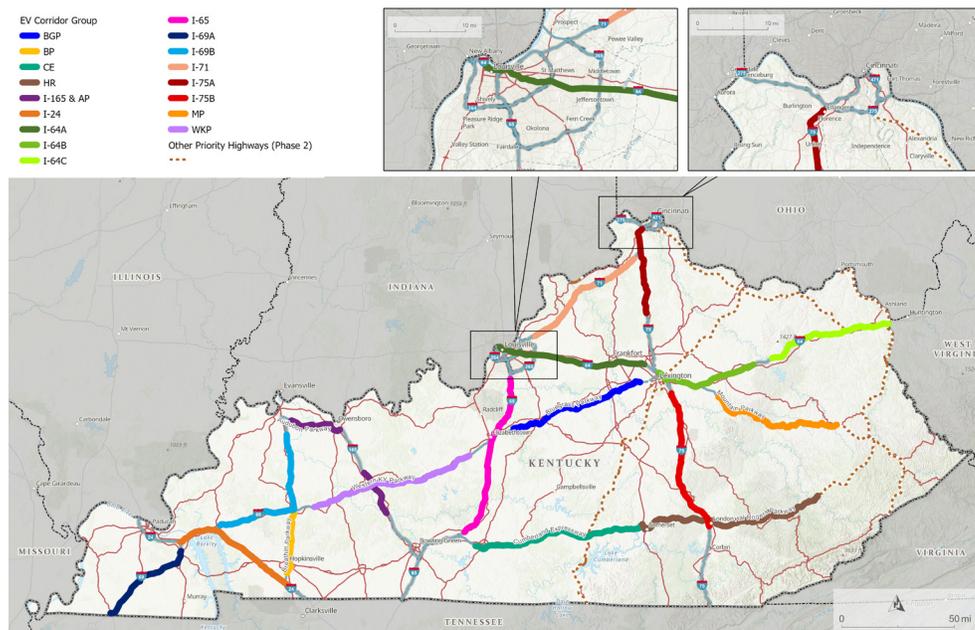


FIGURE 5.1 EV CORRIDOR GROUP

In the RFP, proposers are asked to submit administrative, technical, and cost proposals. These three proposals will be evaluated using the scoring methodology described in detail below. KYTC will evaluate technical proposals for candidate sites based on proposers' experience, qualifications, proposed user experience, equity and rural considerations, and site location. Cost proposals will be evaluated on the total subsidy requested, awarding the greatest number of points to proposals that request the least amount of subsidy. Administrative proposals will only be evaluated on a pass/fail basis, requiring the completion of all forms and certifications. The responsive proposer with the highest total candidate site score (technical + cost) within the specific corridor-group will be selected as the preferred proposer for that corridor-group. This approach will allow KYTC to achieve the RFP goals in an efficient, cost-effective manner.

To ensure the efficient long-term operations and performance of installed EVSE Stations, KYTC is reimbursing project costs for eligible O&M activities subject to a project meeting the EVSE specifications/requirements provided in the PA, including NEVI Requirements, for the five years following project final completion (operational period). Liquidated damages (LDs) may be assessed against payments during the operational period for failure of developer to comply with (1) EVSE requirements related to up-time, and (2) reporting requirements included in the PA terms and conditions. These reporting requirements align with, and will facilitate KYTC's compliance with, NEVI requirements for reporting.



A networking meeting was held during the draft RFP phase to promote the involvement of small, minority, and disadvantaged businesses in the RFP response process. In addition, KYTC encourages the submission of proposals located within Justice40 areas through the award of additional points during the evaluation process.

Post-award, KYTC will assess the equity benefits of the program as discussed in **Chapter 4, Chapter 10** and **Chapter 13**. This assessment will include working with the selected developers and disadvantaged communities where the stations are located to document the benefits. Metrics will be identified in coordination with those communities as outlined in **Chapter 10** and will follow FHWA guidance.

STATUS OF CONTRACTING PROCESS

Only one RFP (June 15, 2023) has been issued to date. KYTC has not initiated additional procurement processes under the NEVI Formula Program. Once sites have been selected under the existing RFP, KYTC may implement additional RFPs and adjust selected elements (e.g., Site location or selection criteria) of the contracting process to achieve efficient built out of the AFCs.

Proposals for this initial RFP are due no later than 5:00 pm Eastern Daylight Time/4:00 pm Central Daylight Time on August 24, 2023. The full selection process schedule is provided in **Table 5.1**.

TABLE 5.1 RFP SELECTION PROCESS SCHEDULE

| Activity | Date |
|------------------------|-------------------------|
| Draft RFP Release | 01/04/2023 (past) |
| Draft RFP Comments Due | 01/27/2023 (past) |
| Networking Event | 02/21/2023 (past) |
| RFP Release | 06/15/2023 (past) |
| Questions Due | 07/13/2023 (past) |
| Proposals Due | 08/24/2023 |
| Notice of Award | 09/27/2023 |
| PA Execution | On or before 12/20/2023 |

AWARDED CONTRACTS

Per the RFP Selection Process Schedule outlined in **Table 5.1**, notice of award is anticipated on September 27, 2023, and PA execution is anticipated on or before December 20, 2023. No contracts have been awarded to date, but KYTC anticipates awarding up to 37 contracts for EVSE stations along Kentucky’s AFCs.

SCORING METHODOLOGIES UTILIZED

KYTC has established a proposal evaluation committee to review, evaluate, and verify information submitted by proposers, and an awards committee to rank proposals and make award recommendations to KYTC.

Upon receipt, the administrative proposals, technical proposals, and the cost proposals will first be reviewed for responsiveness on a pass/fail basis. After proposals are reviewed for responsiveness, and to the extent a proposal is deemed “responsive”, each technical proposal and each cost proposal will be reviewed, evaluated, and scored according to the scoring criteria of the RFP. Each technical proposal may be awarded additional points if a site is located within a Justice40 area, includes futureproofing concepts, allows for a vehicle with a trailer to pull through, and for EVSE Stations with an available charging rate of or greater than 300kW. The use of traditionally disadvantaged firms is being encouraged through the award of points as part of the technical proposals.

For each corridor-group, KYTC will evaluate technical proposals, providing up to 1,600 points, and rank cost proposals based on the lowest proposed subsidy amount, providing up to 600 points.

The proposal with the lowest total subsidy requested in the cost proposal for each of the corridor-groups will receive the maximum points for that corridor-group. For each of the corridor-groups, the remaining proposals will receive points in proportion to the lowest subsidy requested.

For each proposal, the proposer’s total score will be calculated as the sum of the technical proposal and the cost proposal.

The determination of the preferred proposer(s) will be determined for each corridor-group. The proposer with the highest candidate site score within the specific corridor-group will be selected as the preferred proposer for that corridor-group. Each corridor-group will be scored in a similar manner.

PLAN FOR COMPLIANCE WITH FEDERAL REQUIREMENTS

KYTC is currently preparing a project management plan (PMP) to describe and document the approach to completion of EVSE stations awarded under RFP ID: 605-2300000290-4, as well as subsequent RFPs under the NEVI Formula Program. Created in collaboration with the FHWA, the PMP will identify KYTC’s management procedures and organizational structure to comply with Federal and State requirements and provide a guide for interaction of contractors, agencies, and staff within Kentucky’s EV Charging Program.

The PMP will include a description of KYTC’s approach to the following topics:

- + Management organization and responsibilities
- + Contract administration
- + Financial/commercial management
- + Document management
- + Cost and schedule control
- + Design change management
- + Construction oversight
- + Risk management
- + Quality assurance and control
- + Safety and security management
- + Testing, acceptance, and start of operations
- + Reporting during operations

CHAPTER 6 EXISTING AND FUTURE CONDITIONS ANALYSIS



“...information regarding the State’s geography and terrain as it pertains to its EV charger deployments”

This section identifies the existing conditions in Kentucky at the time of the Plan creation. As required by the NEVI guidance it addresses geography, terrain, temperature, precipitation, EV ownership projections, and transportation patterns. It also addresses electric utilities, grid capacity, existing EV infrastructure, Alternative Fuel Corridors, and known risks and challenges for EV deployment.

GEOGRAPHY, TERRAIN, AND LAND USE

Kentucky has a diverse geography that extends from the Cumberland Mountains to the Mississippi River (**Figure 6.1**). Some of the major features to consider when planning for EV infrastructure deployment include:

1. **Mountainous Regions** – The Cumberland/Appalachian Mountains occupy the eastern third of Kentucky, which includes steep and winding roads that will reduce the range of an EV. Highways in this region are often indirect due to natural barriers, which can lead to longer driving distances.
2. **Lakes and Rivers** – Kentucky has several major rivers and large lakes including the Ohio River and the Cumberland River, and Lake Cumberland. These water bodies often have few bridge crossings, which can lead to long driving distances.
3. **Large Forest and Natural Areas** – There are several large, forested areas such as the Daniel Boone National Forest, which have few highways and long stretches of undeveloped areas that are less suitable for charging infrastructure.
4. **Land Use / Rural Areas** – Kentucky is a mixture of urban centers, small towns, and large rural areas with little development. Charging infrastructure will need to support travel throughout the rural areas of Kentucky, making EVs an option for residents in all areas of the state. Similarly, there will be EV infrastructure issues in the urban areas, though they may be more related to the need for Level 2 charging for high-density residential areas.



“...current and future temperature and precipitation patterns”



FIGURE 6.1 KENTUCKY’S TOPOGRAPHY

CLIMATE AND PRECIPITATION

Kentucky's climate is moderate with cold winters, mild spring/fall, and warm summers. Temperatures are generally cooler in the mountains in the east and warmer in the west. The state has an average annual high of 87°F in summer and an average low of 23°F in winter. During winter, there are numerous days, especially in the eastern portion of the state, where temperatures drop well below freezing.

Similarly, there are numerous days with temperatures that exceed 95°F. Kentucky receives about 48 inches of rain on average per year and approximately 11 inches of snow. Kentucky also has had several major ice storm events.

Extreme temperatures can affect EV battery life through the need to cool or warm the vehicle as well as due to the impact on batteries and charging. However, Kentucky's temperature and precipitation conditions are not expected to have a significant impact on EV infrastructure planning in the state with a few exceptions. First, they reinforce the need for amenities and services at or near DCFC stations. Second, there will be a need to provide snow removal and possibly de-icing during winter storm events. Third, there may be locations where a covered charging station may be beneficial to protect drivers from the sun and weather. Finally, it may be necessary to provide emergency charging equipment if power is lost during a storm event. This is discussed further later in the plan.

ROADWAY NETWORK / TRAVEL PATTERNS

Kentucky has 11 Interstate highways and 8 state Parkways/Expressways intended for inter-state and regional travel, and a network of National Highway System roadways to provide connectivity throughout Kentucky's 120 counties. The major Interstates include I-65 and I-75 which run north-south through the center of the state and carry high traffic volumes; I-24 runs through western Kentucky and I-64 runs east-west through the northern part of the state. The Parkway System is vital to Kentucky because it connects most of the remainder of the state. Long-distance travel in and through the state is examined in more detail in **Chapter 7**. All the Interstates and Parkways are part of the EV Alternative Fuel Corridor network discussed later in this Chapter.

KYTC's Long-Range Statewide Transportation Plan identifies the need to maintain the state's critical transportation infrastructure and identifies funding and strategies to meet this need. KYTC is committed to maintaining and improving the state's existing infrastructure as it provides charging infrastructure to support travel on these roadways.



"...travel patterns"

PUBLIC TRANSPORTATION

Kentucky has 25 rural public transportation services and nine urban city bus transit services. Annually, they provide over 31 million trips and serve approximately three million elderly and disabled passengers. The rural services are typically on-demand, and the urban services mostly operate a fixed route service. Many rural operators also provide intercity services as well as connect with the larger urban systems and commercial bus networks.

KYTC anticipates that fixed route charging will be addressed through other plans and programs oriented to address fixed route transit. For rural operators, there may be a future need for light-duty DCFC charging once handicapped accessible vehicles are produced, and this need should be accounted for during the station siting process. While Kentucky has few park-and-ride options at present, charging for these users should be addressed using Level 2 charging stations.



“...public transportation needs, freight and other supply chain needs”

FREIGHT AND SUPPLY CHAIN NEEDS

Kentucky is a major junction for the nation’s freight movement as it is centrally located in the country and able to move trucks effectively and efficiently. It is home to four automobile assembly plants and over 450 parts suppliers. Kentucky is the third largest auto producer in the country accounting for 11.2 percent of total U.S. auto production.

Over 803.3 million tons of freight move through Kentucky annually, with approximately 78% of this transported via trucks. **Figure 6.2** shows the breakdown of freight movement by different modes of transport. The public DCFC infrastructure planned is not intended for freight, as local freight companies will likely have dedicated charging infrastructure at depots, and long-distance freight will require substantially more power than what is needed at a AFC creditable station. However, KYTC will incorporate potential guidance related to freight into future updates. Kentucky is also exploring the potential for hydrogen truck refueling stations in the state along the Hydrogen Alternative Fuel Corridors. Kentucky’s EV freight corridors have been assessed as part of Round 7 AFC Corridor nominations which were due June 12, 2023. The status of these nominations was not confirmed at the time of this update.

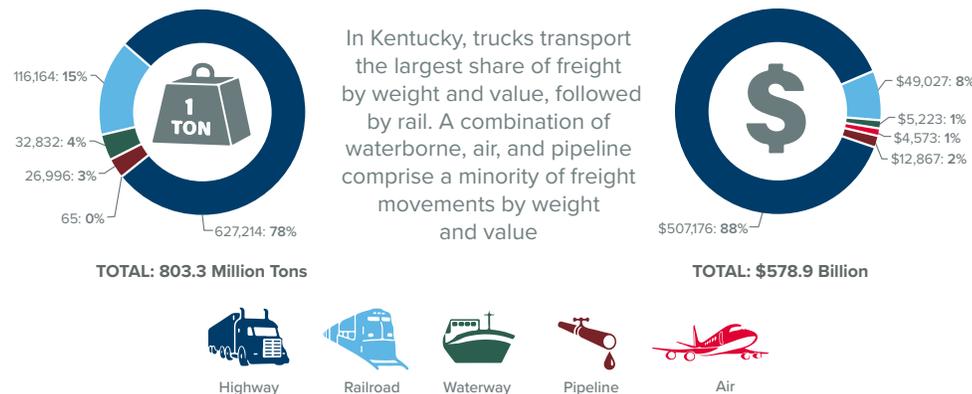


FIGURE 6.2 ANNUAL FREIGHT MOVEMENT IN KENTUCKY

DCFC CHARGING NETWORK

ALTERNATIVE FUEL CORRIDOR DESIGNATIONS

In accordance with the guidance, KYTC will use the initial NEVI Formula Program Funds to deploy EV charging infrastructure on the AFCs. As shown in **Figure 6.3**, all of the Interstates and Parkways across the state are part of the AFC network. The Interstates and Parkways were designated as AFCs to be in alignment with Kentucky's needs related to long-distance travel and statewide network connectivity. The long-distance travel estimates are discussed more later in this plan. Based on the AFC designations, the entire Interstate and Parkway system is eligible for this initial NEVI-funded EV infrastructure deployment. No changes were made to Kentucky's EV AFC Network in 2023, during Round 7 of the Request for Nomination (RFN) and AFC designation process.

KYTC is anticipating that the three-digit Interstates in Louisville and Northern Kentucky (I-264, I-265, I-275, and I-471) are either already AFC creditable based on the proximity of existing stations that potentially comply with all NEVI requirements (potentially AFC creditable stations) or will be as soon as new NEVI stations are installed in or near these urban areas. However, once station locations are selected as part of the current RFP process, KYTC will review this assumption in light of the latest Federal guidance

ADDITIONAL CORRIDORS

Additional corridors will be needed to better connect the rural areas of the state, especially those located far from an Interstate or Parkway. **Figure 6.3** shows several potential Other Priority Corridors that have been proposed to provide this additional coverage. These non-AFC corridors could be added to and/or modified as the plan is updated in the future, but they provide one scenario for further extending the EV infrastructure coverage past the Interstates and Parkways.

States should prioritize the Interstate Highway System.

“... provide EV users with the confidence that they can travel long distances and expect reliable access to EV charging stations”

“..fill gaps to provide a convenient, reliable, affordable, and equitable national EV charging network”

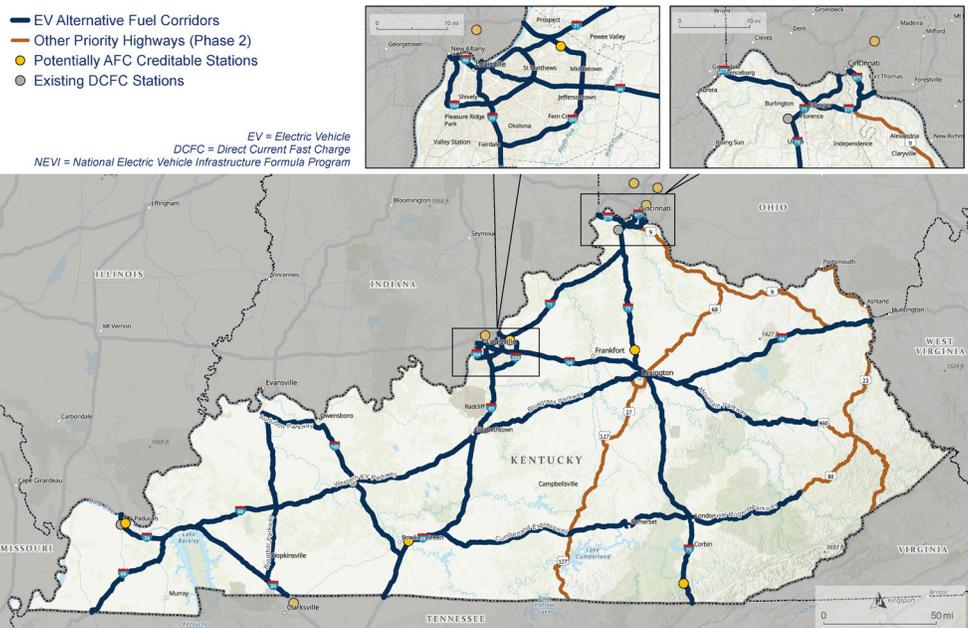


FIGURE 6.3 ALTERNATIVE FUEL CORRIDOR DESIGNATIONS AND OTHER PRIORITY CORRIDORS

There are 5 potentially AFC creditable stations in Kentucky. These are stations that potentially meet all NEVI requirements. There are 5 potentially AFC creditable stations just outside Kentucky.



EXISTING CHARGING STATIONS ON AFCS

In Kentucky, there are currently eight publicly accessible 24-hour DCFC stations within one mile of an AFC. Five of these publicly accessible stations are potentially AFC creditable stations. The eight DCFC stations are shown in **Figure 6.3** and are listed in **Table 6.1**. The five potentially AFC creditable stations are owned and operated by Electrify America. This information is as of July 20, 2023.

There are additional potentially creditable DCFC stations just beyond the state border on I-65 in Indiana, on I-71 and I-275 in Ohio, and on I-24 in Tennessee. These stations provide some AFC network coverage in Kentucky. These five locations are shown on **Figure 6.3**.

Information about these stations is publicly available on various websites and apps. This information dissemination will continue to be important and is discussed further in other chapters of this report.

TABLE 6.1 EXISTING CHARGING STATIONS ALONG AFCS, AS OF JULY 20, 2023

| State Ev Charging Location Unique Id | Charger Level | Route | Location (Street Address) | Number Of Charging Ports | EV Network | Meets All Relevant Requirements In 23 Cfr 680? | Intent To Count Towards Fully Built Out Determination? |
|--------------------------------------|---------------|-----------------------|---------------------------------------|--------------------------|---------------------|--|--|
| 1050001 | DCFC | I-75 (AFC) | 112 Osborne Way, Georgetown | 4 | Electrify America | Unknown | Yes |
| 0730001 | DCFC | I-24 (AFC) | 5130 Hinkleville Rd, Paducah | 4 | Electrify America | Unknown | Yes |
| 1140001 | DCFC | I-65 (AFC) | 350 Corvette Dr., Bowling Green | 4 | Electrify America | Unknown | Yes |
| 1180001 | DCFC | I-75 (AFC) | 589 KY-92, Williamsburg | 4 | Electrify America | Unknown | Yes |
| 0920001 | DCFC | Western KY Pkwy (AFC) | 675 Western Kentucky Pkwy, Beaver Dam | 2 | ChargePoint Network | No | No |
| 0730002 | DCFC | I-24 (AFC) | 3300 Park Ave, Paducah | 1 | ChargePoint Network | No | No |
| 0080001 | DCFC | I-71 (AFC) | 949 Burlington Pike, Florence | 1 | ChargePoint Network | No | No |
| 0560001 | DCFC | I-265 (AFC) | 4100 Towne Center Dr, Louisville | 6 | Electrify America | Unknown | Yes |

ELECTRIC UTILITIES

Electric power in Kentucky is distributed by investor-owned electric utilities, municipal electric systems, Tennessee Valley Authority (TVA) regulated utilities, and rural electric cooperatives (**Figure 6.4**). The investor-owned utilities and the rural electric cooperatives are regulated by the Public Service Commission (PSC). The investor-owned utilities serve the more densely populated areas of the state, including Louisville, Lexington, and Northern Kentucky. Many small and mid-sized cities have their own municipal electric utilities, and the more rural areas are served by rural electric cooperatives (including the TVA-regulated cooperatives).



“Electric utilities and grid capacity”

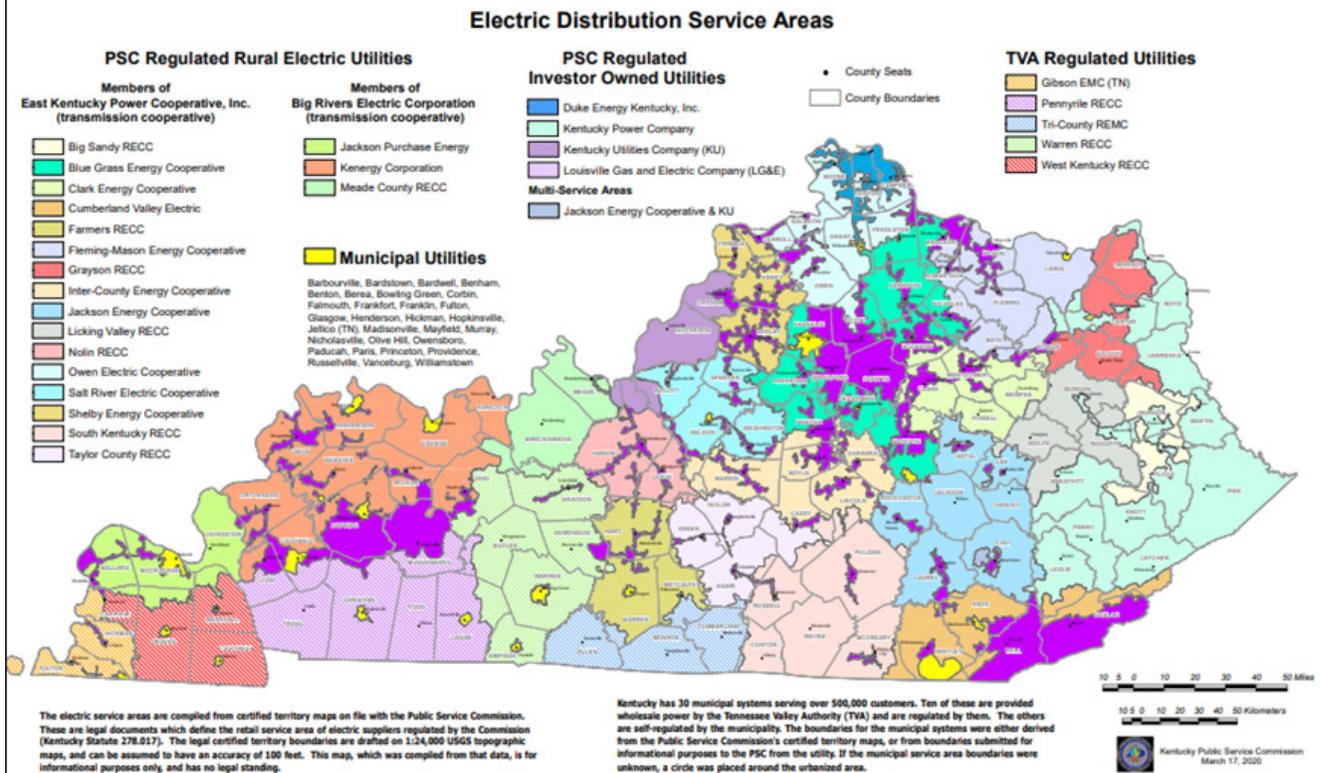


FIGURE 6.4 ELECTRIC DISTRIBUTION SERVICE AREAS IN KENTUCKY

On November 7, 2022, The Kentucky PSC initiated an investigation into Electric Vehicle (EV) rates. The investigation stems from 2021 amendments to Section 111(d) of the Public Utility Regulatory Policies Act of 1978 (PURPA) made by the 2021 IJA. The IJA amendments require the PSC to consider measures to:

Promote greater electrification of the transportation sector, including the establishment of rates that (A) promote affordable and equitable electric vehicle charging options for residential, commercial, and public electric vehicle charging infrastructure; (B) improve the customer experience associated with electric vehicle charging, including by reducing charging times for light-, medium-, and heavy-duty vehicles; (C) accelerate third-party investment in electric vehicle charging for light-, medium-, and heavy-duty vehicles; and (D) appropriately recover the marginal costs of delivering electricity to electric vehicles and electric vehicle charging infrastructure.

Kentucky has over 50 electric utilities.



The PSC made all jurisdictional electric utilities parties to the proceeding and ordered the electric utilities to file written comments that provide:

(1) A report of existing measures used to promote electrification of the transportation sector by the electric utility; (2) Existing rate mechanisms that promote affordable and equitable electric charging options, if any, improve customer experience associated with charging, if any; accelerate third-party investment, if any, and appropriately recover the marginal costs of delivering electricity to electric vehicles and electric vehicle infrastructure, if any, and; (3) Appropriate measures to promote greater electrification of the transportation sector.

