Environmental Assessment

Flint Hills Rural Electric Cooperative K-57 Substation Construction

Geary County, Kansas

Hazard Mitigation Grant Program

Project Number HMGP-DR-4640-02-KS

April 2025

FEMA

U.S. Department of Homeland Security
Federal Emergency Management Agency, Region 7
11224 Holmes Rd,
Kansas City, Missouri 64131

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ACRONYMS AND ABBREVIATIONS

AMMs	Avoidance and Minimization Measures
APE	Area of Potential Effects
CFR	Code of Federal Regulations
cfs	Cubic feet per second
DHS	U.S. Department of Homeland Security
EA	Environmental Assessment
EHP	Environmental and Historic Preservation
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESA	Environmental Site Assessment (for hazardous materials)
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
IPaC	Information for Planning and Consultation
KDA/DWR	Kansas Department of Agriculture. Division of Water Resources
KDEM	Kansas Division of Emergency Management
KDHE	Kansas Department of Health and Environment
KDWP	Kansas Department of Wildlife and Parks
KHS	Kansas Historical Society
KS	Kansas
MBTA	Migratory Bird Treaty Act of 1918
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
PA	Public Assistance
P.L.	Public Law
REC	Recognized Environmental Condition
RUS	Rural Utilities Service

ACRONYMS AND ABBREVIATIONS (continued)

SHPO	State Historic Preservation Office
SOI	Secretary of the Interior
THPO	Tribal Historic Preservation Officer
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 INTRODUCTION

On February 17, 2022, the President declared a major disaster in the State of Kansas as a result of severe storms and straight-line winds (DR-4640-NE) pursuant to the Robert T. Stafford Disaster and Emergency Assistance Act, as amended 42 U.S.C. Section 5121-5206, implementing regulations at Title 42 Code of Federal Regulations (CFR) Part 206. The incident period was December 15, 2021. The disaster declaration authorized FEMA to provide assistance pursuant to its Public Assistance Program to state and local Kansas governments and agencies, and eligible private nonprofit organizations for costs incurred to repair and/or replace eligible facilities damaged during the event in designated counties. The disaster declaration also authorized all counties in the State of Kansas to be eligible for the Hazard Mitigation Grant Program (HMGP), providing funding to state, local, tribal, and territorial (SLTT) governments to rebuild in a way that reduces future natural disaster losses. The program is authorized by Section 404 of the Stafford Act. The disaster declaration was amended on March 22, 2022, adding two additional counties to the list of designated counties authorized for Public Assistance.

Flint Hills Rural Electric Cooperative (Flint Hills REC), located in Council Grove, Kansas, has applied for funding assistance through the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program (HMGP), under HMGP-4640-0002, for assistance with the construction of a new electric distribution substation in Geary County, Kansas along K-57 Highway approximately 3 miles south of the city of Junction City, KS. This project is located in the SW corner of Section 9, Township 12S, Range 6E.

Figure 1 shows the total project property line (purple) with the outline of the fence of the proposed substation (blue). In addition, the land in yellow was purchased to give the option for Flint Hills REC to build a solar installation in a future project. This substation will be called the K-57 Substation. The GPS coordinates of the 4 corners of the project location are:

- 39.018864, -96.764369
- 39.018917, -96.761681
- 39.016569, -96.764203
- 39.016578, -96.761553

Flint Hills REC is an electric distribution utility that is owned by its members/consumers who in turn elect an 8-person board to run the cooperative. Flint Hills REC is not regulated by the Kansas Corporations Commission. Flint Hills REC provides electric service to approximately 6650 residential and commercial electric meters in all or parts of 11 Kansas counties (Geary, Wabaunsee, Riley, Morris, Dickenson, Marion, McPherson, Chase, Lyon, Butler, and Harvey).

The National Environmental Policy Act (NEPA) requires that Federal agencies evaluate the environmental effects of their proposed and alternative actions before deciding to fund an action. The President's Council on Environmental Quality (CEQ) has developed a series of regulations for implementing the NEPA. These regulations are included in Title 40 of

the Code of Federal Regulations (CFR), Parts 1500–1508[1]. The regulations elaborate on the statutory requirement that an action agency prepare an Environmental Assessment (EA) that includes an evaluation of alternative means of addressing the problem and a discussion of the potential environmental impacts of a proposed Federal action. An EA provides the evidence and analysis to determine whether the proposed Federal action will have a significant adverse effect on human health and the environment. An EA, as it relates to the FEMA program, is prepared according to the requirements of the U.S. Department of Homeland Security (DHS) Instruction Manual on Implementation of the NEPA, Instruction Number: 023-01-001, Revision 01 (DHS Instruction 023-01); and FEMA Directive 108-1, and FEMA Instruction 108-01-1: *Instruction on Implementation* of the *Environmental Planning and Historic Preservation Responsibilities and Program Requirements* (EHP Instruction). This guidance and policy require that FEMA take environmental considerations into account when authorizing funding or approving actions. This EA was conducted in accordance with the NEPA statute and CEQ, DHS, and FEMA NEPA implementing regulations and will address the environmental issues associated with the FEMA grant funding as applied to the proposed K-57 Substation construction.

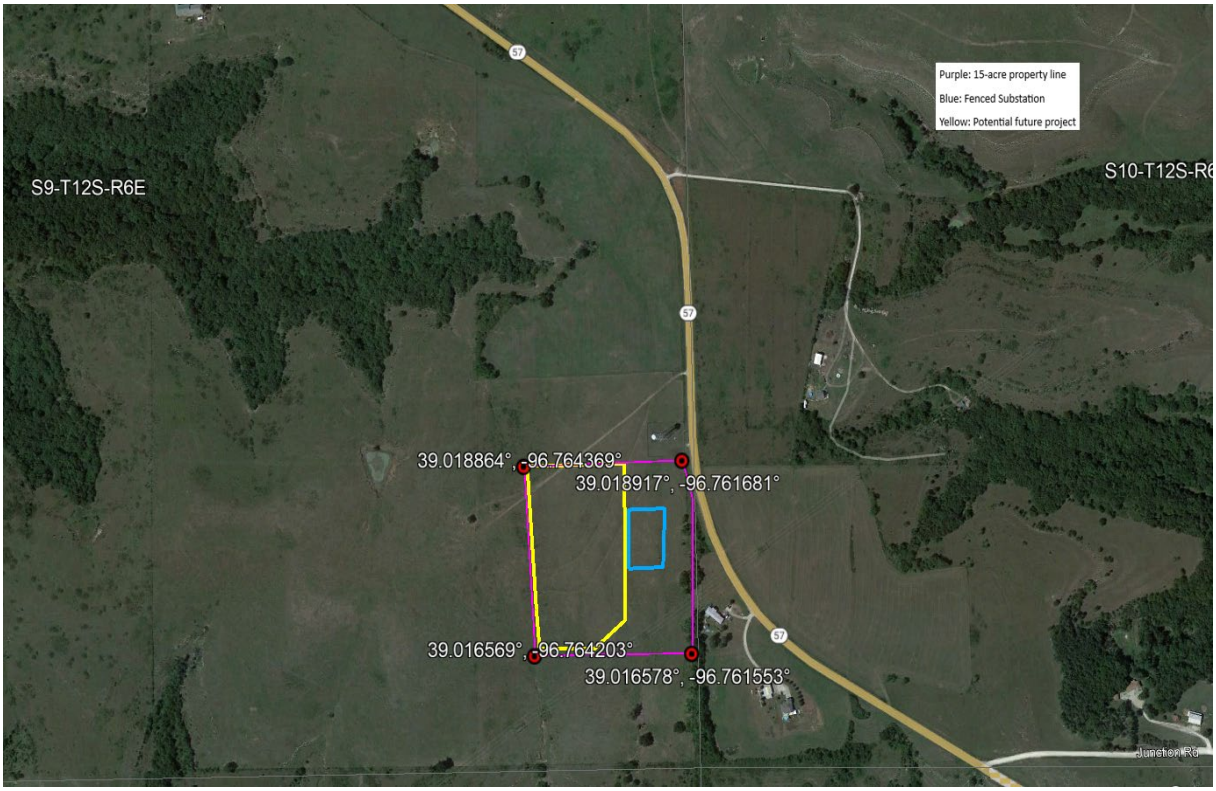


Figure 1: Geary County, Kansas Project Vicinity Map

[1] Consistent with E.O. 14154, CEQ is in the process of rescinding the NEPA regulations and working with Federal agencies to revise or establish their own NEPA implementing procedures. Per CEQ Guidance, while revisions are ongoing agencies should continue to follow their existing practices and procedures implementing NEPA and can voluntary rely on the regulation in 40 CFR 1500-1508 in completing ongoing NEPA reviews (Implementation of the National Environmental Policy Act, February 19, 2025).

2.0 PURPOSE AND NEED

Flint Hills REC has applied for FEMA funding assistance through FEMA's Hazard Mitigation Grant Program (HMGP), under HMGP-4640-0002. The purpose of HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act. This project will help mitigate the loss of electricity, and its associated costs, to 1,732 homes, farms, businesses, and other critical infrastructure, mostly located in Grandview Plaza and rural Geary County Kansas but also includes parts of Riley, Wabaunsee, and Morris Counties (Figure 2). This area is currently provided power via the Flint Hills REC owned Grandview Plaza substation fed from an Evergy transmission line coming from the West. This project will make available a second source of electricity to be used when electrical power outages occur (Figure 3). Simply put, in emergency situations when one transmission power source fails, the homes, businesses, and critical infrastructure mentioned above will be switched to the other source of power, mitigating the loss of electricity and the associated costs.

To accomplish this, Flint Hills REC purchased 15 acres of pastureland in 2023 to build the substation and associated structures. Less than 700 feet of 115kV transmission line will be constructed approximately two miles southeast of Grandview Plaza Kansas to provide the substation with a source of power. The new substation will be on a separate transmission grid and will be positioned between an existing substation in Grandview Plaza Kansas and an existing substation near Dwight, Kansas. When either of these substations lose power, the new substation to be built in this project will be able to provide backup power in Geary County. Since it is rare that both transmission services would be without power at the same time, construction of the new substation will substantially reduce the chances that long duration outages will occur in the project area. For example, as the system is currently situated, if a natural disaster such as a tornado or lightning were to damage the Grandview Plaza substation or the transmission line providing power to that substation, Flint Hills REC's members/customers would be without power until the transmission line was repaired or the utility was able to secure new transformers or a portable substation to restore power. Securing either of these resources is currently a multiday effort. Neither occur quickly.

This project will also improve low voltage issues for customers at the distant ends of this service territory by reducing the distance between the customer and the source of power. The proposed K-57 Substation will serve all Southern Geary County and serve as a backup source of power for parts of the I Sub Station as shown in the Benefited Electric Grid in Figure 2. These electric utility customers are currently provided power exclusively via the Grandview Plaza Substation.

The location of this proposed substation construction site was selected due to its proximity to Flint Hills REC's existing electric grid and an existing, nearby transmission line shown in Figure 3. The site also has easy accessibility via road. The source of power for the proposed K-57 Substation will be an Evergy transmission line that provides power from a

source located to the east of the proposed K-57 Substation. Evergy, an Investor-Owned Utility, owns and operates the transmission line and switching equipment which provides power to Flint Hills REC. The new proposed K-57 Substation and the electric lines extending from the K-57 Substation to the electric meters of Flint Hills REC's members/customers will be owned and operated by Flint Hills REC.

