CHARGE UP KANSAS

EV CHARGING INFRASTRUCTURE
NEVI PLAN UPDATE 2025

AD ASTRA PER ASPERA

Kansas

Department of Transportation

Charge Up Kansas NEVI Plan

1. Introduction

The National EV Infrastructure (NEVI) Formula Program, part of the Infrastructure Investment and Jobs Act (IIJA), provides an opportunity for historic investment in the next generation of transportation throughout Kansas and the nation. The State of Kansas will benefit from an estimated $40 million over the five years of the NEVI Program.

As required by the NEVI Program, Kansas developed and adopted the initial *Charge Up Kansas NEVI Plan* in 2022, including tactical efforts to drive equity, support disadvantaged communities, and encourage workforce development to enable electric vehicle supply equipment installation.

The *Charge Up Kansas NEVI Plan* is required to be updated each year to reflect the progress from the previous year. Kansas will identify new challenges and opportunities as it works through plan implementation activities and will incorporate those into annual plan adjustments. Kansas is committed to enhancing the access and convenience of EV users through leveraging the federal match in growing a robust, connected, and sustainable EV charging network.

Updates from FY2024 Plan

This update to the *Charge Up Kansas NEVI Plan* describes the work completed since the FY2024 plan update was submitted to the Joint Office of Energy and Transportation, as well as accomplishments since the original NEVI Plan was completed. It also discusses the challenges and opportunities identified in the past year and strategies undertaken by the Kansas Department of Transportation (KDOT) and its partners to support EV infrastructure deployment.

This plan update focuses on plan sections where KDOT has updated its approach or may provide updated information. **Updated plan sections include:**

- State Agency Coordination
- Public Engagement
- Plan Vision and Goals
- Contracting
- Civil Rights
- Existing and Future Conditions Analysis
- EV Charging Infrastructure Deployment
- Implementation
- Equity Considerations
- Physical Security & Cybersecurity
- Program Evaluation
- Discretionary Exceptions

Other plan sections are included to provide context to the full system for development and deployment of EV charging statewide.

2. State Agency Coordination

KDOT continues to coordinate with other Kansas departments and agencies, with local governments, utilities, other stakeholders, and agencies in other states to effectively carry out the requirements of the NEVI program.

Clean Transportation Council

The Clean Transportation Council (CTC) is a working group comprised of multiple state agencies meeting bi-monthly to lead the clean transportation transition in Kansas, including electrification as well as deployment of hydrogen, compressed natural gas, and other alternative fuels. The CTC recognizes the importance of cross-sector collaboration on this topic and serves as an advisory committee for updates to the *Charge Up Kanas NEVI Plan*. CTC membership currently includes members from the following state agencies and departments:

- Department of Administration
- Department of Agriculture
- Department of Commerce
- Department of Health and Environment
- Department of Revenue
- Department of Transportation
- Department of Wildlife and Parks
- Kansas Corporation Commission
- Kansas Highway Patrol
- Kansas Historical Society
- Kansas Turnpike Authority
- FHWA Kansas Division Office

3. Public Engagement

The Charge Up Kansas NEVI Plan was developed on a foundation of public outreach and engagement to ensure the plan incorporated a wide range of perspectives and addressed charging infrastructure needs faced by Kansans and Kansas communities. Engagement since the completion of the FY2025 Charge Up Kansas NEVI Plan has focused on changes regarding the plan's goals and performance measures and the NEVI Program's Request for Proposals process.

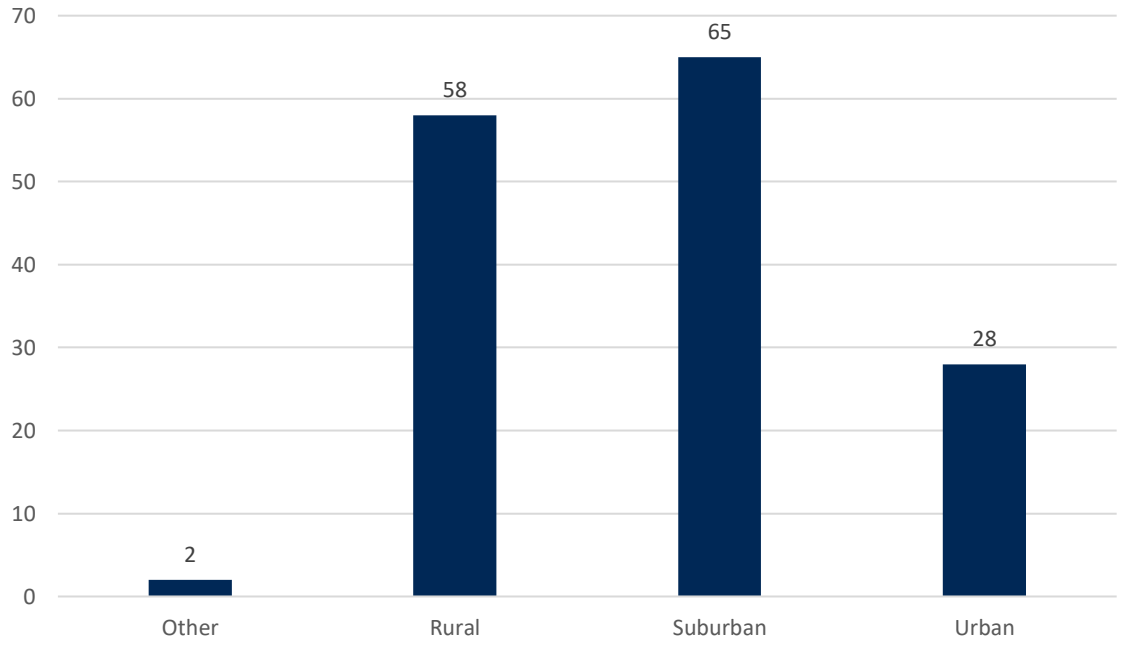
Community Engagement Outcomes Report

Public engagement for the FY 2025 plan update included an online story map and survey for interaction with the general public, virtual focus groups for communities, a Disadvantaged Community (DAC)-specific focus group, an electric utilities focus group, and an MPO Roundtable.

Online Survey

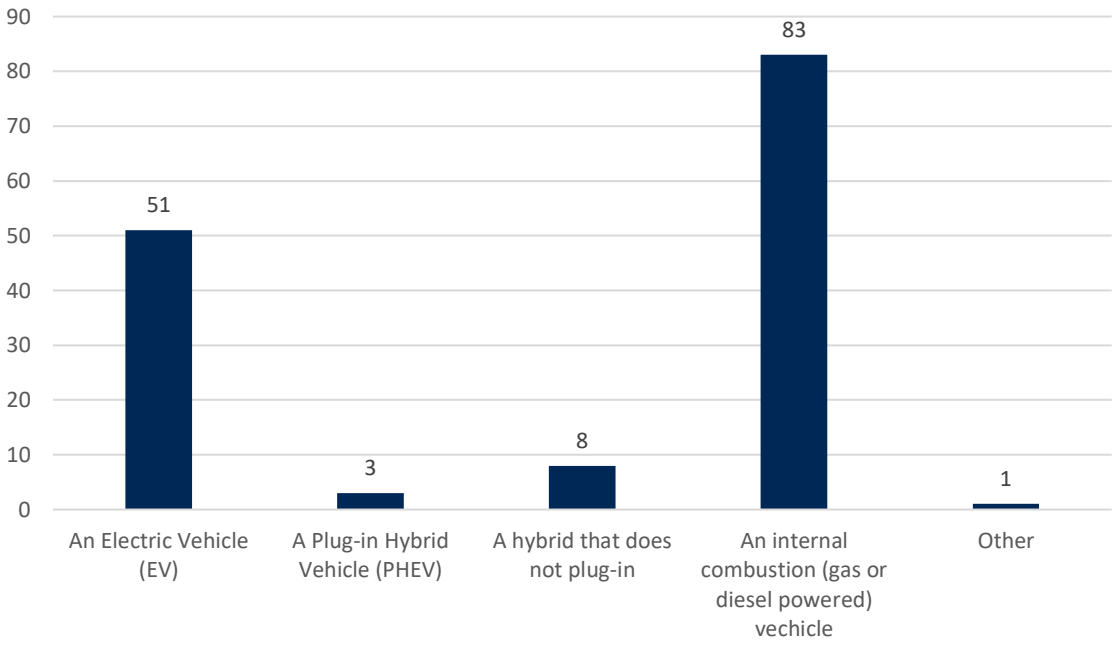
An online survey was added to the *Charge Up Kansas NEVI Plan* update to get additional responses from the community. The survey was active for approximately three months, receiving 157 responses. Figure 3-1 shows how participants describe the areas they live in, with the majority being from the suburbs and rural areas of Kansas.

Figure 3-1: How would you describe the area where you live?



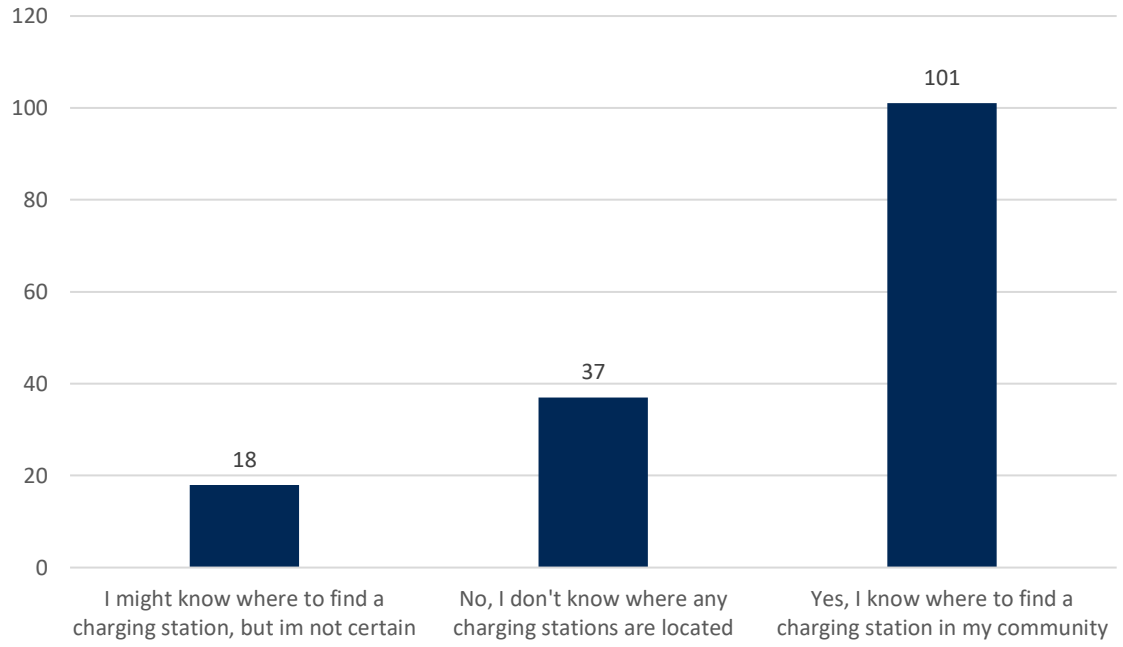
Most participants said they drove an internal combustion engine vehicle, with about 43% of those who responded to this question driving some type of EV, whether a PHEV, EV, or Hybrid, as shown in Figure 3-2.

Figure 3-2: What kind of vehicle do you currently drive?



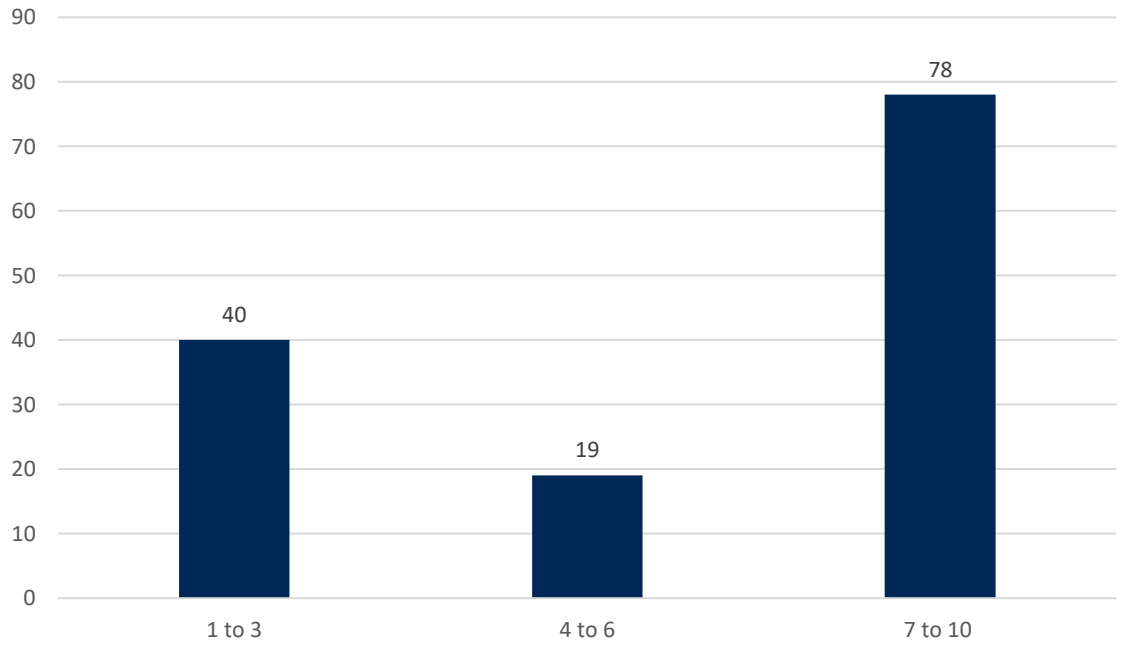
Participants were asked if they knew the location of any EV charging station in their community. About 23% of those who responded to the question said they had no idea where one would be located (this figure may also include respondents in communities where no public charging stations are available). As shown in Figure 3-3, a majority, 64%, know where to find a charging station.

Figure 3-3: Do you know the location of any EV charging stations in your community?



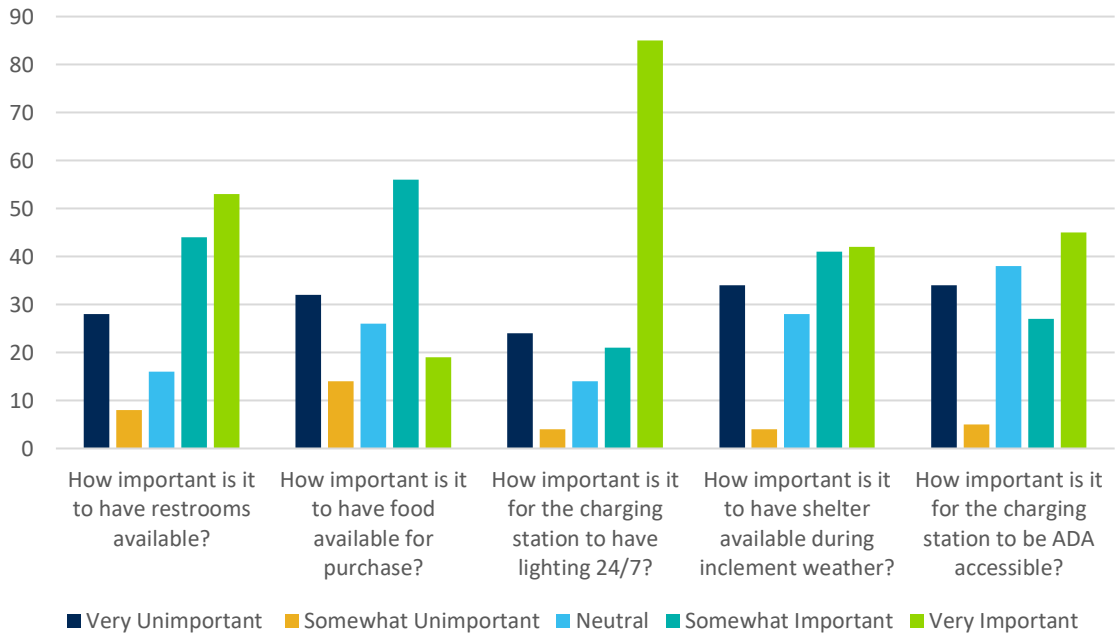
Participants were also asked to determine the importance of fast charging stations in their community. As shown in Figure 3-4, nearly 57% of those who responded to this question agree that DCFC is important for their community.

Figure 3-4: How important is it to have DC Fast Charging (DCFC) charging stations available in your community? (1 being less important, 10 being most important)



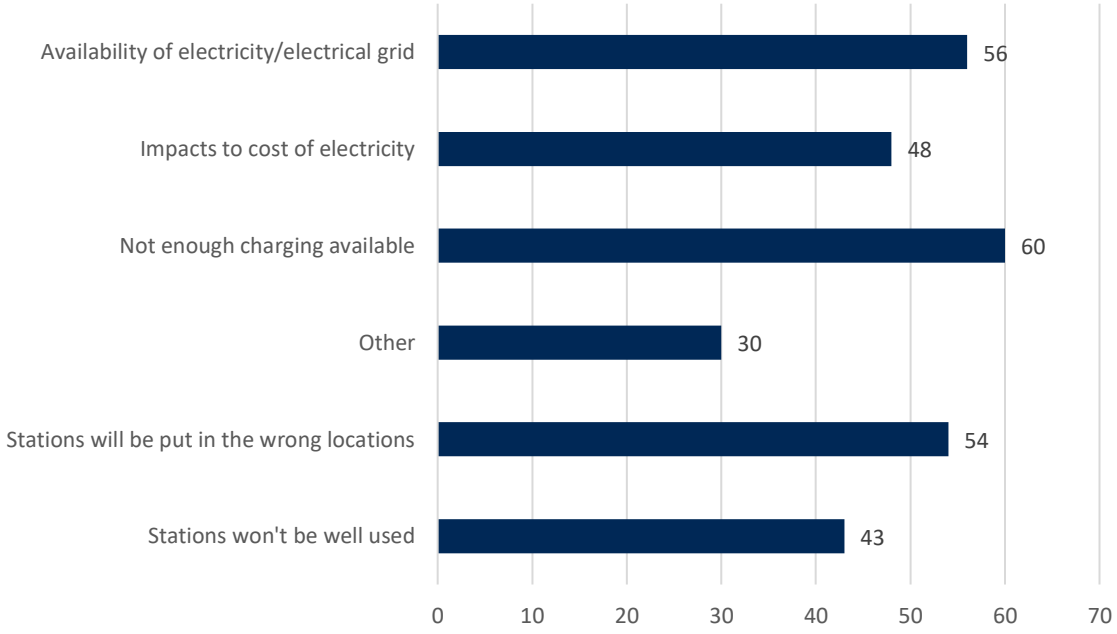
The community feedback illustrated in Figure 3-5 shows how survey participants ranked the importance of various amenities. Participants felt it was very important that the charging stations have 24/7 lighting and ranked it most important. The ranking correlates with other data collected about the community's focus on safety around these stations. Restrooms, ADA accessibility, and shelter were also indicated as important amenities. These responses demonstrate support for the KDOT NEVI program location requirements.

Figure 3-5: Importance of Charging Station Amenities



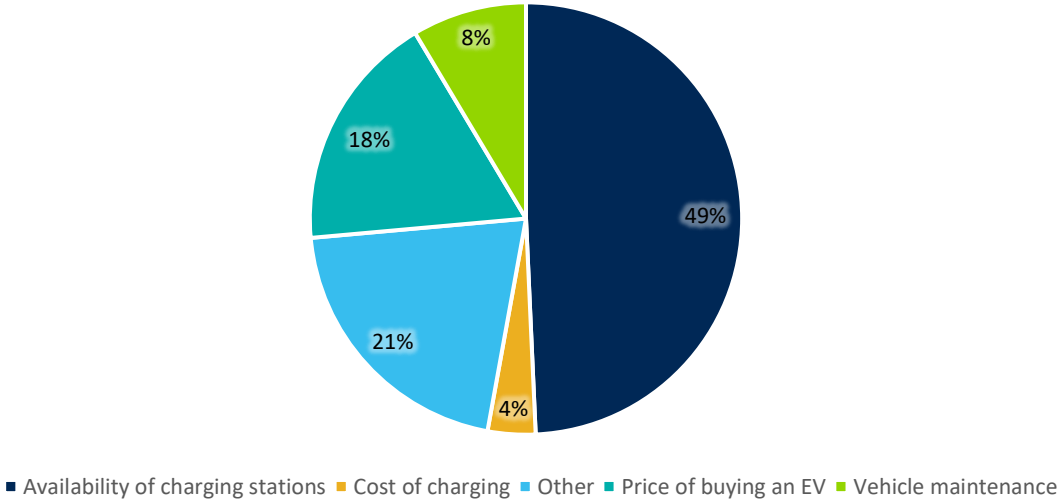
Along with community feedback on the amenities of the charging stations, KDOT also asked about perceived drawbacks or concerns about EV charging. The respondents focused on concerns related to electrical grid impacts, inadequate availability of charging stations, and placement of stations in the wrong locations. Other drawbacks or concerns listed by participants included using tax dollars for charging station build-out and the usability of stations due to vandalism or reliability issues.

Figure 3-6: What drawbacks or concerns do you have related to EV charging in your community?



The participants were surveyed on their concerns about driving an EV. Figure 3-7 demonstrates the availability of charging stations is a primary concern. Concerns listed in response to the "Other" category included the environmental impact of the manufacturing of EVs and the capacity and range of EVs.

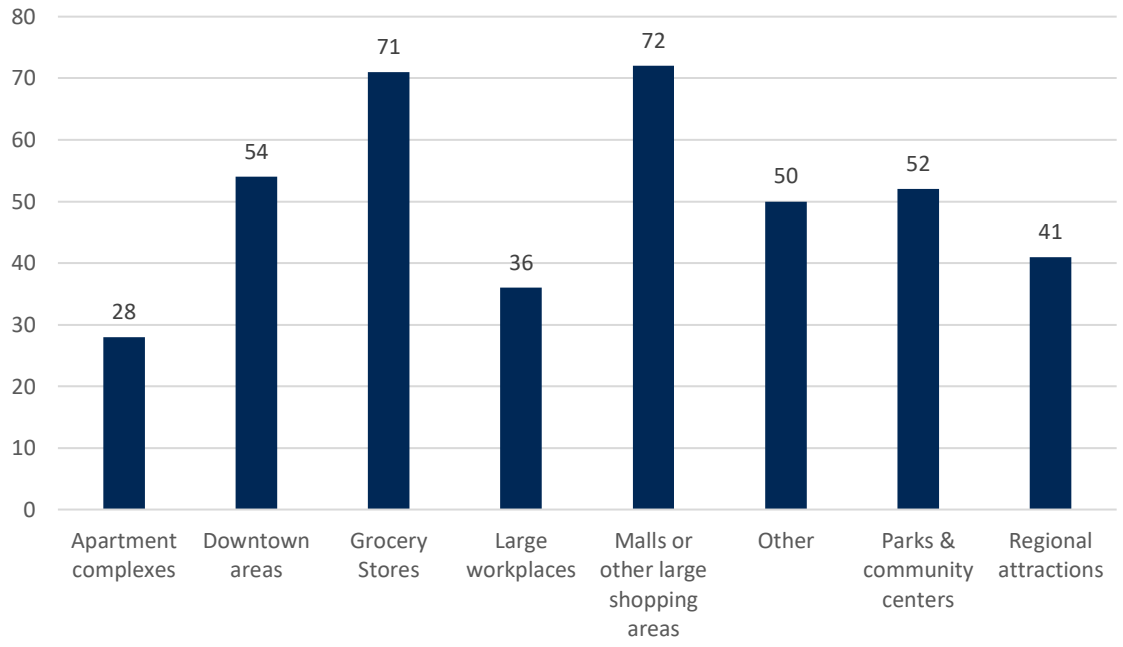
Figure 3-7: What is your biggest concern about driving an EV?