Comments were due to be filed no later than December 16, 2022. The PSC is now determining the next procedural steps. The IIJA amendments to PURPA require the PSC to complete its consideration of EV rates no later than November 15, 2023.

Due to a variety of factors including large coal reserves, natural gas pipelines, and an abundant water supply, Kentucky enjoys some of the lowest utility costs in the country. Extensive coordination was conducted with representatives from the various electric utilities to understand where adequate power supply was available and to understand their plans for EV infrastructure.

The peak electrical power demand for DCFC stations along the AFC network in Kentucky was estimated based on projections for EV adoption and traffic growth. This analysis is discussed in detail in **Chapter 7**. The estimates showed that within the NEVI period (through 2026) the peak power demand on all AFC corridors is below 1 MW for all potential charging sites outside of three small high-volume areas near cities. The peak demand for about half of the AFC network is below 300 kW. This level of demand is not expected to be difficult to meet with the existing electrical grid.

ELECTRIC VEHICLES IN KENTUCKY

REGISTERED BATTERY ELECTRIC VEHICLES

There were approximately 7,200 registered battery electric vehicles (BEVs) in Kentucky as of April 30, 2023. This is 0.18% of the approximately 3.3 million registered light-duty vehicles in the state, which is lower than the national average of 1.17% of registered vehicles (KYTC, AAI). The majority of the BEVs registered in Kentucky today are in the major urban areas or nearby counties, with few vehicles present in the more rural areas. **Figure 6.5** shows the number of registered BEVs by county and **Figure 6.6** shows the current adoption percentage of BEVs by county (KYTC).

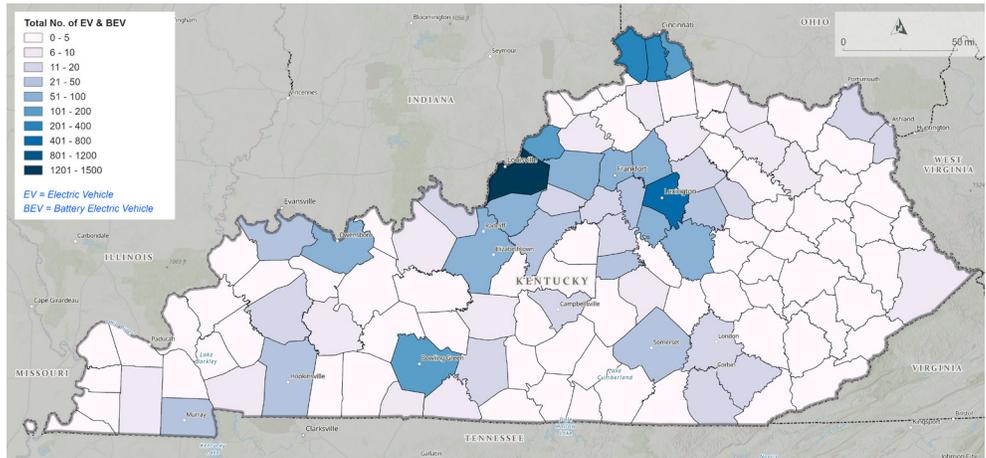


FIGURE 6.5 NUMBER OF BEVS BY COUNTY (2022)

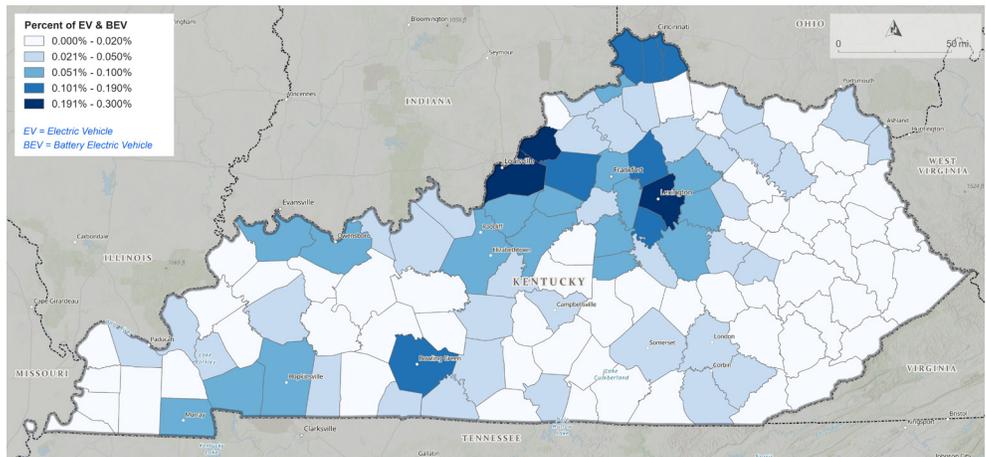


FIGURE 6.6 BEV ADOPTION PERCENTAGE BY COUNTY (2022)



BATTERY ELECTRIC VEHICLE SALES

In 2022, approximately 2% of all light-duty vehicle sales in Kentucky were BEVs. This compares to approximately 6% nationally. However, as shown in **Figure 6.7**, both the state and national trends have been increasing over the last several years. This may be further compounded in Kentucky, where new EV-related economic opportunities (such as Ford’s new battery plant) raise the awareness of the technology, and position EVs as a “Made in Kentucky” technology.

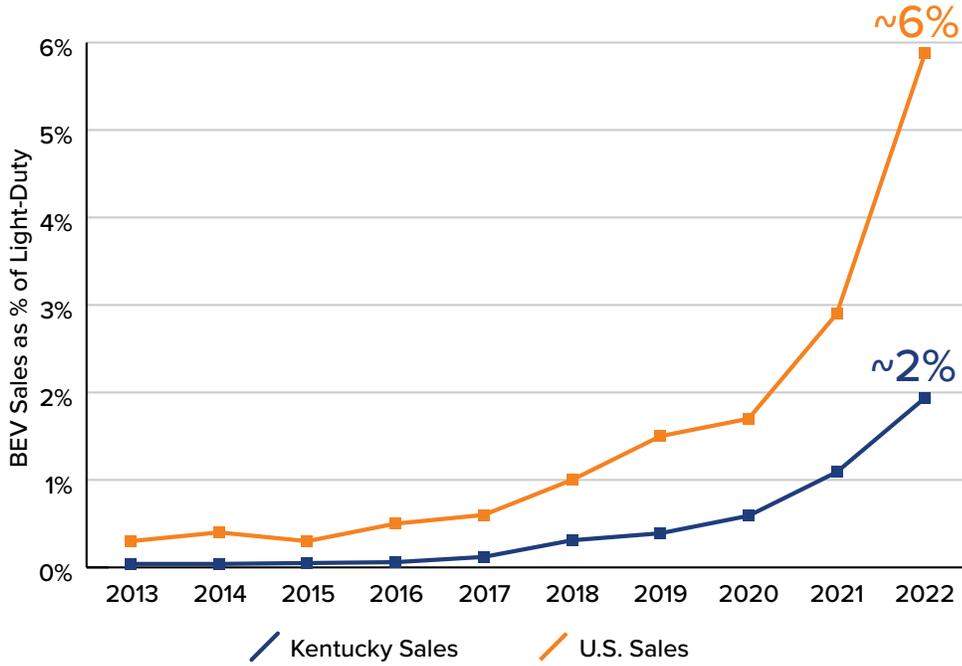


FIGURE 6.7 BEV SALES IN THE US AND KENTUCKY

EV SALES AND REGISTRATION PROJECTIONS

An EV adoption forecast for light-duty BEVs in the state of Kentucky was developed based on EV adoption forecasts from various sources including university research, national laboratories, and private forecasting models. **Figure 6.8** shows 12 forecasts for EV market sales between now and 2045. These industry sales projections range from a low of 28% to a high of 82% in 2045. The models make different assumptions about battery costs, technological advancements, government incentives, and other factors. Some of the conservative models were developed before manufacturers made major EV announcements and before the IIJA was approved. Some of the more aggressive models have historically over-predicted adoption rates.

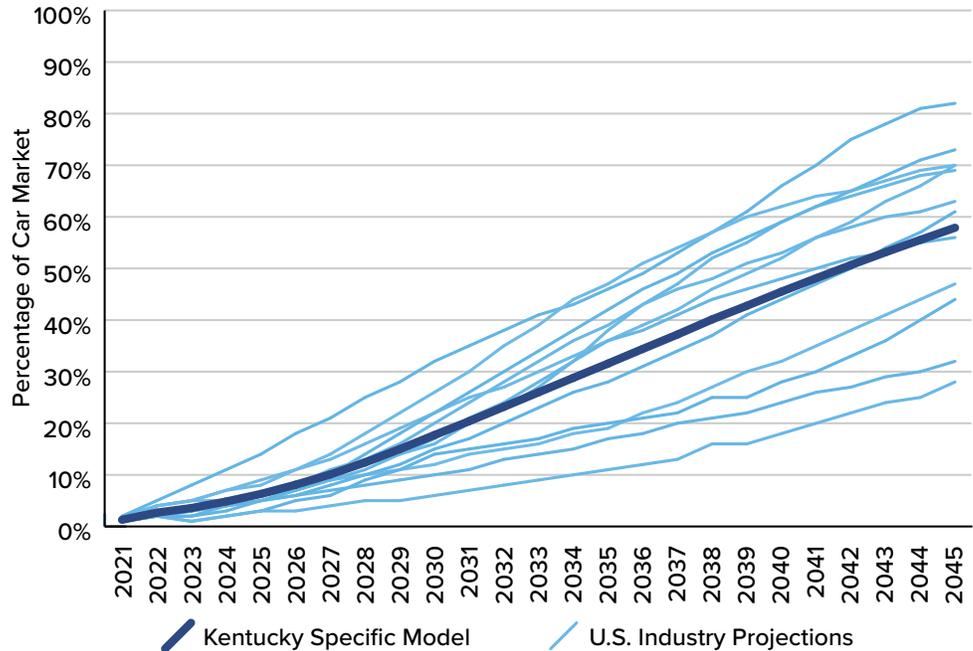


FIGURE 6.8 BEV MARKET SALES FORECAST

The figure also shows the industry average which was used for planning EV adoption in Kentucky. The predicted trend for Kentucky is balanced, falling near the middle of the pack of industry projections. While Kentucky has lagged other areas of the county in EV adoption, with the growth of EV and battery manufacturing in the state and the substantial private, local, state, and federal investment in EVs and EV infrastructure it is expected that adoption in Kentucky will increase and generally follow the national average in the future.

As indicated, the projection shows BEV market sales in Kentucky reaching 18% in 2030. By this time BEVs are expected to have reached price parity with internal combustion engine (ICEs) vehicles. BEV sales are expected to reach 30% in 2035 and just under 60% in 2045.



Over time, BEV sales will begin to transform the registered light-duty vehicle fleet in Kentucky. However, given that vehicles typically stay in use for 15 to 20 or more years, it will take a considerable time for the percentage of registered BEVs to reach high levels. **Figure 6.9** shows the predicted BEV share of registered light-duty vehicles in Kentucky over time. In 2025, BEVs are forecasted to reach 1.2% of all registered vehicles. That will increase to 4.5% in 2030, 11.5% in 2035, 21.9% in 2040, and 33.8% in 2045. (These projections may be revisited during the annual plan update process.)

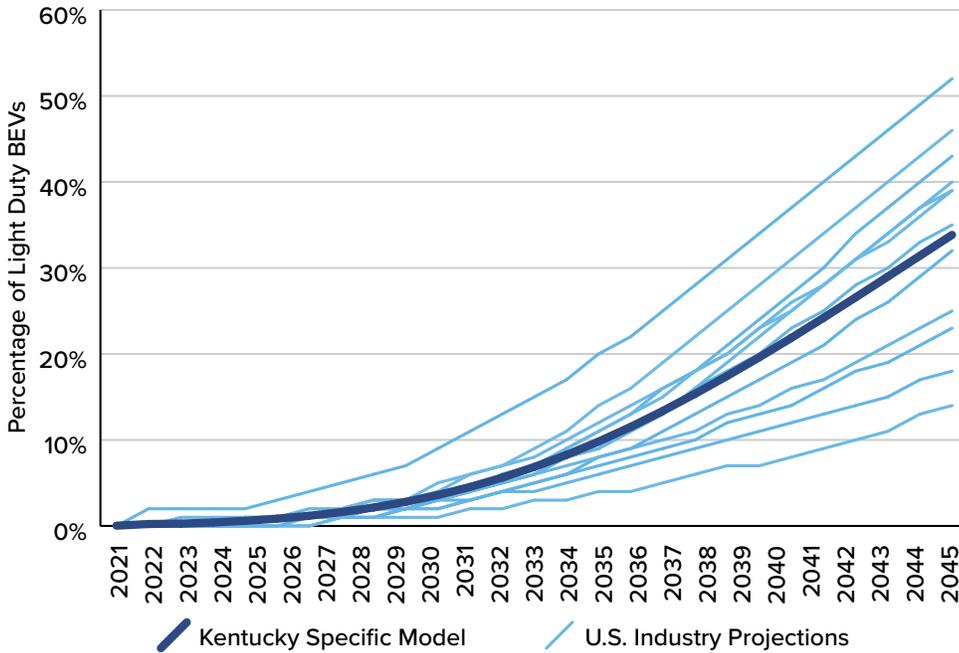


FIGURE 6.9 OVERALL BEV ADOPTION RATE FORECASTS

The Kentucky BEV projections were used to predict NEVI station infrastructure needs on the AFCs over time. However, these needs were not tied on where the EVs would be registered, but rather they were tied to the estimated percentage of long-distance travelers that were predicted to be BEVs.



“This section should also include a discussion on known risks and challenges for EV deployment.”

RISKS, CHALLENGES, AND BARRIERS

There are several barriers to EV adoption and EV infrastructure deployment in Kentucky. Many of these surfaced and were discussed during the stakeholder engagement process. A summary of these barriers is provided below. KYTC is aware of these barriers and is actively working to partner with FHWA and the Joint Office to overcome them. The effective implementation of the NEVI program will help overcome several of the barriers to EV adoption in the state. The contracting approach and ongoing discussions with utilities, local communities, businesses and industry, rural and disadvantaged communities, and other stakeholders will help overcome the key barriers to EV infrastructure deployment.

BARRIERS TO EV ADOPTION

Lack of Charging Infrastructure – NEVI will address this for long-range travel but not for community charging needs



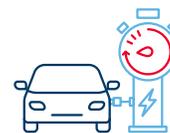
Range Anxiety for Long Trips – NEVI is seeking to address this directly



Long Recharge Times – 150 kW minimum power dictated by NEVI will alleviate this some, but the recharge time for an EV will still be 3-4 times as long as what it takes to refill a vehicle with gasoline

BARRIERS TO EV INFRASTRUCTURE DEPLOYMENT

Limited Utility Infrastructure – Grid capacity must be able to support chargers



- + This is a bigger concern for supplying the day-to-day charging needs of EVs
- + The load from a DCFC network along the highway will not be significant or a challenge for the utilities
- + The locations of some DCFC may be difficult (see Rural/Underserved Infrastructure Gaps)



Utility Demand Charges – Rate structures are not friendly for high power low utilization loads like a DCFC

- + While EV adoption is low, utilization will also be low, and costs for electricity will be high
- + Increased utilization alleviates demand charge impacts, but it is difficult to get to high utilization if costs are high



Rural/Underserved Infrastructure Gaps – Supporting long distance travel means supporting travel through rural areas

- + These areas may have a small number of EVs but higher volumes of pass-through EV traffic
- + These areas may not have easy access to the 3-phase power required by DCFC



Regulatory Framework – Planning, zoning, building codes, and other regulations

- + Local regulatory agencies do not have experience with EVSE, and that can complicate the procedure for getting a project permitted
- + Different localities may have different regulations and processes



RISKS AND CHALLENGES OF LOW AND HIGH DEMAND AFCS

A risk that became apparent during the plan development was the low and high charging demand projections on some of the state’s AFCs. The projections are discussed in detail in **Chapter 7**, but the risks and challenges of that finding are discussed here.

As part of the plan development process, a data-driven NEVI station demand analysis was prepared. This analysis forecasted demand for AFC creditable (4-port) charging stations over time on Kentucky’s AFCs. **Figure 6.10** shows the results of that analysis for 2026 (near the end of the NEVI Formula Program) and **Figure 6.11** shows the results for 2030 (four years after the end of the program).

A risk that became apparent during the plan development was the low and high charging demand projections on some of the states AFCs.

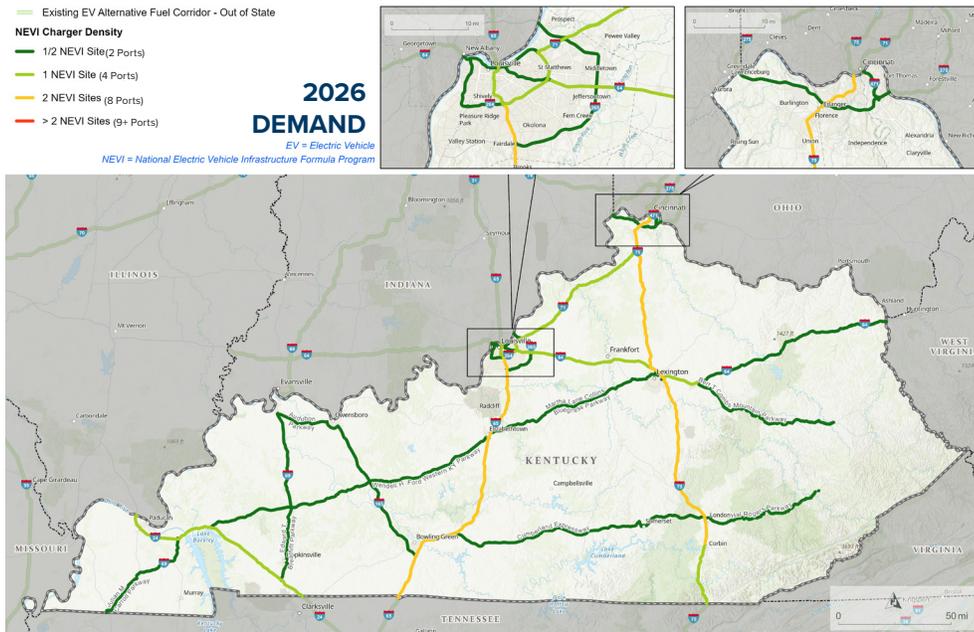


FIGURE 6.10 2026 DEMAND - NEVI CHARGER DENSITY MAP

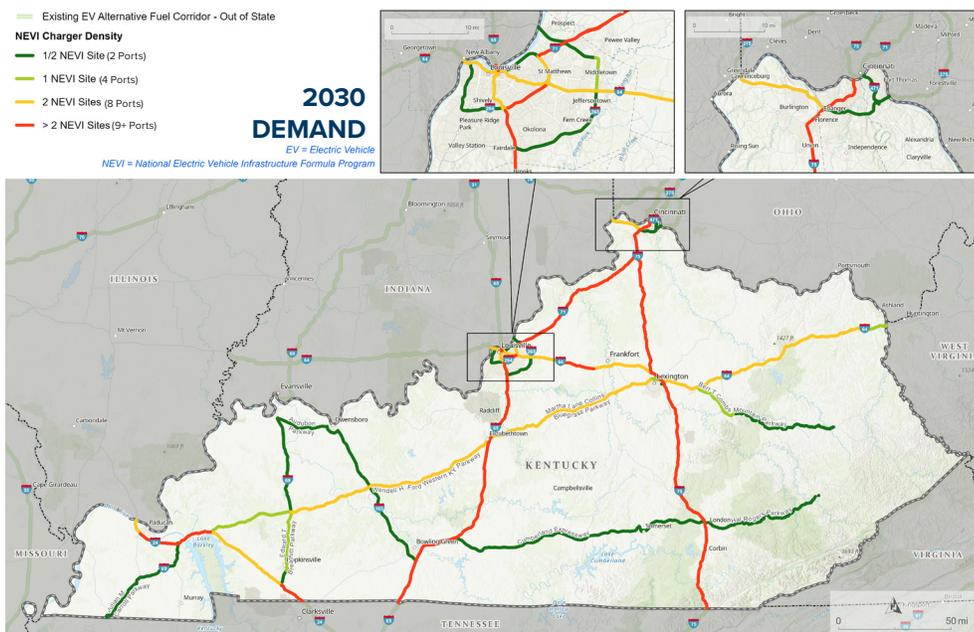


FIGURE 6.11 2030 DEMAND - NEVI CHARGER DENSITY MAP

Kentucky's Electric Vehicle Infrastructure Deployment Plan

As shown, some of Kentucky's Parkway AFCs are projected to have demand levels that may not support AFC creditable 4-port installations every 50 miles until after 2026 and several may not support them even in 2030. In contrast, some of the major Interstate AFCs are projected to need more charging capacity than would be provided by one AFC creditable 4-port installation every 50 miles. These are preliminary planning results, but they highlight the potential risks and challenges related to the market demand for charging.

A risk in the low-demand corridors is that there may not be sufficient revenue to fund the station operations and maintenance. The low demand also raises questions about the long-term financial feasibility and sustainability of the stations on those corridors. KYTC will work to overcome the challenges related to low demand by considering contracting options that bundle some of the higher and lower demand locations together. KYTC could also consider using additional state funding to support low-demand stations if necessary. Overcoming this issue is critical to avoiding stranded assets and preventing the installation of EVSE that will be outdated before it is needed.

A related consideration is that the low-demand corridors will also be less attractive to private sector investment outside the NEVI program. This means the NEVI stations on those corridors are likely to have less competition than the NEVI stations in the high-demand corridors. This may lead to higher-than-expected usage over time due to there being few if any charging alternatives in some areas.

A risk on the high demand corridors (e.g., I-65 and I-75) is that one 4-port NEVI station would not be sufficient, resulting in long wait times and low customer satisfaction. To overcome this challenge, KYTC could consider incentivizing private firms to install additional ports or to select and prepare sites for future growth. This could include installing below-ground power and utility infrastructure that would support future station expansions.

In summary, KYTC is planning to build all AFCs in accordance with the NEVI guidance, but risks and challenges will need to be overcome related to high and low charging demand on different corridors.



CHAPTER 7 EV CHARGING INFRASTRUCTURE DEPLOYMENT

This chapter discusses key items related to the deployment of EV charging infrastructure in Kentucky. It specifically covers the items assigned to this chapter in the NEVI Guidance as well as important related topics, including:

- + Planned Charging Stations
- + Funding Sources
- + Plan for Achieving Fully Built Out Determination
- + Demand for DCFC Stations
- + Interchange Suitability and Prioritization
- + Interchange Scoring Criteria
- + Infrastructure Deployments/Upgrades
- + State, Regional, and Local Policy

PLANNED CHARGING STATIONS

Kentucky's Federally designated AFC network covers all the Interstates and Parkways in the Commonwealth (see **Figure 7.1**). NEVI Stations are being planned and procured to serve this network in accordance with the NEVI guidance and requirements. When built out, the network of NEVI Stations will allow Kentucky residents and visitors to reach anywhere in the state in an electric vehicle. It will also serve through travelers as it will provide important connections to surrounding states.

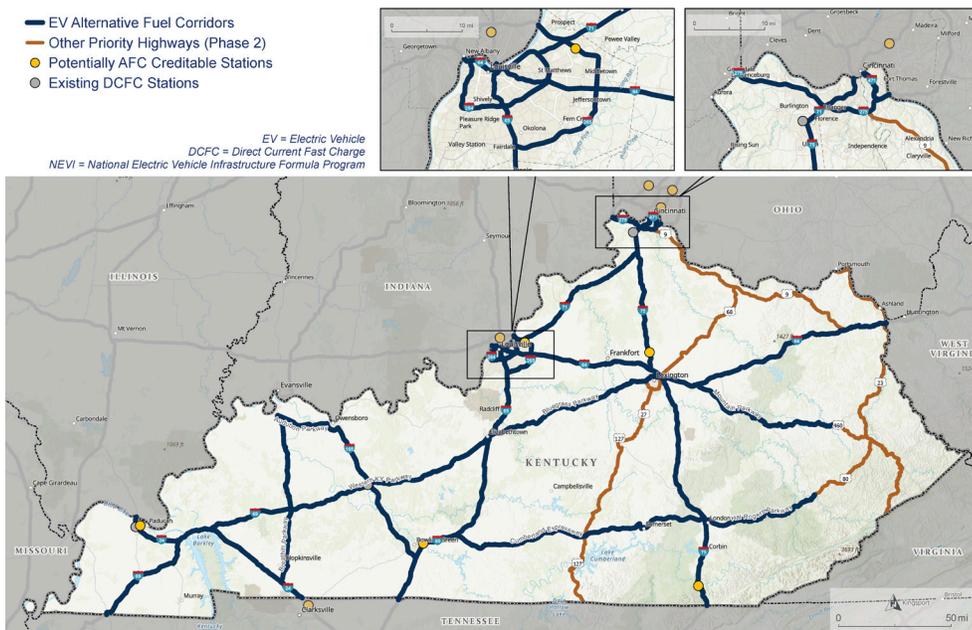


FIGURE 7.1 PROPOSED FAST CHARGING NETWORK (EV AFC NETWORK)

Kentucky's Electric Vehicle Infrastructure Deployment Plan

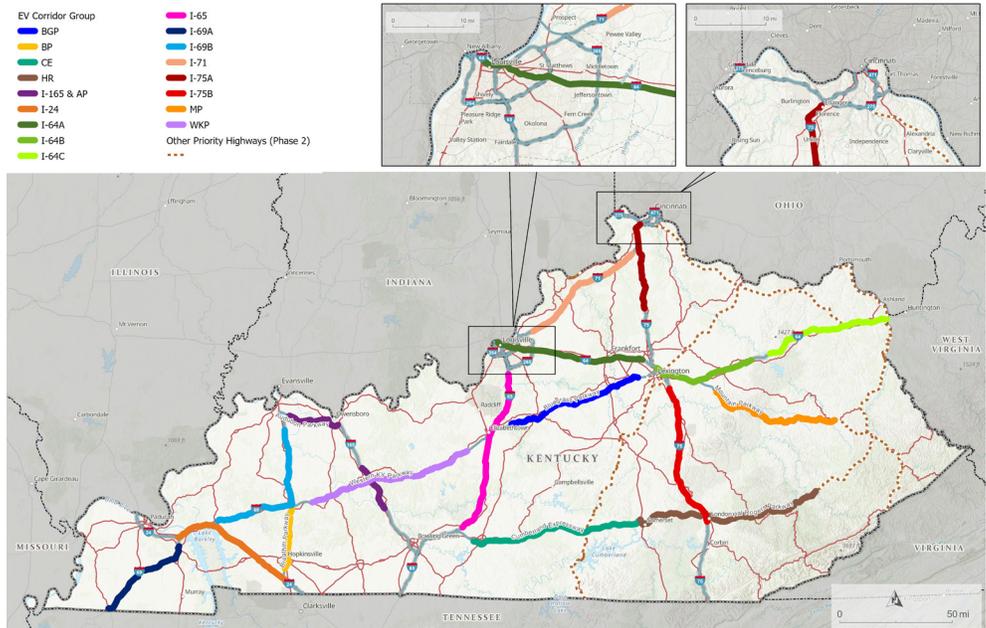


FIGURE 7.2 JUNE 15, 2023 RFP CORRIDOR GROUPS

KYTC issued an RFP on June 15, 2023, to solicit private developers to install, own, operate, and maintain NEVI charging stations as discussed in **Chapter 4** and **Chapter 8**. That RFP requests proposals for 17 Corridor Groups, which are shown in **Figure 7.2**. KYTC may accept zero, one, or more bids for each of these Corridor Groups. KYTC specifically decided not to select specific interchanges or sites prior to issuing the RFP. This was done to allow bidders to put forward the most competitive sites possible within each group.