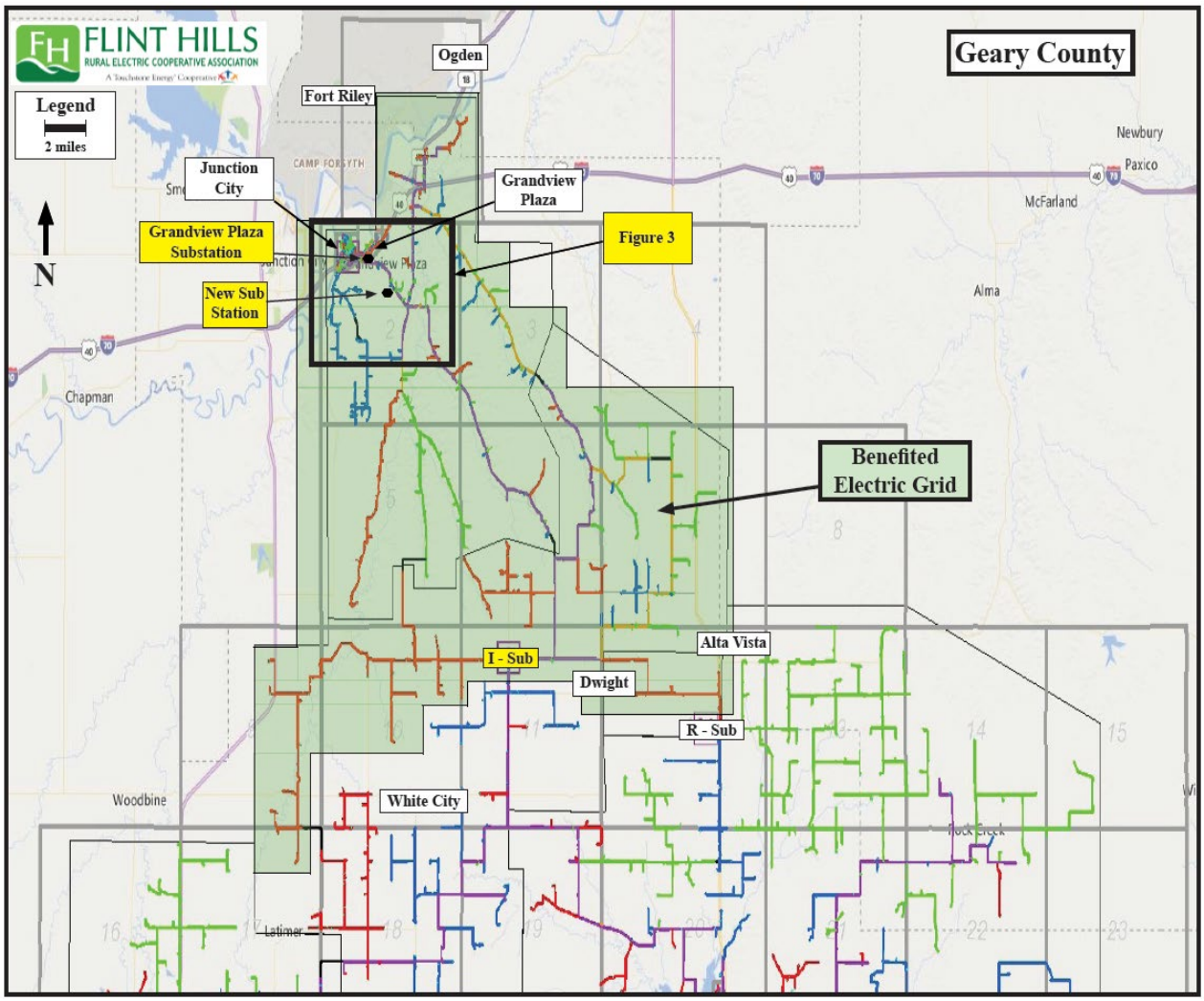


Figure 2: Proposed K-57 Substation location and nearby electrical infrastructure

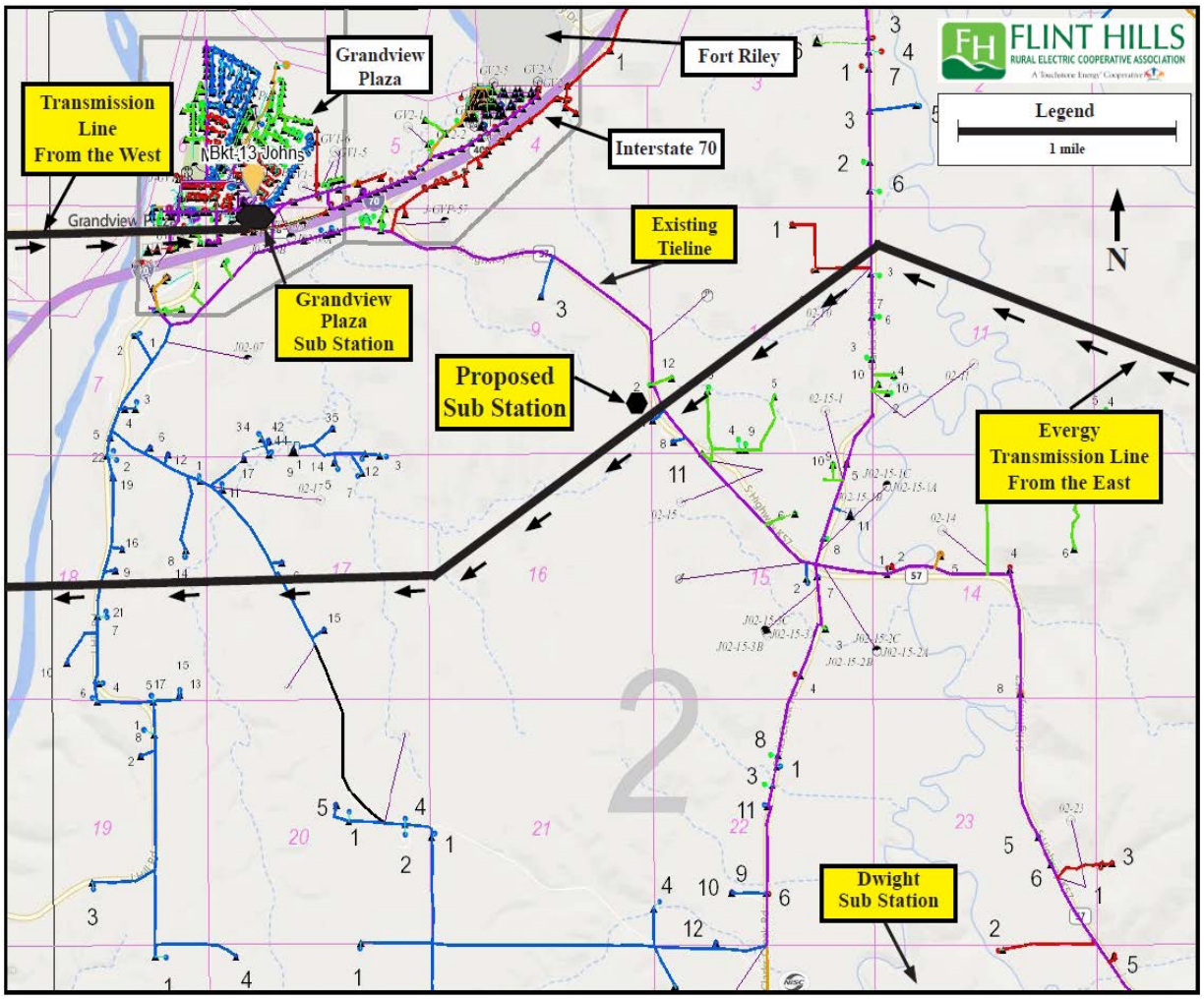


Figure 3: Proposed K-57 Substation location with the location of the upline transmission line

3.0 ALTERNATIVES

The National Environmental Policy Act (NEPA) requires the investigation and evaluation of reasonable project alternatives as part of the project's environmental review process. Inclusion of a No Action Alternative in the environmental analysis and documentation is required under NEPA.

3.1 No Action Alternative

The No Action Alternative, as required under NEPA, is used to evaluate the effects of not providing eligible assistance for the project, thus providing a benchmark against which "action alternatives" may be evaluated. For the purposes of this alternative, Flint Hills REC would not receive FEMA funds to construct the new K-57 Substation.

Although this alternative would not meet the project purpose and need, it is being carried forward for analysis and is discussed in subsequent sections to establish a baseline for

comparison. For the purposes of this alternative, Flint Hills REC would continue to provide electrical service through its existing infrastructure. Other, less cost efficient and reliable system improvements would be made over time to support increasing load demand.

This option would still leave 1,732 homes, farms, businesses, and other critical infrastructure at risk to extended power outages and extreme weather events. The Grandview Plaza and Dwight subs have had varying outage lengths range from shorter outages less than one hour in duration to longer outage up to 7 hours or more in duration in the past 17 years.

3.2 Preferred Alternative

Part of qualifying for this FEMA HMGP grant is the ability for Flint Hills REC to keep costs at a minimum, which is why the current site was selected. Located between an existing substation in Grandview Plaza, Kansas, and an existing substation near Dwight, Kansas, this site reduces the amount of new transmission and distribution line that would be required for this project.

The project scope for the preferred alternative would involve the construction of a new electric distribution substation named the K-57 Substation. This would serve multiple purposes:

- Split up electric load currently served by the Flint Hills REC Grandview Plaza Substation between two different Evergy transmission line sections and two different substations.
    - Flint Hills Grandview Plaza Substation is served from an Evergy transmission line from the west.
    - The new proposed K-57 Substation will be served from an Evergy transmission line from the east.
    - The two Evergy transmission lines are served from different power sources.
- Reduce the distance between many of the Grandview Plaza Substation customers and their power source by feeding the customers from the closest and/or most economical substation.
- Customer service voltage regulation will be improved by reducing the length of electric line from the substation to the customer's meter. Customers will be served from the closest and/or most economical substation.
- The Grandview Plaza Substation and the new proposed K-57 Substation will be able provide a back feed option to restore power when either substation loses power from its respective transmission line or if there is an issue inside the substation itself.
    - When the Grandview Plaza Substation loses power, the new proposed K-57 Substation can be used to restore power to the customers originally served from Grandview Plaza Substation.
    - When the new proposed K-57 Substation loses power, the Grandview Plaza Substation can be used to restore power to the customers that will be served from the new proposed K-57 Substation.
- Improves customer service reliability and system resiliency.

As depicted in figure 3, the new proposed K-57 Substation would serve as a back up to the Flint Hills REC Grandview Sub Station because of the redundant feed from Evergy. A redundant feed is described as having two independent transmission feeds providing electricity to this portion of the Flint Hills REC territory.

The power in this area is currently being provided by Grandview Plaza Substation which is served by a single source from an Evergy transmission line coming from the west. The new proposed K-57 Substation would be fed from another Evergy transmission line coming from the East. Having two transmission sources in this area would improve reliability because it is very unlikely that both Evergy transmission lines would be without power at the same time.

An example of a typical layout for a rural electric distribution substation such as the new proposed K-57 Substation is shown in Figure 4. Evergy will own the transmission structure which will include switching equipment which will allow for an alternate transmission source during an outage or scheduled maintenance. The proposed Flint Hills REC K-57 Substation will include a substation transformer with a concrete containment basin underneath, regulators, bus support structures including overhead conduit that carries/supports the conductors/wires, and protection equipment such as electronic reclosers. The planned layout of the purchased property, including the connections to the Evergy transmission and to the Flint Hills REC distribution lines are shown in Figure 5.

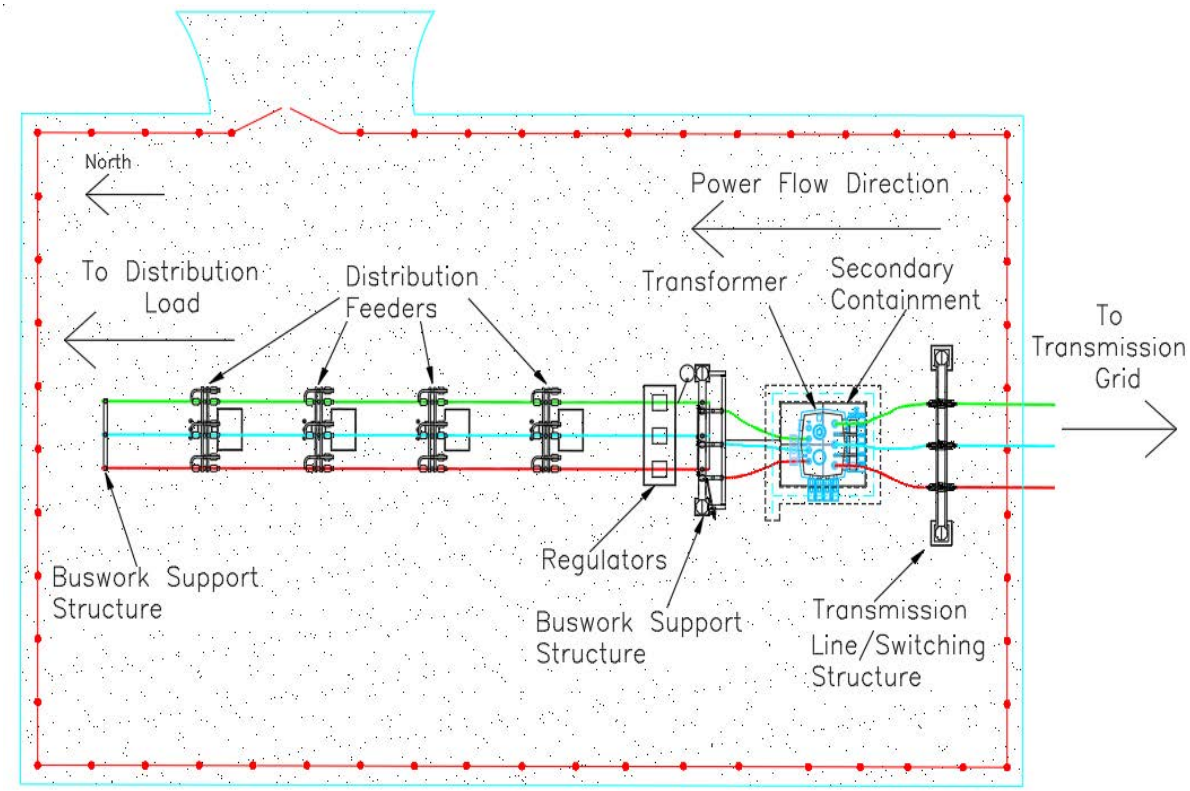


Figure 4: An example of a common layout for a substation similar to the proposed K-57 Substation