Survey participants were asked to comment on what should be considered when identifying future charging station locations. Feedback was broad and ranged from strongly in favor of EV charging such as expressing interest in higher powered DCFC and a preference for certain charging networks over others to generally opposed to EVs including beliefs that EVs are not sustainable, not a good idea, and worse for the environment than gas-powered vehicles. Responses also included location recommendations for level 2 charging stations such as smaller downtown districts to spur economic development in struggling rural areas, top destinations and tourist locations, and locations where people typically spend more than 30 minutes. Other commenters suggested that wind turbine energy should be used to power the charging stations and that charging stations should be inviting and have some form of security to deter vandals. Though many of these concerns, such as security and charging levels, are addressed with RFP requirements others, such as recommendations for locations of level 2 charging stations, will be considered as potential targets for RFPs once NEVI funding can be used for off-corridor locations.

Respondents were asked to indicate the types of locations they felt would be best for DC fast charging stations. Figure 3-8 demonstrates strong support for stations located near grocery stores, malls, or other large shopping areas. In addition to the listed responses, participants also added other options they felt were important EV charging locations, such as gas stations, rest stops, and areas near highways or interstates.

Figure 3-8: What kinds of locations do you think are best for DC fast charging stations in your community?



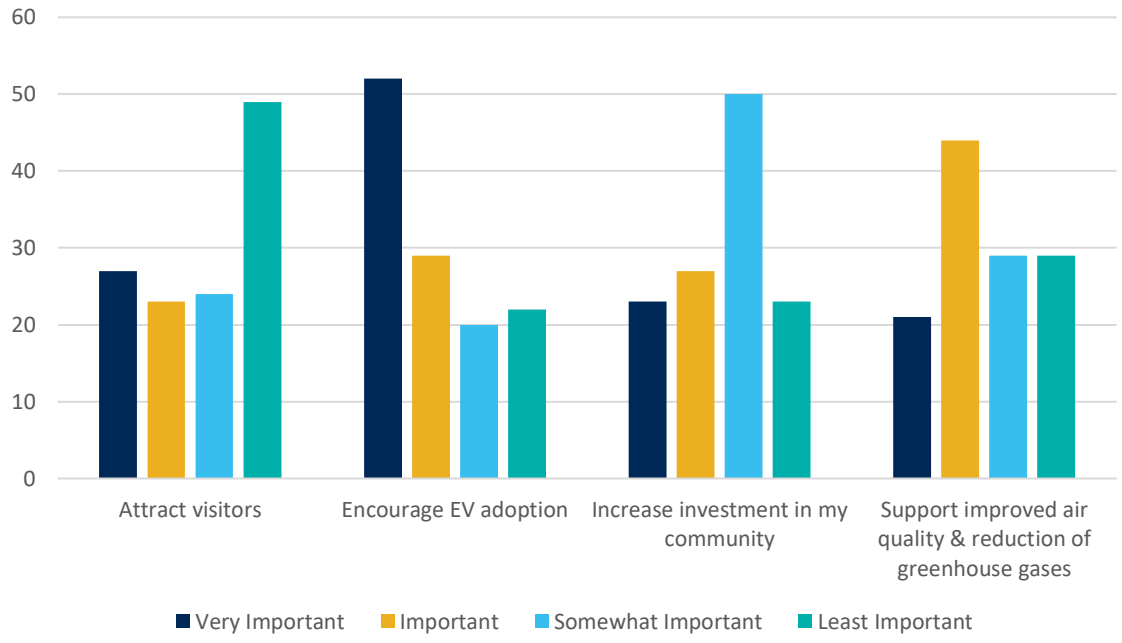
KDOT will use this feedback as it develops a plan for charging stations after the EV charging corridors are certified as "fully built out." Though respondents indicated the above as locations for DCFC, evaluation of various sites may determine level 2 charging to be a better fit. Input from many sources will be used to determine future EV charging sites.

Survey participants were also asked what benefits they felt were most important to them in having EV fast charging stations in their communities. Figure 3-9 illustrates the majority felt the most beneficial part of EV fast stations was encouraging EV adoption. Responses also indicate an interest in community investment. Participants felt the least important benefit of EV fast-charging stations was attracting visitors. Instead, responses favored community benefits, as shown in Figure 3-9.

Overall ranking of responses to EV charging benefits:

- Encourage EV adoption - Very Important
- Support improved air quality and reduction of greenhouse gases – Important
- Increase investment in my community – Somewhat Important
- Attract visitors – Least Important

Figure 3-9: What benefits of having EV fast charging stations in your community are most important to you?



Community Focus Groups

Two NEVI Community Focus Groups meetings were held in May 2024. The first meeting, held May 24, included representatives from the Cities of Garden City, Emporia, Pratt, and Greensburg and a resident of Wyandotte County. Participants in the online discussion listened to a presentation and were asked a series of questions about electric vehicle ownership, charging stations, and future needs including concerns and possible locations. Concerns included security of charging stations, distance between charging stations, and collaboration needed between a site owner and the local utility. A representative from the City of Garden City suggested working with Garden City Community College and its electrician program to encourage students to consider acquiring certification in EV charging work.

The second Community Focus Group was specifically targeted at DACs. The meeting was held May 29. Representatives from the Cities of Mulvane, Galena, Goodland, Lindsborg, and Fort Scott and the Sac and Fox Nation of Missouri in Kansas and Nebraska participated. The presentation and questions were the same as the first meeting. Most participants said the current need for EV infrastructure in their communities is low. While the City of Lindsborg does have electric vehicles in their fleet, there is not community-wide support for more. Still, attendees believe EV infrastructure, especially fast chargers, would be beneficial to help attract tourists and visitors.

MPO Roundtable

The NEVI Metropolitan Planning Organization (MPO) Roundtable was held May 17, 2024, and included representatives from the Wichita Area Metropolitan Planning Organization (WAMPO), Mid-America Regional Council (MARC), Flint Hills Metropolitan Planning Organization, Lawrence/Douglas County Metropolitan Planning Organization, and St. Joseph Area Transportation Study Organization.

When asked about EV charging implementation, the group expressed there is a lack of interest from private companies. Cities and counties are on board, but getting businesses to support EVs has been difficult.

Agencies were invited to share updates from their region.

- Flint Hills planned a June launch for surveys of businesses and the public. They hope to develop policies and recommendations for urban and rural areas. They have six stakeholder groups, a key one being Kansas State University (KSU). Flint Hills is also interested in retrofitting multi-family buildings to support EV chargers. Flint Hills is including EV myths and truths on their website to help educate the public.
- MARC is working to assemble a stakeholder committee. They anticipate some interest in EV charging infrastructure funding. They are also working to prioritize a site suitability assessment to identify how to address gaps in underserved communities. MARC included some EV related questions in one of their surveys. Some early results:
    - Likeliness to purchase – a little over 50% of people said they were not interested in purchasing an EV.
    - Cost is the number one concern, also concerns related to driving range and charging infrastructure.
    - Battery fires frequently came up in open responses.
- WAMPO would like to see more involvement from the private sector. They have a large EV stakeholder group that includes Evergy (area electric utility) and the regional airport. There is a lot of conversation around housing and adding charging to apartment complexes. The group heard comments that landlords aren't interested in providing charging. Results from an online survey and tabling events found people are concerned about the cost and range of electric vehicles and battery fires. The next step for WAMPO is addressing building codes around EV charging readiness.

The group also discussed off-corridor charging and said there is interest at KSU sporting events as well as grocery stores, gas stations, parks, and downtown areas. The group would like to meet with universities to discuss workforce training and on-campus charging opportunities.

Utility Engagement

The NEVI Utility roundtable was held online on June 18th, 2024, with representatives from KDOT, Evergy, Victory Electric, Garden City Electric, Pioneer Electric, Dodge City Electric, Prairie Land Electric, and Flint Hills Electric Co-op. During the roundtable, a presentation on the NEVI program and charging plan was given, and the attendees were asked questions about the presentation and the NEVI program.

The conversation was centered around the Utility Service Confirmation form which is part of the NEVI program RFPs. The attendees felt it helped them understand the basics of what is wanted and needed for future studies if stations are awarded. Several attendees commented the meeting was helpful for them to plan for electrical system upgrades. Specific feedback was provided on the application process and Utility Service Confirmation form. Their recommendations are as follows.

- The form should have an area where possible upgrades or extensions for service needs to the proposed station can be summarized.
- Contractors should reach out to the utilities as soon as possible so that the utility is not notified at the last minute and can give the most accurate bid estimates. (Note that KDOT encouraged proposers to contact the electric utilities well in advance of the due date to allow time for completion of the Utility Service form.)
- Proposers should include basic site plans with the Utility Service form along with any additional comments on charging station buildout.
- Contractors should promptly update electric utilities on awarded stations so supply chain issues are addressed and equipment is not delayed.
- An area for contingencies and additional cost items should be included so that proposers know there is a possibility of a complete bid change.

Attendees felt the information presented on EV ownership reflected what they have seen and know about their areas. The representative from Prairie Land Electric said there are EV buses in their area and that the lack of charging along Highway 36 negatively affects the growth and use of EVs.

When asked about concerns for providing fast charging along AFCs, participants indicated remoteness would affect the ability to provide upgrades. They said there is a need in larger rural areas because residents often travel long distances and home charging alone is not currently a viable option.

The utility representatives were asked to identify any locations that would be difficult to serve. Availability of three-phase power was a key concern for locating of DCFC stations. They indicated downtown areas could be a challenge and level 2 charging, instead of DCFC, might be more feasible. The same is true for apartments, which would be better suited for level 2 chargers because of existing service levels, parking, and the need for a three-phase power source to build out DCFC in these areas.

The roundtable attendees then shared other concerns about the NEVI program, such as setting aside capacity charge for days of peak or heavy use. Utilities are worried about the effect of multiple chargers on the grid and how not being able to build out the grid affects the cost of electricity. Concerns also included potential cost effects on utility members that don’t use an EV charging station as the service members who could be most affected would not use these stations. Participants inquired as to whether battery backup could be covered by the NEVI funds. KDOT confirmed that batteries could be an eligible cost if they helped to improve service or lower overall costs or effects to the utility grid.

Charging Industry Online Survey

An online anonymous survey was sent to all contacts who responded to KDOT's Call for Projects, Requests for Interest, or Requests for Proposals to solicit any feedback or insights from the charging industry. The survey received 16 responses. Figures 3-10 and 3-11 show some of their input.

Figure 3-10: What risks to charging station development do you see as the biggest hurdles to developing a statewide charging network?

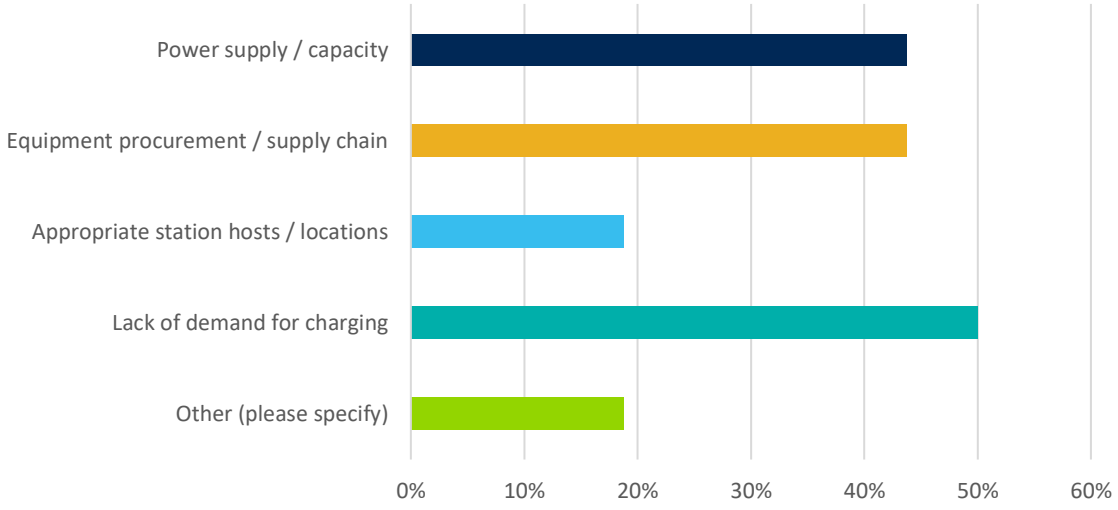
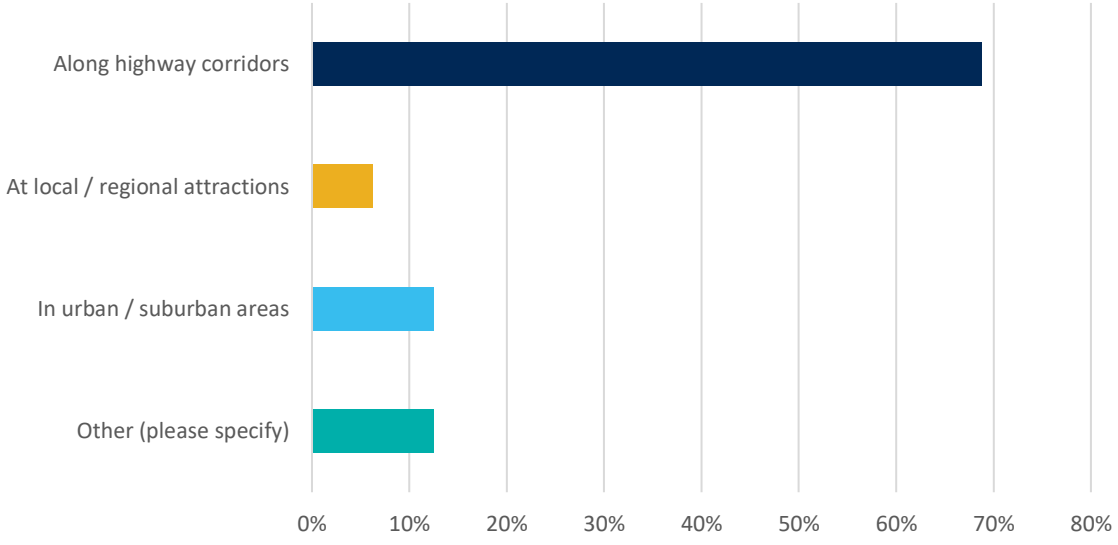


Figure 3-11: Where do you believe customers most want to see more charging?



Industry identified a minimum of 4-5 charging sessions per day as necessary to attract private development. Additional future-proofing considerations include the potential installation of additional conduit that might support adding charging ports without requiring concrete cutting or flatwork.

Industry partners also noted that the current Request for Proposals process is too laborious for small businesses and suggested shifting to a one-step process with a longer open period to increase access.

General Outreach

Since the FY2024 NEVI plan update, KDOT representatives have presented updates on the state of EV charging in Kansas and the rollout of the NEVI plan at various community and professional events. These events give us the opportunity to share KDOT's plans for EV charging and interact with the public to gather feedback and learn about needs, goals, and concerns related to EVs and charging infrastructure.

Date(s)	Event/Organization	Location	Included DAC Stakeholders?
August 1-2, 2023	KDOT Innovative Technology Summit	Salina	
Saturday, September 9, 2023	Climate Action KC Summit	Kansas City	Yes
Thursday, Sept 21, 2023	Kansas Member Services Directors Association	Manhattan	Yes
Saturday, September 30, 2023	Drive Electric ICT National Drive Electric Week Event	Wichita	Yes
Wednesday, May 1, 2024	American Society of Civil Engineers - Wichita Branch	Wichita	Yes

4. Plan Vision and Goals

KDOT's Vision for the *Charge Up Kansas NEVI Plan* is to:

> Establish Kansas as a leader in the development of a convenient, affordable, reliable, and equitable EV charging network that supports:
> - the sustainable movement of goods and people throughout the state and nation,
> - the modernization of transportation infrastructure, and
> - the promotion of investments in Kansas communities and places.

This Vision is unchanged from the 2022 Plan. Each element of the Plan's Vision corresponds to specific goals and performance measures, identified below. The Goals are largely unchanged from the 2022 Plan, with Goal #2 updated to better align with the scope of the Charge Up Plan.

Vision and Goals

Sustainable movement of goods and people throughout the state and nation

Goal 1: Collaborate with partner states to provide a seamless charging experience for EV drivers

Goal 2: Eliminate 'availability of charging' as a barrier to EV adoption

Goal 3: Support improved air quality and reduction of greenhouse gas emissions

Modernization of transportation infrastructure

Goal 4: Build out electric Alternative Fuel Corridors (AFCs)

Goal 5: Integrate EV infrastructure planning into other modal planning efforts

Goal 6: Leverage other electrification funding opportunities such as fleet modernization and EV workforce development

Promote investments in Kansas communities and places

Goal 7: Provide equitable access/investments in Disadvantaged Communities

Goal 8: Modernize the electrical grid (where required to support equitable access)

Goal 9: Facilitate data sharing on EV charging

Performance Measures

The Charge Up Kansas NEVI Plan established five performance measures for tracking progress toward the Plan's goals. Performance measures include both leading and lagging indicators of progress.

Measure 1: Number of registered EVs

The number of registered EVs in Kansas has grown steadily since 2013, according to vehicle registration data from the Kansas Department of Revenue (KDOR) and data available from the Alternative Fuels Data

Center (AFDC). Given that the availability of charging is a key concern for drivers, increased charging infrastructure will indirectly support EV adoption. While no NEVI-funded charging stations have started operations since the 2022 plan was completed, other charging stations, including DCFC stations supported by Kansas's VW Settlement Funds, have been completed.

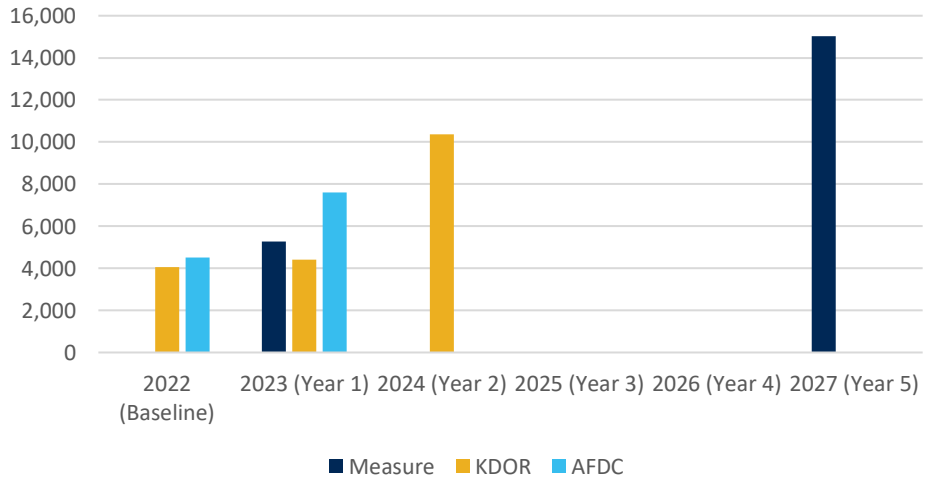
The number of registered EVs is considered a lagging indicator of the charging environment. KDOT does not administer any programs that directly support EV adoption, but range anxiety and the lack of EV charging can prevent drivers from choosing an EV over an internal combustion engine vehicle.

Data on the number of EVs registered in Kansas is available from the AFDC and KDOR. Data from both sources is more fully presented in Section 7, Existing and Future Conditions Analysis. Data available from the AFDC is derived by the National Renewable Energy Laboratory based on vehicle identification numbers; counts are rounded to the nearest 100 vehicles. Data available from KDOR was not consistently collected prior to 2023. Both data sources shown in Figure 4-1 indicate increasing numbers of EVs registered in Kansas.

Figure 1-1: Number of Registered EVs

Year	Projected Measurement	KDOR Data	AFDC Data
2022 (Baseline)	n/a	4,046 registered EVs (2021)	4,500 registered EVs (2021)
2023 (Year 1)	5,260 registered EVs	4,398 registered EVs (2022)	7,600 registered EVs (2022)
2024 (Year 2)		10,353 registered EVs	
2027 (Year 5)	15,022 registered EVs		

Figure 4-2: Registered EVs



Measure 2: Charging Station Uptime

Uptime will be measured based on the formula set by 23 CFR 680.116, establishing that "a charging port is considered 'up' when its hardware and software are both online and available for use, or in use, and the charging port successfully dispenses electricity as expected." At the time of this plan's development, no NEVI-funded stations are yet operational. Therefore, comprehensive data on uptime for existing charging stations in Kansas is not available.

Figure 4-3: Charging Station Uptime

Year	Quantified Target	Performance Measurement
2022 (Baseline)	n/a	n/a
2023 (Year 1)	97% uptime by the end of the first year of service	n/a
2027 (Year 5)	97% total uptime	

Measure 3: Percentage of total mileage designated as EV Corridor Ready

Designated Electric Vehicle AFCs in Kansas include I-70 from the Missouri border to the Colorado border, U.S. 400 from the Missouri border to the Colorado border, I-35 from the state line in Kansas City to the Oklahoma border, U.S.81 from the Nebraska border to I-70, I-135 from I-70 to I-35, and I-335 from Topeka to Emporia. In total, these routes span 1,584.76 miles. At the beginning of the NEVI Program in 2022, only 68.61 miles were designated as EV Corridor Ready. The goal of this plan is to have all routes designated EV Corridor Ready for their entire lengths. Without any new NEVI charging stations constructed and operational, KDOT has not applied for any changes to corridor status.

Figure 4-4: Miles Designated EV Corridor Ready

Year	Quantified Target	Performance Measurement
2022 (Baseline)		68.61 miles EV Corridor Ready
2023 (Year 1)	140 additional miles designated EV Corridor Ready (13%)	68.61 miles EV Corridor Ready
2027 (Year 5)	1,584.76 miles designated EV Corridor Ready (100%)	

Measure 4: Number of charging stations in Disadvantaged Communities

Annual updates of this plan will measure the number of charging stations developed in Disadvantaged Communities, as defined by the Climate & Economic Justice Screening Tool. As discussed in Chapter 5, Contracting, KDOT announced conditional awards for the first six NEVI-funded charging stations in Kansas in January 2024. Of the first six NEVI stations awarded, five are in DACs; these include the new stations announced in Garden City, Pratt, Fredonia, Emporia, and Cherokee.

5 new charging stations located in Disadvantaged Communities

Measure 5: Dollar amount leveraged as local match, in Disadvantaged Communities and statewide

Annual updates of this plan will measure the dollar amount leveraged as local match for the implementation of charging infrastructure and will track this figure in both Disadvantaged Communities and statewide. Our first six NEVI-funded stations leveraged an additional $1.2 M in private matching funds.

Strategy Post Corridor Build Out

Once all EV alternative fuel corridors are certified as "fully built out," KDOT intends to use remaining NEVI funds to support community charging across Kansas. Targeted locations will be identified from multiple sources including feedback from our 2024 survey of the general public; the Kansas EV Corridor Plan developed in 2020 which was used as the basis for Kansas' VW EVSE deployments and the NEVI plan; and input from utilities, community groups and other stakeholders.

5. Contracting

Status of Contracting Process

As of August 2024, KDOT is reviewing responses to its second round of NEVI Requests for Proposals (RFPs). Round 2 solicited proposals for 16 new NEVI charging stations across the state. Proposals were submitted on June 21, 2024, and KDOT expects to announce conditional awards for nine new locations in September 2024.

Awarded Contracts

KDOT has awarded six contracts for new NEVI charging stations funded under its first round of NEVI RFPs, which were awarded in January 2024.

Site Host	Address	Awardee
Love's 647	1356 US Highway 81, Belleville	Love's Travel Stops & Country Stores, Inc
Flying J #658	4215 W Hwy 50, Emporia	Pilot Travel Centers LLC
Pete's #47	2400 E Washington St, Fredonia	Francis Energy Charging LLC
Love's 93	3285 E US Highway 50, Garden City	Love's Travel Stops & Country Stores, Inc
Pete's #50	20 US-400, Cherokee	Francis Energy Charging LLC
Casey's #3548	1900 E 1st Street, Pratt	Francis Energy Charging LLC

Scoring Methodologies Utilized

The KDOT contracting process begins with identifying target locations for NEVI charging stations and issuing an RFP for each location. In compliance with state law and Title 23, KDOT awards funds to the lowest responsive bidder for each RFP. The RFPs can be accessed through the Charge Up Kansas webpage.