Once the bids are received on August 24, 2023, KYTC will begin to evaluate the proposals using a best-value approach. Once that process is complete, KYTC will have a better idea regarding where NEVI stations are likely to be constructed in the coming year. However, as of the time of developing this plan KYTC does not have any specific sites selected.

There are some DCFC stations that have been recently constructed and opened to the public. Those locations are documented in **Chapter 6**. KYTC is not aware of any DCFC stations that are currently under construction (**Table 7.1**).

TABLE 7.1 STATIONS UNDER CONSTRUCTION

| State EV Charging Location Unique ID | Route (Note if AFC) | Location (Street Address if Known) | Number of Ports | Estimated Year Operational | Estimated Cost | NEVI Funding Sources | New Location or Upgrade? |
|---|---------------------|------------------------------------|-----------------|----------------------------|----------------|----------------------|--------------------------|
| KYTC is not currently aware of any DCFC stations that are under construction along AFC corridors. | | | | | | | |

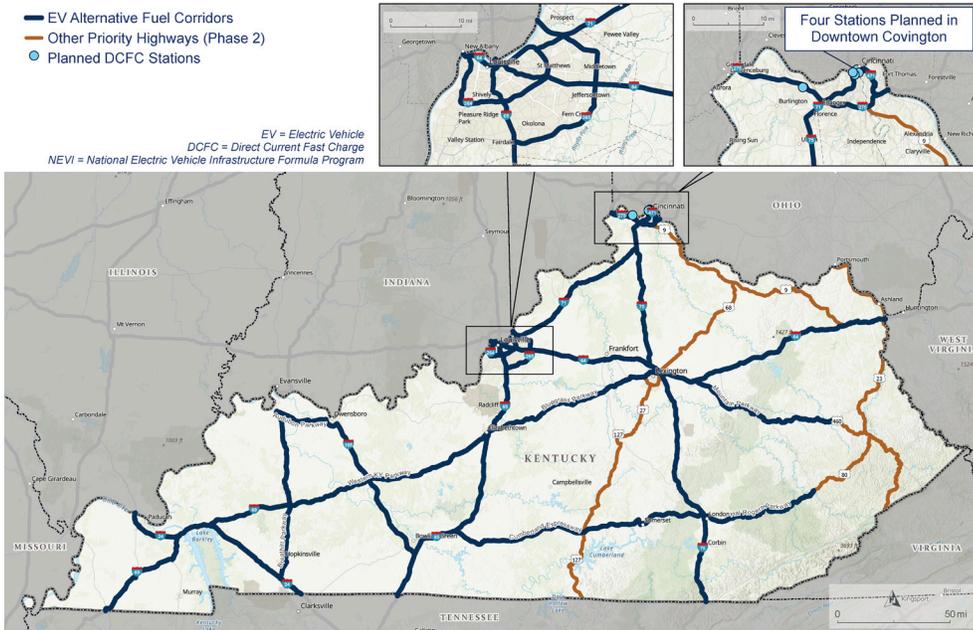


FIGURE 7.3 MAP OF PLANNED DCFC STATIONS

With regards to planned DCFC stations (**Table 7.2** and **Figure 7.3**), the only known planned sites are those being funded through the Ohio-Kentucky-Indiana Regional Council of Governments (OKI), the designated Metropolitan Planning Organization (MPO) in northern Kentucky. **Figure 7.3** shows these planned locations on a map. As soon as KYTC selects sites through the current RFP process, there will be more planned station locations. These will be included in the next annual plan update.

Some of the DCFC stations listed in **Chapter 6** could be considered for upgrades to meet NEVI requirements. As of the time that this update was published, no determination had been made regarding that topic. KYTC will continue to explore ways to use existing DCFC stations to achieve fully built out status. This exploration includes the consideration of stations that appear to be AFC creditable and those that would need to be upgraded.

TABLE 7.2 PLANNED STATIONS

| State EV Charging Location Unique ID | Route (Note if AFC) | Location (Street Address if Known) | Number of Ports | Estimated Year Operational | Estimated Cost | NEVI Funding Sources | New Location or Upgrade? |
|--------------------------------------|---------------------|--|-----------------|----------------------------|----------------|------------------------|--------------------------|
| 0080002 | I-275 (AFC) | 3087 Terminal Dr, Hebron, KY 41048 | 4 | 2024 | \$750,000 | No NEVI, CRP FY22/FY23 | New Location |
| 059000 | I-71/I-75 (AFC) | 144 Madison Ave, Covington, KY 41011 | unknown | 2024 | \$125,000 | No NEVI, CRP FY22/FY23 | New Location |
| 0590002 | I-71/I-75 (AFC) | 501 Scott St, Covington, KY 41011 | unknown | 2024 | \$125,000 | No NEVI, CRP FY22/FY23 | New Location |
| 0590003 | I-71/I-75 (AFC) | Pershing Avenue, Covington, KY 41011 | unknown | 2024 | \$125,000 | No NEVI, CRP FY22/FY23 | New Location |
| 0590004 | I-71/I-75 (AFC) | Philadelphia Street, Covington, KY 41011 | unknown | 2024 | \$125,000 | No NEVI, CRP FY22/FY23 | New Location |



“This section should also identify the source of non-federal funding for EV charging infrastructure deployments.”

FUNDING SOURCES

The topic of funding is discussed in **Chapter 4**, which outlined the expected sources and uses of funds. Kentucky expects private companies will be the primary source for the matching funds for this program. The details of the project funding will be determined during project implementation. Further discussion on these items can be found in **Chapter 5** and **Chapter 8**.

PLANNING TOWARDS A FULLY BUILT OUT DETERMINATION

KYTC has developed an implementation plan to move quickly toward fully built out status. The current RFP is a major step toward that goal. That RFP outlines 17 corridor groups for which proposals will be accepted. If one proposal is accepted for each of these groups then Kentucky will be approximately half-way to build-out.

KYTC expects that up to 37 stations may be needed to achieve build-out. The exact location of these stations will be dependent on the proposals received and how the proposed sites relate to each other. It is also dependent on whether potentially AFC creditable stations inside and outside Kentucky are determined to be credited toward build-out.

It is expected that one or more additional RFPs will need to be issued to secure bids for the rest of the required sites. With the approval of this plan, Kentucky will have three years of Federal NEVI funding, totaling approximately \$40 million. This may be sufficient to fund the required 37 stations. Thus, Kentucky could secure the needed developers and sites as early as FY 2024. It is expected that construction of the necessary NEVI stations could be complete near the end of FY 2025, unless supply chain issues delay construction completion.

DEMAND FOR DCFC STATIONS

The demand for AFC creditable DCFC stations (NEVI stations) on the EV AFC network was estimated using forecasted daily long-distance traffic volumes, EV adoption projections (**Chapter 6**), and assumptions about station utilization and dwell time. This information was used to estimate the:

- + Number of AFC creditable stations per 50 miles needed to meet expected demand (Density)
- + Peak power demand per NEVI station (Power Demand)
- + NEVI station utilization percentages (Utilization)

A NEVI station consists of a 4-port station with a minimum of 150kW of power per port (at least 600kW total). The maximum spacing between NEVI stations is 50 miles.

With this five-year NEVI program, KYTC is working to assist FHWA in trying to overcome some of the main EV ownership and EV infrastructure barriers to lay the groundwork for the eventual private growth of the market to meet the demand demonstrated by these figures.

DCFC STATION DENSITY

Figure 7.4 to Figure 7.9 illustrate the estimated minimum number of NEVI stations (and ports) needed every 50 miles to meet the demand for fast charging along each corridor for 2025, 2030, 2035, 2040, and 2045. These estimates are based on long-distance trip forecasts for each future time period (considering travel in 50 mile increments up to 250+ miles). The estimates use the statewide EV adoption projections (**Chapter 6**). They also assume that the maximum daily station utilization rate is 40% and the average vehicle dwell time to charge is 25 minutes. Based on the current travel patterns and EV market adoption, the NEVI station density needed to meet the demand in 2022 is ½ of a NEVI station (2 ports) per 50 miles throughout the system. By 2025, the major Interstates (I-65, I-75, I-64, and I-24) require at least one NEVI station per 50 miles to meet the demand. In and near the major urban areas some highways reach two NEVI stations (8 ports) per 50 miles. However, most of Kentucky’s AFC network still needs only ½ of a NEVI station (2 ports) per 50 miles in 2025. In 2030, the demand increases to greater than two NEVI stations (9+ ports) per 50 miles on large portions of the major Interstates. Other Interstates and Parkways reach one to two NEVI stations per 50 miles, while some of the Parkways with lower volumes of long-distance trips remain at ½ of a NEVI station per 50 miles (or only 2 ports per 50 miles). The demand continues to increase through 2045, with most of the system requiring more than two NEVI stations per 50 miles in the long term.

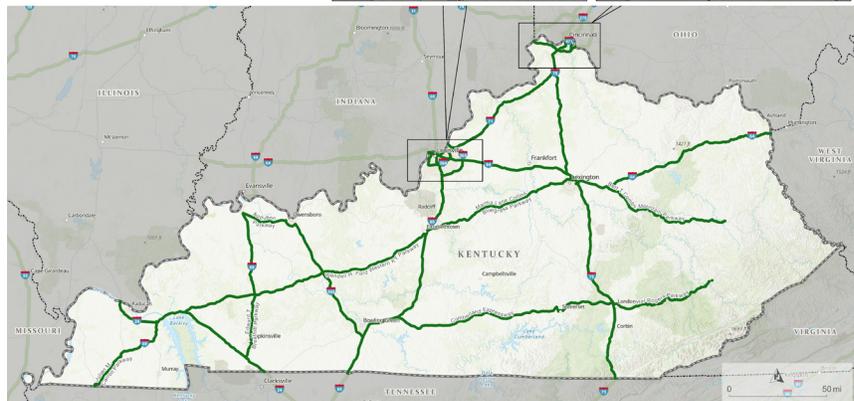


FIGURE 7.4 2022 NEVI CHARGER DENSITY

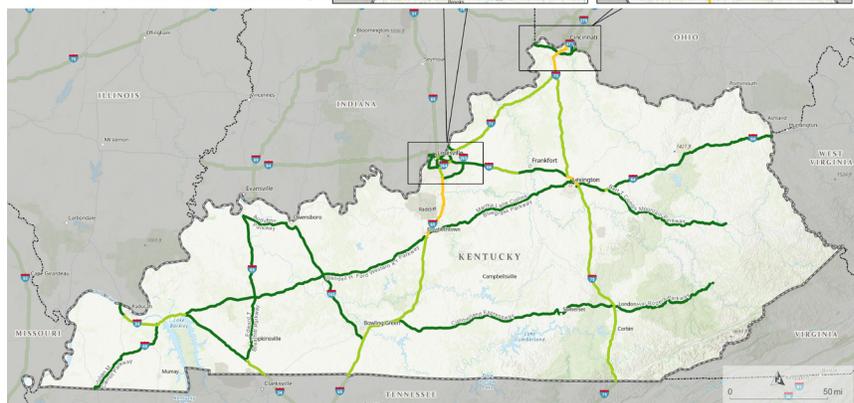


FIGURE 7.5 2025 NEVI CHARGER DENSITY

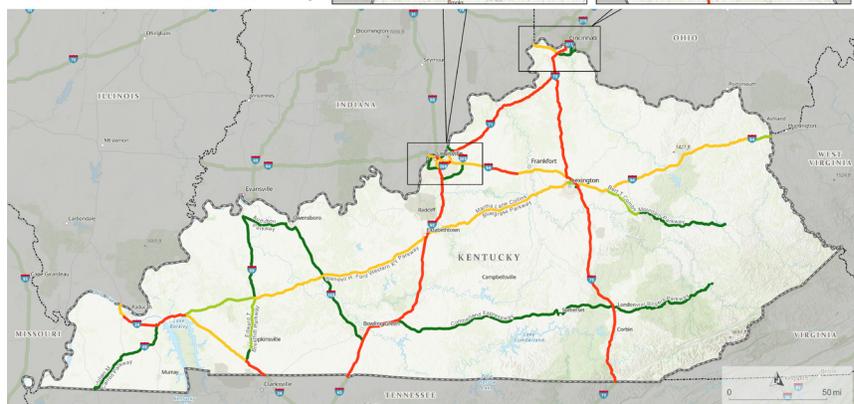


FIGURE 7.6 2030 NEVI CHARGER DENSITY



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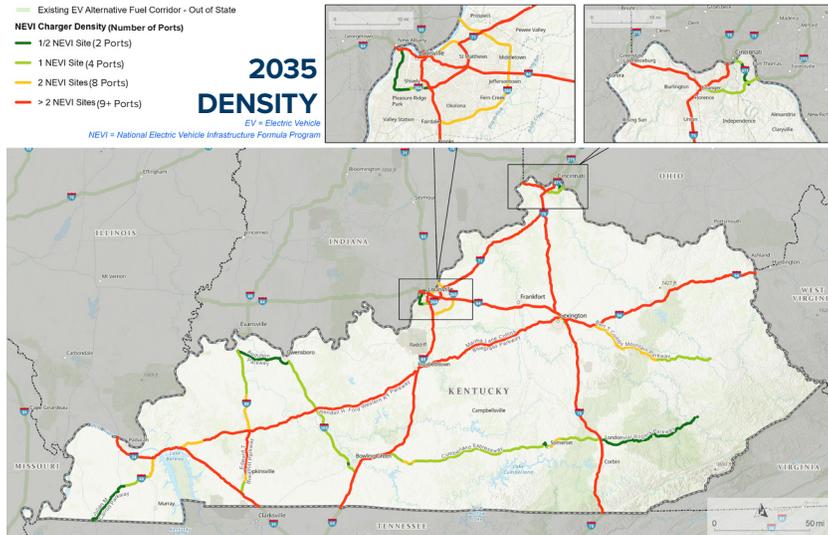


FIGURE 7.7 2035 NEVI CHARGER DENSITY

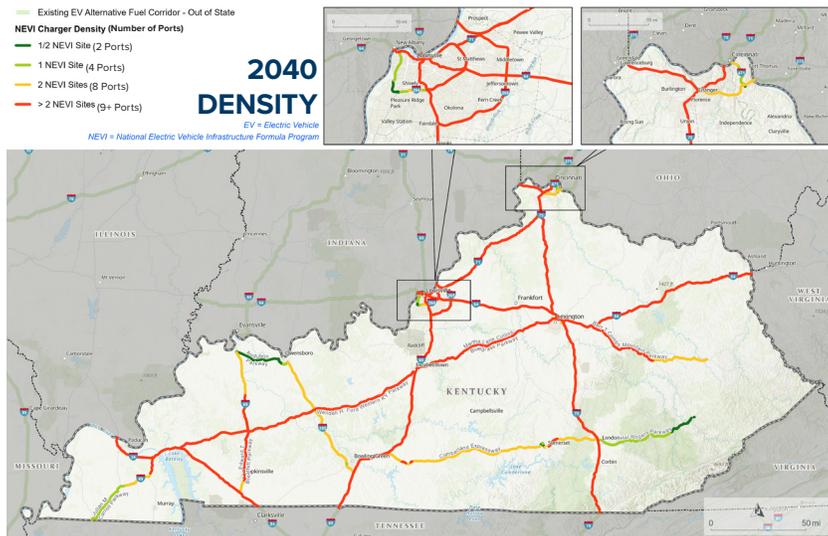


FIGURE 7.8 2040 NEVI CHARGER DENSITY

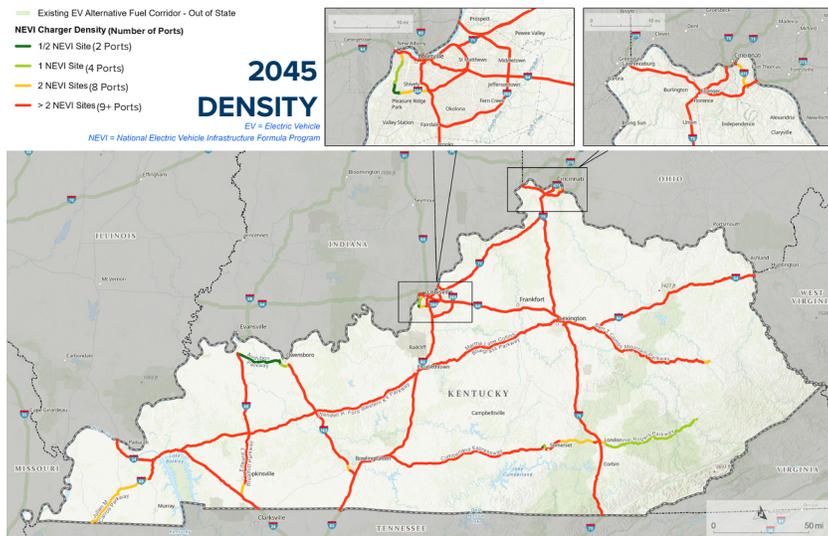


FIGURE 7.9 2045 NEVI CHARGER DENSITY

PEAK POWER

The information used to estimate the demand for NEVI stations was also used to calculate the peak power demand along each corridor for 2022, 2025, 2030, 2035, 2040, and 2045.

Figure 7.10 to **Figure 7.15** illustrates the peak power demand per 50 miles. The maps show how the electrical grid will be impacted by the DCFC load over time. The highest peak load in 2045, shown in **Figure 7.15**, is 20 MW for a 50-mile stretch of road and based on the traffic projections and EV adoption rates, some of the more remote areas of the state will not experience any significant load increases over the entire forecasted period.

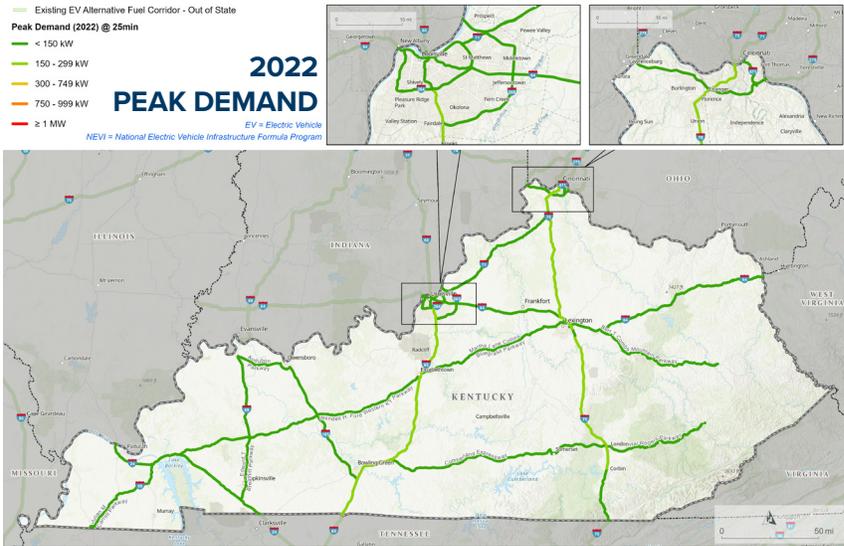


FIGURE 7.10 2022 PEAK DEMAND

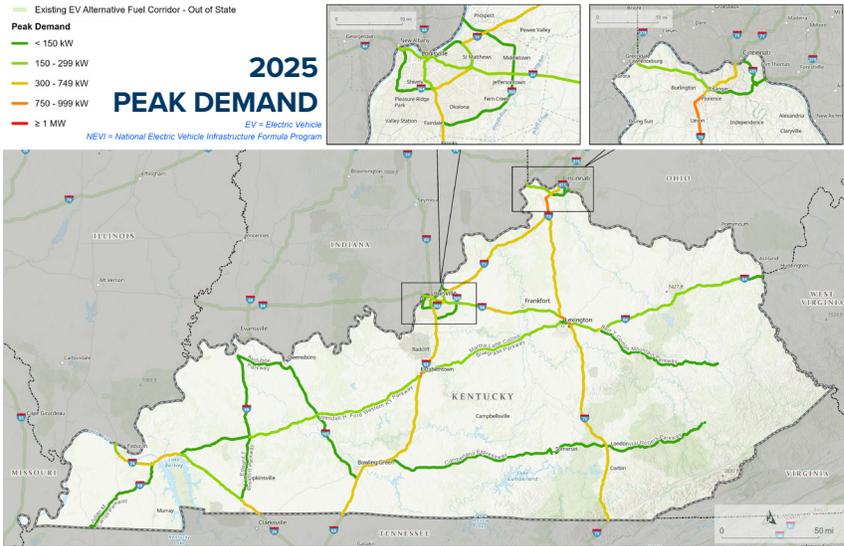


FIGURE 7.11 2025 PEAK DEMAND

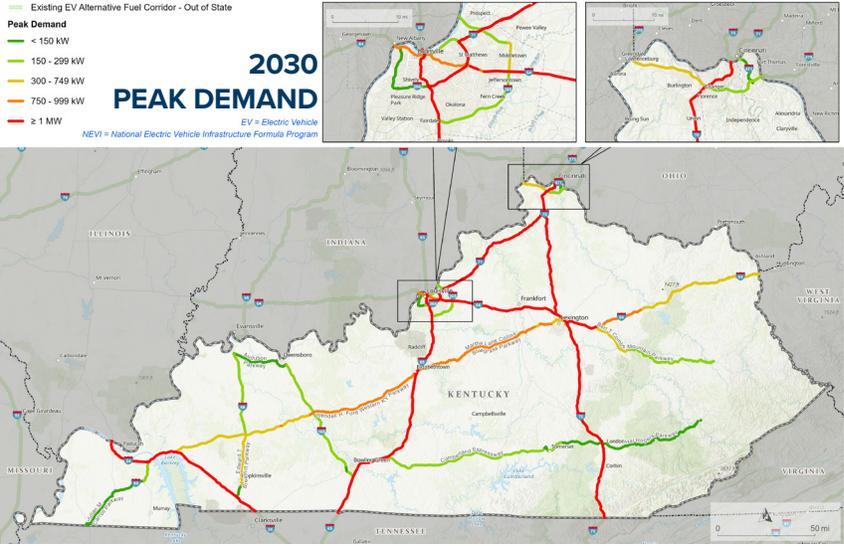


FIGURE 7.12 2030 PEAK DEMAND



Kentucky's Electric Vehicle Infrastructure Deployment Plan

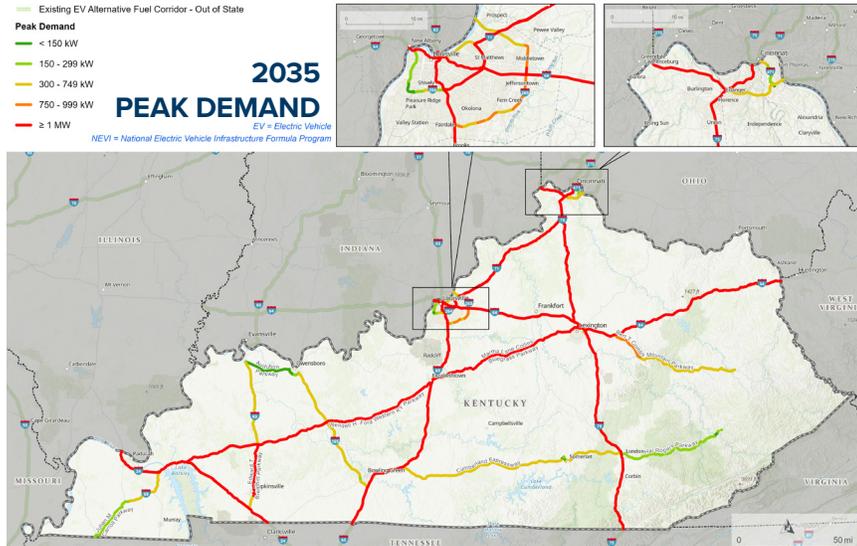


FIGURE 7.13 2035 PEAK DEMAND

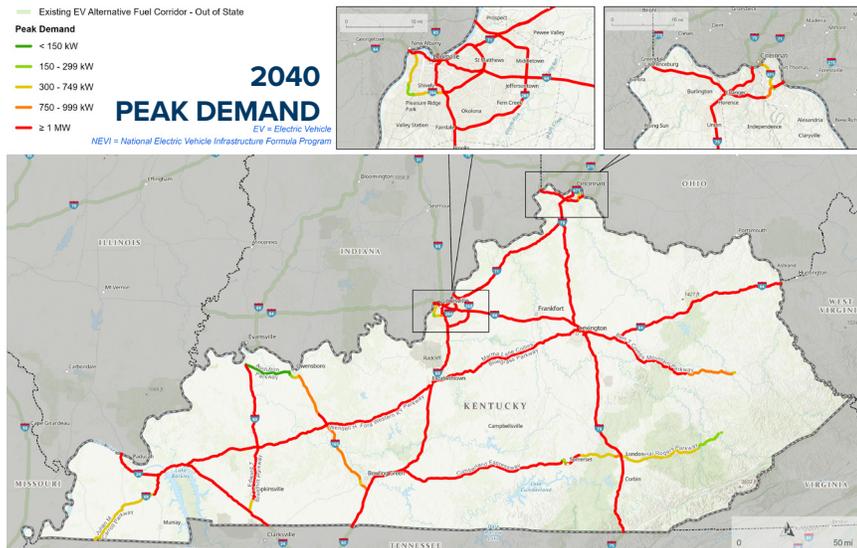


FIGURE 7.14 2040 PEAK DEMAND

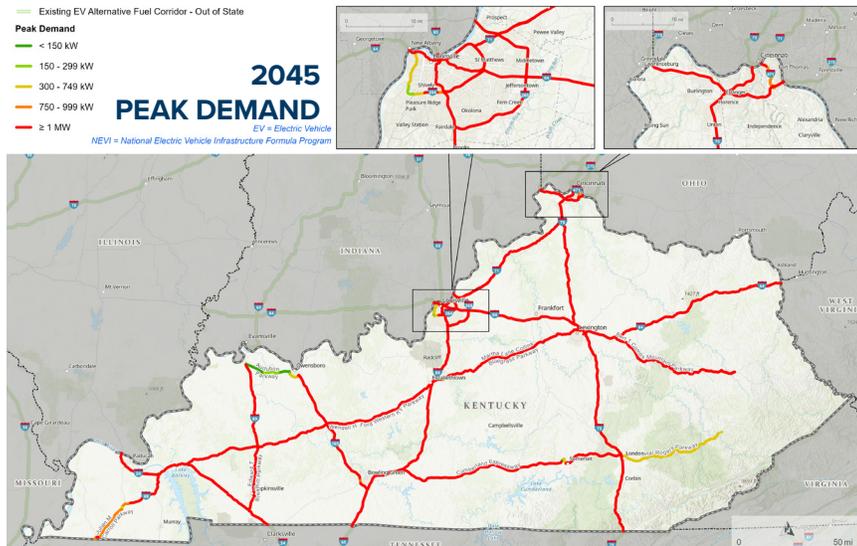


FIGURE 7.15 2045 PEAK DEMAND

UTILIZATION

Using the information from prior analyses, the estimated utilization rate for a single AFC creditable 4-port DCFC station located every 50 miles was calculated for each analysis year (Figure 7.16 to Figure 7.21). The utilization rates in 2022 are below 25%, but are expected to increase to between 25% to 50% on the major Interstates by 2025. A reasonable maximum utilization is expected to be in the 40% to 50% range. Above this level, wait times would be very long, and additional NEVI stations or ports would be warranted. By 2030, rates would increase to over 100% on the major Interstates if only one AFC creditable DCFC was present per 50 miles, indicating that this level of infrastructure would be unable to support the charging needs of EVs traveling on these corridors. Other portions of the system vary from less than 25% up to 100%. These maps can also be used to estimate the commercial viability of the corridors over time.