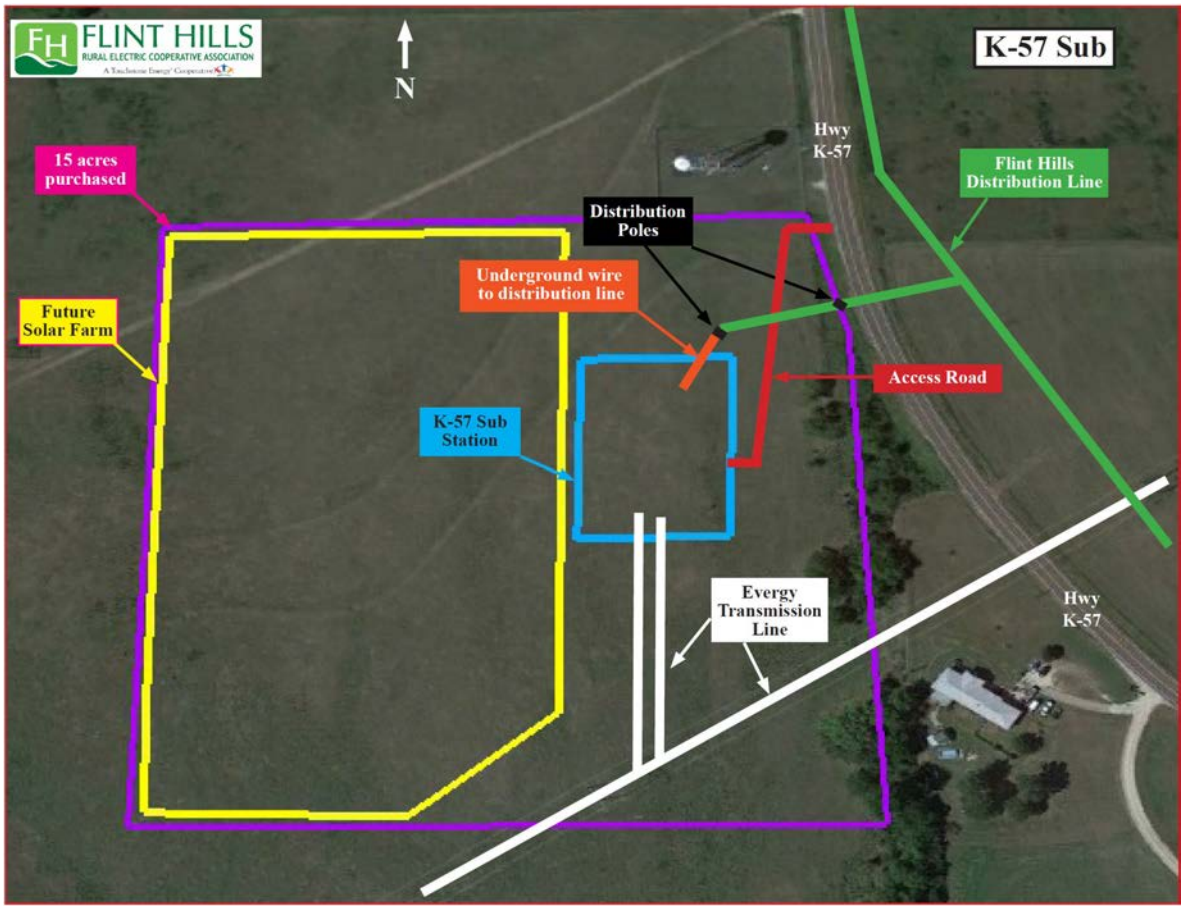


Figure 5: Proposed K-57 Substation, location, layout, and connections to transmission and distribution overhead powerlines.

3.2.1 Future Use

Flint Hills REC has purchased 15 acres of property where the proposed site for the new substation will be located. This is more acreage than is needed for the actual substation but will give Flint Hills REC the ability to create a buffer between the substation and any future housing developments in the vicinity. Currently Flint Hills REC does not have plans to use the additional property for anything other than a buffer. Possible future use could include the construction of a solar farm as a separate project. Such a project would provide opportunities for Flint Hills REC to engage in peak load shaving, use of battery storage technology, and/or other related benefits. Flint Hills REC requested rezoning of the proposed substation site at a Geary County Commission meeting on May 23rd, 2022, and received a conditional use permit on June 13th, 2022.

3.3 Other Alternatives Considered and Dismissed

One alternate site was considered which was approximately one mile South of the preferred location at the intersection of Clarks Creek Road and Highway 57 in Geary County at

coordinates 39.008833°, -96.747983°. This would have required the construction of one mile of transmission line, increased the cost, and caused a greater environmental impact.

The project scope for another dismissed alternative would have only improved the voltage for the customers served from Grandview Plaza Substation. This alternative involved upgrading more than 3.5 miles of existing overhead conductor to a larger wire size. Flint Hills REC owns and operates the Grandview Plaza Substation which provides service to its customers in the area. Many of these customers are provided electrical service over long distances through many miles of overhead conductors. Customer service voltage is impacted by the cumulative resistance to the flow of electrons over the miles of conductor due to the properties of the wire. Replacing existing wire with larger wire with lower impedance/resistance would improve customer low voltage issues. However, there are significant limitations to this approach both from a cost and construction perspective. This alternative would provide very little improvement to service reliability in the area. If the power supply to the existing Grandview Plaza Substation is interrupted, all the customers that are fed from this substation will lose power until the power supply for the Grandview Plaza Substation is restored. With the addition of the new proposed K-57 Substation, the electric load will be split between the two substations, reducing the number of customers out of power during an outage. The dismissed alternatives would not guarantee the same amount of energy available when there are power outage events. The new proposed K-57 Substation also provides a backfeed option for the Grandview Plaza Substation during power outages and scheduled substation maintenance. The same can be said for the outages that occur for the new proposed K-57 Substation. Grandview Plaza will provide a backfeed option for the new proposed K-57 Substation during power outages and scheduled substation maintenance.

4.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

This section discusses existing environmental conditions and the potential impacts and effects that may occur due to FEMA funding the Proposed Action of constructing the proposed K-57 Substation Project. A no action alternative was also analyzed as a baseline for existing conditions.

This section also describes the potential environmental consequences of the preferred alternative by comparing them with the potential environmental consequences of the other alternatives. This evaluation quantified cumulative impacts. The potential for significant environmental consequences was evaluated using the context and intensity considerations as defined in CEQ regulations for implementing the procedural provisions of NEPA (40 CFR 1508.27).

4.1 Resource Areas Not Present in Project Area

The following were considered but not evaluated in detail because they are resources or regulations not applicable to the geographic project area.

1. Magnusson Stevens Fishery Conservation and Management Act (MSA). There is no documented Essential Fish Habitat in Kansas to which this law would apply. A

map confirming this information is available online at the following website: https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper.

2. Seismic Risks. Executive Order (EO) 12699, Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction does not apply because there is low seismic risk in the project area based on seismic hazard maps developed by the U.S. Geological Survey (USGS, 2018).

3. Wild and Scenic Rivers Act. There are no Wild and Scenic Rivers located within the project site or within close proximity to the project area. Additional information and mapping for national Wild and Scenic Rivers can be found at https://www.rivers.gov/map.php.

4. Coastal Resources. There are no coastal zones or coastal resources within the project site or within proximity to the project area. Additional information on coastal management can be found at https://coast.noaa.gov/.

4.2 Physical Resources

The physical resources considered in this EA include soils, air quality, and visual resources. No significant impacts to physical resources are expected as discussed below.

4.2.1 Soils

The Natural Resources Conservation Service (NRCS) division of the US Department of Agriculture (USDA) web soil survey website was referenced to determine that the soil at the proposed project site is (NRCS code 4673) Irwin Silty Clay loam with 3-7% slopes.

4.2.1.1 No Action Alternative

Soils would not be impacted by the No Action Alternative, as no new construction activity would occur.

4.2.1.2 Proposed Action

General geological conditions will not be impacted by the Proposed Action, as the project involves a minor amount of excavation and grading work, resulting in a total cut of approximately 807 cubic yards - all of which will be retained onsite. The excavated soil will be used to level the project surface. If any additional soil is needed to adjust the grade, fill will be brought on site from an approved quarry.

The Proposed Action will result in the disturbance of approximately six acres of land. One acre will be used for the substation and switching yard which will be covered with six inches of gravel. Upon completion of the one-acre substation, the only other ground disturbance will be the addition of a small gravel access road/driveway to access the substation from the adjacent K-57 Highway. The remainder of the six acres will remain as undeveloped pasture/grassland. There is a potential for short-term impacts of erosion from

stormwater runoff; however, Flint Hills REC will take steps to minimize those impacts during construction. The specific sediment, erosion control, and spill prevention measures would be developed during the detailed design phase and would be included under a Storm Water Pollution Prevention Plan (SWPPP) in the plans and specifications. Precise details of the SWPPP will be finalized with the construction plans. Therefore, impacts to geology and soil conditions are not expected to be significant and will be mitigated as necessary.

The property has been open, relatively flat pastureland for many years.

4.2.1.3 Mitigation

Erosion and sediment controls will be used during construction activities, such as the use of silt fencing. Flint Hills REC, its project engineer, and the contractor selected for the project will obtain any necessary permits for the construction phase, such as a National Pollutant Discharge Elimination System (NPDES) Construction Stormwater permit if determined to be required.

The Proposed Action will use appropriate erosion and sediment control practices to prevent impacts from construction work. The project site has existing terraces to slow the movement of water. Native grass will remain on the project area surrounding the substation footprint which will be covered in gravel. The crushed gravel is used as a secondary containment system for any oil spills that would occur. This is a critical component of the cooperative's Spill Prevention, Control and Countermeasures plan (SPCC) which covers oil spill mitigation over all of Flint Hills REC's facilities. The RUS requires the cooperative to have an SPCC plan developed and updated every 5 years.

4.2.2 Prime Farmland

The Farmland Protection Policy Act (FPPA) is intended to minimize the impact of Federally funded projects on unnecessary and irreversible conversion of farmland to non-agricultural uses. For the purposes of FPPA, "farmland" includes prime farmland, unique farmland, and land of statewide or local importance as categorized by the (NRCS) division of the USDA. FPPA excludes projects on land already in an urban development area, used for water storage, or construction within an existing right-of-way purchased on or before August 4, 1984.

To be considered prime farmland or farmland of statewide importance, the land must have a developed irrigation water supply that is dependable and of adequate quality.
Farmland of Local importance is either currently producing or is used for the production of confined livestock.

Unique Farmland characteristically is used for specific high value crops and has a moisture supply adequate for the specific crop.

4.2.2.1 No Action Alternative

Prime farmland, unique farmland, and land of statewide or local importance would not be

impacted by this alternative, as no new construction activity would occur.

4.2.2.2 Proposed Action

The proposed project location is currently an open pastureland area. The NRCS website was consulted to determine whether the subject farmland was classified as prime, unique or land of statewide or local importance. The project area is not considered prime farmland or farmland of statewide importance because it does not have a developed irrigation water supply that is dependable and of adequate quantity.

The project area is not considered farmland of local importance as it is not currently producing any crops and is not in use for confined livestock.

The project area is not considered unique farmland as it is not used to grow any high value crops.

4.2.2.3 Mitigation

Because the project area is not considered farmland by FPPA standards, no FPPA-related mitigation is required.

4.2.3 Air Quality

The U.S. Environmental Protection Agency (USEPA) Green Book provides detailed information about National Ambient Air Quality Standards (NAAQS) designations, classifications, and nonattainment status. The USEPA established NAAQS for six "criteria" pollutants; carbon monoxide (CO), nitrogen dioxide (NO2), ozone (O3), particulate matter (PM10 and PM2.5), sulfur dioxide (SO2), and lead (Pb), and has defined the allowable concentrations of these pollutants that may be reached but not exceeded in a given time period to protect human health (primary standard) and welfare (secondary standard) with a reasonable margin of safety. Primary and secondary standards for NAAQS have been established for most of the criteria pollutants. The USEPA is authorized to designate those locations that have not met the NAAQS as non-attainment and to classify these non-attainment areas according to their degree of severity. Attainment pertains to the compliance/violation of any of the NAAQS for the six criteria pollutants mentioned above.

The USEPA Green Book Counties Designated Nonattainment site was consulted. The proposed project is not located within a USEPA-designated non-attainment area or maintenance area for any of the six "criteria pollutants."

4.2.3.1 No Action Alternative

Air Quality would not be impacted by the No Action Alternative, as no new construction activity would occur.

4.2.3.2 Proposed Action

The Proposed Action would require the disturbance of soil for construction, therefore short-term effects to air quality may occur during the construction phase due to the use of heavy construction equipment. The moving and handling of soil during construction would increase the potential for emissions of fugitive dust and exhaust emissions from diesel powered equipment; however, any deterioration of air quality would be a localized, short-term condition that would be discontinued when the project has been completed and disturbed soils have been stabilized or permanently covered.

Air quality impacts from associated increases in traffic emissions would have a minimal impact as Flint Hills REC does not anticipate a significant increase in traffic due to the Proposed Action.

4.2.3.3 Mitigation

Increases of air pollutants from construction activities would be minimal, localized, and temporary and would have a minor effect on local air quality. The Proposed Action is not expected to have long-term adverse impacts on the air quality of the area.

The proposed activity would include the installation of electrical equipment within a fenced area on a layer of crushed gravel.