KDOT has identified minimum requirements for each NEVI-funded charging station in addition to the requirements of the NEVI Program. Proposals are reviewed to ensure they meet KDOT's minimum requirements, as well as requirements of 23 CFR 680; proposals that meet all requirements are deemed responsive. Responsive proposals are then ranked by total NEVI funds requested and the lowest responsive bid in each target location is conditionally awarded for development of the new charging station.

Following KDOT's process, no scoring methodologies are used.

Plan for Compliance with Federal Requirements

KDOT's Requests for Proposals incorporate all requirements of 23 U.S.C., 23 CFR 680, and all applicable requirements under 2 CFR 200. Awardees are required to enter into contracts with KDOT that incorporate these requirements in order to receive reimbursement for developing NEVI-compliant charging stations.

6. Civil Rights

KDOT's strategy to ensure compliance with state and federal civil rights laws as presented in the 2022 *Charge Up Kansas NEVI Plan* has not changed. Application of Title VI and other civil rights related policies to the NEVI program will be addressed through all phases of deployment from project development to implementation to monitoring and reporting with adherence to this implementation plan and all other relevant guidance and federal regulations.

ADA Compliance

KDOT is committed to compliance with the Americans with Disabilities Act (ADA) throughout its programs and projects. Developers are instructed to use the U.S. Access Board's Design Recommendations for Accessible Electric Vehicle Charging when designing charging stations.

7. Existing and Future Conditions Analysis

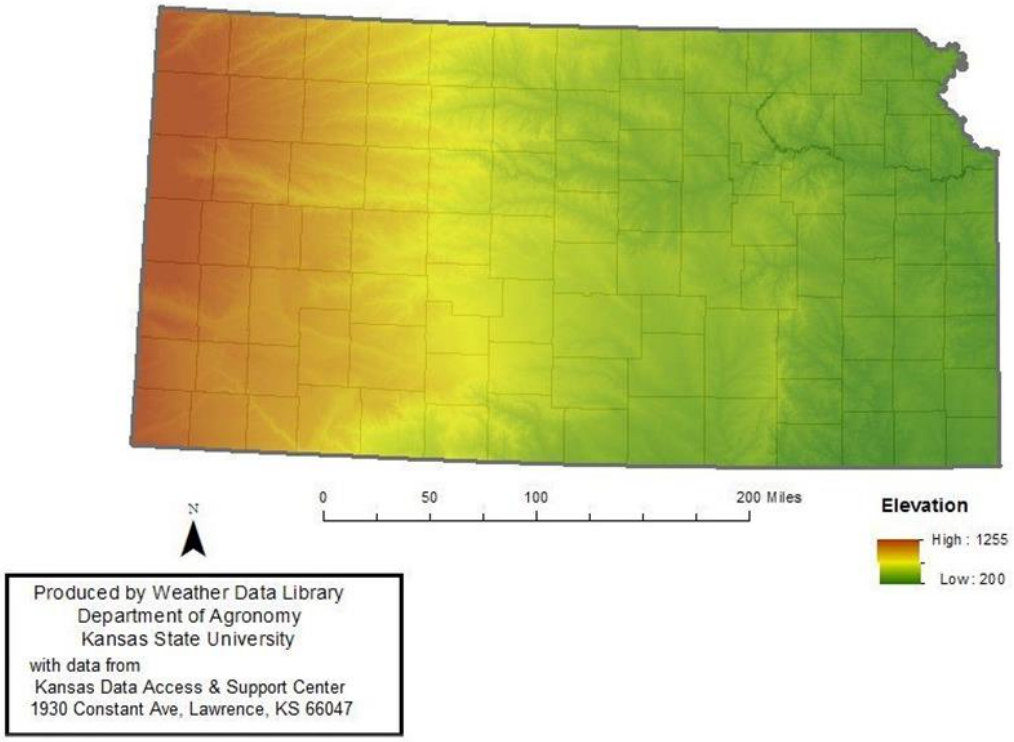
This section outlines Kansas' geography, terrain, climate, detailing current patterns in temperature, precipitation, land use, and how these variables could impact the charge of EV vehicles. Additionally, it provides details on Kansas' EV and EVSE related industry and market conditions such as EV ownership, EV availability, electric grid capacity and the utilities that serve the state.

State Geography, Terrain, Climate and Land Use Patterns

State Geography and Terrain

The state of Kansas, located in the center of the United States, is the 15th largest state in size, with 81,759 square miles of land and 520 square miles of water. It borders Nebraska to the north, Oklahoma to the south, Missouri to the east, and Colorado to the west. The state is mostly rolling plains with a mean elevation of about 600 meters above sea level. The highest point is 1,255 meters above sea level, and the lowest point is 206 meters above sea level (Figure 7-1).

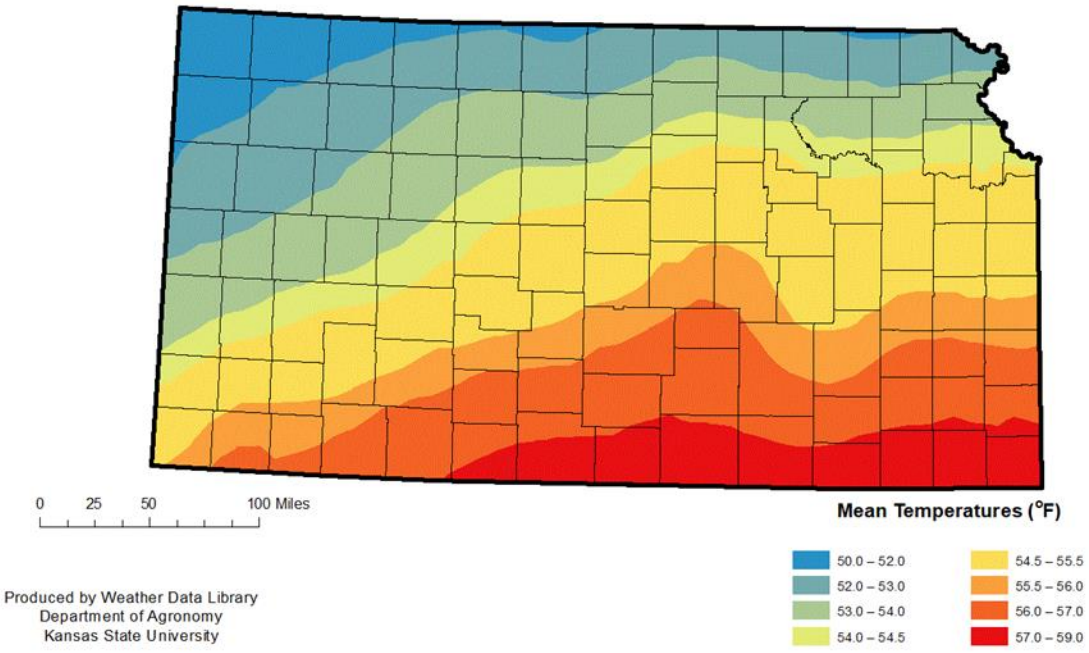
Figure 7-1: Kansas Digital Elevation (meters)



Climate

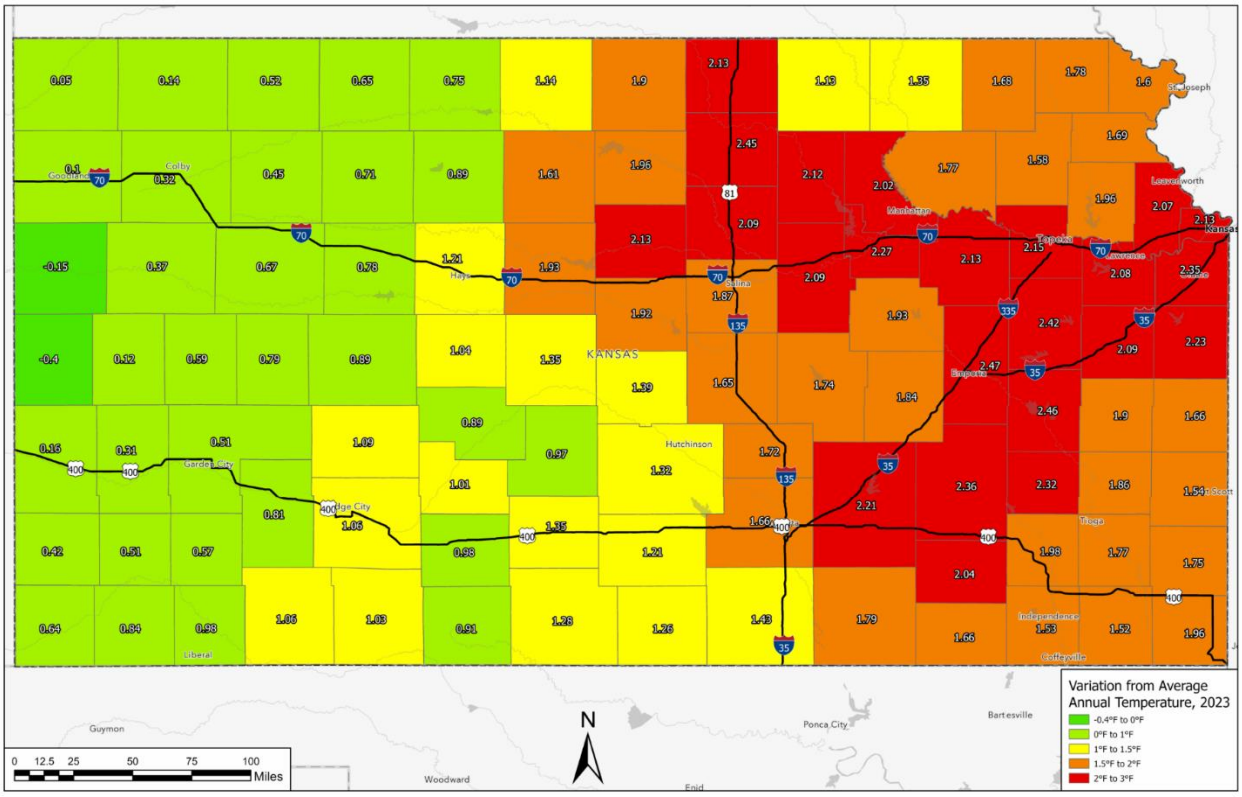
Monthly average temperatures range from a high of 92.9° F to a low of 15.7° F. The annual mean temperatures range from around 58° F along the Oklahoma border to less than 52° F in the northwestern corner of the state (Figure 7-2). The highest and lowest temperatures recorded were 121° F on July 24, 1936, in Alton and -40°F on February 13, 1905, in Lebanon.

Figure 7-2: Normal Annual Mean Temperatures (1991-2020)



Normal temperature is defined as a 30-year average and is updated every 10 years. This forms a baseline for comparison of the current conditions to a long-term period. The current normal in the U.S. is based on data from 1981- 2010. Variation from normal shows how many degrees above or below normal the average temperature was for that date or year. Negative implies below normal, while an absence of sign indicates above normal. The average 1.38° F variation from normal overall shows an average increase in temperature. Figure 7-3 shows that temperatures on the western side of Kansas were either slightly below or just above normal. Temperatures were 1.5° F or more above normal on the eastern side of the state. The highest variance is in Lyon County at 2.47° F above normal (Figure 7-3).

Figure 7- 3: Variation from Average Annual Temperature, 2023



Source: NCEI Climate Mapping (2024) Kansas State Weather Data Library. (2024). Monthly Temperature [Data Set].

Annual precipitation, based on 1991 to 2020 information, varies from more than 45 inches in southeastern Kansas to less than 18 inches in southwestern Kansas (Figure 7-4).

Figure 7- 4: Normal Annual Precipitation (1991-2020)

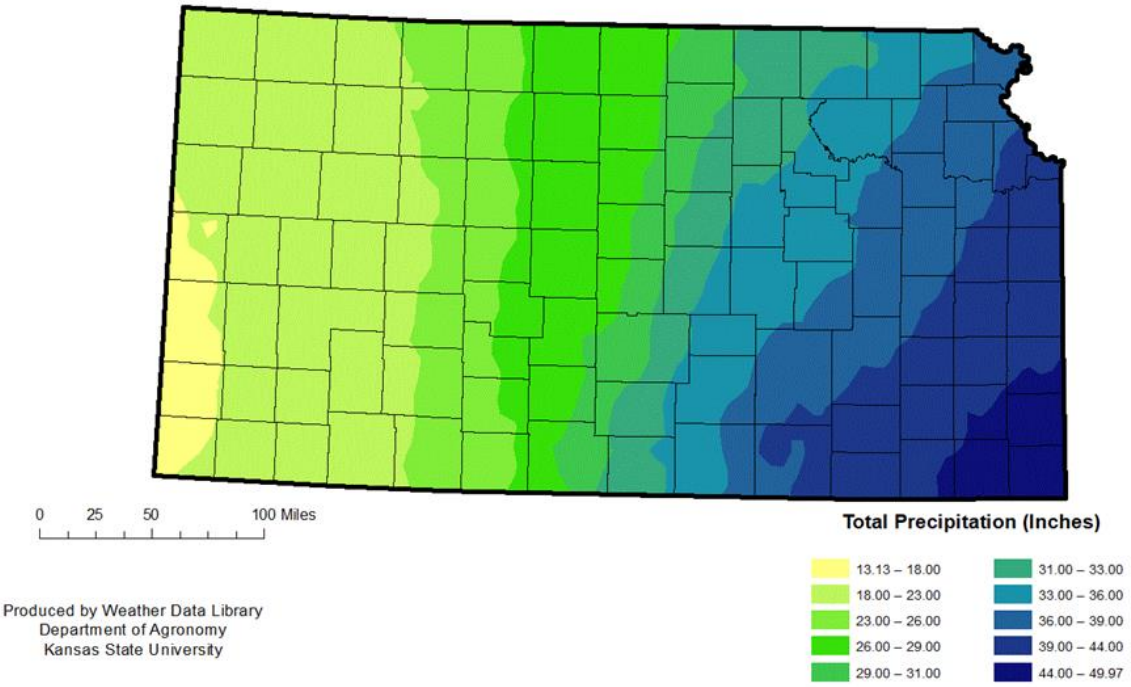
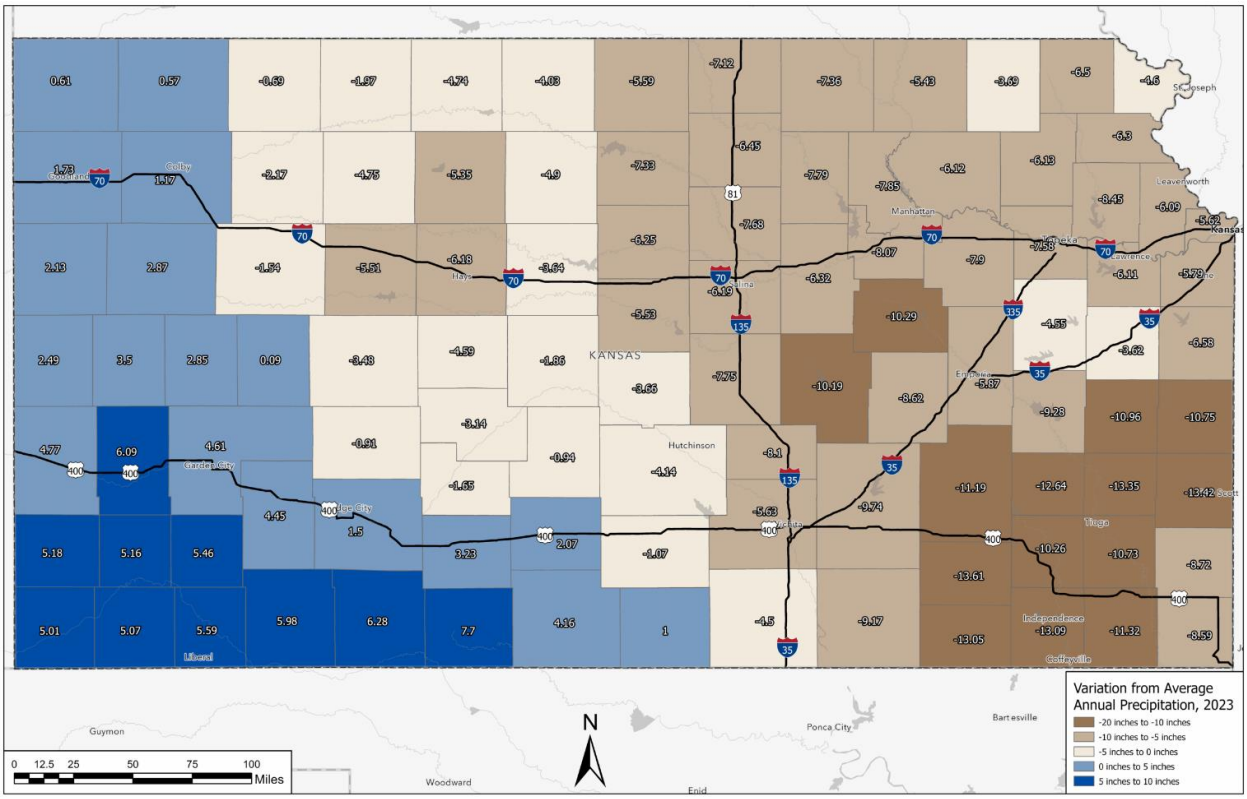


Figure 7-5 shows the 2023 precipitation variation from average compared to the 30-year calculated normal from 1981-2010. Numbers above zero show an increase in total precipitation for 2023, and negative numbers show a decrease in precipitation. A statewide average -3.91 inches variation from normal precipitation totals shows a decrease in overall precipitation totals for Kansas in 2023. Western and particularly southwestern Kansas showed increased precipitation in 2023 with Comanche County showing the largest increase, with a 7.7-inch variation. Central and eastern Kansas had decreased precipitation amounts for 2023, with the largest shortage in Elk County, with a variance of –13.61 inches.

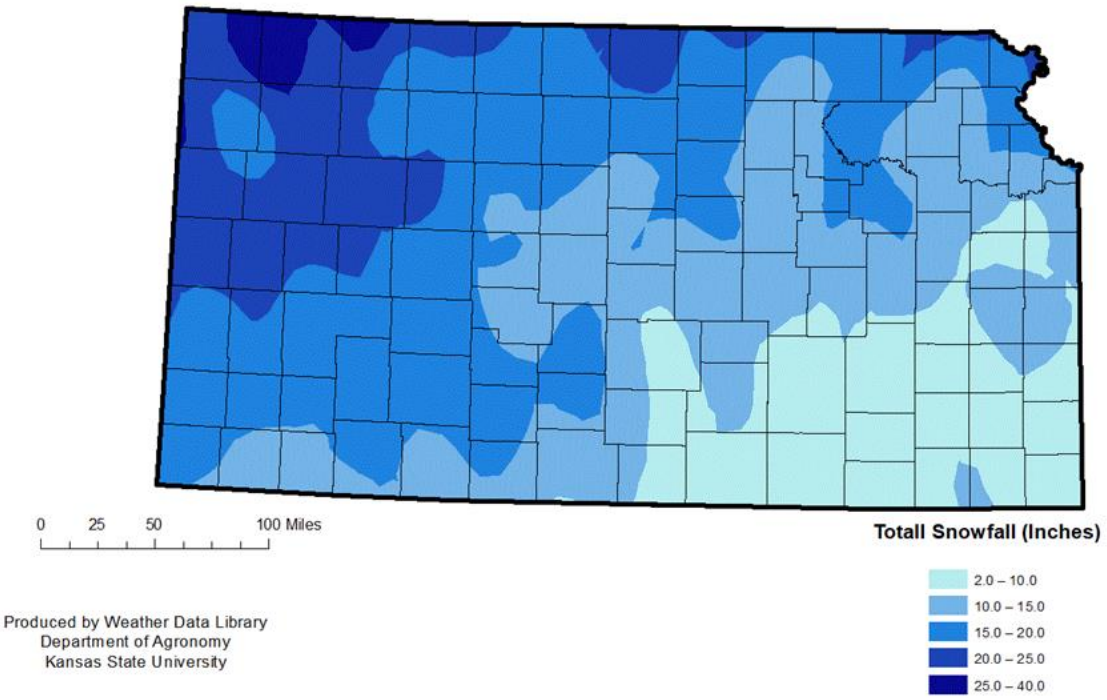
Figure 7- 5: Variation from Average Annual Precipitation, 2023



Source: NCEI Climate Mapping (2024) Kansas State Weather Data Library. (2024). Monthly Precipitation [Data Set].

The normal annual snowfall shows a pronounced gradient from northwest to southeast. Winter moisture in the southeast is more likely to come in the form of rainfall rather than snowfall. The highest normal annual snowfall is in the range of 25 to 40 inches, while the lowest annual normal values are less than 12 inches. Amounts vary widely from year to year (Figure 7- 6).

Figure 7-6: Normal Annual Snowfall (1991-2020)

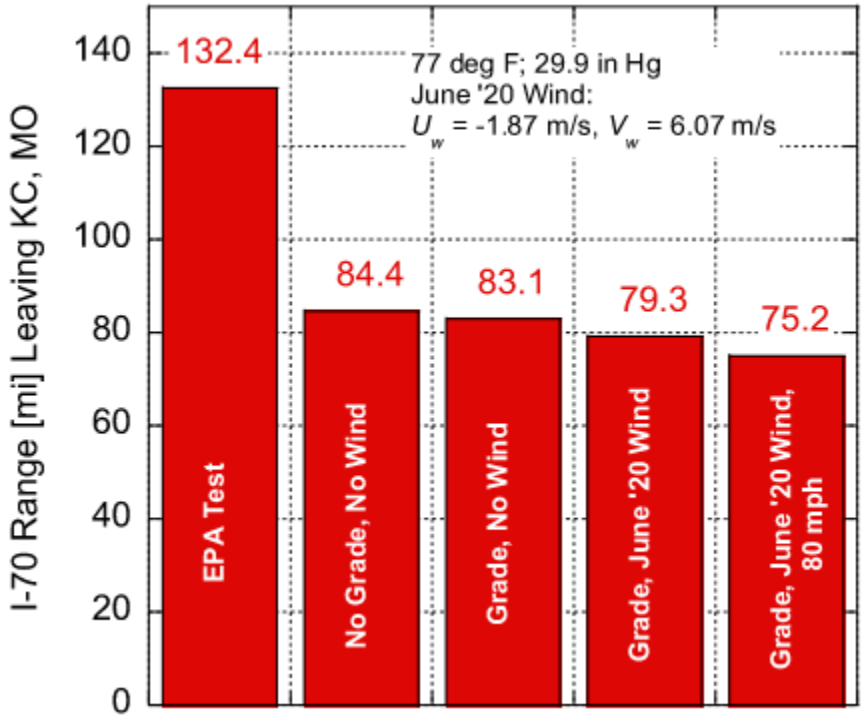


Data on weather and climate are collected and tracked by Kansas State University as a part of the National Mesonet system of reporting weather. According to the *2023 Kansas Weather: The Year in Review* from Kansas State University, the Mesonet Extremes section of the report indicated the minimum temperature in Kansas was in Cheyenne County at -11° F and the maximum temperature for 2023 was 115° F in Manhattan. The year's highest wind speed was in Haskell County at 83 mph. Elk County had the highest yearly average wind speed at 8.7 mph. Kansas experiences a range of extreme weather and temperatures which ultimately impacts the range of EVs and the rate of charge at EV charging stations.