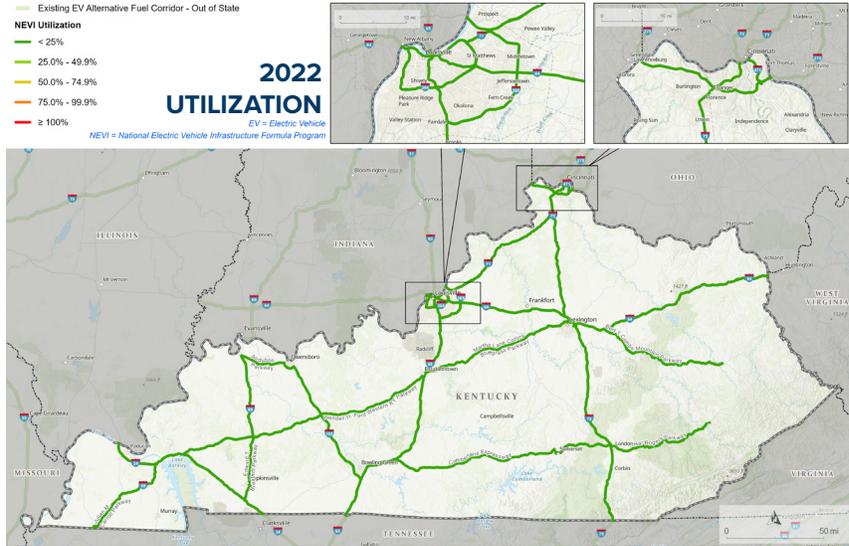


FIGURE 7.16 2022 NEVI UTILIZATION

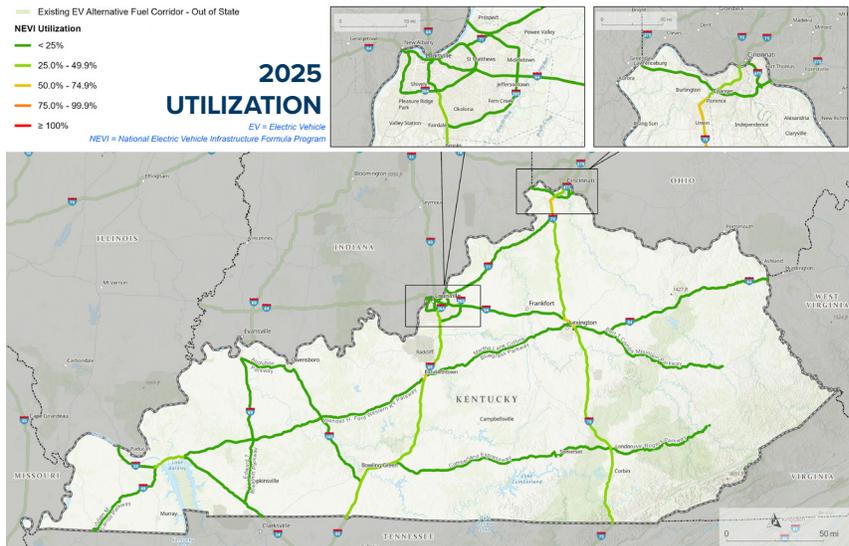


FIGURE 7.17 2025 NEVI UTILIZATION

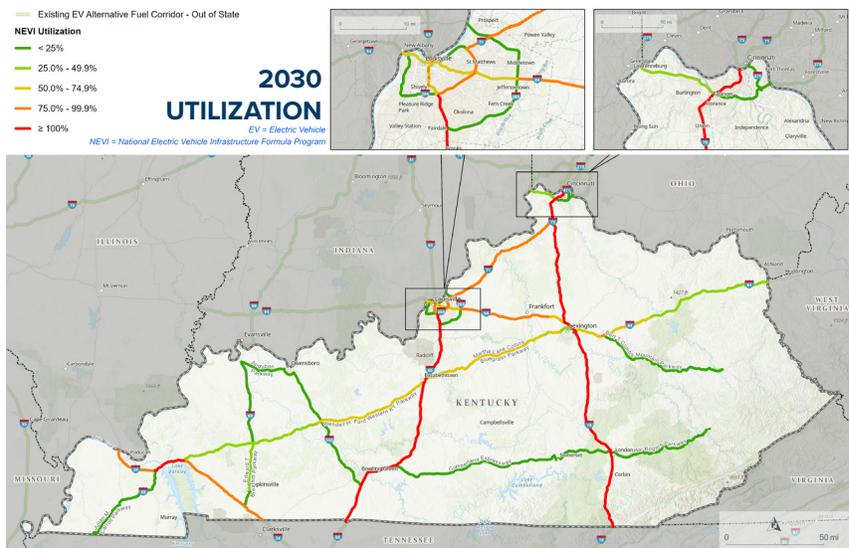


FIGURE 7.18 2030 NEVI UTILIZATION



Kentucky's Electric Vehicle Infrastructure Deployment Plan

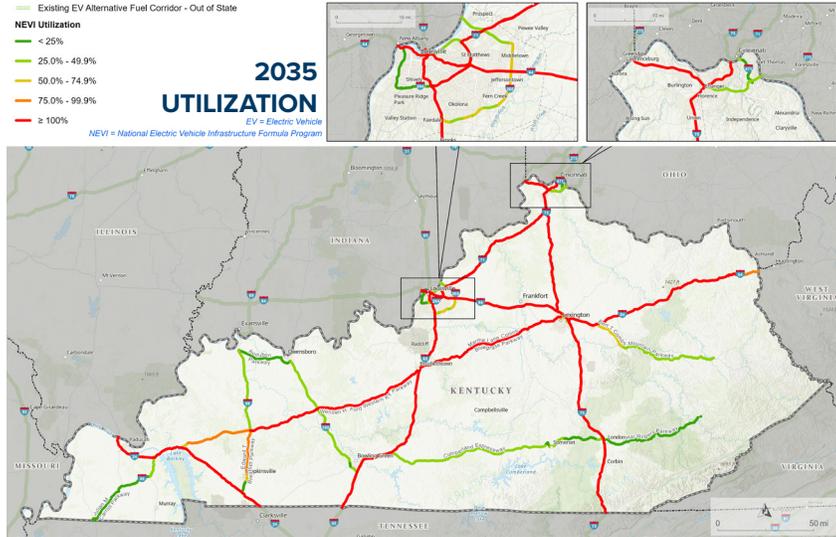


FIGURE 7.19 2035 NEVI UTILIZATION

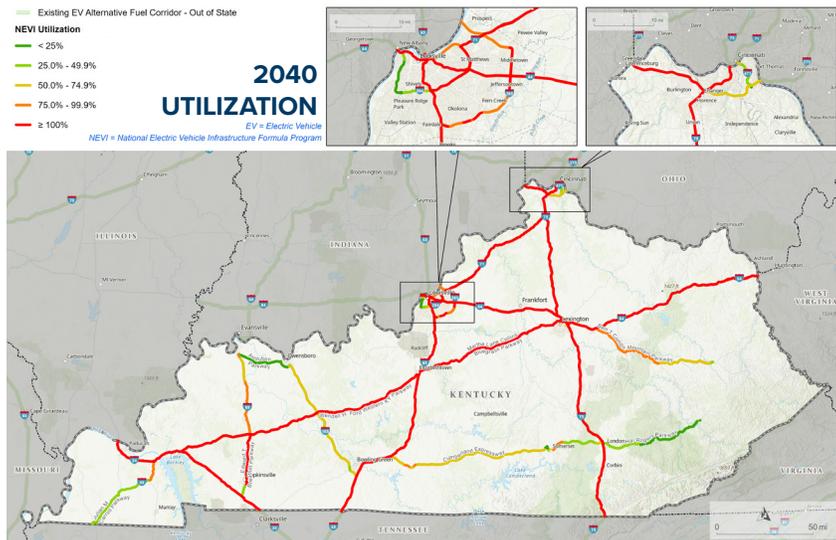


FIGURE 7.20 2040 NEVI UTILIZATION

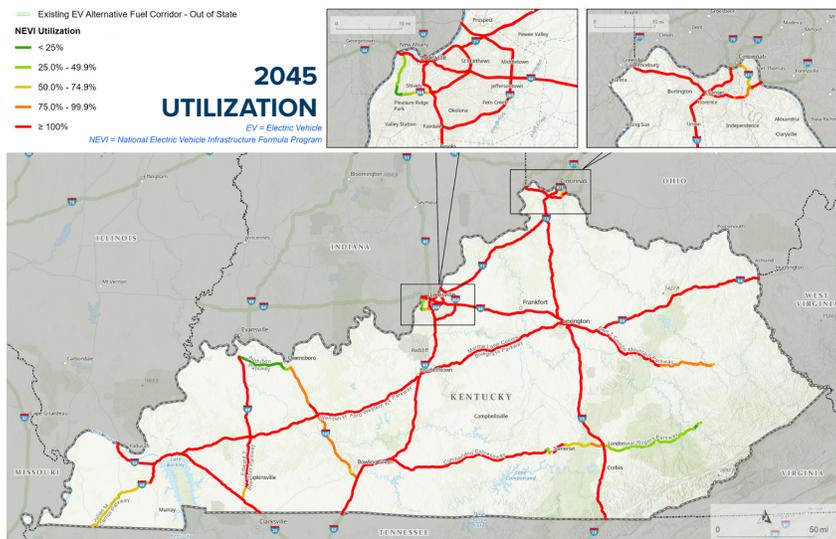


FIGURE 7.21 2045 NEVI UTILIZATION

INTERCHANGE SUITABILITY AND PRIORITIZATION

This plan assesses the AFC network at the interchange level with the goal of determining the relative suitability and prioritization of each interchange for the installation of AFC creditable DCFC stations. The analysis does not recommend specific sites or interchanges, but rather assigns planning level scores to each, which can be used to support future deployment activities. This approach is based on the view that there are multiple potentially good solutions to the challenge of siting NEVI stations every 50 miles across the AFC network in Kentucky. Therefore, KYTC does not want to unnecessarily narrow the list of potential interchanges (and therefore sites). Instead, KYTC plans to involve the private sector in the implementation and contracting phase including private sector proposals for how to best solve what is essentially an indeterminate network optimization problem.

METHODOLOGY

The objective, data-driven methodology was developed for determining the suitability and prioritization of interchanges for locating AFC creditable DCFC stations. The criteria used for this analysis were directly linked to factors highlighted in the NEVI guidance provided. Interchange suitability was based on several factors including how a station at that interchange would help build-out the required network per NEVI requirements, serve as many users as possible, and require the least amount of infrastructure investment. Highly suitable interchanges typically would have readily available power infrastructure, existing amenities, and highly-anticipated site utilization.

Interchange prioritization was focused on determining where public funds should be invested to fill EV infrastructure gaps and build-out the system per NEVI guidelines. Prioritization considered many of the same factors as suitability; however, it also included factors such as service to rural and disadvantaged communities.

Understanding and balancing an interchange's suitability and prioritization is important. Interchanges that are extremely suitable are also locations where private firms are likely to invest their own funds. In fact, private firms may be willing to invest more than the minimum 20% match to construct, own, and operate some highly suitable locations. The prioritization of public funds considers suitability factors including equity factors to identify locations where public investment is needed to build the network equitably. **Table 7.3** shows the criteria used to determine the suitability and prioritization of each interchange. Scores of 0 to 1 were assigned for each criterion based on the specific interchange characteristics. Weighted scores were developed using the weighting factors shown in the table. (The final scores were normalized based on the maximum values to yield a score of 0 to 1 for each interchange for both suitability and prioritization.) The criteria weights for calculating the suitability and prioritization scores differ as shown. For example, Long-Distance Trips have a weight of 10 for suitability and a weight of 7 for prioritization. Another example is that a rural designation score has 0 weight for suitability, but it has a 10 weight for prioritization. All the suitability and prioritization criteria are discussed in detail later in this Chapter.



TABLE 7.3 INTERCHANGE SUITABILITY AND PRIORITIZATION CRITERIA

SUITABILITY

PRIORITIZATION

Legend

-  High Rank
-  Medium Rank
-  Low Rank

| Rank | No. | Criteria | Weight | Rank | No. | Criteria | Weight |
|---|-----|--|-----------|---|-----|---------------------------------------|-----------|
|  | 1A | Dist. to Existing AFC creditable DCFC Stations | 10 |  | 1B | Distance to Existing DCFC Stations | 10 |
|  | 2 | Predicted Long-Distance Trips in 2026 | 10 |  | 7 | Rural Designation | 10 |
|  | 3 | Power Availability and Reliability | 10 |  | 8 | Justice40 Designation | 10 |
| | 3a | 3-Phase Power Avail. | 5 |  | 2 | Predicted Long-Distance Trips in 2026 | 7 |
| | 3B | Maximum Voltage | 2 | | | | |
| | 3C | No. of Substations | 3 | | | | |
|  | 4 | Miles of Corridor Coverage | 7 |  | 4 | Miles of Corridor Coverage | 7 |
|  | 5 | Presence of Amenities | 7 |  | 3 | Power Availability and Reliability | 4 |
|  | 6 | Intersecting Road Traffic | 3 | | 3a | 3-Phase Power Avail. | 2 |
| | | | | | 3B | Maximum Voltage | 1 |
| | | | | | 3C | No. of Substations | 1 |
| N/A | 7 | Rural Designation | - |  | 5 | Presence of Amenities | 3 |
| N/A | 8 | Justice40 Designation | - |  | 6 | Intersecting Road Traffic | 3 |
| Total | | | 47 | Total | | | 54 |

SUITABILITY | PRIORITIZATION

A final critical step of the analysis process was the application of an exclusion zone for both the suitability and prioritization evaluations. Interchanges were excluded from the suitability rankings if they were located within 20 driving miles of an existing potentially AFC creditable DCFC charging station along the same corridor (e.g., along I-75 or I-24). This reflects the NEVI guidance that requires 50-mile maximum spacing. There is little benefit to investing public funds at an interchange that is too near an existing AFC creditable DCFC station along the same corridor, as this would not help reach the required coverage. Interchanges were excluded from the prioritization rankings if they were located within 20 miles (straight line measurement) of any existing DCFC station. This reflects the understanding that interchanges should not be prioritized if they are located too close to an existing DCFC station, which prioritizes filling in the gaps.

INTERCHANGE SUITABILITY MAP

All interchanges on the AFC network were scored for suitability using the criteria listed in **Table 7.3** and discussed in detail later in this Chapter. **Figure 7.22** presents the heat map showing the interchanges that are most suitable for deploying NEVI stations. There are acceptable locations on all corridors, indicating that there are likely several options for deploying NEVI stations and meeting the NEVI criteria on the AFC network.

The most suitable interchanges are found closer to the urban areas, which is to be expected, as they have the highest traffic, readily available power, and existing amenities. The areas along the Parkways have fewer suitable locations and may not be as financially feasible in the near term. However, there are suitable locations spread across the state, indicating that it will be possible to effectively deploy NEVI stations on all corridors.

Note: Major intersections were scored on the Hal Rogers Parkway where the parkway is not grade separated.

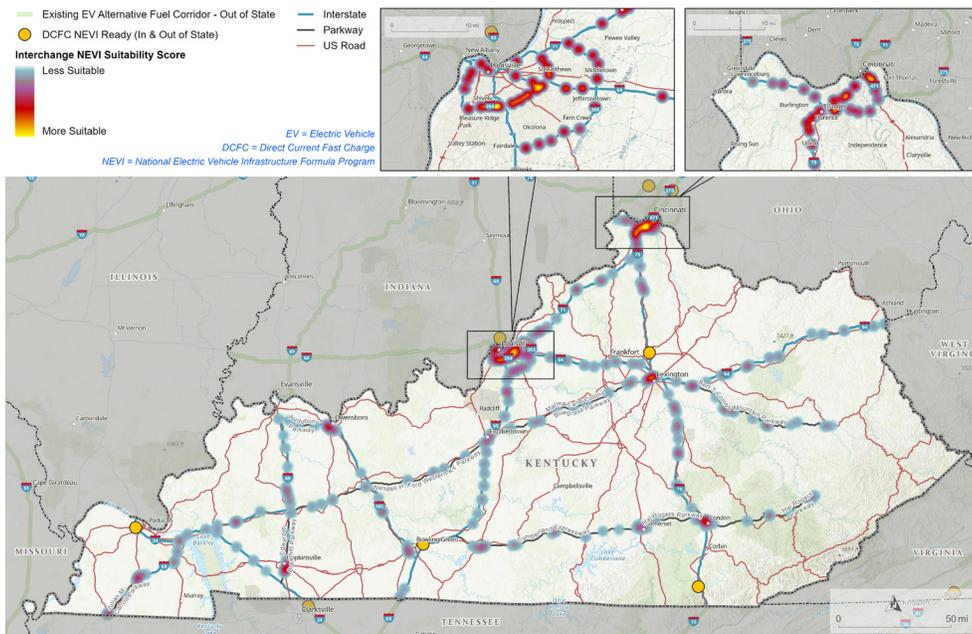


FIGURE 7.22 INTERCHANGE SUITABILITY SCORES

INTERCHANGE PRIORITIZATION MAP

Similarly, the criteria were used to score interchanges on the AFC network with regard to the priority for deploying NEVI stations (**Figure 7.23**). The resulting heat map highlights the interchanges that are the highest priority for public investment in deploying NEVI stations. Due to the exclusion areas and the change in criteria weighting, this map highlights different areas compared to the suitability map. For example, several locations on I-64 and the Mountain Parkway in eastern Kentucky rank very high as do several locations on I-69, the Western Kentucky Parkway, and the Cumberland Expressway. These higher priority locations identify places where focused efforts would be appropriate to promote NEVI station deployments.

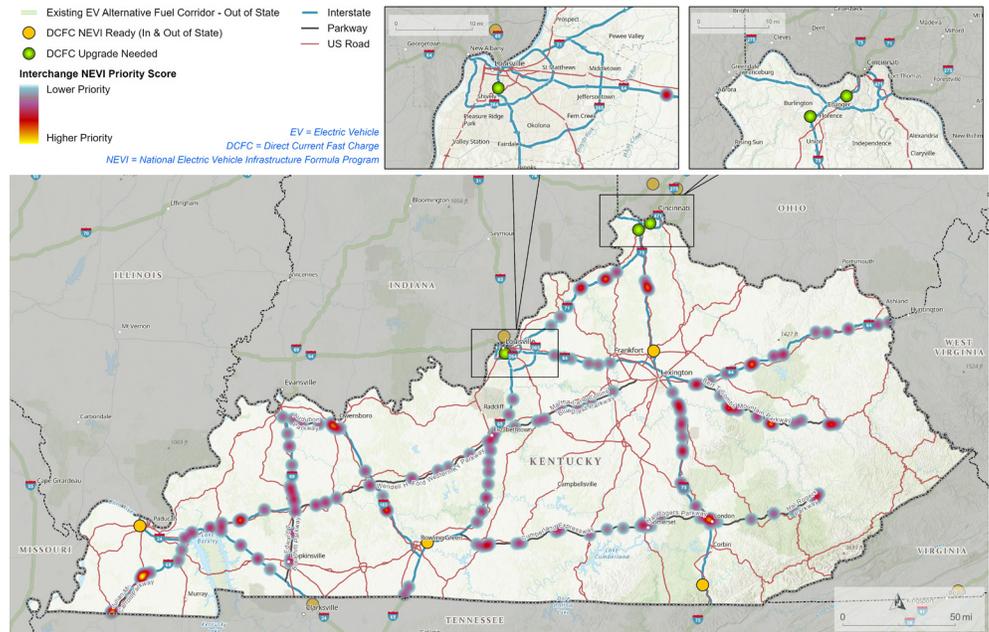


FIGURE 7.23 INTERCHANGE PRIORITIZATION SCORES

INTERCHANGE SCORING CRITERIA

The following sections summarize the approach used to calculate the suitability and prioritization criteria scores. The numbering matches the numbering in **Table 7.3**. The criteria are directly related to the NEVI guidance. For example, power availability and reliability was a top factor for interchange suitability and service to rural and/or Justice40 communities were top ranked factors for interchange prioritization. The criteria scores were also developed to be quantifiable and repeatable to the maximum extent possible. The work was completed in coordination with the utility companies and took stakeholder input into account. For example, during numerous stakeholder discussions, the importance of amenities was emphasized. This feedback influenced the scoring approach used for that factor. The EV infrastructure market is evolving rapidly. Some of these scores are based on inputs such as the proximity of a NEVI station. As new stations come online, these criteria and scores would be affected. This should be considered as the plan moves forward into deployment.

-  **Criteria 1A** Distance to Existing AFC creditable DCFC Stations
-  **Criteria 1B** Distance to All Existing DCFC Stations
-  **Criteria 2** Predicted Long-Distance EV Trips in 2026
-  **Criteria 3** Power Availability and Reliability
-  **Criteria 3A** 3-Phase Power Availability
-  **Criteria 3B** Maximum Voltage
-  **Criteria 3C** Substations within 2 Miles
-  **Criteria 4** AFC Network Miles Covered
-  **Criteria 5** Presence of Amenities/Services
-  **Criteria 6** Intersecting Road Traffic
-  **Criteria 7** Rural Area Designation
-  **Criteria 8** Justice40 Designation

CRITERIA 1A - DISTANCE TO EXISTING AFC CREDITABLE DCFC STATIONS

The NEVI guidance states that to achieve build-out on the AFCs, AFC creditable DCFC stations must be located within 50 miles of each other along the AFCs. This 50-mile distance applies across state lines, so NEVI stations in Kentucky can cover AFCs in surrounding states and vice versa. It also excludes proprietary DCFC stations (e.g., Tesla stations) as they are not AFC creditable.

Interchanges were scored for suitability based on how far away they are from a AFC creditable DCFC station that is located on the same corridor. If they were very close (less than 25.0 miles), then it would not be suitable to install another NEVI station and the interchange received a score of 0. But as the distance increased, the scores increased to a high of 1.0. The locations of non-AFC creditable DCFC stations were not used for this criterion (but they are for criterion 1B). Future guidance from the Joint Office may influence this scoring approach as clarification is provided on what constitutes a “corridor” and whether a AFC creditable DCFC station on one AFC can serve part of another nearby AFC. The distance to the nearest AFC creditable DCFC station was also used to implement the prioritization exclusion zone at the end of the analysis as discussed previously.

The locations of the NEVI stations in and around Kentucky are shown in **Figure 7.24**. The score assigned to each distance range is provided in **Table 7.4**.