4.2.4 Greenhouse Gasses

Greenhouse Gases (GHGs) are emitted by both natural processes and human activities, and their accumulation in the atmosphere regulates temperature. GHGs included carbon dioxide, methane, nitrous oxide, and other compounds. There are currently no established thresholds or standards for GHGs.

4.2.4.1 No Action Alternative

Under the No Action Alternative, Flint Hills REC would continue to provide electrical service through its existing infrastructure. Other, less cost efficient and reliable system improvements could be made over time to support increasing load demand. This option would still leave 1,732 homes, farms, businesses, and other critical infrastructure at risk to extended power outages and extreme weather events. The Grandview Plaza and Dwight substations have had varying outage lengths range from shorter outages less than one hour in duration to longer outage up to 7 hours or more in duration in the past 17 years.
Therefore, the No Action Alternative will have no effect on greenhouse gases.

4.2.4.2 Proposed Alternative

The construction of the K-57 Substation would generate short-term construction equipment

exhaust emissions. The proposed substation will include a transformer with a concrete containment basin underneath, regulators, bus support structures including overhead conduit that carries/supports the conductors/wires, and protection equipment such as electronic reclosers. Pollutants that would be emitted from the internal combustion engines exhaust of various vehicles include multiple pollutants, volatile organic compounds (VOCs), and certain GHGs. Initial construction, and ongoing emissions from site maintenance are expected to be less than the federal minimum thresholds for criteria pollutants and VOCs. Construction-related GHG emissions are expected to be negligible in terms of overall quantity and within the range expected for construction and operation of a work site of this scale. GHG emissions impacts from associated increases in traffic emissions would have a minimal impact as Flint Hills REC does not anticipate a significant increase in traffic due to the Proposed Action.

There would also be long term emissions associated with the maintenance and operation of the equipment of the substation. Fugitive emissions can escape from gas insulated substations and switching gears through malfunctioning seals. These emissions are more common in older equipment. Since the substation will be built using recent technology, it is unlikely to have significant emissions. Furthermore, one of the proposed potential future land uses surrounding the substation is a multi-acre solar farm which could generate a significant amount of green energy, resulting in decreased GHG emissions.

4.2.4.3 Mitigation

There are no mitigation opportunities since the amount of GHG emissions are expected to be negligible.

4.2.5 Visual Resources

The project area is located along Kansas State Highway 57 in a rural, agricultural area. The area surrounding the project area includes rural agricultural land with minimal rural residential housing.

4.2.5.1 No Action Alternative

The No Action Alternative would not change the visual resources of the proposed new site.

4.2.5.2 Proposed Action

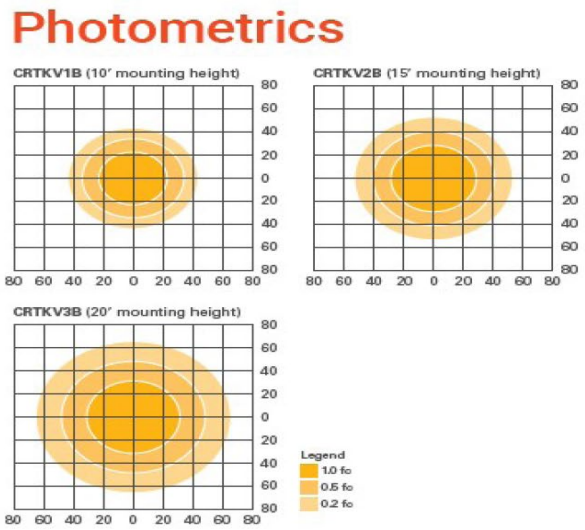
The Proposed Action would have a short-term adverse impact on visual resources near the project area as a result of construction activities and the presence of construction equipment. These impacts would be typical of construction activities that routinely occur during electrical infrastructure installation.

The Proposed Action would have a minimal long-term effect on the visual resources in the project area with the change from open pastureland to the addition of an electrical substation. There is an existing tree line that blocks the view of the project site for much of the adjacent highway. Vegetation to block the view immediately surrounding a

substation is not an industry practice because the plant/tree growth can make contact with electrical equipment causing an outage for thousands of people. Substations such as the proposed K-57 as it will be built are commonly seen in rural areas in this part of the state.

Flint Hills REC addressed the neighbor's concerns regarding lighting issues. Lighting at the substation will be minimal. There will be two security lights at this substation just to help deter vandalism. These lights will be LED security lights that have a light pattern straight down (See Figure 6). There should be minimal impacts from this lighting for the surrounding houses considering the distance the houses are from the substation and an existing natural tree barrier between the substation and the nearest houses. Any structures will be a minimum of 250 feet from existing neighbors.

Lighting pollution will be addressed by using LED Security lights that emit a pattern as shown in Figure 6. Placement of a vegetative (tree or shrub) barrier of 100 ft. to 200 ft. long extending from the east fence just north of the transmission line extending to the Southwest along the transmission line easement to better block the view of the substation. In addition to better blocking visual impacts, such a vegetative line would also assist with addressing public concerns about light and noise impacts.



Example of the type of security light that will be used and the light pattern associated with this light in square ft.

Figure 6: Example of LED Security Light to be used at the proposed K-57 Substation

4.2.5.3 Mitigation

The Proposed Action is not expected to have long-term adverse impacts on the visual resources of the area. On July 13, 2022, the Geary County Board of County Commissioners issued Flint Hills REC a Conditional Use Permit to allow a substation to be built along South K-57 Highway in Geary County. A condition of the permit is that there will be appropriate screening between the proposed substation and current neighboring homeowners with any structures being a minimum of 250 feet away from the nearest neighbors (Appendix A). The project site is largely beyond an existing row of trees from the point of view of anyone who would see this site. The view of this substation, electrical

equipment connected to overhead pole inside a chain link fence, is consistent with industry practice throughout rural Kansas planned vegetation border will also serve to preserve the overall viewshed of the area.

4.3 Water Resources

Water resources evaluated in this EA include water quality (sole source aquifer), surface waters, floodplains, and wetlands.

4.3.1 Water Quality

Aquifers and surface water are drinking water systems that may be impacted by development. The Safe Drinking Water Act of 1974 requires protection of drinking water systems that are the sole or principal drinking water source for an area and which, if contaminated, would create a significant hazard to public health.

Sole Source Aquifer (SSA) designations are one tool to protect drinking water supplies in areas where alternatives to the groundwater resource are few, cost-prohibitive, or nonexistent. The designation protects an area's ground water resource.

4.3.1.1 No Action Alternative

Water quality would not be impacted by the No Action Alternative, as no new construction activity would occur.

4.3.1.2 Proposed Action

SSA information was checked on the USEPA's website for sole source aquifers. The proposed project location is not located within an area designated by the USEPA as an SSA.

4.3.1.3 Mitigation

SSA information was checked on the USEPA site for sole source aquifers. The proposed project location is not located within an area designated by the USEPA as an SSA; therefore, the project would not have an adverse impact on ground water quality and no mitigation is required.

4.3.2 Surface Waters

The U.S. Army Corps of Engineers (USACE) regulates the discharge of fill material into Waters of the United States (WOTUS) under Section 404 of the Clean Water (CWA) (33 CFR, Part 320330). There are no WOTUS identified in proximity to the project site. The WOTUS closest to the proposed project site is Clarks Creek which is located approximately 1.0 mile east of the proposed project site. During construction, the contractor will utilize a SWPPP that is likely to include the installation of silt fences, buffer strips, or other sediment control to prevent any runoff from the project site. Once the project is complete and operational, the substation area will be covered by 6 inches of crushed rock, an

acceptable industry practice to limit the flow of any spilled oil off the project site. The rest of the 15-acre site will continue to be covered by grass which will slow the migration of surface water runoff from the project site. State and local permitting processes may result in additional requirements.

4.3.2.1 No Action Alternative

The No Action Alternative would not directly impact surface water.

4.3.2.2 Proposed Action

Construction activities associated with the construction of the proposed K-57 Substation would not directly or indirectly impact Clarks Creek.

4.3.2.3 Mitigation

No direct impacts to the Clarks Creek, the closest body of water, would occur as a result of the project. CWA permits under Section 404 would not be required.

4.3.3 Floodplains

Pursuant to Executive Order (EO) 11988 (Floodplain Management) and EO 11990 (Protection of Wetlands), "recipients are required to protect the values and benefits of floodplains and wetlands. Recipients should reduce flood losses and wetlands destruction by not conducting, supporting, or allowing projects to be located in floodplains or wetlands unless it is the only practicable alternative. If it is determined that the proposed project must be located in a floodplain or wetland, then certain measures must be undertaken. These measures should minimize potential harm to beneficial floodplain and wetland values, reduce the hazard and the risk of flood loss; and minimize the impact of floods on human safety, health, and welfare."

FEMA Flood Map Service and the Kansas Floodplain viewer were checked. The proposed location is not located within a 100-year floodplain and therefore not subject to routine flooding. The Kansas Floodplain Viewer for the proposed substation location is shown in Figure 7. FEMA's effective Floodplain Map for the proposed site is shown in Figure 8.