Climate and Terrian Influence on Charge

Overall, Kansas has a temperate climate with multiple days of snow and freezing temperatures in winter and high heat, tornadoes, and rain in summer. It is important to consider the diverse climate and weather events for proper operations and maintenance of EV charging infrastructure. Planning for extreme weather events is crucial, as heavy snowstorms and tornadoes can cause power outages. Planning for electrical grid resiliency is further addressed in the Grid Capacity section. Since temperature extremes impact battery performance and a vehicle's range, strategic placement and deployment of charging stations and other related services should also be considered. The Electric Vehicle Simulation Based on Kansas-Centric Conditions Report from The University of Kansas studies the influence of road grade, wind, vehicle speed, and vehicle heating, ventilation, and air conditioning (HVAC) use on vehicle range. Figure 7-7 illustrates the influence of road grade, wind, and vehicle speed on the range of a Nissan Leaf at the EPA-tested ambient conditions. The graph demonstrates a 43.2% loss in range due to a combination of wind, grade, and 80mph vehicle speed.

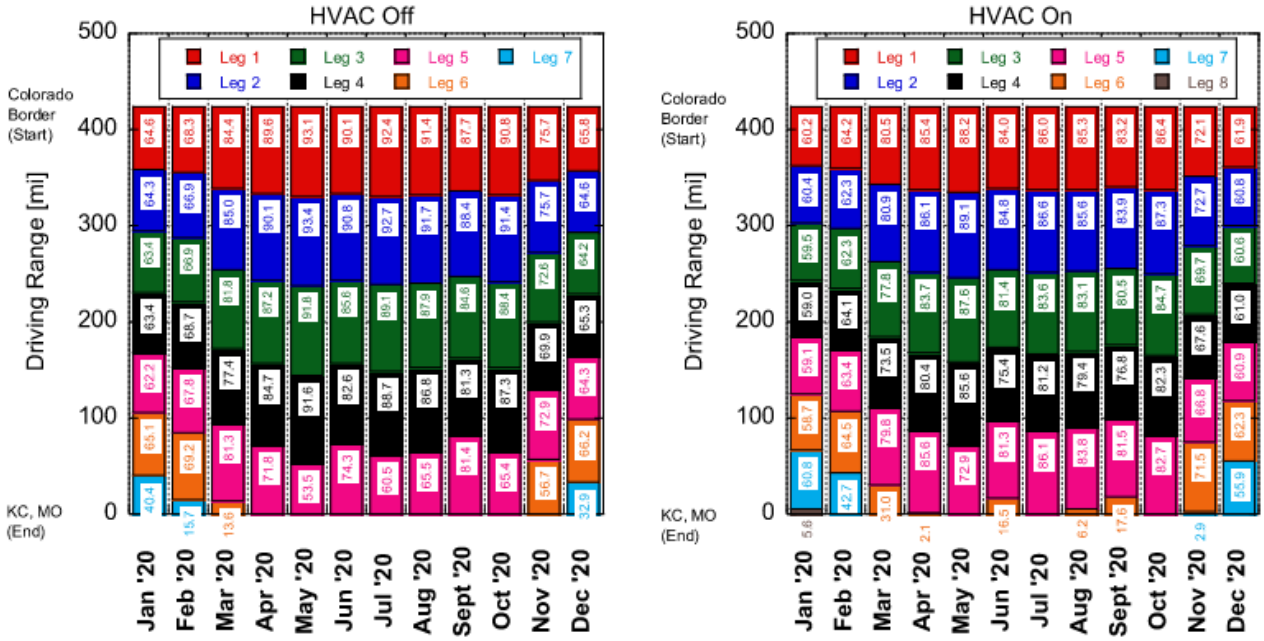
Figure 7-7: Influence of Road Grade, Wind and Vehicle Speed on the Range of the Nissan Leaf



Source: Electric Vehicle Simulations Based on Kansas-Centric Conditions, University of Kansas, Department of Mechanical Engineering

Along with the influence of road grade, wind, and vehicle speed on the charge range, the use of an HVAC system was also studied. Figure 7-8 illustrates how HVAC system use throughout the year affects range and frequency of recharging. Heating and cooling the vehicle requires an expenditure of power decreasing vehicle range and increasing the need to recharge. Compared to having the HVAC system off, having the system on resulted in a 15-20% decrease in vehicle range. Figure 7-8 shows the effect of typical wind drag from month to month, showing the difference in leg length and number of recharges needed. With the HVAC system off, the vehicle needed about seven legs in January and February, with 69.2 miles being the longest leg. This differs from July and August, which showed the need for five legs, with 92.7 miles being the longest leg.

Figure 7-8: Nissan Leaf Traveling from the Colorado border to Kansas City, MO on I-70 East with the (Left) HVAC system off and (Right) HVAC system on

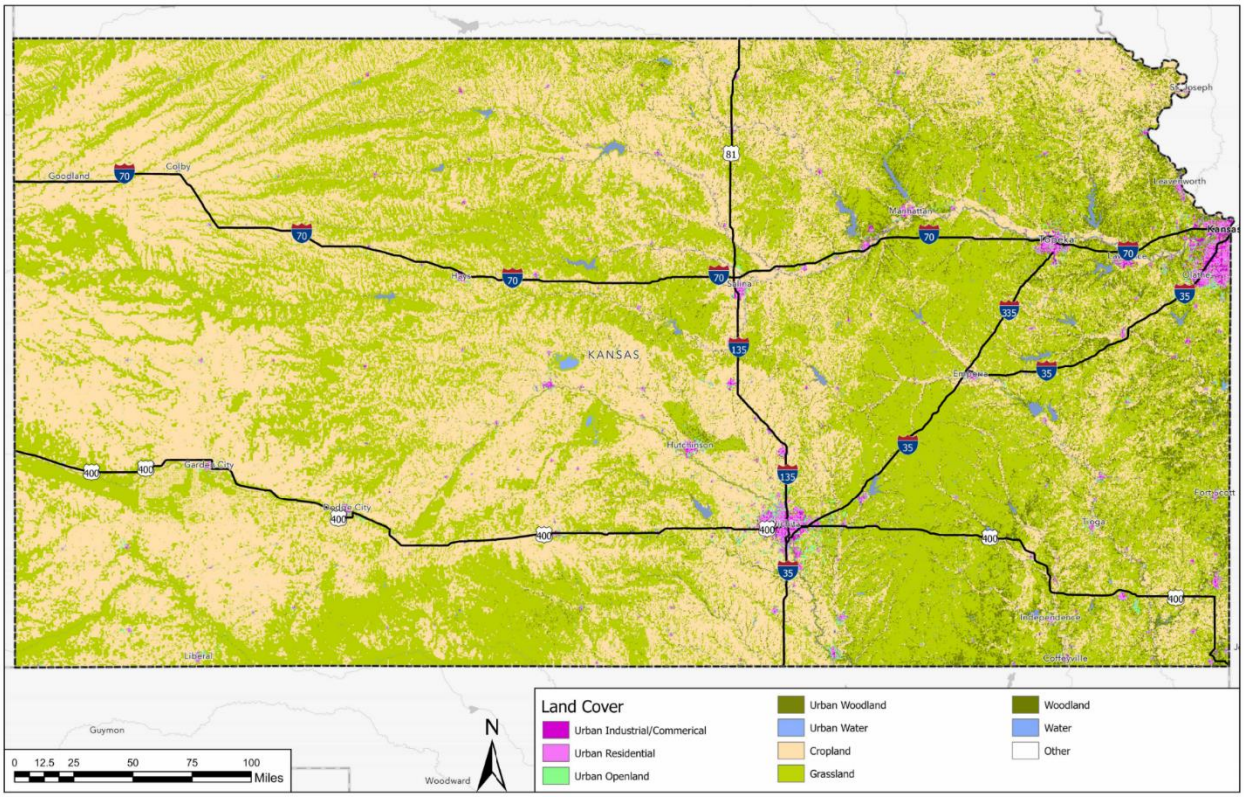


Source: Electric Vehicle Simulations Based on Kansas-Centric Conditions, University of Kansas, Department of Mechanical Engineering

Land Use Patterns

The 2015 Land Cover Patterns Phase I - Final Report from the Kansas Biological Survey, University of Kansas, shows Kansas has a combination of urban and rural land cover, displaying a wide coverage of cropland and grassland with urban industrial/commercial and residential clusters. The report defines industrial/commercial as land that consists of areas of intensive use, most of which are covered in buildings or other hard surfaces. The production and retail of goods and/or services are the main uses for these spaces. The report also defines residential as land which is divided into two types: high-density housing, which is defined by multi-unit buildings like apartment complexes, and medium-density housing, which is defined by a roughly equal distribution of vegetative cover and houses/garages. In Figure 7-9, larger cities such as Kansas City, Wichita, Topeka, Salina, Lawrence, Manhattan, and Emporia are visible in shades of pink.

Figure 7-9: Land Use Patterns for Kansas, 2015

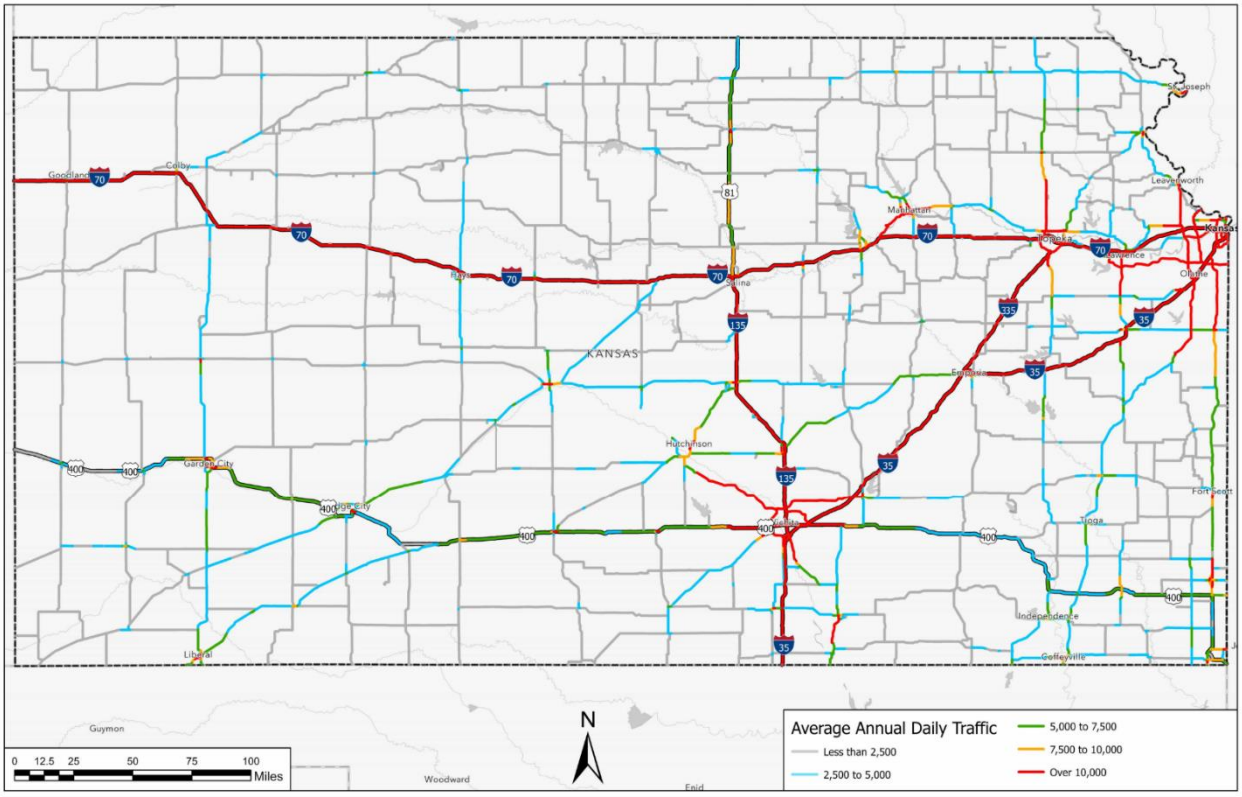


State Travel Patterns, Public Transportation Needs, Freight, and other Supply Chain Needs

State Travel Patterns

According to the average annual daily traffic data from KDOT, travel patterns throughout Kansas show high average annual daily traffic volumes along interstates 70, 135, 35, and 335, and U.S. highways 81 and 400. The Land Use Pattern map highlights urban areas where there is a noticeably higher daily traffic volume, displayed in red in Figure 7-10. The red lines show routes with an average of over 10,000 annual daily traffic users. The correlation between these higher daily traffic volumes and urban areas is due to higher population density around these areas.

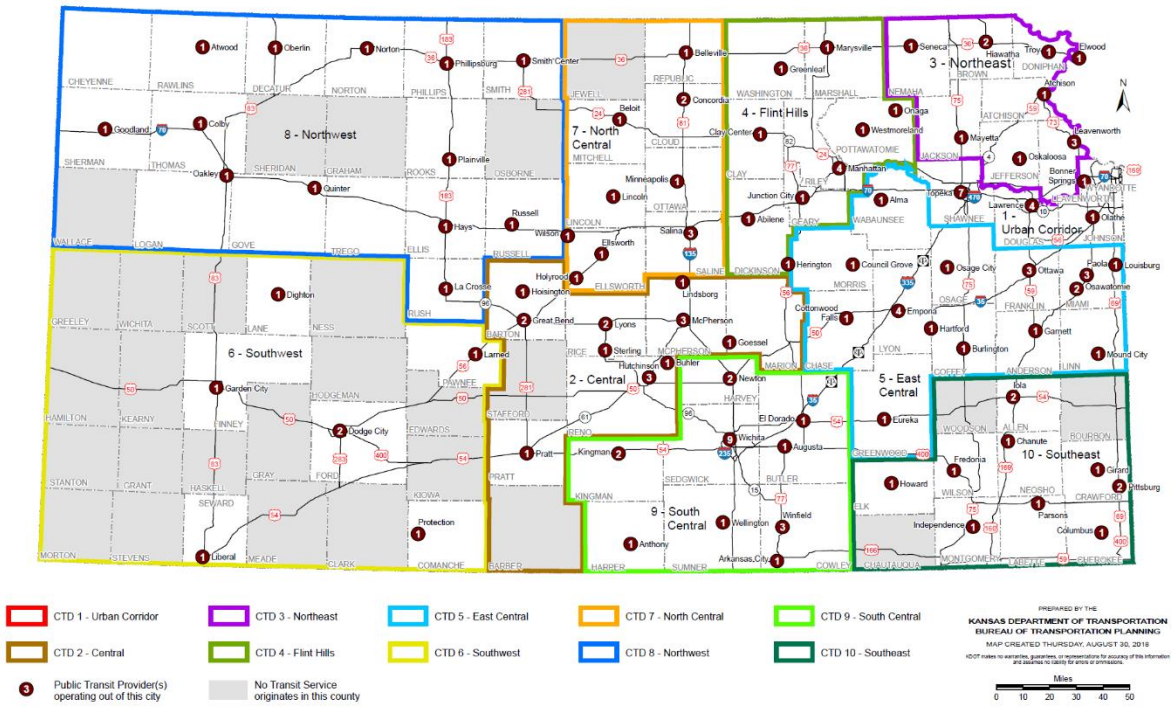
Figure 7-10: Travel Patterns Through Kansas, 2022



Public Transportation Needs

Kansas has 145 transit and para-transit providers, covering most of the state's 105 counties (Figure 7-11). Some of the state's larger service providers in urbanized areas, like Wichita, Lawrence, and Kansas City, have begun deploying electric buses. Generally, these larger agencies have depots and maintenance crews, making electrification more feasible with space and resources to accommodate charging infrastructure. Many of the state's smaller public transit agencies are interested in electrifying their fleets, with multiple agencies currently conducting feasibility studies to assess their individual needs to convert and have electric vehicles in operation within the next five years. Wichita Transit, Lawrence Transit, and the Kansas City Area Transportation Authority have all begun the deployment of electric buses. Electric vehicle charging for public transportation fleets will require more power, and, in most cases, a deep analysis will be needed to plan for EV charging infrastructure. This will drive a need to upgrade utility infrastructure, increase microgrid demand, and overhaul general infrastructure.

Figure 7- 11: Kansas Coordinated Transit Districts



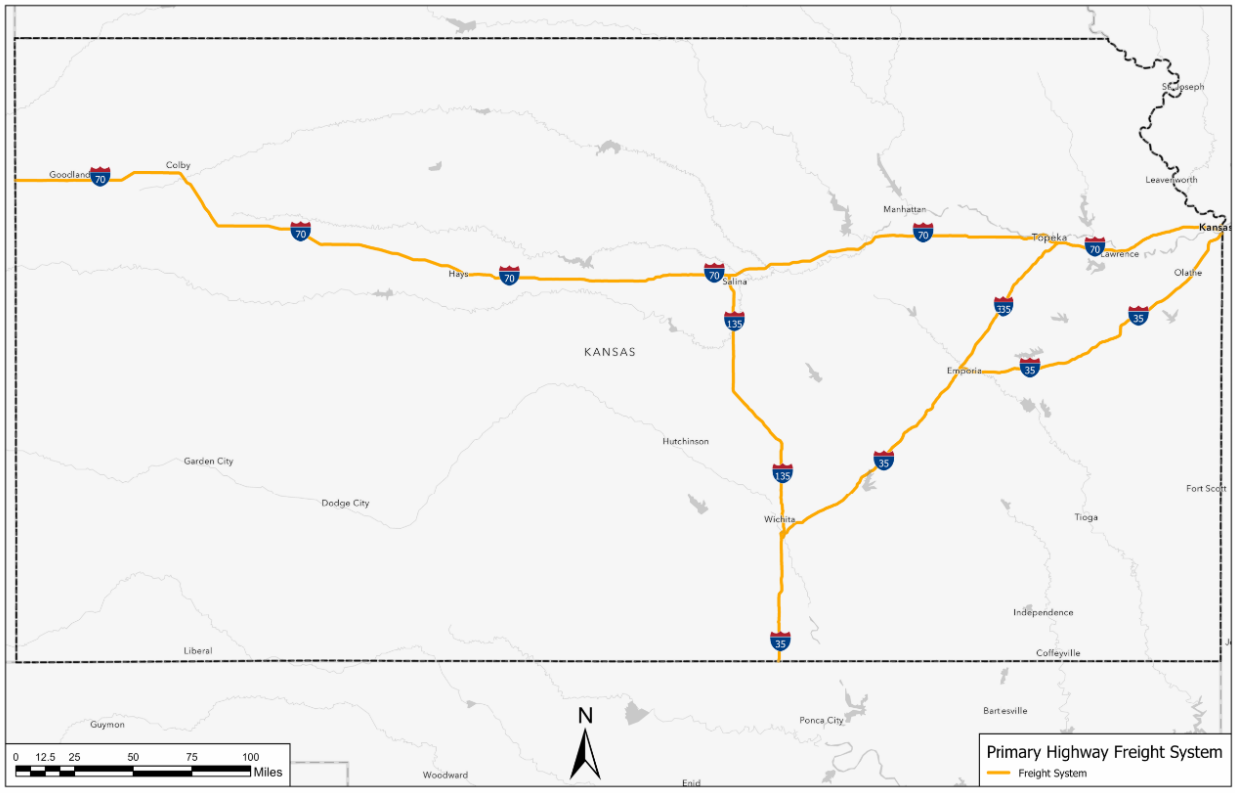
Freight and Other Supply Chain Needs

A comprehensive freight rail network serves Kansas and Amtrak provides intercity passenger rail service. The state also has direct access to one inland barge navigable waterway, the Missouri River, with five private commercial terminals. Kansas is home to 138 public-use airports, including six commercial service facilities and more than 200 private airports that serve general aviation.

Kansas is a major hub for railroads (KCS, BNSF). According to the 2023 Kansas State Freight Plan, prepared by CPCS, freight contributed over $72 billion to the state GDP in 2019. In addition, the freight transportation industry in Kansas is a large employer, supporting an estimated 593,711 full-time jobs. According to the 2017 Kansas Freight Plan, truck freight tonnage across Kansas is forecasted to increase 33.9 percent between 2014 and 2040.

The primary freight network in Kansas consists of I-70, I-335, I-135 and I-35 (Figure 7- 12). I-70 is the main route for east-west freight movement across the state, and I-135, I-35 and I-335 are used for north-south freight movement. The state travel pattern deciphered from the traffic counts also shows the same driving behavior. The highest traffic counts are in Kansas City, Wichita, and Topeka. Freight electric vehicles (mainly medium and heavy duty) will rely on fast and reliable charging to avoid any disruption to business operations and to avoid longer downtime to charge vehicles on routes. Electric Vehicle Charging Infrastructure (EVCI) for medium- and heavy-duty vehicles must be easily accessible and must be co-located with services such as food, showers, and parking for rest periods.

Figure 7- 12: Primary Highway Freight System



EV Ownership, Availability, and Industry Landscape

According to data from the Kansas Department of Revenue (KDOR), registered vehicles in Kansas included 10,353 EVs as of April 2024, as shown in Figure 7- 13. While the graph demonstrates a continued trend of increasing EV registrations, the rate of EV adoption has slowed slightly if following the trends of the previous years. Data is inconsistent as KDOR did not collect EV counts prior to 2020 and EV counts were not collected consistently until 2023. KDOR changed the reporting process in 2023, so data is missing for that year. KDOT anticipates more consistent data in future years.