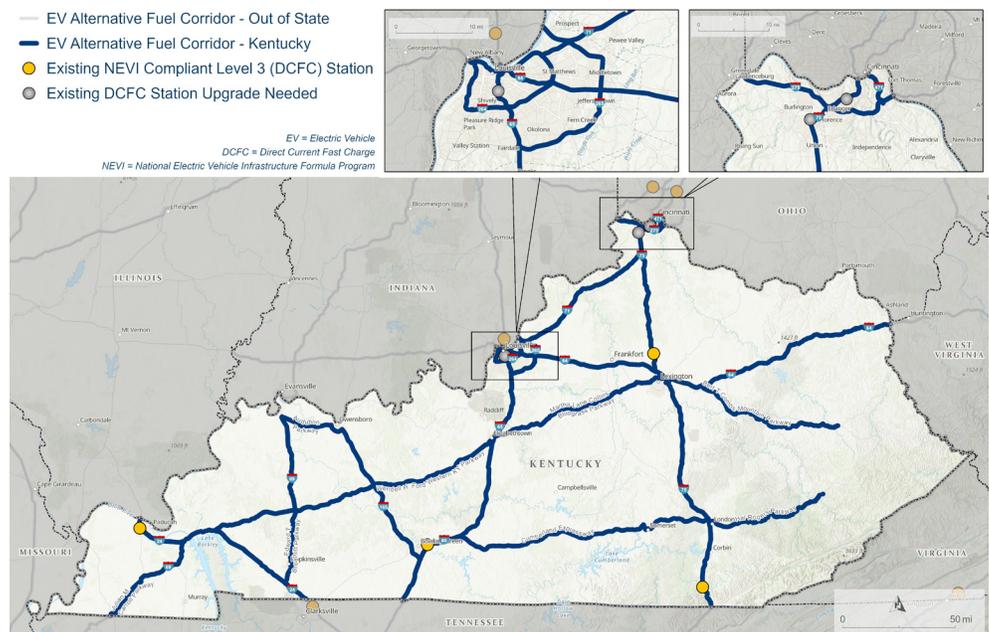


FIGURE 7.24 EXISTING CHARGING STATIONS (AFC CREDITABLE AND UPGRADES NEEDED)

TABLE 7.4 DISTANCE TO EXISTING AFC CREDITABLE DCFC STATIONS SCORING

| Distance (miles) | Score |
|------------------|-------|
| 0 – 20.4 | 0.0 |
| 20.5 – 25.4 | 0.2 |
| 25.5 – 35.4 | 0.5 |
| 35.5 – 50.4 | 0.7 |
| 50.5 – 100.4 | 0.8 |
| 100.5 – 150.4 | 0.9 |
| 150.5 + | 1.0 |

CRITERIA 1B - DISTANCE TO ALL EXISTING DCFC STATIONS

To identify the highest priority interchanges for deploying publicly supported DCFC stations, the distance to any publicly accessible DCFC station becomes important. All things being equal, installing a new DCFC station near an existing station, even if it is not AFC creditable, would be a lower priority than installing one in an area with no nearby service. To be counted, existing DCFC stations must be publicly accessible, use standard protocols, and offer a minimum of 50 kW. Even if a station does not support AFC build-out, it is still a usable charger providing some level of support for long-distance travel. It may also be a candidate for an upgrade. Therefore, interchanges far from any DCFC stations were given a higher priority, so that the network would be more usable even before AFC build-out is reached.

The locations of existing publicly accessible DCFC stations (AFC creditable and non-AFC creditable) are shown in **Figure 7.24**. The distance to the nearest DCFC station was also used to implement the suitability exclusion zone at the end of the analysis as discussed previously.

Interchanges must be at least 20 miles away from the nearest publicly accessible DCFC station to receive a score for this criterion. The score increases linearly to a maximum of 1.0 at 100 miles or more. The scoring is illustrated in **Figure 7.25**.

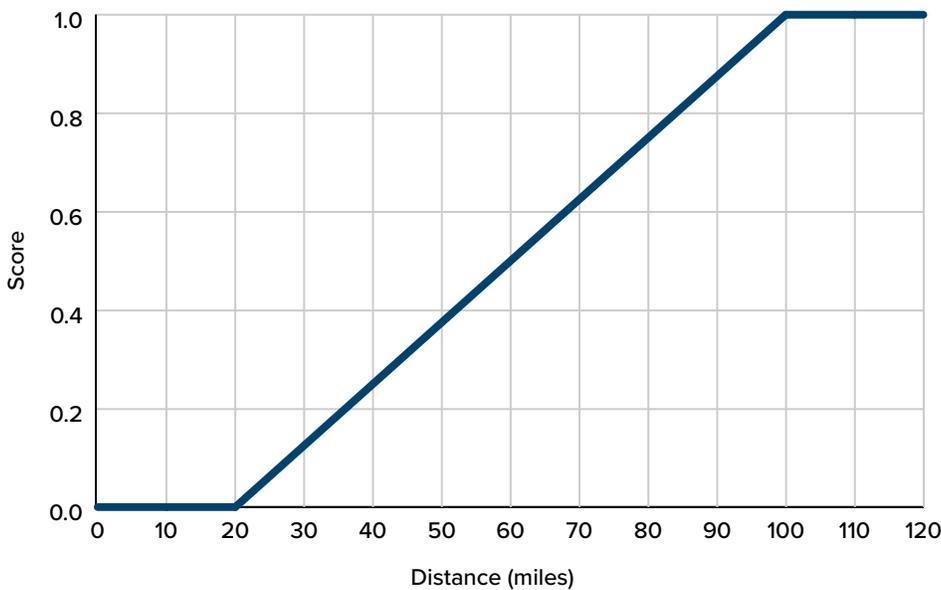


FIGURE 7.25 DISTANCE TO ALL EXISTING DCFC STATIONS SCORING

CRITERIA 2 - PREDICTED LONG-DISTANCE EV TRIPS IN 2026

As much as 80% of EV charging is expected to take place at home using Level 1 and 2 chargers, where the low electricity costs make it economical to recharge a battery and where the speed of charging is not as important. Workplace and public Level 2 chargers are also expected to serve as important recharging locations. DCFC stations along the AFCs would mainly be used by drivers who do not have other charging options that meet their needs. For example, they may be traveling a long distance, or they may need to recharge quickly.

The probability that an EV will stop and use a DCFC station is dependent on several factors. One of these is the EV range. For example, an EV with a 150-mile range is more likely to stop and charge than an EV with a 300-mile range. Another factor that influences whether an EV will stop to charge is how far they have already traveled. Even a long-range EV will stop if the length of the trip goes beyond the range of the vehicle.

To score each interchange, Kentucky's Statewide Travel Traffic Demand Model, which includes 48 U.S. states, was used to predict the number of trips per day of various lengths on each AFC segment for the year 2026. The forecasted trips were placed into six distance ranges: 0-50 miles, 50-100 miles, 100-150 miles, 150-200 miles, 200-250 miles, and 250+ miles. The data was used to estimate the number of trips in the six distance ranges that pass each AFC interchange. For reference, **Figure 7.26** shows the estimated number of trips longer than 150 miles in the year 2026.

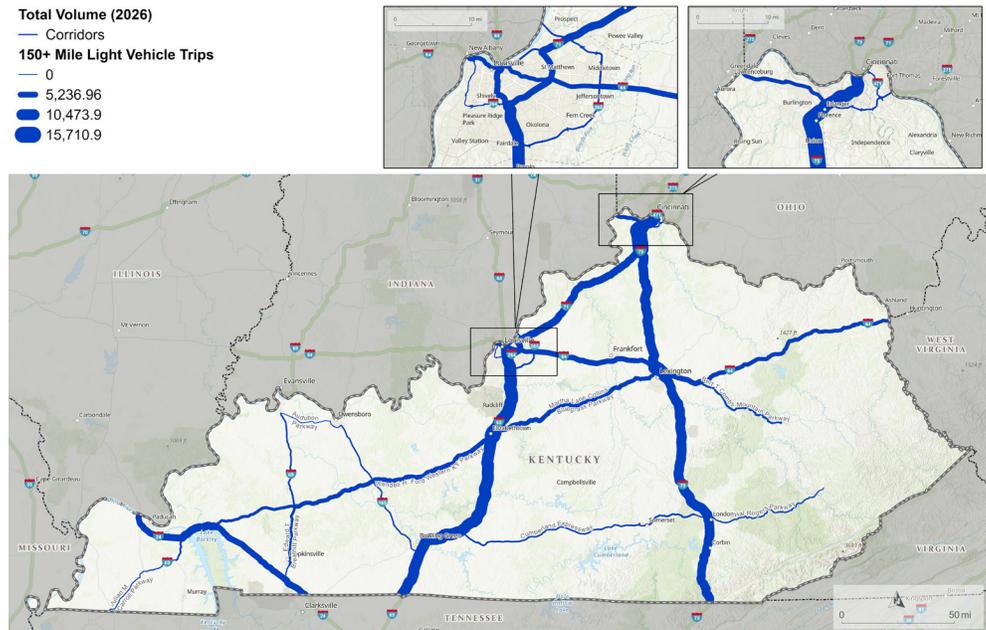


FIGURE 7.26 LONG DISTANCE TRIPS



EV models have very different travel ranges; therefore, it was not possible to use a single distance cutoff for when a vehicle would need to stop and charge. Instead, a probability of needing to stop and charge was assigned to each distance range (Table 7.5). These probabilities were used to estimate the total number of vehicles that may need to stop and charge somewhere along their trip.

TABLE 7.5 PROBABILITY OF LONG DISTANCE TRIPS STOPPING TO CHARGE

| Distance Range (miles) | Probability of Needing to Stop and Charge |
|------------------------|---|
| 0 – 50.4 | 0% |
| 50.0 – 100.4 | 10% |
| 100.5 – 150.4 | 25% |
| 150.5 – 200.4 | 75% |
| 200.5 – 250.4 | 95% |
| 250.5 + | 100% |

This criteria score was based on the estimated total number of daily vehicles passing an interchange that would need to stop and charge somewhere along their trip. The volumes were grouped into ranges with scores assigned as shown in Table 7.6. Given the range of EVs and other DCFC station charging options, not every one of these vehicles would stop and charge at the interchange being evaluated (see note below for details). However, the magnitude of this number gives a good indication of the overall demand for charging in that area.

TABLE 7.6 PREDICTED LONG-DISTANCE EV TRIPS IN 2026 SCORING

| Daily Vehicles Passing Interchange Needing to Stop Along Their Trip | Score |
|---|-------|
| 0 – 2,349 | 0.0 |
| 2,350 – 5,100 | 0.2 |
| 5,101 – 9,800 | 0.4 |
| 9,801 – 16,500 | 0.6 |
| 16,501 – 24,600 | 0.8 |
| 24,601 + | 1.0 |

Note: A typical EV in the future is expected to have a range of around 300 miles. There is, however, an upper and lower limit to how much of the battery capacity a driver will utilize. Due to range anxiety, drivers are expected to stop at somewhere around 20-30% battery capacity. Due to limitations on charging speed, drivers are likely to stop charging and resume their trip when they reach about 80% battery capacity. This means that about half of the total range is expected to be used during long-distance travel. An average range of 300 miles means that EVs would need to stop to charge about once every 150 miles.



CRITERIA 3 - POWER AVAILABILITY AND RELIABILITY

A readily available and reliable electrical service is essential to the deployment of AFC creditable DCFC stations. Three sub-criteria were selected for this criterion to adequately address the range of needs: 3A - 3-Phase Power Availability, 3B - Maximum Voltage, and 3C – Number of Substations. Together, these topics cover the proximity of the required 3-phase power lines, the amount of power available, and the reliability of that power. Interchanges that score well on these three sub criteria are likely to have a lower deployment cost and be more effective in meeting the NEVI performance requirements.

With regard to scoring, power has a significant impact on interchange suitability, since it could be very expensive to bring power to a new site. Interchanges without sufficient power would be deemed not suitable for a DCFC charging station. Power is also important for interchange prioritization, but it is less important because there may be a location where a AFC creditable DCFC station is needed, but power is not immediately available or there are fewer nearby substations. For example, to serve a rural area and meet NEVI spacing requirements, it may be necessary to run a 3-phase power line a short distance to a new site (such as further down a crossroad).

CRITERIA 3A - 3-PHASE POWER AVAILABILITY

Three-phase power is required to serve a DCFC site. Power can come from a substation, or it may be tapped from a distribution line. For each interchange, the availability of 3-phase power was assessed in both directions for 1 mile. A score of 1.0 was assigned if there was nearly complete coverage of the roadway by 3-phase power. A score of 0 was assigned if there was no coverage. **Figure 7.27** shows hypothetical examples of how interchanges were scored and **Table 7.7** shows the scoring rubric.

Legend

- 3 Phase Power Distribution Line



Full 3-phase power coverage on both sides of interchange. Score = 1.0



Partial 3-phase power coverage on one side of the interchange. Score = 0.25



No 3-phase power coverage at interchange. Score = 0.0

FIGURE 7.27 HYPOTHETICAL 3-PHASE POWER AVAILABILITY MAPS AND SCORING

TABLE 7.7 3-PHASE POWER AVAILABILITY SCORING

| 3-Phase Power Coverage Scoring | Score |
|--|-------|
| No Coverage | 0.0 |
| Partial Coverage on One Side | 0.25 |
| Partial Coverage on Both Sides or Complete Coverage on One Side | 0.5 |
| Complete Coverage on One Side and Partial Coverage on the Other Side | 0.75 |
| Complete Coverage on Both Sides | 1.0 |

CRITERIA 3B - MAXIMUM VOLTAGE

This is the voltage rating of the nearest power source. For a substation, this is the highest incoming voltage present. For a distribution line, this is the line voltage. Higher voltages can supply larger loads and are better suited for providing the power level needed for DCFC stations. Interchanges with high voltages are also better able to meet the NEVI guidance that promotes future station flexibility and expandability. The analysis for this criterion is illustrated in **Figure 7.28** with the scoring provided in **Table 7.8**.

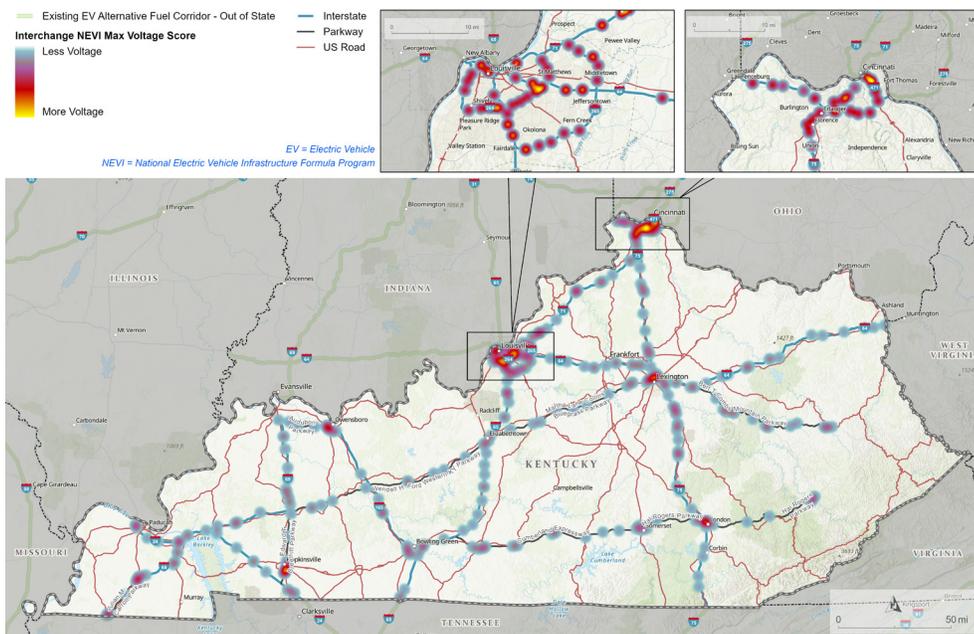


FIGURE 7.28 MAXIMUM VOLTAGE NEAR POWER SOURCE

TABLE 7.8 MAXIMUM VOLTAGE SCORING

| Voltage | Score |
|------------|-------|
| < 69kV | 0.0 |
| 69 – 114kV | 0.7 |
| 115kV + | 1.0 |

CRITERIA 3C – SUBSTATIONS WITHIN 2 MILES

Sites that are within close range of multiple substations are more likely to have reliable power than sites that are near a single substation. It is also possible to provide redundant power feeds to improve reliability further when multiple substations are nearby. This criterion is used to identify sites that will have more reliable power. **Figure 7.29** shows substation locations relative to the AFC network. The scoring for this criteria is shown in **Table 7.9**.

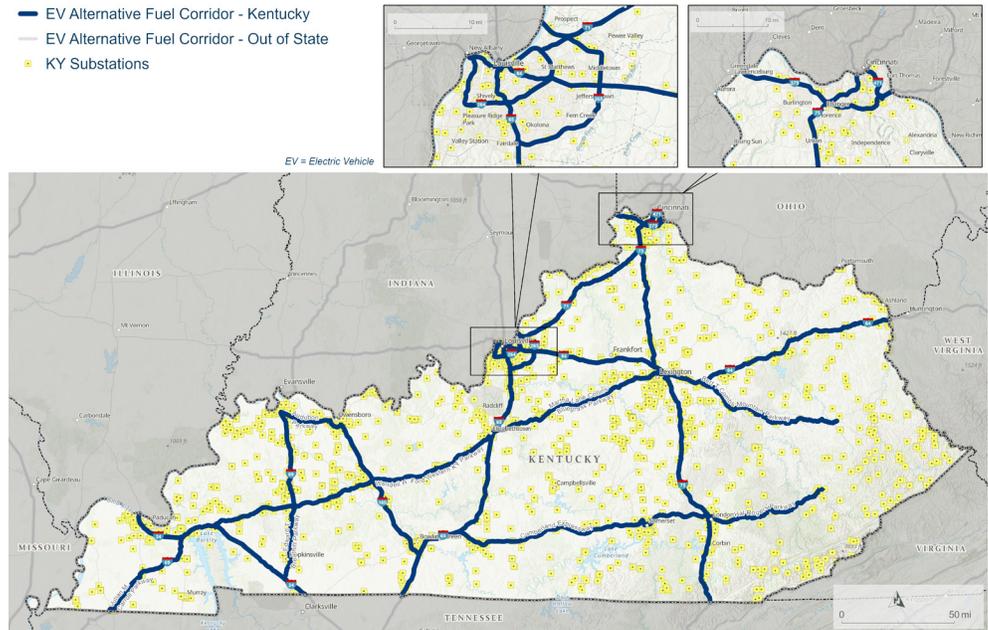


FIGURE 7.29 SUBSTATION MAP

TABLE 7.9 SUBSTATIONS WITHIN 2 MILES SCORING

| Number of Substations | Score |
|-----------------------|-------|
| 1 | 0.3 |
| 2 | 0.7 |
| 3+ | 1.0 |

CRITERIA 4 - AFC NETWORK MILES COVERED

With Kentucky’s network of AFCs, there are numerous intersecting AFCs. One of the factors that was determined to be beneficial was the ability for one DCFC station to provide some level of coverage for multiple AFCs. While the coverage of an intersecting corridor may not count toward NEVI build-out, it could still provide additional convenient charging opportunities for drivers. To quantify this criterion, the number of miles of AFC network within eight miles (driving distance) was calculated for each interchange. Eight miles (one-way) was chosen since this represents a maximum 15-minute round-trip detour to reach an interchange from a nearby corridor. An interchange that is not near any intersecting AFCs will typically cover 16 miles. However, an interchange that is near the intersection of two or more AFCs would cover more total AFC miles and likely serve more users (see **Figure 7.30**). The scoring rubric for this criterion is provided in **Table 7.10**.



FIGURE 7.30 8-MILE AFC COVERAGE IN ALL DIRECTIONS

TABLE 7.10 AFC NETWORK MILES COVERED SCORING

| Distance | Score |
|---------------|-------|
| 0.00 – 16.00 | 0.0 |
| 16.01 – 28.00 | 0.3 |
| 28.01 – 40.00 | 0.7 |
| 40.01 + | 1.0 |

CRITERIA 5 – PRESENCE OF AMENITIES/SERVICES

Even with improvements in charging technology, the amount of time that will be required for EVs that stop at DCFC charging sites along the highway will be significant, likely around 25 minutes. It is ideal to have charging sites where there are amenities and services that drivers can take advantage of while waiting for their vehicle to charge. These include convenience stores, restaurants, and parks. Interchanges that have more amenities and services will be attractive to drivers when they look for a place to charge, which makes this an important characteristic for site suitability. Locations without amenities may need to have facilities constructed (e.g., restrooms and vending machines). This would increase the cost and complexity of building in that location.

Kentucky's Electric Vehicle Infrastructure Deployment Plan

Another factor captured by this criterion is driver habits and expectations. This was brought up by stakeholders. The interchanges where drivers stop today to access amenities and services are potentially good locations for EV charging stations. They already have the benefit of driver awareness and familiarity. **Figure 7.31** highlights the amenity/service score density on the AFC network. The score for this criterion is based on information collected for the one-mile area surrounding each interchange as well as the ease of using the interchange as presented in **Table 7.11**. The final score for each location was normalized to yield a 0 to 1.0 score for each interchange.

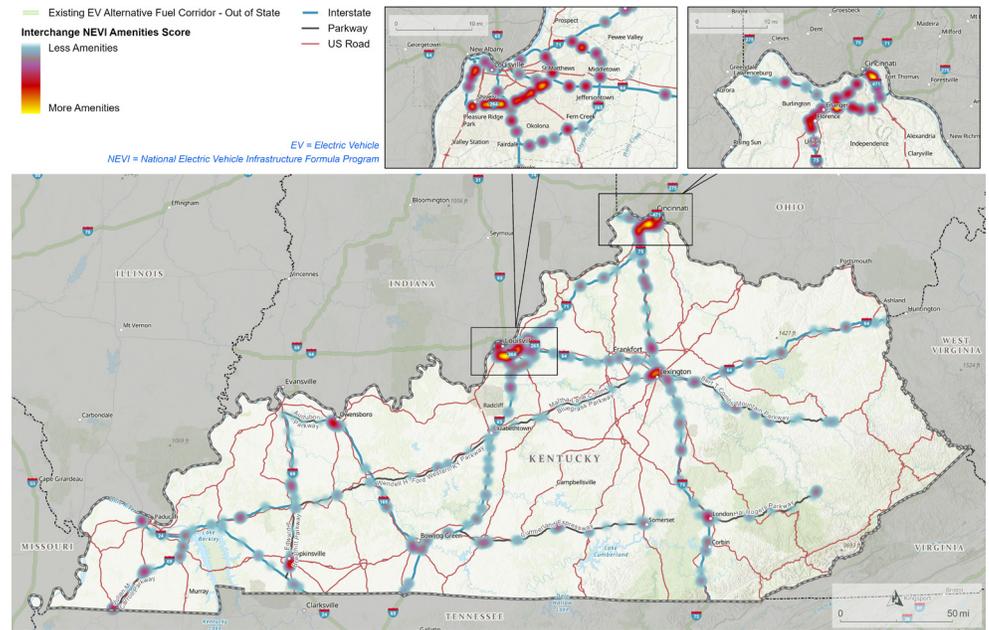


FIGURE 7.31 PRESENCE OF AMENITIES/SERVICES DENSITY MAP

TABLE 7.11 PRESENCE OF AMENITIES/SERVICES SCORING

| Amenity | Description | Scoring | Score Range |
|-----------------------|---|---|---------------|
| Convenience Stores | Number of convenience stores within 1 mile | 25 points for each up to 125 max. | 0 – 125 |
| Fast Food Restaurants | Number of fast-food restaurants within 1 mile | 25 points for each up to 125 max. | 0 – 125 |
| Sit Down Restaurants | Number of sit-down restaurants within 1 mile | 25 points for each up to 125 max. | 0 – 125 |
| Parks | Presence or absence of a park within 1 mile | 0 points: No park 100 points: Park | 0 – 100 |
| Easy on/off | A qualitative score of how easily a driver can get off and back on the Interstate, considering these factors: Simplicity of design Presence of traffic signals Presence of medians | 50 points: Hard 100 points: Medium 150 points: Easy | 50 – 150 |
| Total | | | 50-625 |

CRITERIA 6 - INTERSECTING ROAD TRAFFIC

Long-distance travelers on the AFC network are not the only drivers that would make use of DCFC infrastructure. Local drivers on the intersecting roadways at an interchange are also potential users as are other drivers in the area. As discussed previously, 80% or more of charging will occur at Level 1 and Level 2 chargers at home or work due to cost and other factors. However, there will be times when drivers need to use a DCFC station to recharge quickly or because they do not have other options available. Therefore, it is advantageous to have DCFC stations at interchanges with high daily traffic volumes. This criterion considers the average daily traffic volumes (ADT) of the roadway intersecting the AFC network at the interchange being evaluated. For this criterion, the intersecting road ADT on both sides of the interchange was summed to indicate total traffic activity at the interchange. (One-sided interchanges only had one value.) The resulting scores for this criterion are illustrated in **Figure 7.32** and the scoring rubric is provided in **Table 7.12**.