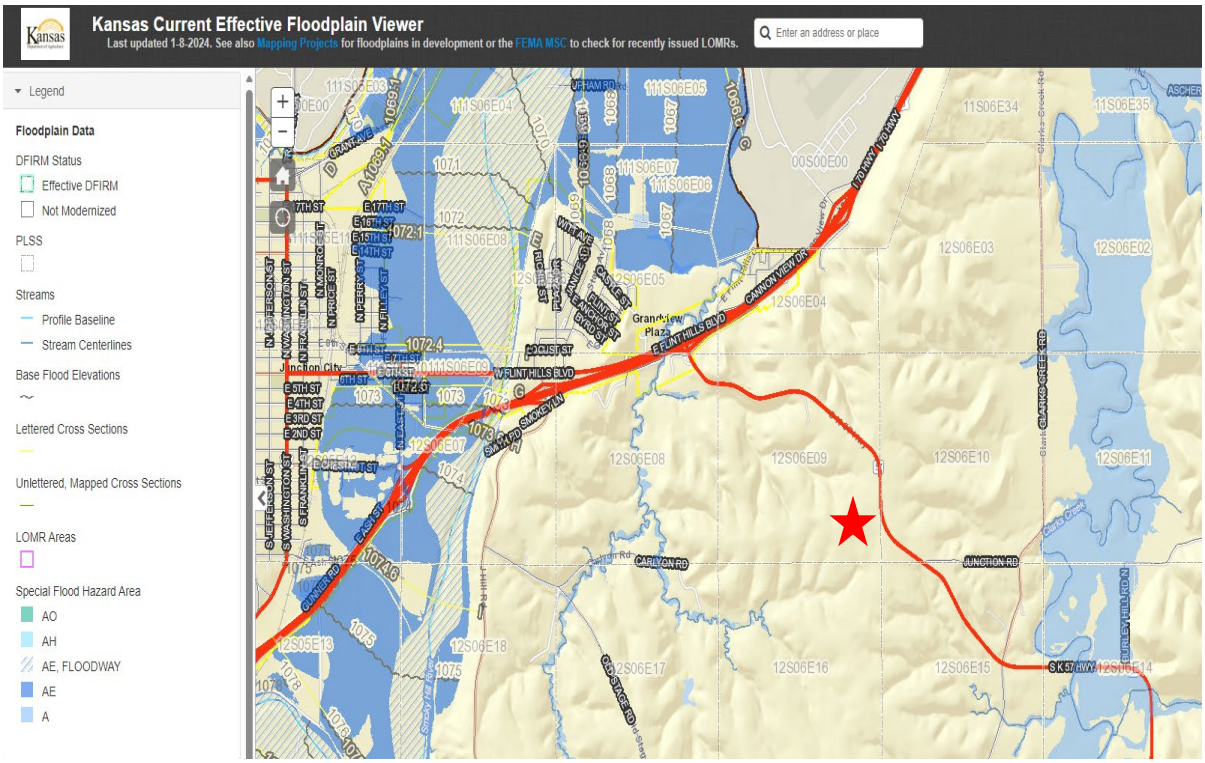


Figure 7: Kansas Floodplain Viewer results of proposed substation location

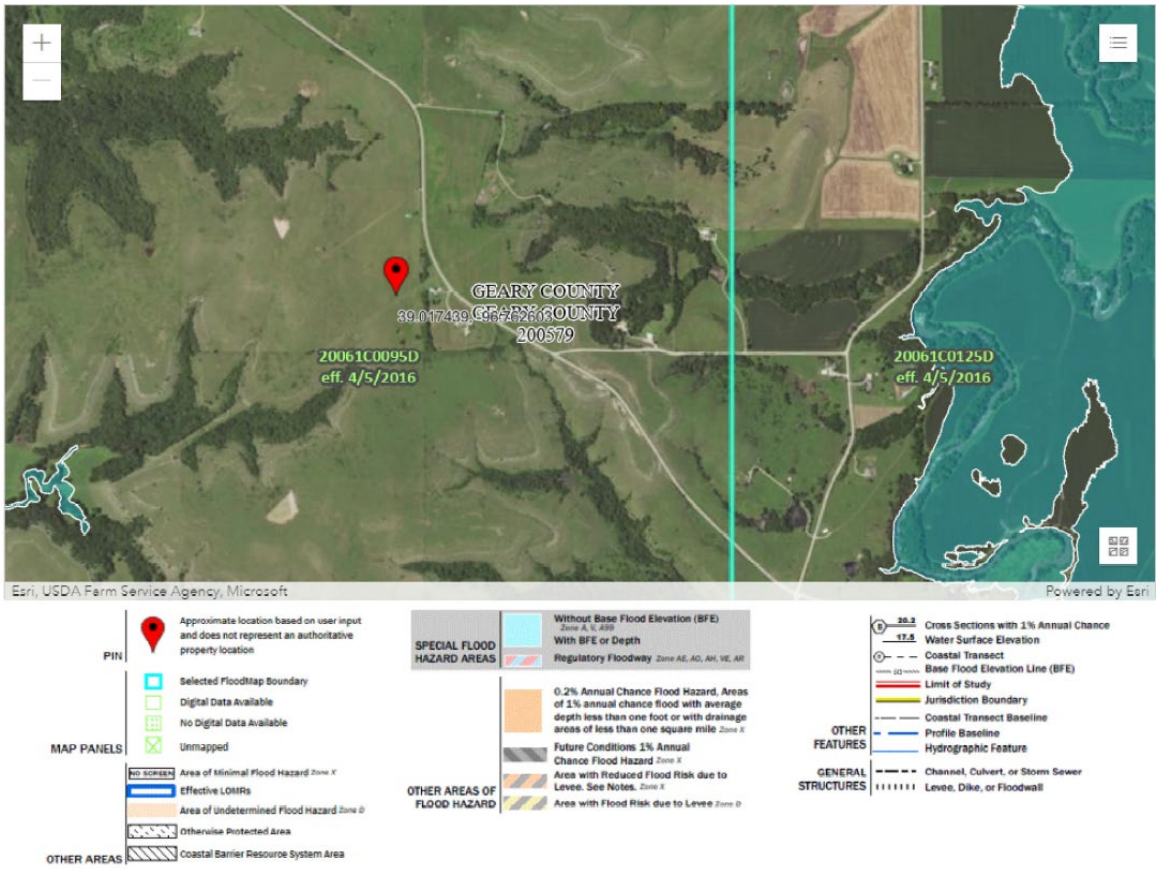


Figure 8: FEMA Floodplain Map of proposed substation location

4.3.3.1 No Action Alternative

With the No Action Alternative, there will be no impact to floodplain or wetland resources because no construction will occur on the proposed site.

4.3.3.2 Proposed Action

The proposed activities at the project location will have no impact on the floodplain of the closest body of water, Clarks Creek. The proposed location of the entire fenced area of the K-57 Substation will be covered in 6 inches of crushed rock. Based upon the arrangement of the substation, the void volume of the crushed rock, and the amount of mineral oil in the largest container to be constructed in the new substation, it is expected that the volume of crushed rock at this facility will be sufficient to stop or slow the migration of any potentially leaking oil enough to allow for discovery and clean-up without significant harm to the environment. If a piece of electrical distribution equipment within the substation, such as a transformer or regulator, were to lose oil due to a leak, it would quickly cause an equipment failure. This would disrupt electrical service to the surrounding area. Flint Hills REC would receive nearly immediate notification of this loss of service and send staff to the area who are trained on mitigating an oil spill.

This void volume of crushed rock mitigation technique is commonly used by the Rural Electric Cooperatives in the State of Kansas to limit the migration of spilled oil away from the substation site. Flint Hills REC has an Emergency Response Plan (ERP) and a Spill Prevention, Control & Countermeasures Plan (SPCC). These plans provide guidance for responding to an oil spill. Once constructed, the K-57 Substation would be incorporated into the SPCC.

4.3.3.3 Mitigation

The proposed substation site is not located within a designated floodplain; therefore, the project would not have an adverse impact on floodplain values and no mitigation is required. In addition to the crushed rock slowing any potential oil spill, the pasture where this project will be built has terraces built into the landscape to further slow the flow of water or other liquids draining from the site.

4.3.4 Wetlands

Section 404 of the Clean Water Act (CWA) establishes a program to regulate the discharge of dredged or fill material into WOTUS, including wetlands. Activities in WOTUS regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports) and mining projects. Section 404 requires procurement of a USACE permit before dredged or fill material may be discharged into WOTUS, unless the activity is exempt from Section 404 regulation (e.g., certain farming and forestry activities).

The basic premise of the program is that no discharge of dredged or fill material may be permitted if: (1) a practicable alternative exists that is less damaging to the aquatic environment or (2) the nation's waters would be significantly degraded.

Wetlands are defined by the USACE as "those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

EO 11990, Protection of Wetlands, requires Federal agencies to take action to minimize the destruction or modification of wetlands, by considering both direct and indirect impacts to wetlands that may result from Federally funded actions. U.S. Fish and Wildlife National Wetlands Inventory Maps were checked for the proposed project location. This project area is not located in a mapped wetland. See Figure 9.

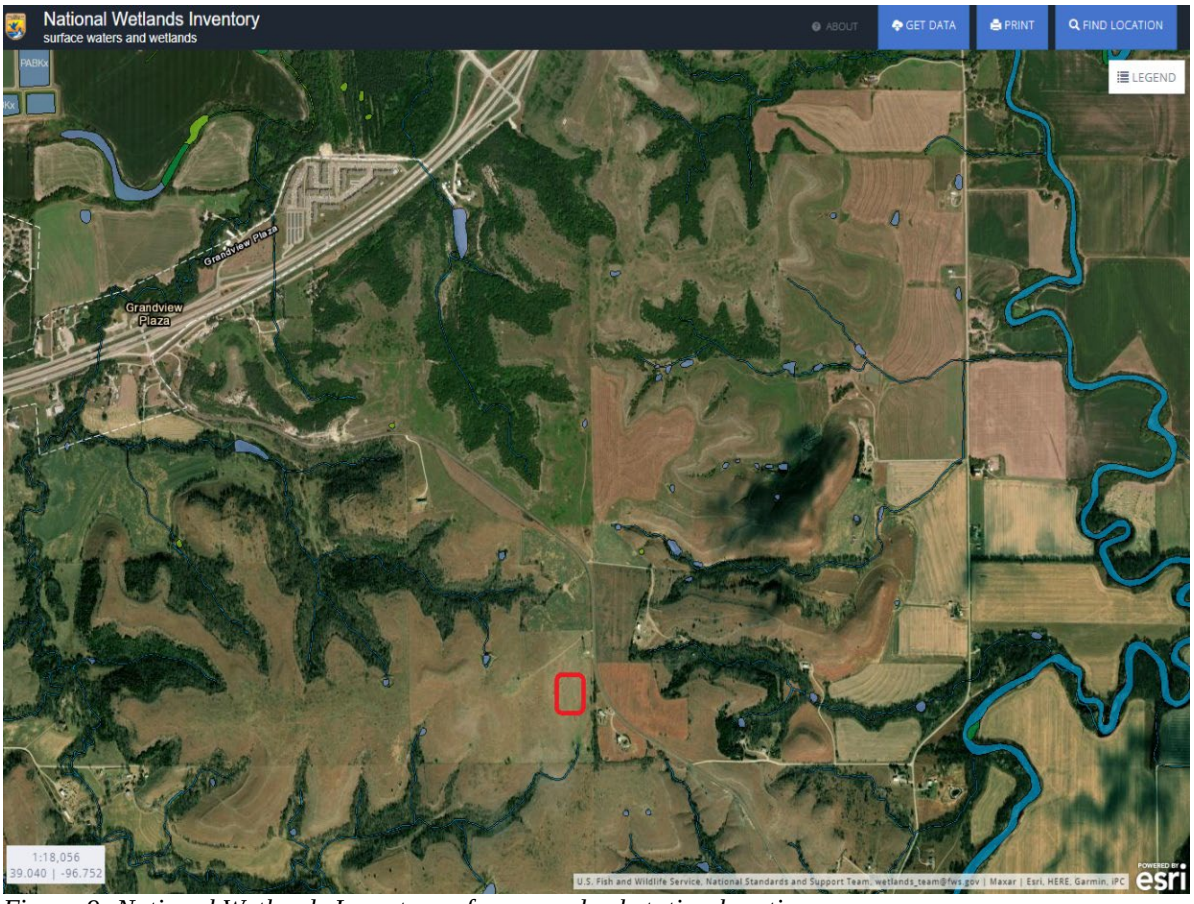


Figure 9: National Wetlands Inventory of proposed substation location

4.3.4.1 No Action Alternative

Wetlands would not be impacted by the No Action Alternative, since no new construction activities would occur.

4.3.4.2 Proposed Action

Wetlands would not be impacted by the construction of the K-57 Substation due to the absence of wetlands at or immediately adjacent to the proposed project site. The Wetland Inventory Map does show a few small wetland areas (ponds) in the surrounding area. The project site is surrounded by relatively flat pastureland on 3 sides and a highway on the other side. For these nearby mapped wetlands, some are higher than the project site, and for others Highway 57 acts a major separator. Because of this, the proposed project will not impact these ponds with run-off or soil erosion.

4.3.4.3 Mitigation

The proposed project area is not located within, nor would it have an impact on, a wetland therefore no mitigation is required. Section 404 permits are not required for this project.

4.4 Biological Resources

Native or naturalized vegetation, wildlife, and the habitats in which they occur are collectively referred to as biological resources. The biological resources considered in this EA are vegetation including invasive species, terrestrial wildlife, fish, avian species, and threatened and endangered species. Existing information on plant and animal species and habitat types in the vicinity of the proposed site were reviewed with special emphasis on the presence of any species listed as threatened or endangered by Federal or State agencies to assess their sensitivity to the effects of the alternatives.

4.4.1 Vegetation

Vegetation describes the plant species present in an area based on soil conditions, geography, and climate patterns. Vegetation communities are a collection of flora species within a specific geographical area. Vegetation communities can greatly influence wildlife species by providing habitat, food, and travel corridors, and provide other important functions like soil stabilization, soil temperature and moisture control and soil enhancement, as well as aesthetics, food production, and wind buffering.

Geary County lies within the Flint Hills Ecoregion which covers a good portion of East central Kansas.

EO 13112 (Invasive Species) was created to prevent the introduction of invasive species and to provide for their control. The Federal government cannot fund or authorize actions that may promote the introduction or spread of invasive species. The following are a list of invasive species known to be found in Geary County, Kansas:

Table 4.4.1 – Geary County Invasive Species List

Canada Thistle	Musk Thistle
Bull Thistle	Quackgrass
Field Bindweed	Russian Knapweed
Hoary Cress	Sericea Lespedeza

Johnsongrass	Woolly Leaf Bursage (Bur Ragweed)
Kudzu	Multiflora Rose
Leafy Spurge	

Kansas's Noxious Weed Law (KSA Chapter 2, Article 13 - The Kansas Noxious Weed Law) was created to protect landowners from invasion of weeds growing on neighboring properties and to reduce the likelihood of the spread of new weeds.

The proposed project area is a previously tilled agricultural field that has now been used as pasture ground for many years. Invasive species are not generally known to grow within the proposed project area. However, it is possible that other opportunistic or invasive species may exist in roadside ditches and field edges in the vicinity of the project area.

The proposed project area is largely a flat, open field with a small number of trees along a ditch adjacent to the road as well as in wind break row for a home along the edge of the site.

No trees will be cut during construction of this substation. The only vegetation on the project site is pasture/prairie grass; no threatened or endangered plant species are known to be present at the site.

4.4.1.1 No Action Alternative

Vegetation would not be impacted by the no build alternative as no construction or ground disturbance activity will occur.

4.4.1.2 Proposed Action

The proposed project site is being used as pastureland. Construction of the proposed K-57 Substation would create land disturbing activities which may support the establishment of weed species. However, all of the land used for this substation will be covered in 6 inches of gravel and will be periodically sprayed for weeds as a part of routine maintenance. The rest of the 15-acre project ground outside of the fenced substation will remain as undisturbed pastureland and will not be sprayed for weeds.

4.4.1.3 Mitigation

Weed mitigation as part of the construction of the new proposed K-57 Substation would be accomplished by the completion of a permanent 6-inch gravel base covering the substation project area. Over time the facility will be periodically sprayed for weeds.

4.4.2 Fish, Wildlife, and Avian Species

The Migratory Bird Treaty Act of 1918 (MBTA) prohibits the taking of any migratory birds, their parts, nests, or eggs, except as permitted by regulations. Furthermore, the Bald and Golden Eagle Protection Act of 1940 (BGEPA) prohibits the taking of bald or golden

eagles, their parts, nests, or eggs, except as permitted by regulations. The U.S. Fish and Wildlife Service (USFWS) consults on issues related to all protected species.

A review of the proposed project areas using the USFWS Information for Planning and Consultation (IPaC) system on November 28, 2023, identified no migratory bird species and two bat species as potentially present at the project site. The bat species are the Northern Long-eared Bat (endangered species) and the Tricolored Bat (proposed endangered species). The IPaC system also identified a fish (Topeka Shiner *Notropois topeka*) as an endangered species, and an insect (Monarch Butterfly *Danaus plexippus*) as a candidate to become a threatened species, are all potentially present at the proposed project site (Appendix B).