Figure 7- 13: EV Registration, 2013 to 2024

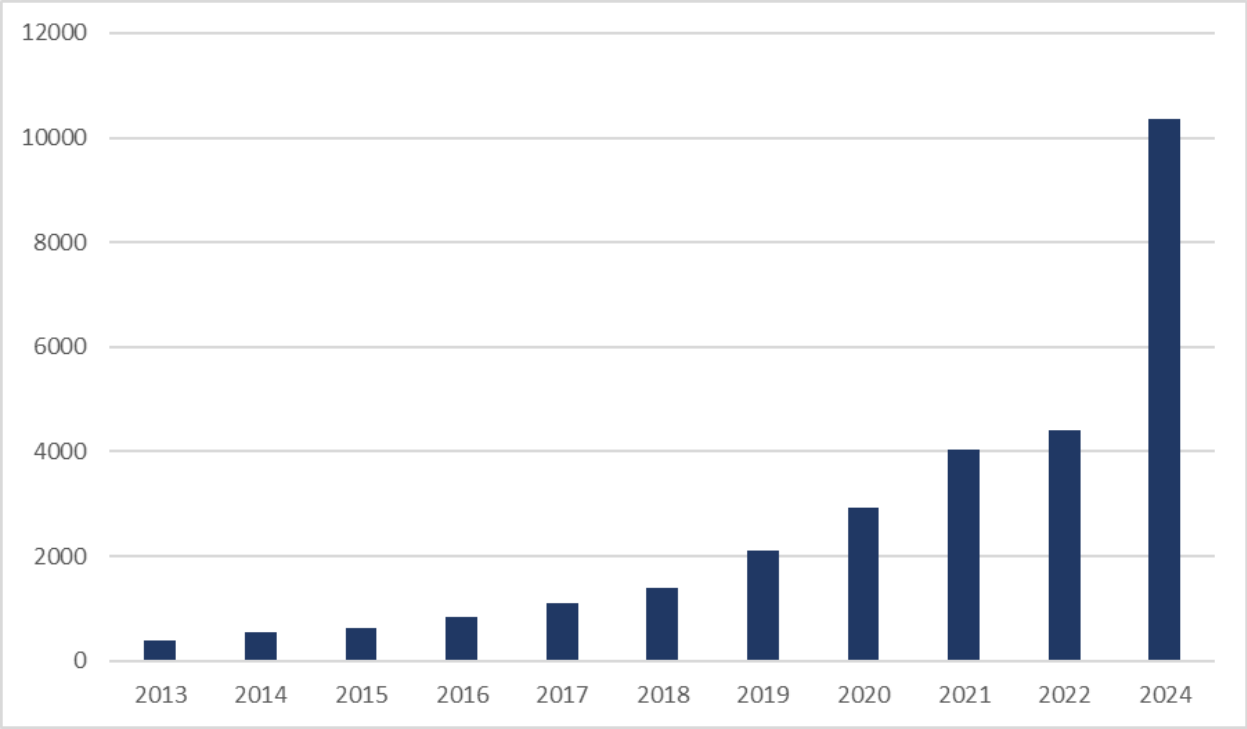
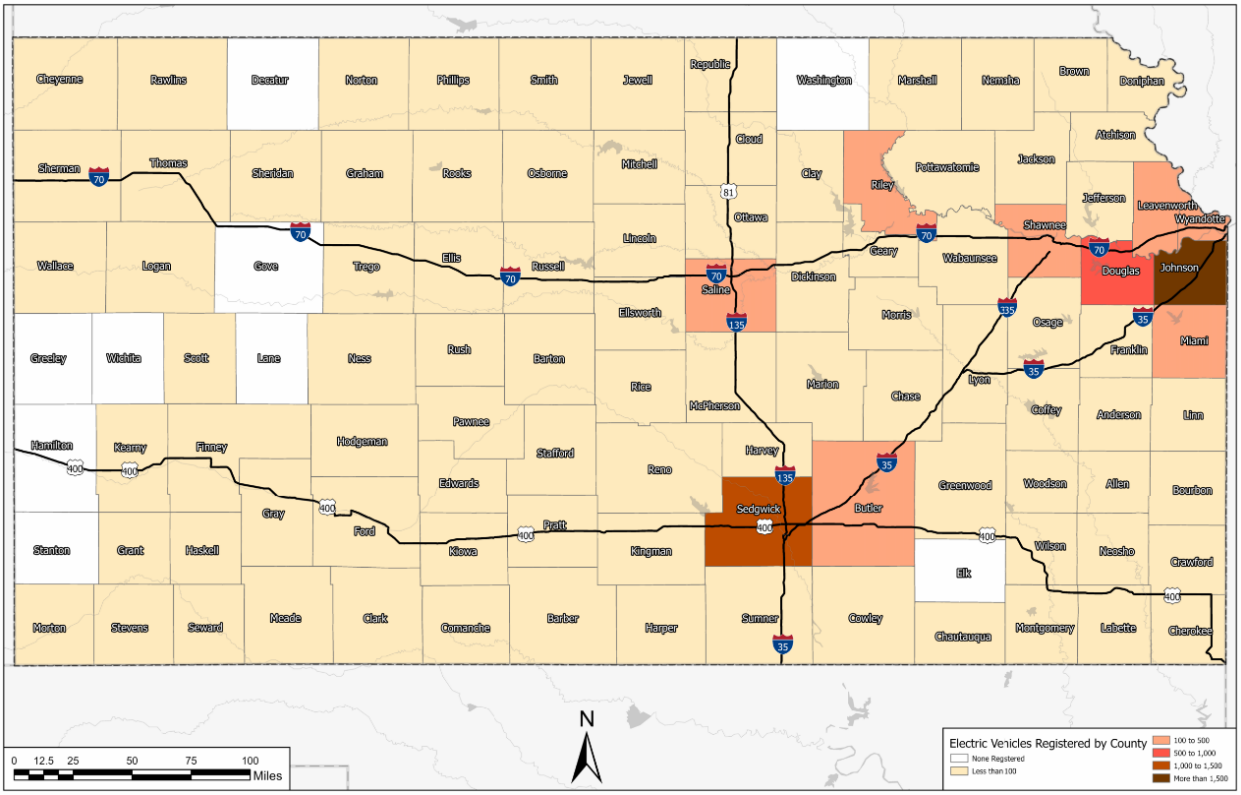


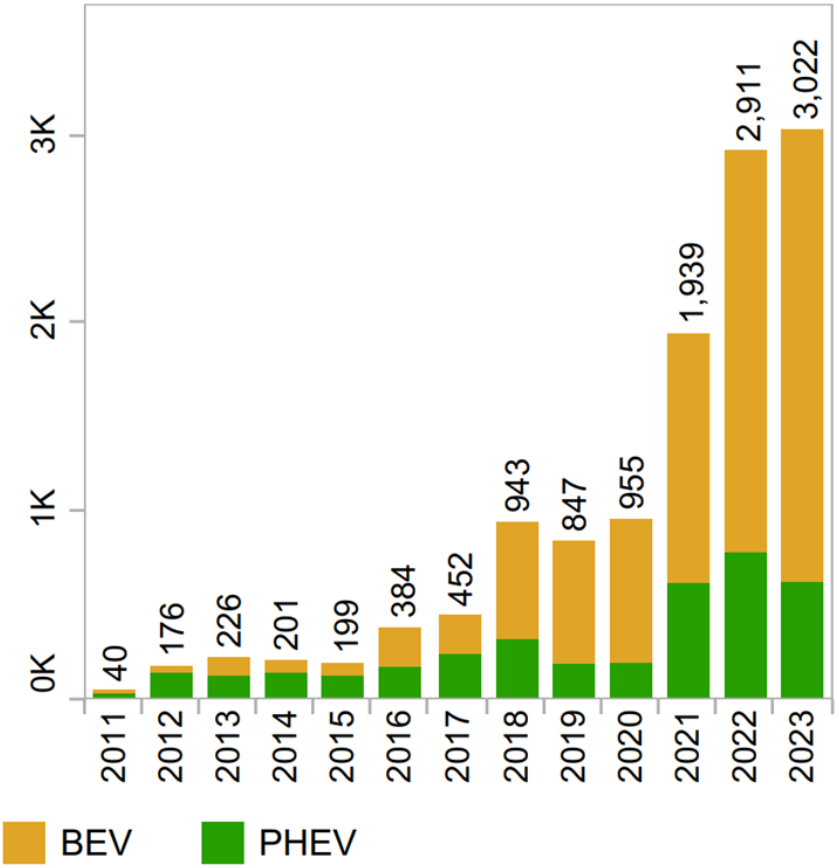
Figure 7-14 breaks down electric vehicle registrations in Kansas by county. As of April 2024, there were nine counties throughout the state with zero electric vehicles registered while about 82% of the counties had fewer than 100 EVs registered. The map shows registrations are concentrated in metropolitan areas, with about 57% of total EV registrations (5,927) in Johnson County in the Kansas City metro.

Figure 7- 14: Electric Vehicles Registered by County, 2024



Sales of battery electric vehicles (BEV) and plug-in hybrid electric vehicles (PHEVs) have been increasing year over year but have slowed in comparison to the previous year (Figure 7-15).

Figure 7-15: Yearly sales of PHEV and BEV in Kansas



Source: https://www.autosinnovate.org/EVDashboard

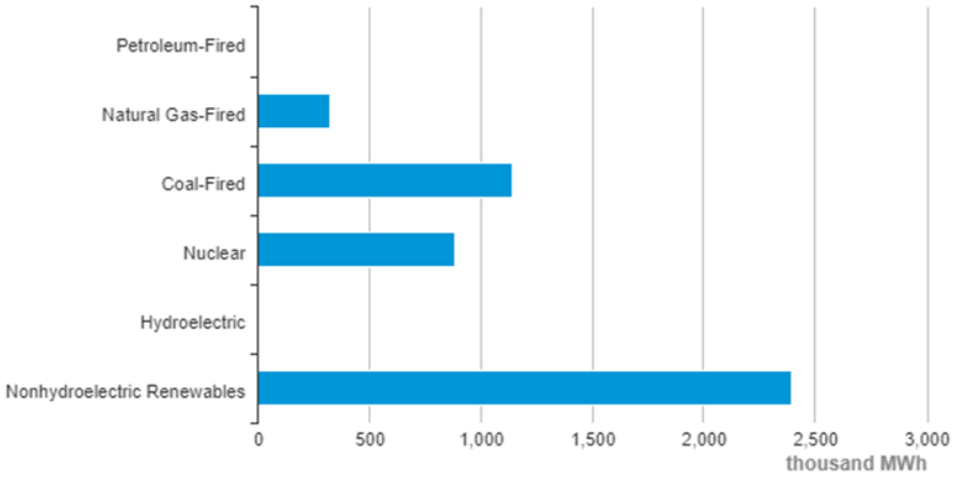
In the past few years, more automakers have announced they will phase out production of gasoline-powered engines and transition to electric vehicles or other alternative fuels. BEVs production is increasing in the US, as is battery production capacity to electrify vehicle fleets.

In July 2022, Kansas Governor Laura Kelly and other state leaders announced the development of a new Panasonic vehicle manufacturing plant in De Soto. Panasonic plans to start production by the end of March 2025, supporting the growing demand for electric vehicles. Because EV adoption is dependent on battery availability and accessibility, there is an increasing need to invest in battery development.

Grid Capacity

Based on the 2023 Kansas electricity profile from the U.S. Energy Information Administration, net summer capacity is 19,246.3 MW. As of December 2023, the total net electricity generation in Kansas is 5,136,000 MWh, over half of which is carbon-free wind or nuclear power.

Figure 7-16: Kansas Net Electricity Generation by Source



eia Source: Energy Information Administration, Electric Power Monthly

For charger deployment locations, total grid capacity is not as important as the availability of power at specific locations including parameters such as 3-phase power and proximity to transmission lines. Other key considerations include available amenities, proximity to freeway exits, good lighting, and more. Transmission and availability of required power will be discussed with the local utility.

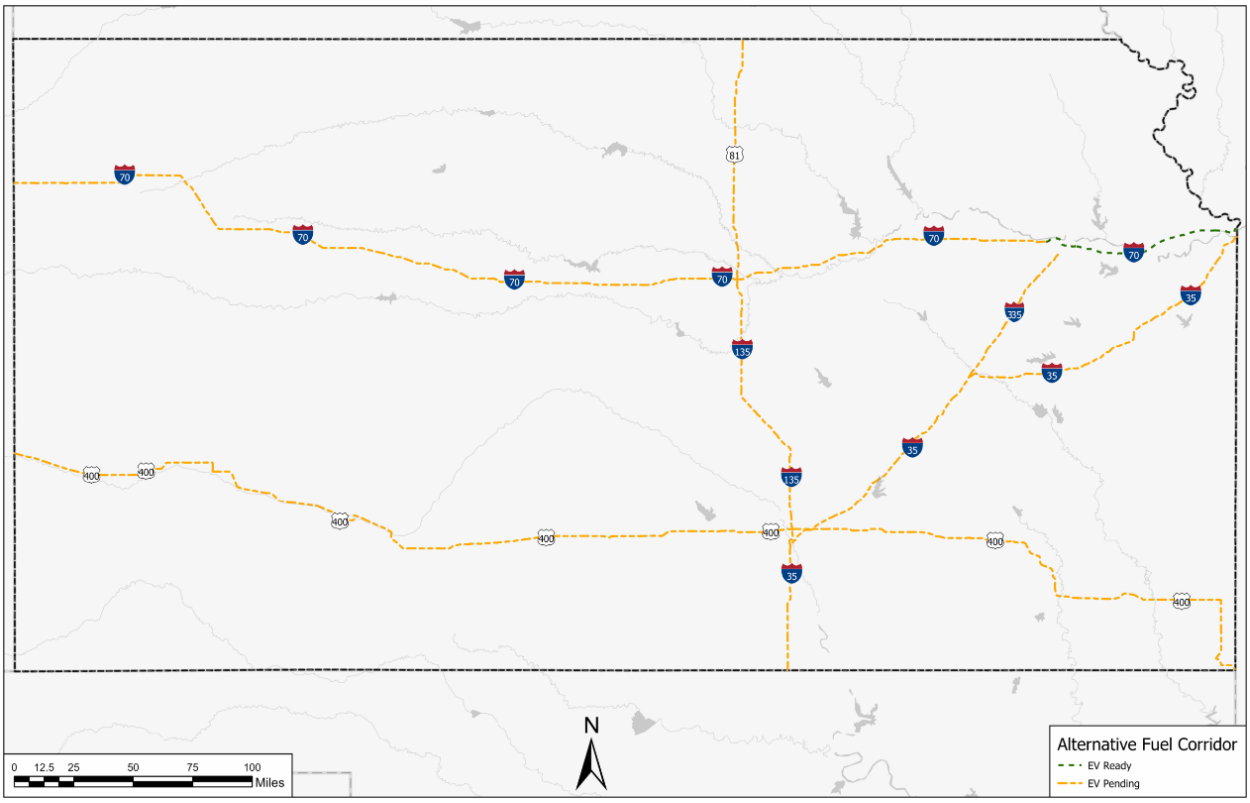
All major utilities in Kansas are members of the Southwest Power Pool (SPP), which operates as the Regional Transmission Organization (RTO). SPP oversees the bulk electric grid and wholesale power market in the central United States on behalf of a diverse group of utilities and transmission companies in 14 states (Arkansas, Iowa, Kansas, Louisiana, Minnesota, Missouri, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, and Wyoming).

As an RTO, SPP does not own the power grid; it independently operates the grid minute-by-minute to ensure power gets to customers and to eliminate power shortages. The role of SPP is to ensure the reliable supply of power, adequate transmission infrastructure, and competitive wholesale electricity prices for a 575,000-square-mile region, including more than 60,000 miles of high-voltage transmission lines.

Alternative Fuel Corridor (AFC) Designations

Kansas has nominated multiple alternative fuel corridors in several rounds of nominations. Designated EV corridors in Kansas include I-70, I-35, I-135, I-335, U.S. 400, and U.S. 81 from I-70 north to the Nebraska border (Figure 7-17). These corridors were targeted for charging in the Kansas EV Corridor Plan created in 2020. Additional infrastructure is needed for these corridors to achieve certification as fully built out under the NEVI requirements. AFC designations have not changed since the 2022 *Charge Up Kansas NEVI Plan* was completed.

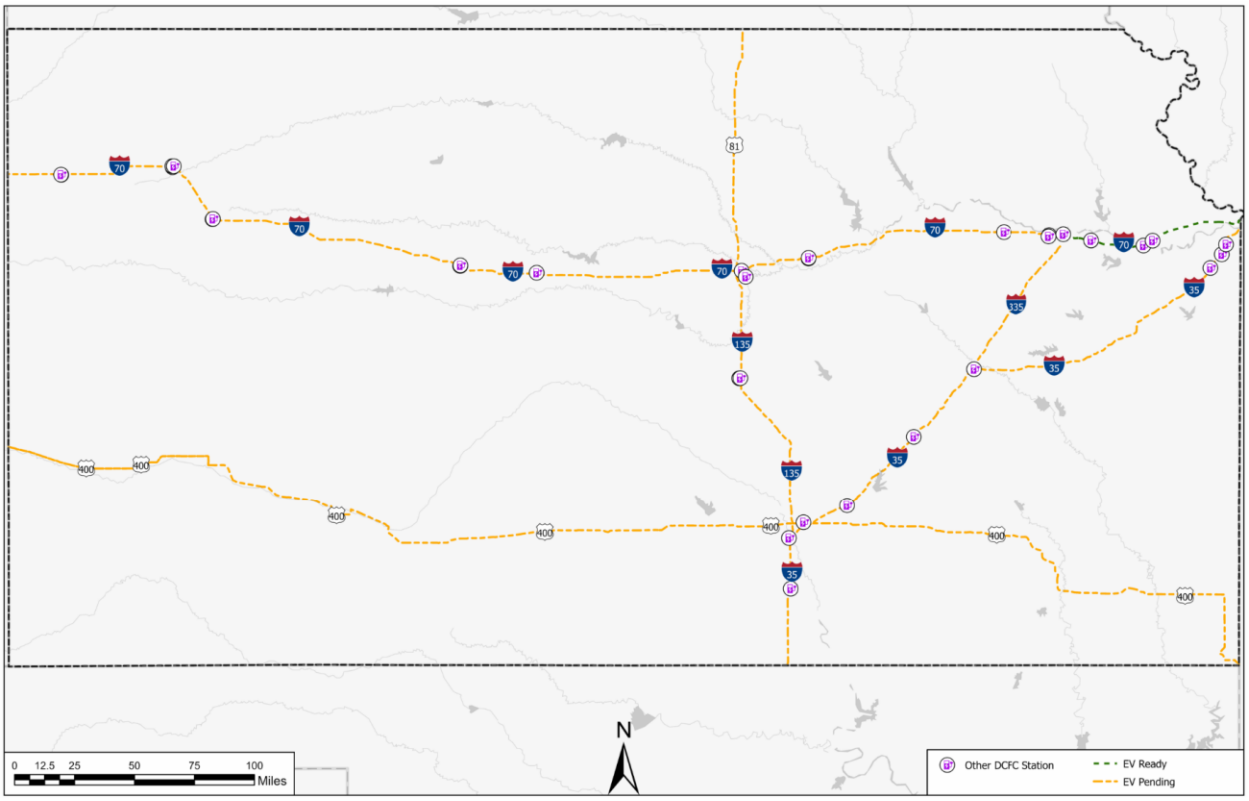
Figure 7-17: Alternative Fuel Corridors



Existing Charging Stations

As of March 2024, there are 35 DC fast charging stations in Kansas that serve the AFCs; five of these stations meet current NEVI guidance for power, number of charging ports, and Combined Charging System (CCS) connectors however, uptime requirements for these locations have not been confirmed. KDOT is investigating options to make these stations fully compliant with NEVI requirements. If a solution is not identified regarding uptime reporting, additional NEVI compliant stations will need to be built. A comprehensive list of charging stations is provided in Appendix A.

Figure 7-18: Existing DC Fast Charging Stations Along the AFCs



Both research and news media have identified challenges in achieving the 97% uptime target set by the NEVI Program. An Electrification 2030 white paper published by Qmerit Electrification identified common reasons for unsuccessful EV charging, based on 2023 network data monitoring, as "station connectivity (55%) and internal station faults/errors (38%), as well as the connector/cable (4%), credit card reader (1%) and screen (1%)."[1]

[1] See https://qmerit.com/wp-content/uploads/2023/09/White-Paper-Electrification2030-Qmerit.pdf.

Known Risks and Challenges

In its 2022 Charge Up Kansas NEVI Plan, the State of Kansas identified three significant risks for deploying EV charging stations and achieving built out corridor status. These risks included addressing the spacing of stations, power needs in some isolated areas of the state, mitigating supply chain issues, and addressing the availability of a qualified installation workforce.

Kansas's existing and future conditions create risks and concerns in building fully electrified corridors. KDOT has identified more substations less than one mile from EV corridors are needed in the southeast part of the state. KDOT continues to engage with this area's local utilities to inform them about NEVI program opportunities and to identify their plans to install the electrical infrastructure needed to support EV charging. Because temperature extremes, HVAC system usage, wind speeds, and terrain can decrease single-charge range, installing stations closer together could help eliminate range anxiety and the risk of stranded vehicles. Other factors, such as vehicle manufacture and driving speeds, should be considered when determining the best spacing between charging stations. Future freight and public transportation needs, along with the growth in sales and registration of EVs in Kansas, could create supply chain issues and a significant need for grid capacity growth to mitigate strain on the electrical grid. Risk is especially high in isolated, rural areas where there is a lack of existing infrastructure and qualified workforce to support additional DCFC stations. With these conditions, Kansas is moving quickly to build out the corridors, and coordinating with the Kansas Department of Agriculture Division of Weights and Measures on workforce development challenges with installation and inspection of charging equipment.

8. EV Charging Infrastructure Deployment

To establish Kansas as a leader in developing a convenient, affordable, reliable, and equitable EV charging network, it is important to have a strategy in place for deploying Electric Vehicle Supply Equipment (EVSE). The planned approach consists of analyzing the status of Alternative Fuel Corridors, identifying charging needs and EVSE gaps, and working with state agencies to study the feasibility of location recommendations. It will be important to understand the funding structure and requirements outlined in the NEVI Guidance and the local, state, and federal policies for installing, implementing, operating, and maintaining EVSE. Outlined below is a high-level approach to these topics.

Planned Charging Stations

KDOT has identified priority areas for constructing new charging stations to support the designation of corridors as EV Ready. KDOT intends to issue Requests for Proposals (RFPs) to solicit bids from private development entities to construct one charging station in each of these target areas. Groups of RFPs will be issued until KDOT has awarded all of its available funds. Shown in Figure 8-1 and listed below, RFPs planned for 2023 include:

Stations Under Contract:

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 (Choose No NEVI, FY22/FY23,	New Location or Upgrade?
Casey's Pratt	U.S. 400	1900 East 1st Street, Pratt, KS 67124	4	2025	$1,106,681.96	FY22	New Location
Flying J Travel Center Emporia	I-35/ I-335	4215 U.S. 50, Emporia, KS 66801	4	2025	$873,158.96	FY22	New Location
Love's Travel Stop Belleville	U.S. 81	1356 U.S. 81, Belleville, KS 66935	4	2025	$886,989.31	FY22	New Location
Love's Travel Stop Garden City	U.S. 400	3285 East U.S. 50, Garden City, KS 67846	4	2025	$869,365.11	FY22	New Location
Pete's Cherokee	U.S. 400	20 U.S. 400, Cherokee, KS, 66724	4	2025	$1,071,305.44	FY22	New Location
Pete's Fredonia	U.S. 400	2400 East Washington Street, Fredonia, KS 66736	4	2025	$1,070,219.55	FY22	New Location

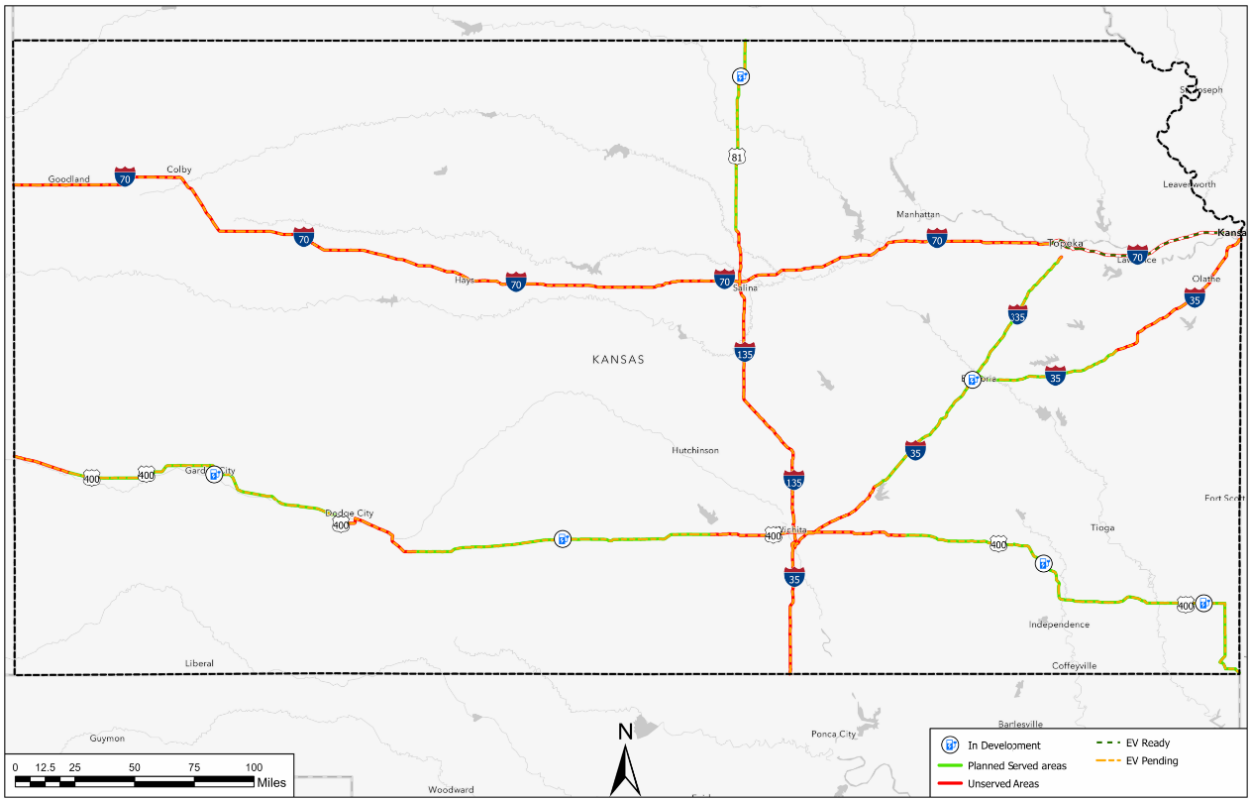
Stations Planned for Conditional Awards September 2024:

State EV Charging Location Unique ID	Route (note if AFC)	Location (street address, if known)	Number of Ports	Estimated Year Operational	Estimated Total Cost	NEVI Funding Sources (Choose No NEVI, FY22/ FY23,	New Location or Upgrade?
Casey's Augusta	U.S. 400	212 W 7th St, Augusta	4	TBD	$ 1,197,161.80	FY 23	New Location
Casey's Baxter Springs	U.S. 400	2403 Military Ave, Baxter Springs	4	TBD	$ 794,346.70	FY 23	New Location
Love's Dodge City	U.S. 400	2505 E Trail St, Dodge City	4	TBD	$ 1,120,820.64	FY 23	New Location
Casey's Kingman	U.S. 400	442 E D Ave, Kingman	4	TBD	$ 1,050,415.33	FY 23	New Location
Casey's Lebo	I-35	2740 Fauna Rd, Lebo	4	TBD	$ 1,120,613.63	FY 23	New Location
Love's Ottawa	I-35	203 E 27th St, Ottawa	4	TBD	$ 1,115,618.09	FY 23	New Location
Sinclair, Park City	I-135	6209 N Broadway Ave, Park City	4	TBD	$ 759,350.00	FY 23	New Location
Casey's Parsons	U.S. 400	516 Main St, Parsons	4	TBD	$ 800,346.70	FY 23	New Location
Pete's Severy	U.S. 400	218 R Road, Severy	4	TBD	$ 1,175,492.50	FY 23	New Location

Planning Towards a Fully Built Out Determination

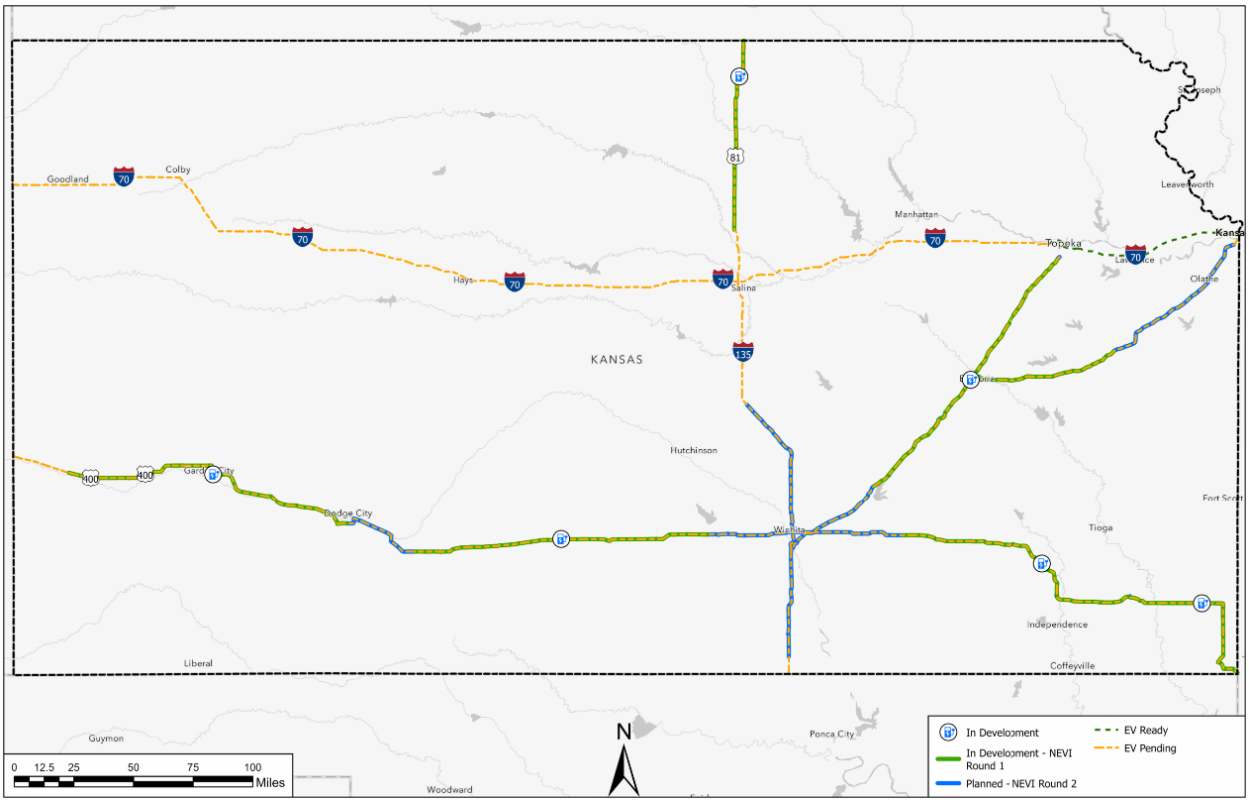
KDOT intends to issue RFPs in smaller groups, targeting locations where NEVI-compliant stations are needed to reach EV-ready status for all AFCs. Each RFP will be issued for a specific location. At this time, KDOT estimates at least 18 new or upgraded charging stations are needed to reach fully built-out status, although this number could change based on the exact locations of charging stations and the status of charging stations across state lines from AFC termini. Figure 8-1 illustrates the areas served by existing and planned NEVI-compliant charging stations along the alternative fuel corridor. The red sections show where additional stations are needed for fully built-out NEVI-compliant corridor. (Note that while I-70, I-135, and much of I-35 are indicated as Unserved Areas for EV charging, DCFC stations exist along these routes though no existing stations are fully compliant with 23 CFR 680.)

Figure 8-1: NEVI Compliant Charging Station Gap Analysis



Contracts with the stations planned for conditional award in September 2024 will address some of the EV charging gaps. Figure 8-2 shows how the charging stations planned for award under round 2 will help to build out the EV charging corridors. KDOT estimates 9 new charging stations and 9 upgraded stations will be needed for "fully built out" status and is currently planning for its third round of RFPs for those areas.

Figure 8-2: Priority Areas for NEVI Charging Station Development



The Request for Proposals process described in Section 5, Contracting, will include additional minimum requirements, which are further described in Section 9, Implementation, to ensure that charging stations are located and operated to provide maximum utility and benefit to travelers and local communities.

9. Implementation

Operations & Maintenance Requirements

KDOT has identified minimum requirements for the Request for Proposals to ensure charging stations are located and operated to provide maximum utility and benefit to travelers as well as local communities. The following minimum requirements must be met for a site to be considered eligible for an application to develop a NEVI-funded charging station:

- Illuminated, ADA-accessible on-site restrooms supplied with potable water, available 15 hours per day, 7 days per week
- Hot prepared and/or packaged food available for sale on-site, available a minimum of 15 hours per day
- Access to free Wi-Fi and/or cellular data service for charging station customers
- Access to shelter during inclement weather

The following minimum requirements must be included in the development of a charging station:

- Each Charging Port must have a CCS Type 1 connector and a NACS connector. NACS adaptors are allowed if they are permanently attached.
- Dusk-to-dawn area lighting at Charging Ports and along a path to the associated building providing restrooms, hot packaged/prepared foods or emergency shelter.
- Charging Ports must have an ADA accessible route to the associated building.
- Charging Station must be visible from a street or visible from the associated building interior.
- Charging stations must provide on-site signage directing customers to the Charging Ports.

KDOT will require all awardees to provide a performance bond to ensure charging stations funded through the NEVI Program will operate in compliance with program requirements for five years.

Labor & Workforce Requirements

In compliance with 23 CFR 680.106(j) to ensure that the installation and maintenance of chargers is performed safely by a qualified and increasingly diverse workforce of licensed technicians and other laborers, all electricians installing, operating, or maintaining EVSE must receive certification from the Electric Vehicle Infrastructure Training Program (EVITP) or a registered apprenticeship program for electricians that includes charger-specific training developed as part of a national guideline standard approved by the Department of Labor in consultation with the Department of Transportation, if and when such programs are approved.

10. Equity Considerations

The Charge Up Kansas NEVI Plan recognizes the importance of achieving Justice40 Initiative goals as a part of the NEVI Formula Program. NEVI program investments offer an opportunity to invest in Disadvantaged Communities (DACs) to ensure that they benefit from the historical investment represented by this program.

Identification and Outreach to Disadvantaged Communities in the State

Outreach to DACs has primarily focused on education regarding EV Charging and information about the NEVI Program and Call for Projects/Request for Proposals process. Organizations that include DAC stakeholders who have been part of KDOT's outreach associated with the NEVI Program are found in Section 3, Public Engagement.

Process to Identify, Quantify, and Measure Benefits to DACs

KDOT will use the following metrics to quantify and measure potential benefits to DACs from NEVI Program Funding. Figure 10-1 shows the disadvantaged communities across Kansas that would be served by the alternative fuel corridor.

Figure 10- 1: Disadvantaged Communities

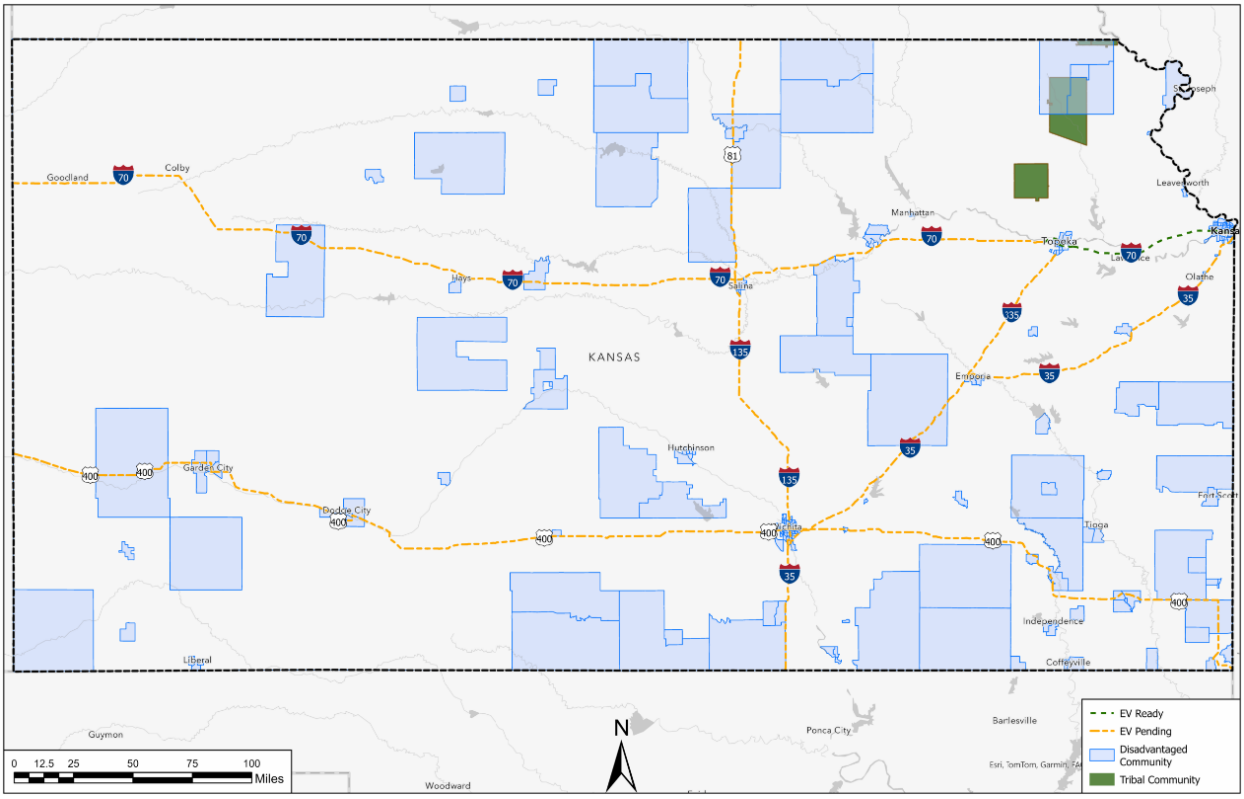


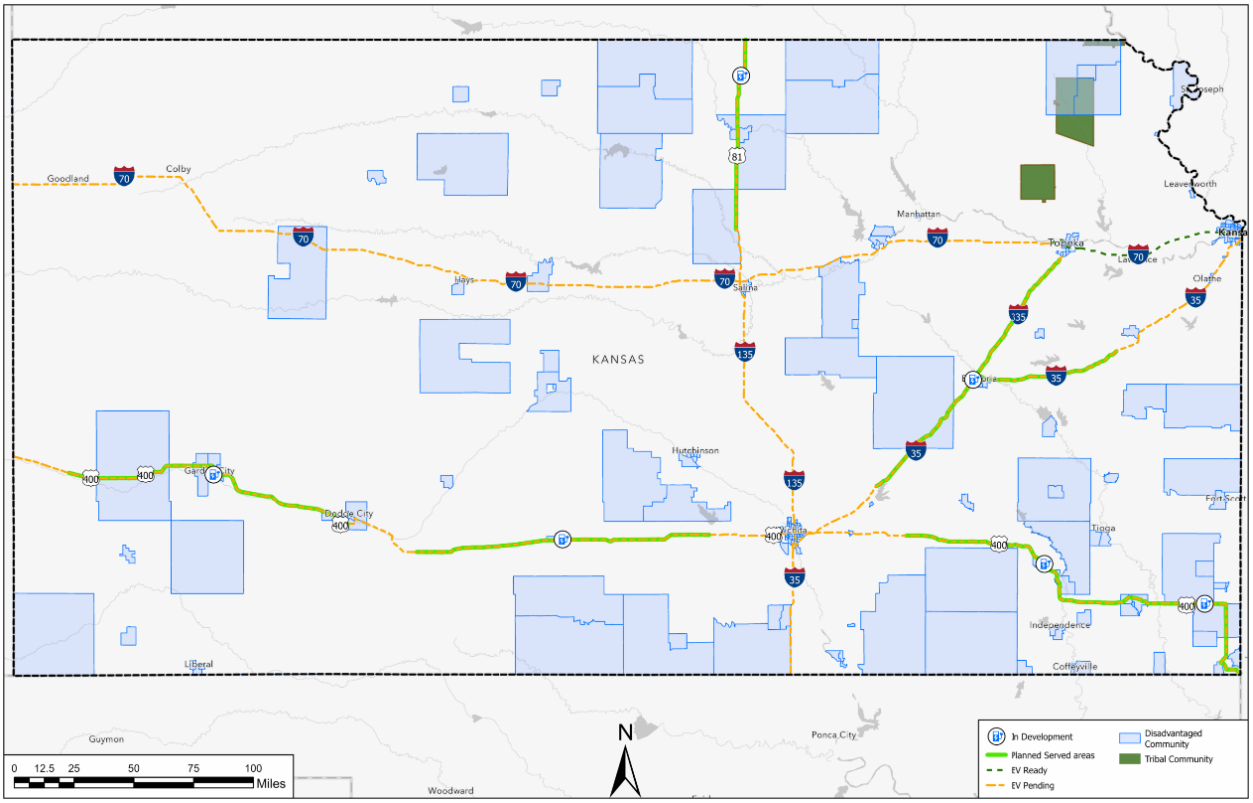
Figure 10- 2: Benefits to Disadvantaged Communities

Benefits Category	Strategy for Tracking Benefits (Metrics, Baseline, Goals, Data Collection & Analysis Approach, Community Validation)
Improve clean transportation access through the location of chargers	**Goal**- Support development of charging stations located in DACs. KDOT requirements are focused on the development of charging stations in high usage locations that will benefit travelers and the community. **Metrics** – In compliance with the goals of this plan, KDOT intends to measure the number of stations developed within DACs. See Section 4 regarding performance measures. **Collecting data** – KDOT will collect data on station locations as contracts are awarded. **Baseline**- KDOT has not awarded any NEVI funds at this time.
Increase transportation investments in Disadvantaged Communities	**Goal** - Provide equitable access/investments in Disadvantaged Communities and leverage required matching funds. **Metrics** - Dollar amount leveraged as local match, in Disadvantaged Communities and statewide. **Collecting data** - Annual updates of this plan will measure the dollar amount leveraged as a local match for the implementation of charging infrastructure and will track this figure in both Disadvantaged Communities and statewide. See Section 4 regarding performance measures. **Baseline** - KDOT has not awarded any NEVI funds at this time.
Increase the clean energy job pipeline, job training, and enterprise creation in disadvantaged communities	**Goal** – Support the use of businesses/contractors located within DACs in the development and construction of NEVI charging stations. **Metrics** – Number of contractors, businesses, and other enterprises located within DACs that are engaged to construct and install NEVI-funded charging stations. **Collecting data** - As part of its contracting and reimbursement process for NEVI funding awards, KDOT will collect data on businesses and contractors used in the construction of charging stations. **Baseline** - KDOT has not awarded any NEVI funds at this time.
Support community economic development and commerce in local areas	**Goal** - Support commerce in local areas through the development of charging stations across Kansas. **Metrics** – Economic development may be measured by sales tax collections or number of business entities. **Collecting data** – Data available from local jurisdictions. **Baseline** – KDOT has not awarded any NEVI funds at this time.
Reduce environmental exposures to transportation emissions	**Goal**- Improving air quality and reduction of greenhouse gas emissions by supporting the deployment of charging stations. While KDOT is interested in tracking this benefit category, metrics, data collection, and baseline information are not available at this time. KDOT will further evaluate this benefit category once data from NEVI charging stations is collected.

A fully built-out alternative fuel corridor will serve some of the DACs located throughout Kansas. Once the corridors are fully built out, about 1,793 miles of the AFCs will directly serve cities within DACs. With the current in-development and existing NEVI charging stations, about 1,407 miles of the AFCs will directly serve DACs.

49 DAC zipcodes will be served by the alternative fuel corridors

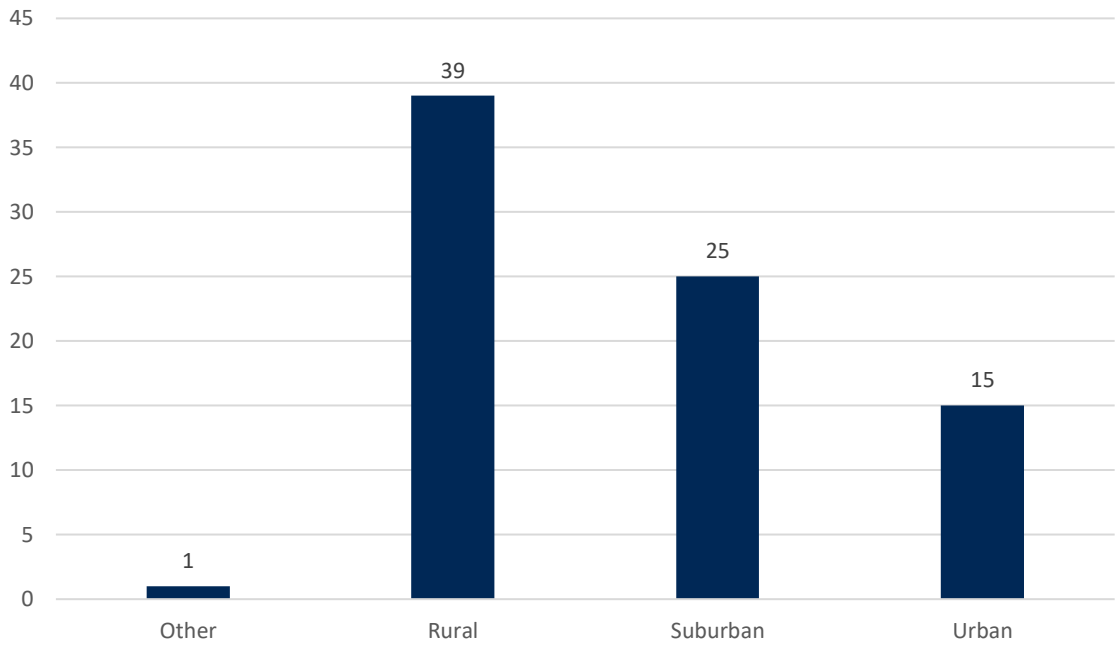
Figure 10- 3: EV Served Disadvantaged Communities



Survey Outreach to Disadvantaged Communities

As part of the NEVI planning and community engagement, a survey was released on the Charge Up Kansas webpage, and the participants were asked to give their zip codes. About fifty-one percent of the responses to the NEVI online survey were from Disadvantaged Community areas. From these responses, there were also many responses from participants living in rural areas shown in Figure 10-4. Responses are separately analyzed to identify the specific needs of disadvantaged communities, informing strategic placement of EV chargers in these areas.

Figure 10-4: How would you describe the area where you live?



Participants were also asked if they knew the location of any EV charging stations in their community. As shown in Figure 10-5, the majority of respondents in Disadvantaged Community areas knew where to find a charging station in their communities.

Figure 10-5: Do you know the location of any EV charging stations in your community?

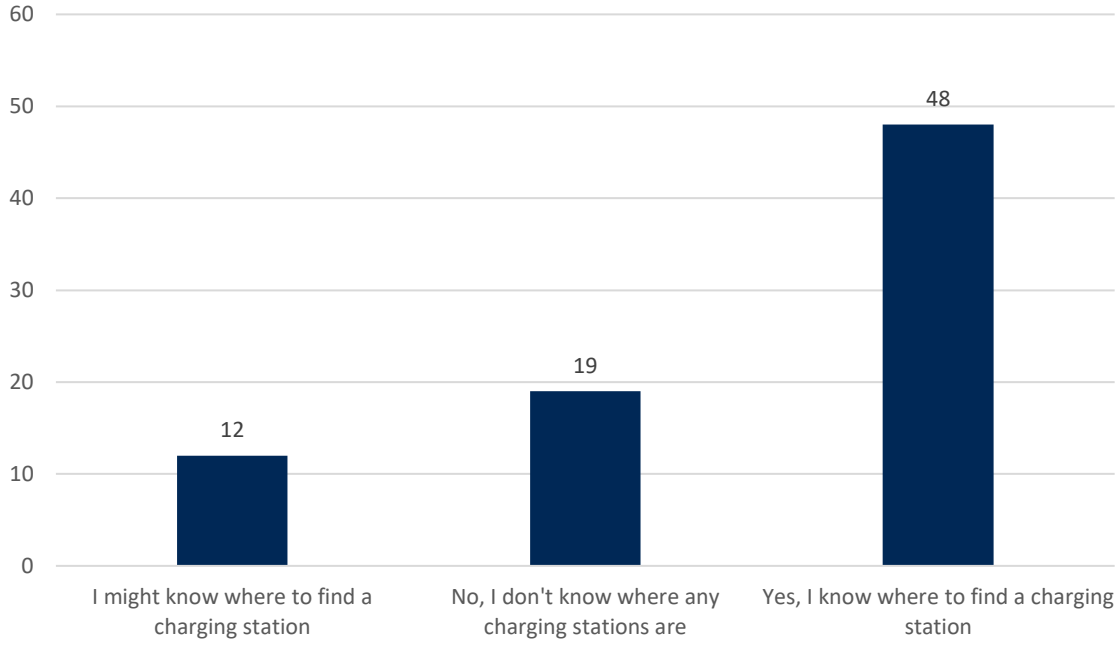


Figure 10-6 shows how important the participants viewed charging stations in their community. Responses were split with most indicating DC fast charging stations were important but almost as many felt having DCFC stations was not a priority in their communities.

Figure 10-6: How important is it to have DC Fast Charging (DCFC) charging stations available in your community?