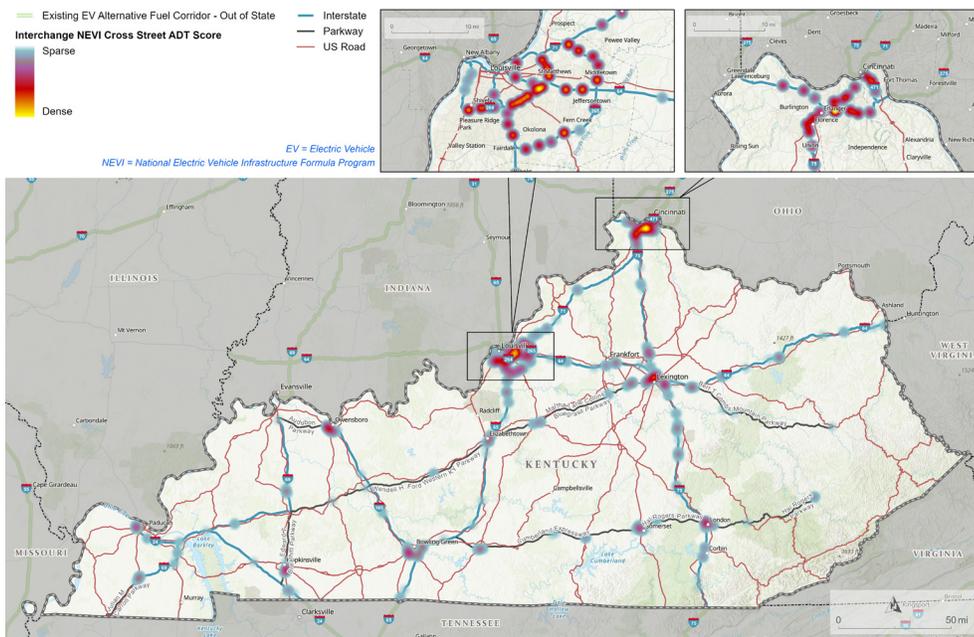


FIGURE 7.32 INTERSECTING ROAD TRAFFIC SCORES

TABLE 7.12 INTERSECTING ROAD TRAFFIC SCORING

| Cross Street ADT (Sum of Both Sides of Interchange) | Score |
|---|-------|
| 0 – 10,000 | 0.0 |
| 10,001 – 24,000 | 0.2 |
| 24,001 – 38,000 | 0.5 |
| 38,001 – 58,000 | 0.7 |
| 58,001 – 92,000 | 0.9 |
| 92,001 + | 1.0 |

CRITERIA 7 - RURAL AREA DESIGNATION

The NEVI guidance emphasizes the need for EV charging infrastructure in rural areas. Each interchange area received a score from 0 to 1.0 based on the percentage of the interchange area that was classified as rural. For example, an interchange located entirely in a rural area received a 1.0 for this criterion, while an interchange located entirely in an urban area received a 0. The scores for partly rural interchanges were tied directly to the percent of the area determined to be rural. These scores were not used to calculate interchange suitability, but consistent with the NEVI guidance they were used to calculate interchange prioritization (see **Table 7.3**). The Census Bureau's 2020 urbanized area classification data was used to define the rural areas across the state as illustrated in **Figure 7.33**.

Scoring: There is no scoring table included for the rural designation because the score is the fractional value of the area around the interchange that is designated as rural.

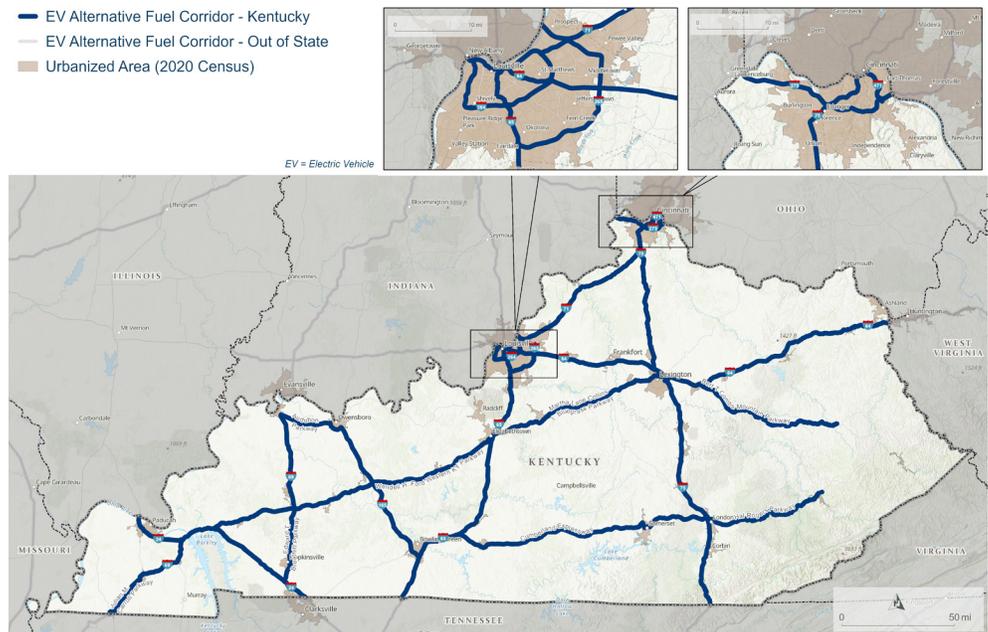


FIGURE 7.33 URBAN AND RURAL AREAS IN KENTUCKY

CRITERIA 8 - JUSTICE40 DESIGNATION

A key factor for the prioritization of vehicle charging locations is equity and the beneficial impact of the EV infrastructure investment on underserved or disadvantaged communities. This is especially important in Kentucky where many areas are underserved. The NEVI guidance encourages states to use the EV Charging Justice40 map (**Figure 7.34**) to facilitate this portion of the analysis. This map is intended to help states achieve the Justice40 goal of 40% of the benefits of Federal investments in clean transportation going to disadvantaged communities (DACs). The investments do not have to be in those communities, but the benefits should accrue to those communities. The Justice40 map is consistent with the Justice40 Interim Guidance and is based on U.S. DOT's interim definition for DACs. Each interchange was scored from 0 to 1.0, based on the percentage of the interchange area that was classified as a DAC. Similar to the rural category, Justice40 was not used to score the suitability for each interchange. However, consistent with the NEVI guidance, interchanges with high Justice40 values were scored higher for the prioritization of deploying charging stations (see **Table 7.3**).

Scoring: No table is provided for this criterion because the score is the fractional value of the area around the interchange that is designated as a Justice40 area.

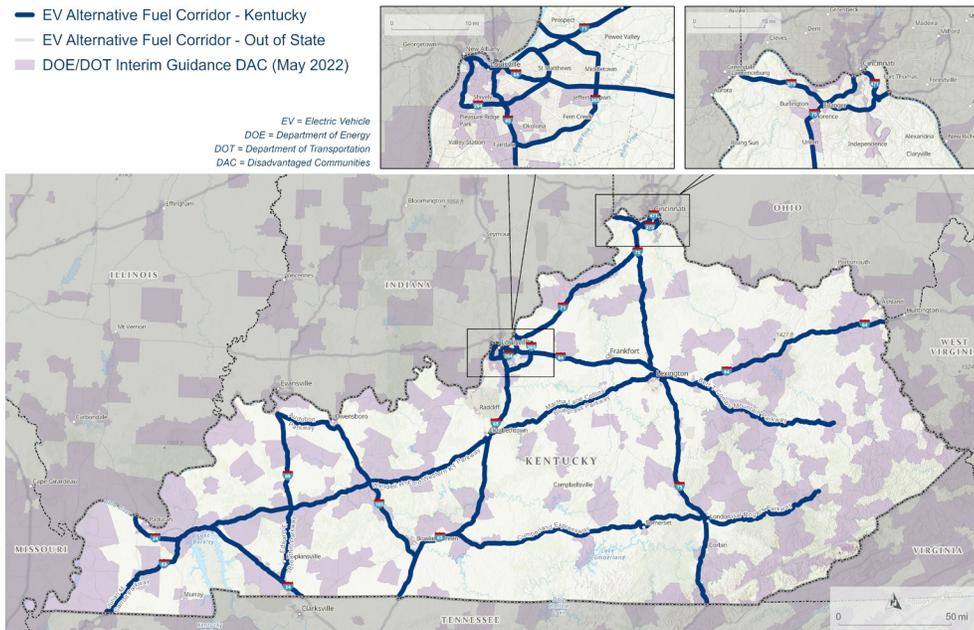


FIGURE 7.34 EV JUSTICE40 MAP

OTHER CRITERIA CONSIDERED

Several other criteria were considered but not included for suitability or prioritization scoring such as population and employment density, EV ownership percentages, local attractions, and tourist destinations. These are important considerations, but they are more applicable to planning for Level 2 community chargers rather than AFC creditable DCFC stations. Several other criteria such as security, shelter, lighting, and potential site hosts are also important, but they are relevant for choosing specific sites rather than identifying potential interchange areas. These types of factors will need to be considered as the project moves from planning to deployment.

INFRASTRUCTURE DEPLOYMENTS/ UPGRADES

Kentucky has five potentially AFC creditable charging stations (as shown previously in this chapter) and three DCFC stations that would require upgrades to reach full NEVI compliance. To meet the needs of Kentucky's traveling public, KYTC has developed a list of preliminary station considerations, along with initial conceptual parking and charging site layouts, both of which are presented in **Chapter 8**. The station considerations are consistent with the NEVI guidance and stakeholder input. The site layouts are intended to show ways to provide flexibility. For example, sites will likely need to accommodate vehicles with trailers and facilitate snow removal so that it does not impact charger access. The ability to upgrade sites will also be a consideration during deployment, especially in corridors where the demand is expected to grow and exceed the capacity of a 4-port station. KYTC's approach to site prioritization recognizes the need for power delivery at the site and has identified which sites are proximate to power substations (as shown previously in this chapter). Including this as a criterion is intended to minimize the construction cost of power infrastructure needed to serve the site. It is anticipated that transformers may be required to serve each charging site, but the extension of power to the site should be minimized. This will be left to the private sector to optimize and choose specific site locations and site hosts that have ready accessibility to available power and available capacity, thus minimizing the infrastructure improvements needed and the cost of the NEVI station.

STATE, REGIONAL, AND LOCAL POLICY

KYTC has a tiered policy for implementation of the NEVI Formula Funding Program which matches the expected uses of the formula funds (**Chapter 4**). The first tier includes all the primary Interstates, prioritizing them for build-out to handle capacity. The second tier runs concurrent with the first, and includes all of the Parkways and other Interstates, to deploy stations across the entire state. This second tier prioritizes geographic coverage, especially in rural, mountainous, and disadvantaged communities. These two tiers make up Phase 1 of KYTC's deployment plan. In accordance with the NEVI guidance, Phase 1 will take priority for the first years of the program.

Once the AFC network is built out, program Phases 2 and 3 will begin. Phase 2 will provide DCFC stations on other priority corridors and highways, especially those without nearby access to an Interstate or Parkway. Concurrent with this initiative, Phase 3 will provide funding for community and destination charging throughout the Commonwealth. This could be for DCFC stations or Level 2 stations. Phases 2 and 3 will fill gaps and provide services in rural and disadvantaged communities. While EV adoption is typically lower in these areas (see **Chapter 6**), providing charging infrastructure will be key to promoting travel to these areas and opening the possibility of electric vehicle adoption for community members.

KYTC developed this policy with a simple principle at its heart – cover the state and leave nobody out. The program has been designed to provide both capacity where needed and coverage to every corner of the state, and KYTC anticipates that the ongoing engagement will provide an opportunity to better understand how the program can meet this intent. Throughout the process, KYTC is intending to work with communities to offer guidance on needed policy or code changes to help make the implementation process easier both for this program and for future EV infrastructure programs they may pursue.

CHAPTER 8

IMPLEMENTATION



Strategies for guiding the implementation of the program will center around the contracting process as described in **Chapter 5**. KYTC has structured the program to facilitate the optimization of the network and the service offerings according to the detailed requirements included in the contracting process and aligned at a high level with the suitability and prioritization analysis described in **Chapter 7**. This approach is intended to give each respondent an opportunity to enhance the effectiveness of every federal dollar spent to develop the network while meeting minimum federal and state requirements. KYTC has defined the desired outcomes as part of the contracting process and will evaluate respondents on their abilities to meet the requirements. The specific strategies will be developed by the private respondents, which correspond to the desired outcomes that KYTC has defined.

KYTC has incorporated the latest guidance and requirements from the Joint Office into the contracting requirements. This includes the NEVI Formula Program Guidance issued on February 10, 2022; the NEVI Formula Program Questions and Answers as updated on June 2, 2022; the NEVI Formula Program Guidance updated on June 2, 2023; and the National Electric Vehicle Infrastructure Standards and Requirements, Final Rule, Code of Federal Regulations Section 23, Part 680 (23 CFR 680) issued on February 15, 2023, (collectively, NEVI Requirements). The NEVI Requirements address the topics set forth below; however, this list is not exhaustive of all NEVI Requirements, including the applicability of Federal statutes and regulations such as Title 23, U.S. Code.

1. Installation, operation, and maintenance by qualified technicians of EV infrastructure
 - a. Include at least four (4) DCFC ports for each Site that support output voltages between 250- and 920-volts DC, and which have a continuous power delivery rating of at least 150 kW and supply power according to an EV's power delivery request up to 150 kW, simultaneously from each port at the site.
 - b. Maintain continuous operations (24 hours a day, seven days a week, 365 days a year) and perform preventative maintenance by qualified technicians.
2. Interoperability of EV charging infrastructure
 - a. Including compliance with ISO 15118 for charger-to-EV communication and the appropriate Open Charge Point Protocol (OCPP) and Open Charge Point Interface (OCPI) standard versions for charger-to-network and network-to-network communications.
3. Traffic control devices and on-premises signs acquired, installed, or operated
4. Data requested related to a project funded under the NEVI Formula Program, including the format and schedule for the submission of such data
 - a. Report one-time data submittal and report quarterly and annually on EVSE operations.
5. Network connectivity of EV charging infrastructure
6. Information on publicly available EV charging infrastructure locations, pricing, real-time availability, and accessibility through mapping applications
 - a. Customer service support.
 - b. Mechanisms to report outages, malfunctions, and other issues.
 - c. Management of payment collections for each EVSE Station.

KYTC's approach to EVSE operations and maintenance will meet the updated NEVI requirements.

- d. Provide contactless payment method and accept all major credit and debit cards.
- 7. Other Federal requirements
 - a. BABA requirements, or Waiver of Buy America Requirements for Electric Vehicle Chargers, published in 88 FR 10619 (02/21/2023).
 - b. Davis Bacon Federal Wage Rate requirements.
 - c. The Americans with Disabilities Act (ADA) requirements.
 - d. The Architectural Barriers Act (ABA) requirements.
 - e. Title VI (non-discrimination) and Title VIII (fair housing) of the Civil Rights Act.
 - f. NEPA requirements.
 - g. FHWA-1273 – Required Contract Provisions Federal-Aid Construction Contracts.
 - h. Federal Acquisition Regulation 52.204-25 Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.
 - i. 23 USC, 23 CFR 636 Design Build Contracting, 23 CFR 637 Construction Inspection and Approval (as applicable to EVSE), 2 CFR 200 Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards.
 - j. 23 CFR 655 applicable to traffic control devices in connection with each Project and 23 CFR 750 regarding outdoor advertising regulations applicable to on-site signage on each Site.

STRATEGIES FOR EVSE OPERATIONS & MAINTENANCE

For NEVI funded DCFC stations installed in Kentucky, the station's private third-party provider will be responsible for installation, operations, maintenance, and ownership. As part of the contracting process, minimum requirements will be defined for charger uptime (97% for each individual port as defined by the NEVI Program requirements, based on a rolling 12-month look back to ensure a longer-term view), repair lead time, repair responsiveness, failure/ fault reporting, regular maintenance, cleaning, and station upkeep. It is anticipated that different responders could have different business models, but each would need to demonstrate that the site host is engaged to monitor, routinely inspect, and perform basic site cleaning functions.

STRATEGIES FOR IDENTIFYING ELECTRIC VEHICLE CHARGER SERVICE PROVIDERS AND STATION OWNERS

The process identified in **Chapter 5** will be used to identify both charger service providers and station owners (site hosts). Some key aspects of the proposal evaluation process are the identification of preliminary partnerships, interchange selections, and potential engagement with small businesses and site hosts to partner for infrastructure build-out. Agreements between site hosts and developers are required to be in place before KYTC enters formal contracts with developers.

KYTC has selected an approach for guiding infrastructure deployment. This approach is documented in the RFP which can be accessed using information on KYTC's EV website (<https://evcharging.ky.gov>). The selected approach took into consideration the information in this plan as well as extensive input from stakeholders and agency partners. The result is an approach that will cost-effectively build-out the system while setting up the network of DCFC stations and private contractors for long-term success.



The RFP introduction provides a clear outline of the approach and is provided here for reference.

This RFP outlines the process by which Proposers can submit Proposals for one or more EVSE Projects (Projects) at proposed sites (Candidate Sites). KYTC will evaluate Proposals based on established evaluation criteria, and award Contracts to select Proposers (Preferred Proposers) for select Sites. To receive National Electric Vehicle Infrastructure Formula Program (NEVI Formula Program) funds, Preferred Proposers will need to execute a Contract in the form of a Project Agreement (PA) with KYTC and agree to PA Terms and Conditions (see Section 3 and Attachment 4) in relation to a particular Project. As per the PA Terms and Conditions, Preferred Proposers agree to serve as private-sector partners (Developers) for a Project located at a Site. Developers will be expected to carry out Site acquisition, design, purchase, construction, installation of hardware and software, operation and maintenance (O&M), and reporting services for a given Project. KYTC will not develop, own, operate, or maintain Projects. Note that Developers will not be able to utilize KYTC right-of-way (ROW) for any Project, nor will Developers be required to “handback” any Project or any portion thereof to KYTC at the end of the Contract term.

KYTC will accept and evaluate Proposals for individual Candidate Sites located in Corridor-Groups identified by KYTC (see Section 1.3). KYTC’s intent is to then award one or more Sites in each Corridor Group. While KYTC may elect to make no awards for Candidate Sites within a Corridor Group, it is anticipated that KYTC will award Contracts to multiple Proposers, and thus select multiple Developers to build-out the Commonwealth’s EV network. However, KYTC’s goal is to make awards according to the Selection Process Schedule provided in Section 2.2. KYTC may also issue additional RFPs to ensure that the Commonwealth’s EV network is built out in an optimal, cost-effective manner.

The Corridor Groups referenced in the RFP text are shown in **Figure 8.1**. These are the portions of the AFC for which KYTC is currently accepting proposals.

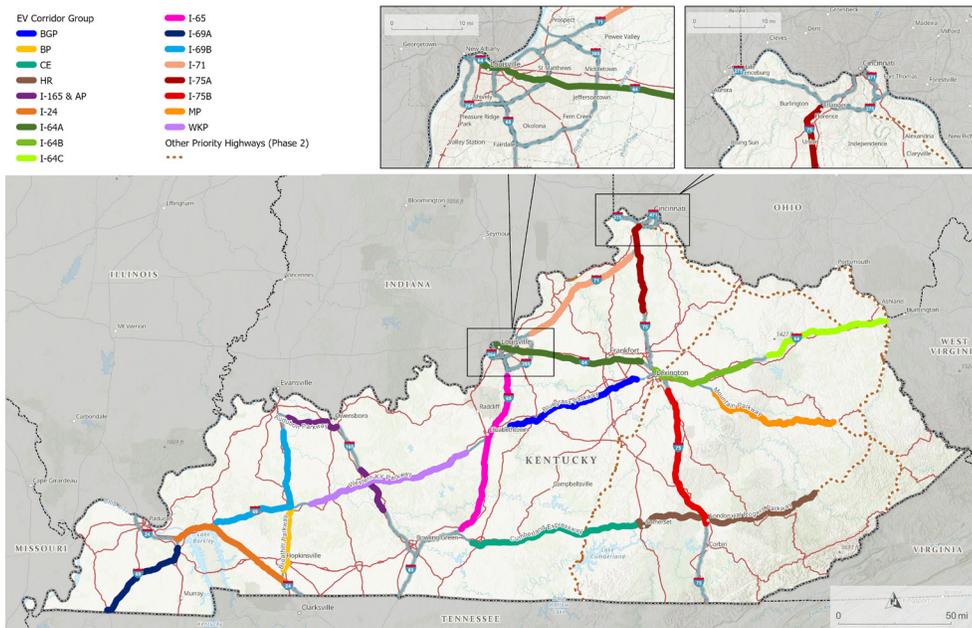


FIGURE 8.1 CORRIDOR GROUPS



STRATEGIES FOR EVSE DATA COLLECTION & SHARING

EVSE data collection and sharing will be a requirement in the contract; the data will be received and analyzed by KYTC's third-party contractor. In the proposals, proposers are anticipated to provide their approach to data collection and sharing, which would include the level of detail they are willing to provide, their approach to assembling and anonymizing data, their data handling, usage, and security practices, and their approach to leveraging data to inform program decisions such as future charger build-out or monitoring of charger health. The RFP includes details on what is requested from potential proposers.

As outlined in the NEVI Requirements, KYTC will require data describing charging usage, cost, and reliability that can be shared with the Joint Office to support program evaluation and improvement efforts. KYTC will utilize the template provided to submit data to the Joint Office. KYTC will require developers to provide data describing charging station location, type of equipment available, price, and status that can be shared via an application programming interface (API) with public-facing directories, including the Alternative Fuel Data Center's Station Locator. Data sharing will conform to the requirements developed by the Joint Office.

KYTC has also volunteered to be a pilot state for the development and rollout of the Electric Vehicle Charging Analytics and Reporting Tool (EV-ChART). This tool is being developed by the Joint Office to help facilitate data reporting for NEVI funded stations. KYTC will be meeting with the Joint Office soon to begin coordinating on that initiative. It is expected that by participating in the tool development process, KYTC's awareness of the required data, formatting, collection procedures, timeframes, and other key aspects of the data collection, sharing, and reporting process will be materially enhanced.

KYTC's approach to data collection and sharing will include working closely with private project partners to address FHWA's required annual, quarterly, and real-time reporting.



STRATEGIES TO ADDRESS RESILIENCE, EMERGENCY EVACUATION, SNOW REMOVAL/SEASONAL NEEDS

KYTC has identified several types of resilience that will be considered. While these are not the only areas related to resilience, they represent the areas that are commonly identified as points of failure.

- + **Technology resilience** - Charging and battery technology is constantly evolving, and the charging provider should have the ability to upgrade chargers to meet new standards and evolving battery technology. Delivering suitable power to the site is a key focus of this effort, along with modular infrastructure that can be easily upgraded.
- + **Energy/grid resilience** - KYTC will continually explore options for energy resilience along with utility partners and charging providers. One challenge to implementing the charging system is the numerous utility providers located along the corridor network, which is also an opportunity to create energy resilience regardless of provider for the entire charging network.
- + **Natural disaster resilience** - Snow, flooding, tornadoes, and significant variations in temperature are examples of natural disasters that may be experienced in Kentucky. These present major challenges for EV infrastructure resilience. Because KYTC has no prior experience with EV infrastructure, it is expected that resilience in these areas would be addressed primarily by the private charging provider, with requirements to address resiliency included as a component of the contracting process. A mobile generator that can be used to charge vehicles in case of emergency or grid resiliency issues is an option KYTC may explore in the future. KYTC may consult with the Kentucky PSC and other stakeholders to determine if the emergency generation of power could be allowable under Kentucky's current (or future) utility regulation. The need for a backup power connection within each charging site may also be explored, along with considerations for where a generator could be parked.

Kentucky has no defined statewide evacuation routes. The Kentucky Emergency Management agency (KYEM) has divided the state into ten areas, each of which may have a localized evacuation network defined to move people outside of localized emergency response areas. Because these areas are regional in nature and KYTC's corridor network extends into all ten areas, it is not anticipated that additional DC fast chargers would play a role in localized emergency evacuations.

It is anticipated that seasonal needs and snow removal will be a requirement of the contracting process, and the specific responsibilities of these services will be determined between the site host and the charging network provider. KYTC will explore minimum standards related to snow removal, including best practices to ensure snow removal does not block access to charging infrastructure.



NEVI Program Rules outline certification requirements for EVSE installers:

(i) Certification from the Electric Vehicle Infrastructure Training Program (EVITP).

(ii) Graduation from a Registered Apprenticeship Program for electricians that includes EVSE-specific training and is developed as a part of a national guideline standard approved by the Department of Labor in consultation with the Department of Transportation.

STRATEGIES TO PROMOTE STRONG LABOR, SAFETY, TRAINING, AND INSTALLATION STANDARDS

KYTC will continue to promote the use of small businesses in the construction and maintenance of Kentucky's transportation infrastructure. For this program, KYTC and its partners may be able to identify workforce training opportunities. For example, the equipment could be made available for training purposes. The purchase of a charger can be a substantial investment for a vocational school, but there may be opportunities to use chargers and equipment for educational purposes prior to (or during) equipment installation. This could apply to the actual installation process of the equipment, where the contractor may be asked to provide educational assistance to further develop a skilled Kentucky workforce related to charging infrastructure.

This is also an opportunity to engage with the Justice40 communities to develop workforce training opportunities related to infrastructure installation, operation, and maintenance. Contractors should also recognize that the ongoing operations and maintenance of the infrastructure and the sites should be an opportunity to develop regional skills and workforce opportunities, and that the training of this workforce should be a key component of the program.

Regarding safety, training should be made available to first responders and site hosts that provide guidance and safety procedures to manage infrastructure in the case of a malfunction, equipment destruction, or an emergency event.

This plan includes some initial considerations related to charging sites, chargers, and desired amenities. However, KYTC envisions collaborating with the initial set of developers to create and implement installation and design standards for the program and applying those for the duration of the program. It is anticipated that these standards should allow flexibility for different technologies and chargers deployed at a future date.

POTENTIAL SITE AND LAYOUT CONSIDERATIONS

KYTC has identified considerations that will need to be addressed in preparing for the deployment of NEVI stations in Kentucky. The considerations are listed in **Table 8.1**. As noted, the topics apply to all AFCs and any Kentucky guidance will comply with NEVI guidance.

Regarding power levels, the minimum is 150kW per port, with higher levels being desirable. 175kW per port with power sharing (Option A), would allow for 350kW when only one of the two ports is in use. The siting interval and distance from the AFC will meet NEVI requirements. All stations will meet ADA accessibility standards. The stations will be expected to serve long-distance travelers during a 10- to 30-minute wait while their vehicle charges. This means that there is a minimum level of amenities and services that will be anticipated, however, higher levels of amenities and services could be desirable to maximize utilization. KYTC has identified a preliminary list of amenities that could be part of the considerations for site suitability. Amenities could be located off-site, but close enough to be reached by a safe and reasonable walk, such as a charging site adjacent to a restaurant or coffee shop. There are three tiers of amenities, each corresponding to the level of preference or need.