Large and small game species, small mammals, bird species and insects are expected to occasionally occupy work areas. Woodlands and naturalized riparian areas would provide the highest quality wildlife habitat for the widest variety of wildlife, including nesting habitat for migratory birds. Landscaped urban areas, as well as agricultural fields and roadsides also provide habitat for wildlife although the quality of this type of habitat is somewhat degraded and more limited for wildlife use. Trees and larger woody shrubs provide nesting habitat for some migratory bird species. Generally, migratory birds nest from April 1 to September 1.

The project is located in a rural area surrounded by pasture and farmland as well as a few residential homes. Habitat for wildlife species in the project area is limited and is used by species that can readily adapt to these conditions.

The proposed project site does not support aquatic species. There are no bodies of water at or in proximity to the project location. This project is not expected to have any impacts to water resources, therefore there will be no impact to the Topeka Shriner Habitat. No trees will be cut for this project.

4.4.2.1 No Action Alternative

Fish, Wildlife and Avian species would not be impacted by the No Action Alternative as no construction activity will occur.

4.4.2.2 Proposed Action

The proposed project site primarily consists of habitat conducive to common generalist terrestrial and avian species found in developed and disturbed areas. The conversion of the proposed K-57 Substation from pasture to electrical infrastructure would not diminish the use of the site by generalist species. There are no large tree covered areas or large open water bodies on or near the work areas. A small tree line exists along an adjacent residential property boundary, but the trees will not be disturbed by the proposed project.

4.4.2.3 Mitigation

The proposed K-57 Substation site is within the geographic range of the Northern Long-eared Bat and the Tricolored Bat. These bats reside in caves and trees. No trees will be cut for this project; therefore, there will be no impact to the bat habitat.

4.4.3 Threatened and Endangered Species and Critical Habitat

This section identifies special status species known to occur or likely to occur within the project area and any associated critical habitats. Included in this are Federal and state-listed species. An endangered species is in danger of extinction throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered in the foreseeable future. Federally listed species are designated under the Endangered Species Act (ESA) of 1973. Section 7(a)(2) of the ESA of 1973, 50 CFR Part 402, as amended requires each Federal agency to address how its action may jeopardize the continued existence of any Federally listed endangered or threatened species and no such action can result in the destruction or adverse modification of habitat of such species that is determined to be critical. Section 7(a)(1) of the ESA obligates Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. FEMA is responsible for consulting with the USFWS to ensure compliance with Section 7 of the ESA.

A review of the project area using the USFWS IPaC system was conducted on October 30, 2023, and an official species list obtained (Appendix B) and any potential of impact was reviewed.

The list of Federally listed species for the proposed project area identifies three species that are Federally listed as endangered or proposed endangered and subject to Section 7(a)(2) of the ESA: Northern Long-eared Bat, Tricolored Bat, and the Topeka Shiner fish. There is no Designated Critical Habitat for any of these species within the proposed project area. The Monarch Butterfly is a Candidate for Listing and Section 7(a)(2) of the ESA does not apply to this species until such time as it is proposed for listing. Section 7(a)(1) of the ESA is applicable for this species.

Northern Long-Eared Bat (*Myotis septentrionalis*)

This mammal overwinters by hibernating in caves and mines with constant temperatures, high humidity, and no air currents. Summer roosting habitat for this species is located underneath loose bark, in cavities, or in deep crevices of both live trees and snags (USFWS, 2020). The primary threat to this species is white nose syndrome (WNS) an introduced fungal disease. This species is currently Federally listed with a 4(d) rule that only prohibits take within the WNS zone when it (1) occurs within 0.25 miles (0.4 km) of a known northern long-eared bat hibernacula; or (2) when known occupied maternity roost trees, or any other trees within a 150-foot (45-meter) radius from known occupied maternity trees, are cut during the pup season (June 1 through July 31). There are trees adjacent to the proposed K-57 Substation construction site, but no trees will be removed as part of the

project. No known hibernacula are present within 0.25 miles of the project action area and no maternity roosts are known.

Tricolored Bat (*Perimyotis subflovus*)

During the winter, tricolored bats are often found in caves and abandoned mines. During the spring, summer, and fall, tricolored bats are found in forested habitats where they roost in trees, primarily among leaves of live or recently dead deciduous hardwood trees, but may also be found in Spanish moss, pine trees, and occasionally human structures. Tricolored bats face extinction due primarily to the range-wide impacts of WNS, a deadly disease affecting cave-dwelling bats across the continent. WNS has caused estimated declines of more than 90 percent in affected tricolored bat colonies across the majority of the species range. There are trees adjacent to the proposed K-57 Substation construction site, but no trees will be removed as part of the project.

Topeka Shiner (*Notropis topeka*)

The Topeka shiner uses pools with little or no flow that occur either within the stream channel or off-channel. It is generally tolerant of harsh conditions that can occur in these pools (such as high temperatures, low dissolved oxygen), and it can survive in these habitats even when other portions of the stream become dry. The species typically occupies pools with substrates relatively free of sediments (such as sand, gravel, cobble, rubble) though it can be found at sites of lesser quality, and often spawns on the periphery of sunfish nests within these pools. These habitats are not present in the project areas as there are no bodies of water in or near this proposed project boundary; therefore, this species is not present at the project site.

Monarch Butterfly (*Danaus plexippus*)

Much of the monarch butterfly's life is spent migrating between Canada, Mexico and the U.S. During the breeding season monarchs require milkweed plants upon which to rear their larvae and nectar sources to sustain the adults during reproduction. Nectar sources are also required by the butterflies to fuel the fall migration as well as the spring flights northward. The major summer breeding area is the grasslands of central North America, particularly the area known as the Corn Belt. Chemical-intensive agriculture, increasing acreage converted to row crops, and mowing/herbicide treatment of roadsides has contributed to a decline of milkweed, the only plant eaten by monarch caterpillars.

Monarchs are typically found in open grass areas during the breeding season.
Monarchs need nighttime roosting sites during migration. In the western population, roosting generally occurs in both native and nonnative deciduous and evergreen trees. Monarchs feed and lay their eggs on milkweed plants.

4.4.3.1 No Action Alternative

Federally Threatened and Endangered Species and Designated Critical Habitat would not be impacted by the No Action Alternative as no construction activity would occur.

4.4.3.2 Proposed Action

The proposed construction site does not have tree habitat suitable for roosting or hibernacula for the Northern Long-Eared Bat or the Tricolored Bat and tree removal will not occur as part of the project construction.

For the Monarch Butterfly, the project location was compared with the Kansas Biological Survey & Center for Ecological Research map of Kansas Milkweed Sightings in Figure 10 (See "Kansas Biological Survey & Center for Ecological Research" under Resources in section 8.0). There are no known milkweed locations within at least a mile of the proposed K-57 Substation project area. Because there are no known milkweed plants in the project area, there is no suitable habitat. Therefore, it is unlikely that this species is present at the project site. Figure 10 shows the project location in Red. This map comes from the inaturalist.org website used by the Biological Survey and Center for Ecological Research. This map displays all milkweed descriptions and locations located within the orange box. In this case, no milkweeds were found.

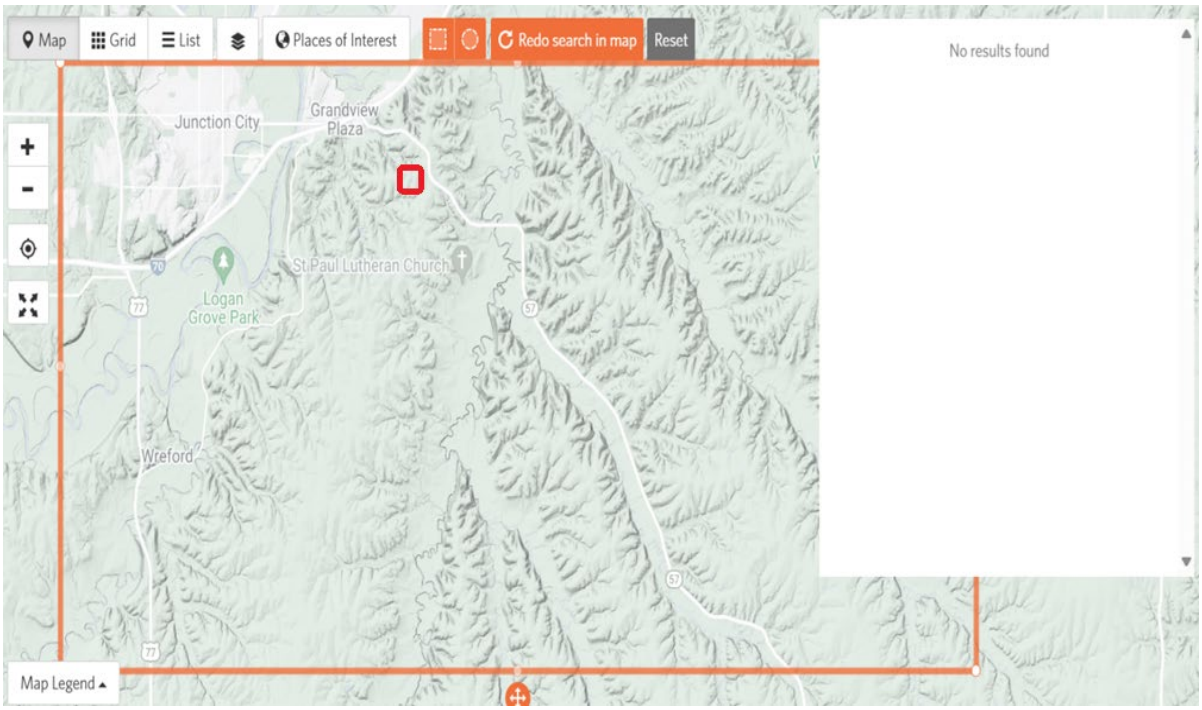


Figure 10: Center for Ecological Research map of Kansas Milkweed Sightings near proposed site

4.4.3.3 Mitigation

No mitigation is required for any of the Federal listed species.

4.5 Cultural Resources

Consideration of impacts to cultural resources is mandated under Section 106 of the National Historic Preservation Act (NHPA), as amended, and implemented by 36 CFR Part

800. The NHPA outlines federal policy to protect historic properties and promote historic preservation in cooperation with States, Tribal Governments, local governments, and other consulting parties. The NHPA established the National Register of Historic Places (NRHP) and designated the State Historic Preservation Office (SHPO) as the entity responsible for administering State-level programs. The NHPA also created the Advisory Council on Historic Preservation (ACHP), the Federal agency responsible for overseeing the Section 106 process and providing commentary on Federal activities, programs, and policies that affect historic properties.

The Section 106 process applies to any Federal undertaking that has the potential to affect historic properties. Under Section 106, Federal agencies are responsible for identifying historic properties within the Area of Potential Effects (APE) for an undertaking, assessing the effects of the undertaking on those historic properties, if present, and considering ways to avoid, minimize, and mitigate any adverse effects.

FEMA Initiated Section 106 consultation with the Kansas SHPO for the proposed substation construction project on April 5, 2024 (Appendix C), with a finding of No Historic Properties Affected. The Kansas SHPO concurred with FEMA's determination on April 11, 2024, with No Historic Properties Affected (Appendix D).

4.5.1 Archeological

FEMA has considered the potential for the alternatives to affect archaeological resources. Based on review of the National Register of Historic Places, National Historic Landmarks, and the Kansas Historic Resources Inventory (KHRI) databases, it was determined that no previously identified archaeological sites have been identified within the Area of Potential Effect (APE) or within a one-quarter mile radius.

FEMA reviewed the alternatives to determine if any previously identified historic properties, including archeological sites, are located within the APE of these Alternatives and to determine the potential for the APE to contain previously unidentified historic properties.

4.5.1.1 No Action Alternative

The No Action Alternative would not impact any potential cultural resources in the project area. No construction activities at the proposed project location would occur with the selection of the No Action Alternative.

4.5.1.2 Proposed Action

In accordance with Section 106 Consultation, FEMA determined the APE for the proposed K-57 Substation construction and the additional land acquired is the area of direct effects at the project location resulting from the proposed ground distributing activities that would take place at the approximately 15-acre (6.1 HA) project site.

4.5.1.3 Mitigation

After a review of consultation with the State Historic Preservation Officer, no significant archeological resources were identified at the project site. Therefore, no mitigation is required.

4.5.2 Historical Properties

FEMA conducted a Section 106 NHPA review of the proposed undertaking in accordance with the 2018 Programmatic Agreement. FEMA has considered the potential for these alternatives to affect historic structures. During the Section 106 review, FEMA identified a water tower north of the project site and two residential homes south of the site, all within a quarter-mile of the APE. After reviewing historical arial property maps of the project site and vicinity, FEMA determined that based upon the age of the structures there are no historic properties located within the APE of the alternatives considered for this undertaking or within a quarter-mile buffer.

4.5.2.1 No Action Alternative

The No Action Alternative would not impact any potential historic structures in the project area.

No construction or demolition activities at the proposed location of the K-57 Substation would occur with the selection of the No Action Alternative.

4.5.2.2 Proposed Action

As a result of the communication with the Kansas SHPO regarding ground disturbing activities at the proposed new site, and FEMA's identification efforts regarding indirect effects, no properties that are listed in or eligible for listing in the NRHP have been identified within the direct APE or within a quarter-mile of the APE.