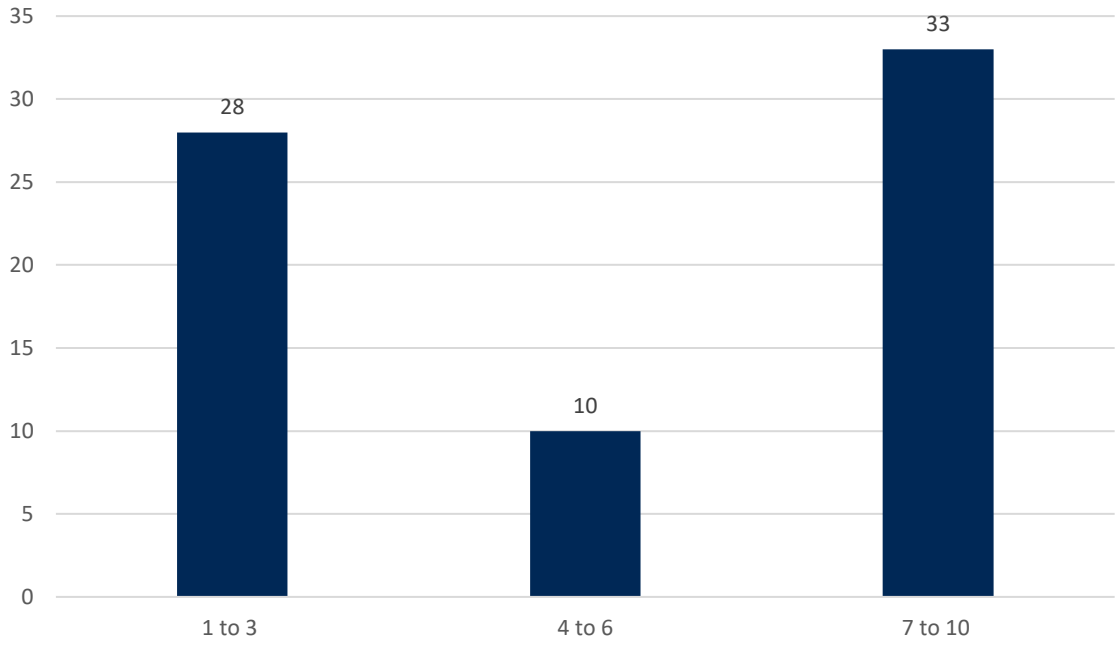
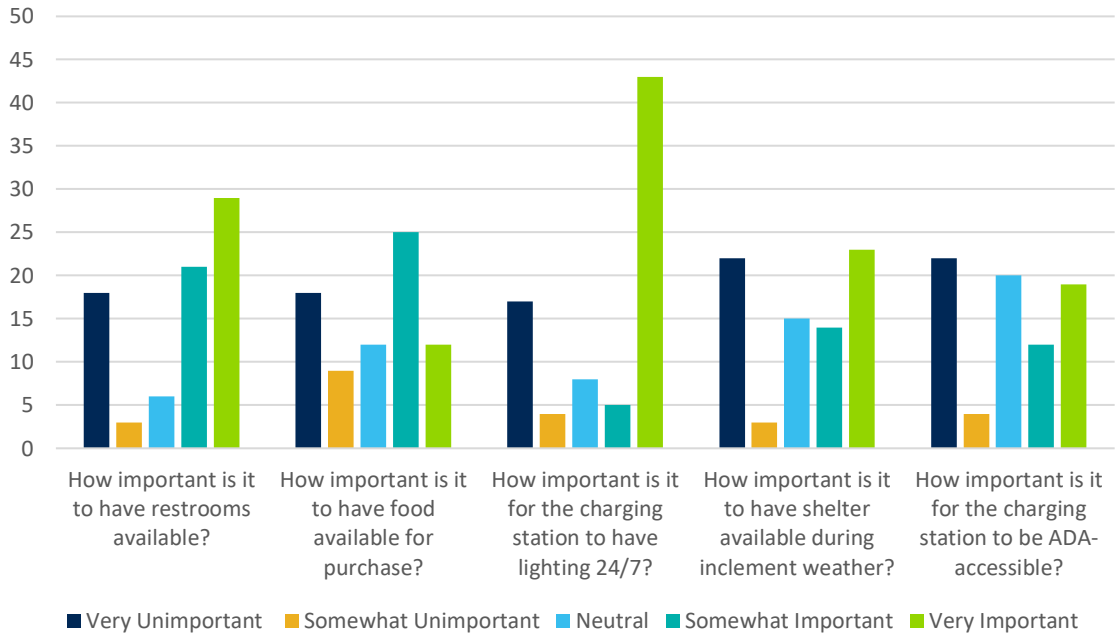


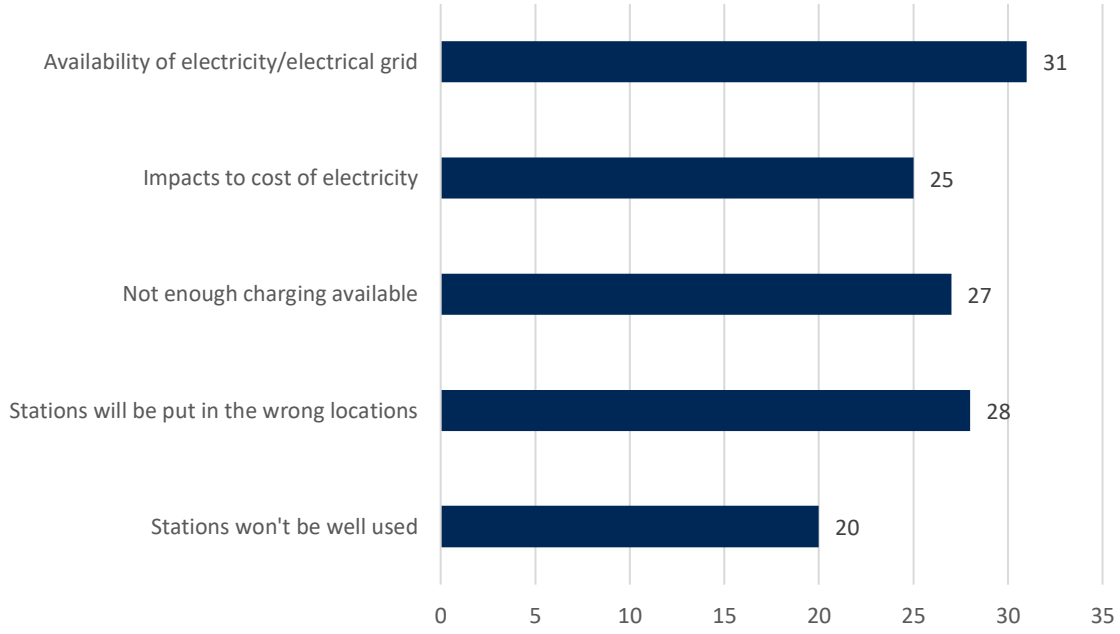
Figure 10-7 illustrates feedback on charging station amenities. The survey results were similar to statewide results and showed participants in DACs felt it was very important to focus on 24/7 lighting and restroom availability.

Figure 10-7: Community feedback on charging station amenities



The participants were asked about some of their drawbacks or concerns for EV charging. Figure 10-8 shows they had a mix of concerns about the availability of electricity due to the new load from chargers, the impact on the cost of electricity, the lack of available charging, or that stations would be put into the wrong locations.

Figure 10-8: What drawbacks or concerns do you have related to EV charging in your community?

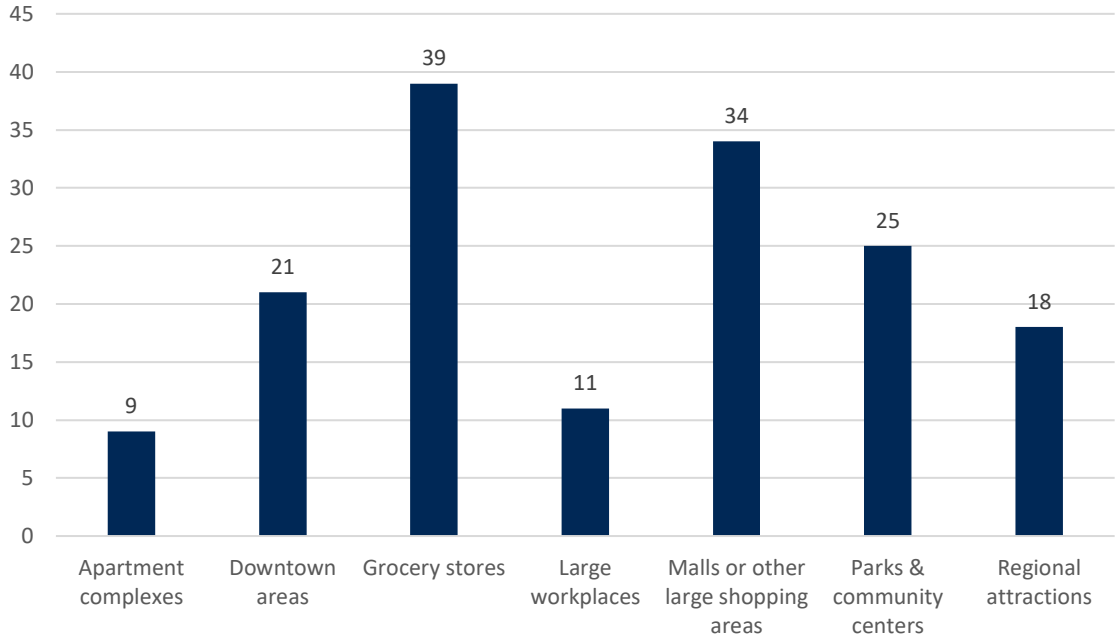


Survey participants expressed other concerns about EV charging, including vandalism and the safety of users. They also worried about the reliability of stations and that there won't be enough charging ports at station locations. Some participants don’t like the idea of using federal funds and taxes for EV chargers.

Participants were also asked what KDOT should consider when identifying future charging station locations. Respondents suggested ways to improve EV charging stations in Kansas, including placing them along limited-access highways near towns with populations over 10,000. Fast charging should become available at every stop on the Kansas Turnpike and I-35 as EV usage grows. Top destinations and tourist locations should be prioritized for EV adoption, including parts of Manhattan and Junction City which are designated as disadvantaged areas. Others commented that charging stations should be placed where people spend several hours and where there is already investment; DC fast chargers should be distanced from one another and communities inaccessible to EV drivers should be identified; taxpayer money should not be used to build an EV charging network, and energy companies should finance stations if they think they are viable. Some suggest using renewable energy sources like wind to power EV stations.

Another concern was ensuring stations are strategically placed in locations optimal for electrical service, grid capacity, and EV user experience. Figure 10-9 shows that participants focused on grocery stores, malls, or other large shopping areas, which might correlate to where participants typically spend about 30 minutes to 2 hours.

Figure 10-9: What kinds of locations do you think are best for DC fast charging stations in your community?



11. Labor and Workforce Considerations

No Updates

Based on currently available guidance and regulations related to the NEVI program, KDOT will require, as part of contracting with site hosts/contractors, that the construction of charging sites and installation, operations, and maintenance of EVSE comply with Section 680.106(j) regarding the use of Qualified Technicians for the installation, maintenance, and operations of EVSE under the NEVI program. This section requires electricians installing, operating, or maintaining EVSE be certified by the Electric Vehicle Infrastructure Training Program (EVITP) or be a graduate of a Registered Apprenticeship Program that includes EVSE-specific training. Awardees will be required to provide data on contractors to demonstrate compliance with these requirements.

12. Physical Security & Cybersecurity

Cybersecurity, security of Personal Identification Information (PII), and physical security are important considerations in deploying electric vehicle charging infrastructure on designated EV corridors. KDOT is committed to setting contractual guidelines to safeguard EV charging networks against cybersecurity and personal privacy risk to the state of Kansas and to EV drivers.

Physical Security

KDOT recognizes physical security is an important element in ensuring that charging stations are well-used by both travelers on AFCs and local EV drivers. In defining minimum requirements for its planned Request for Proposals, two key requirements include lighting and visibility, to ensure safety for charging station users.

KDOT has defined minimum standards for charging stations as part of its NEVI Request for Proposals process. The minimum standards include an on-site security plan, including a lighting plan, charger lock plan and product data, and an anti-tampering of payment devices plan.

Cybersecurity

Cybersecurity strategies such as user identity and access management, selection of appropriate encryption systems, intrusion and malware detection, event logging and reporting, management of software updates, and secure operation during communication outages, as proposed by FHWA, will be included in the solicitation as a requirement.

NEVI funding recipients will become contracted vendors who will own, operate, and maintain the EVSE as well as the data produced. As part of the contract, prior to issuance of the award or other funding, the vendor will be required to provide a cybersecurity plan that demonstrates their cybersecurity maturity and compliance with applicable Kansas, regulatory, and federal cybersecurity requirements. The State's solicitation will require the applicants to demonstrate methods they will use to maintain and improve cybersecurity throughout the life of the proposed solution. This will include requirements to maintain compliance with current and future cybersecurity requirements as well as alerting KDOT, the Kansas Information Security Office (KISO), and the Cybersecurity and Infrastructure Security Agency (CISA) of any known or suspected network or system compromises.

In July 2021, Kansas Governor Laura Kelly established the bipartisan Governor's Cybersecurity Task Force to protect Kansas's digital infrastructure. The Task Force is comprised of four sub-committees related to Statewide Coordination and Collaboration, Workforce Development and Education, Cyber Incident and Disruption Response, and Strategic Vision and Planning. Since its formation, the Task Force has produced two reports: an interim report with 45 broad recommendations to advance a whole-state approach, and final report which highlighted 17 critical recommendations the were found to be either essential to the implementation of other recommendations or top priorities that if implemented would have the greatest impact on protecting the state from cybersecurity threats.

Should a data security breach occur, the vendor is obligated to promptly notify KDOT and the Kansas Information Security Office (KISO) within 24 hours and provide details of the measures being taken to mitigate the situation.

13. Program Evaluation

Kansas will assess the performance of its NEVI program annually. Annual assessments will include reviewing progress toward the identified performance measures, updating maps to include new charging stations and changes to Alternate Fuel Corridor designations, and establishing the annual funding plan. The annual evaluation efforts will provide an opportunity for public input into the plan update. Kansas uses its ongoing Local Consult process to solicit feedback on infrastructure needs and concerns from stakeholders and to advise them of new projects and program milestones. Local Consult will provide a forum for ongoing public input into the annual plan updates. The next Local Consult process will take place in cities across Kansas in 2025 and feedback received during this process will be incorporated into the next annual NEVI plan update.

As there are no NEVI-funded chargers in operation, no data has been submitted to the Joint Office regarding EV charger performance in compliance with NEVI program guidance.

14. Discretionary Exceptions

KDOT submitted the following exception requests on July 29, 2004, and is awaiting notification of the determination.

Summary of Exception Requests

Exception #	Type	Distance of Deviation	Corresponding AFC	Reason for Exception Request
1 - Baxter Springs	☐ 50 miles apart x 1 mile from exit	___ miles 1.7 miles	U.S. 400	☐ Grid Capacity x Geography x Equity x Extraordinary Cost
2 – Parsons	☐ 50 miles apart x 1 mile from exit	___ miles 1.7 miles	U.S. 400	☐ Grid Capacity x Geography x Equity x Extraordinary Cost
3 – Garden City to Dodge City	x 50 miles apart ☐ 1 mile from exit	2.3 miles ___ miles	U.S. 400	x Grid Capacity x Geography x Equity x Extraordinary Cost

Justification for Exceptions

KDOT requests exceptions to the one-mile rule for two locations. Due to geography and the route of the U.S. 400 bypasses around the cities of Baxter Springs and Parsons, it is highly unlikely that KDOT would reach "built out" status for EV charging corridors without approval of these exception requests. In both communities, sites with the capability and amenities to support a charging station are limited to within one mile of the corridor. KDOT also requests an exception to the 50-mile rule between planned EV charging stations in Garden City and Dodge City.

1 – 2403 Military Avenue, Baxter Springs, KS (U.S. 400)

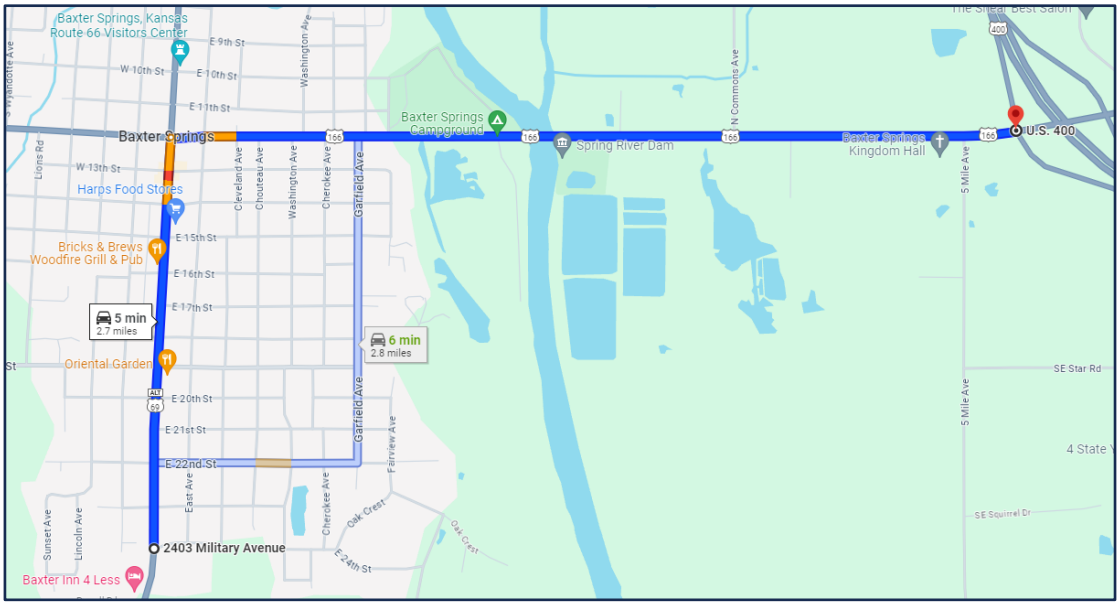
KDOT requests an extension of the one-mile requirement for the Baxter Springs charging station. U.S. 400 bypasses Baxter Springs to the north and east. The bypass has limited exits and very little development along it. Locations within one mile would require construction of an entirely new station, electrical service, and necessary amenities, all at an added cost. Instead, KDOT requests the one-mile distance from the corridor be extended 2.7 miles to the Casey's at 2403 Military Avenue, Baxter Springs, Kansas.

The proposed location will require limited infrastructure improvements compared to a location within one mile of U.S. 400. The onsite convenience store is open 4 a.m. to midnight and offers food, drinks, and restrooms. Restaurants, hotels, shopping, and other amenities are nearby, offering an overall better charging experience for EV drivers. The proposed location is 8.3 miles from the U.S. 400 east terminus and will also serve travelers on historic Route 66 which overlays Military Avenue/U.S. 69 Alternate.

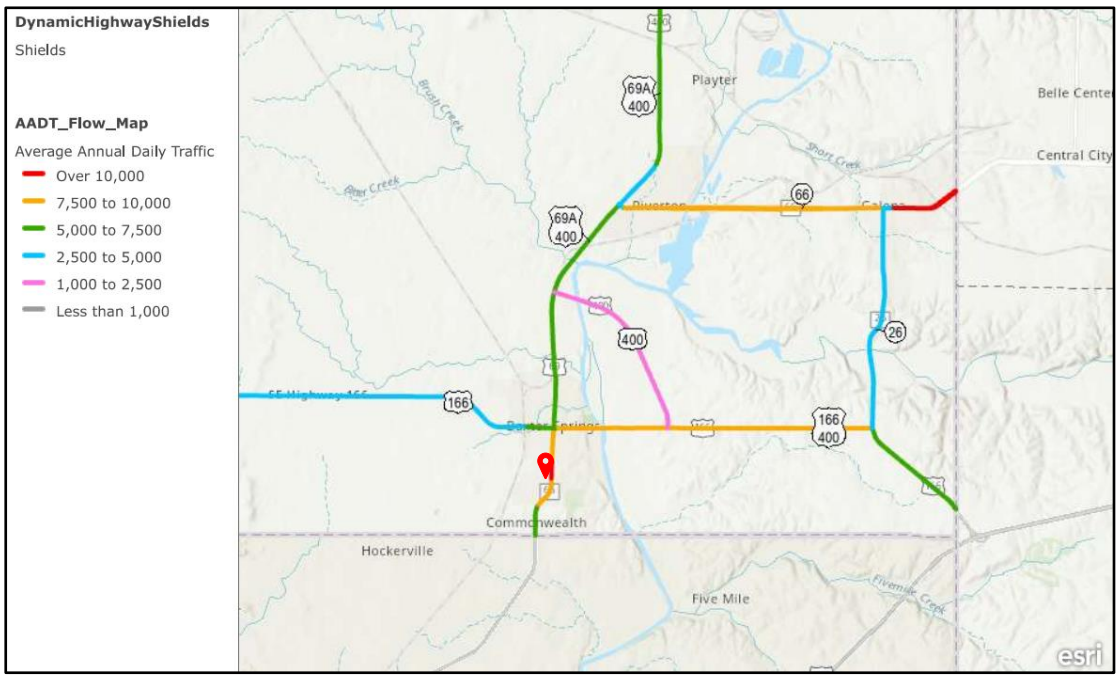
The included traffic maps of the Baxter Springs area show most traffic on U.S. 400 continues to use U.S. 166 and U.S. 69 Alternate instead of the U.S. 400 bypass. By locating charging along U.S. 69 Alternate/Military Avenue, it would be more accessible to more drivers than if located on the bypass.

Additionally, the EV Charging Justice40 map and the Climate & Economic Justice Screening Tool identify the area of the proposed station as a Disadvantaged Community. This will be the first DC fast charging station in Baxter Springs and would give better access to charging for residents of Baxter Springs and the Quapaw Nation tribal lands located one mile to the south.

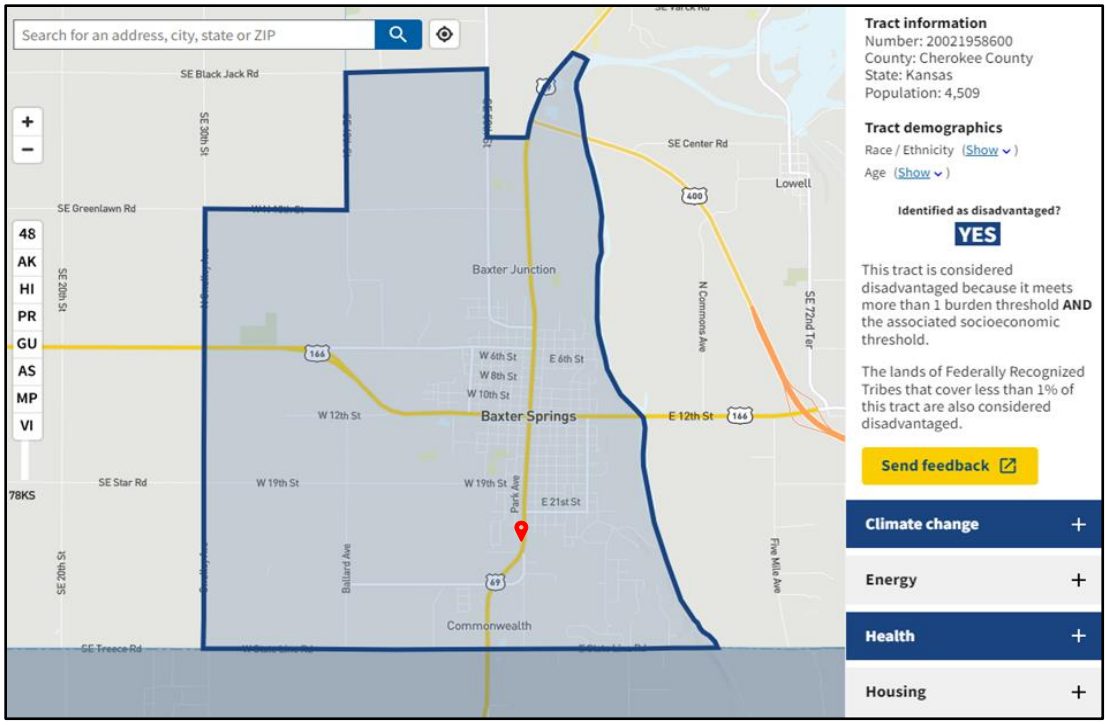
Distance of proposed location from U.S. 400 – 2.7 miles



Baxter Springs Average Annual Daily Traffic Map –
Red pin approximates location of proposed EV charging station.