- + **Minimum Amenities and Features:** Bathroom, vending machine, benches, trash can, security camera, lighting
- + **Preferred Amenities and Features:** Restaurant, convenience store, shelter/canopy
- + **Ideal Amenities and Features:** Outdoor space/park/playground, pet relief area, multiple restaurants, back-up power connection



The initial conceptual layouts shown in **Figure 8.2** to **Figure 8.4** illustrate options for future NEVI stations. The design of these layouts is ongoing, but some of the key considerations include:

1. Site size and orientation,
2. Site ownership and development costs,
3. Offering at least one pull through stall for large vehicles or vehicles with trailers,
4. Effective snow removal,
5. How to meet all current and future ADA requirements,
6. Providing space for electrical equipment, and
7. Making access to the ports simple and intuitive.

These conceptual layouts will change as Kentucky further develops its approach to deployment. Site layouts must also be very flexible as each site will have its own unique opportunities and constraints.

TABLE 8.1 POTENTIAL SITE AND LAYOUT CONSIDERATIONS

| NEVI Station Considerations | |
|---|---|
| Applicability | + Applies to all AFCs + Conforms with NEVI standards required to be certified fully built out |
| Charger Types / Power Levels | + Minimum 150 kW x (4) (600 kW total) + Option A 175 kW x (4) (700 kW total) with power sharing (350 kW per port) + Option B 350 kW x (2) and 150 kW x (2) (1 MW) |
| Siting Interval | + Located a maximum of 50 miles from another AFC creditable charging station + Located no more than one mile from the corridor |
| Accessibility | + Compliant with all applicable ADA standards |
| Minimum Amenities and Services | + Bathroom, vending machine, benches, trash can, lighting, security camera |
| Preferred Amenities and Services | + Restaurant, convenience store, shelter/canopy |
| Ideal Amenities and Services | + Outdoor space/park/playground, pet relief area, multiple restaurants, back-up power connection |
| Conceptual Site Orientations (Development Ongoing) | + Minimum Head-in charging site orientation (see Figure 8.2 and Figure 8.3) + Preferred Pull-through charging site orientation (see Figure 8.4) |

PRELIMINARY DRAFT

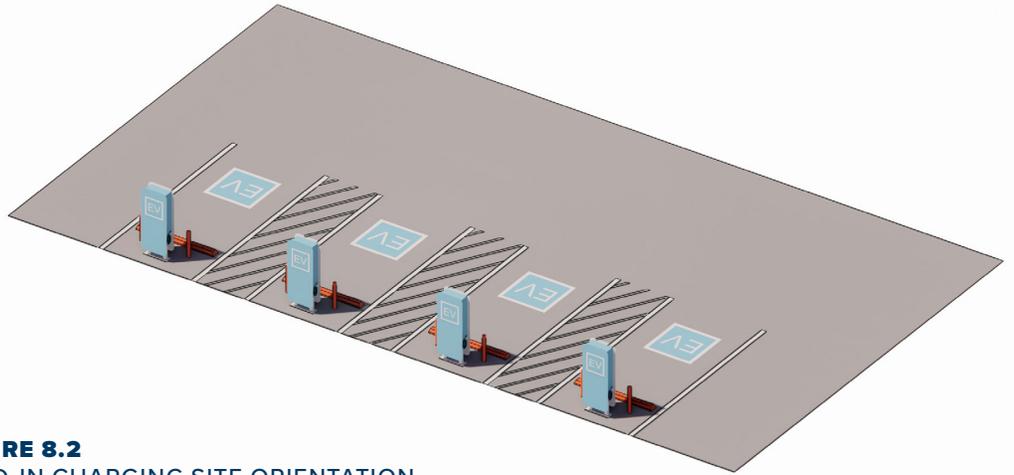


FIGURE 8.2
HEAD-IN CHARGING SITE ORIENTATION

PRELIMINARY DRAFT

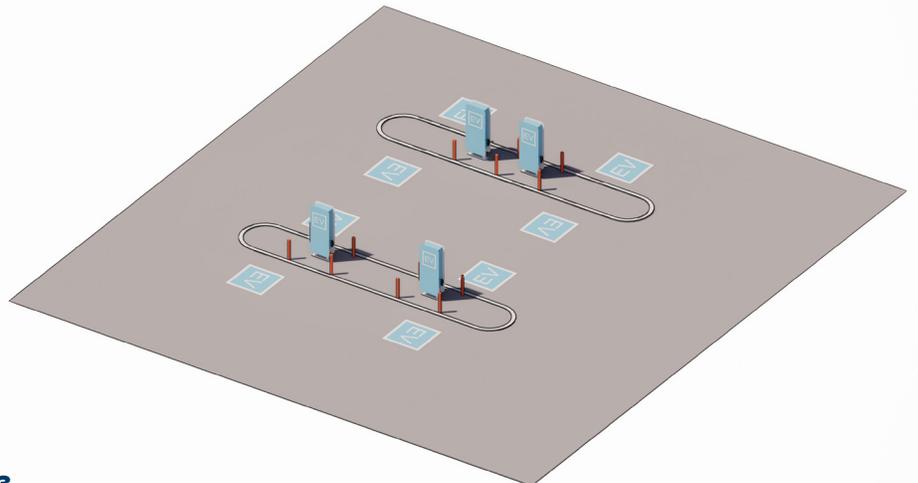


FIGURE 8.3
PULL-THROUGH CHARGING SITE ORIENTATION

PRELIMINARY DRAFT

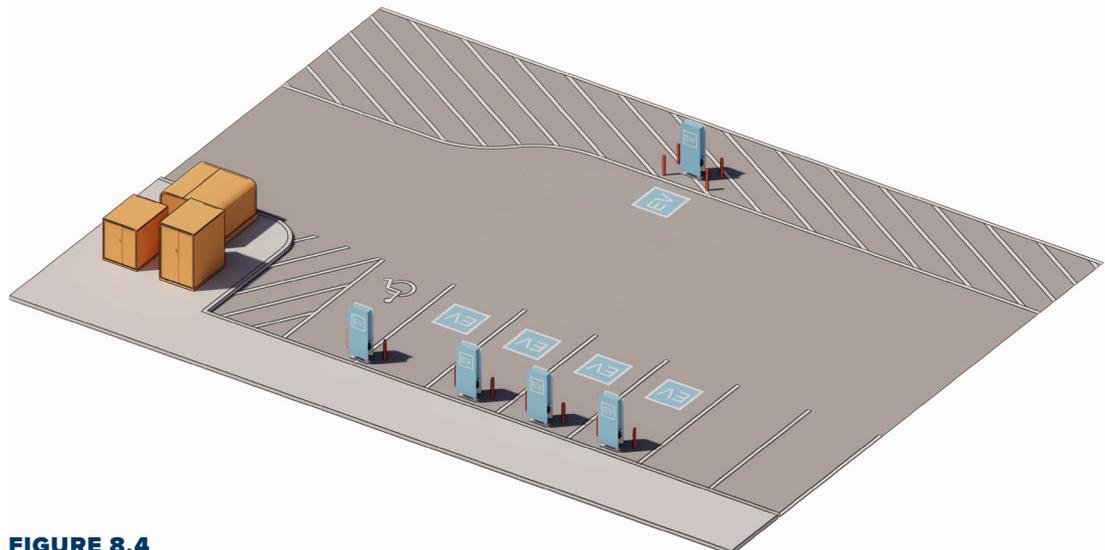


FIGURE 8.4
HEAD-IN CHARGING WITH 5TH PULL THROUGH SPACE FOR VEHICLES WITH TRAILERS

PLAN FOR IMPLEMENTATION AND DEPLOYMENT

Following the approval of Kentucky’s EV Infrastructure Development Plan in September 2022, KYTC and partners began to work toward implementation. A final RFP was released June 15, 2023, which is aimed at working toward build-out on the AFCs. The RFP was informed by a Request for Information issued August 24, 2022, and a draft RFP in January 2023. KYTC worked with FHWA to develop the final RFP during the Spring of 2023 and received consent to release the RFP in early June. The most recent deployment schedule is shown in **Figure 8.5**. The RFP can be accessed using information on KYTC’s EV website (<https://EVCharging.ky.gov>).

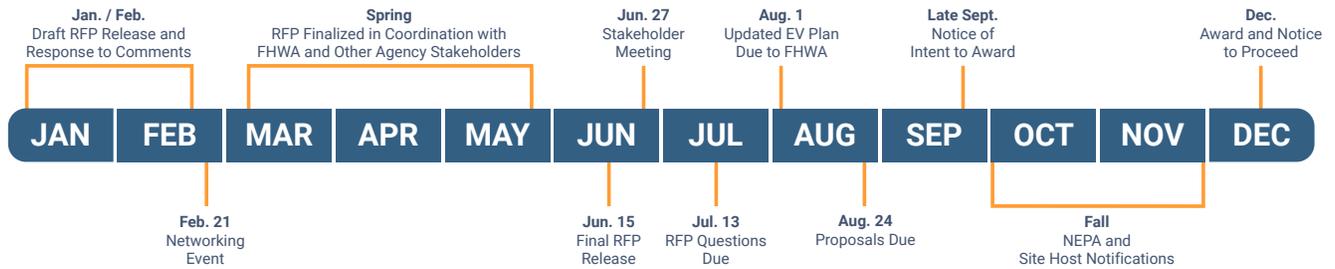


FIGURE 8.5 PROGRAM SCHEDULE AS OF JULY 2023

One or more future RFPs will be needed to complete build-out of the AFC network. Decisions on future RFPs will be made after the results of the first RFP are known. Once the NEVI requirements for building out the AFCs are complete and the AFC system is certified by FHWA as “built out,” the Commonwealth can proceed to install chargers on other high-priority EV corridors, as well as in other communities. These installations would be part of Phases 2 and 3 as outlined in **Chapter 4**.

CHAPTER 9

CIVIL RIGHTS



“This section of the Plan should discuss how the State planning and implementation will ensure compliance with State and Federal civil rights laws...”

KYTC routinely administers Federal-aid funds and is committed to compliance with State and Federal civil rights laws. The NEVI Formula Funding Program will be implemented using the adopted practices related to Civil Rights compliance that have been successfully implemented on other federal funding programs for decades. Title VI of the Civil Rights Act, Americans with Disabilities Act (ADA), Section 504 of the Rehabilitation Act, and all accompanying U.S. DOT regulations and ancillary programs will be an automatic part of the NEVI Formula Program from the onset.

THE KYTC CIVIL RIGHTS PROGRAM

The KYTC Civil Rights Program:

- + Prohibits entities from denying an individual any service, financial aid, or other benefit because of race, color, national origin, or disability.
- + Prohibits entities from providing a different service or benefit or providing these in a different manner from those provided to others under the program.
- + Prohibits segregation or separate treatment in any manner related to receiving program services or benefits.
- + Prohibits entities from requiring different standards or conditions as prerequisites for serving individuals.
- + Prohibits discriminatory activity in a facility built in whole or part with Federal funds.
- + Prohibits locating facilities in any way that would limit or impede access to a Federally funded service or benefit.
- + Encourages the participation of minorities as members of planning or advisory bodies for programs receiving Federal funds.
- + Requires information and services to be provided in languages other than English when significant numbers of beneficiaries are of limited English-speaking ability.
- + Requires entities to notify the respective population about applicable programs.
- + Requires assurance of nondiscrimination in purchasing of services and hiring practices.

The Kentucky Transportation Cabinet has established that no person shall be excluded from participation in, or be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance from KYTC on the grounds of race, color, age, sex, disability, or national origin. The U.S. DOT Equity Action Plan, which complements the administration's Justice40 and Executive Order 13985, speaks directly to assuring that with innovative fields like electric vehicles; underserved communities and businesses have fair access and benefit from these initiatives. Additionally, KYTC recognizes that U.S. DOT has emphasized the need for the enforcement of the federal civil rights programs related to the NEVI Formula Program, which offers guidance related to equitable access to opportunities associated with the program.

TITLE VI AND ADA

KYTC is committed to ensuring that projects, programs, and services are performed without discrimination, under Title VI and ADA. To accomplish this, KYTC is responsible for ensuring the implementation and enforcement of the Civil Rights program within their activities and programs and any representatives or contractors associated with the NEVI Formula Program. This is accomplished by:

- + Incorporating Title VI and ADA nondiscrimination requirements into appropriate manuals, directives, and regulations.
- + Incorporating Title VI and ADA nondiscrimination requirements into the designing and planning phases of project development.
- + Developing procedures to advise beneficiaries of all nondiscrimination laws.
- + Maintaining documentation of beneficiary nondiscrimination activities.
- + Ensuring that workforce and budget appropriations are adequate to accomplish nondiscrimination commitments.
- + Ensuring that federally funded contracts with consulting firms contain Title VI/ Nondiscrimination assurances and that consultants comply.
- + Notifying the public of compliance with Title VI and ADA.
- + Providing a complaint process that allows for investigations of alleged violations and provides clear and effective access to efficient resolutions
- + Creating a uniform data collection standard for evaluation of, and outreach to Environmental Justice (EJ) communities in alignment with the Justice40 Initiative.

It is anticipated that the U.S. Access Board will release a Notice of Proposed Rulemaking (NPRM) in July 2023. KYTC will be sure to incorporate this updated guidance in its enforcement of the Civil Rights Program.

SMALL AND DISADVANTAGED BUSINESS UTILIZATION

The NEVI Formula Program will be a vehicle to enhance U.S. DOT's initiative for wealth creation for small and disadvantaged businesses and for expanding access to social and economic opportunities for disadvantaged and underserved communities. KYTC is encouraging small, minority or women-owned businesses to compete for work on NEVI projects. This can be accomplished by:

- + Developing proactive capacity building programs to support an increase of small, minority or women-owned firms
- + Encouraging small, minority or women-owned businesses to compete for work on NEVI projects
- + Focused outreach to support the current and potential small, minority or women-owned firms, including specific identification of African American, Latino, Asian American Pacific, Indigenous, and other underrepresented groups

During the draft RFP process, KYTC held a networking event that was attended by approximately 45 firms. A primary goal of this event was to help small, minority and disadvantaged businesses connect with larger firms that were potential RFP respondents. The event was well attended and received positive feedback from many of the entities involved.



CHAPTER 10

EQUITY



The Plan should be developed through engagement with rural, underserved, and disadvantaged communities and stakeholders

KYTC supports equity considerations when planning investments in electric vehicle charging infrastructure. While the use of EV's is increasing in the state, KYTC recognizes that EV ownership is currently not an option for all of the Commonwealth's residents due to availability and affordability issues. In fact, it may not yet be an appropriate option for some of the wide-ranging mobility needs in the state. As the demand for electric vehicles and the charging network grow over time, it is expected that passenger vehicle model options will increase, and vehicle prices will decrease. Thinking ahead to ensure these infrastructure investments benefit populations across Kentucky, equitably is a priority. The Justice40 Initiative, established in January 2021 by Presidential Executive Order 14008 on Tackling the Climate Crisis at Home and Abroad, provides a goal that at least 40 percent of the overall benefits of certain Federal investments flow to disadvantaged communities (DACs). The Interim Implementation Guidance for the Justice40 Initiative (released July 2021) and the NEVI Formula Program Guidance (released in February 2022 and June 2023) identifies clean transportation as a Justice40 covered program.

IDENTIFICATION AND OUTREACH TO DISADVANTAGED COMMUNITIES (DACs) IN THE STATE

As part of U.S. DOT and U.S. DOE partnership in implementing the Justice40 Initiative, an interim definition for DACs was developed to assist states in identifying those communities. "Communities" are defined as a group of individuals living in close geographic proximity to one another. "Disadvantaged" is defined through data investigation of these communities by a combination of variables including – low-income (and/or high persistent poverty), racial minority composition, linguistic isolation, high transportation cost burden, high energy cost burden, and disproportionate environmental stressors.

KYTC has started taking specific steps to identify and engage with disadvantaged community members. This included working with information from the Metropolitan Planning Organizations and Area Development Districts (ADDs) as well as the Equity Task Force (part of Kentucky's Resiliency Working Group) to develop an initial list of DAC organizations and individuals across the state to be contacted and invited to participate. The plan is that a list like this will involve individuals and organizations who can then help reach other individuals, organizations, and companies.

Another step KYTC is taking is to use data and maps to identify specific communities where outreach should occur. KYTC can then potentially hold in-person meetings in the identified areas or make specific focused efforts to reach community leaders, businesses, and community members in those areas. The maps and data being used include the EV Charging Justice40 Map as the primary tool for this program, with the USDOT Equitable Transportation Community (ETC) Explorer as a supplemental tool. The Justice40 map for Kentucky is provided in **Chapter 7**. This provides KYTC with a clear indication of where there are DACs and where efforts should be focused. Another consideration is the Appalachian Regional Commission (ARC) map of County Economic Status and Distressed Areas. The map of these distressed areas by category is shown in **Figure 10.1**.

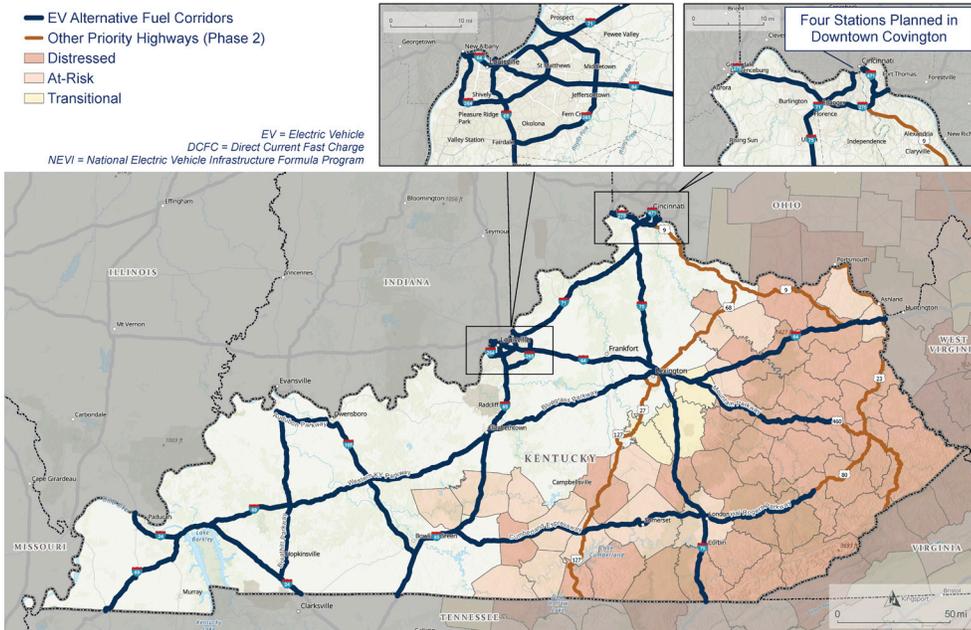


FIGURE 10.1 ARC MAP OF DISTRESSED AREAS AND AFCS

Over the next year, KYTC will advance the initiatives started last year and conduct more focused outreach to disadvantaged communities across the state. This will include a combination of in-person meetings, virtual meetings, email updates, and sending people to the website for more information. It is expected that KYTC will coordinate with the ADDs to implement this outreach. They have various programs, communication channels, and meeting venues that they use regularly to interact with community leaders and members in all parts of the state. The ultimate goal is to achieve meaningful participation in the EV program and deployment projects by low-income and minority individuals, those with limited English proficiency, and other underserved groups. KYTC is also partnering with Tennessee Tech University (Tennessee Tech) on the project, Rural EV Infrastructure for Sustainable Economy (RISE) to develop Community-Driven Models for Electric Vehicle Charging Deployment, funded by a grant from FHWA.

It is critical that this next round of engagement both reach a wider audience and reach a deeper audience in specific areas so that the team can begin to learn what metrics make the most sense for assessing the results and effectiveness of the EV infrastructure implementation. It is not possible for KYTC to set the metrics now before sufficient engagement has been completed, but it will be possible to complete this work as the engagement occurs over the coming months.

Before deciding on specific DAC benefits to track, KYTC will to engage further with groups and individuals from DACs to discuss their thoughts on how the benefits should be identified and measured.

PROCESS TO IDENTIFY, QUANTIFY, AND MEASURE BENEFITS TO DACs

KYTC is considering the potential benefits suggested by the Joint Office for measuring benefits to DACs (see list below). However, before deciding on specific DAC benefits to track, KYTC will further engage with groups and individuals from DACs to discuss their thoughts on how the benefits should be identified and measured. This engagement will be valuable for setting the approach for tracking DAC benefits and ultimately evaluating whether 40% of the program benefits are directly or indirectly accruing to DACs. This engagement will also be important for understanding the potential for workforce development, the potential barriers for effective deployment and use of the infrastructure, and the potential to adjust the program to better suit the needs of every community member.

Kentucky’s Electric Vehicle Infrastructure Deployment Plan

KYTC sees value in performance-based planning and is experienced in measuring performance and reporting in accordance with U.S. DOT requirements. KYTC recognizes the emerging nature of the NEVI Formula Program and looks forward to working with DAC stakeholders and U.S. DOT to identify and measure the benefits of this program. If the program evolves to have a national standard for benefit metrics and measurement then KYTC would consider that standard. However, until then KYTC will consider the Justice40 benefits proposed in the Joint Office’s Frequently Asked Questions. This could include benefits such as (but not limited to) those shown in **Table 10.1**.

TABLE 10.1 POTENTIAL DAC BENEFIT CATEGORIES AND TRACKING METHODS

| Example Benefits Categories (to be finalized through engagement) | Potential Strategies for Tracking Benefits (Metrics, Baseline, Goals, Data Collection & Analysis Approach, Community Validation) |
|---|--|
| Improved clean transportation access through the location of chargers | Set a distance baseline and track change over time using Justice40 data, station locations, and GIS. |
| Decrease the transportation energy cost burden by enabling reliable access to affordable charging | Examine EV charging costs in Justice40 and non-Justice40 areas. Track changes over time. Confirm through engagement. |
| Reduce environmental exposures to transportation emissions | Use the Carbon Reduction Program data to set county baseline data for emissions and EV ownership. Track both over time. |
| Increase parity in clean energy technology access and adoption | Track DCFC ports per person in DAC and non-DAC areas over time. Validate through engagement. |
| Increase access to low-cost capital to increase equitable adoption of more costly, clean energy technologies like EVs and EV chargers | Track DCFC ports by DAC / county over time. Track NEVI investment by DAC / county over time. Validate through engagement with communities. |
| Increase the clean energy job pipeline, job training, and enterprise creation in disadvantaged communities | Work with state and local economic development and workforce development agencies to set a baseline and track industry changes over time. |
| Increase equitable access to the electric grid | Collaborate with utilities and DACs to track investment and changes to the grid over time. |
| Increase energy resilience | Map new DCFC stations in DACs and non-DAC areas. Collaborate with utilities and DACs to track station and grid reliability. |

During planning, KYTC used the EV Charging Justice40 Map tool to analyze Kentucky’s AFC network. This included using the location of DACs as a primary criterion for prioritizing interchanges for future NEVI funded DCFC stations along these corridors.

As the project has moved to the RFP stage, this has now become part of the proposal evaluation process. Once proposers have been awarded and contracted to build DCFC stations, KYTC can quantify the number of DAC residents in the areas surrounding the stations using the EV Charging Justice40 Map. A baseline value will be set for the program overall and progress will be tracked as new stations are constructed. Thus, the Justice40 consideration will be considered at both the site and program level. The program level assessment is discussed further in **Chapter 13**.

KYTC will also explore opportunities to enhance and measure small, minority or women-owned business utilization on NEVI projects (including Kentucky based small, minority or women-owned firms in the EV space). This is discussed in in the workforce and labor element of this plan. Existing partnerships with MPOs/ADDs and local agencies could also be explored to identify potential options for gauging statewide air quality improvements within DACs.



BENEFITS TO DACs THROUGH THIS PLAN

KYTC anticipates challenges in identifying the full direct, indirect, and cumulative benefits of this plan to DACs. While it is possible to account for charging infrastructure location in relationship to DACs, KYTC expects the benefits of this investment will go beyond the geographic location of the DCFC stations. EV infrastructure built within DACs when the area has low EV ownership provides modest benefits beyond enhancing business economy in these areas while EV owners are charging, until EV ownership increases. However, benefits to DACs can be expected if the program implementation and ongoing operations and maintenance employ residents of DAC communities, or if they include training and education as part of the program. Additionally, as registered vehicles in Kentucky transition to alternative fuels, emissions are expected to decrease, yielding positive impacts for the communities located near transportation corridors.

Other potential DAC benefits related to cost burden, transit charging, and energy resilience, were listed previously and still others could relate to grid access, increased access to low-cost capital, and increased parity in clean energy adoption. Some of these benefits are qualitative expectations and it may be difficult to quantify them reliably. However, new methods are likely to be developed as the NEVI funding program moves forward and KYTC will consider them as they become available.

With the implementation of EO 14008 for the elimination of fossil fuel subsidies, the EV plan should also address equity and equitable access to EV infrastructure, services and vehicles.