4.5.2.3 Mitigation

After a review of consultation with the State Historic Preservation Officer and Tribal Historic Preservation Officers, no historic properties were identified at the project site. Therefore, no mitigation is required.

4.5.3 Native American Cultural/Religious Sites

Long before the first white settlers arrived in Geary County, the land near Junction City, the junction of the Smoky Hill and the Republican Rivers, was a choice location to the Native Americans. The Kansa (Kaw) tribe of Indians lived in a village here as noted by explorers with the Lewis and Clark Expedition. The Osage, Pawnee, and Wichita tribes also inhabited this part of the state, hunting buffalo and farming crops. The nomadic tribes (Cheyenne, Comanche, Kiowa, and Arapaho) roamed the plains to the west and were

occasionally found in Geary County. (Geary County Historical Society: Geary County History [gchsweb.org])

For this EA, FEMA considered the potential to encounter resources of significance to Native American tribes as a result of this undertaking (i.e., the Proposed Action). FEMA's Historic Preservation Specialists who meet the Secretary of the Interior's (SOI) Professional Qualifications Standards in Archaeology conducted a records search of the project area including historic maps, aerial photographs and topographic maps, to assess the potential for eligible pre-historic or historic resources within the project area. Based on review of the National Register of Historic Places, National Historic Landmarks, and the Kansas Historic Resources Inventory (KHRI) databases, it was determined that no previously identified archaeological sites have been identified within the Area of Potential Effect (APE) or within a one-quarter mile radius.

As stipulated in the National Historic Preservation Act and the revised regulations of the Advisory Council on Historic Preservation, federal agencies must afford the Native American community a reasonable opportunity to comment on and participate in federal undertakings in the context of the Section 106 process. Federally recognized Tribes are, by law, considered sovereign nations and as such FEMA is obligated to initiate government-to-government cultural resource consultations on projects when federal funding or a federal action is involved.

4.5.3.1 No Action Alternative

The No Action Alternative would not impact any potential cultural resources in the project area since no construction or ground disturbance activities would occur.

4.5.3.2 Proposed Action

FEMA is required to consult with Federally recognized Tribes in a manner appropriate to the nature and scale of the undertaking.

FEMA Region 7 routinely conducts the Native American consultation process for its projects and has done so for the proposed Flint Hills Rural Electric Cooperative Substation Installation project in Geary County, Kansas. The process involves transmitting a description of the proposed action to the Tribal Historic Preservation Officer (THPO) of federally recognized tribes that may have knowledge of cultural resources in the project area or who may have other concerns about the undertaking and requesting their input.

Due to the proposed ground disturbance associated with construction of the substation planned for this site, on April 11, 2024, FEMA provided notification of the project actions to five (5) federally-recognized tribes; the Cheyenne and Arapaho Tribes, Eastern Shawnee Tribe, Kaw Nation, Osage Nation, and the Wichita and Affiliated Tribes, as identified through a search of The Tribal Directory Assessment Tool (TDAT). One of these letters is provided, as an example, in Appendix E of this EA. FEMA did not receive a response to the notification from the Cheyenne and Arapaho Tribes, Eastern Shawnee Tribe, Kaw

Nation, or the Wichita and Affiliated Tribes. FEMA received a follow-up email from the Osage Nation, dated May 30, 2024, requesting additional information on the location of the proposed power lines. On May 2, 2024, FEMA responded to the Osage Nation by email providing more detailed information showing the proposed location of the project electrical transmission and distribution lines. To date, FEMA has not received any additional comments from any tribal nations (Appendix F).

4.5.3.3 Mitigation

Cultural resources or human remains are protected under the NHPA, NEPA, and the Native American Graves Protection and Repatriation Act. In the event of the discovery of archaeological deposits (e.g., pottery, stone tools, shell, old house foundations, old bottles) during construction activities, Flint Hills REC and its contractor shall immediately stop all work in the vicinity of the discovery and take reasonable measures to avoid, or minimize, harm to the finds. Flint Hills REC and its contractor shall secure all archaeological discoveries and restrict access to the discovered sites. Flint Hills REC shall immediately report the archaeological discovery to KDEM and FEMA Region 7 Regional Environmental Officer; FEMA will determine the next steps.

In the event of the discovery of human remains, Flint Hills REC and its contractor shall immediately stop all work in the vicinity of the discovery and take all reasonable measures to avoid, or minimize, harm to the finds. Flint Hills REC and its contractor shall secure all human remains discoveries and restrict access to the discovered sites. Flint Hills REC and its contractor shall follow the provisions of applicable State laws, or any amendments or supplanting laws and regulations. Violation of State law will jeopardize FEMA funding for this project. Flint Hills REC will inform the Geary County Sheriff Department, Kansas State Historical Society, and FEMA Region 7. FEMA will consult with the SHPO and, if remains are of tribal origin, with Tribes. Work in sensitive areas may not resume until consultation is completed and appropriate measures have been taken to ensure that the project is compliant with the NHPA.

4.6 Socioeconomic Resources

The socioeconomic resources (socioeconomics, hazardous materials, noise, traffic, and public services and utilities) are addressed below.

4.6.1 Socioeconomics

Geary County was reported to have 36,739 residents in 2020 according to the U.S. Census Bureau. The project location is within Geary County Census Tract 7. The population of the census tract is 2, 753 (USCB 2020). The census tract has a total land area of 251.2 square miles with a population density of 10.9 persons per square mile. The USCB reported approximately 80.9 percent of the population was over 18 years old, with 15.4 percent of the population being over 65 years old. Approximately 53 percent of the

population were men and 47 percent of the population were women.

In the larger Geary County area, the USCB (2020) reported that an estimated 93.4 percent of people over 25 years of age are high school graduates and approximately 24.4 percent were college graduates. The per capita income between 2019-2023 was $27,532 with the median household income being $57,344. This is lower than the state average of $39,638 and $72,639 respectively. The USCB reported the racial makeup of the community as: approximately 70 percent of the population White; 17.1 percent of the population Black or African American; 1.6 percent American Indian and Alaskan Native; 3.6 percent Asian; 1.2 percent Native Hawaiian and Other Pacific Islander; 6.6 precent two or more races. Approximately 17.1 percent of the population identified as being of Hispanic or Latino.

The closest city to the proposed project site is Grandview Plaza, Kansas, with a population of 1,697 and Junction City, Kansas, with a population of 22,932. The county comprises 384.66 square miles and thus has an average population density of 95.5 persons per square mile.

4.6.1.1 No Action Alternative

Under the No Action Alternative, the proposed K-57 Substation would not be constructed. The no build alternative would not have an impact on the community demographics.

4.6.1.2 Proposed Action

The location of the proposed K-57 Substation was most recently used as pastureland and not accessible to the public as it is private property. After construction the K-57 Substation will be enclosed by a fence and not accessible to the public. Flint Hills REC selected the project site due, among other economic reasons previously cited, in part to its remote location away from densely populated areas. The final project site selected and the primary alternative site that was reviewed have identical demographics, population density, and community profiles. The construction impacts will be temporary and are not expected to have any adverse impacts to the community.

4.6.1.3 Mitigation

The proposed project will not adversely affect the wellbeing of the population of Geary County at large. The project will not alter the demographic characteristics of the project area. No displacement or relocation will result from this project for individuals or families. The project will not increase or decrease employment or income patterns.

No mitigation efforts are proposed for this project to offset potential impacts to the community

4.6.2 Hazardous Materials

A substance is classified as hazardous if it has the potential to damage the environment

and/or be harmful to humans and other living organisms. The presence of a hazardous substance/waste within or in the vicinity of a project area is important in determining development constraints and the viability of an action.

Two of the main Federal laws that address hazardous and toxic materials issues are the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA).

One of the inherent, physical characteristics of electrical generation and current passing through wires, transformers, and other electrical equipment is the generation of Electro-Magnetic Fields (EMF). These magnetic fields are a property of the physical world that are utilized to create electricity. Studies have been conducted for many decades to determine if there are any potential risks of cancer or reproductive health issues caused by exposure to EMFs. There have not currently been any conclusive studies that have shown a direct link between EMF interactions and adverse cancerous or reproductive health effects. The American Society of Cancer Oncology (ASCOs) Cancer.net website states that "according to the World Health Organization website, most scientists and doctors agree that if there are any health effects from low-level electromagnetic fields, they are likely to be very small compared to other health risks that people face in daily life." See reference in section 8.0.

4.6.2.1 No Action Alternative

Disturbance of potentially contaminated subsurface media would not occur in the No Action Alternative as no construction activities would occur.

4.6.2.2 Proposed Action

There are no known Leaking Underground Storage Tank (LUST) or Above Ground Storage Tank (AST) sites directly on the proposed K-57 Substation site. Furthermore, past land use at the site does not show a history of any building with storage tanks or hazardous materials. The Kansas Identified Sites List (ISL) was used to determine potential hazards within the project location. The ISL map (See Section 8.0) in Figure 11 shows no contaminated sites within a one-mile radius of the proposed K-57 Substation.

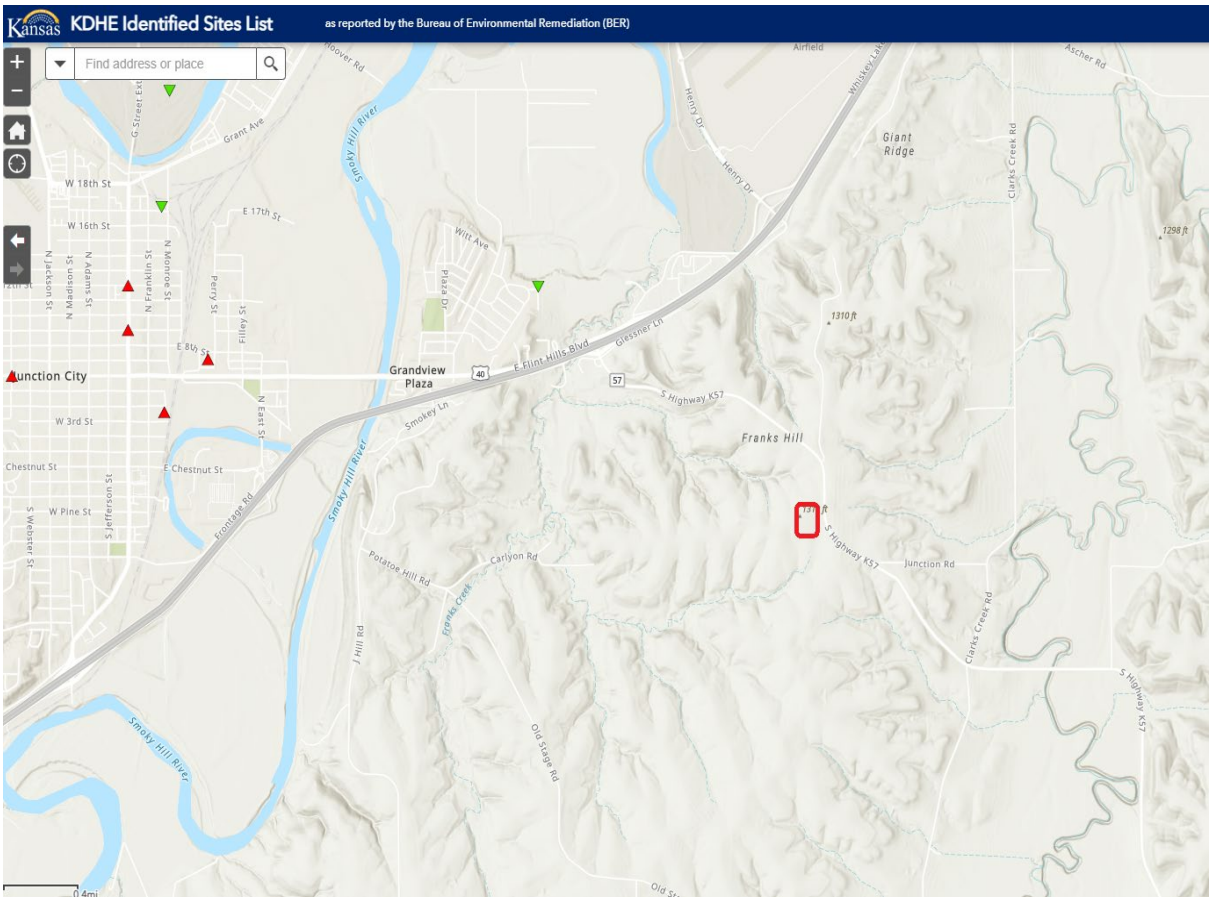


Figure 11: Location of known potential hazard sites (red/green triangles) and the proposed K-57 Substation on KDHE's Identified Sites List

Due to the filed status of AST, UST, LUST, and contaminated facility sites within a one-mile radius of the proposed location of the K-57 Substation, there is not expected to be any impact on the proposed project. In addition, the project and construction as proposed is not anticipated to generate any hazardous materials or wastes and Flint Hills REC has no intention of building or installing any above ground or underground storage tanks onsite as part of the proposed project. The transformers installed in the substation will not contain any PCBs.