Climate & Economic Justice Screening Tool
Red pin indicates proposed EV Charging Station at Caseys, 2403 Military Ave.



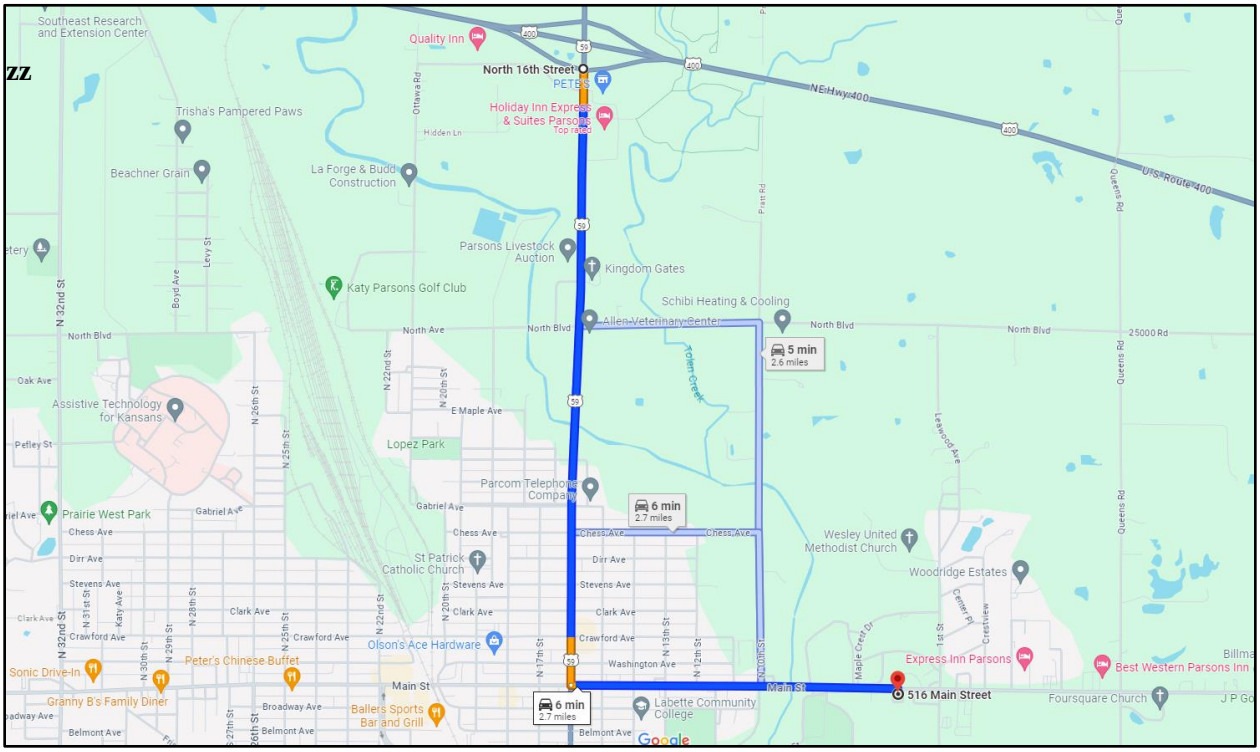
2 – 516 Main St, Parsons, KS (U.S. 400)

KDOT requests an extension of the one-mile requirement for the Parsons charging station. U.S. 400 bypasses Parsons to the north. The bypass has limited exits and little development along it. Locations within one mile with basic driver amenities are limited. KDOT therefore requests the one-mile distance from the corridor be extended to 2.7 miles to the Casey's at 516 Main Street, Parsons, Kansas.

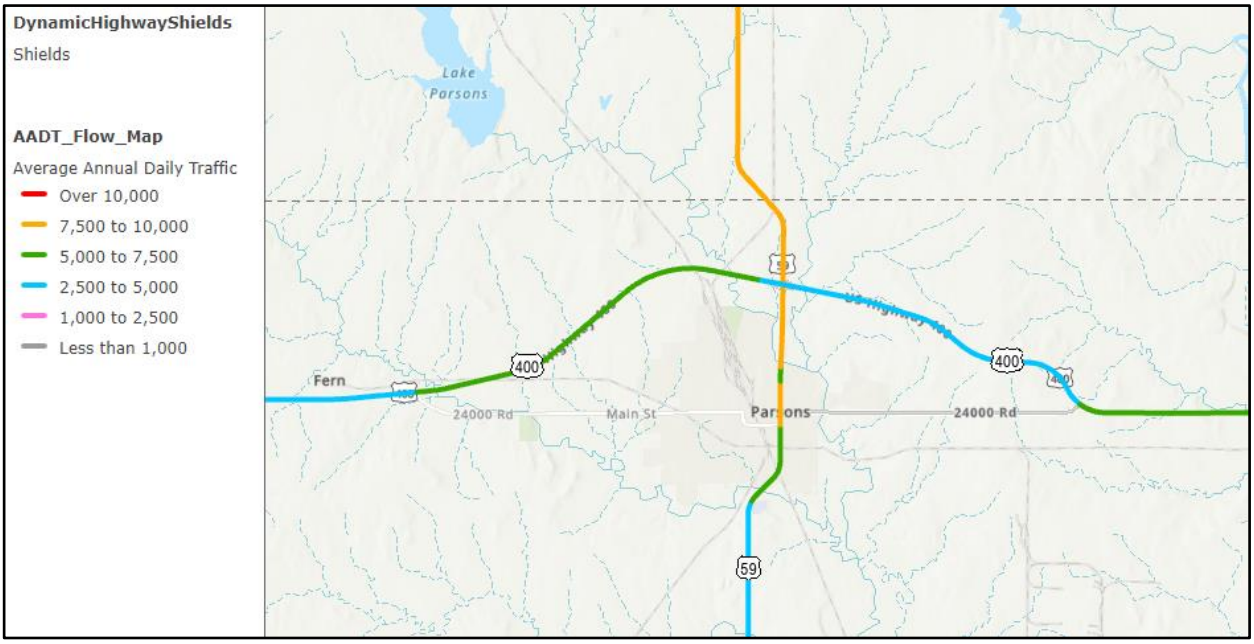
This alternate location will require limited infrastructure improvements and 46% lower total costs than the proposed location within one mile of U.S. 400. The onsite convenience store is open 5 a.m. to 10 p.m. and offers food, drinks, and restrooms. Restaurants, hotels, and shopping are nearby, offering an overall better charging experience for EV drivers. Main Street is the former route of the highway through town and has several establishments of interest to travelers.

The included traffic maps for the Parsons area show most traffic on U.S. 400 travels U.S. 59/16th Street and Main Street (the former highway route) instead of the U.S. 400 bypass to the northeast. By locating charging within the City of Parsons, it will be more easily accessible to drivers than if located on the bypass and will give better access to charging for the residents of the community, which is identified as a disadvantaged community by the Climate and Economic Justice Screening Tool.

Distance of proposed location from U.S. 400 – 2.7 miles



Parsons Average Annual Daily Traffic Map
Red pin approximates location of proposed EV charging station

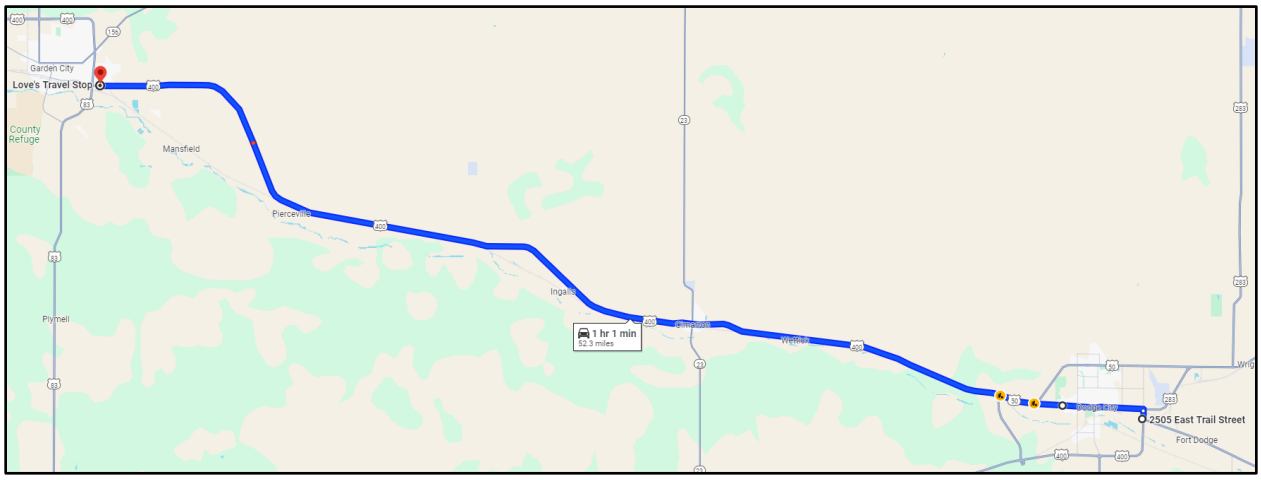


3 – 2505 E Trail St, Dodge City to 3285 E Hwy 50, Garden City, KS (U.S. 400)

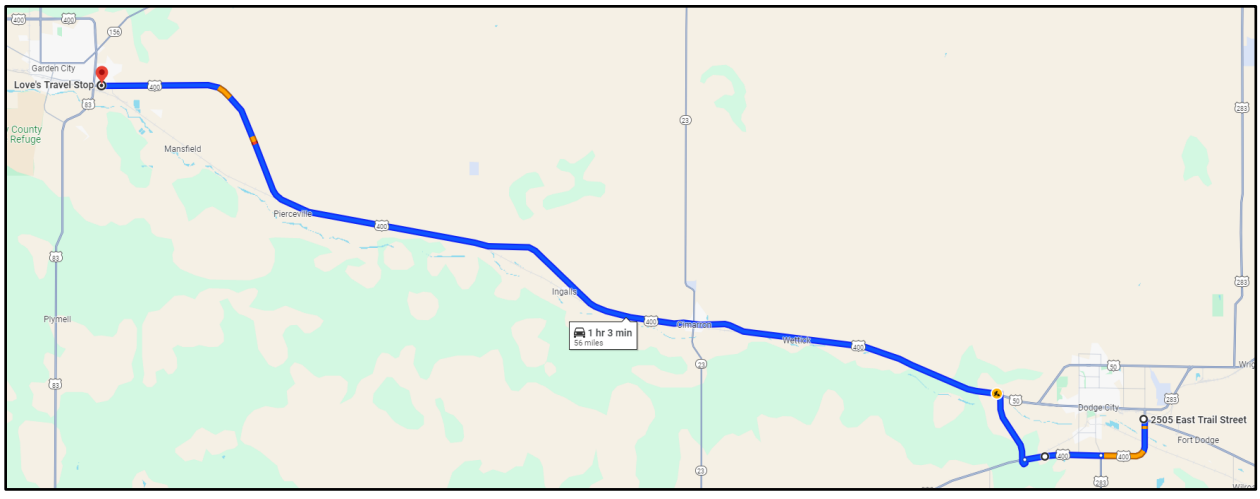
KDOT requests an extension of the maximum 50-mile charging station gap between the Love's at 2505 E. Trail Street, Dodge City, Kansas, and the Love's at 3285 E. Hwy 50, Garden City, Kansas. Both locations are adjacent to U.S. 400 and the distance between them is 52.3 miles through Dodge City or 56 miles via the U.S. 400 bypass around Dodge City. There are a few small rural communities between these cities, but these larger communities are more cost effective and capable of supporting EV charging stations due to adequate infrastructure, area amenities, and suitable locations.

Both proposed sites are located in Disadvantaged Communities as identified by the Climate & Economic Justice Screening Tool. Both Garden City and Dodge City serve as regional hubs for business, shopping, and medical care for their surrounding rural communities. These will be the first DC fast chargers in both cities, thereby giving EV charging access to residents without the capability of home charging and making it possible for rural residents to choose an EV for travel into these communities and back home.

Distance between locations – 52.3 miles via U.S. 50 Business/U.S. 400

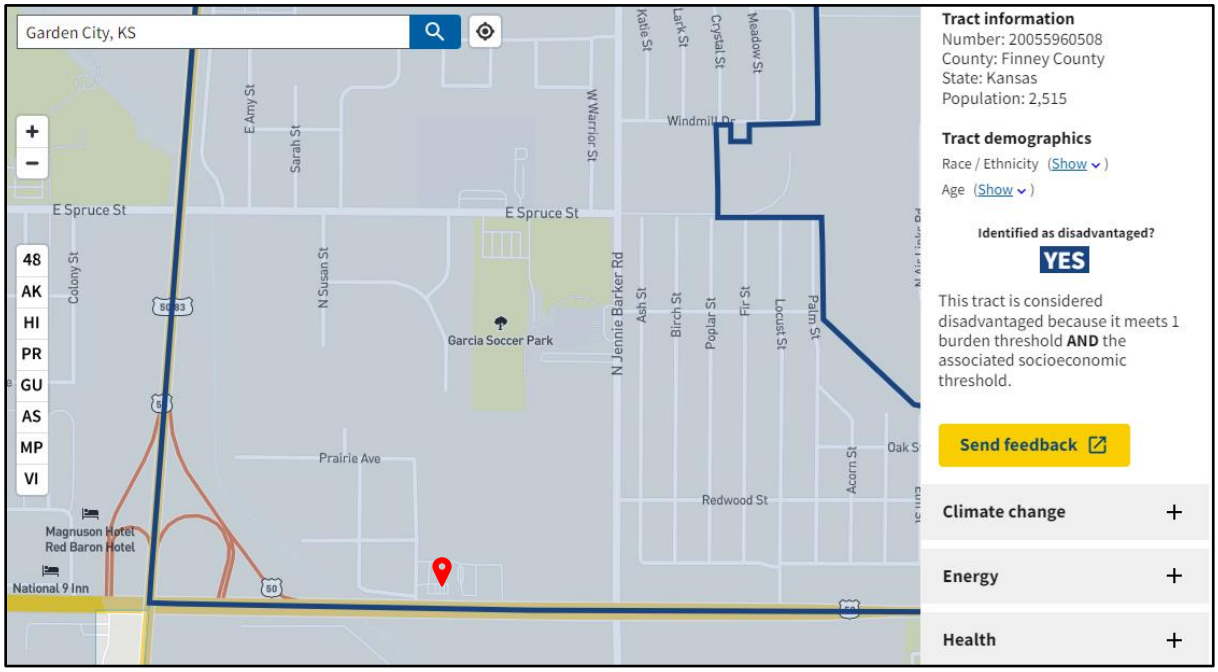


Distance between locations – 56 miles via U.S. 400 bypass



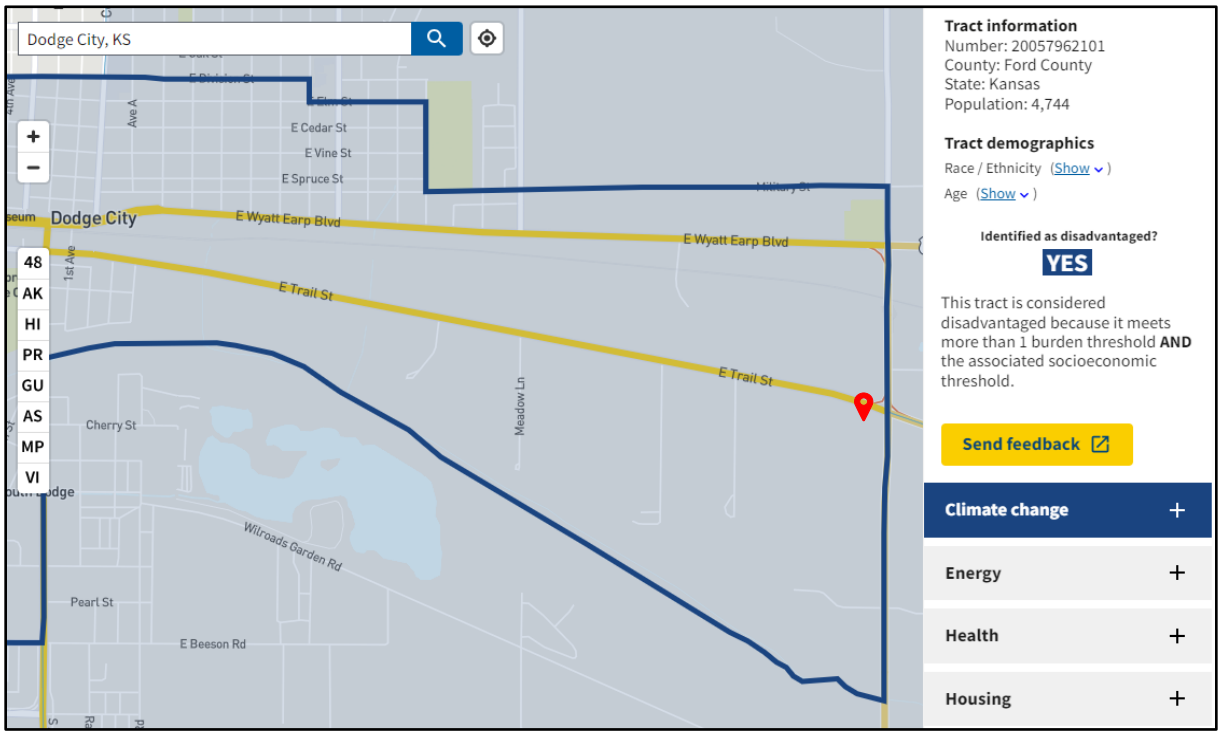
Climate & Economic Justice Screening Tool

Red pin indicates proposed EV Charging Station at Love's, 3285 E Hwy 50



Climate & Economic Justice Screening Tool

Red pin indicates proposed EV Charging Station at Love's, 2505 E Trail St



Appendix A: DC Fast Charging Stations Serving Kansas AFCs

State EV Charging Location Unique ID*	Charger Level	Route	Location (Street address)	Ports	EV Network (if known)	Meets all relevant requirements in 23 CFR 680?	Intent to count towards Fully Built Out determination?
24/7 Travel Store #2 - Colby	DCFC	I-70	1990 S Range Ave Colby, KS 67701	4	EV Connect	No	TBD
24/7 Travel Store #10 - McPherson	DCFC	I-135	2203 East Kansas Ave McPherson, KS 67460	4	EV Connect	No	TBD
24/7 Travel Store #5 – Maple Hill	DCFC	I-70	32981 Windy Hill Rd Maple Hill, KS 66507	2	EV Connect	No	TBD
24/7 Travel Store #6 - Abilene	DCFC	I-70	2200 N Buckeye Ave Abilene, KS 67410	2	EV Connect	No	TBD
24/7 Travel Store #9 - Goodland	DCFC	I-70	2710 Commerce Rd Goodland, KS 67735	4	EV Connect	No	TBD
383 Mopar Drive (US-T9W-JRK-1A) - Hays	DCFC	I-70	383 Mopar Drive Hays, KS 67601	6	Rivian Adventure	No	TBD
Applebee's - Tesla Supercharger – Wichita	DCFC	I-135	4760 S. Broadway Street Wichita, KS 67216	6	Tesla	No	TBD
Applebee's - Tesla Supercharger – Hays	DCFC	I-70	4101 Vine St Hays, KS 67601	6	Tesla	No	TBD
Arby's - Tesla Supercharger - Topeka	DCFC	I-70	5930 SW Huntoon St Topeka, KS 66604	8	Tesla	No	TBD
Blue Springs Olathe Hyundai1 - Olathe	DCFC	I-35	681 North Rawhide Olathe, KS 66061	1	ChargePoint Network	No	TBD

Casey's - Salina	DCFC	I-70	500 N Ohio St. Salina, KS 67401	4	Electrify America	No	TBD
Emporia West Plaza - Tesla Supercharger – Emporia	DCFC	I-35	1312 Industrial Road Emporia, KS 66801	8	Tesla	No	TBD
Evergy @KTA SVC - El Dorado OCL	DCFC	I-35	7225 Kansas Turnpike El Dorado, KS 67042	2	ChargePoint Network	No	TBD
Evergy @KTA SVC - Lawrence	DCFC	I-70	209 Kansas Turnpike Lawrence, KS 66044	2	ChargePoint Network	No	TBD
Evergy @KTA SVC -408B - Topeka OCL	DCFC	I-70	8000 SE I-70 Hwy Turnpike Topeka, KS 66542	1	ChargePoint Network	No	TBD
Evergy @Topeka Go-442A - Topeka	DCFC	I-70	818 S Kansas Ave Topeka, KS 66612	1	ChargePoint Network	No	TBD
Holiday Inn Express - Tesla Supercharger - Salina	DCFC	I-70	755 W. Diamond Dr. Salina, KS 67401	6	Tesla	No	TBD
Holiday Inn Express - Tesla Supercharger - Goodland	DCFC	I-70	2631 Enterprise Rd. Goodland, KS 67735	6	Tesla	No	TBD
Lawrence Service Area - Tesla Supercharger - Tonganoxie	DCFC	I-70	209 Kansas Turnpike Tonganoxie, KS 66086	12	Tesla	No	TBD
Love's 176 - Matfield Green	DCFC	I-35	Milepost 97 Kansas Turnpike Matfield Green, KS 66862	4	FCN	No	TBD

Love's 178 - Belle Plaine	DCFC	I-35	Mile 26 Kansas Turnpike, Belle Plaine, KS 67013	4	FCN	No	TBD
Midway Motors Supercenter - McPherson	DCFC	I-135	2075 E Kansas Ave McPherson, KS 67460	1	EVGATEWAY	No	TBD
Mitten INC - Oakley	DCFC	I-70	1001 U.S. 40 Oakley, KS 67748	2	ChargePoint Network	No	TBD
Oak Park Mall - Overland Park	DCFC	I-35	11149 W 95th St Overland Park, KS 66214	4	eVgo Network	No	TBD
Oasis Travel Plaza - Tesla Supercharger - Colby	DCFC	I-70	700 E Horton Ave. Colby, KS 67701	10	Tesla	No	TBD
Reed Hyundai KC 1 - Merriam	DCFC	I-35	7050 W Frontage Rd Merriam, KS 66203	1	ChargePoint Network	No	TBD
Sonic Drive-In - Tesla Supercharger - Russell	DCFC	I-70	1219 S Fossil St Russell, KS67665	8	Tesla	No	TBD
Sonic Drive-In - Tesla Supercharger - Oakley	DCFC	I-70	3689 U.S. 40 Oakley, KS 67748	12	Tesla	No	TBD
Topeka Service Area - Tesla Supercharger – Topeka	DCFC	I-70	8000 I-70 Topeka, KS 66608	8	Tesla	No	TBD
Towanda Service Area - Tesla Supercharger – El Dorado	DCFC	I-35	7225 Kansas Turnpike El Dorado, KS 67210	8	Tesla	No	TBD
Towne East Square - Wichita	DCFC	US-400	7700 E Kellogg Dr Wichita, KS 67207	4	Electrify America	No	TBD

Walmart 1214 - Colby	DCFC	I-70	115 W Willow St. Colby, KS 67701	4	Electrify America	No	TBD
Walmart 1802 - Topeka	DCFC	I-70	1501 SW Wanamaker Rd Topeka, KS 66604	4	Electrify America	No	TBD
Walmart 664 - Hays	DCFC	I-70	4301 Vine Street Hays, KS 67601	4	Electrify America	No	TBD
West's Plaza Country Mart - Tesla Supercharger - Wichita	DCFC	I-70	1900 North Buckeye Avenue Wichita, KS 67410	12	Tesla	No	TBD