KYTC will therefore consider the following:

- + Need for the diversity of EVs inclusive of electric public transportation/transit and shared-ride vehicles especially for those disadvantaged communities that are transit dependent and not economically able to purchase EVs.
- + Strategies for engagement efforts related to rural, underserved, and disadvantaged communities and stakeholders to ensure that diverse views are heard and considered throughout the planning process.
- + Strategies for engagement efforts related to rural, underserved, and disadvantaged communities and stakeholders to ensure that the deployment, installation, operation, and use of EV charging infrastructure achieves equitable and fair distribution of benefits and services.
- + Approaches that would minimize gentrification-induced displacements resulting from new EV charging infrastructure.
- + Needs related to financial and physical/access constraints as well as potential strategies for overcoming those challenges.
- + Use of the EV Charging Justice40 Mapping Tool for:
 - Identifying disadvantaged communities and to measure whether 40% of the benefits are going to disadvantaged communities in accordance with the InterimJustice40 Guidance
 - Prioritizing access of EV charging infrastructure to serve rural, underserved, and disadvantaged communities; and
 - Identify gaps in existing service and charging station availability to rural, underserved, and disadvantaged communities in the State.
 - Reviewing equitable access and regional EV adoption rates (counties and/or major cities—vehicle registrations) considering the following:
 - State share of chargers in rural communities
 - State share of chargers in underserved, and disadvantaged communities (could use the U.S. DOT Climate and Economic Justice Screening Tool)
 - Comparative rate of EV adoption in underserved and disadvantaged communities relative to those outside of them (could use the U.S. DOT Climate and Economic Justice Screening Tool)
 - Comparative rate of EV adoption in rural communities

CHAPTER 11

LABOR AND

WORKFORCE

The NEVI Formula Program will generate substantial opportunities for equitable and accessible job creation in Kentucky’s electrical and construction trades as a network of electric vehicle chargers is planned, designed, installed, and commissioned. The NEVI Formula Program will also increase opportunities for power generation and power distribution utilities to strengthen their workforce to provide electric vehicle transportation that is convenient, reliable, affordable, and equitable. KYTC will work with the Education and Labor Cabinet (ELC), the Energy and Environment Cabinet (EEC), the Clean City Coalition and the Cabinet for Economic Development (CED) to look for opportunities to partner with universities. These would include University of Louisville (UofL), Kentucky Transportation Center at the University of Kentucky, Owensboro Technical College and the Kentucky Community and Technical College System (KCTS). Project planning, stakeholder engagement, construction, support services, and long-term maintenance will all provide robust opportunities. Kentucky is prepared to meet this opportunity through its strong utility stakeholders and powerful workforce practices.

The Commonwealth of Kentucky had a construction employment of approximately 86,100 in May 2023, approximately 4.3% of the state’s non-farm employment. The latest Bureau of Labor and Statistics research on the construction workforce notes an average annual wage of \$51,310. Within the construction industry, the development of the NEVI network will rely on labor throughout the state and will need to leverage specialty contractor services, particularly electricians.

CONSTRUCTION BY AREA

One primary finding is the heavy concentration of construction jobs in three major metropolitan areas of the state: Louisville, Lexington, and Northern Kentucky. The state’s dispersed footprint of small and medium-size urbanized areas and expansive rural areas will generate some construction activity distant from the primary centers of construction workers. Justice40 mapping highlights that proactive encouragement of local construction laborers will be needed across the state, especially in the eastern and western areas.

ELECTRICAL TRADE

The use of well-trained electrical staff will be critical to building out the NEVI network in Kentucky. Of the full construction workforce, approximately 9,210 are electricians. The state is also well prepared with 22 Kentucky-based electrical contractors that have become certified in the Electric Vehicle Infrastructure Training Program.

KYTC has integrated into the current RFP the requirement that the workforce installing, maintaining, and operating chargers has appropriate licenses, certifications and trainings in compliance with 23 CFR 680.106(j).¹ Compliance with this requirement will be verified during program implementation including station construction, operation, and maintenance.

¹ <https://www.ecfr.gov/current/title-23/chapter-I/subchapter-G/part-680>



This section of the Plan should consider the training, experience level, and diversity of the workforce that is installing and maintaining EV charging infrastructure.

LABOR AND WORKFORCE STRATEGIES

The Commonwealth of Kentucky has strong existing strategies that will enable NEVI investment to create jobs and benefits that are inclusive, local, and create a diverse and sustainable electric vehicle workforce. Workforce strategies will be coordinated with the Education and Labor Cabinet (ELC) and the Cabinet for Economic Development (CED) with the goal of expanding the sources of training, experience level, and diversity of the workforce installing and maintaining EV charging infrastructure.

The ELC has a Department of Workforce Development (DWD) that connects Kentuckians to employment, workforce information, education, and training. The agencies of the department, the Office of Vocational Rehabilitation, and the Office of Employer and Apprenticeship Services work together to provide services through the Kentucky Career Center. The Office of Adult Education is also under the direction of DWD. Stakeholder input is also being solicited from major stakeholders such as the state's utilities. In deploying NEVI, Kentucky will be able to leverage the following strengths in developing the electric vehicle workforce. These include:

- + **Leverage Statewide Workforce Initiatives:** Kentucky can leverage statewide workforce initiatives already in place to accelerate the workforce focused on the EV network. The Kentucky Cabinet for Economic Development (Team Kentucky) has several successful programs. The Work Ready Skills initiative has invested over \$200M in training facilities statewide, supports over 250 apprentice programs in multiple trades, and incentivizes students to enter one of the 60 high-demand occupations across the state's top 5 work sectors. The Bluegrass State Skills Corporation (BSSC) stimulates economic development through customized industry-specific skills/occupational upgrade training. Through Team Kentucky, the BSSC approves incentives for qualified companies through a Grant-in-Aid program and a Skills Training Investment Credit.
- + **Bolster Equity and Accessibility to the Workforce:** Team Kentucky's Career Center rewards employers for hiring individuals who have had difficulty finding work. They include the Federal Work Opportunity Tax Credit (WOTC), a state-administered federal program awarded to companies that hire people facing significant barriers to employment. Additionally, the Kentucky Unemployment Tax Credit (KUTC) program provides employers a credit of \$100 per eligible hire against Kentucky income taxes owed when they hire residents who have been unemployed for at least 60 days and remain employed full time for 180 consecutive calendar days in the tax year in which the credit is claimed. The Department of Education's Funding Opportunity Announcements will also be implemented in the strategy.
- + **Educational Collaboration:** KYTC will work with agency partners to confirm the availability of technical training and higher education in sufficient quantity and diversity to support the NEVI impact on the local workforce. The NEVI program will incorporate outreach strategies with local schools, colleges, and vocational programs to develop a pipeline of employees with skill sets needed for the deployment of the NEVI program.



The Commonwealth of Kentucky has strong existing strategies that will enable NEVI investment to create jobs and benefits that are inclusive, local, and create a diverse and sustainable electric vehicle workforce.



- + **Inclusive Input and Outreach:** The development workforce training and outreach plans will include input from diverse communities, advocacy groups, and industry organizations as well as diverse/DBE firms. KYTC will apply their tested practices to establish appropriate trainee / apprentice goals for NEVI projects. Educational collaboration as mentioned earlier will include outreach and recruitment at Historically Black Colleges and Universities (HBCUs) and Hispanic Serving Institute (HSIs) as well as diverse minority and women students to foster a broad diverse pool to address the need for a diverse local workforce.
- + **Leveraging the Energy Industry:** In October of 2021, Governor Andy Beshear, in collaboration with the EEC, announced Kentucky's energy strategy for a transitioning energy landscape, KYE3: Designs for a Resilient Economy.² KYE3 is an energy strategy wrapped in economic development and focused on resilience. The acronym KYE3 stands for energy, environment, and economic development, three issues that are inextricably linked. The strategy is built on the state's 42,797 energy related jobs, large in-state automotive employers committed to electrified transportation, and nationally recognized natural resources and destinations. The plan's initial focus is on community engagement. Communities will have the chance to:
 - Choose the goals and objectives that resonate and make sense to them,
 - Pick a partner to work with, and start working on projects, ideas, and innovations that impact your community and the Commonwealth.

The NEVI program will become a pillar of this initiative, and KYTC and EEC will leverage their combined resources to create a robust workforce to support NEVI development in partnership with communities across the Commonwealth.

² <https://kygeonet.ky.gov/StoryMaps/KyPhysiographicRegions/>

CHAPTER 12

PHYSICAL SECURITY & CYBERSECURITY



This section of the Plan should discuss how the state will address physical and cybersecurity of EV charging stations, including a discussion of changes to address compliance with 23 CFR 680.

KYTC is committed to public security, including physical security, cybersecurity, cyber resiliency, and privacy protections for all services and systems that KYTC helps develop in the communities they serve.

As the IIJA has allocated funds for deployment of EVSE, and as KYTC intends to deploy these systems to support the goal of advancing widespread EV adoption, this chapter addresses both physical security and cybersecurity. Physical security is connected to the material presented in **Chapter 8** Implementation and presents a summary of considerations on this important topic. The cybersecurity sections provide guidelines and best practices for KYTC and EVSE deployers and fulfills the intent of Presidential Memo M2209. It is also intended to meet the National Electric Vehicle Infrastructure Standards and Requirements, Final Rule, Code of Federal Regulations Section 23, Part 680 (23 CFR 680) issued on February 15, 2023, (collectively, NEVI Requirements).

PHYSICAL SECURITY AND SAFETY

The physical security and safety of people using the DCFC stations is of the highest importance. To provide that security and safety it is important that sites be well designed and meet important minimum standards. For example, the site should be designed in accordance with local, state, and federal requirements with regard to layout, signage, and traffic flow. This will promote traffic safety. Considerations that promote site security include clear lines of sight to and from the charging station, lighting, cameras, and possibly the presence of on-site staff. Having active adjoining or shared-site uses can also be beneficial. These types of safety considerations will be part of what is taken into account during the proposal evaluation process.

PRIMARY GOALS OF THE EVSE CYBERSECURITY GUIDANCE

- + Deploy secure EVSE Infrastructure within Kentucky's Transportation system. Secure is defined as:
 - Protected against physical or electronic intrusion by unauthorized persons or entities.
 - Hardened against damage or loss of service due to weather, environment, transient surge voltages, traffic incidents, etc.
 - Protected against insider threats whether malicious or inadvertent.
 - Segmented (separated) to protect against unintended damage, unauthorized access, loss of data, service availability, privacy breach etc. from unprotected connections among stakeholder partner and user systems.



- + Utilize revenue and financial systems that are compliant with the Payment Card Industry (PCI) requirements.
- + Utilize security operations that are compliant with and maintain certifications for Security Operations Center – Level 2 (SOC2) audit requirements.
- + Include requirements that a fully functional EV charging system be able to support State fleet operations and service to the private motorist, while assuring maintenance of the above secure environment.
 - Include physical and electronic resiliency
 - Require that Security by Design be implemented in each project

CURRENT CYBERSECURITY STATE OF THE INDUSTRY

According to a September 2021 joint report by Sandia National Labs and the U.S. Department of Energy by Johnson and Slezak (2021) “... there is no comprehensive EVSE cybersecurity approach and limited best practices have been adopted by the EV/EVSE industry.”

The report (IBID) went on to state “There is an incomplete industry understanding of the attack surface, interconnected assets, and unsecured interfaces.”

NEED TO CONDUCT PROJECT SPECIFIC RISK ASSESSMENTS

Since the industry does not yet have a clear picture of the attack surfaces, each project (or group of related projects) would require a full scope risk assessment to identify the comprehensive threat surface presented by and against the elements of all stakeholder partners/users (grid operators, vehicles, OEM vendors, charging network operators, etc.).

Sandia National Labs’ Suggested Process Flow, which is a recommended approach,

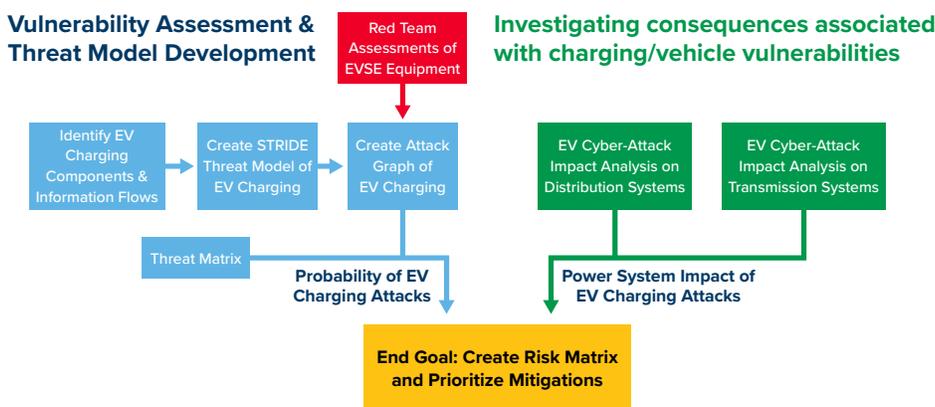


FIGURE 12.1 RISK/CONSEQUENCE PROCESS FLOWS
 SOURCE: SANDIA NATIONAL LABS

is shown in **Figure 12.1**. Sandia National Labs followed the process/task flows in conducting their research on potential risk models for EVSE.

The STRIDE Model for capturing threat surfaces (see **Figure 12.2**) was created by Microsoft and is a good tool for documenting threat surfaces based on analysis of the: Processes, Data Flows, Endpoints, Trust Boundaries, and Electrical Equipment. These key elements for analysis are identified from the architecture.



| Threat Model includes: | Threat | Desired Property |
|--------------------------------|------------------------|-------------------|
| + Process (P) | Spoofing | Authenticity |
| + Data Flows (DFs) | Tampering | Integrity |
| + Endpoint (EE) | Repudiation | Non-repudiability |
| + Trust Boundaries (dashed) | Information Disclosure | Confidentiality |
| + Electrical Equipment (green) | Denial of Service | Availability |
| | Elevation of Privilege | Authorization |

FIGURE 12.2 STRIDE MODEL ELEMENTS
 SOURCE: SANDIA NATIONAL LABS

BEST PRACTICES

MINIMUM GUIDELINES

A critical element to establishing, and achieving the expectations outlined in this EVSE Plan is following a set of best practices. The EVSE developer will follow best practices for ensuring cybersecurity of the EV infrastructure as well as requirements laid out by FHWA Joint Office guidance.

FOUNDATIONAL PRINCIPLES

Achieving the best feasible protective posture is facilitated by employing two foundational principles: Security by Design (SbD) and Defense-in-Depth (DiD).

- + Security by Design is the controlled use of established processes to build security functions, safeguards and procedures into software and systems design from project initiation, ensuring security is considered and tested throughout the entire design/engineering phase.
- + Defense in Depth is the practice of constructing cybersecurity defense via layers of protection that overlap and enhance adjacent layers. Where one layer is defeated, another is automatically implemented to step into the gap and continue defensive efforts.

FOLLOW EXISTING STANDARDS

KYTC requires compliance with all applicable national, State of Kentucky and Industry standards.

GENERAL BEST PRACTICES

A common set of recommended best practices are summarized below for the EV deployers. Details of these are available from: <https://doi.org/10.2172/1706221>

RISK MANAGEMENT

- + Establish full lifecycle risk reviews and prioritize improvements based on risk to EVSE operations.
- + Maintain updated architecture diagrams to identify critical assets, internet connections, open ports, and supported protocols.
- + Establish a process for active security patch management.

CONFIGURATION AND CHANGE MANAGEMENT

- + Create a formal process for uploading code.
- + Properly secure keys, credentials, and other secret items.

IDENTITY AND ACCESS MANAGEMENT

- + Require individual credentials for system login and don't reuse credentials.
- + Limit the use of system/maintenance accounts.

THREAT AND VULNERABILITY MANAGEMENT

- + Use a Common Vulnerability Scoring System (CVSS) to evaluate potential vulnerabilities and prioritize response.
- + Establish and regularly update a comprehensive threat profile.

COMMUNICATIONS

- + Encrypt all information internal and external to the EVSE.
- + Apply network segmentation and security systems including Intrusion Detection System (IDS), Intrusion Prevention System (IPS) and firewalls.

EVENT AND INCIDENT RESPONSE, CONTINUITY OF OPERATIONS

- + Implement Information Security Continuous Monitoring (ISCM) per National Institute of Standards and Technology Special Publication (NIST SP) 800-137.
- + Establish protocols and procedures for immediate response to logs or alerts from ISCM, Security Information and Event Management (SIEM) and IDS/IPS systems.
- + Create a Security Operations Center (SOC) and maintain SOC2 certification.
- + Establish business continuity, incident response and disaster recovery plans. Conduct regularly scheduled table-top exercises, drills, and reviews to test procedures, train staff and update per technology changes.



SUPPLY CHAIN MANAGEMENT

- + Use secure shipping channels that include verification of the state of EVSE when it departs facility.
- + Specify tamper resistant seals, alarms, and other protective measures to prevent and report attempts of unauthorized access to equipment or enclosures.

WORKFORCE MANAGEMENT

- + Incorporate redundancy and cross function capabilities for critical roles.
- + Evaluate competence of staff with periodic social engineering (phishing), audits, etc.

CYBERSECURITY PROGRAM MANAGEMENT

- + Mature a cybersecurity program strategy with clear priorities and governance model.
- + Include a “safe” environment for anonymous or protected means to report violations or vulnerability concerns.

CYBERSECURITY REFERENCES

The list of references below is limited to those from quotes, summarizations and infographics that were drawn in creating this chapter. Several other documents, articles, and subject matter expert (SME) resources were also consulted in forming the consensus of this chapter.

Harnett, K, Watson, G, and Brown, G, November 2019. Government Fleet and Public Sector Electric Vehicle Supply Equipment (EVSE) Cybersecurity Best Practices and Procurement Language Report, DOT-VNTSC-NAVY-20-01, Prepared by United States Department of Transportation Volpe Center and Prepared for: Department of Navy, Naval Facilities Engineering Command (NAVFAC), Public Works Business Line, Transportation Product Line. Available from: https://ntlrepositary.blob.core.windows.net/lib/68000/68700/68702/Navypublic_Version_EVSE_Cybersecurity_FINAL_November_21_DOT_Library_VersionV4.pdf

Johnson, J and Slezak, L in a report for U.S. Department of Energy, Securing Vehicle Charging Infrastructure, SAND2020-11971R, September 30th, 2021. Available from: <https://doi.org/10.2172/1706221>

Anderson, B January 2020, SAND2020-0818C Securing Vehicle Charging Infrastructure Against Cybersecurity Threats, Presented at Hybrid and Electric Vehicle Technologies Symposium, January 28-30, Pasadena, CA. Available from: https://www.researchgate.net/publication/339053631_Securing_Vehicle_Charging_Infrastructure_Against_Cybersecurity_Threat

CHAPTER 13

PROGRAM EVALUATION

KYTC has developed a program evaluation plan that would provide the Joint Office with data documenting the impact of the federal dollars invested in EV charging infrastructure. It would also provide the Joint Office and KYTC with metrics regarding Kentucky's progress towards its goals and the performance of the EV charging network. Working in conjunction with various public and private partners, KYTC plans to collect data and publicly report progress on its EV goals at the frequency required by the Joint Office. The frequency of data collection and sharing could be modified if required by the Joint Office. KYTC would use the information to inform network development and the installation of additional chargers based on the use and performance of chargers in the network.

A summary of KYTC's proposed preliminary approach to program evaluation is shown in **Table 13.1**. Each goal is tied to one or more performance indicators supported by metrics that measure progress towards each goal. During the program implementation process, KYTC will set baseline values and 5-year aspirational targets for each metric. Through regular evaluations of Kentucky's charging network, KYTC could determine the most effective ways to strengthen and/or redirect its investment and overall program approach. This approach, including the metrics and how the metrics are captured or measured, may change as the EV infrastructure planning and deployment process evolves and as future guidance comes out.

To implement this program evaluation, KYTC has issued an RFP that will require station developers to comply with the NEVI requirements in 23 CFR 680. This includes the provision of the data necessary to support the program evaluation and the data that must be submitted to the Joint Office in compliance with 23 CFR 680.112.

KYTC has also selected an inspection team that will be responsible for working with the developers to obtain, process, and supply the data in the required format to KYTC for submission to the Joint Office. The inspection firm will also prepare or obtain the other metrics referenced in this chapter.

One additional step KYTC has taken is to partner with the Joint Office as part of the beta test group for the EV-Charging Analytics Reporting Tool (EV-ChART) that is being developed by the Joint Office. By being part of this group, KYTC will have a deeper understanding as to what is needed for submission, the format that is required, and methods for obtaining, processing, and delivering that data.

Program evaluation and data delivery will commence after the initial DCFC stations are constructed and operational.



This section of the Plan should describe the State's schedule and plan for evaluating performance in achieving its 5-year goals and vision.

Kentucky's Electric Vehicle Infrastructure Deployment Plan

TABLE 13.1 PROGRAM EVALUATION

| Indicator | Metric | Source | 5-Year Target |
|--|--|----------------|---------------|
| Goal 1: A corridor-based EV charging system that supports interstate and regional travel | | | |
| Network Coverage (includes minimum viable network completion) | System miles covered by EV charging stations that meet the standards outlined in this plan (miles and % of total system) | KYTC | >800 miles |
| | EV charging infrastructure, meeting NEVI minimum standards and requirements, is installed every 50 miles along the State's portion of the Interstate Highway System, where no exceptions have been granted (yes/no) | KYTC | |
| | Total chargers per federal NEVI dollar invested (rate per million USD for Level 2 and DCFC chargers) | KYTC | |
| | Charging stations meeting NEVI guidance minimum standards (number) | KYTC | |
| | Charging stations meeting KY minimum standards (number) | KYTC | |
| Goal 2: A local EV ecosystem that serves Kentucky's communities and travelers | | | |
| Network Access | Residents within 15 miles of EV charging stations installed using NEVI funds (count and % of state total) | KYTC | |
| | Residents within 50 miles of EV charging stations installed using NEVI funds (count and % of state total) | KYTC | |
| | Average waiting time for an available charger <i>*if data is available (minutes)</i> | Owner operator | |
| Job Creation and Workforce | KYTC will work with the Education and Labor Cabinet (ELC) to define a relevant metric for future measurement | ELC | |
| Customer Satisfaction | Percent of EV owners willing to recommend EVs to others | KY Non-Profit | |
| Goal 3: A comprehensive system that supports transportation choices for all of Kentucky's residents | | | |
| Equity | Rural and Justice40 residents within 15 miles of EV charging stations installed using NEVI funds (count and % of state total) | KYTC | |
| | Rural and Justice40 residents within 50 miles of EV charging stations installed using NEVI funds (count and % of state total) | KYTC | |
| | Justice40 benefits <i>*Will be determined during program development. Will be informed by community outreach to disadvantaged communities (DACs). Could include items listed in the recent Joint Office Frequently Asked Questions. publication.</i> | KYTC | |

 Priority Evaluation Metric

Table 13.1 Continued

| Indicator | Metric | Source | 5-Year Target |
|--|---|---|---------------|
| Goal 4: A resilient vehicle fueling system that can adapt to changes in market conditions and transportation technologies | | | |
| Reliability | Percent time in service (percent time available) for EV charging ports installed using NEVI funds (percent) | Owner operator | 97% uptime |
| | Stations achieving high reliability (97%) as defined by NEVI program (number of stations by owner operator) | Owner operator | |
| | Number of complaints per location (count per charging station) | Owner operator | |
| Utilization | Number of charging events (sum total by day, week, month, and year) | Owner operator | |
| | Charging energy consumed (sum DC MWh by day, week, month, and year) | Owner operator | |
| | Unique users per charging station (number by month and year) | Owner operator | |
| | Time with a vehicle connected, by location, land use and time of day (percent vehicle connection time per charger by month and year) | Owner operator | |
| Payments | State tax and fee revenue collected (sum by month and year) | KYTC, Owner operator | |
| | Average charging cost per kWh (dollar value) | Owner operator | |
| | Payments (number by subscription, app, and/or debit/credit card) | Owner operator | |
| Goal 5: A transportation system that reduces emissions and promotes clean air in Kentucky | | | |
| EV Adoption | Registered Light Duty BEVs in the state of Kentucky (count and share of registered fleet) | Kentucky Motor Vehicle Licensing System | |
| | Consumers who are considering or plan to purchase an EV in the next 5 years (percent) | KY Non-Profit | |
| | Consumers who identify a lack of charging stations as a barrier to EV purchase (percent) | KY Non-Profit | |
| Air Quality | Fuel Consumption (gallons of gasoline and diesel consumed per registered vehicle) | KYTC | |

 Priority Evaluation Metric





CHAPTER 14

DISCRETIONARY EXCEPTIONS

KYTC is not requesting discretionary exceptions with this updated plan submission. KYTC is working to build-out the AFCs in accordance with the latest NEVI guidance.

CHAPTER 15

CONCLUSION



KYTC recognizes the potential for the NEVI Formula Program to catalyze the move to electrified transportation, a once-in-a-generation opportunity to rethink transportation and its relationship to energy. The potential for this program and the economic development it could encourage is a key opportunity to train Kentucky's workforce to build, maintain, and operate the technology of tomorrow, and to use this as a chance to extend both the job and infrastructure benefits to Kentucky's underserved communities. The significant investment in electric vehicle manufacturing taking place in the state will likely spur an increased interest in the technology, the products of which will be supported by the network of DCFC infrastructure that this program is building. New vehicles and vehicle types are coming to market, expanding the appeal of EVs and further increasing the potential EV adoption in Kentucky.

The technology, the program, and the agency role are new to KYTC. The agency has worked to meet the intent and requirements of the NEVI guidance, with significant engagement and assistance from the Joint Office and FHWA. The approach is intended to balance the experience and strengths of the agency while tapping into the experience and strengths of the private sector.

This plan represents KYTC's approach with the information and experience available at this time, and the agency anticipates annual updates that reflect what has been learned in Kentucky and across the country while reflecting any change in guidance offered by FHWA, in collaboration Joint Office. The outreach and engagement process with stakeholders and the public is an ongoing process and will continue to expand. Feedback received through engagement will inform the annual updates of the plan and ensure the program reflects any feedback that could improve its implementation.

In accordance with the NEVI guidance, the plan focuses on deploying DCFC stations on the identified AFCs across the state, with the goal of serving all Kentucky residents as they make long-distance trips. The plan also sets the stage for future planning and funding that would expand the network beyond the AFCs to other priority corridors. This is an important next step once the initial AFC network is designated as built out.

This plan does not identify specific locations for chargers along Kentucky's AFCs. In its RFP, KYTC identified 17 corridor groups and is accepting proposals for locations within those corridor groups. The site selection and contracting process will be the next step in implementing the plan, and KYTC anticipates additional clarity at the end of the procurement process.

Guidance and feedback on the approach outlined in this plan are welcome by email: EVChargingProgram@ky.gov. KYTC has engaged with the Joint Office several times through the development of this plan and Kentucky's RFP. KYTC looks forward to continuing this constructive engagement that has been valuable to this effort.