4.6.2.3 Mitigation

The proposed project will not impact any AST, UST, LUST, or contaminated facility sites within a one-mile radius of the proposed location of the proposed K-57 Substation, therefore additional mitigation not already covered by the various permits will not be required.

4.6.3 Noise

Noise is Federally regulated by the Noise Control Act of 1972. Noise is generally defined as unwanted sound. Human response to noise can vary according to the type and

characteristics of the noise source, distance between the noise source and receptor, sensitivity of the receptor, and time of day. Flint Hills REC does not have any noise restrictions in place. The only restrictions in the planning and zoning permit are to construct facilities a minimum of 250 feet away from the existing neighbors.

Noise-sensitive receptors are defined as locations where people reside or where the presence of unwanted sound may adversely affect the use of the land. Noise-sensitive receptors include residences, schools, hospitals, lodging, libraries, churches, and some recreational uses.

No data exists for ambient noise in the area. The proposed site of the new K-57 Substation is located in a rural, agricultural area. The project site is located adjacent to State Highway 57 which carries a variety of traffic including passenger vehicles, semi-trucks, motorcycles, and other regular vehicles allowed on Kansas state highways.

4.6.3.1 No Action Alternative

The No Action Alternative will not result in any change to the existing noise at the project site, which is currently located adjacent to State of Kansas Highway 57. The No Action Alternative would not result in any change to the existing noise in the area.

4.6.3.2 Proposed Action

The proposed construction of the K-57 Substation will create temporary noise impacts with the general surrounding area, which is agricultural and rural residential in nature, due to the use of heavy construction equipment including scrapers, tractors, and dump trucks. The sound impacts from this equipment will be limited to the immediate area around the proposed site.

Once the project is completed, the substation will produce very little noise, only a quiet humming sound. Flint Hills REC spoke with the potential project site's neighbors to address their concerns regarding noise issues. The nearest home is over 250 feet away with a natural tree barrier. The location of the substation will eliminate any issues from this source of noise for the adjoining properties. Residents of the nearest house will not be able to hear noise from the transformer from their home.

4.6.3.3 Mitigation

The proposed project will create a low volume humming sound that would only be perceptible to someone standing close to or inside the fence. There are also no commercial, residential, or industrial facilities in close proximity where anyone could hear the humming sound, therefore mitigation is not required. Construction noise is expected to be negligible and will occur only during standard business hours.

4.6.4 Traffic

Traffic is moderate on State Highway K-57 per the most recent Kansas Department of

Transportation average annual daily volumes map (Appendix H).

4.6.4.1 No Action Alternative

The No Action Alternative would have no impact on traffic circulation or volume because no work is proposed and no changes to existing conditions would occur.

4.6.4.2 Proposed Action

The location for the proposed K-57 Substation would be along the east side of State Highway 57, approximately 2 miles south of Grandview Plaza, Kansas.

Neighboring land uses are primarily agricultural pasture and crop land with some rural residential nearby.

The K-57 Substation is an unmanned facility that will rarely be visited by Flint Hills REC staff and will not be visited by the general public. This project will have no impact on the amount of traffic on the adjacent K-57 highway or within the proposed area that would result in the need for additional street maintenance, reconstruction of roads, or enhanced traffic safety measures (signage, traffic lights, turning lanes, or other similar features).

4.6.4.3 Mitigation

The proposed project will not adversely affect the traffic patterns of the adjacent Highway or result in any significant increase or decrease in traffic to any neighboring uses. As such no mitigation efforts are proposed for the impact of traffic from the proposed project.

4.6.5 Public Services and Utilities

Public services and utilities include electrical, water and sewer services, police, fire, and other emergency services, general municipal services such as transportation infrastructure, public health services, road maintenance, energy and telecommunications supply, and many others.

4.6.5.1 No Action Alternative

The No Action Alternative would have no impact on public services and utilities because no work is proposed and no changes to existing conditions would occur.

4.6.5.2 Proposed Action

The proposed project would not create any new negative impacts for public utilities and services. This project would be considered part of the electric utility infrastructure. The local area's water utility is provided electrical service by the Flint Hills REC Grandview Plaza substation. If there is a power outage in the project area, the population loses water service as well. Completing the proposed K-57 Substation would provide an alternate feed that would result in the restoration of both power and water service sooner, which would benefit all who use the electrical system.

4.6.5.3 Mitigation

Kansas One Call Law requires that anyone who engages in any type of excavation must provide advanced notice to the underground utility owners to minimize the risk of damaging any type of underground utility. (811/Kansas One Call or 1-800-DIG-SAFE (344-7233))

With the use of utility location, the Proposed Action would not be expected to have any impact on public services and utilities in the project area during the construction phase.

5.0 CUMMULATIVE EFFECTS

The CEQ regulations for implementing NEPA define cumulative effect as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. The proposed activities associated with the proposed K-57 Substation construction were evaluated to determine the potential for cumulative environmental impacts as required by the FEMA Instruction 108-01-1.

5.1 No Action Alternative

The No Action Alternative would not result in any cumulative effects.

5.2 Proposed Action

The proposed construction will not result in cumulative effects to any environmental resources and will have positive effects on the area's electric service and reliability. The purchase of additional land surrounding the substation could result in potential future development; however, the project site is rural and agricultural in nature, and additional development resulting from this project is considered unlikely.

5.3 Mitigation

The proposed project will have significant positive benefits and will not result in significant negative cumulative effects. As such there is no need for mitigation activities.

6.0 SUMMARY OF IMPACTS AND MITIGATION

This chapter summarizes the existing environmental resources and the environmental impacts that may occur from the Proposed Action (FEMA's funding of the construction of the proposed K-57 Substation). Temporary and permanent impacts were analyzed for the no build alternative within the resource area. The potential environmental impacts were analyzed through comparison with potentially affected environmental components or conditions and mitigation measures that could offset any environmental impacts.

The existing conditions of the environmental resources within the work area of Proposed Action and at its alternatives, are presented in Section 4. Section 4 also presents an analysis of the alternative's potential effects on each environmental resource. Cumulative impacts are discussed in Section 5. The resource areas eliminated from further analysis in Section 4.1 are not discussed in this summary.

In accordance with CEQ regulations (40 CFR Part 1502.14 and 23 CFR 771), Table 6-1 presents "the environmental impacts of the proposed and the alternative in comparative form, thus sharply defining the issues and providing a clear basis for choice amount options by the decision maker and the public."

Table 6.1 - Summary of Environmental Consequences and Impacts

Environmental Resource	**No Build Alternative**	**K-57 Substation construction Alternative**
Farmland (FPPA)	No Impact	No Impact
Geology and Soils	No Impact	Temporary during construction
Water Quality	No Impact on water resources	No Impact
Sole Source Aquifers	No Impact	No Impact
Surface Waters	No Impact	No Impact
Wetlands	No Impact	No Impact
Floodplain	No Impact	No Impact
Threatened & Endangered Species	No Affect	No Effect for wildlife, aquatic species, and pollinators including the federal candidate Monarch butterfly.
Visual Resources	No Impact	Substation will be largely blocked from view from the highway by an existing row of trees. Substation security lighting will be added which will be largely directional facing downward.
Historic Resources	No Impact	No Impact
Archeological Resources	No Impact	No Impact unless resources are discovered
Tribal Resources	No Impact	No Impact unless resources are discovered
Air Quality	No Impact	Temporary during construction
Noise	No Impact	Temporary during construction
Hazardous Materials	No Impact	No Impact
Socioeconomic	No Impact	No Impact
Traffic	No Impact	No Impact
Public Services and Utilities	No Impact	No Impact
Cumulative Impact	No Impact	No Impact

6.1 Mitigation

The following measures will be included where appropriate to limit the impacts to the minimum necessary to accomplish the work:

- Erosion and sediment controls will be installed as needed during construction activities at the project site, including the use of silt fencing or geogrid slope stabilization techniques;
- If artifacts or human remains are found on site during construction or within borrow areas FEMA will be contacted immediately, Flint Hills REC will take all reasonable measures to protect the finds, work will cease in the area of discovery, and will not resume until FEMA consults with the SHPO and interested parties including tribes;
- The proposed substation construction site does not have tree habitat suitable for roosting or hibernacula for the Northern long-eared bat and tree removal will not occur as part of the project activities. If the removal of trees is required to complete the project, Flint Hills REC must notify FEMA and coordinate with the USFWS before work begins.

No long-term adverse impacts are expected from this project. The only potential adverse environmental impacts identified for this project would be related to noise and air quality standards, but these impacts would be minimal and temporary, occurring only in the construction phase of development. Temporarily increased truck traffic resulting from construction activities may also result. These impacts are minimal and temporary and should not result in any long-term impact that would significantly affect the quality of the environment. With the implementation of the mitigation measures and all appropriate permits obtained, the Proposed Action, construction of the proposed K-57 Substation would have no significant impact on the environment.

7.0 AGENCY COORDINATION, PUBLIC INVOLVEMENT, AND PERMITS

7.1 Agency Coordination

The following agencies and individuals were consulted in the preparation of this Environmental Assessment:

- FEMA – Angela Peterson, Supervisory Emergency Management Specialist
- U.S. Fish and Wildlife Service Information for Planning and Consultation (IPaC)
- Kansas State Historic Preservation Officer

• Tribal Historic Preservation Officers

7.2 Public Involvement

Flint Hills REC went before the Geary County Commissioners on May 23rd, 2022, and requested that the proposed substation land be rezoned from pastureland to permit the construction of a new substation and potential solar array. There was a period for public comments which were received from some residents in the area. Most of the comments were not directed at the potential substation, but toward the potential solar array. These comments ranged from questions about appearance of the solar array to comments stating that solar power is a hoax.

There were a few questions concerning the substation. Questions were asked about the visual appearance of the substation, security lighting in the substation, and if the equipment in the substation made noise that could be heard outside of the substation. Flint Hills REC addressed the following concerns:

- **Appearance and sound** -- The substation will be located no closer than 250 ft. away from the nearest home. This will allow the natural terrain and existing trees (See Figure 12) to block the view of the substation from the South/Southeast and the current water tower to block the view from the North/Northeast (See Figure 13).
- **Security** -- Flint Hills REC will use a chain link fence to secure the su bstation and minimize danger to neighbor's properties. It is imperative that any fencing not restrict the air flow or conflict with height restrictions around the substation.

The Board of County Commissioners granted a Conditional Use Permit on June 13th, 2022, for the construction of a substation and solar array. A copy of the permit is in Appendix A.

Figure 12: View from the substation location looking South/Southeast towards the K-57 Highway and nearby houses

Figure 13: View from the substation location looking North/Northeast toward the K-57 Highway

The Draft EA was made available for public review and comment August 21, 2024. A Public Notice of Availability was issued requesting comments from the public on the Proposed Action for a 30-day public comment period. The EA was publicized in the Junction City Union newspaper, as well as on the websites of FEMA and KDEM. A copy of the EA, prepared for the action, was available for public review at the Flint Hills Rural Electric Cooperative office: 1564 S 1000 Rd. Council Grove, KS 66846. FEMA received two comments during the 30-day public comment period regarding noise and visual impacts. Those considerations were incorporated into the final EA. FEMA issued a Finding of No Significant Impact (FONSI) for the project in February 2025.

8.0 REFERENCES

The following references were used in the preparation of this Environmental Assessment:

• Geary County Historical Society: Geary County History (gchsweb.org)

• Kansas Identified Sites - Contaminated Sites – https://hub.kansasgis.org/datasets/4daa998f994c4cfeb6488fe249dec700_0/about

• USFWS IPaC – https://ecos.fws.gov/ipac

• USEPA Nonattainment Areas for Critical Pollutants (Green Book) – https://www.epa.gov/green-book

• USDA NRCS Soil Map - https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

• FEMA Flood Map Service Center – https://msc.fema.gov/portal/home

• Kansas Floodplain Viewer – Kansas Floodplain Viewer (ks.gov)

• USFWS National Wetlands Inventory – https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/

• USEPA Website -Air Quality – https://www3.epa.gov/airquality/greenbook/mapnpoll.html

• USDA National Resources Conservation Service – Farmland Protection Policy Act | Natural Resources Conservation Service (usda.gov)

• Determination of Prime Farmland – eCFR :: 7 CFR Part 657 -- Prime and Unique Farmlands

• Kansas Biological Survey & Center for Ecological Research– https://www.inaturalist.org/observations?place_id=any&subview=map&taxon_id=47906

• KDHE Bureau of Environmental Remediation Identified Sites List– KDHE BER ISL Search Page (ks.gov)

• Kansas Department of Transportation District Traffic Count Map District2CountMap.pdf (ksdot.gov)

• American Society of Clinical Oncology (ASCO)-- Cancer.net: Electro-Magnetic Field review Does Living Near Power Lines Increase My Risk of Cancer? | Cancer.Net

9.0 LIST OF PREPARERS

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10.0 LIST OF APPENDICES

A. Geary County Conditional Use Permit

B. USFWS IPaC Official Species List

C. FEMA's Section 106 NHPA Consultation with Kansas SHPO

D. SHPO Concurrence Documentation

E. Example of FEMA's Section 106 NHPA Tribal Notification

F. Tribal Consultation Response

G. KDOT District 2 Traffic Count Map